

CHAPTER-II

2. Reviews relating to Government companies

Uttar Pradesh Power Corporation Limited

2.1 Working of Sub-transmission network of the State

Highlights

Sub-transmission network emanates from transmission network and terminates at distribution network. The State had 13,435 MVA of sub-transmission capacity with 31,465 Circuit Kilometers of lines as on 31 March 2003 that reflected a growth of 37.47 and 10.69 per cent respectively during five years ending 2002-03.

(Paragraphs 2.1.1, and 2.1.4)

The Company could not achieve targets projected in the State Plan. The overall shortfall in new and augmented sub-station capacities were 35 and 47 per cent respectively during five years ending 2002-03.

(Paragraph 2.1.5)

The sub-transmission capacity was low and overloaded. The Company failed to execute emergent works to improve the system. This also resulted in loss of saving of energy valuing Rs.19.58 crore in delayed execution of 24 works.

(Paragraphs 2.1.6 and 2.1.7)

Failure to install new capacitor banks or repair defective ones facilitated dissipation of annual energy in the system valuing Rs.59.83 crore.

(Paragraph 2.1.10)

The system was also marked by lack of planning, co-ordination and monitoring of the works leading to excessive capacity of secondary transformation systems. Investment of Rs.19.78 crore remained idle due to mismatch of the system. The Company also undertook unviable projects that resulted in idle investments aggregating Rs.4.76 crore.

(Paragraphs 2.1.12, 2.1.16 and 2.1.17)

The Company facilitated misappropriation of stock of Rs.77.89 lakh due to defective/non-maintenance of accounting records.

(Paragraphs 2.1.22)

The Company could not recover cost of material stolen during construction (Rs.1.34 crore) from contractors. The Company incurred excessive expenditure of Rs. 91.78 lakh due to delayed undertaking of works.

(Paragraphs 2.1.28 and 2.1.29)

The Company incurred expenditure of Rs.1.45 crore in excess of receipt of fund from District Magistrates.

(Paragraph 2.1.33)

The Company failed to utilise 53 sub-stations completed at an investment of Rs.48.08 crore or utilised them after substantial delays.

(Paragraph 2.1.37)

Transformation capacity created in three sub-stations during March 1999 to November 2001 at a cost of Rs.2.21 crore, remained idle.

(Paragraph 2.1.38)

Introduction

2.1.1 Sub-transmission network of the State comprises of 66 KV and 33 KV lines and connected sub-stations of 66/11 KV or 33/11 KV. These emanate from transmission network (800 KV to 132 KV) and terminate at distribution network for supply of energy to consumers. The sub-transmission network caters to 90 per cent of the connected load demand. A flow chart of transmission and distribution network is given at *Annexure-12*.

Organisational set-up

2.1.2 Chairman-cum-Managing Director is the head of the Uttar Pradesh Power Corporation Limited (Company) who is assisted by four Directors (one each for Technical, Finance, Transmission and Administration). The Chief General Managers/General Managers at the headquarters and in field assist the Director (Technical) in planning and execution of works. Deputy General Managers are the heads of the Circles who is assisted by Executive Engineers, who heads the divisions under them and execute the sub-transmission works in the field. Rural Electrification and Secondary System Planning Organisation (RESPO), headed by a Chief General Manager, fixes the norms and specifications of works and is also responsible for approving, monitoring and reporting progress thereof to the State Government.

Scope of Audit

2.1.3 Audit conducted the review during December 2002 to April 2003 covering a period of five years from 1998-99 to 2002-03. It covered RESPO, Planning wing of the headquarters and 16 divisions¹ in the field.

The audit findings, as a result of test check of records, were reported to the Government/Company in July 2003 with a specific request for attending the meeting of Audit Review Committee for State Public Sector Enterprises (ARCPSE) so that view points of Government/Company were taken into account before finalising the review. The meeting of ARCPSE was held on 16 September 2003 with Executives of the Company and their view points have been duly incorporated in the review. The Executives of the State Government did not attend the meeting.

Irregularities noticed in audit are discussed in succeeding paragraphs:

Inadequate capacity of the existing system

2.1.4 The targets projected in the State plan (1998-03) envisaged construction of 619 new 33/11 KV sub-stations of 2,539 MVA, augmentation of 1,275 existing sub-stations of 3,830 MVA and construction of 2,839 ckts of 33 KV lines and the same

¹ Nine Electricity Secondary Works Divisions (Aligarh, Meerut, Kanpur, Jhansi, Lucknow, Bareilly, Varanasi, Gorakhpur and Allahabad), one Electricity Workshop Division, Faizabad, three Electricity Urban Construction Divisions (Allahabad, Varanasi and Moradabad) and three Electricity Urban Distribution Divisions (Moradabad-I & II and Aligarh).

(except for the year 2000-01, when marginally lower targets were fixed) were adopted by the Company.

No addition in 66/11 KV sub-station was done as a policy. The growth in sub-transmission capacity and sub-transmission lines over 1997-98 was 37.47 per cent and 10.69 per cent respectively during the last five years ending 2002-03, as may be seen from the table below:

Period	66/11 KV sub-stations		33/11 KV sub-stations		Length of lines in circuit kilometers (ckts)	
	Nos.	Capacity (MVA)	Nos.	Capacity (MVA)	66 KV	33 KV
As on 31 March 1998	45	455.66	1430	9317	3139	25286.09
Additions during five years ending 2002-03	--	--	329	3662	--	3039.50
As on 31 March 2003	45	455.66	1759	12979	3139	28325.59

Physical and financial targets and achievements

Overall shortfall in construction of new sub-stations was 35 per cent and augmentation of existing sub-stations was 47.10 per cent

2.1.5 Physical and financial targets and achievements for the last five years ending 2002-03 are given in *Annexure-13*. It may be seen that the Company achieved the targets set for construction of 33 KV lines during all the five years except 1998-99, where the shortfall remained at 47.10 per cent.

The Company did not come up with new sub-stations as per targets during all the five years ending 2002-03 (except 2001-02). The shortfall ranged between 11.67-59.95 per cent during these years. As against the targetted capacity of 2,539 MVA to be built up during the five years, it could achieve 1,650.50 MVA leading to overall shortfall of 35 per cent.

The Company failed to augment the targetted capacity of existing sub-stations. As against the targetted capacity to augment 3,830 MVA during the five years ending 2002-03, it could augment only 2,011.50 MVA of existing capacity leading to overall shortfall of 47.48 per cent.

The reasons for shortfall in achievement as analysed by audit were delayed acquisition of land, belated application for consent to cross railway lines and delays in completion of works. This resulted in overloading of the system.

Overloading of the system

The system was overloaded by 1.55 to 1.63 times

2.1.6 The transformation capacity of the network should be 90 per cent¹ of the connected load. As on 31 March 2003, the capacity available was only 13,435 MVA (64.53 per cent) against the required capacity of 20,821 MVA resulting in shortfall of 7,386 MVA (35.47 per cent) indicating overloading of the system by 1.55 to 1.63 times as detailed below:

As on	Connected load	Transformation capacity required (90 per cent of connected load)	Transformation capacity available	Extent of overloading ² of the system (times)
31.3.99	19557	17601	10777.00	1.63
31.3.00	20551	18496	11517.50	1.61
31.3.01	22236	20012	12241.50	1.63
31.3.02	22460	20214	12831.00	1.58
31.3.03	23134	20821	13435.00	1.55

(in MVA)

¹ As per annual plan review of the Company of 2001-02.

² Ratio of available capacity to required capacity. Against the base of one, the system is overloaded to the extent of 1.55 to 1.63 times. This is called diversity factor.

Overloading of the system causes failure of equipment, poor voltage profile and dissipation of energy in the system due to low power factor. To improve the system following upgradation programme were undertaken.

Upgradation programme

Emergency proposals

The Company could not save energy loss valuing Rs.19.58 crore due to substantial delays in completion of work

2.1.7 In order to overcome the above deficiencies, the Consulting Engineer¹ proposed (December 1994) an emergency proposal (68 works) for upgradation of rural system at a cost of Rs.64.03 crore². This involved (i) installation of capacitor banks to improve power factor; (ii) increasing capacity of the existing sub-stations and (iii) constructing additional sub-stations and lines to relieve the overloading and meet the additional demand. Scheduled completion period of these works was March 1996. While 19 works, valuing Rs.20.53 crore, had been completed in time, 24 works, valuing Rs.21.98 crore were executed after a delay of 15-84 months and 25 works, valuing Rs.21.52 crore were incomplete as of September 2003.

Delayed execution of 24 works, resulted in non-accrual of a saving of Rs.19.58 crore and non-completion of 25 works in non-accrual of annual saving of Rs.5.58 crore.

Budgetary support

2.1.8 The Company obtained (September 1998) loan of Rs.21.48 crore as budgetary support at an interest of 14 *per cent* per annum from the State Government for completing 54 partially completed works (including eight of emergency plan). These works were accorded first priority as the Company had already spent Rs.25.03 crore on these works up to March 1998. The partially completed works were to be completed by December 1998.

The Company completed 23 priority works after a delay of 1-27 months

The Company completed 23 works with an aggregate capacity of 93.5 MVA after a delay of 1-27 months. The reasons attributable to the delays were lack of planning, co-ordination and monitoring.

The Company further had obtained (March 2002) loan of Rs.94 crore as budgetary support and irregularly adjusted the same against the earlier works executed in 2000-01 and 2001-02. This was contrary to the guidelines of the State Government that prohibited such adjustments.

Management stated (September 2003) that the fund was not adjusted against any other works and had been used for construction of new and augmentation of existing sub-stations. The reply is not acceptable, as the General Manager (GM) of RESPO had admitted (March 2002) that these funds were adjusted against the works of 2000-01 and 2001-02.

Installation of capacitor banks

2.1.9 Installation of capacitor banks reduces overloading of the system due to improved voltage profile, saves dissipation of energy in the system by 40 *per cent* and improves load carrying capacity of equipment by 28 *per cent*.

Shortfall in installation of capacitor banks

2.1.10 Scrutiny of records of 13 Distribution Zones revealed that as against the installed capacity of 714.29 MVAR³ (13.46 *per cent*), the required capacity was

¹ Sri R. K. Tandon, Consulting Engineer, New Hyderabad, Lucknow.

² This excludes improvement of systems in towns (Rs.188.80 crore) carried out by Electricity Urban Distribution Divisions, Electricity Distribution Divisions and Electricity Transmission Divisions, activities of which were not covered in this review.

³ MVAR denotes Mega Volt Ampere Reactive.

The Company failed to train its staff in technical know-how of capacitor banks, install inadequate capacity and repair the defective ones causing per annum energy loss valuing Rs.59.83 crore

5,306.16 MVAR as on 31 March 2003. Of this, 435.83 MVAR (61.02 per cent) was lying defective. Failure of the Company to install and maintain capacitor banks facilitated dissipation of energy of 249.29 MU per annum valued at Rs.59.83 crore, at the rate of Rs.2.40 per KWH by the system, which, otherwise, would have been available for useful work.

Reasons for non-installation/not undertaking the repairs were:

- untrained staff to undertake the repair, maintenance and operation of capacitor banks with the requisite technical know-how despite being pointed out in paragraphs 2A.2.1 and 2B.6.3.2 of the Reports of the Comptroller and Auditor General of India, Government of Uttar Pradesh (Commercial) for the year ended 31 March 1993 and 31 March 1994 respectively.
- failure to undertake cost benefit analysis of the installation of new capacitor banks as well as to repair defective capacitor banks;
- delayed action in initiating repairs (February 2003) of capacitor banks lying defective since August 1999.

Further analysis during audit revealed that:

- the cost of installation of new capacitor banks worked out to Rs.3.51 lakh per MVAR based on actual cost incurred during 1997 to 2002 against the per annum energy saving, valued at Rs.1.19 lakh (0.04958 MU). This indicated that the cost is recovered within three years of installation of capacitor banks. Installation of capacitor banks was, therefore, economical as it would start giving saving of Rs.1.19 lakh from the fourth year.
- out of defective capacitor banks of 435.83 MVAR, estimates for repair were prepared for 281.385 MVAR only after a delay ranging from 23-44 months. Estimated cost of repairs of 281.385 MVAR worked out to Rs.2.19 crore against saving of energy aggregating Rs.11.58 crore (48.24 MU). This resulted in loss of Rs.9.39 crore.
- during August 1999 to May 2003, estimates for remaining defective capacitor banks of 154.445 MVAR capacity (435.830-281.385) were not prepared on account of Company's failure to ascertain the extent of defects. This resulted in loss of energy saving of Rs.63.32 lakh per annum based on difference of saving and cost of repairs of Rs.0.41 lakh per MVAR (Rs.1.19 lakh - Rs.0.78 lakh).

Management stated (September 2003) that 106 MVAR of capacitor banks were repaired during March 2003 to July 2003 and that the requirement was only 1,508 MVAR (against 5,306.16 MVAR) as per the study conducted by Northern Regional Electricity Boards.

The reply is not acceptable as the result of study conducted by Northern Regional Electricity Boards was for improving voltage at macro level (above 220/132 KV).

Planning of works

2.1.11 Proper planning, co-ordination, matching in various components of works, monitoring, etc. are essential to avoid undertaking of uneconomic works, delays in completion of works and excessive costs. The distribution divisions submit proposals for construction/augmentation of sub-stations and its associated lines to the Zonal Technical Committee (ZTC), based on load survey data and technical/financial feasibility. The proposals so recommended by the ZTC are examined and approved by RESPO. After their approval, the Electricity Secondary

Works Divisions (ESWs) prepare estimates and packages¹ of work, which are sanctioned by General Manager/Deputy General Manager.

Shortcomings noticed in audit are discussed in succeeding paragraphs.

Excess capacity of secondary transformation as compared to primary capacity

2.1.12 The primary systems at 132 KV sub-stations, Kunda and Bhupiamau had a capacity of 80 MVA as on 31 January 2003 whereas the secondary transformation capacity was 141.5 MVA which was further increased by another 40 MVA (total: 181.5 MVA) during the period March 1999 to March 2002. The mismatch had the effect of under utilisation of 101.50 MVA capacity (cost: Rs.14.39 crore, as per RESPO cost schedule of 2001-02) at secondary transmission system which would remain idle until the capacity of primary sub-station would be increased to the same extent.

Management stated (September 2003) that a scheme for increasing capacity of the primary sub-station by another 20 MVA was under consideration.

Similarly, against 120 MVA primary system at 132 KV sub-station, Darshannagar, Faizabad as on 31 March 2003, the secondary transmission capacity of 110 MVA was increased (1997-02) to 158 MVA. This indicated higher capacity of 38 MVA (cost: Rs.5.39 crore as per RESPO cost schedule 2001-02) that will remain idle until the primary capacity is increased to that extent. In order to examine the necessity of additions, the information regarding maximum load recorded at the secondary transmission system was asked for (January 2003) which was not furnished by the Company.

Thus, the Company did not plan its activities properly to avoid substantial investment (Rs.19.78 crore) which remained blocked on account of mismatch in the capacities of primary and secondary sub-station.

Management stated (September 2003) that construction of another primary sub-station at Milkipur (1 X 20 MVA capacity) was being taken up to reduce overloading of the primary sub-station at Darshan Nagar.

Incorrect technical feasibility report

2.1.13 Sarvankhera 33/11 KV sub-station (Rural) of 3 MVA capacity with its associated T-off line from Rania feeder (Industrial) was approved (1998-99) at a cost of Rs.86.12 lakh (revised to Rs.1.25 crore in March 2002). It was noticed in audit that the work was completed in March 2002 but it could not be energised due to non-grant of permission by GM (Distribution), Kanpur (May 2002) to tap Rania feeder (Industrial) on the grounds that rostering programme of rural area was not technically feasible from industrial feeder. Thus, due to incorrect technical feasibility report prepared in the first instance to tap energy from industrial feeder facilitated not only excessive cost of Rs.38.49 lakh (Rs.124.61 lakh - Rs.86.12 lakh) due to construction of 7.5 ckts line but also delayed utilisation of sub-station by 12 months (March 2003).

Belated application for consent to cross the railway lines

2.1.14 Section 18 of Indian Electricity Act, 1910 provides that consent of railways is to be obtained in writing before placing any overhead line along or across

Investment of Rs.19.78 crore remained blocked due to mismatch of the system

The Company failed to approach Railways for consent causing substantial delays in completion of works

¹ The package contains details and value of material to be supplied by store organisation, to be procured locally and cash required for labour and other components of the works. The package forms the basis of allocation or release of fund to the respective units (stores, transmission and executing divisions) by the finance wing.

railways. Accordingly, it is necessary to make an application to them while planning for construction of lines passing across or along railways to ensure that delays in granting consent by the railways are avoided. The ESWDs of Gorakhpur and Allahabad belatedly approached the railways after 4-15 months from the commencement of work (February 1998 to April 2000) for construction of four lines¹ valuing Rs.3.99 crore.

The delay (4 -15 months) in approaching railways ultimately delayed the completion of work. Extent of benefit deprived from delays could not be ascertained in audit as the schemes did not contemplate cost benefit analysis in these cases.

Loss due to demolition of works

2.1.15 The construction of 33/11 KV sub-station, Jail Chauraha, Jhansi (scheduled to be completed in March 1999 at a cost of Rs.75 lakh) was undertaken without obtaining consent from District Administration and Police Department in September 1999. An expenditure of Rs.7 lakh was incurred till December 1999. The sub-station was dismantled by Police Department (January 2000). The work was completed in September 2001 belatedly at a cost of Rs.1.67 crore resulting in time overrun of 30 months and cost overrun of Rs.92 lakh.

Uneconomic viability of projects

2.1.16 The Company directed (May 2001) the field units to undertake only those projects of sub-transmission that are economically viable. It was noticed in audit that Allahganj sub-station, Shahjahanpur that was to feed power to rural areas, had a negative return of Rs.17.84 lakh per annum as per Financial Viability Report (FVR) of the work. Despite this, ZTC recommended (August 2002) construction of the sub-station. RESPO also accorded its approval of cost of Rs.1.23 crore for the work. Accordingly ESWD, Bareilly undertook the work from January 2003 for 3 MVA capacity. Reasons for taking up of unviable projects were not on record.

Management in reply (September 2003) tried to justify the financial viability of the sub-station being sound as it worked out its viability by taking 24 hours supply which was reasonable considering the location of sub-station in rural area. Management's reply is not tenable as (i) the Management itself in the original Technical Feasibility Report (TFR) had taken hours of supply as eight only and (ii) even Uttar Pradesh Electricity Regulatory Commission in its review of UPPCL's performance had cast a doubt on the claim of UPPCL providing supply to rural areas for eight hours as contemplated in the TFR.

Similarly, financial viability was not worked out for Mangari sub-station, Faizabad with anticipated demand of 70 ampere (equivalent to 1.33 MVA²). The adjacent Patranga sub-station with an installed capacity of 262.5 ampere and anticipated load of 100 ampere had spare capacity of 160 ampere. The capacity of 160 ampere at Patranga sub-station was sufficient to meet the demand of 70 ampere to be met from Mangari sub-station. The expenditure of Rs.83 lakh incurred on Mangari sub-station could have been avoided.

Thus, the Company undertook economically unviable projects by jeopardising its financial interests.

¹ Laxmipur-Addabazar (17.44 ckts), Campierganj-Sunora (14.74 ckts), Radhanagar-Abunagar (14 ckts) and Bhupiamau-Dilippur (16.5 ckts).

² 1 MVA = 52.5 ampere on 33 KV voltage.

**The Company
undertook
technically
unviable projects**

Unviable technical feasibility

2.1.17 The Company prepares TFR before undertaking construction of a new sub-station. TFR indicates the load by which the existing sub-station is overloaded and the extent of load to be transferred to the new sub-stations.

The Company constructed and energised three 33/11 KV sub-stations of five MVA each at Barauli (July 2001), Panehra (March 1999) and Deoriakalan (March 2002) and created transformation capacity of 787.5 ampere (262.5 ampere each) at a total cost of Rs.2.70 crore (Rs.91.64 lakh, Rs.93.66 lakh and Rs.85 lakh respectively). The maximum load after commissioning of sub-stations was 65 ampere at Barauli (December 2002), 115 ampere at Panehra (April 2002) and 100 ampere at Deoriakalan (July 2002). Audit analysis revealed that utilisation of sub-stations was to the extent of 24.76 per cent (Barauli), 43.80 per cent (Panehra) and 38 per cent (Deoriakalan). This indicates that the TFR was prepared with incorrect data to accommodate the new sub-stations. Instead of constructing new 33/11 KV sub-stations, the additional demand could easily have been met by augmentation of existing sub-stations.

Management stated (September 2003) in respect of Deoriakalan that approval for construction of 5 MVA capacity instead of 3 MVA capacity was accorded, taking into account the anticipated increase of load in near future and that the Company was not taking up construction of 33/11 KV sub-stations of 3 MVA. The reply is not tenable, as Company had taken up construction of 33/11 KV sub-station, Allahganj with 3 MVA capacity in January 2003 itself as discussed in paragraph 2.1.16. Moreover, user division (EDD, Pilibhit) intimated that maximum load on the sub-station did not exceed 100 ampere (2 MVA) as consumption of electricity in the area was very low. No reply was furnished for other two sub-stations.

Delayed energisation of completed works

2.1.18 For making the sub-stations operative, completion of matching works like 33 KV bay, connecting lines of sub-stations and availability of equipment like transformers, switchgears etc. is necessary. This requires co-ordination between various other executing divisions viz. transmission (for construction of bay), and stores (for material like transformers, switchgears etc.). Further, the link sub-stations or lines have to be completed to link the system with each other.

It was noticed that due to non co-ordination among the executing divisions, store divisions and transmission divisions for construction of bay, 12 sub-stations valuing Rs.8.96 crore could be energised with a delay of 2-34 months from the date of completion thereof as per details given in *Annexure-14*.

Execution of works

2.1.19 On the basis of estimates and packages approved by RESPO, the respective stores and executing divisions receive funds from the finance wing. While the material is drawn from store centers, the executing divisions undertake the works by inviting tender and execution of agreements with private contractors. No works can be undertaken or capacity extended without approval from RESPO.

The respective Junior Engineers (JEs) of the executing divisions issue material direct on works or to contractors. On completion of works, JEs measure the works and divisions make payment to contractors on the basis of measurement. The accounts are prepared from the monthly accounts of stock, cash and adjustments. Completion reports are also prepared after the reconciliation of these accounts. The

rules further provide that no work can be undertaken without sanction of the estimates.

Shortcomings noticed are discussed in succeeding paragraphs.

Execution of work without RESPO approval

2.1.20 Three ESWDs (Jhansi, Meerut and Bareilly) created additional capacity of sub-station of 8 MVA and constructed additional length of lines at a cost of Rs.3.40 crore against approved cost of Rs.1.30 crore without approval from RESPO and thus, incurred an extra expenditure of Rs.2.10 crore during the five years ending 2002-03.

Time and cost overrun

2.1.21 The following cases of delays and excessive cost were noticed despite availability of fund for the works:

- Out of 370 sub-stations constructed during 1997-03, construction of 31 sub-stations was delayed by 4-48 months despite drawl of funds from budgetary support during 1998-99 to 2001-02. The delays resulted in avoidable cost overrun of Rs.2.17 crore (not funded by the State Government) as of March 2003 as detailed in *Annexure-15*. Further, 34 sub-stations that were started in 1998-99 were behind schedule by one to four years at the end of March 2003. As per revised estimates, sub-stations cost had increased by Rs.3.31 crore. The details are given in *Annexure-16*.
- Apart from above, in 15 sub-stations where funds (Rs.14.37 crore) were available during 1998-99 to 2002-03, the works have still not commenced. These would increase the cost by Rs.81.28 lakh in eight works as per revised estimates. Increase in cost of seven works could not be ascertained as estimates thereof were not framed as of March 2003.
- Out of eight sub-stations for which grants-in-aid of Rs.8.24 crore was made available by the DMs for execution of regional package works during 1998-99 to 2001-02, three works have not commenced as of September 2003. Five works were still in progress (September 2003).

The delays were made possible on account of deficiencies that included (i) delayed transfer of fund to the executing divisions consequently leading to delayed transfer of material, (ii) delayed construction of bay by transmission wing and (iii) delays in communicating decisions of line route to the executing divisions and lack of co-ordination between executing divisions.

Misappropriation of material due to defective maintenance of accounting records

2.1.22 The ESWDs, WD and EUCDs failed to maintain works register, deposit works register, consumption statements, work completion reports and executed estimates of works resulting in misappropriation of store valuing Rs.77.89 lakh as detailed below:

- EWD, Faizabad and ESWD, Meerut did not prepare material consumption statement, works completion report as per executed quantity of work and did not hand over material valuing Rs.22.44 lakh to the user divisions.
- A test check of records of ESWD, Kanpur revealed that material valuing Rs.30.03 lakh was misappropriated due to non-accountal (Rs.3.86 lakh), non-return back from contractors (Rs.1.55 lakh), excess issue of material (Rs.4.44 lakh) and non-traceability of capacitor banks (Rs.20.18 lakh) issued between December 1993 and March 1998 on the works¹.

The Company facilitated misappropriation of stock of Rs.77.89 lakh due to defective/non-maintenance of accounting records

¹ 33 KV Ghatampur-Jainpur line dismantled in 2000-01 and 33/11 KV sub-station Rahia-Konch, Kanpur.

- A test check of records of ESWD, Meerut revealed that switchgears, disc insulators and conductors valuing Rs.19.63 lakh were booked twice on construction of 33/11 KV sub-station Kurawan, Muzaffarnagar. There was excess booking of material valuing Rs.4.59 lakh in Joulla-Kurawan 33 KV line and short handing over of material to the user division valuing Rs.1.20 lakh by the JE concerned during April 1997 to March 1998. The double booking of material was made possible on account of inconsistent decision of GM (D), Meerut (January 1997) to shift work from EDD-II, Shamli to ESWD, Meerut and non-preparation of joint inspection report while accepting the work transferred.

Management stated (September 2003) in ARCPSE meeting that efforts were being made to maintain accounting records.

Excess issue of material to contractors or on works

2.1.23 It was noticed during audit that in five cases, the material valuing Rs.38.16 lakh was issued (December 1996 and February 2003) in excess of the actual requirement by three divisions (Kanpur, Meerut and Jhansi) without considering the reduction in the length of lines.

Neither responsibility was fixed nor material issued in excess of the actual requirement was received back and accounted for.

Excess consumption of material than sanctioned estimate and package

2.1.24 ESWD, Kanpur and EUCD, Varanasi issued material valuing Rs.22.45 lakh in excess of the sanctioned estimate/packages in 18 works (details in *Annexure-17*). Neither executed estimates were prepared nor sanction for excess issue of material was obtained from the competent authority.

Material issued after energisation

2.1.25 Sub-stations and lines are declared energised when works are completed in all respect. It was noticed during audit that stock material and equipment in 31 works aggregating Rs.2.16 crore were issued after 1-30 months from the date of completion or energisation of sub-stations and lines. The details are given in the *Annexure-18*.

Issue of material after energisation or completion of works was fraught with possibility of misappropriation thereof.

Non-fixation of revised rates by the zones

2.1.26 The RESPO fixes rates of cartage and erection charges¹ and specifications of material to be used for construction and execution of works after carrying out detailed analysis. If the rates of cartage and erection charges are at variance, the field officers had to approach their GM (Distribution) alongwith proof, who shall fix revised cartage and erection charges for the zones under intimation to RESPO.

The zones did not revise these charges despite the actual costs incurred being more than the RESPO cost schedules. This resulted in excess expenditure of Rs.5.74 crore due to execution of work at higher rates and use of higher specification material as discussed below:

- In 328 works (129 sub-stations, 51 augmentation works of existing sub-stations and 148 line works), seven ESWDs, two EUCDs and one EWD executed agreements with contractors at higher rates than RESPO rate schedule. This

¹ The erection charges include expenditure on installation of terminal gantry, bus bar, isolator, switchgears, transformers etc. at sub-stations and poles, conductors and its accessories in construction of line.

The Company issued material aggregating Rs.2.16 crore after energisation of lines that was fraught with the possibility of misappropriation

resulted in excess cost of Rs.5.16 crore (*Annexure-19*) during the five years ending 2001-02.

- ESWD, Meerut incurred extra expenditure of Rs.30.21 lakh on barbed wire fencing of 23 nos. sub-stations during 1997-98 to 2002-03 at higher rates than rates fixed by the RESPO resulting in excess cost of Rs.30.21 lakh. In other cases, such works were executed within RESPO cost schedule.
- ESWD, Meerut, Jhansi and Kanpur used costlier chain link security fencing, dog conductor and steel tubular poles instead of pale fencing, racoon conductor and prestressed cement concrete poles respectively. This resulted in extra cost of Rs.27.31 lakh (Rs.18.41 lakh on pale fencing, Rs.4.82 lakh on dog conductor and Rs.4.08 lakh on steel tubular poles) executed during April 1997 and October 2001.

Management stated (September 2003) that the rates of RESPO were for cartage and erection charges whereas contractor has to arrange local material also. The reply is not convincing as local material was neither included by the RESPO in cost analysis of sub-stations and lines nor excessive rates submitted to RESPO for approval by the respective GM (Distribution).

Avoidable cost on security guards

2.1.27 General terms and conditions of the agreement provide that the contractors shall be solely responsible for any loss due to theft, damage and accidents to the material and manpower employed by him during the entire period of execution of works and shall accordingly keep watch and ward and ensure the works against such losses. However, two ESWDs (Meerut, and Bareilly) executed 15 agreements for Rs.25.28 lakh for supply of security guards for watch and ward of the material/equipment at new 33/11 KV sub-stations during the period 1997-98 to 2001-02 contrary to the provisions of agreements entered into with the contractors for erection and commissioning of sub-stations and lines which increased the cost of works by Rs.25.28 lakh.

Non-recovery of cost due to theft during construction

2.1.28 Store material valuing Rs.1.34 crore was stolen (February-December 2002) during the construction period but action to recover cost thereof from the contractors was not taken as of March 2003.

Excess expenditure due to delayed undertaking of works

2.1.29 The table below shows the cases where the works were included in the work plan of RESPO and funds were also made available under budgetary support of 1998-99 from the State Government but there were delays in commencement of works resulting in excess expenditure of Rs.91.78 lakh.

The Company could not recover Rs.1.34 crore being cost of stolen material during construction from contractors

Sl. No.	Name of sun-station and its capacity	Envisaged expenditure	Actual expenditure	Excessive expenditure	Audit observation	
	33/11 KV sub-station	Capacity (MVA)	(Rs. i n l a k h)			
(1)	(2)	(4)	(5)	(6)	(7)	(8)
1.	Harar, Fatehpur	1 X 3	46.61	70.55	23.94	Delayed undertaking of works (January 2000) despite fund availability in 1998-99 necessitated diversion of line route and increase in length of line by 1.5 ckt (9.40-7.90 ckt) on account of developments that took place in the original line route. Delayed supply of switchgears (August 2001) despite completion of all works of sub-station (August 2000) facilitated theft of components of power transformers and 2500 ltr. transformer oil valuing Rs.11.00 lakh. This resulted in excessive expenditure of Rs.23.94 lakh.

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(1)	(2)	(4)	(5)	(6)	(7)	(8)
2.	Harpur, Gangtahi	1 X 3	148.00	178.51	30.51	Delayed transfer of fund by headquarters and delayed supply of store material by Store Division ,Gorakhpur delayed completion of work (December 2000) by 15 months which resulted in excess cost of Rs.30.51 lakh. There occurred theft of material during April 1998 to December 2000 which necessitated reconstruction of link line by user division.
3.	Bikaramjyot Gorakhpur	1 X 3	58.27	95.60	37.33	The sub-station was completed in May 1998 but could not be energised due to theft of rail supports and 60.48 kms. conductors from the link Harraya - Nawabganj line. The link line was re-constructed (July 2001) at a cost of Rs.37.33 lakh by the user division that delayed energisation of this line by 37 months.
		Total	293.08	394.62	91.78	

Inconsistent decision leading to non-completion of work

2.1.30 The DM, Shahjahanpur released (August 1999) Rs. one crore to EDD-I, Shahjahanpur for construction of 33/11 KV sub-station, Sidhauri under district plan works. Against this, the package for Rs. one crore was sanctioned (1999-2000) indicating break-up of fund to be made available to divisions. EDD-I, Shahjahanpur released Rs.69 lakh between August 1999 and May 2001 to various divisions for civil works, transmission works and sub-station and line works resulting in short release of Rs.30.75 lakh including Rs.29.25 lakh to store division. Reasons for delayed/short release of funds were not on records. Apart from delayed release and short release of fund, the GM (Distribution), Bareilly took inconsistent decision to assign the work first to ESWD, Bareilly, then to EDD-I, Shahjahanpur in May 2000 and again back to ESWD, Bareilly in July 2000. In the absence of transfer of full cost of stores, complete material was not received. Similarly, 33 KV bay work completed in January 2002 could not be put to use due to non-completion of line. ESWD, Bareilly could not do the sub-station and line work due to short release of fund.

Thus, due to short and belated transfer of requisite fund by EDD-I, Shahjahanpur and inconsistent decision, the work could not be completed as of March 2003.

Misappropriation or theft of material and non-dismantling of redundant lines

2.1.31 During the course of audit it was noticed that as on 31 March 2002, the Company had 10 nos. of redundant lines on which substantial material valuing Rs.3.91 crore was used. This material was lying idle for more than a decade. At the time of finalisation of agreements valuing Rs.20.15 lakh for dismantling of redundant lines, conductors were found missing. In all these cases, theft was made possible due to non-dismantling of the lines. Though the contract was awarded for dismantling of redundant lines and the agreements entered into (October 1998 to August 2002) the work is yet to start (March 2003). This not only resulted in blockade of material cost but also led to theft or misappropriation of material valuing Rs.2.62 crore, as per details given in the ***Annexure-20***.

Misappropriation was made possible due to (i) non-dismantling of redundant lines despite GM (Distribution)/Member (Distribution) directives (November 1993) (ii) non-preparation of joint inspection report for material available on redundant lines by the concerning distribution divisions and secondary works divisions.

It was also noticed that Director (Distribution) directed (July 2000) the executing divisions to dismantle 13 redundant 33 KV lines with a length of 212.54 ckts valuing Rs.4.06 crore. Apart from this, three executing divisions (ESWD, Kanpur, Varanasi and Bareilly) did not dismantle the lines as of September 2003. The delay in dismantling of lines may result in loss of material worth crore of rupees as discussed in the preceding paragraphs.

The Company suffered loss of Rs.2.62 crore due to non-dismantling of lines

These cases indicate failure of the field units to follow instructions of the head office. No responsibility for these lapses were fixed as of September 2003.

Deposit and other works

Short charge in deposit works

The Company incurred excess expenditure of Rs.1.90 crore than fund received in deposit works

2.1.32 The Company undertook construction of sub-stations and connected lines of Government departments, Uttar Pradesh State Industrial Development Corporation (UPSIDC), Irrigation Department and Military Engineering Services (MES) as deposit works for supply of power to them. The rules provide that before undertaking the works, full cost of deposit shall be obtained and a separate account should be maintained to ascertain the actual expenditure on such works. In six works, the actual cost (Rs.9.86 crore) incurred was more than the deposit (Rs.7.96 crore). The excess cost of Rs.1.90 crore was not realised from the Corporation/Government departments as of September 2003. The details are given in *Annexure-21*.

Management stated (September 2003) that the case would be examined for fixing responsibility on defaulting officials.

Expenditure in excess of receipt of fund

2.1.33 The Company receives fund from respective District Magistrates (DMs) as grants-in-aid against regional packages from Poorvanchal Vikas Nidhi and Bundelkhand Santulit Vikas Nidhi. Three ESWDs (Varanasi, Kanpur and Jhansi) incurred expenditure of Rs.3.27 crore in three works¹ against the receipt of Rs.1.82² crore during 1993-94 to 1996-97. This resulted in short receipt of fund of Rs.1.45 crore as excess expenditure was not reimbursed by the District Magistrates.

Audit analysis revealed that:

- Preparation of estimates and obtaining of fund by EDDs without consulting ESWDs who prepared fresh estimates, were refused to be honoured by the DMs;
- The demand for funds from 1993-94 to 1997-98 was not pursued. There was delay in undertaking works in case of ESWD, Varanasi; and
- There was delay in release of material by stores organisation which caused further delay in the works (ESWD, Orai work).

Management stated (September 2003) that in case of Machlisahar-Sujanganj line, they had incurred Rs.75.10 lakh instead of Rs.1.27 crore. The reply is not tenable as expenditure of Rs.52 lakh incurred prior to March 1998 and establishment and supervision charges were not accounted for by them. In case of 33/11 KV sub-station Nadigaon and its line Konch-Nadigaon, Management did not furnish reply as of October 2003.

Non-disposal of damaged power transformers

2.1.34 During the test check in audit it was noticed that 68 defective power transformers valued at Rs.1.97 crore (Capacity: 0.75 MVA to 5 MVA) were lying with EWD, Faizabad, ESWD, Lucknow and ESWD, Varanasi but no efforts were made to dispose off these power transformers so far (March 2003).

It was further observed in audit that power transformer (Marson make, 8 MVA) valuing Rs.16.80 lakh (Sl. No. 66899) manufactured in 1998 was allotted by Store Division, Kanpur (procured against ESPC-I Order No. 23/93) for installation at

¹ 33/11 KV Sujanganj Sub-station and Line Machlishahar-Sujanganj (16 ckts), 33 KV Line Bharuasumerpur- Pothia (23.5 ckts) and 33/11 KV Nadigaon sub-station and Konch-Nadigaon line.

² Rs.52.05 lakh: 1993-94 (Poorvanchal Vikas Nidhi), Rs.42.72 lakh: 1995-96 (Bundelkhand Santulit Vikas Nidhi and Rs: 86.93 lakh: 1994-97 (Bundelkhand Santulit Vikas Nidhi).

Jakhlaun Pump Canal. The transformer was commissioned and energised in May 2000 but was damaged in the same month and the matter was also reported to the firm (May 2000) to remove the defects. The firm neither repaired the transformer nor replaced it so far (March 2003). The second transformer (Accurate make Sl. No. A 0061810730015) was again allotted by ESD, Kanpur without receipt of damaged power transformer from ESWD, Jhansi, to get it repaired from the supplier. Transformer is still lying (March 2003) at Jakhlaun Pump Canal without repair.

Critical Infrastructure Balancing (CIB) Scheme

2.1.35 In order to solve the problem of overloading, a proposal of system improvement in seven districts (Moradabad, Aligarh, Bhadohi, Jaj Mau (Kanpur), Saharanpur, Meerut and Lucknow) was submitted in 1996 to Government of India and Government of Uttar Pradesh. The proposal was approved (September 1996) and accordingly financial assistance of Rs.45.18 crore (Central Government: Rs.20.45 crore and State Government: Rs.24.73 crore) in the shape of grants-in-aid was provided to UPPCL for improvement in the system during the period from 1997-98 to 2000-01. Out of Rs.45.18 crore, Rs.13.29 crore was provided for improvement in the secondary system under CIB. Benefits anticipated on implementation of these works were increase in reliability of supply, partial relief in reducing overloading and availability of some capacity for releasing new commercial and industrial connections.

Funds received, expenditure incurred and that reported to the Government are detailed below:

Name of the project	Amount sanctioned	Project provided in the scheme and completed			Fund provided for 33 KV works (Rs. in lakh)				Actual cost (Rs. in lakh)				Excess with-drawal/ excess expenditure (-)	Cost reported to the Govt.	Excess reported	
		S ¹	I ²	L ³	S	I	L	T ⁴	S	I	L	T				
Moradabad	800.00	2	2	10	225.00	47.00	32.00	304.00	145.60	29.55	34.34	209.49	94.51	243.00	33.51	
Moradabad	1228.00	4	2	3.04	380.00	12.00	21.00	413.00	342.13	13.81	46.50	402.44	10.56	391.00	(-) 11.44	
Aligarh	700.00	3	2	26.2	186.00	94.00	194.00	474.00	246.58	104.84	138.48	489.90	(-) 15.90	536.84	46.94	
Bhadohi	200.00	1	2	2	100.00	23.00	15.50	138.50	74.15	33.00	--	107.15	31.35	138.50	31.35	
Total		10	8	41.24	891	176	262.5	1329.5	808.54	181.20	219.32	1208.98	120.52	1309.34	100.36	

In execution of these works the following deficiencies were noticed:

The Company incorrectly charged Rs.2.03 crore from Government, incorrectly reported higher expenditure on works. It also failed to improve the system and reduce technical losses

- Establishment and supervision charges amounting to Rs.2.03 crore were loaded in 20 estimates contrary to Company's own directives of non-loading of establishment and supervision charges. The Company, by doing so deprived the consumers of the benefit of at least three sub-stations which could have been created had the establishment and supervision charges not loaded and the fund of Rs.2.03 crore utilised properly.
- The Company (EUCD, Moradabad, Aligarh and ESWD, Varanasi) incurred Rs.12 crore on 20 works whereas the expenditure reported (September 2002) to the State Government was Rs.13.09 crore;

1 S = Sub-station (in nos.).
 2 I = Increase in capacity (in nos.)
 3 L = Line (in kms.)
 4 T = Total

- Estimates were prepared at higher cost by Rs.1.21 crore. The amount was utilised on other works without approval of the competent authority (Commissioner Level);
- Funds of Rs. two crore were provided for improvement in the system of Bhadohi district. Utilisation certificate for the entire amount was issued in April 2000 though the work relating to construction of 33/11 KV Suriyawan to Neoria and Morh to Suriyawan line was not completed. The cost of execution of these lines would be Rs.65.72 lakh against the original envisaged cost of Rs.15.50 lakh.
- The Company created excessive capacity of 2 X 5 MVA each against approval of 1 X 5 MVA capacity of three 33/11 KV substations (Jamalpur, Balaikila and Ravantilla) at a cost of Rs.1.86 crore, resulting in excessive expenditure of Rs.60.58 lakh without approval from Competent Authority (Commissioner level).
- Reduction in technical losses was envisaged as 2 to 3 *per cent* but the same increased from 38.99 (1999-2000) to 40.32 *per cent* (2001-02) for Aligarh area (losses slightly reduced to 38.34 *per cent* in October 2002). In respect of Moradabad division, the technical losses increased and the expected saving of Rs.3.50 crore (on 1,45,099 MU of excessive energy loss) did not take place.
- The percentage of damaged power transformer prior to completion of CIB scheme was 14.56 in March 2002 which increased to 19.26 in January 2003 (for Aligarh alone);
- The overall consumption of energy was 105.68 unit per KW (March 1998) prior to implementation of scheme in Moradabad (EUDD I and II) but the same decreased to 73.38 unit (after implementation of scheme) per KW (January 2003). The consumption of industrial sector (small & medium and large & heavy consumers) prior to completion of scheme was 96.93 unit per KW (March 1998) which declined to 94.52 unit per KW (January 2003).

This indicates that the envisaged improvement was not achieved even after implementation of the scheme.

Post implementation status

2.1.36 As soon as sub-stations and lines are completed/energised, it should be handed over to concerned EDDs immediately for operation of sub-station in order to reduce overloading of existing sub-stations for which supply was being fed and to meet out the load demand of the consumers.

Delayed/non-utilisation of sub-stations and lines

2.1.37 It was noticed that 53 sub-stations with connected lines were energised/completed at a cost of Rs.48.08 crore during the period September 1997 to July 2002. As of 31 March 2003, 14 sub-stations could not be handed over and 39 sub-stations were handed over after 2-44 months after energisation to the user divisions due to non-availability of staff to operate the sub-stations and non-construction of feeders to take load from existing sub-stations.

These works were funded from loans carrying 14 *per cent* interest per annum. Delay in utilisation of these sub-stations (excluding for UPSIDC sub-stations) rendered the interest cost of Rs.6.19 crore wasteful.

Thus, due to non/delayed utilisation of sub-stations neither the object of the works could be achieved nor benefits could be passed on to the consumers after incurring expenditure of Rs.48.08 crore.

The Company failed to utilise or utilise the system late causing loss of Rs.6.19 crore

Non-utilisation of UPSIDC sub-station

2.1.38 Three 33/11 KV sub-stations were constructed for UPSIDC during March 1999 to November 2001 at a cost of Rs.2.21 crore but due to non-establishment of industries in the area these sub-stations were either having no load or were having very low load as detailed below:

Name of the division	Name of the sub-station	Capacity (MVA)	Cost (Rs. in crore)	Date of energisation	Maximum load recorded
ESWD, Aligarh	Etah	1 X 5	0.85	12/2001	No load
ESWD, Aligarh	Firozabad	1 X 5	0.52 (excluding civil works)	11/2001	No load (not handed over)
EDD-I, Aligarh	Talanagari	1 X 5	0.84	03/1999	20 ampere against 260 ampere
	Total	15	2.21		

Thus, transformation capacity of 15 MVA remained idle. In the absence of any clause in the agreement with UPSIDC, the Company was not able to recover any cost towards maintenance of these sub-stations and payments of establishment expenses for the staff deployed for these sub-stations.

Conclusion

The sub-transmission network emanates from transmission network and terminates at distribution network. The system at both these ends should match to avoid overloading or rendering a part of the system remaining idle. The Company, however, failed to devise mechanism to correct these deficiencies as a result of which the system not only remained overloaded but a part of it remained idle and unenergised.

The working of the Company suffered from lack of planning, co-ordination and monitoring at various stages leading to shortfall in achievement of targets, failure to install new capacitor banks or get defective ones repaired to save dissipation of energy, belated application for consent to cross railway lines, delayed completion of works, undertaking economically unviable projects and delayed energisation or utilisation of completed works. Execution of works was marked by non-maintenance or improper maintenance of accounting records, excess issue of material to contractors or works, excess consumption of material, excessive expenditure, use of higher specification material, misappropriation and theft of material etc.

The Company needs to introduce proper planning, co-ordination and monitoring mechanism to save substantial loss.

These matters were reported to the Management (part replies received from the Management in September 2003 have been considered) and the Government in July 2003; their replies are awaited (September 2003).