2.4 Review on Power Sector Reforms in Uttar Pradesh

Highlights

To make energy sector commercially viable, Government of Uttar Pradesh (GoUP) restructured (January 2000) erstwhile Uttar Pradesh State Electricity Board (UPSEB) by transferring generation, transmission and distribution functions to the existing and newly incorporated companies. Uttar Pradesh Power Corporation Limited, carried out reforms in distribution sector.

(Paragraphs 2.4.1, 2.4.3 and 2.4.6)

UPPCL could not provide meters to 42.83 lakh consumers (48 per cent) out of 89.18 lakh consumers as of August 2004 against the target of 100 per cent metering of consumers.

(Paragraph 2.4.16)

UPPCL incurred loss of Rs.52 crore in procurement of electronic meters due to non-incorporation of price adjustment clause in purchase orders funded by World Bank.

(Paragraph 2.4.18)

UPPCL suffered loss of Rs.23.63 crore on account of inventory carrying cost due to non-installation of 10.435 lakh meters already procured.

(Paragraph 2.4.21)

System upgradation works (rearrangement of service lines, installation of capacitor banks, construction of lines etc.) suffered from shortfall in achievement of targets, depriving benefits aggregating Rs.7.10 crore.

(Paragraphs 2.4.26 to 2.4.29)

Power sector reforms suffered from deficiencies that include non-reduction of transmission and distribution losses to the extent of targets fixed and inadequate recovery action, etc.

(Paragraphs 2.4.32 and 2.4.36)

Introduction

2.4.1 The erstwhile Uttar Pradesh State Electricity Board (UPSEB) was constituted in April 1959 under Section 5 (1) of the Electricity (Supply) Act, 1948. The UPSEB was managing the activities of generation, transmission and distribution of power in the State. As against the installed capacity of 5,886 MW, only 3,300 MW energy was generated. The State Government was very much concerned about the continuing power shortage and in the year 1999, the Government of Uttar Pradesh (GoUP) announced its power sector reform policy. As per the policy document, accumulated commercial losses of the UPSEB as on 31 March 1997 stood at Rs.7,000 crore (excluding State subsidies) and cash liabilities were to the tune of Rs.4,200 crore. The net worth of the UPSEB ranged between Rs.1,526.26 crore and Rs.2,685.95 crore during April 1997 to January 2000. Under the policy following key aspects of the power sector reform were initiated:

- Restructuring of UPSEB into autonomous and separately accountable entities;
- Creation of independent regulatory body to protect interest of the consumers as well as long term financial position of the power sector;

- Ultimate transfer of ownership of the assets to public corporate entities in a phased time schedule; and
- Rationalisation of tariff.

The objectives of power sector reform and restructuring in the State were to provide cost efficient, good quality electricity to all categories of consumers for economic development and social upliftment of the State, make the energy sector commercially viable so that it ceases to be burden on the State budget and to protect the interest of the consumers.

Unbundling and Corporatisation

2.4.2 Prior to reform there were three power sector entities namely UPSEB, Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL) and Uttar Pradesh Jal Vidyut Utpadan Nigam Limited (UPJVNL). After reforms under Uttar Pradesh Electricity Reform Act, 1999 two more companies namely Kanpur Electricity Supply Company Limited (KESCO) and Uttar Pradesh Power Corporation Limited (UPPCL) were incorporated in July 1999 and November 1999 respectively under the Companies Act, 1956.

2.4.3 The transmission/distribution, hydel generation and thermal generation functions of UPSEB were transferred (January 2000) to UPPCL and KESCO (transmission/distribution), UPRVUNL (thermal generation) and UPJVNL (hydel generation). The distribution function of UPPCL was further transferred (August 2003) to four distribution companies namely Madhyanchal Vidyut Vitaran Nigam Limited, Poorvanchal Vidyut Vitaran Nigam Limited, Paschimanchal Vidyut Vitaran Nigam Limited and Dakishnanchal Vidyut Vitaran Nigam Limited, incorporated (May 2003) under the Companies Act, 1956.

2.4.4 As per Uttar Pradesh Power Sector Reform Transfer Scheme 2000, properties, interest, right and liabilities of UPSEB were vested in GoUP and were again revested in UPPCL, UPRVUNL and UPJVNL. The total assets and liabilities of UPSEB as on 14 January 2000 at the time of unbundling stood at Rs.36,262.24 crore. As against this, the assets and liabilities were revested to UPPCL, UPRVUNL and UPJVNL on 14 January 2000 at the total value of Rs.15,243 crore. The reduction amounting to Rs.21,019.24 crore in the assets and liabilities was due to write off of assets not in use, intangible assets, deferred cost, receivable from GoUP on account of sale of power, other trading receivable, liabilities on account of reserves, grants and GoUP loan. Assets and liabilities, however, so revested were neither revalued nor matched with the balances in the book of accounts of erstwhile UPSEB.

Organisational set-up

2.4.5 Newly created power companies are headed by Chairman-cum-Managing Director/Managing Director (CMD/MD) and three to five Directors in the Board of Directors. The CMD/MD is assisted by Chief General Managers at headquarters who are assisted by General Manager, Deputy General Managers at headquarters and in field. Executive Engineers are the heads of the divisions in field.

An Implementation Task Force consisting of CMD/MD of power sector companies as Members and Principal Secretary (Energy) as a Chairman was formed as Reform Action Group. This was later renamed as Reform Project Monitoring Organisation (RPMO). The organisation was headed by a Chief

General Manager who was responsible to oversee and monitor the progress in reform implementation process under overall guidance of a Steering Committee headed by the Chief Secretary.

Scope of Audit

2.4.6 As power sector reforms programme 1999 pertaining to generation and transmission of power were still in the initial stages of implementation, the scope of audit mainly confined to reforms in distribution functions carried out by UPPCL.

Audit findings, as a result of review on Power Sector Reforms in Uttar Pradesh were reported to the Government/Management in June 2004 with a specific request for attending the meeting of Audit Review Committee for State Public Sector Enterprises (ARCPSE) so that viewpoints of Government/ Management were taken into account before finalising the review. The meeting of ARCPSE was held on 9 August 2004 with Special Secretary (representative of the State Government) and Executives of the Company. The views expressed by the members have been taken into consideration during finalisation of the review.

Reform measures

Memorandum of Understanding

2.4.7 The GoUP entered into Memorandum of Understanding (MoU) with the Ministry of Power, Government of India (February 2000) setting out reforms measures and schemes in generation, transmission and distribution functions as under:

Generation	• Support from Government of India (GOI) for financing renovation and modernisation of existing thermal and hydro power stations; • Hydro and thermal development; and • Rural electrification.
Transmission	• Support from Government of India for undertaking construction of important transmission works.
Distribution	• To undertake energy audit at all levels in order to reduce system losses by installation of metering at all 11 KV feeders by 30 September 2000; • Hundred percent metering of all consumers by 31 December 2001; • On line billing at 20 selected towns by 31 March 2001; • Upgradation of distribution system; • Formation of distinct distribution profit centers which would establish commercial viability in distribution; and • Privatisation of distribution by GoUP if commercial viability is not achieved.

The implementation of reform programme as perMOU is discussed in succeeding paragraphs:

Implementation of reform programme

Consultancy services

2.4.8 PricewaterhouseCoopers Development Associates, U.K. (PWC) were engaged (2000) as Consultant to propose various reform measures at total

consultancy charge of Rs.5.27 crore, that was modified to Rs.13.53 crore in June 2002. Total payment made to the consultant aggregated Rs.11.34 crore as of April 2003. The audit observations are discussed in the succeeding paragraphs:

Shortfall in achievement of issues in consultancy services

The consultants (PWC) did not submit all the reports and payments to them were not linked with the task performed.

2.4.9 The Consultant was to submit study and other reports (deliverables) to the Company to enable implementation of the reform programme. The consultants submitted (26 June 2001) soft copy of Annual Revenue Requirement (ARR) model without operating manual. This computer based model was to be used by Discoms who would not be able to operate it without operating manual. Further, the consultants have yet (August 2004) to submit the following reports:

- analysis of preferred option for financing the unfounded liabilities and assistance in implementation of preferred option;
- diagnostic report outlining the requirements for revenue improvement based on study of four circles;
- bulk supply tariff parameters;
- paper on Kanpur Electricity Supply Company Limited's privatisation;
- report on delegation of power of the Board and MDs of the Discoms; and
- suggestions regarding ways and means for meeting the shortfall in revenue to meet the operational expenses during the transition period.

Avoidable expenditure on preparation of Annual Revenue Requirement

2.4.10 The agreement with consultant included preparation of Annual Revenue Requirement (ARR) for the Company and to develop a model for future tariff and revenue calculations to be used by the distribution companies. The Consultant developed soft copy of the model and submitted the same to the Company in June 2001 without its operating manual.

KESCO incurred avoidable expenditure of Rs.45.21 lakh due to failure to take note of the work entrusted to PWC.

Notwithstanding the fact that ARR was to be finalised by the Consultant initially and the computerised model was to be used by the distribution company subsequently, Kanpur Electricity Supply Company Limited, Kanpur (KESCO) engaged (April 2000) SBI Capital Market Limited, New Delhi (SCM) for preparation of ARR for the period 2000-01 and 2001-02. The SCM prepared ARR for both these years and were paid (October 2000 and April 2001) Rs.45.21 lakh (including service tax of Rs.2 lakh and out of pocket expenses of Rs.3.21 lakh).

Thus, failure of KESCO to take note of the ongoing entrustment of work to the U. K. consultant resulted in avoidable expenditure of Rs.45.21 lakh.

Creation of Independent Regulatory Body

2.4.11 Uttar Pradesh Electricity Reform Act, 1999, *inter-alia,* provided for constitution of Uttar Pradesh Electricity Regulatory Commission (UPERC), its function and powers relating to licensing of transmission and supply of electricity and fixation of tariffs.

UPERC was formed on 10 September 1998 under Section 17 of Electricity Regulatory Commission Act, 1998*. UPERC was considered as Commission under the Uttar Pradesh Electricity Reforms Act, 1999 and the Chairperson and Members thereof were deemed to have been appointed as such under the Reforms Act. UPERC had issued four tariff orders in April 2000, September 2001, November 2002 and September 2003. Despite the issuance of four tariff orders the average cost per unit sold during 2002-03 (Rs.3.61) continued to be more than average sale price per unit (Rs.3.08).

Privatisation

2.4.12 Privatisation of different segment of power sector was one of the reforms objective. In December 2003, the State Government has come out with its new Power Policy which, *inter alia*, states private participation in all the segment viz., generation, transmission, distribution, trading and repair and maintenance as one of its main objective. M/s PWC and M/s Ernst and Young have been appointed consultants for locating a private promoter to set up Anpara 'C' power project of 1000 MW. No power generation, transmission and distribution company has come up in private sector in post reform period.

Post restructuring financial performance

2.4.13 The power sector reforms (distribution functions) remained confined only to UPPCL and KESCO. Neither UPPCL nor KESCO could become a profit centre as these Companies continued to incur losses during post reform periods. The losses of UPPCL stood at Rs.141.66 crore in 1999-2000, Rs.2,211.14 crore in 2000-01, Rs.1,400.30 crore in 2001-02 and Rs.1,319.24 crore in 2002-03. As on 31 March 2003, accumulated losses aggregated Rs.5,072.34 crore eroding the paid-up capital (Rs.4,707.45 crore). The reasons for losses were high T&D losses, lower sales realisation and unmetered category of consumers in each year. Net worth that stood (as on 31 March 2000) at Rs.3,553.49 crore became negative as on 31 March 2003 (Rs.67.04 crore). Thus, the objective of reforms programme to restore financial viability had not been achieved.

Newly created/restructured power companies were supposed to be autonomous and separately accountable entities to achieve their commercial viability. UPPCL's failure to pay power purchase dues to State owned power generating companies namely UPJVNL and UPRVUNL had further added to their financial crunch and liquidity problems. Such dues as on 31 March 2000 were as high as Rs.1,241.35 crore and Rs.140.73 crore in case of UPRVUNL and UPJVNL respectively.

Post restructuring operational performance

2.4.14 Power sector development suffered from its inability to address gaps in high loss feeders, improper recording of energy consumed in the electromagnetic mechanical meters, non-metering of consumers and failure to raise bills for total quantum of energy supplied to consumers. In order to plug these loopholes, UPPCL introduced energy audit programme and implemented two schemes for procurement and installation of high accuracy class electronic meters and one scheme for upgradation of distribution network. These are discussed in subsequent paragraphs:

* Since replaced with Section 82 (1) of the Electricity Act, 2003.

Installation of meters on all 11 KV feeders

2.4.15 Meters were installed on all 11 KV feeders as per the MOU signed between GOI and GoUP. High loss feeders were identified as a part of Energy Audit Programme. No efforts were, however, made to further analyse reasons for losses for taking remedial action. There was nothing on record to show that raid and combing operations were specifically directed to such areas. The number of 11 KV feeders having losses exceeding 30 *per cent* have increased as on 31 December 2003 as compared to 30 November 2002 as given in the table below:

Month	Total feeders (nos.)	Number of high loss feeders				
		30-40%	40-50%	50-60%	Above 60%	Total of above 30%
November 2002	6921	1462	344	129	46	1981
March 2003	7008	1468	310	44	118	1940
December 2003	7059	1531	331	76	98	2036

Audit noticed that 39 feeders had losses ranging from 71 to 78 *per cent* at the close of December 2003. Thus, there was no improvement in feeder-wise loss of energy indicating that the reform process did not yield desired results.

The Management stated (August 2004) that it was fixing responsibility on the staff of divisions where the losses were high apart from undertaking various other measures to curb theft of power in high loss areas.

Installation of 100 percent meters at consumers end

2.4.16 The UPERC estimated that against 81.42 lakh consumers there were 54.20 lakh consumers (63.5 per cent of total consumers) who either did not have meters or had defective meters at the end of 2000-01.As per the MOU, 100 *per cent* installation of meters at consumers end was to be achieved by 31 December 2001. The Company stated (August 2004) that out of 89.18 lakh consumers, 42.83 lakh consumers (48 *per cent*) were still unmetered. Thus, the objective of 100 *per cent* metering could not be achieved even after a lapse of 2.5 years. This necessitated extension of scheduled date up to March 2004 which also could not be adhered to. Loss due to non-metering of consumers is discussed in paragraph 2.4.23 *infra*.

Scheme for procurement and installation of meters under World Bank loan

2.4.17 In order to avoid revenue loss in recording inaccurate energy consumption by electromagnetic mechanical meters, a scheme for procurement and installation of 7.85 lakh of electronic meters (three phase: 3 lakh, single phase: 4.70 lakh and tri-vector: 0.15 lakh) for Rs.249.64 crore was framed in 1998-99. The scheme, started from 1999-2000 was to be completed by 2001-02 (extended up to 2002-03). The scheme was to be financed from World Bank loan to the extent of Rs.208.19 crore and balance of Rs.41.45 crore out of Company's own financial resources. Implementation of the scheme was to generate additional revenue of Rs.88.07 crore per annum.

Audit observed that UPPCL incurred loss in procurement and installation of meters as discussed in subsequent paragraphs.

Procurement of electronic meters under World Bank loan

2.4.18 The Company invited (16 December 1999) global tenders for purchase of 3 lakh meters (three phase, four wire electronic KWH energy meters along

with meter boxes) with opening date of 8 February 2000 (extended up to 18 April 2000). Five firms (India:4 and China:1) submitted their offers that were opened on the extended date on 18 April 2000. The Company placed (November 2000) orders for three lakh meters on the lowest bidder of China at the rate of US $ 80.50 per meter plus Rs.100 for insurance and freight, port clearance and incidentals (total price: US $2,41,50,000 *plus* Rs.3,00,00,000). The quantity of 3 lakh meters was increased (December 2000) to 3.45 lakh meters. Three agreements were executed (February 2001) for supply of 3.45 lakh meters in three lots (each for a quantity of 1.15 lakh meters). The delivery schedule was 25 months (March 2003) from the date of agreement. The supplies that started from August 2001 were completed in February 2003. Full payments were made against letter of credit opened for the purpose (10 *per cent* advance, 80 *per cent* on shipment and 10 *per cent* on receipt of goods).

Audit noticed that the Company failed to incorporate a price adjustment clause in the agreements having delivery schedule of more than 18 months (delivery schedule was 25 months). This was necessary in case of long term contracts to avoid loss in view of global trend of declining prices of electronic meters. The price of these meters came down to US $ 41 (from US $ 80.50) obtained from the same firm in the subsequent package of March 2002. Till then, the Company had obtained supply of 1,12,200 meters with a balance of 2,32,800 that were procured subsequently up to February 2003. This entailed loss of Rs.43.54 crore* on the balance quantity.

Similarly, in procurement of 5.40 lakh single-phase electronic meters during June 2001 to March 2003 from the same firm, the Company incurred loss of Rs.8.46 crore on procurement of balance quantity of 3,00,212 meters after March 2002 at the rate of US$ 5.95 being the difference between the price (US$ 21.40) at which order (June/July 2000) was placed and the price (US$ 15.45) of subsequent purchase of March 2002.

The Company incurred loss of Rs.52 crore in procurement of electronic meters due to failure to incorporate price adjustment clause.

Management stated (August 2004) that price adjustment clause was incorporated in various contracts as per guidelines of IEEMA but meters were not covered therein. Further, prices of different components of meters were not notified separately by any agency to enable adjustment of prices based on change in price of basic raw material or component. The reply is not acceptable as the prices of basic raw material or components (including name of the supplier) were furnished by the supplier to the Company as and when demanded and the World Bank guidelines specifically provide for including price adjustment clause in every contract having delivery period of more than 18 months.

Thus, failure of the Company to follow the prescribed guidelines resulted in loss of Rs.52 crore.

Purchase of electronic meters in excess of provision of the scheme funded by World Bank

2.4.19 The scheme of electronic meters funded by World Bank contemplated procurement of 7,70,000 electronic meters (excluding 15,000 tri-vector meters) at a cost of Rs.179.40 crore. The Company, however, procured (June

* (US $ 80.50 minus US $ 41 = US $ 39.50X 2,32,800 meters)=US $ 91,95,600 X Rs.47.35 (minimum conversion rate of US $) = Rs.43.54 crore.

The Company incurred excess expenditure of Rs.68.54 crore as compared to the cost envisaged in the World Bank Scheme for purchase of electronic meters.

2001 to April 2004) 14.355 lakh meters[*] at a cost of Rs.247.94 crore. This resulted in excess expenditure of Rs.68.54 crore as compared to the cost of Rs.179.40 crore envisaged in the scheme. Further, purchases (October 2003 to April 2004) of 5.50 lakh meters in second phase was made on the ground that there was surplus fund in World Bank loan after purchase of 8.855 lakh meters in first phase. The justification given was not tenable as the purchase cost of meters in the first phase itself was higher by Rs.13.67 crore[**]. There was absolutely no justification for further purchase of 5.50 lakh meters in the second phase as out of the meters procured in first phase, 3.40 lakh meters valuing Rs.103.04 crore were lying unutilised as of March 2004.

Management stated (August 2004) that the World Bank loan of Rs.255 crore was provided for electronic meters and accordingly, 14.50 lakh meters were procured by July 2004 and 11.36 lakh meters have been installed till then. It further stated that replacement of meter was a time taking process and was resisted by consumers. The reply is not acceptable as the World Bank scheme of 1999 was only for Rs.249.64 crore that included cost of meters to the extent of Rs.179.40 crore only. Further, the figure of installation of meters as per the progress report of July 2004 was 5.475 lakh meters and not 11.36 lakh meters. The loan from World Bank carried interest 13.5 *per cent* per annum. Considering heavy inventory carrying cost involved, inordinate delay in installation of meters, already procured, lacked justification.

Scheme for procurement and installation of meters under PFC loan

2.4.20 Apart from replacement of existing meters with electronic meters under World Bank Scheme, the Company framed (2000-01), another scheme for procurement of 11.31 lakh electronic meters financed through Power Finance Corporation Limited (PFC) for replacement of electro-magnetic mechanical meters with electronic meters of domestic and commercial consumers (during April 2001 to December 2002) in 15 big towns. The scheme cost was Rs.134.90 crore (including cost of meter of Rs.123.90 crore); of the meter cost, 80 *per cent* (Rs.99.08 crore) was financed by PFC (at 14 *per cent* interest) and the balance cost was to be met out of Company's own internal resources. The benefit expected on account of increase in recorded consumption through the high accuracy class meters as per the scheme was Rs.57.96 crore per annum.

The Company placed (February 2001) purchase order for supply of 31,734 three phase Omnigate make electronic meters on Sarthak Enterprises, Allahabad valuing Rs.16.60 crore (ex-works price excluding sales tax, freight and insurance). These meters were received at various store divisions as per the delivery schedule.

On installation, defects like problem in software, malfunction of display system, meters running 16.65 *percent* slow on application of magnetic field and meters going out of order on installation were reported by user divisions. These meters were lying in respective test divisions as the divisions have stopped installing these meters due to the defects. Audit could not ascertain exact details of meters installed, not installed, lying in test divisions as the information was not centrally available with the Company.

[*] First phase: 8.855 lakh meters valuing Rs.193.07 crore and second phase:5.50 lakh meters valuing Rs.54.87 crore (total: Rs.247.94 crore).

[**] Rs.193.07 crore minus Rs.179.40 crore.

Management stated (August 2004) that the shortcomings pointed out would be looked into and action taken intimated to audit.

Installation of meters

The Company incurred loss of Rs.23.63 crore on inventory carrying cost.

2.4.21 The Company procured (2001-03) 14.355 lakh meters out of World Bank loan and 9.64 lakh meters (up to December 2003) out of PFC loan. It could, however, install only 5.46 lakh meters (July 2004) and 8.10 lakh meters (March 2004) respectively. An amount of Rs.174.51* crore remained blocked in 10.435 lakh meters. This resulted in loss of Rs.23.63** crore per annum being inventory carrying cost of 10.435 lakh meters.

Management stated (August 2004) that some more meters (World Bank: 1,578 meters and PFC: 34,000 meters) were installed up to July 2004 and balance meters would also be installed within two months.

Procurement of metering cubicles and meter boxes without requirement

2.4.22 The Company procured (February 2002) 60, 33 KV pilfer resistant metering cubicles and 30,000 MS meter boxes for a value of Rs.1.16 crore. It was noticed that the cubicles were transferred to such districts also where there were no consumers on 33 KV system and there was no need for procurement of meter boxes as the new electronic meters were procured with boxes. Thus, procurement of cubicles and meter boxes without requirement resulted in blockade of fund therein.

Management stated (August 2004) that these cases would be investigated and action taken intimated to audit.

Loss due to non-metering of consumers

2.4.23 The scheme of power sector reforms for installation of meters envisaged that electro-magnetic mechanical meters spared by the replacement shall be utilised on unmetered category of consumers of rural areas. Audit observed that in Varanasi Circle alone, 0.62 lakh meters retrieved from urban areas were lying in test/stores divisions and were not utilised in rural areas. In other cases, these details were not available.

The Company incurred loss of Rs.17.31 crore in three divisions due to non-metering of consumers.

Audit further observed that realisation per unit sold to metered and unmetered category of domestic and commercial consumers in rural areas during 2002-04 indicated very low pattern of realisation in case of unmetered consumers (fixed tariff). Test check of three divisions (Varanasi, Gorakhpur and Ghazipur) revealed that there was a loss of Rs.17.31 crore in case the energy is sold at a fixed rate for unmetered consumers instead of the same being sold through meters.

The realisation rate per unit during the period 2002-04 ranged between 66 paise and 192 paise in case of metered consumers as compared to the range of 26 paise and 116 paise in case of unmetered domestic consumers. The same ranged between 217 paise and 452 paise in case of metered category of commercial consumers as compared to 53 paise and 377 paise in case of unmetered category of commercial consumers. Lesser rate of realisation in

---

* Rs.158.57 crore (14.355 lakh meters minus 5.46 lakh meters = 8.895 lakh meters) *plus* Rs.15.94 crore (9.64 lakh meters minus 8.10 lakh meters = 1.54 lakh meters) = Rs.174.51 crore (8.895 lakh meters plus 1.54 lakh meters = 10.435 lakh meters).

** Inventory carrying cost: (Rs.21.40 crore on Rs.158.57 crore at the rate of 13.5 *per cent plus* Rs.2.23 crore on Rs.15.94 crore at the rate of 14 *per cent*.

case of unmetered consumers was made possible on account of Company's inability to raise bills for actual consumption in the absence of metering.

Management stated (August 2004) that it was initially decided that electro-magnetic mechanical meters could be used in rural areas where supply was unmetered. As these meters were quite old requiring lot of expenditure on the calibration or repairs, it would be better to go for electronic meters in rural areas also. The decision for utilisation of retrieved electro-mechanical meters would be taken by the Managing Directors of Discoms on the basis of condition of meters removed from urban areas. Management's reply is not acceptable because the scheme for procurement and installation of meters itself contemplated to make use of electro-magnetic mechanical meters for unmetered category of consumers of rural areas which was to further add to the revenue.

On line billing in 20 towns

2.4.24 As per MOU, online billing at 20 selected town through computerisation was to be completed by 31 March 2001; however, only one town i.e. Lucknow under LESA has introduced online billing so far. In the year 2003, the programme of billing through hand held machines (computers) was launched on finding this system very successful in ensuring 100 percent billing and collection in other States like Andhra Pradesh and Karnataka. The implementation of this system of billing and its impact was yet to be seen (September 2004).

Scheme of system improvement works under World Bank loan

2.4.25 In order to fulfill the objectives of improving quality of supply, reduce system losses, reduce overloading of the system and meet the growing load demand by plugging the gap between connected load and capacity of secondary distribution system, the Company prepared scheme (1999) for system upgradation (rearrangement of service lines, installation of capacitor banks, construction of lines, installation of transformers, augmentation of distribution system) valuing Rs.157.46 crore. The scheme, to be implemented during May 2001 to January 2004 was to result in benefit of Rs.58.24 crore per annum (**Annexure-25**).

Shortfall in physical achievements of system improvement works as of March 2004 ranged between 31.5 *per cent* and 100 *per cent* as indicated in **Annexure-26**. The cases of loss due to shortfall are discussed in subsequent paragraphs.

Slow progress in rearrangement of service lines

2.4.26 With a view to avoid loose connections, flickering, line losses, difficulty in detecting unauthorised connections, theft of electricity, unaesthetic works, reduction in the capacity of the conductor and breakage of the conductor, etc., the scheme for improvement of low tension system under World Bank funded scheme envisaged rearrangement of service line on 5,720 nos. of distribution poles at a cost of Rs.9.15 crore at the rate of Rs.0.16 lakh each. By installation of these poles and re-arrangement of lines, a benefit of Rs.11.56 MU of energy valuing Rs.2.77 crore per annum was contemplated in the scheme. The Company awarded contracts for installation of 5,657 poles between November 2002 to January 2004. The Company could rearrange service lines and erect only 967 poles by the end of February 2004. The delay was due to non-identification of locations for low tension service poles, non-

supply of poles to the contractors and non-approval of work by competent authority.

Shortfall in installation of capacitor banks

2.4.27 Installation of capacitor banks at load end reduces line losses due to improvement of power factor, improves load carrying capacity of equipment and voltage profile of the system. For this, 93 nos. of new 11 KV capacitor banks, each of 2.4 MVAR capacity (223.2 MVAR) were to be installed at a cost of Rs.6.05 crore funded through World Bank loan. The system upgradation by installation of capacitor banks was to result in energy saving of 15.81 MU valuing Rs.1.58 crore per annum. The work was to be completed in phases from November 2002 and January 2004. The Company could install only 2 nos. of capacitor banks (4.8 MVAR) up to February 2004 at a cost of Rs.0.50 lakh. The delay was due to non-completion of civil works, non-identification of locations, non-supply of control panel, control switch, etc. to the contractor and non-approval of work by the competent authority in some cases.

Shortfall in construction of 33 KV lines

2.4.28 In order to reduce line losses, overloading of lines and sub-stations and regulate voltage profile, scheme for Rs.7.43 crore envisaged construction of 186 km of 33 KV lines (Rs.6.07 crore) and 22 nos. of 33 KV bays (Rs.1.36 crore). This was to result in saving of energy of 24.72 MU per annum valuing Rs.5.93 crore. The works were to be completed between November 2002 and January 2004. However, only 66.38 km (36 *per cent*) of 33 KV lines could be completed at a cost of Rs.4.01 crore (erection cost) up to February 2004. The delay was due to non-supply of material to contractors, non-identification of locations, not handing over possession of locations in 10 kms long distance to the contractors in Gorakhpur zone and non-obtaining of permission of Railways to cross railway tracks.

Shortfall in construction of low tension and 11 KV lines

2.4.29 In order to divide the overloaded 11 KV feeders, a scheme for upgradation of distribution system envisaged 1,704.65 km of lines (11 KV lines: 1,306.15 km and low tension lines: 398.5 km) at a cost of Rs.63.10 crore funded through World Bank. The benefit expected by reduction of line losses was Rs.20.28 crore (above 90 *per cent*) per annum on saving of 84.52 MU of energy. The contract was awarded for construction of 1,694.15 km lines to be completed between November 2002 and January 2004. The delay was due to non-identification/change of location, non-approval of work (Jhansi Zone), non-supply of material to the contractors and non-availability of conductor (Kanpur Zone).

System upgradation works suffered from shortfall in achievement of targets, depriving benefits aggregating Rs.7.10 crore

There were delays of varying periods in erection of poles, installation of capacitor banks and construction of 33 KV and low tension/11 KV lines resulting in non-accrual of benefit (as of February 2004) of Rs.7.10 crore for the number of units the Company could have sold had these works were completed as per schedule.

Management stated (August 2004) that system improvement works were to be completed by December 2004. It further stated that slight delays occurred due to poor accessibility in densely populated areas and problems of right of way and road cuttings. The reply is not tenable because the scheme contemplated

completion in a phased manner during November 2002 to January 2004. Reasons for delay in completion of works as indicated in respective cases were manageable by being more careful in co-ordinating the activities.

Non-utilisation of material procured under World Bank scheme

The Company incurred loss of Rs.3.15 crore per annum on carrying cost due to non-utilisation of material procured under World Bank Scheme.

2.4.30 In test check of records of Lucknow Stores Circle consisting of three divisions (out of 14 stores divisions), it was noticed that 24 items (cables, distribution pillars, 11 KV RMU, etc.) valuing Rs.23.33 crore were lying unutilised at the close of January 2004 in Lucknow, Bareilly and Faizabad stores; out of this, full quantity of five items valuing Rs.7.15 crore were lying unutilised for the last more than two years indicating lack of co-ordination between the headquarters and executing units. Inventory carrying cost on these items worked out to Rs.3.15 crore per annum.

Management stated (August 2004) that all the material procured under World Bank Scheme shall be utilised by the end of December 2004.

Diversion of material procured for World Bank Projects

2.4.31 Apart from material valuing Rs.23.33 crore lying unutilised as discussed in the preceding paragraph, material worth Rs.3.25 crore was diverted to various other works (including deposit works for which cost was recovered from the consumers) from Electricity Store Division, Lucknow during September 2002 to January 2004. The diversion was contrary to Section 3.01(a) of the World Bank's loan agreement of May 2000 that stipulates preventing such acts that would affect execution of the projects.

Material valuing Rs.2.33 crore were diverted to other work in contravention of World Bank loan agreement.

Management stated (August 2004) that certain steel tubular poles and transformers were used for system improvement works and deposit works but these have been recouped out of the subsequent procurement. The reply is not acceptable as no material can be diverted to other works on any ground. Material diverted included cables of various sizes, conductors, jointing kits etc. apart from steel tubular poles and transformers valuing Rs.92.81 lakh only. Thus, material valuing Rs.2.33 crore still remains diverted and unrecouped.

Impact of Power Sector Reforms

Transmission and distribution losses

2.4.32 Power sector reform process envisage reduction of high T&D loss to improve commercial viability. To achieve this UPERC fixes annual target for each year. It fixed a target of 36.5 *per cent* T&D loss for 2000-01, 32.5 *per cent* for 2001-02, 29.5 *per cent* in 2002-03 and 26 *per cent* in 2003-04. UPPCL, however, could not achieve these targets and the actual achievements ranged from 32 to 38 *per cent* during three years up to 2002-03. Actual T&D losses for 2003-04 were not furnished to audit. Further, 28.84 *per cent* feeders (out of 7059 feeders) had losses above 30 *per cent* and up to 78 *per cent* at the end of December 2003 (paragraph 2.4.15 *supra*). This indicates that reform process had not yielded desired results. The Company has not initiated any action to combat such high loss in distribution feeders due to their inability to provide metering to 48 *per cent* consumers as per their own admission (paragraph 2.4.16 *supra*). Loss of revenue due to non-achievement of targets worked out to Rs.840.22 crore at the end of March 2003.

Management stated (August 2004) that it was fixing responsibility on the divisions having high losses apart from initiating measure like replacement of mechanical meters with electronic meters, change of naked wire by insulated wires and metering of distribution transformers.

Consumer satisfaction

2.4.33 Average hours of power supply have declined in 2002-03 as compared to 2001-02 in all categories of consumers except there is a slight improvement in power supply to rural and industrial consumers. Thus, consumer service has not improved to the desired extent.

Cross subsidisation of energy consumption

2.4.34 Tariff charged for certain category of consumers, mainly agriculture and the household sector was low compared to other categories of consumers (industrial and commercial consumers). This resulted in providing cheaper electricity to one category of consumer at the cost of other category of consumers whom electricity was provided at higher rates thereby cross subsidy was provided across various categories of consumers. The reform process envisaged commercial viability in distribution, however, cross subsidisation still (March 2004) continued as would be seen from the following table:

(In per cent)

Particulars	1999-2000		2000-01		2001-02		2002-03	
	Energy supplied	Revenue assessed	Energy supplied	Revenue assessed	Energy supplied	Revenue assessed	Energy supplied	Revenue assessed
Domestic	34.1	23.0	33.3	22.3	36.58	22.99	34.40	22.10
Commercial	8.3	12.8	7.6	12.1	7.7	11.53	10.65	16.06
Industrial	24.4	43.0	19.5	35.8	18.0	31.67	18.02	32.76
Public Lighting	1.8	1.1	1.2	1.2	1.45	1.90	1.74	1.62
Private tube well and sewage pumping	2.5	2.9	2.4	3.0	2.24	4.45	2.26	2.70
Traction	4.1	7.2	3.6	6.1	2.93	4.66	2.38	4.75
Agriculture	22.4	8.4	19.7	9.6	19.83	9.97	20.81	9.71
Bulk- supply	1.7	0.1	2.3	0.1	0.26	0.14	9.06	9.68
Miscellaneous	0.7	1.5	10.4	9.8	11.01	12.69	0.68	0.62

The trend analysis indicate that there has been a wide gap of energy sold to energy assessed between various categories and this was reflected in lower consumption by industrial sector. The report* of expert group desired to phase out cross subsidisation in phased manner.

Management stated (August 2004) that it was a fact that cross subsidisation continues in power sector throughout the country and has to continue for some more time as the lower income category consumers were not in a position to pay full cost of energy supplied. The reply was indicative of the fact that the pace of industrial development being one of the objective of power sector reform would suffer on account of burden of cross subsidisation till the gap is minimised.

* Page 304 of reports on India's Power Sector.

Collection Efficiency

Shortfall in collection of revenue was Rs.1,413.54 crore due to non-achievement of target of collection fixed by the UPERC.

2.4.35 Collection efficiency represents percentage of revenue collected to revenue assessed. UPERC fixed targets of collection efficiency of 86.23 *per cent* in 2000-01, 85 *per cent* in 2001-02 and 88 *per cent* in 2002-03. UPPCL could not achieve these targets. Actual targets achieved were 78 *per cent* in 2000-01 and 2001-02 and 76 *per cent* in 2002-03. Targets and achievements for 2003-04 were not available. Shortfall of revenue collected due to non-achievements of targets during these years worked out to Rs.1,413.54 crore.

Audit observed the following in collection of revenue:

Accumulation of arrears due to inadequate recovery action

2.4.36 The arrears at the close of November 2003 aggregated Rs.391.56 crore in case of 1,04,566 consumers. Further analysis of the records of 33 divisions revealed that arrears aggregating Rs.5.86 crore could not be recovered from 598 consumers due to incorrect addresses (Rs.2.21 crore), consumers not having property (Rs.0.98 crore), consumers not traceable (Rs.2.07 crore) and other reasons (Rs.0.60 crore).

The arrears mounted due to (i) failure to keep track of the defaulters and take immediate action for disconnection and issue of recovery notices, (ii) failure to keep arrears within the security deposit amount, (iii) failure to codify responsibility of key personnel at sub-divisional level to ensure action for mounting arrears and (iv) failure to take advantage of the Consultant's services despite the task of devising policy guidelines for collection of revenue falling within the ambit of their responsibilities.

Management stated (August 2004) that consumers data base need complete overhaul and non-existent consumers weeded out from the records. It had also started process of billing through hand held machines and disconnection of defaulters through private agencies. Books of the Company relate to a period of 20-25 years and it would be possible to enforce recovery after setting right the consumers records. Reply is indicative of its failure to undertake process of setting right consumers records despite lapse of over four years from the start of reform process.

The matter was reported to the Government in June 2004; the reply is awaited (September 2004).

Conclusion

Unbundling, corporatisation and restructuring of UPSEB and existing thermal and hydro power generating companies and various schemes introduced in the area of metering/system improvement, did not bring out any positive changes in their financial as well as operational performance. The net worth of UPPCL turned negative. The T&D losses remain high, collection efficiency has not improved and availability of power to most of the consumers group has come down.

The delays, mismanagement and lack of co-ordination in implementation of various schemes of the reforms, inadequate/ improper action regarding billing and recovery resulted in non-accrual of benefits as was contemplated in the reform programme.

In order to improve the working of power sector, the Company should implement the reform programme earnestly and fully in a time bound manner.