

## CHAPTER-II

### Performance Reviews relating to Government companies

#### 2.1 Liquidation of Non-performing Assets in The Pradeshiya Industrial and Investment Corporation of Uttar Pradesh Limited and Uttar Pradesh Financial Corporation

##### Highlights

In UPFC, NPAs ranged from Rs 462.52 crore to Rs 637.50 crore (67.03 per cent to 90.24 per cent of the total loans and advances) and in PICUP, NPAs ranged from Rs 304.88 crore to Rs 375.71 crore (72.67 per cent to 93.71 per cent of the total loans and advances) during 2002-07. The high level of NPAs had adverse impact on the financial position of UPFC and PICUP.

*(Paragraph 2.1.8 and 2.1.10)*

Lack of pursuance coupled with delay in taking over possession and issuance of RCs, adversely affected recovery of outstanding dues of Rs 60.60 crore in the UPFC and Rs 112.02 crore in the PICUP.

*(Paragraph 2.1.12)*

The UPFC suffered loss of Rs 14.15 crore due to approval of one time settlement below the value of mortgaged assets.

*(Paragraph 2.1.14)*

Incorrect valuation of mortgaged security and networth of the borrowers/guarantors resulted in loss of Rs 3.54 crore and Rs 27.16 crore to the UPFC and PICUP respectively.

*(Paragraph 2.1.15)*

There was a loss of Rs 4.50 crore to the PICUP in four cases due to lapses in accounting, wrong determination of amount of one time settlement, unjustified compromise with other lenders etc.

*(Paragraph 2.1.16)*

The UPFC and PICUP extended waiver of outstanding amount of Rs 7.46 crore and Rs 14.23 crore respectively in one time settlement with ineligible borrowers.

*(Paragraph 2.1.19)*

##### Introduction

**2.1.1** The Pradeshiya Industrial and Investment Corporation of Uttar Pradesh Limited (PICUP) was incorporated on 29 March 1972 as a State Government Company under the Companies Act, 1956 for providing loans and advances to medium and large scale industrial enterprises in the State of Uttar Pradesh.

The Uttar Pradesh Financial Corporation (UPFC) was set up on 1 November 1954 under Section 3(1) of the State Financial Corporations (SFCs) Act, 1951, as amended from time to time, for providing loan assistance to small and medium scale industrial units in the State of Uttar Pradesh. The UPFC undertakes sanction and disbursement of loans under various schemes such as, Equipment Refinance Scheme, Nursing Homes/Electro Medical Equipment Scheme, Single Window Scheme, Working Capital Term Loan for establishment and/or operation of industrial units.

To provide loans to the industrial units, the UPFC and PICUP raised funds by way of issue of bonds/debentures to banks/institutions, borrowings from Industrial Development Bank of India (IDBI), Small Industries Development Bank of India (SIDBI), Banks, Housing & Urban Development Corporation Limited (HUDCO), the State Government and from public under fixed deposits scheme besides utilising their own capital.

The PICUP is managed by a Board of Directors consisting of six directors as on 31 March 2008. The Managing Director is the Chief Executive of the Company who looks after day-to-day administration with the assistance of Joint Managing Director, General Manager and Dy. General Manager at headquarters of the Company and a Regional Manager at Regional Office, Noida.

The UPFC is managed by a Board of Directors consisting of seven directors as on 31 March 2008. The Managing Director is the Chief Executive of the Corporation who looks after day-to-day administration with the assistance of General Manager, Dy. General Manager, Assistant General Managers and Chief Managers at headquarters of the Corporation. The Corporation has 19 regional offices each headed by Regional Manager in different cities of the State for facilitating appraisal of applications, sanction, disbursement and recovery of loans under various schemes.

The overall performance of the UPFC and PICUP was last reviewed and reported in the reports of the Comptroller and Auditor General of India (Commercial), Uttar Pradesh for the year 1997-98 and 1999-2000 respectively. These reviews generally covered appraisal for sanction of loan, disbursement of sanctioned loan, legal documentation etc. and highlighted lapses in these areas leading to accumulation of Non-performing Assets (NPAs). The reviews of the UPFC (1997-98) and PICUP (1999-2000) have not been discussed by COPU so far (October 2008).

### **Scope of Audit**

**2.1.2** The present performance review conducted during September 2007 to March 2008 covers the performance of the UPFC and PICUP in liquidation of NPAs during the last five years up to 2006-07.

The average amount of NPAs during the last five years up to 2006-07 was Rs 574.76 crore in the UPFC and Rs 343.54 crore in PICUP. The performance review was based on random sampling of five Regional Offices\* out of 19 Regional Offices of the UPFC according to volume of outstanding loan. In respect of the PICUP, the performance review covered its headquarters at Lucknow and the only Regional Office at Noida. Cases of NPAs amounting

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\* Kanpur, Ghaziabad, Noida, Agra and Varanasi.

to Rs 232.19 crore (UPFC: Rs 126.99 crore in respect of 121 loan accounts, PICUP: Rs 105.20 crore in respect of 70 loan accounts) were selected randomly on the basis of outstanding principal amount exceeding Rs 40 lakh.

### **Audit Objectives**

**2.1.3** The objectives of performance audit were to assess:

- The factors leading to NPAs and its impact on financial position and working results of the Corporation/Company; and
- Whether liquidation of NPAs was done effectively and correctly as per the policy/procedures of the Corporation/Company with respect to:
  - pursuance with the borrowers,
  - one time settlement with borrowers,
  - sale of mortgaged assets, and
  - issuance of Recovery Certificates.

### **Audit Criteria**

**2.1.4** The audit criteria considered for assessing the achievement of audit objectives was to check the extent of adherence to:

- Guidelines and procedures for appraisal of loan applications, disbursement of loan, legal documentation and recovery of loan;
- Terms and conditions of loan agreements regarding repayment of interest/principal amount and rights of the Corporation/Company in case of default in repayment of loan;
- Provisions of SFCs Act, 1951 regarding issuance of notice to the defaulting borrowers, acquisition and sale of assets of assisted units and recovery of dues through revenue authorities; and
- Guidelines and procedures for one time settlement with borrowers and also relating to sale of assets of assisted units.

### **Audit Methodology**

**2.1.5** The following audit methodologies were adopted for achieving the audit objectives with reference to audit criteria:

- Scrutiny of agenda and minutes of meetings of Board of Directors, Regional and Headquarters Committees, Core Committee and Settlement Committee.
- Guidelines issued by the Reserve Bank of India (RBI) and SIDBI regarding classification of assets, provisioning for NPAs and State Industrial Policy.
- Disbursement Manual, circulars and office orders regarding appraisal for sanction of loan, disbursement, legal documentation and recovery of loan.
- Examination of progress reports in respect of recovery and other reports of Management Information System (MIS).

### **Audit findings**

**2.1.6** Audit findings arising from the Performance review were issued (May 2008) to the Management/Government and discussed in the meeting of Audit Review Committee for State Public Sector Enterprises (ARCPSE) held on 28 August 2008 which was attended by the Managing Director of the PICUP and General Manager of UPFC. The Principal Secretary, Industrial Development Department was requested to attend the meeting of ARCPSE but no representative from the Government attended the meeting. The views expressed by the Management have been taken into consideration while finalising the review.

Audit findings are discussed in the succeeding paragraphs:

### **Non Performing Assets - Status and Causes**

**2.1.7** The Non-Performing Assets (NPAs) are loans and advances in respect of which interest and/or installment of principal is overdue for a period of 90 days (180 days prior to 31 March 2004) or more. As per the guidelines of IDBI/SIDBI, the NPAs are to be further categorised as Substandard (defaults in payment of interest and/or installment continue up to 15 months), Doubtful-I (defaults ranges from 15 months to 51 months), Doubtful-II (defaults continue for more than 51 months) and Loss Assets where mortgaged security does not exist in respect of loans and advances. From 31 March 2007, Doubtful loans and advances are to be classified into three categories i.e. Doubtful-1 (default ranges from 15 months to 27 months), Doubtful-2 (default ranges from 27 months to 51 months) and Doubtful-3 (default continues for more than 51 months).

The status and causes of NPAs and their impact on the financial position and working results of the Corporation/Company are discussed below:

#### ***Status of Non Performing Assets***

**2.1.8** The status of different categories of NPAs (loans and advances) during last five years up to 31 March 2007 in the UPFC and PICUP is given in **Annexure-10**. The audit analysis of the details in Annexure revealed the following:

- Of the total loans and advances, non-performing loans and advances (NPAs) ranged from Rs 462.52 crore to Rs 637.50 crore (67.03 *per cent* to 90.24 *per cent* of the total loans and advances) in the UPFC and from Rs 304.88 crore to Rs 375.71 crore (72.67 *per cent* to 93.71 *per cent* of the total loans and advances) in the PICUP during 2002-07.
- The NPAs of loss category (mortgaged securities in respect of loans and advances do not exist) ranged from Rs 137.25 crore to Rs 151.09 crore (14.88 *per cent* to 20.71 *per cent* of the total loan and advances) in the UPFC and from Rs 1.08 crore to Rs 128.31 crore (0.22 *per cent* to 38.56 *per cent*) in the PICUP during 2002-07. As no mortgaged security existed in respect of NPAs of this category, chances of their recovery were very remote.

#### ***Causes of non performing assets***

**2.1.9** The primary causes of NPAs as observed by audit were as follows:

- sanction of loans to non-feasible projects,

- lapses in verification of securities or obtaining inadequate security,
- non-confirmation of credentials of borrowers,
- sanction of loans without ensuring tie-up for working capital requirement of borrowers,
- poor pursuance for recovery of loans,
- failure to take coercive action under the provisions of SFCs Act, i.e. delay in taking physical possession, sale of prime assets of assisted units and non-issuance of recovery certificates etc.

Besides above, poor management, working capital problem, lack of infrastructure facilities, problems associated with marketing, Government policies etc. also caused failure of assisted units resulting in NPAs, as revealed in a study conducted (July 2005) by the UPFC.

For ensuring that loans should not become non-performing or bad, appraisal of loan applications is required to be done carefully keeping in view all the factors which may affect viability of projects to be financed. Further, to safeguard loans it is required that depending upon the perception of risk, adequate security is obtained from borrowers. The present performance review revealed lapses in appraisal of loans and obtaining security which resulted in poor recovery of loans causing increase in NPAs.

#### **Impact of NPAs on financial position and working results**

**2.1.10** The UPFC and PICUP made provisions for NPAs since 1993-94 in their profit and loss accounts as per the guidelines issued by IDBI/SIDBI for provisioning of NPAs, as amended from time to time. The provisions against NPAs aggregated to Rs 302 crore (UPFC) and Rs 283.34 crore (PICUP) as of 31 March 2007. Further, poor recovery of loans (principal and interest thereon) resulted in net loss of Rs 199.08 crore and Rs 92.87 crore to the UPFC and PICUP respectively during the last five years up to 2006-07. Provisioning for NPAs, write-off of bad debts and poor recovery of loans resulted in accumulated loss of Rs 827.94 crore (UPFC) and Rs 407.84 crore (PICUP) as on 31 March 2007. Consequently, the paid-up capital of the UPFC and PICUP was eroded completely indicating their poor financial position.

Audit further observed as follows:

- As a result of poor recovery of loans and interest thereon, the UPFC and PICUP could not generate funds to further finance industrial units and defaulted in payment of interest dues of Rs 35.56 crore (UPFC: Rs 7.92 crore and PICUP: Rs 27.64 crore) on borrowings from SIDBI and IDBI.
- Due to recession in industry, competition from banking sector in providing loan to industrial units at lower rate of interest, not getting refinance from financial institutions, reduction in quota of Statutory Liquidity Reserve (SLR) bonds and poor recovery of past loans, fresh sanctions and disbursements of loan to industrial units declined sharply. During the last five years up to 2006-07, the UPFC disbursed loans of Rs 292.01 crore under various schemes against Rs 625.84 crore disbursed during last five years up to 2001-02. The PICUP could disburse loans of only Rs 7.56 crore during 2002-07 against Rs 418.93 crore disbursed during previous five years up to 2001-02.

### Liquidation of Non Performing Assets

**2.1.11** For liquidation of NPAs, the UPFC/PICUP adopted methods of pursuance, one time settlements with the borrowers, sale of mortgaged assets under Section 29 of SFCs Act, 1951 and issuance of recovery certificates under Section 3 of the Public Debt Recovery Act, 1972 which are discussed below:

### Pursuance with the borrowers

**2.1.12** The terms and conditions of loan agreements with borrowers provide for repayment of loan together with interest by the borrowers as per repayment schedule. In case of default in repayment of loan, the UPFC/PICUP issue demand show cause notice to borrowers/guarantors and persuade them to repay the dues. In case of non-payment, the UPFC and PICUP issue notice under Section 29 of the SFCs Act, 1951 to take possession of the unit, thereby providing them with the option of recovery of dues from sale of assets so acquired. The details of recovery of principal and interest amount against the demand for payment is given in **Annexure-11**. It would be seen from the Annexure that the performance of recovery in respect of the UPFC/PICUP was far from satisfactory as summarised below:

- In respect of the UPFC, against the demand for repayment of principal ranging from Rs 291.09 crore to Rs 429.07 crore during the last five years up to 2006-07, recovery ranged from Rs 105.39 crore to Rs 179.53 crore (33.75 per cent to 42.30 per cent) and against the demand of interest ranging from Rs 1,049.63 crore to Rs 2,687.52 crore, recovery ranged from Rs 30.60 crore to Rs 78.18 crore (1.14 per cent to 7.45 per cent).
- In respect of the PICUP, against the demand for repayment of principal ranging from Rs 310.75 crore to Rs 347.83 crore during the last five years up to 2006-07, recovery ranged from Rs 36.79 crore to Rs 61.16 crore (11.23 per cent to 18.39 per cent) and against the demand of interest ranging from Rs 1,339.73 crore to Rs 2,664.96 crore, recovery ranged from Rs 8.44 crore to Rs 32.02 crore (0.32 per cent to 2.39 per cent).

Lapses in pursuance adversely affected recovery of dues of Rs 60.60 crore of UPFC and Rs 112.02 crore of PICUP.

Audit noticed serious lapses in pursuance of recovery, such as, delay in issuance of demand show cause notices, not taking possession of units in many cases after issuance of notice under Section 29 of the SFCs Act facilitating removal of plant and machinery, delay in issue or non-issuance of Recovery Certificates (RCs) to revenue authorities, non-pursuance of RCs for its execution etc. in respect of 11 units as detailed in **Annexure-12**. As a result, recovery of outstanding amount of Rs 172.62 crore (UPFC: Rs 60.60 crore in six units, PICUP: Rs 112.02 crore in five units) was adversely affected which resulted in heavy accumulation of NPAs.

### One time settlement with borrowers

**2.1.13** In order to liquidate NPAs, the UPFC and the PICUP evolved policy for one time settlement (OTS) with borrowers. The UPFC and PICUP issued comprehensive guidelines (March 1999) and procedures (September 1999) for OTS, as amended from time to time. As per the laid down OTS guidelines,

amount payable by borrowers is determined according to the defined matrix or Realistic Realisable Value (RRV) of the mortgaged security in the market *plus* net worth of borrowers/guarantors, whichever is higher. The OTS amount as per the matrix given in OTS guidelines generally covers principal, expenses and a part of interest or no interest according to category of loans and advances. For determination of RRV of mortgaged security, valuation is done by the officers of the UPFC/PICUP and by external valuer to assess value which the assets would fetch if they were disposed of in the open market. OTS proposals, where amount of OTS is not covered by matrix, are considered by a Committee in both the UPFC and PICUP.

The status of liquidation of NPAs through OTS during the last five years up to 2006-07 in the UPFC and PICUP is given in **Annexure-13**. It would be observed from the Annexure that:

- Through OTS, the UPFC could realise Rs 295.35 crore during 2002-07 out of the outstanding amount of Rs 1569.58 crore and the PICUP could realise Rs 139.33 crore out of the outstanding amount of Rs 593.20 crore during 2002-07.
- The OTS cases were settled for lesser amount than outstanding principal amount in contravention of OTS policy and an amount of Rs 6.78 crore in respect of the UPFC and Rs 34.21 lakh in respect of the PICUP were written off during 2002-07.

Audit scrutiny of OTS cases finalised during 2002-07 revealed that cases were not finalised strictly as per the OTS guidelines, as discussed in succeeding paragraphs:

#### ***One Time Settlement below the value of mortgaged assets***

**UPFC suffered loss of Rs 14.15 crore due to approval of OTS below the value of mortgaged assets.**

**2.1.14** An analysis of cases of OTS in the five Regions\* of the UPFC revealed that the management settled dues in respect of 386 cases during 2002-07 for Rs 109.01 crore against the total outstanding dues of Rs 607.74 crore. Out of this, against the total outstanding amount of Rs 90.48 crore in respect of 72 cases (other than joint financing cases and units under liquidation), the total amount of OTS (Rs 32.52 crore) was approved below the value of the mortgaged security (Rs 60.11 crore) and an amount of Rs 57.96 crore was waived off relaxing the provisions of the OTS guidelines. Thus, due to approval of OTS below the value of the mortgaged security, the UPFC suffered loss of Rs 14.15 crore\*\*.

The Management stated (September 2008) that wherever the valuation was high it tried to take 100 *per cent* simple interest and major portion of the waiver amount included penal and compound interest.

Audit, however, noticed that as against 386 cases of OTS finalised during 2002-07, in as many as 72 cases the OTS policy was not followed, value of networth of borrowers/guarantors was not taken into account while considering OTS in respect of these cases and in respect of 15 cases OTS was done below matrix and valuation of mortgaged assets both.

\* Agra, Ghaziabad, Kanpur, Noida and Varanasi

\*\* This represents total of (i) amount written off in 34 cases where approved OTS amount plus amount waived off was less than the value of mortgaged security and (ii) difference in amount of OTS and valuation of mortgaged security in 38 cases where approved OTS amount plus amount waived off was more than the value of mortgaged security.

***Incorrect valuation of mortgaged security and networth***

**UPFC and PICUP suffered loss of Rs 30.70 crore due to incorrect valuation of mortgaged security and net worth.**

**2.1.15** OTS amount is calculated with reference to the value of mortgaged security *plus* networth of borrowers/guarantors. Its correct valuation is, therefore, necessary to arrive at correct amount of OTS. Audit noticed that in respect of 13 units as detailed in **Annexure-14**, OTS with borrowers were finalised either ignoring the value of mortgaged security or the mortgaged assets/networth of the borrowers/guarantors were not correctly valued. As a result, OTS was done for lower amount and consequently the UPFC and PICUP suffered loss of Rs 30.70 crore (UPFC: Rs 3.54 crore, PICUP: Rs 27.16 crore).

***Other lapses***

**2.1.16** Audit further noticed lapses in accounting, wrong determination of amount of OTS, incorrect valuation of security obtained at the time of appraisal of loan, not obtaining documents/details of networth, ignorance of OTS proposals, failure in taking actions for recovery of loans, etc. in respect of six units (four units vide **Annexure-15** and two units as discussed vide paragraphs 2.1.17 and 2.1.18) which affected the amount of OTS with the borrowers. This resulted in loss of Rs 4.50 crore to the PICUP in four cases\* (amount of loss in respect of two units\*\* of the UPFC was not determinable).

**2.1.17** The UPFC sanctioned (March 1996 and October 1997) and disbursed fixed assets term loan of Rs 58.57 lakh and working capital term loan (WCTL) of Rs 20 lakh to ARS Plastics (Pvt.) Ltd (ARSL) for setting up a unit at Noida for manufacturing of plastic water storage tank.

The ARSL defaulted in repayment of loan since beginning. The UPFC issued (November 1998) notice under Section 29 of the SFCs Act. The UPFC belatedly took over (February 2003) physical possession of the unit and found that plant & machinery (valuing Rs 59.41 lakh) and goods/stock (valuing Rs 20 lakh) were missing. The UPFC sold (March 2003) the land and building of ARSL for Rs 41.50 lakh. For recovery of balance outstanding amount of Rs 416.22 lakh as on 15 July 2006, the UPFC approved (September 2006) OTS with the promoters for Rs 41.52 lakh (Principal: Rs 38.49 lakh, Interest: Rs 0.44 lakh and Expenses: Rs 2.59 lakh). The borrowers paid partially (Rs 10 lakh) against the OTS (as of September 2008).

Audit noticed following deficiencies in valuation of security and networth of ARSL and promoters which adversely affected the amount of OTS:

- The collateral security was over-valued at the time of appraisal.
- The affidavit given by promoters at the time of OTS was not verified to establish erosion of networth of promoters.
- The UPFC took over (February 2003) possession of the unit after a lapse of more than four years from issue of notice. The delay facilitated the promoter in removing plant and machinery and goods/stock from the unit.
- The value of missing plant and machinery was taken as depreciated upto the time of OTS (September 2006) whereas it should have been taken as on the date of removal (February 2003) as benefit was derived by borrowers from that date.

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\* Three cases mentioned at Sl. No. 2,3 and 4 of Annexure-15 and one case in paragraph 2.1.18.

\*\* One case at Sl. No. 1 of Annexure-15 and one case in paragraph 2.1.17.



- For the purpose of OTS, the value of missing goods and stock was not considered.

The Management, while admitting (September 2008) the fact of valuation not done during 1997 as per the then prevailing norms, stated that at the time of OTS as per practice affidavit was being taken from promoters with respect to particular of immovable properties held by them. The director (of the unit) declared to have transferred the property at Madangir, New Delhi, and the agricultural land had been auctioned by Revenue Authorities. The Corporation was pursuing for release of auctioned amount. It further stated that as per guidelines for sale of units, possession of the unit was to be taken once a reasonable offer was received and there was no point in assessing the value of machines at some previous date.

The fact, however, remains that the deficiencies existed in the valuation process affecting the OTS as mentioned in the audit findings.

**2.1.18** The PICUP sanctioned (May 1981 to May 1987) three term loans aggregating Rs 94.25 lakh to Gupta Paper Mills Pvt. Limited (GPML) for setting up/rehabilitation of craft paper manufacturing unit at Ghaziabad. The borrowers also raised loans from UPFC (Rs 28.09 lakh) and working capital assistance from Corporation Bank (Rs 48 lakh).

The unit was referred (1989) to BIFR which ordered (May 1994) its winding up. In compliance of the order of the High Court, Delhi, the entire fixed assets of GPML were sold (January 2001) by PICUP for Rs 391 lakh. The sale proceeds were deposited with State Bank of Patiala, Lucknow as FDR kept with Debt Recovery Tribunal (DRT) as no lien account. In the joint meeting (25 October 2005) with the UPFC and the Corporation Bank, it was agreed to settle the dues at the outstanding amount of Rs 325 lakh in the proportion of their respective outstanding principal amount (PICUP's share: Rs 169.29 lakh). The value of FDR was Rs 510.44 lakh (as of March 2006). As per the agreement of October 2005, Rs 325 lakh was distributed among the PICUP, UPFC and the Bank and balance amount of Rs 185.44 lakh (Rs 510.44 lakh *minus* 325 lakh) of the FDR was paid to the GPML.

**PICUP suffered loss of Rs 2.12 crore due to unjustified compromise with other lenders.**

It was noticed in audit that the agreement of October 2005 for sharing of only Rs 325 lakh was not justified as the UPFC and PICUP had first charge and the Bank had second charge over the assets of GPML. Therefore, the entire amount of Rs 510.44 lakh should have been distributed between the PICUP and UPFC in proportion of their outstanding principal. Accordingly, the PICUP's share should have been Rs 381.10 lakh. Thus, as a result of ignoring the amount of sale of assets and preference of charge over the assets of GPML, the PICUP suffered loss of Rs 211.81 lakh.

The Management *inter alia* stated (July 2008) that since all efforts to enforce legal rights by FIs/bank against borrowers were not reaching the final stage of determination of liabilities, it was felt by FIs/ bank to reach a compromise for early and best receipt of share. It further stated that the bank and DRT had been contesting that they had *pari passu* charge over the assets of the company and said contention was *subjudice* for long time.

There was, however, no justification for compromise for distribution of only Rs 325 lakh when the total dues of the PICUP alone was Rs 19.59 crore (as of

January 2005) and the PICUP had also documents for first charge over the assets of GPML.

***OTS with ineligible borrowers***

**2.1.19** The OTS policy of the UPFC provided that only *bona fide* cases shall be considered and units involving in cases of fraud, criminal proceedings, theft and malfeasance should normally not be considered for OTS. The OTS policy of the PICUP also provided that other than *bona fide* cases, even if they fall in the purview of OTS policy, should not be considered for OTS. In the following cases, the OTS was sanctioned even though the same were not eligible:

- The UPFC sanctioned (December 2006) OTS in respect of Asiatic Petroleum Company (Pvt.) Limited and waived off interest of Rs 7.46 crore although a case of unauthorised removal of financed equipment was pending against the borrowers.

The Management stated (September 2008) that OTS guidelines provided that normally such borrowers should not be covered under OTS but the Corporation had to recover the public money from all the borrowing units and if the recovery action against the unit was not yielding results then settlement by way of OTS was tried.

- The PICUP sanctioned (June 2007) OTS in respect of Lunar Diamonds Limited and waived off interest of Rs 14.23 crore whereas a petition (filed in September 2002 against the final report (F.R.) of the Police Authorities) before the High Court was pending for disposal.

The Management *inter alia* stated (August 2008) that against the First Information Report (FIR) lodged in November 1998, Police Authorities, after investigation, filed their F.R. before Chief Judicial Magistrate (CJM), Gautam Budh Nagar which was accepted by the Court. It was further stated that the PICUP filed a petition before High court against the F.R. which was pending, as such no criminal proceeding was pending.

One time settlements with parties other than *bona fide* borrowers were in contravention of the principle laid down in the OTS policy.

***Inaction in respect of erosion of net worth of borrowers/guarantors***

**2.1.20** As per the terms of sanction of loan, an affidavit from borrowers/guarantors is obtained before disbursement of loan regarding their personal properties and also the fact that the declared properties belong to them and they shall not sell, mortgage, dispose of or create any charge over the declared properties without prior written permission of the UPFC/PICUP. Further, the OTS policies of the UPFC/PICUP provide that amount of OTS with borrowers will be the amount as per matrix given in OTS policy or value of mortgaged assets of the assisted unit *plus* networth of borrowers/guarantors, whichever is higher.

It was noticed in Audit that in respect of 22 cases (UPFC: 9 units, PICUP: 13 units) no clause of creation of charge over the declared properties was included in affidavit. The absence of such clause enabled borrowers/guarantors to sell, dispose of or create charge over the properties declared in affidavit without written permission from the UPFC/PICUP. No action was,

**Inaction in respect of erosion of net worth of borrowers/ guarantors adversely affected amount of OTS against the total dues of Rs 196.62 crore of the UPFC and PICUP.**

however, taken either for restricting the borrowers/guarantors from doing so or for breach of undertakings given in affidavits. As a result, it was generally found at the time of OTS that there were either very meagre or no property left. In respect of the 22 units, OTS was done at an aggregate amount of Rs 31.69 crore (UPFC: Rs 5.53 crore, PICUP: Rs 26.16 crore) against the total outstanding amount (excluding expenses) of Rs 196.62 crore (UPFC: Rs 33.24 crore, PICUP: Rs 163.38 crore).

The Management of the PICUP *inter alia* stated (July 2008) that the affidavits were taken from guarantors/promoters to enable it to invoke personal guarantees for recovery of its dues if required and the properties declared in the affidavits were not lien, marked or mortgaged to the PICUP.

The Management of the UPFC *inter alia* stated (September 2008) that the Corporation played its role as development bank and provided loan to tiny, small and medium industries, personal properties disclosed by them were not mortgaged unless they were provided as collateral security, personal immovable properties disclosed at the time of appraisal were mostly ancestral joint properties which were difficult to sell and since personal properties were not mortgaged it was not possible to restrain borrowers alienating them.

Since the condition in the loan agreement is meant to protect the financial interest of the lender, the purpose of obtaining affidavit is defeated if affidavits as regard restriction on transfer, sale or creation of charge on declared properties are not enforceable.

#### **Sale of mortgaged assets**

**2.1.21** Section 29 of the SFCs Act, 1951 empowers the UPFC and PICUP to sell mortgaged assets where borrowers fail to repay the dues. Audit scrutiny of cases of sales of mortgaged assets of defaulting units revealed as under:

- The UPFC could realise Rs 139.11 crore (66.89 *per cent*) through sale of units during 2002-07 against the outstanding principal amount of Rs 207.96 crore (877 units),
- Against the outstanding principal amount of Rs 70.94 crore (69 units), the PICUP could realise Rs 27.10 crore (38.20 *per cent*) through sale of units during 2002-07.

#### ***Unfavourable policy for sale of leased assets***

**2.1.22** The PICUP introduced (October 1983) Equipment Leasing Scheme (ELS) of financing for existing units. Under the scheme, the PICUP procured equipment at the request of lessee and gave the same on lease for specified period (five to eight years) on monthly lease rental. The ownership on the leased assets remained with the lessor. In case of default in payment of lease rent on due date by the lessee, the lessor (PICUP) could take back possession of leased assets besides recovery of lease rent for the entire period of lease.

The PICUP disbursed (May 1986 to April 1997) Rs 32.01 crore for purchase of equipment under lease finance sanctioned to 37 companies (the lessees) for the lease period of five or eight years. The Board of Directors of the PICUP approved (21 May 1999) the procedure for transfer/sale of lease assets after expiry of lease period to a third party at one *per cent* of cost of acquisition.

The following table gives the details of sale of lease assets in respect of six lease finance cases:

Sl. No.	Name of the lessee Company	Name of equipment/Date of commencement of lease	Cost of equipment (amount disbursed for lease assets) (In Rs.)	Value of Sale (In Rs.)	Amount of sale in percentage	Date of sale
1.	Kumaon Gases Limited	Gas Cylinders (900 No.)/April 1991	21,19,123.75	22,000.00 (Rs 24.44 per cylinder)	1	January 2006
2.	Kumar Oxygen Limited	Oxygen Gas Cylinders (1000 No.)/May 1989	20,72,233.88	21,500.00 (Rs 21.50 per cylinder)	1	April 2005
3.	Krishna Society for Medical Relief & Rural Development	Surgical equipments/July 1994	16,47,000.00	16,470.00	1	December 2004
4.	United Wheels Limited	Sealed Quench Furnace/August 1997	1,25,86,000.00	10,00,000.00	7.95	March 2003
5.	Rewa Gases (P) Limited	Oxygen/Nitrogen Gas Plant, 1500 Oxygen Gas Cylinders etc./December 1988	1,26,40,000.00	20,80,000.00	16.46	October 2002
6.	Arihant Steel	DG sets, transformer, cooling towers/December 1995	2,06,14,000.00	51,00,000.00	24.74	May 2003

Source: Case files and Lease finance policy.

It was observed in audit that the PICUP, without inviting quotations or assessing present realisable value, fixed very meagre sale price of one *per cent* for disposal of lease assets after expiry of its lease period. It sold three lease assets (Sl. No. 1 to 3 of the above table) at one *per cent* of the cost of equipment whereas three lease assets (Sl. No. 4 to 6 of the above table) were sold approximately at 8 *per cent* to 25 *per cent* of the cost of equipment in cases where quotations were invited.

The Management *inter alia* stated (July 2008) that lease assets were sold at one *per cent* where the lease accounts were fully settled and sold at 8 to 25 *per cent* of original value where lease rentals were unpaid.

The reply is not relevant to the point as there is no direct relation between the recovery of lease rental on lease assets and their sales value. Further, as the ownership of the leased assets remained with the PICUP, the lease assets should have been sold at their realisable value in the open market.

### **Issuance of Recovery Certificates**

**2.1.23** In the case of default/non repayment of dues, the UPFC and PICUP issue Recovery Certificates (RCs) to the revenue authority for recovery of dues from borrowers/guarantors as arrears of land revenue under Section 3 of the Public Debt Recovery Act, 1972. The dues are realised by revenue authorities through auction proceedings of mortgaged security and personal property of borrowers/guarantors and remitted to the UPFC and PICUP. Audit scrutiny revealed that recovery through issuance of recovery certificate was very negligible as summarised below:

- In respect of the UPFC, against the outstanding principal amount ranging from Rs 178.58 crore to Rs 295.15 crore during 2002-07, the recovery ranged from Rs 1.16 crore to Rs 3.31 crore only (0.49 *per cent* to 1.55 *per cent* of the amount of RCs). Against the outstanding interest amount ranging from Rs 971.71 crore to Rs 1267.03 crore during 2002-07, the

recovery thereof ranged from Rs 0.36 crore to Rs 3.39 crore (0.03 per cent to 0.35 per cent).

- In respect of the PICUP, against the outstanding amount ranging from Rs 708.52 crore to Rs 998.07 crore during 2002-07, the recovery ranged from nil amount to Rs 0.53 crore only.

The main reasons for very negligible recovery through execution of RCs were non availability of any assets of the borrowers/guarantors, delay or not taking action for execution of RCs, by revenue authorities.

#### **Internal control**

**2.1.24** Internal control is a process designed for obtaining reasonable assurance for efficiency of operation, reliability of financial reporting and compliance with applicable laws and statutes so that management's objectives can be achieved in an efficient and effective manner. Internal control comprises distribution of work among the employees to ensure accuracy and reliability in the work, management information system and internal audit.

Audit noticed weaknesses in internal control with regard to following:

- Evaluation of projects to be financed with reference to all the factors affecting its viability (UPFC).
- Evaluation of securities and its verification so as to recover dues in case of failure of borrowers to repay it (UPFC).
- Regular receipt of annual accounts and monitoring of assisted units to ascertain state of affairs of assisted units and to take timely remedial action (UPFC and PICUP).
- Timely physical possession of assets of assisted units (UPFC and PICUP).
- Timely issuance of RCs/PRCs and its follow up with revenue authorities (UPFC and PICUP).
- Watch over the existence of properties declared by borrowers at the time of appraisal of loan (UPFC and PICUP).
- Evaluation of prime and collateral securities at the time of OTS with borrowers and its sale (UPFC and PICUP).

#### **Acknowledgement**

**2.1.25** Audit acknowledges the co-operation and assistance extended by officers of the Company/Corporation at various stages of conducting the performance audit.

The above audit findings were reported to the Government in May 2008; their reply was awaited (October 2008).

#### **Conclusion**

**The Non-performing assets in both the organisations (PICUP and UPFC) were quite alarming during the period of review which adversely affected their financial position and working results. The performance audit revealed lapses in pursuance with borrowers/guarantors adversely affecting recovery of loans. There were cases of delay in taking over**

possession of units after issuance of notice which facilitated unauthorised removal of plant and machinery in many cases. One time settlements with the borrowers were either done below the valuation of mortgaged security or valuation of mortgaged security and networth of borrowers/guarantors was not done correctly resulting in approval of one time settlement at lower amount. No action was taken for restricting borrowers/guarantors from selling, disposing of or creating charge over the networth declared at the time of disbursement of loan which adversely affected valuation and amount of settlement. Recovery through execution of recovery certificates was very meagre either due to non availability of property of borrowers/guarantors or non execution of recovery certificates by revenue authority.

#### **Recommendations**

- System of pursuance of recovery i.e. issuance of demand show cause notice, prompt taking over the possession of plant and machinery, issuance of recovery certificates to revenue authorities need to be streamlined;
- Viability of projects by taking into account interest rate, demand of product, technology applied, tie-up of working capital etc., should be ascertained before disbursement of loans;
- Adequate securities against loans should be obtained before disbursement of loans;
- One time settlement should be done in accordance with the valuation of available mortgaged security; and
- System of recovery of loans through recovery certificates should be strengthened through proper liaison with district authorities/ revenue authorities.

## **2.2 Procurement and Execution of Tender Works by Uttar Pradesh State Bridge Corporation Limited**

### **Highlights**

During the five years ending 2007-08, Company could secure only seven works out of 57 tenders in which Company participated, showing the success rate in bidding of only 12.28 per cent.

*(Paragraph 2.2.11)*

Out of 27 works completed during the five years up to 31 March 2008, Company suffered loss of Rs 54.42 crore in 21 works (including three works terminated by the client). Further, the Company could not recover even the prime cost in nine contract works and there was shortfall of Rs 13.10 crore in recovery of prime cost.

*(Paragraph 2.2.12)*

The Company failed to execute the works in three contracts efficiently/timely resulting into termination of the contracts by the clients. The Company incurred a loss of Rs 19.37 crore in these contracts.

*(Paragraphs 2.2.21, 2.2.22 and 2.2.23)*

The Company failed to assess correct Bill of Quantity in five contracts at the time of tendering and incurred extra expenditure of Rs 16.89 crore.

*(Paragraph 2.2.8)*

The Company failed to evaluate price variation clause in the contract for Rail Bridge at Patna which led to loss of Rs 6.76 crore.

*(Paragraph 2.2.14)*

The Company awarded the work of supplying the stone grits without tendering process. Further, due to failure of supplier to supply the agreed quantity of stone grits as per terms of the agreement, Company had to incur additional expenditure of Rs 67.90 lakh.

*(Paragraph 2.2.15)*

The Company incurred loss of Rs 1.11 crore due to excess consumption of material on the execution of three works.

*(Paragraph 2.2.13)*

### **Introduction**

**2.2.1** The Uttar Pradesh State Bridge Corporation Limited (Company) was incorporated on 18 October 1972 as a wholly owned State Government Company. The main objectives of the Company, inter-alia, include construction, development and maintenance of all type of bridges and approach roads, raising of loans to carry out the projects and undertaking civil/mechanical/electrical works.

The working pattern in the Company is broadly known as ‘Departmental Construction System’. The construction works are normally done departmentally by technical and other staff of the Company. The work is

executed directly and by engaging required labour on piece-rate working system. Thus the Company has been established with a view to eliminate the middlemen and contractors in execution of works. The Company executed the works under two categories viz. contract/tender works and deposit works (cost plus works).

The contract works are obtained by the Company through participation in tenders and negotiations. The decision to participate in tenders is taken by the Managing Director. The deposit works are mainly entrusted by the State Government and other Government Departments of the State Government on cost plus basis i.e. actual cost plus centage charges. At present, the Company is engaged in construction of bridges of the State Government and other Government agencies within India.

The Management of the Company is vested in a Board of Directors (BODs) consisting of nine Directors as of September 2008, all nominated by the State Government. The Principal Secretary, Uttar Pradesh Public Works Department (UPPWD) was the ex-officio Chairman of the Company till 19 November 2007 but thereafter the Minister, Public Works Department was nominated as the Chairman of the Company. The Managing Director (MD), an engineer of the rank of Chief Engineer from UPPWD, is the chief executive, who is assisted by a Joint Managing Director, ten General Managers and a Financial Advisor.

The Company has finalised its Accounts up to 2006-07. The Company incurred loss during 2003-04 and earned profit during 2004-05 to 2006-07. During the five years period ending 2007-08 the Company incurred losses amounting to Rs 75.40 crore in tender works but earned profit on execution of deposit works of the State Government.

The working of the Company was last reviewed and featured in the Report of the Comptroller and Auditor General of India (Commercial), 2002-03. The review has been partially discussed by COPU and the recommendations of COPU are awaited (October 2008).

#### **Scope of Audit**

**2.2.2** The present performance review conducted during the period from October 2007 to March 2008, covered the activities relating to procurement and execution of tender works by the Company for the five years ending 31 March 2008. Audit examined the records maintained at the corporate office of the Company at Lucknow and the records of 13 completed contract works valuing Rs 240.27 crore and three running contract works valuing Rs 393.65 crore out of the total 30 contracts involving value of Rs 759.49 crore.

#### **Audit Objectives**

**2.2.3** The Performance Review was carried out to assess whether:

- price bids prepared for participating in the tenders were based on realistic estimates and were guided with a view to secure the maximum works;
- planning for execution of works was consistent with the targets and an effective monitoring system was in place;



- works were executed economically, efficiently and effectively in accordance with the provisions of the work contract executed with the client; and
- internal control system in the Company was adequate and effective.

#### **Audit Criteria**

**2.2.4** The Audit criteria considered for assessing the achievement of audit objectives were as follows:

- Terms and conditions of the works contracts entered into with the clients;
- Provision of working Manual of the Company;
- Time schedules/guidelines/directions for various works as prescribed by the clients;
- Cost estimates;
- Instructions/guidelines issued by the State Government/Company; and
- Departmental Construction Unit (DCU)\* pattern estimate of expenditure sanctioned by the MD.

#### **Audit Methodology**

**2.2.5** The following audit methodology was followed to achieve the audit objectives:

- Scrutiny of agenda and minutes of the BOD's meetings;
- Records relating to participation in the tenders and price bid files;
- Tender files and agreements executed with the clients;
- Monitoring and progress reports of works;
- Management of funds for the work;
- Detailed analysis of execution of selected tender works; and
- Records/correspondence relating to claims pending with the clients for realisation.

#### **Audit Findings**

**2.2.6** Audit findings as a result of performance review were reported (May 2008) to the Management/Government and were discussed (28 August 2008) in the Meeting of Audit Review Committee for State Public Sector Enterprises (ARCPSE). The meeting was attended by the Special Secretary (Public Works Department), Government of Uttar Pradesh and Managing Director of the Company. Views expressed by the representatives of the Management/Government have been taken into consideration while finalising the review.

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\* Estimate for execution of work departmentally.

Audit findings are discussed in the succeeding paragraphs:

**Planning and bidding for works**

**2.2.7** The Company has constituted a Tender Cell at its Headquarters to secure tender works by participating in the bidding process. The cell is responsible for examination of Notice Inviting Tenders (NIT), preparation of proposals for new tender works and technical bid and submission of its recommendations to the Managing Director (MD) who is the competent authority to decide for participation in tender for works. The decision is taken on the basis of past experience and capacity of the Company. The General Manager in the field is responsible for preparation of price bid for tender work and its submission to Headquarters. The price bid includes the estimated cost of the work and overheads at the prevailing rates. Further, the expected profit is estimated and added to cost of works in order to work out the total bid amount. At the Headquarters, the price bid is examined by a Committee constituted for finalisation of price bid and its recommendations are subject to approval of MD.

During last five years up to 2007-08, the Company procured 30 contract works having contract value of Rs 759.49 crore. Out of 30 contracts, the audit examined 16 contract works (including three running works) having contract value of Rs 633.92 crore. The following cases were noticed regarding deficient planning and bidding process:

***Improper Assessment of Bill of Quantity (BOQ)***

**2.2.8** The Company decided to participate in five tenders where the Company was required to submit lump sum offer based on its own designs. The Company in consultation with the consultant appointed for the purpose and according to its own assessment quoted the rates.

**The Company failed to assess correct BOQ for the works and suffered loss of Rs 16.89 crore.**

It was observed in audit that both the Company and the consultant failed to assess the correct BOQ (concreting) for the works at the time of tendering and therefore, the Company had to execute extra concreting. The excess concreting done by the Company resulted in extra expenditure of Rs 16.89 crore, as detailed below:

Sl. No.	Name of work	BOQ (concreting) estimated at the time of tendering (in cum)	Actual concreting done during execution (in cum)	Excess concreting (in cum)	Rate per cum (Rs.)	Extra expenditure (Rs. in crore)
1	Flyover Airport Road, Bangalore	22910	23687	777	16474	1.28
2	Grade Separator at Dairy circle, Bangalore	11964	14080	2116	13800	2.92
3	Grade Separator near Jaideva institute. Bangalore	15555	20883	5328	13926	7.42
4.	Railway Over Bridge, Morinda	6890	7780	890	11910	1.06
5.	Grade separator, Moti Nagar Delhi	10062	12442	2380	17689	4.21
	<b>Total</b>					<b>16.89</b>

It was observed that the Company could not claim extra expenditure of Rs 16.89 crore from the clients as all the five contracts were lump sum contracts.

The Management while accepting (August 2008) the failure of the consultant stated that the Company assessed the quantity best to their knowledge, experience and keeping in view the competition in the market.

***Quoting of rate below the estimated cost***

**2.2.9** The Company has not framed any policy for quoting the rates in the tender works with reference to estimated cost of work put to tender by the client. The estimated cost of work is being worked out as per Schedule of Rates (SOR) which includes ten *per cent* contractor’s profit. Therefore, the Company should not quote the rates below ten *per cent* of estimated cost as a matter of financial prudence. The table below indicates the cases in which the Company quoted the rates below the estimated cost, ranging from 11.28 to 15.07 *per cent* and suffered loss in execution of work:

Sl. No.	Name of work	Name of client	Estimated cost put to tender (Rs. in crore)	Month of participation in the work	Quoted rate (Rs. in crore)	Percentage of rate below the estimated cost
1.	Grade Separator Dairy circle, Bangalore	Banglore Development Authority	19.50	December 2002	17.30	11.28
2.	Railway Over Bridge, Ludhiana	Municipal Corporation, Ludhiana	15.00	July 2000	12.74	15.07
3.	Rapti River Bridge, Gorakhpur	NHAI	16.50	November 2003	14.60	11.52
4.	Construction of Bridge on River Ganga including road works at Hapur <sup>1</sup>	NHAI	230.00	May 2004	195.51	15.00

The Management stated (August 2008) that an estimate is prepared on Departmental Construction Unit (DCU) pattern before quoting the rates in the tender. It is not always feasible for the Company not to quote rates below ten *per cent* of the estimated cost.

The fact, however, remains that the Company failed to assess the financial implication while working out the estimated cost and consequently incurred loss of Rs 4.68 crore on two<sup>2</sup> completed works and Rs 10.55 crore on two<sup>3</sup> running works.

**2.2.10** Audit scrutiny of the Hapur works (Sl. No. 4 of the above table) revealed that the client (NHAI) mentioned in NIT the estimated cost as Rs 230 crore for the works. Against this the Company quoted rate of Rs 195.51 crore (work cost: Rs 173.55 crore and profit including overheads: Rs 21.96 crore<sup>4</sup>), which was 15 *per cent* below the estimated cost. This shows that the Company did not assess the cost of work properly and simply loaded 12.65 *per cent* on its works cost. Further, works cost was worked out considering the rate of stone grit as Rs 31.50 to Rs 32.50 per quintal against the market rate of Rs 46.90 and rate of coarse sand as Rs 36.69 per quintal against the market rate of Rs 47 per quintal. This shows that the Company did not assess the cost

<sup>1</sup> Contract works examined during review by Audit.

<sup>2</sup> Grid Separator Dairy Circle, Bangalore and Railway Over Bridge, Ludhiana.

<sup>3</sup> Rapti River Bridge, Gorakhpur and Construction of Bridge on River Ganga including road works at Hapur

<sup>4</sup> At the rate of 12.65 *per cent* of works cost.

of work properly and the rate quoted by the Company was not workable at all and consequently the Company has been incurring loss on this work.

Management stated (August 2008) that the rates quoted were reasonable and workable but after the date of tender there was unexpected and abnormal increase in market rates.

The facts of the case clearly indicate that the rates initially quoted by the Company were not workable as the market prices of the items were much higher than the quoted rates at the time of bidding.

### **Procurement of tender works**

**2.2.11** The status of participation in tenders by the Company and the contracts actually secured thereagainst during the five years period from 2003-04 to 2007-08 is given below:

Year	Tenders participated		Contract secured		Success rate (in percentage)
	Nos.	Value (Rs. in crore)	Nos.	Value (Rs. in crore)	
2003-04	35	772.80	06	68.95	17.14
2004-05	12	773.67	01	230.00	8.33
2005-06	06	114.35	Nil	Nil	Nil
2006-07	01	65.82	Nil	Nil	Nil
2007-08	03	27.04	Nil	Nil	Nil
<b>Total</b>	<b>57</b>	<b>1753.68</b>	<b>07</b>	<b>298.95</b>	<b>12.28</b>

**The Company could secure only seven contracts out of 57 works in which it participated.**

Thus, out of 57 tenders in which Company participated, the Company could secure only seven contracts during last five years ended 31 March 2008. The success rate in bidding was 12.28 *per cent* which is indicative of the fact that the Company failed to compete with other tenderers. Further, the Company could not secure any contract after 2004-05. It was observed that the Company participated in less number of tenders during 2005-06 to 2007-08 due to increase in allotment of deposit works by the State Government.

The table below indicates the value of deposit works vis-à-vis tender works carried out by the Company for the last five years ending March 2008:

Sl.No.	Year	(Rs. in crore)		
		Deposit works	Tender works	Total
1.	2003-04	96.91	125.18	222.09
2.	2004-05	188.86	125.22	314.08
3.	2005-06	218.27	97.58	315.85
4.	2006-07	415.60	102.45	518.05
5.	2007-08	342.00	58.00	400.00

Source: Accounts of the Company.

It would be seen from the table above that the Company has mainly switched over to deposit works which increased from Rs 96.91 crore in 2003-04 to Rs 342 crore in 2007-08.

The Management while accepting the facts stated (August 2008) that from 2003-04 onwards the State Government was awarding bridges and road works in sufficient quantity and so they were not taking interest in tender works.

**Execution of tender works**

**2.2.12** During the period of review, the Company executed 30 contracts with value of Rs 759.49 crore. The progress of completion of contract works during the last five years ending March 2008 is given in the following table:

Year	(Numbers)				
	Opening Balance of works	Works commenced during the year	Total works in hand.	Works completed during the year	Closing balance
2003-04	22	06	28	02	26
2004-05	26	02	28	04	24
2005-06	24	Nil	24	11	13
2006-07	13	Nil	13	06	07
2007-08	07	Nil	07	04	03

**There was shortfall of Rs 13.10 crore in recovery of prime cost in nine contracts.**

The above table reveals that the Company did not get any new tender work during 2005-06 to 2007-08. Out of 30 contract works executed during the period 2003-04 to 2007-08, the Company completed 27\* contract works while three tender works were in progress as on 31 March 2008. In respect of the completed works the Company suffered loss of Rs 54.42 crore in 21\* works and earned profit of Rs 3.82 crore in only six contracts as indicated in **Annexure-16**. Further, the Company had suffered loss of Rs 24.80 crore up to March 2008 in respect of three ongoing projects. The Company could not recover even the prime cost in respect of nine completed contract works and there was short fall of Rs 13.10 crore as indicated in **Annexure-17**.

Substantial losses indicate Company's inability to execute works economically and efficiently. The reasons for losses are attributable to deficient planning regarding estimation of bill of quantity, quotation of unrealistic rate etc. Besides, excess consumption of construction material, time over run and cost over run resulting in delay in completion of work and undue benefit to the supplier etc. were among other reasons leading to negative working results in execution of tender works as discussed in the succeeding paragraphs.

The Management stated (August 2008) that they could not complete the works within cost due to increase in price of material and labour and the cases were under arbitration.

The reply is not convincing as the increase in price was due to delay in execution of work which consequently increased the cost of works. The losses could have been avoided if the works had been completed within the time schedule.

***Excess consumption of construction material***

**2.2.13** The audit examined 16 out of 30 tender works, executed during the last five years up to 2007-08. The following cases of excess consumption of material were noticed in audit:

- In the contract work of construction of guide bunds, foundations and substructure of Rail Bridge across river Ganga at Dighaghat, Patna the East Central Railway (ECR) allowed cement consumption to the limit of 400 Kg. per cum concreting as per approved mixed design.

\* Including three contracts (Serial number 6, 17 and 21 of Annexure-16) terminated by the client due to slow progress of works.

**The Company suffered loss of Rs 1.11 crore due to excess consumption of material in three contracts.**

It was observed that the Company failed to observe the limit fixed by ECR for consumption of cement and consumed 34,389.088 MT of cement during the period from November 2002 to July 2004 at the rate of 407 kg. per cum to 492 kg. per cum of concreting. ECR, however, certified (November 2004) only 33,504.819 MT of cement based on the limit of 400 kg. per cum. This resulted in excess consumption of 884.269 MT which was not paid/certified by ECR. Thus, the Company suffered a loss of Rs 24.76 lakh due to consumption of cement beyond permitted limits.

The Management stated (August 2008) that excess consumption of cement in concreting was done as per directions of the client.

The reply is not convincing as the Company failed to control cement consumption according to limits fixed during this period which were also disallowed by the client.

- In the contract for Dairy Circle Flyover, it was noticed that the consumption of steel, according to drawing, worked out to 1,554.569 MT but actual consumption of steel during the period February 2003 to November 2004 on the work was 1,678.694 MT. Thus, there was excess consumption of 124.125 MT of steel valued at Rs 29.48 lakh at average rate of Rs 23,752 per MT in Bangalore.
- In the contract for Airport Road IRR Junction Flyover, it was noticed that the consumption of steel according to drawing worked out to 3,690.361 MT but actual consumption of steel on the work was 3,929.046 MT. Thus there was excess consumption of 238.685 MT of steel valued at Rs 56.69 lakh at average rate of Rs 23,752 per MT.

The Management stated (August 2008) that excess consumption was within norms as prescribed by the Ministry of Surface Transport (MOST).

The reply does not explain the reasons for excess consumption of material than that provided in the estimate of the work. The MOST's norms are not relevant in this case.

#### **Other deficiencies in execution of works**

##### ***Improper assessment of price variation clause***

**2.2.14** The work of construction of guide bund\*, foundation and sub structure of Rail Bridge across river Ganga at Dighaghat near Patna was awarded (November 2002) to the Company by Eastern Railway, Kolkata at a contract value of Rs 183.54 crore. The work, commenced on 20 November 2002, was scheduled to be completed by 19 November 2006. The agreement was executed with the Railway on 27 June 2003. The agreement contains price variation clause which provides that the total amount payable to the contractor shall be adjusted based on the over all market situation reflected by increase/decrease in various price indices published by the Reserve Bank of India from time to time. The Company opened three units (November 2002 to October 2005) to execute the work. The work was delayed due to various reasons beyond the control of the Company like delay in acquisition of land at Sonepur side, unprecedented floods of 2003, non availability of drawings in time from the Railways, major changes in the drawings of foundation and sub structure, non-availability of land for guide bund etc.

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\* Guide bund is the sloppy embankment protected by boulders on both the banks of the river where the bridge terminates.

**The failure of Company in evaluating the price variation clause resulted in loss of Rs 6.76 crore due to rise in cost of principal material.**

The Company could complete the work to the extent of 8 *per cent* only up to December 2007 and the extension in time has been granted up to 31 January 2009. It was observed that the Company could not evaluate adequacy and suitability of price variation clause at the time of finalising the contract regarding cost over run due to abnormal increase in prices of material in future. Therefore, the Company had to incur extra expenditure of Rs 6.76 crore due to price increase of steel (Rs 3.32 crore) and cement (Rs 3.44 crore) even after adjustment of price variation received on steel and cement during the period November 2006 to December 2007 i.e. beyond the completion period, as compared to tendered rates.

The Management admitted (August 2008) that the delay in work was on the part of East Central Railway and they have granted extension of time up to 31 January 2009. It further stated that they have invoked (August 2006) the arbitration clause due to unprecedented rise in steel prices and proceedings of arbitration were yet to start.

The reply, however, did not address the lapses on part of the Company in evaluating the price variation clause for its adequacy and suitability to cover abnormal price increase of principal material.

***Undue benefit to the supplier***

**2.2.15** As per the conditions of the agreement (06 January 2005) executed with NHAI for contract work of road from Hapur to Garhmukteshwar project, the Company was required to ensure availability of one cone crusher type crushing cum screening unit (Capacity 200 MT per hour approx) and there was heavy requirement of aggregates (stone grit) for the project (road work and bridge work). With a view to ensure timely supply of aggregates at economic rates for the work, the Chief Project Manager, Hapur intimated (November 2005) the Joint MD that they approached a firm viz. Pramod Kumar Pandey and Company, Pakur, Jharkhand (Supplier) who had supplied aggregates to Bhagalpur/Patna projects of the Company, for installation of dedicated crusher for this project. The supplier agreed to supply the aggregates six to 40 mm at the rate of Rs 41.50 per quintal at site and stone dust/washing sand at the rate of Rs 42.50 per quintal at site. The Joint Managing Director approved (December 2005) the rates and terms and conditions. The agreement was executed (30 January 2006) with the supplier for supply of various types of aggregates through a dedicated crusher for this project at a contract value of Rs 29.82 crore for 71.54 lakh quintal (58.41 lakh quintal aggregates and 13.13 lakh quintal stone dust) in 24 months.

The following deficiencies were noticed in the award and execution of supply order:

- According to para 80 of the working Manual of the Company, the purchase of material is to be made at the rates finalised after calling for tenders/sealed quotations. The Chief Project Manager, Hapur, however, selected the supplier for supply of stone grit by directly approaching the supplier and rates of stone grit were finalised without inviting tenders.
- The agreement required the supplier to install crusher of 175 to 200 tonnes capacity. The supplier installed the crusher of only 80 tonnes capacity and started supply of aggregates from April 2006. The

**The Company incurred extra expenditure of Rs 67.90 lakh on purchase of stone grit at higher rates.**

supplier was required to supply 2,43,375 quintal per month but he failed to supply the desired quantity each month. The supplier supplied only 3,26,315 quintals of stone grit till October 2007 against the contracted supply of 58.41 lakh quintals. After October 2007, the supplier did not supply any quantity. As a result, to meet the requirement, the unit purchased 2,85,525 quintals of 20 mm stone grit at an average rate of Rs 55.69 per quintal and 1,74,960 quintal of 10 mm stone grit at an average rate of Rs 57.15 per quintal till December 2007. Thus the Company had to incur additional expenditure of Rs 67.90 lakh being the differential higher cost on purchase of stone grit. In this way the purpose of the Company to procure grit at economic rate through dedicated crusher was defeated.

- In terms of the agreement with the supplier, the Company was required to recover Rs 3.14 crore (Penalty of Rs 2.29 crore and Mobilisation/Secured Advance of Rs 0.85 crore) up to December 2007 due to failure to supply aggregates as per agreement but the Company could recover Rs 29.82 lakh by encashing the performance bank guarantee and Rs 26 lakh from pending bills of other works and security available with the Company.
- According to scope of work the crushing unit was to be dedicated to the Company so as to fulfill the entire requirement of crushed aggregates within a planned time schedule. The supplier installed the crusher at Haridwar. Since it was a dedicated crusher, the Company should have kept watch over their production to ensure that they had supplied all production to the Company only. The Company did not have any record of their production and also did not have any control over the supplier by posting some staff at the crusher. In such an event the possibility that the supplier supplied the production to other parties/market can not be ruled out.
- According to agreement, performance bank guarantee of one percent of the contract value was to be taken from the supplier whereas the Company submitted performance bank guarantee of ten *per cent* of the contract value to the client as a contractor. This one *per cent* performance bank guarantee was grossly insufficient to cover the loss in the event of non-performance of the contract by the supplier.

The Management stated (August 2008) that they accepted the offer of Pramod Kumar Pandey as per the terms and conditions laid down in the tender floated and have recovered Rs 55.82 lakh (August 2008) from the supplier.

The reply is not based on the facts as Pramod Kumar Pandey did not quote against the tender floated and Company could recover only Rs 55.82 lakh against the recoverable amount of Rs 3.14 crore. Further, the reply was silent on insufficiency of performance bank guarantee obtained from the supplier.

#### ***Avoidable payment of interest on mobilisation advance***

**2.2.16** The client provides mobilisation advance either with interest or interest free to the contractors. The option to avail facility of mobilisation advance lies with the Company. Audit scrutiny revealed that the Company failed to exercise financial prudence in receiving the mobilisation advance from clients



which resulted into payment of avoidable interest as discussed in the following cases:

**2.2.17** The Company received mobilisation advance of Rs 4.20 crore on 20 December 2002 and Rs 76 lakh on 13 March 2003 for the contract work of construction of guide bund, foundations and substructure of Rail Bridge across river Ganga at Dighaghat, Patna from East Central Railways (ECR) at interest rate of 18 *per cent* per annum. The Company repaid the advance so received in December 2003 with interest of Rs 82.01 lakh.

**The Company failed to arrange the funds at economic rate of interest and suffered loss of interest of Rs 43.37 lakh.**

It was observed that the Company had the option of cash credit from Banks at interest rate of 9.50 *per cent*. So, availing mobilisation advance at 18 *per cent* per annum was not in the financial interest of the Company. Thus, the Company made avoidable payment of interest of Rs 38.73 lakh on mobilisation advance.

The Management stated (August 2008) that mobilisation advance was taken as per contract condition and regular efforts were made for obtaining Cash Credit loan carrying lower rate of interest. The reply, however, does not justify the reasons for acceptance of mobilisation advances at higher rate of interest when the cash credit facilities at lower rate of interest were available.

**2.2.18** The Company received (February 2003) mobilisation advance of Rs one crore, Rs 86 lakh and Rs 88 lakh for the contract work of construction of flyover at Airport Road, Grade Separator at Dairy Circle and Grade Separator near MICO Junction (Jaydeva Institute) respectively from BDA at the interest rate of 12 *per cent* per annum. The Company repaid the advance so received during the period July 2003 to March 2004 with interest of Rs 22.27 lakh. It was noticed that the funds were available to the Company on cash credit at the interest rate of 9.50 *per cent* per annum. Thus, the Company incurred an avoidable expenditure of Rs 4.64 lakh on payment of interest on mobilisation advance.

The Management accepted (August 2008) that they paid interest at higher rate on mobilisation advance and explained that the advances were repaid quickly to avoid further loss.

***Delay in payment of insurance premium***

**The Company's failure to deposit insurance premium in time resulted in non-reimbursement of loss of Rs 12.16 lakh.**

**2.2.19** The Company took (April 2004) a Contractor's All Risk (CAR) insurance Policy from ICICI Lombard General Insurance Company for the contract of bridge across river Daman Ganga. The second installment of premium amounting to Rs 1.90 lakh due on 13 July 2004 was belatedly paid on 19 August 2004. In the meantime, machines and materials submerged in the water due to sudden flood on 3 August 2004 and the Company suffered a loss of Rs 12.16 lakh. The Insurance Company rejected the claim of the Company as the premium was not deposited by due date. As a result, the Company failed to get the compensation for loss of Rs 12.16 lakh from the Insurance Company even after taking Insurance Policy.

The Management stated (August 2008) that the insurance premium was not deposited timely due to cash flow problem in the project.

The reply, however, highlights Company's poor financial planning as it should have made adequate cash flow arrangements considering the risk involved in case of non-payment of premium.

### **Termination of Contracts**

**2.2.20** Audit scrutiny revealed that the Company failed to execute the contract works efficiently and timely which resulted in termination of three contracts as discussed in the succeeding paragraphs:

**2.2.21** The work of Construction of additional three lane bridge with its approaches and improvement of existing bridge proper in Surat district was awarded (March 2003) to the Company by National Highway Authority of India (NHAI) at a contract value of Rs 30.36 crore. The Company executed (4 June 2003) the agreement with NHAI. The work was to be completed in 24 months i.e. by 30 June 2005.

The Company started (July 2003) the work but it could not complete the work within the scheduled date of completion. The delay in completion of work was mainly attributed to delay in sinking of wells. The time extension was granted by NHAI up to 11 September 2005 but the company failed to complete the work within the extended time. The Hon'ble High Court in a PIL directed (September 2006) NHAI to take appropriate action either to get the work completed in time or to change the contractor. In spite of this, the progress of work remained very slow and the actual progress of work up to October 2006 was 45.39 *per cent* only.

The Company submitted (November 2006) revised work programme by proposing the completion of project by 31 March 2008 on the ground that there was unprecedented and devastating floods in August 2006 and because of uncertainty of sinking of wells in the rocky strata. NHAI did not accept the revised work programme due to slow progress of the work. NHAI invoked clause 63.1 of the contract by giving 14 days notice in January 2007 for expelling the Company from the site and also requested the Company not to shift any equipment, temporary works and materials from the site. NHAI also encashed (January 2007) bank guarantees valuing Rs 7.57 crore relating to performance security, machinery advance and mobilisation advance. The Company invoked (March 2007) the arbitration clause. At present, the Company had left the site and arbitration proceedings are going on (August 2008).

**Due to taking excessive time in sinking of wells in the river, the NHAI terminated the contract and the Company suffered loss of Rs 13.02 crore.**

Audit scrutiny revealed that the Company failed to examine the site, surroundings, hydrological data and subsurface conditions and any investigations carried out by NHAI before submission of tender. Further, the Company was aware that it had to sink the wells in hard rocky strata to the extent of total quantity at 71 meters and the work was only dislocated during the period August 2006 to October 2006. The excess time taken in sinking of wells could have been reduced by employing extra manpower and resources. Besides this, Management changed the unit Incharge of work three times which adversely affected the progress of work. Thus failure on the part of the Company resulted in withdrawal of work from the Company. The total loss on the work suffered by the Company was Rs 13.02 crore which was attributed to execution of work (Rs 3.32 crore) and to expulsion from the site (Rs 9.70 crore).

The Management accepted the facts and stated (August 2008) that the Company had started the work honestly and deployed necessary resources as per requirement of the project but non-co-operation from client's consultant had resulted in slow progress.

The reply of the Management is not convincing as Company failed to examine the site, surroundings, hydrological data and subsurface conditions etc. before submission of tender. Besides, non-deployment of extra manpower and resources to reduce excess time in sinking of wells and frequent changes of unit incharge adversely affected the progress of work which ultimately resulted in termination of contract.

**2.2.22** The work of construction of Railway Over Bridge (ROB) over Delhi-Amritsar Railway line in Phagwara Town for replacement of level crossing on Phagwara Jandiala Nakodar Plan Road including upgradation of NH-1 was awarded (April 2002) to the Company at a contract value of Rs 16.18 crore by Punjab Public Works Department (B and R) Chandigarh (PPWD). The agreement was executed on 27 June 2002 and was effective from 11 May 2002. The work was to be completed in 12 months i.e. by 10 May 2003.

The Bridge construction unit of the Company at Phagwara started (11 May 2002) the work but the progress of work was very slow and the unit could not complete the work within scheduled time. PPWD though allowed extension in execution up to 30 April 2004 but the progress of work still remained slow. The Company executed the work valuing Rs 3.70 crore up to 30 April 2004. The Company's request (August 2004) for further extension in time up to 30 June 2005 was not acceded to by the PPWD. Since the Company failed to execute the works within the scheduled period, PPWD terminated the contract and took over (May 2005) possession of machinery and material worth Rs 1.27 crore of the Company. Three bank guarantees valued at Rs 2.42 crore given by the Company for performance and mobilisation advance were encashed (December 2006) by PPWD. Against this, the Company had gone in arbitration and the case was still under arbitration (August 2008).

**Due to slow progress of work and failure in arranging road construction equipment, the Company suffered loss of Rs 4.14 crore on the work.**

It was observed in audit that the Company participated in the tender without assessing its capability of executing the work of Rs 16.18 crore in one year. There was also lack of proper planning, co-ordination and monitoring as the Company could not take up work on all components simultaneously to complete the work within scheduled/extended time. The slow progress was due to delay in setting up of site office and further the Company could neither arrange road construction equipment/machinery at site nor engage any external agency to execute the road work which constituted the major portion of work. This shows slackness on the part of the Company in execution of the work. All this led to termination of the contract. As a result, the Company incurred loss of Rs 4.14 crore on this work. The Company did not account for machinery and material worth Rs 1.27 crore under the possession of PPWD while working out the total loss in the work.

The Management stated (August 2008) that delay was caused due to delay in handing over of right of way, delay in availability of the drawings and non-payment of escalation, abnormal rise in cost of steel, payment of fixed expenditure and overhead expenses during extended period of contract. It further stated that the loss was incurred due to non-co-operation of PPWD for which the Company submitted the claims for settlement before arbitration tribunal.

It was, however, noticed that the site was handed over in May 2002 and drawings of the superstructure were handed over in January 2003 to the Company. Further, payment of escalation and fixed expenditure/overheads

was not admissible as per agreement. The loss was not due to non-co-operation of Punjab PWD but was due to slow progress and non-arrangement of road construction equipment by the Company.

**2.2.23** The work of construction of bridge with approaches across river Damanganga at Daman was awarded (February 2004) to the Company by National Highway Circle, Roads and Buildings Department of Government of Gujarat (NHC) at a contract value of Rs 15.03 crore which was to be completed by February 2006. The Company started the work on 27 February 2004. In August 2004, the Company intimated to the client that more than six lakh cusec water was discharged from Madhuban Dam and since such happening has occurred in past also on that particular portion, discharge of water and foundation investigation would be reviewed. Thereafter the Company suggested (March 2005) that due to abnormal increase in depth of water at site, methodology of construction proposed for execution was not feasible and work was possible only by steel floating caisson method which was entirely different type of work. Thus, due to variation in site condition cost of the project would increase. In response NHC stated (March 2005) that for the water depth which was given in NIT, the Company should have considered the floating caisson method in advance while tendering. NHC rejected the request of the Company and directed (March 2005) to execute the work without delay. The Company did not take up the work thereafter. As a result, NHC terminated the contract on 12 September 2005.

**Due to improper assessment of site condition and depth of water, Company suffered loss of Rs 2.21 crore on the contract work terminated by NHC.**

It was observed that the Company failed to assess the site conditions i.e. depth of water in the river and the construction methodology before submitting its financial bid. Subsequently, the Company assessed the increased cost of work but the NHC did not agree. This led to termination of the contract and the Company suffered loss of Rs 2.21 crore on the contract work. Further, NHC deducted Rs 10.02 lakh on account of liquidated damages from the certified bills of the Company.

The Management stated (August 2008) that the Company did not fail to assess the site conditions while bidding. It further stated that unprecedented flood of August 2004 has changed ground conditions significantly requiring change in scope of work and construction methodology.

The reply is not convincing as the Company was awarded the work in February 2004 and the margin of flood in the river was known to the Company. This important aspect should have been kept into consideration while participating in the bid.

### **Internal Control and Internal Audit**

#### ***Internal Control***

**2.2.24** Internal control is a process designed to provide reasonable assurance for efficiency of operation, reliability of financial reporting and compliance with applicable laws and statutes. Audit observed the following:

- Audit Committee constituted in compliance with the provisions under Section 292 A of the Companies Act 1956 in February 2001 was required to have discussions with the Statutory Auditors periodically about internal control system. But no such discussions were held.

- The DCU pattern estimate in respect of each contract work is sanctioned for planning the expenditure on the work. The sanctioned expenditure vis-à-vis actual expenditure on the work under different heads is reported to Headquarter each month by the tender units. The deviation in the expenditure is not analysed at Headquarter so as to know the causes of deviation for taking remedial action for controlling the expenditure by tender units.

The Management stated (August 2008) that the controlling officers do monitoring of reports and directions are issued to units.

The Management, however, did not analyse and take remedial action on the monthly monitoring reports at headquarters, as observed in audit.

- Earnest money deposited with the client for participation in the tender is not properly monitored to receive it back from the client in case of failure in securing the contract.

### ***Internal Audit***

**2.2.25** Internal Audit is an appraisal activity established within an entity, which aims at examining, evaluating and monitoring the adequacy and effectiveness of accounting and internal control system. Internal audit of the Company is being carried out departmentally. According to Internal Audit Manual of the company, units having running job sites with turnover of Rs one crore or more are to be audited annually. It was observed that the internal audit coverage of the Company was inadequate and the internal audit of tender units was ineffective. This was also reported by the Statutory Auditors in their reports from time to time.

The Management accepted (August 2008) that internal audit of tender units could not be done according to necessity due to shortage of experienced staff.

### **Acknowledgement**

**2.2.26** Audit acknowledges the cooperation and assistance extended by different level of officers of the Company at various stages of conducting the performance audit.

The above audit findings were reported to the Government in May 2008; their reply had not been received (October 2008).

### **Conclusion**

**The Company's performance in the tender works was deficient as regard to planning and preparation of technical and financial bids for works. The Company failed to correctly assess the bill of quantity for the works at the time of tendering and incurred additional expenditure which could not be claimed from the clients. No policy existed for quoting the rates with reference to estimated cost of the works put to tender. There were cases of quoting rates below the estimated cost leading to losses in the works. The Company could not adhere the time schedule given in the contract. Deficient execution and slow progress of works led to termination of contracts which consequently resulted in losses. Besides, cases of excess consumption of construction material were also noticed in audit.**

**Recommendations**

- Detailed survey of work site, assessment of actual work and correct computation of bill of quantity before submission of bid should be ensured;
  - A policy should be framed for quoting the rates with reference to estimated cost put to tender;
  - Time schedule should be strictly adhered to in completion of tender works; and
  - The internal audit wing may be strengthened.
-

## 2.3 Energy Losses and their Prevention in Purvanchal Vidyut Vitran Nigam Limited, Varanasi

### Highlights

Distribution losses of the Company in excess of the UPERC targets worked out to 2496.867 MU amounting to Rs 617.66 crore during the period of four years 2004-05 to 2007-08.

*(Paragraph 2.3.8)*

There was a gap of 2566.837 MVA of transformation capacity in comparison to connected load of the consumers at the end of March 2008 which led to overloading on the system and caused loss of energy.

*(Paragraph 2.3.9)*

The objectives of the Accelerated Power Development Reform Programme (APDRP) regarding reduction of T&D losses and transformer-wise accounting/audit of energy mostly remained un-achieved even after implementation of the scheme with an expenditure of Rs 203.04 crore.

*(Paragraph 2.3.10)*

The Company did not ensure installation of shunt capacitors on connections of 19,351 consumers, which regulate the voltage and save energy losses by improving power factor. Further, surcharge of Rs 1.54 crore for non-installation of capacitors was also not levied on 8,763 consumers.

*(Paragraph 2.3.14)*

### Introduction

**2.3.1** Purvanchal Vidyut Vitran Nigam Limited, Varanasi (Company) a subsidiary of Uttar Pradesh Power Corporation Limited, Lucknow (UPPCL) was incorporated on 1 May 2003 under the Companies Act, 1956 and is licensed to distribute electricity in 21 districts\* of Uttar Pradesh. The Company commenced its business operations in August 2003. The main activities of the Company are development and maintenance of infrastructure for sub-transmission and distribution of electricity, purchase of electricity, its distribution and retail supply to various class of consumers of Varanasi, Allahabad, Gorakhpur and Azamgarh zones, billing and collection of revenue and prevention of energy losses (technical and non-technical).

Economic growth greatly depends upon reliable and qualitative supply of electricity. In order to improve the reliability, the generation of electricity is the key-factor. However, prevention of energy losses is also an important and significant step towards enhancing reliability and qualitative supply of energy. For efficient functioning of the distribution system, the energy losses should be minimum as per the norms fixed by Central Electricity Authority (CEA).

\* 1. Varanasi 2. Chandauli 3. Gazipur 4. Bhadohi 5. Mirzapur 6. Sonbhadra 7. Jaunpur 8. Azamgarh 9. Mau 10. Ballia 11. Gorakhpur 12. Maharajganj 13. Devaria 14. Kushinagar 15. Basti 16. Sant Kabir Nagar 17. Sidhart Nagar 18. Kausambi 19. Fatehpur 20. Pratapgarh 21. Allahabad

The energy loss includes both technical and non-technical losses. The technical losses can be minimised by:

- making adequate transformation capacity at each sub-station;
- supplying electricity at high voltage (LT less high voltage distribution system);
- installation of capacitor banks at the sub-stations as well as at consumer ends; and
- promoting uses of energy saving equipments.

The non-technical losses can be arrested by:

- correct billing of the consumers through metered consumption.
- effective checking of consumer's installations for preventing theft of energy.

Double metering, use of electronic meters, supply through insulated cables and Aerial Bunched Conductors etc are various other measures for arresting theft of energy/reducing non-technical losses.

The management of the Company is vested in a Board of Directors comprising four members. The Managing Director having overall charge, is assisted by Director (technical), six Chief Engineers, one Dy. General Manager (Accounts), one Assistant Superintendent of Police and nine Superintending Engineers at Headquarter along with four Chief Engineers, nineteen Superintending Engineers and four Dy. Chief Accounts Officers in field.

#### **Scope of audit**

**2.3.2** The performance review conducted during August 2007 to March 2008 covers the overall management for prevention of energy losses (technical and non-technical) and the mechanism adopted for arresting these losses during the five years period from 2003-04 to 2007-08.

There were 11 Distribution Circles involving 63 Divisions in the Company, out of which 15 units were selected for test check on simple random sampling basis. The sample selected represents 17.77 *per cent* of the total energy losses of the Company during the year 2006-07.

#### **Audit Objectives**

**2.3.3** The Performance review was conducted with a view to ascertain whether:

- the energy losses are contained within the prescribed limits and the transformation capacity i.e. Load carrying/bearing capacity at the sub-station is adequate;
- the technical loss reduction devices *i.e.* Capacitor Banks are of adequate capacity and defective capacitor banks are being repaired/replaced timely so as to meet the technical requirement of the system;
- the measures adopted for minimising non-technical losses are adequate; and
- effective checking of consumer's installations for prevention of theft and follow-up actions are being taken as per provisions of Electricity Act, 2003 and Electricity Supply Code, 2005.



### **Audit Criteria**

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

- directives/ guidelines issued by Uttar Pradesh Electricity Regulatory Commission (UPERC) regarding energy losses;
- provisions of Electricity Act, 2003 and Electricity Supply Code, 2005;
- Commercial and Revenue manuals; and
- Memorandum of Undertaking (MOU) with regard to metering and billing of the consumers.

### **Audit Methodology**

**2.3.5** The following mix of audit methodology was adopted to analyse records/data for achieving the audit objectives:

- Study of regulations/directives and guidelines of UPERC, Commercial and Revenue manual/orders of UPPCL, Electricity Act, 2003, Electricity Supply Code, 2005.
- Collection of data centrally at Rural Electrification, Secondary System Planning Organisation (RESPO), Lucknow and Chief Engineer (Commercial) Lucknow.
- Collection of data at Company Headquarters at Varanasi, examination of annual reports, agenda and minutes of Board's meetings.
- Examination of various records at Circle/Division level to assess the position of compliance of directives issued for minimising energy losses.
- Analysis of targets and achievements of energy losses.

### **Audit findings**

**2.3.6** Audit findings as a result of performance review were reported (May 2008) to the Management/Government and were discussed (6 October 2008) in the Meeting of Audit Review Committee for State Public Sector Enterprises (ARCPSE). The meeting was attended by the Director (Distribution), Uttar Pradesh Power Corporation Limited and Director (Finance) of the Company. No representative from the Government attended the meeting. Views expressed by the representative of the Management have been taken into consideration while finalising the review.

Audit findings are discussed in the succeeding paragraphs:

#### ***Energy losses and adequacy of transformation capacity at sub- stations***

**2.3.7** Difference between energy purchased and energy sold to the consumers is termed as energy losses. It occurs due to technical and non-technical reasons. In order to minimise the energy losses within a reasonable limit, the following measures ought to be taken by the Management:

- Purchase, sale and loss of energy should be recorded correctly for taking appropriate decision by the Management; and

- Transformation capacity at the sub-station should be adequate so as to cater to the load of the consumers and avoid the problem of voltage dropping and frequent tripping which causes excessive energy losses.

The overall status of energy losses and transformation capacity in the Company are discussed in the following paragraphs:

**Energy losses**

**2.3.8** The table below indicates distribution losses of the Company during the five years period ending 2007-2008:

Sl. No.	Particulars	2003-04	2004-05	2005-06	2006-07	2007-08	Total
1.	Energy received (MU)	8833.020	9103.218	9651.033	10822.476	11266.529	49676.276
2.	Energy sold (MU)	6661.603	6536.493	6884.980	7554.198	8195.259	35832.533
3.	Energy losses (MU)	2171.417	2566.725	2766.053	3268.278	3071.270	13843.743
4.	Percentage of energy losses ( <i>per cent</i> )	24.58	28.20	28.66	30.20	27.26	27.87
5.	Target of maximum loss fixed by UPERC ( <i>per cent</i> )	24.82	22.31	18.81	25.51	22.8	-
6.	Excess distribution losses over UPERC target (MU) (4-5)/100 x 1	Nil	536.180	950.626	507.574	502.487	2496.867
7.	Average sale rate (Rupees per unit)	2.39	2.65	2.49	2.35	2.38	-
8.	Value of excess distribution losses over UPERC target (Rupees in crore) (6 x 7)	Nil	142.09	236.70	119.28	119.59	617.66

Source: Commercial statements and tariff orders

**The energy losses in excess of UPERC targets were 2496.867 MU valuing Rs 617.66 crore during last four years ending March 2008.**

It would be observed from the table that distribution losses in the Company were much higher than target of maximum losses fixed by UPERC. The quantum of distribution losses in excess of UPERC target during 2004-05 to 2007-08 worked out to 2,496.867 MU valuing Rs 617.66 crore. The main reasons for such abnormally high losses, as analysed in audit, were insufficient transformation capacity, inadequate working capacity of capacitor banks, low power factor, heavy quantum of unmetered consumers and theft of electricity etc as discussed in the succeeding paragraphs.

The Management stated (September 2008) that five years business plan up to 2012-13 was under finalisation to set the strategy to reduce the line losses.

The fact remains that no concrete steps were taken so far to bring down the huge losses.

**Inadequate transformation capacity**

**2.3.9** The energy received at high voltage (132 KV, 66 KV, 33 KV) from primary sub-stations of the Transmission Companies is transformed to lower voltage (11 KV) at 33/11 KV sub-stations of the Distribution Companies to make it usable by the consumers. In order to cater to the entire connected load, the transformation capacity should be adequate. The ideal ratio of transformation capacity to connected load is considered as 1:1. Inadequacy of transformation capacity leads to overloading on the system, which reduces the voltage being supplied and consequently there would be loss of energy.

The table given below indicates the details of transformation capacity at 33/11 KV sub-stations and connected load of the consumers during the period from 2004-2005 to 2007-2008.

Year	Transformation Capacity (MVA)	Connected Load (MVA)	Gap of transformation capacity (MVA)	Ratio of transformation capacity with the connected load
2004-2005	3057.000	5090.552	2033.552	0.60:1
2005-2006	3360.650	5265.856	1905.206	0.64:1
2006-2007	3624.500	5777.652	2153.152	0.63:1
2007-2008	3720.500	6287.337	2566.837	0.59:1

Source: 'Statistics at a glance' and information furnished by the Company.

**The ratio of transformation capacity at 33/11 KV sub-stations to connected load ranged between 0.59:1 and 0.64:1 which represented a gap of 2566.837 MVA at the end of March 2008.**

It can be seen from the table above that the distribution transformation capacity of 33/11KV sub-stations of the Company against total connected load ranged between 0.59:1 and 0.64:1. This represented a wide gap of transformation capacity. At the end of 2007-2008, the gap increased to 2,566.837 MVA. Such a high gap of transformation capacity led to overloading on the system, which was one of the reasons of the high energy losses.

The Management stated (September 2008) that adequate steps were being taken to reduce the load by augmentation of the existing transformers and installation of new transformers.

#### ***Non achievement of benchmark parameters under APDRP***

**2.3.10** In order to strengthen the sub-transmission and distribution system in urban/industrial areas, Accelerated Power Development Reform Programme (APDRP) was initiated in the beginning (2002-03) of the 10<sup>th</sup> five year plan by Government of India (GOI). The scheme mainly includes construction of new 33/11 KV, 11/0.4 KV sub-stations and associated 33 and 11 KV link lines, augmentation of capacity of existing 33/11 KV, 11/0.4 KV substations, replacement of mechanical energy meters with the electronic meters, geographical information system (GIS) mapping, providing electronic meters on distribution transformers etc. It aims at increasing financial viability of the Company, reduction of T&D losses by around 10 *per cent*, transformer-wise energy accounting and increasing reliability and quality of power supply etc.

The scheme was implemented in the urban areas of Varanasi, Allahabad and Gorakhpur. The various activities of the scheme were completed by January 2008 and a total expenditure of Rs 203.04 crore was incurred. The benchmark parameters taken in respect of T&D losses, actual T&D losses of the respective Urban Distribution Circles in the base year, position of T&D losses achieved and actual T&D losses at the completion of the scheme are given in the following table:

(Figures in percentage)

Name of the urban area	T&D losses taken for bench mark parameters (Base year-2003-04)	Actual T&D losses (2003-04)	Achievement of T&D losses as reported in the progress of the scheme (2007-08)	Actual T&D losses (2007-08)
Varanasi	39.90	39.90	28.85	28.89
Allahabad	34.29	34.29	34.92	35.64
Gorakhpur	30.49	21.80	19.78	19.93

Source: Progress report of the scheme and commercial statements.

The following deficiencies have been noticed in this regard:

- The percentage of T&D loss taken for benchmark parameter for Gorakhpur was remarkably on higher side (30.49) compared to actual percentage of T&D loss reported by the Company in its commercial statements. The achievement of T&D loss in Gorakhpur after implementation of the scheme was 19.78 *per cent* at the end of 2007-08.

The actual reduction in loss was 1.87 *per cent* while the reduction in loss reported in the progress of APDRP was 10.71 *per cent*.

- In Allahabad, the actual loss instead of reducing, has actually increased by 1.35 *per cent* in spite of expenditure of Rs 81.58 crore incurred thereon.
- Despite increase in the total transformation capacity of the Company at 33/11 KV from 3057.000 MVA in 2003-04 to 3720.500 MVA in 2007-08 the gap between transformation capacity and connected load has increased from 2033.552 MVA in 2003-04 to 2566.837 MVA in 2007-08.
- Although metering of the distribution transformers has been completed in urban areas where the scheme was implemented, the energy audit by downloading the data of energy sent out from each distribution transformers and corresponding energy billed was not being done.

Thus, even after implementation of the scheme the objectives of the scheme regarding reduction of T&D losses and transformer-wise accounting/audit of energy mostly remained to be achieved.

### **Technical losses**

**2.3.11** The technical losses are caused by the actions internal to the power system and mainly consists of transformation and distribution losses, which occur due to inherent character of equipments used for transforming the power and resistance in conductors through which energy is distributed/carried from one place to another. Technical losses can be minimised by supplying energy at high voltage as far as possible, maintenance of adequate working capacity of capacitor banks at the sub-station and consumers' end both for achieving adequate power factor.

Audit scrutiny revealed the following deficiencies:

#### ***Supply of energy at low voltage***

**2.3.12** Supply of energy at low voltage (less than 11 KV) requires transformation of energy from high voltage to low voltage. The process of transformation of energy causes loss of certain amount of energy, which can be saved if the supply of energy is maintained at high voltage (11 KV and above). The Uttar Pradesh Electricity Supply Code, 2002 and 2005 (Supply Code), prescribe different supply voltages for different loads and category of consumers. According to the Supply Code, the supply of energy to the consumers having load above 63 KVA is to be given at 11 KV and for load above 3,000 KVA to 10,000 KVA at 33 KV. The Company was authorised to convert the supply of existing consumers at low voltage into high voltage either at its own cost or at the cost of the consumers. The following deficiencies were noticed in this regard:

- In 14 Distribution Divisions, 192 consumers with load above 63 KVA were supplied energy at low voltage at the end of 2003-04, whereas the number of such consumers increased to 224 at the end of November/December 2007. This indicated poor performance of conversion of supply voltage from LT to HT. Non-compliance of the provisions of Supply Code resulted in loss of energy.
- In order to quantify the loss of energy the metering at 11 KV supply end and at 0.4 KV receiving end are required. The readings at the 11 KV supply end in respect of individual consumers were, however, not

**On account of supply of energy at low voltage, 9.68 lakh KWh of energy valuing Rs 33.96 lakh was lost**

available with the Divisions except in two cases<sup>1</sup> in EUDD-I, Gorakhpur. It was noticed in audit that against 1,52,762 KWh of energy recorded at 11 KV supply at the end of the above two consumers during the period July to December 2007, 1,41,794 KWh energy was recorded at the 0.4 KV receiving end. Thus there was average loss of energy of 7.18 *per cent*<sup>2</sup> on supply of energy at 0.4 KV (LT) as compared to supply at 11 KV (HT) in the above two cases.

Taking the average loss of 7.18 *per cent* worked out by Audit, in five Distribution Divisions the losses of energy in case of 43 consumers of different categories having contracted load above 63 KVA and supplied energy at 0.4 KV worked out to 9.68 lakh KWh amounting to Rs 33.96 lakh. Thus the energy loss of Rs 33.96 lakh could have been avoided in case the supply of these consumers had been converted into HT (11 KV) supply from LT (0.4 KV).

The Management accepted the audit observation and stated (September 2008) that the consumers are not depositing the money for converting their supply from LT to HT and it would invest funds from its own resources, once the financial condition of the Company improves, to convert such consumers to HT consumers.

#### ***Inadequate working Capacity of Capacitor Banks at sub-stations***

**2.3.13** In the event of voltage of the system falling below normal, the situation can be set right by providing sufficient capacity of capacitor banks to the system as it improves the voltage profile and reduces dissipation of energy in the system to a great extent and thereby saves loss of energy. The Capacitor bank saves energy to the extent of 0.04959 MU per MVAR (Mega Volt Ampere Reactive Power) of its capacity. UPERC prescribes installation of capacitor banks having capacity of 12 KVAR for each transformer having capacity of 15 KVA. Accordingly, against the existing transformation capacity of 3720.5 MVA at the end of 31 March 2008, the estimated required installed capacity of capacitor banks was 2976.4 MVAR<sup>3</sup>. The Company failed to install sufficient capacity of capacitor banks and get the defective capacitor banks repaired. Consequently it could not take the advantage of energy savings.

**The Company failed to install required capacity of capacitor banks.**

**Five Distribution Companies could not save 16.238 MU of energy valuing Rs 3.82 crore as the installed capacitor banks remained defective.**

The information regarding total 11 KV capacitors installed and capacity utilised was not made available to audit. However, as per records of holding company (UPPCL), the total capacity (of all the five<sup>4</sup> Distribution Companies) of capacitor banks installed at the end of 31 March 2007 was 800.14 MVAR. Out of this, the capacity of only 472.70 MVAR was being utilised and the remaining capacity of 327.44 MVAR was lying defective. The under-utilisation of capacity of the capacitor banks attributed to non-saving of loss of energy to the extent of 16.238 MU<sup>5</sup> amounting to Rs 3.82 crore by all the five Distribution Companies worked out at the average sale rate of Rs 2.35 per unit.

#### ***Non-installation of shunt capacitors at consumers' end***

<sup>1</sup> Beni Madhav Cold Storage and Victor Ice Factory, both consumers of HV-2 and energy supplied at 0.4 KV.

<sup>2</sup>  $(1,52,762 - 1,41,794) \text{ KWh} / 1,52,762 \text{ KWh} \times 100$ .

<sup>3</sup>  $3720.5 \text{ MVA} / 15 \text{ KVA} \times 12 \text{ KVAR} = 2976.4 \text{ MVAR}$ .

<sup>4</sup> 1. Purvanchal Vidyut Vitaran Nigam Limited 2. Paschimanchal Vidyut Vitaran Nigam Limited. 3. Dakshinanchal Vidyut Vitaran Nigam Limited 4. Madhyanchal Vidyut Vitaran Nigam Limited. 5. Kanpur Electricity Supply Company

<sup>5</sup>  $0.04959 \text{ MU per MVAR} \times 327.44 \text{ MVAR} = 16.238 \text{ MU}$ .

**2.3.14** Shunt capacitor is a device, which regulates the voltage and thereby saves the loss of energy by improving power factor. Tariff Order effective from December 2004 made it obligatory upon all the consumers to maintain average power factor of 0.85. Further in respect of connections for motive power load of above 3 BHP, shunt capacitors of appropriate ratings were to be installed. In respect of consumers without static Tri-Vector Meters (TVMs), if the shunt capacitor of appropriate ratings is found missing or non-operational, shunt capacitor surcharge at the rate of 10 *per cent* (15 *per cent* from August 2007) of the monthly bill was to be levied. In case of Government consumers the amount of bills raised are to be verified by the consumers for making payments thereagainst by the Government centrally. The following deficiencies were noticed in audit:

**Shunt capacitor surcharge amounting to Rs 1.54 crore was not levied on 8763 consumers.**

- In five Divisions\* shunt capacitor surcharge was levied but no efforts were made to ensure installation of shunt capacitors on 10,588 consumers of various categories to avoid loss of energy which was not fully compensated by levy of surcharge.
- Nine Divisions neither ensured installation of shunt capacitors on 8,763 consumers nor levied/short levied shunt capacitor surcharge to the extent of Rs 1.54 crore during the period from December 2004 to February 2008.
- Thirteen Government consumers in seven Divisions\*\* did not install the shunt capacitors, which attracted levy of the surcharge during the period from April 2004 to February 2008. These Divisions, though levied Rs 2.85 crore on the consumers towards shunt capacitor surcharge, the same were not verified by the concerned consumers for making payments of the surcharge billed. Non-verification of surcharge by the consumers resulted in non-recovery of Rs 2.85 crore and the loss of energy on this account could not be compensated.

In ARCPSE meeting the Management stated (October 2008) that surcharge under charge shall be billed and recovered from the consumers.

#### **Non-technical losses**

**2.3.15** The major non-technical losses include losses on account of non-billing the consumers on the basis of actual metered consumption and lack of control over pilferage of energy. These losses can be arrested by *cent per cent* metering of consumers, ensuring accuracy of metered consumption by installation of electronic meters and double meters (another meter outside the premises on the pole of the consumers), minimising the billing on ad-hoc basis and taking effective anti-theft measures.

Deficiencies noticed in this regard are discussed in succeeding paragraphs:

#### ***Large number of unmetered consumers***

**2.3.16** Uttar Pradesh Electricity Supply Code, 2005 restricted licensee to release new connections without meters. It further directed (18 February 2005) to ensure metering of all the existing unmetered connections. UPERC also from time to time directed the Company vide its tariff orders (2004-05 and

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\* EDD-II, Ballia, EDD, Kushinagar, EDD-I, Azamgarh, EDD Sant Kabir Nagar and EDD-I, Jaunpur.

\*\* EDD Kushinagar, EUDDs-I, II and III Gorakhpur, EDD Sant Kabir Nagar, EUDD-IV Varanasi, EDD-I Mirzapur.

2006-07) for metering of unmetered connections. The following deficiencies were noticed in audit:

More than half of the consumers were supplied energy without meters.

- As on 31 March 2008, out of total 26,17,795 electricity connections being catered to by the Company, only 11,25,798 connections were metered which represented metering of only 43 *per cent* connections. The Company planned to install 7,70,000 single phase and 4,000 three phase energy meters during 2008-09 and installed 13,359 single phase meters and 956 three phase meters at the consumers premises by the end of July 2008. The slow progress in installation of meters resulted in non-recording of actual consumption of energy by consumers and allowed unaccounted consumption of energy.
- As per prescribed procedure, new electricity connections are to be released only after installation of meter by the Distribution Division concerned. A test check of records of 16 Divisions\* revealed that even after the imposition of restrictions, 23,074 new connections under various categories were released without meter during the period from March 2005 to February 2008. These connections were being billed on the basis of flat rate, which resulted in unaccounted supply of energy besides non-compliance of provisions of Supply Code.
- In cases of consumers of urban area, if the meters are not installed at the time of release of connections their monthly energy bills would not be generated by the computer. In order to generate their bills, a presumptive/fictitious number is required to be entered.

Even new connections were released without meters in violation of provisions of the Electricity Act, 2003.

Test check of nine Divisions\*\*, revealed that 13,273 connections were released without ensuring installation of meters and their bills were generated on ad-hoc basis by allotting fictitious meter numbers (LF9999, LF0000 or numbers matching a part of service connection/ sequence number of the respective consumer). Such status of the consumers remained for the period two to 99 months (March 2008). Even though these consumers were not provided with meters but were, however, being reported as metered consumers in the Annual Revenue Requirement (ARR) submitted to UPERC.

Thus, the Company failed in *cent per cent* metering of the consumers. Unaccounted supply of energy due to non-metering was the main reason for abnormally high loss of energy.

### ***Slow replacement of electro-mechanical meters with electronic meters***

**2.3.17** The electronic meters measure energy more accurately than electro-mechanical meters. UPPCL (holding Company of all the Distribution Companies) directed (September 2004) for replacement of the electro-mechanical meters installed on the premises of existing consumers with the electronic meters.

It was noticed that out of 10,66,176 meters to be replaced in four zones, 1,38,201 meters (12.96 *per cent*) were still to be replaced at the end of 31 March 2008. Thus the objective of the Company for accurate recording of consumption was not achieved.

\* EDD-II Varanasi, EUDD-V Varanasi, EUDD-III Gorakhpur, EDD Kushinagar, EDD-I Azamgarh, EDD-II Ballia, EUDD-I Gorakhpur, EUDD-II Gorakhpur, EDD Sant Kabir Nagar, EUDD-IV Varanasi, EDD-I Varanasi, EDD-I Ghazipur, EDD-II Ghazipur, EDD Chandauli, EDD-I Jaunpur, EDD-I Mirzapur.

\*\* EDD-II Ballia, EDD Kushinagar, EUDD-I Gorakhpur, EUDD-II Gorakhpur, EDD Sant Kabir Nagar, EUDD-IV Varanasi, EDD-I Jaunpur, EDD-I Mirzapur, EDD-I Gorakhpur.

The Management stated (September 2008) that due to shortage of meters the work was delayed.

The fact, however, remains that due to Company's failure in replacing the electro mechanical meters with electronic meters even after lapse of more than three years, the objective of accurate recording of consumption of energy was defeated.

***Slow progress in installation of double meters***

**2.3.18** With a view to ensure accuracy in recording of consumption through meters installed at the premises of the consumers having heavy load and to check any possible theft of electricity, UPPCL directed (August 2005 and onwards) all the Distribution Companies to install another meter (referred as 'double meter') outside the premises of the consumers. If the consumption recorded by the double meter exceeds permissible limit of three *per cent*, the reasons for difference were to be investigated and main meter of the consumer was to be replaced, if required. The following deficiencies were noticed in this regard:

- The table given below indicates the details of progress of installation of double meters in respect of the consumers having load above 10 to 100 KVA and above 100 KVA during 2006-07 and 2007-08 in different zones of the Company.

Distribution Zone	Year	Number of meters to be replaced (figure are progressive)		Number of meters replaced (figure are progressive)		Balance of meters to be replaced (figure are progressive)	
		10 to100 KVA	Above 100 KVA	10 to100 KVA	Above 100 KVA	10 to100 KVA	Above 100 KVA
Varanasi	2006-07	6579	351	717	165	5862	186
	2007-08	6800	346	1050	156	5750	190
Azamgarh	2006-07	1355	44	686	44	669	--
	2007-08	1372	44	963	29	409	15
Gorakhpur	2006-07	2834	196	1385	95	1449	101
	2007-08	2867	197	1564	114	1303	83
Allahabad	2006-07	3552	247	1141	105	2411	142
	2007-08	3578	247	1325	103	2253	144
<b>Total (percentage in brackets)</b>	<b>2006-07</b>	<b>14320</b>	<b>838</b>	<b>3929 (27.44)</b>	<b>409 (48.81)</b>	<b>10391 (72.56)</b>	<b>429 (51.19)</b>
	<b>2007-08</b>	<b>14617</b>	<b>834</b>	<b>4902 (33.54)</b>	<b>402 (48.20)</b>	<b>9715 (66.46)</b>	<b>432 (51.80)</b>

Source: Progress report furnished by the Company.

It would be seen from the table above that out of 14,617 connections having load above 10 to 100 KVA, 4902 connections (33.54 *per cent*) were provided with double meters. Further, 402 connections having load above 100 KVA were provided with double meters against total number of 834 connections which represented the progress of 48.20 *per cent*. Thus total progress after a lapse of three years was only 34.33 *per cent*.



- In EDD-I, Jaunpur, main meter of three HV-2 consumers recorded less consumption by 53,560 KVAh as compared to double meter during the period from February 2007 to January 2008.

Thus failure to carry out comparison of consumption recorded by main meters and double meters resulted in non-detection of energy losses and also the objective of the Company to ensure accuracy in measuring consumption of energy by the consumers remained unfulfilled.

The Management stated (September 2008) that one of the three consumers has been assessed for the readings of double meters and the assessment in other two cases will be made after the receipt of respective reports from the test Division. The reply is not convincing, as action for assessments was taken by the Division without confirming the position through check meters which was against the provisions of the Supply Code, 2005.

***High incidence of ad-hoc billing of metered consumers***

**2.3.19** In order to ascertain the correct energy losses, the billing to the consumer should be done on the basis of metered consumptions. In case meter becomes defective, the same is required to be replaced within 15 days as per provisions of Supply Code. The position of NA/NR (No access/ No reading) should also not be continued for more than one billing cycle.

- The position of ad-hoc billing in the Company at the end of March 2005, March 2006, March 2007 and March 2008 either due to non-availability of meter reading (NA/NR) or meter being defective (IDF/ADF/CDF/RDF) is indicated in the table given below:

Month	Category of consumers	Number of consumers billed	Status of ad-hoc billing			
			Reading not available (NA)	Informed defective (IDF/ADF)	Total	Percentage of ad-hoc billing
March 2005	LMV-2	154368	35202	30729	65931	42.71
	LMV-6	23635	3904	2662	6566	27.78
March 2006	LMV-2	114558	27079	21750	48829	42.62
	LMV-6	5910	1551	762	2313	39.14
March 2007	LMV-2	99631	27961	25877	53838	54.04
	LMV-6	29005	9262	3253	12515	43.15
March 2008	LMV-2	134022	24915	24191	49106	36.64
	LMV-6	26610	3813	3063	6876	25.84

Source: Meter exception reports.

As would be seen from the table, the ad-hoc billing, ranged between 25.84 and 54.04 *per cent* in case of Commercial and Industrial categories of consumers. As a result thereof the actual energy consumption and the loss of energy could not be ascertained.

- Test check of five Divisions\* further revealed that out of 39,082 metered consumers, 19,845 (50.78 *per cent*) consumers were continued to be billed on ad-hoc basis for the period 1 to 99 months as on March 2008.

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\* EDD-II Ballia, EDD Kushinagar, EDD Sant Kabir Nagar, EDD-I Jaunpur, EDD-I Mirzapur.

- The Divisions did not take readings in NA/NR cases and replace defective meters so far (March 2008). Thus Company failed to replace the defective meters within 15 days required in the Supply Code.

The Management stated (September 2008) that efforts were being made to minimise the cases of NA/NR/IDF etc. It further stated that shortage of staff was one of the reasons for such position of meter exceptions.

Energy meters of four large pump canals remained defective, 35.69 lakh KWh of energy valuing Rs 1.36 crore was lost

- In three<sup>1</sup> Divisions, energy meters of four pump canals having load above 100 BHP (billable under rate schedule HV-4) were lying defective since long. These consumers were, however, billed at fixed rate applicable to unmetered consumers under lower rate schedule LMV-8. Consequently, 35.69 lakh KWh energy (worked out on the basis of LFHD<sup>2</sup> formula on which these consumers were billed prior to December 2004) valuing Rs 1.36 crore could not be billed and was converted into loss of energy.

The Management stated (September 2008) that EDD Sant Kabir Nagar has billed one of the consumers for Rs 43.40 lakh.

The fact, however, remains that the amount assessed has not been recovered and no action has been taken in respect of remaining three consumers.

#### **Anti-theft measures**

**2.3.20** In order to have control over pilferage/theft of energy, periodical inspection of consumers' installations, their meters, imposition of penalties for theft/unauthorised use of energy and recovery of cost of energy under theft are essential.

The deficiencies noticed in this regard are discussed in succeeding paragraphs:

#### ***Ineffective periodical inspection of meters***

**2.3.21** Clause 5.5 of Supply Code, 2005 provides for periodical inspection of single phase meters once in five years, three phase LT meters and HT meters once in a year. It was noticed in audit that the Company was not doing periodical inspection of meters as per prescribed schedule. Consequently timely detection of defective meters could not be done.

The Management stated (September 2008) that HT meters are being inspected periodically and provision for inspection of LT meters once in five years has been made in five year business plan ending 2012-13. The reply is not convincing as periodical inspection of HT meters is not confirmed on records of the Divisions.

#### ***Loss due to theft of energy***

**2.3.22** As per section 135 of Electricity (Amendment) Act 2003, effective from 15 June 2007, theft of energy is an offence punishable under the Act. Apart from punishment, the proportion of energy gone under theft is to be assessed on the basis of LFHD formula. In order to compensate the loss of

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<sup>1</sup> 1. EDD- II, Varanasi: Mahadev Pump Canal and Chittauni Pump Canal.  
2. EDD Sant Kabir Nagar: Bakhira Pump Canal.  
3. EUDD-III Gorakhpur: Rambag Pump Canal

<sup>2</sup> LFHD represents Load x Factor x Hours of supply x No. of days.

energy, bills are to be raised for twelve months<sup>1</sup> at twice the rate of applicable tariff. The amount so assessed should be recovered within one month of giving notice to the consumers. Thereafter it should be pursued with the District authorities for prompt recovery. The following deficiencies are noticed:

29.03 lakh KWh of energy valuing Rs 68.21 lakh was lost on account of theft.

- Five Divisions<sup>2</sup> assessed Rs 78.61 lakh against assessable amount of Rs 146.82 lakh in respect of 274 theft cases detected during the period from June 2007 to January 2008. This resulted in under assessment of Rs 68.21 lakh and corresponding loss of energy of 29.03 lakh KWh.

The Management stated (September 2008) that on being pointed out by Audit, the required assessment has been made by four Divisions and recovery thereagainst was awaited (October 2008).

- Mere assessment in cases of theft of energy detected would not be sufficient for compensating loss of energy. In five Divisions/Circle, it was noticed that against assessment of Rs 3.93 crore for theft of energy during the period April 2003 to August 2007, Rs 1.22 crore only could be recovered so far (March 2008) leaving Rs 2.71 crore unrecovered. Thus, failure to ensure compliance of the recovery procedures, the loss of energy due to theft could not be compensated.
- In four Divisions it was noticed that neither FIRs were lodged for theft of energy in 63 cases, nor compounding charges of Rs 44.28 lakh levied on the defaulting consumers during the period from June 2006 to January 2008.

Compounding charges for theft of energy amounting to Rs 44.28 lakh was not recovered from 63 defaulting consumers

Thus the Company failed to take required action against the theft cases detected so as to compensate itself from the loss of energy and discourage theft of energy by sending a strong message in the public.

### Acknowledgement

2.3.23 Audit acknowledges the cooperation and assistance extended by officers of the Company at various stages of conducting the performance audit.

The above audit findings were reported to the Government in May 2008; their reply was awaited (October 2008).

### Conclusion

**The Company failed to arrest the energy losses due to inadequate transformation capacity, non- installation of loss saving devices such as capacitor banks at sub-stations and shunt capacitors at consumers end, supply of energy at low voltage to consumers, non-installation of static Tri Vector meters to observe power factor/non-maintenance of desired power factor by the consumers. Company failed to ensure *cent per cent* metering for supply of energy leading to high incidence of ad-hoc billing. Company also did not take appropriate action against the cases of theft of energy. The objective of Accelerated Power Development Reform Programme (APDRP) for reduction of transmission and distribution losses could not be achieved.**

<sup>1</sup> w.e.f. 15 June 2007 as per The Electricity Amendment Act, 2007 (26 of 2007).

<sup>2</sup> EDD, Sant Kabir Nagar, EUDD-II, Gorakhpur, EUDD-V, Varanasi, EDD-I, Jaunpur and EDD-I, Mirzapur.

**Recommendations**

The Company needs to take following measures to reduce the energy losses:

- **Minimise gap between transformation capacity and connected load;**
- **Capacitor banks at sub-stations and shunt capacitors at consumers end should be installed;**
- **Supply energy at appropriate voltage;**
- **Ensure cent *per cent* electronic metering of the consumers; and**
- **Improve monitoring mechanism for controlling theft of energy.**

## **2.4 Information Technology Support System of Revenue Billing in Paschimanchal Vidyut Vitran Nigam Limited, Meerut**

### **Highlights**

**In the absence of program change control procedures in the Energy Billing System (EBS), the company could not correctly bill the large and heavy power consumers as per the new tariff schedule. This resulted in incorrect billing aggregating Rs 2.56 crore in case of three divisions. Other divisions manually corrected the bills before issue.**

*(Paragraphs 2.4.13 and 2.4.14)*

**Investment of Rs 94.66 lakh on development of Geographical Information System became unfruitful in the absence of supporting software and non-linkage to the data bank.**

*(Paragraph 2.4.16)*

**Inadequate input controls and lack of validation checks resulted in large cases of duplicate or fictitious records in the data bank. Vital fields were either missing or blanks and many fields contained unauthentic data entry and in others the entries were eliminated from the data bank.**

*(Paragraph 2.4.18)*

**Agencies did not bill the consumers having defective meters as per business rules. Due to this, the assessment was short to the extent of Rs 1.89 crore with reference to the units shown as sold.**

*(Paragraph 2.4.19)*

**Absence of system alerts and prescribed action in low power factor cases resulted in waste of 1.92 crore units of energy valuing Rs 7.21 crore.**

*(Paragraph 2.4.20)*

**The system did not alert in excessive consumption pattern cases of healthy meters to check connected load of consumer's installation. The excessive consumption of energy resulted in loss of fixed charges.**

*(Paragraph 2.4.21)*

**Higher tariff consumers (LMV-4 and LMV-2) were billed in lower tariff (LMV-1) due to lack of monitoring through IT skills. This resulted in short assessment of Rs 4.42 crore from December 2004 to November 2007.**

*(Paragraph 2.4.22)*

### **Introduction**

**2.4.1** Paschimanchal Vidyut Vitran Nigam Limited, Meerut (PVVNL) was incorporated on 1 May 2003 as a subsidiary of Uttar Pradesh Power Corporation Limited, Lucknow (UPPCL). PVVNL was engaged (from August 2003) in distribution of energy to nearly 26.93 lakh consumers with an average load of 826.07 MW. The functional area of the company was divided

into three Zones, 16 circles, 49 Distribution Divisions spread over western part of Uttar Pradesh.

**2.4.2** For large and heavy power (HV-2) consumers, software designed by PriceWaterHouseCoopers (PwC) called “Energy Billing System (EBS)” was in place since 2000. EBS software automatically generates bills when the technical and commercial parameters downloaded electronically through Meter Reading Instrument (MRI) from meters are uploaded into the system. For small and medium consumers (other than HV-2), the billing activity was done by three private agencies for which there was a two tier billing system. One was called IBM pattern where inputs were sent to the agencies for bill generation and posting of cash stubs through Computer Billing Service Centre, Meerut (CBSC). The other is called Hand Held (HH) pattern where the agencies deploy their own staff with HH machines for bill generation and collection of cheques at consumers’ doors.

#### **Organisational set up**

**2.4.3** The Board of Directors of PVVNL (company) comprises a full time Managing Director and two other Directors (Technical and Finance). The IT needs of the company are overseen by Chief Engineer (Commercial) under the overall charge of the Director (Technical).

#### **Scope of Audit**

**2.4.4** Scope of Audit included analytical review of the data bank of 18<sup>1</sup> selected divisions of Meerut, Bulandshahr, Noida and Ghaziabad towns to ascertain authenticity, accuracy and completeness of the databank for error free bill generation by three agencies<sup>2</sup> in case of small and medium consumers and own EBS software (for HV-2 consumers). For detailed scrutiny of related activities, one division each from Meerut<sup>3</sup>, Bulandshahr<sup>4</sup>, Khurja<sup>5</sup>, Noida<sup>6</sup> and Ghaziabad<sup>7</sup> towns was selected and the physical data available in hard copies, billing ledgers, permanent disconnection registers, new connection registers, reports, payment vouchers, measurement books etc. were analysed to assess the correctness of the output generated.

#### **Audit objectives**

**2.4.5** The audit objectives were to assess whether:

- the company had adequate IT infrastructure, documented strategy and IT plan, key control and monitoring mechanism to derive benefits of IT support system, and
- the company’s own EBS and outsourced agency’s systems and skills were capable of supporting the management in improving the standard of performance in billing activity as contemplated in Supply Code 2005.

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<sup>1</sup> Meerut (EUDD-I, II and III, EDD-I and II), Ghaziabad (EUDD-I,II,III,IV and V), Bulandshahr (EDD-I, II and III), EDD-Khurja, Noida (EUDD-I, II, and III and EDD-Noida)=18 divisions.

<sup>2</sup> CSMC, New Delhi, SAI Electricals, Meerut and CS Software, NOIDA.

<sup>3</sup> Electricity Distribution Division II, Meerut.

<sup>4</sup> Electricity Distribution Division I, Bulandshahr.

<sup>5</sup> Electricity Distribution Division, Khurja.

<sup>6</sup> Electricity Urban Distribution Division II, Noida.

<sup>7</sup> Electricity Urban Distribution Division I, Ghaziabad.

#### **Audit criteria**

**2.4.6** The following audit criteria were used to ascertain whether the objectives stated as above were fulfilled:

- the agreements entered into between the company and the outsourced agency for safeguarding financial interests and performance;
- the conditions as laid down in the Supply Code, 2005;
- the tariff orders notified by the UPERC from time to time;
- the best practices of IT Governance; and
- the systematic approach to identify system weaknesses through an internal control mechanism.

#### **Audit methodology**

**2.4.7** The data bank relating to revenue billing were analysed during January-April 2008 using computer assisted auditing tool viz. IDEA<sup>8</sup> for examining the correctness, completeness and integrity of the data. Besides examining the above data, the existence and adequacy of IT controls, PVVNL's staff skills/participation, efficiency and effectiveness of IT support system was also assessed. Computer generated data was tallied with the manual data available in the divisions and management's viewpoints were taken into consideration.

#### **Audit constraints**

**2.4.8** Assessment of outside Agency's system configuration, staff skills, security features and controls could not be fully done due to their non-co-operation<sup>9</sup>. Regarding details of IT assets (hardware and software), system configuration, investment on IT assets and recurring expenditure on IT (contract employees, outsourced agencies and other expenditure), management agreed (April 2008) to provide these details but the same were not made available to audit till the completion of field study and thereafter (October 2008).

#### **Audit Findings**

**2.4.9** Audit findings as a result of the Performance Review on Information Technology Support System of Revenue Billing in the company were reported to the Management/Government in May 2008 and were discussed in the meeting of Audit Review Committee on Public Sector Enterprises (ARCPSE) held on 9 September 2008. The Managing Director and Director (Finance) of the company attended the Meeting. No representative from the State Government attended the meeting. The replies of the Management have been taken into consideration while finalising the review. Audit noticed the following deficiencies:

#### ***Inadequacies in IT control environment***

**2.4.10** For successful billing, the company needs to have control mechanism, documented IT plan, key controls for maintenance of data bank, uniform data structure across all divisions, protection of information and error handling

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<sup>8</sup> Interactive Data Extraction and Analysis package.

<sup>9</sup> The matter could not be resolved despite many requests made to the management and the agencies.

procedure, and audit trail. The deficiencies observed in audit have been discussed in the succeeding paragraphs:

- The activities of the company were marked by absence of an IT Policy, IT Security Policy, Change Management Control procedure documentation, Data Back-up plans, etc. Engineering, Billing and Internal Auditing staff of the company is also not technically equipped to monitor, control and examine the totally outsourced billing and collection functions, the core activity vital for company's survival.
- Success of any software used by various agencies depends upon uniform billing structure for data capture. PwC had developed uniform input billing structure defining, *inter alia*, the fields, description of the fields, data units, field type, field length, numeric field length, and reference table to facilitate adopting of uniform data structure by the billing agencies. This data structure or any other appropriate data structure was not appended to the agreements entered into with the billing agencies. The user manual prepared by PwC stated in the notes that the data must be division-wise and consumer-wise. The data must be in the formats with reference to the tables as prescribed. The specified field lengths should be adhered to. In the absence of enabling clauses in the agreements, the agencies adopted altogether different data structures. None of the agencies indicated the units adopted for loads (BHP/KW/KVA) as provided in PwC's data structure. This led to a situation where data from different divisions could not be meaningfully consolidated to give an overall picture depicting all divisions of the company.
- Protection of information assets is a critical factor to ensure continued availability of information, data confidentiality and integrity. No documented procedure for protection of the information assets or error handling procedures was available. Audit observed the following main weaknesses in the security control:
  - Though modifications made in the data relating to customer, services, meters and meter readings, payments, dishonoured cheques, addition of consumers, arrears, adjustments in assessments etc. were maintained in the database separately, they were not subjected to supervisory review periodically to ensure that the changes were authorised before committing them to the database.
  - For transfer of data from one outsourced agency to the other, the agreement provides for transfer without ensuring that the closing data of one agency match with the opening data of the other in such transfers. Such transfers were not subjected to supervisory review periodically.
  - Master reconciliation of the opening balance, assessments, collection, adjustments etc. with reference to the cash book were by passed leaving scope for data manipulations, likely frauds or embezzlements *etc.*
  - Cases of creation of fictitious book numbers<sup>10</sup>, deletion of consumers from the master data bank, acceptance of duplicate or

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<sup>10</sup> {EDD, Khurja: Z999 (April 07: 2 cases) (Z998: Oct 07: 1), Sept 07 (9999: 4 cases and 9998: 93 cases)}



unauthentic records, distorted position of the consumers with high arrears etc. were noticed.

- Data bank in respect of hand held system in Ghaziabad divisions did not contain cases of stopped billing, unbilled consumers or inoperative consumers. In many other cases pertaining to other divisions, names and address, fields details were unavailable making it difficult to identify the consumers. Many duplicate and unauthentic records were found resulting in unreliable data base. It also affected the true and fair presentation of the reports generated from such database.
- A well-defined and complete audit trail is a pre-requisite for ensuring reliability of data and this also acts as an effective internal control mechanism. The system under review did not provide any audit trail. As a result, cases of short or excess assessments could not be ascertained from the accountability point of view.
- The agreement of IBM billing provides for continuous system test run by creating a club consisting of at least two dummy divisions with not more than 150 consumers in each division. The company was to provide data for the purpose and billing with dummy data was to be done along with the other divisions during each billing cycle on a regular basis. Such bills and reports of the dummy divisions were to be checked by the company for ensuring correctness of the program on a regular basis and any required system modification checked live before implementation. No such provision was stipulated in the agreements of HH pattern of billing. A comprehensive and continuous system test run could have provided a reasonable assurance in meeting the objectives of correct bill generation. However, the computerised system software used by the outsourced agency was never subjected to test runs or acceptance testing before implementation of the billing program. In the absence of appropriate test run, the data bank had deficiencies leading to incorrect generation of bills.

**In the agreements of HH pattern of billing provision was not made for continuous system test run of atleast two dummy divisions with not more than 150 consumers to avoid incorrect generation of bills.**

Management stated (September 2008) that shortage of staff and lack of IT skill with the existing staff was the main reason for lack of IT environment and control mechanism. To overcome these shortcomings in software, PVVNL has floated Expression of Interest of on-line billing in July 2008 to cover scale to scale solution on IT related problems.

### **Energy Billing System**

**2.4.11** For successful billing, the system software needs to have documented technical and user manual to enable the operators of the software to undertake change control procedures in case of changes in business rules. It should further have adequate validation checks so that the system does not accept unauthentic input to enable generation of error free energy bills.

In this connection, audit noticed the following deficiencies in the own billing EBS and outsourced agency's key configurations leading to incorrect billing of Rs 2.56 crore in the EBS and loss of revenue aggregating Rs 9.10 crore in the outsourced agency's software, apart from many unauthentic and unreliable records in the database. These have been discussed in the succeeding paragraphs:

***Bypassing of the data integrity controls in Energy Billing System***

**2.4.12** Energy billing system (EBS) software was developed for large and heavy power consumers (HV-2 tariff schedule) by PricewaterhouseCoopers, the consultant associated with most facets of the reform process in the State. Bills through this software are generated automatically when the technical and commercial parameters stored for a billing month in the meter (L&T and Secure make meters) are downloaded with the help of “Meter Reading Instruments (MRI)” through an electronic media and uploaded into the division’s system through USB port. The Wincom (for L&T make meters) and Smart 2000 software (for secure make meters) both support the EBS platform through which MRI parameters are loaded and bills generated automatically. The MRI data are stored as .MRD files in wincom/smart 2000 software and original bills are generated on the basis of this MRI data. It was observed in audit that this crucial data was being further stored as data in MS Access platform as a shadow file. For subsequent or duplicate bill generation, the data available in this shadow file (MS Access data) was being used by the divisions instead of the original MRI data in .MRD file format available in the system. Looking to the fact that MS Access data can be changed over riding all the controls relating to meter readings, there was scope for manipulation of bills to give undue benefit to consumers.

In this connection, the following further risks were involved:

- The EBS software was protected with a universal single alphabet password in all divisions and there was no mechanism available with the users to change this password. This was fraught with the risk of manipulation especially under the circumstances when the EBS system was being operated through outsourced staff in all the divisions.
- The technical, operation and user manuals of this software were not available with the company. In the absence of the technical manual, the company was not able to exercise programme change controls to update many of the parameters thereof to generate correct energy bills.

In the absence of a change control mechanism, the EBS generated incorrect bills that were being manually corrected by the divisions.

***Incorrect application of rates for HV-2 consumers***

**2.4.13** The Uttar Pradesh Electricity Regulator Commission (UPERC) modified (13 August 2007) fixed charges and energy charges in case of large and heavy power consumers (HV-2). It revised Time of Day (TOD) rates that were lower by 7.5 per cent on base rate for supply during 22 hours to 06 hours (from 5 per cent in the previous tariff), and made it 15 per cent higher on base rate for supply during 17 hours to 22 hours (from 20 per cent in the previous tariff order). Accordingly, for 0.4 KV and 11 KV consumers, the applicable rates on such supply of urban schedule consumers were as follows:

Attributes	TOD rates from 22 to 06 hours (Rs.)	TOD rates from 06 to 17 hours (Rs.)	TOD rates from 17 to 22 hours (Rs.)
As per previous tariff	3.3250	3.50	4.2000
As per current tariff	3.2375	3.50	4.0250

It was noticed in audit that due to inadequate programme change controls, the bills were not correctly generated. While EUDD-IV of Noida manually

**Due to inadequate programme change control, bills were not correctly generated and due to incorrect rates in case of 6429 consumers having energy consumption of 1177.05 lakh units, the bills of excess amount of Rs 1.51 crore were issued.**

corrected these bills before issuing them to consumers, the other three divisions of Noida issued bills at incorrect rates in 6429 cases (consumers with supply voltage at 0.4 and 11 KV) for 1177.05 lakh units of energy involving excess amount of Rs 151.18 lakh during November 2007 to February 2008 as detailed below:

Divisions of Noida	Number of cases	Total units as per TOD slots of 22 to 06 hrs (lakh KVAh)	Excess charge (Rs. in lakh)	Total units as per TOD slots of 17 to 22 hrs (lakh KVAh)	Excess charge (Rs. in lakh)	Total excess charge (Rs. in lakh) {Column 4 + 6}
1	2	3	4	5	6	7
EUDD-I	3221	313.55	27.44	282.85	49.50	76.94
EUDD-II	1149	142.20	12.44	106.81	18.69	31.13
EUDD-III	2059	161.07	28.19	170.57	14.92	43.11
<b>Total</b>	<b>6429</b>	<b>616.82</b>	<b>68.07</b>	<b>560.23</b>	<b>83.11</b>	<b>151.18</b>

Management stated (September 2008) that shortcomings pointed out by audit have been taken care of in new software developed by M/s SAI Computers Limited.

#### ***Incorrect computation of surcharge for low power factor in case of HV-2 consumers***

**Three distribution divisions of Noida levied low power factor surcharge at the rate of 5 and 10 per cent in case of HV-2 consumers which was withdrawn by UPERC w.e.f. 13 August 2007, resulting in excess charging of Rs 1.05 crore from the consumers.**

**2.4.14** In case of HV-2 consumers, the energy charges were billed on basis of KVAh units in PVVNL. Such charges included charge for energy dissipated in the consumer's premises leading to low power factor. In order to avoid double disincentive to the consumers, UPERC withdrew (13 August 2007) the low power factor surcharge (5 per cent if PF falls below 0.85 and 10 per cent if it falls below 0.80 in the earlier tariff) so that consumers do not have to further pay for penalty on account of dissipation of energy leading to low power factor as such wastage was already being charged. However, the software was still computing surcharge of 5 and 10 per cent. This resulted in excess charging of Rs 105.26 lakh as surcharge from the consumers (for supply at 0.4 and 11 KV) as detailed below:

Divisions of Noida	Number of cases	Incorrect amount charged (Rs. in lakh)
EUDD-I	865	51.99
EUDD-II	357	23.14
EUDD-III	560	30.13
<b>Total</b>	<b>1782</b>	<b>105.26</b>

The above deficiency in billing in case of other divisions could not be examined for want of consolidated EBS billing data for all divisions in PVVNL.

Management stated (September 2008) that shortcomings pointed out by audit have been taken care of in new software developed by M/s SAI Computers Limited.

#### **Outsourced billing activity for small and medium consumers**

**2.4.15** The erstwhile Uttar Pradesh State Electricity Board was on IT platform partially since 1975 when it had outsourced billing of low tension consumers to outside agencies for accurate and efficient bill generation. Under distribution reform programme, the Holding company had outsourced the activity of creation of master data base for consumers of urban areas, bill

generation through hand held machines (including collection of cheques), issuing computerised receipt for cash collection and generating hard copy of the ledger and exception reports etc. For control, monitoring and payments, the respective Electricity Urban Distribution Circles were made the Nodal Officers. Simultaneously, the earlier system of bill generation through outside agencies was also adopted for other divisions (called IBM system). In IBM system, the meter readings, details of consumers to be added or deleted, increase or decrease in loads and other changes were passed on to the billing agency. After bill generation, the bills are received in the respective divisions, distributed to the consumers by them, payments collected and payment details further advised for posting in the master data bank. Coordination between the Agencies and the divisions for flow of input/output are done by Computer Billing Service Centre (CBSC), Meerut. Payment of bills for this work is made centrally by Computer Billing Centre, Noida for all the divisions of the company. Separate agreements for hand held and IBM system of bill generation have been executed between September 2003 and February 2005. The software used for IBM billing was COBOL and for hand held billing it was "Vidushi" (back-end) with front end as visual basic.

Absence of IT skills, IT tools, awareness of use of IT for increasing efficiency, effectiveness and economy with the company resulted in total dependence on the outside agencies leading to deficiencies like non utilisation of Geographical Information System (GIS) mapping, incorrect generation of bills, risks of likely fraud or loss of revenue etc.

***Non utilisation of Geographical Information System (GIS) mapping***

**The Company incurred an unfruitful expenditure of Rs 94.66 lakh on GIS mapping as soft copy with supporting software was not available with any of the offices.**

**2.4.16** The company could not make use of Geographical Information System (GIS) mapping rendering the expenditure incurred (contractual cost: Rs 94.66 lakh, actual expenditure not made available) on it as unfruitful. According to the agreements executed between September 2003 to February 2005, the Agencies were to undertake door-to-door survey and update master database including GIS mapping (showing roads, streets, lanes and houses or polygon), marking of distribution transformers (DT), poles and current transformer (CT) meter installation on low tension side of the DT. The survey include identifying status of meter (physical and operational status, glass broken, condition of seals, meter make, year of manufacture, number of digits etc.), correctness/legibility of meter number, consumer number, address etc. This also include identifying of power lines leading to the consumers' premises (or otherwise), allotment of sequence numbers as per actual physical sequence at site by visual inspection. It was noticed that GIS mapping if prepared by the Agency was not available with any of the offices in a soft copy with supporting software and interface with the Agency's server or otherwise for linkage with the data bank.

Management stated (September 2008) that GIS mapping made available by the agencies did not exactly provide the solution to the problem. However, appropriate action for removal of all problems was being taken. This indicates lackluster approach of the management in dealing with such a vital area.

***Non uniformity in data structure adopted by various outsourced agencies***

**2.4.17** Input Controls ensure that the data received for processing is genuine, complete, valid, accurate and properly authorised and the data entry is done accurately without duplication and all fields are duly filled in before the data is

committed in the system. To achieve this objective, it was necessary that the master data bank is created carefully with unique identification code for each consumer, meters have unique identification numbers, consumers' details are complete to ensure identification in case of a need to initiate legal or other action etc.

It was, however, observed that the data bank maintained by the three outsourced agencies did not have uniform data structure for fields and formats etc. One agency (CS Software, Hyderabad) changed the data structure substantially adopting altogether different fields than the one adopted by others. This resulted in a situation whereby the data from different divisions can not be consolidated.

#### ***Duplicate and fictitious records in the data bank***

**2.4.18** The software did not have adequate input controls to oversee that the data bank did not have duplicate consumers, duplicate book/service nos., cases with fictitious meters, meters column as blanks. The meter serial number, phase, make and rating were unique within itself. No other meter entry with the same parameters should have been accepted by the system. The agreements with the Agency did not contemplate specific provisions in this regard. Duplication of consumers had arisen in the master file due to assignment of more than one code to the same consumer. Demands were raised against both the codes overstating the accrued income of the company.

Analysis of the latest data bank made available containing 5,19,455 consumers<sup>11</sup> revealed that out of 4,69,114 operative consumers, there were 187 cases of duplicate book/service numbers, 1,741 duplicate consumers with the same name and address, 68,790 cases of meter columns that are blank, 15,527 cases of fictitious meters and 55,955 meters found installed in 1,46,120 premises (multiplicity ranging from 2 to 23).

It was also noticed that reports and billing data are to be provided in a CD by the outsourced agencies but the divisions were not obtaining them for back-up or monitoring and control.

Large number of duplicate records in the data bank was indicative of lack of adequate efforts in door to door survey by the outside agency for preparing road maps to ensure efficient service performance to be achieved. Besides bringing out inadequacies in input control and validation checks, these also point to the fact of possible evasion of revenue in cases where master reconciliation of opening balance, assessments, collection, adjustments/waiver and closing balances are not carried out periodically with reference to the entries made in the revenue cash book.

Management stated (September 2008) that in some cases advices have been issued after physical verification of the cases reported by Audit. For duplicate meters, they stated that problems were there due to inadequate field length adopted by the agencies. The reply was indicative of lack of monitoring and control mechanism.

#### ***Incorrect assessment of defective meters***

**2.4.19** The agreement provides for development of software and database as per the respective tariff schedules. For defective meters, the Rate Schedule

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<sup>11</sup> Data bank of Meerut, Bulandshahr and Khurja were not separately available for IBM and hand held system, hence the analysis is with reference to the composite data bank.

applicable from time to time provide for billing on the basis of average consumption of previous three billing cycles or in cases of non-availability of such data, on the basis of average consumption of subsequent three billing cycle after a correct meter was installed. This method was to be followed till the defective meter was replaced/repaired and the billing was restored on the basis of actual consumption recorded by the meter.

It was noticed in audit that the billing ledgers showed billing status of consumers as having defective meters but did not have required data in most cases for generation of bills on the basis of average consumption of past three billing cycles. Further, in many cases, the last reading dates indicated in the billing ledgers were pertaining to the period November 1986 to March 1994 indicating that correct consumption for billing was not available since then.

The company has categorised the cases of defective meters into "indicated defective (IDF)", "appears defective (ADF)" and "reading defective (RDF)" and the electronic billing ledgers depicted the same as such under the heading "bill basis".

**The agency did not bill the consumers under LMV-1 and LMV-2 category having defective meters as per business rules which resulted in short assessment of Rs 1.89 crore.**

For domestic light and fan consumers (LMV-1 tariff schedule), the units sold in case of IDF/ADF/RDF cases, were shown on an ad hoc basis of 80 units, but instead of charging on this basis which would come to Rs 163 (since December 2004), the electricity charges were billed at Rs 120 which is the provisional amount that the consumer has to pay in case of no access (NA) or no reading (NR). This mode of billing was not approved by the UPERC. In case of LMV-2, the energy was billed for the fixed units i.e. 104 units per KW per month and billed on the same basis. The financial impact of this inconsistent billing works out to Rs 1.89 crore on the basis of the databank of May 2007 as detailed in **Annexure-18**.

Management agreed (September 2008) to look into this aspect and take corrective measures after due verification of facts from the agency.

#### ***Absence of system alerts for Low Power Factor cases***

**Absence of system alerts and prescribed action in low power factor cases resulted in energy loss of 1.92 crore units valuing Rs 7.21 crore in case of LMV-6 consumers.**

**2.4.20** The State of Uttar Pradesh was suffering from power shortage and had to import it from other States. It was, therefore, necessary to adopt measures to save energy from being wasted. One measure to avoid such wastage was to provide reactive power compensation throughout the network (as also contemplated in the Indian Electrical Grid Code) so that power factor (PF) is maintained at the desired level of 0.85 or more. In KVAh based tariff, the financial loss for power wastage due to low power factor was recovered from the consumers. For power factor below the desired level, the new tariff schedule provides for action as per section 139 and 140 of Electricity Act 2003 (i.e. dishonest abstraction of energy) besides disconnection of supply if it was below 0.70 (0.75 as per the new tariff schedule). The supply was to be restored only when suitable equipments were installed to improve the power factor. The energy saved could have been used for improved supply position or for low quantum of energy purchase to that extent.

The software designed for billing does not automatically provide alerts by printing notices on the bills and generating exception reports in each month. An analysis by Audit of the electronic data bank of 16 divisions of the company revealed 10691 cases of low PF (range: 0.01 to 0.69) that needed action as per the prescribed procedure to save waste of energy. The extent of such energy loss worked out to 1.92 crore units valuing Rs 7.21 crore in case

of LMV-6 and 5.87 crore units in HV-2 category. The details are given in **Annexure-19**.

In a scenario of acute power shortage necessitating import of energy at exorbitantly higher rates or allowing the State to face power cut, it was necessary to save every unit of energy to ensure industrial growth.

Management stated (September 2008) that notices have been issued and remedial measures are taken against defaulting consumers. Disconnections are also being done on this ground. Further, necessary action as per the Electricity Act, 2003 shall be initiated to eliminate chances of power wastage.

***Non identification of cases of higher consumption of energy than permitted as per sanctioned load***

**2.4.21** The consumption pattern of healthy meters where meter readings were available was calculated on the basis of sanctioned load<sup>12</sup>. This worked out to 720 units per KW per month i.e. 1440 units (called unique electricity consumption) for two months. A consumer having 1 KW load can never exceed 1440 units in two months period. If it exceeds this limit, it means that the load of the consumer is either on the higher side or that the meter is not recording electricity consumption correctly.

Scrutiny of data bank of IBM billing for LMV-1 (light and fan consumers) having load of 1 KW from January to November 2007 (except month of June, July, August, September 2007 for which data bank was not provided) revealed that the consumers consumed excess units over the permissible limit (LHDF formula). The details are given in **Annexure-20**.

This indicated the need for checking consumers' installations to ascertain the actual load and to regularise the excess loads as per procedure of Code, 2005 to avoid loss of fixed charges on excess load. These are only indicative cases and the company needs to examine all such cases on a regular basis in each month to ascertain the position for corrective measures.

Management stated (September 2008) that revised orders have been issued to 74 consumers and penalty to excess load have been charged. The fact, however, remains that no system alert exists in the IT environment for quick remedial measures.

***Lack of supervisory skills of IT for monitoring resulted in incorrect application of tariff***

**2.4.22** Lack of monitoring through IT tools resulted in non-identification of higher tariff consumers (LMV-4 and LMV-2) billed in lower tariff (LMV-1) which resulted in short assessment from December 2004.

When the names and addresses of the consumers in domestic light and fan category (LMV-1) were sorted, it was noticed in audit that 1641 consumers were falling under LMV-2 (shops, hotels, private guest houses, commercial establishments, cinema *etc.*) or LMV-4 (societies, public and private institutions, hostels *etc.*) categories. Thus, they were billed under lower category of tariff. As units consumed by each consumer were not available,

**Due to lack of monitoring through IT tools, the consumers under higher tariff (LMV-4 and LMV-2) were billed in lower tariff (LMV-1) which resulted in short assessment of Rs 4.42 crore from December 2004 to November 2007.**

<sup>12</sup> Sanctioned load x 24 Hours x No. of months x 30 days = 720 units for a month.

the short assessment was worked out by taking 80 units per KWh/month for LMV-1 consumers and 104 KWh/month for LMV-2 or LMV-4 consumers. The short assessment from December 2004 or from the date of connection whichever was later and up to November 2007, being the difference in fixed charges (Rs 80 minus Rs 50) and energy charges, worked out to Rs 4.42 crore as detailed below:

Divisions	Month	No. of consumers falling in LMV-1	Load (KW)	Short assessment (Rs. in lakh)
EDD-I, Bulandshahr	October-November 2007	61	126	11.68
EDD-II, Bulandshahr	October-November 2007	84	161	17.51
EDD, Khurja	November 2007	89	123	12.81
EDD-II, Meerut	January-December 2007	21	51	4.15
EUDD-II, Meerut	November 2007	21	163	10.80
EUDD-III, Meerut	November 2007	06	22	2.16
EUDD-I Noida	November 2007	654	1308	121.23
EUDD-II, Noida	November 2007	135	270	50.05
EUDD-III, Noida	November 2007	570	1140	211.33
<b>Total</b>		<b>1641</b>	<b>3364</b>	<b>441.72</b>

The divisions have been provided with the list of such consumers who may carry out necessary corrections in the databank after physical verification of the consumers' premises. Other divisions not covered in this review may also get such verifications carried out to apply correct tariff provisions.

Management stated (September 2008) that 128 cases out of 1641 indicated by audit were residential accommodations in the name of company/Institutions. Corrective action in a few cases was taken at the instance of audit. However, management is required to examine all such cases so that data bank may be corrected. Moreover, such doubts would not have arisen in case the company had developed a comprehensive GIS for which the company otherwise spent Rs 94.66 lakh.

#### ***Analysis of inoperative consumers***

**2.4.23** Cases that fall under inoperative category are those that are temporarily disconnected and not billed (bill basis is NB) or permanently disconnected and billing is stopped (bill basis is SB) or whose bill status has been indicated as inoperative (I). After issuing notices under Section-5 of Uttar Pradesh Government Electrical undertakings (Dues Recovery) Act 1958, such cases are not adequately followed up for recovery of arrears or refund of outstanding balances. A monthly analysis of top 10 defaulting consumers of EDD-II, Meerut revealed that all these consumers were not finding place in the data bank of each month. In addition, the bill basis (BB) of these consumers after they were classified as "SB" i.e. permanently disconnected were subsequently modified as IDF, metered units (MU) and so on without any basis. Similarly, arrears of some of these consumers were not finding place in the data bank or some others were shown more than once.



The above inconsistencies were indicative of inadequate control mechanism in the master data file that changes the state of BB from SB to others which is not possible.

Further, the company has not devised a mechanism to reconcile the figures of arrears of inoperative consumers (figures of August 2007 not available) with reference to the additions, deletions, payments received etc. on a periodical basis. Grand totals of such inoperative consumers in respect of EUDD-I, Ghaziabad revealed huge inconsistencies without matching additions or collections between January and November 2007 as detailed below:

Months	Jan	Feb	Mar	Apr	May	June	July	Sep	Oct	Nov
No. of consumers	442	581	467	665	502	680	500	1278	685	569
Arrears (Rs. in lakh)	242.24	269.24	253.14	317.93	274.77	325.08	271.35	566.01	325.42	276.19

This calls for reconciling such figures electronically to avoid data inconsistencies and chances of manipulations therein.

Management agreed (September 2008) to initiate appropriate steps after examination of these cases.

***Incorrect claims by outsourced agency for bill generation***

**2.4.24** Scrutiny of Data bank of EUDD-II, Noida from January to May 2007 maintained by the CS Software Enterprises Limited, Noida revealed that the payment for bill generation claimed were more than those appearing in the data bank. Further, there was no case of NA/NR (No access / No reading) in the databank but the agency was showing such cases while submitting claims to the PVVNL. The Junior Engineers were recording measurements in the measurement books without verifying the claims from the computerised databank and were adopting whatever figures were given by the agency for the number of bills generated.

The details of consumers as appearing in the data bank and those claimed and paid for during January to March 2007 (excess measurement of 8838 consumers) is given in **Annexure-21**.

Management agreed (September 2008) to initiate appropriate steps after examination of these cases.

The above matters were reported to the Government (May 2008); their reply was awaited (October 2008).

**Conclusion**

**The company had not framed and documented IT policy and security policy. For the purpose of billing the company hired IT services which did not produce expected results in the absence of monitoring and controls by its own staff. The company could not develop skills for their own staff to effectively control and derive benefits of information technology in improving efficiency of outsourced billing activity. The company could not adopt uniform data structure for all outsourced billing agencies. The application packages captured unauthentic records and generated less dependable output for want of key control mechanism.**

**Lack of validation checks and program change control procedures resulted in incorrect billing.**

**Recommendations**

- **The company should obtain Geographical Information System (GIS) mapping in a digital format with supporting software and linkage with the data bank to have finer details of the network and connected consumers for decision support. GIS mapping should be periodically updated.**
- **The company should adopt uniform data structure and introduce key control mechanism (including system logs) in the billing software to alert it from unauthentic or unauthorised data entry.**
- **The company should put in place its own internal control and monitoring mechanism for prevention, detection and rectification of deficiencies committed by the agency.**