CHAPTER-II

2. Performance Audit relating to Government companies

Performance Audit on the Working of Power Distribution Utilities

Executive summary

Power is an essential requirement for all facets of life. The distribution system of the Power Sector constitutes the final link between the Power Sector and the consumer. The efficiency of the Power Sector is judged by the consumers on the basis of performance of this segment. National Electricity Policy aims to bring out reforms in the Power Distribution sector with focus on system up-gradation, controlling and reduction of sub-transmission and distribution losses and power thefts and making the sector commercially viable.

In Uttar Pradesh, distribution of power is carried out by the five Distribution Companies (DISCOMs) i.e. Kanpur Electricity Supply Company Limited (KESCO), Paschimanchal Vidyut Vitran Nigam Limited (PVVNL), Dakshinanchal Vidyut Vitran Nigam Limited (DVVNL), Purvanchal Vidyut Vitran Nigam Limited (PuVVNL) and Madhyanchal Vidyut Vitran Nigam Limited (MVVNL). We selected KESCO and PVVNL for the performance audit covering period from 2006-07 to 2010-11. The audit was conducted to ascertain whether the aims and objectives stated in the National Electricity Policy were adhered to and how far the distribution reforms were achieved. Besides, execution of Centrally Sponsored Schemes viz. RGGVY and APDRP/ R-APDRP was test checked with reference to the contracts and payments made there against.

Financial position and working results

The DISCOMs were not able to recover their cost of operations and the Accumulated Losses increased year after year and mounted to ₹ 29,068.78 crore in 2010-11 against ₹ 9,521.94 crore in 2006-07. The realisation per unit ranged between ₹ 2.84 and ₹ 3.96 against the cost per unit of ₹ 4.06 to ₹ 5.37 during 2006-11.

Distribution network planning

Against the planned additions of 609 sub-stations over the audit period, only 498 sub-stations were actually added. The increase in transformation capacity was not commensurate with the increase in connected load. During the audit period, the connected load increased from 23,730 MVA to 32,504 MVA (36.98 per cent) whereas transformation capacity increased from 19,842 MVA to 26,250 MVA (32.29 per cent). Due to delayed construction of 179 sub-stations, PVVNL could not get the financial benefit of ₹ 67.64 crore.

Implementation of Centrally Sponsored Schemes

RGGVY was launched (April 2005) with the objective to provide access to electricity for rural households by 2009. The DISCOMs received ₹ 1741.01 crore for electrification of 23,325 villages against which 22,062 villages were electrified at a cost of ₹ 1687.00 crore during the audit period leaving a gap of 1263 villages. The scheme was being executed at very high cost. Test check in audit revealed that extra expenditure of ₹ 186.52 crore was incurred due to award of work at exorbitant rates and excess payment of Trade Tax.

In execution of APDRP/R-APDRP schemes implemented for up-gradation of distribution system and establishment of I T enabled system, cases of cost overrun of ₹ 2.24 crore and procurement of sub-standard material of ₹ 1.89 crore was found in KESCO. Under R-APDRP, PVVNL drew loan of ₹ 132.02 crore in 2009-10 and 2010-11 for work of establishment of centers for IT enabled system, out of which only ₹ 27.78 crore was utilised

Operational efficiency

The overall sub transmission and distribution losses ranged between 23.41 and 29.11 per cent against the norm of 25.21 to 27.40 per cent during 2006-11. Against the ideal ratio of 1:1, the ratio of transformation capacity to the total connected load ranged between 0.77:1 and 0.86:1 during 2006-11. Percentage of failure of Distribution Transformers

(DTRs) ranged between 15.45 and 17.15 per cent against norm of 5 per cent. The DISCOMs failed to devise proper internal control mechanism and effective managerial control to ensure timely return of damaged transformers after repair.

The DISCOMs also did not install required capacitor banks of 12,205.38 MVAR capacity, due to which saving of energy of 600.10 MU per year valued at ₹ 237.64 crore could not be done.

Billing and revenue collection efficiency

During audit period, energy billed on the basis of meter readings ranged between 47.75 and 55.45 per cent of the total energy available for sale within the State. Under/short billing of ₹ 8.97 crore on account of incorrect application of tariff, unmetered supply and defective meters etc. was done by the DISCOMs. In addition, the DISCOMs did not levy ₹ 39.58 crore on account of Electricity Duty, late payment surcharge, penalty and security deposit. Outstanding dues increased from ₹ 4,982.19 to ₹ 12,985.36 crore during 2006-11. The DISCOMs failed to initiate effective pursuance for recovery of outstanding dues.

Tariff fixation

The DISCOMs failed to file the Annual Revenue Requirement (ARR) petitions within the prescribed period of 120 days before the commencement of the respective year. The delay ranged between 19 to 479 days, resulting in non-realisation of potential revenue of ₹550.90 crore.

Conclusion and recommendations

The DISCOMs were not able to recover its cost of operation and its accumulated losses increased by 205.28 per cent during 2006-11. Many schemes initiated for strengthening of distribution network in the State, started by the DISCOMs, had been abnormally delayed or remained incomplete. The DISCOMs consistently failed to achieve its performance parameters and the targets.

We have made six recommendations to improve the distribution segment of the Power Sector in the State. Making of plans for reduction of T&D losses and power theft, correct billing, ensure timely completion of all the schemes, achievement of performance parameters & targets and fixing yearly targets/ milestones for energy audit, etc. are some of these recommendations.

Introduction

2.1 The distribution system of the Power Sector constitutes the final link between the Power Sector and the consumer. The efficiency of the Power Sector is judged by the consumers on the basis of performance of this segment. However, it constitutes the weakest part of the sector, which is incurring large losses. In view of the above, the real challenge of reforms in the Power Sector lies in efficient management of the distribution system. The National Electricity Policy (NEP) in this regard *inter-alia* emphasises on the adequate transition from financing support to aid restructuring of distribution utilities, efficiency improvements and recovery of cost of services provided to consumers to make Power Sector sustainable at reasonable and affordable prices besides others.

As part of Power Sector reforms, the activities of the erstwhile Uttar Pradesh State Electricity Board were trifurcated (January 2000) into three Government companies viz. Uttar Pradesh Power Corporation Limited (UPPCL) for transformation and distribution functions, Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL) for thermal power generation and Uttar Pradesh Jal Vidyut Nigam Limited (UPJVNL) for hydro electric power generation. The business of distribution of power in Uttar Pradesh is carried out by five Power Distribution Companies (DISCOMs) i.e. Kanpur Electricity Supply Company Limited (KESCO), incorporated in July 1999 and Paschimanchal Vidyut Vitran Nigam Limited (PVVNL), Dakshinanchal Vidyut Vitran Nigam Limited (DVVNL), Purvanchal Vidyut Vitran Nigam Limited (PuVVNL), & Madhyanchal Vidyut Vitran Nigam Limited

(MVVNL**),** all incorporated in May 2003 under the Companies Act, 1956. These DISCOMs are working under functional control of UPPCL and administrative control of Energy Department. The Management of the respective DISCOM is vested with a Board of Directors comprising Chairman, Managing Director (MD) and two other Directors appointed by the State Government. The day-to-day operations are carried out by the MD, who is the Chief Executive of the DISCOM, with the assistance of Chief Engineers, Superintending Engineers and Executive Engineers. During 2006-07, 33,598 Million Units (MUs) of energy was sold by the all DISCOMs which increased to 48,771 MUs in 2010-11, i.e. an increase of 45.16 *per cent* during 2006-11. As on 31 March 2011, the State had distribution network of 13.74 lakh[1] circuit kilometers (CKM), 2,562 sub-stations and 6,03,904 transformers of various categories. The number of consumers was 1.12 crore. The turnover of all the DISCOMs was ₹ 19,312.03 crore in 2010-11, which was equal to 48.96 *per cent* and 3.28 *per cent* of the State Public Sector Undertakings (PSUs) turnover and State Gross Domestic Product, respectively. The DISCOMs employed 32,022 employees as on 31 March 2011.

National Electricity Policy (NEP) aims to bring out reforms in the Power Distribution Sector with focus on system up gradation, controlling and reduction of transmission and distribution (T&D) losses and power thefts and making the sector commercially viable besides financing strategy to generate adequate resources. It further aims to bring out conservation strategy to optimise utilisation of electricity with focus on demand side management and load management. In view of the above, a performance audit was conducted on the working of the Power Distribution Utilities in the State to ascertain whether they were able to adhere to the aims and objectives stated in the NEP and Plan and how far the distribution reforms have been achieved.

Scope and methodology of audit

2.2 The present performance audit conducted during January 2011 to May 2011covers the operational performance of the DISCOMs during the period from 2006-07 to 2010-11. The performance audit mainly deals with Network Planning and Execution, Implementation of Central Schemes, Operational Efficiency, Billing and Collection Efficiency, Financial Management, Consumer Satisfaction, Energy Conservation and Monitoring. Two DISCOMs i.e. PVVNL (having highest turnover) & KESCO (having lowest turnover) out of five DISCOMs in the State had been selected for detailed audit examination.

In PVVNL, the audit examination involved scrutiny of records of Head Office along with 19 units[2] selected on systematic random sampling basis from a total of 115 units, covering all four zones and engulfing all sides of the geographical area.

In KESCO, the audit examination involved scrutiny of records of Head Office and 13[3] units selected on systematic random sampling basis from a total of 36 units, covering overall activities.

[1] Except MVVNL.
[2] One Workshop Division, two Test Divisions, three Store Divisions, two Urban Construction Divisions and 11 Distribution Divisions.
[3] Bulk, Store, Store Purchase, Construction, two Circles , two Test Divisions and five EUDDs.

Apart from above, the contracts and payments made there against relating to electrification and system improvement works under RGGVY and APDRP have been examined in respect of all DISCOMs.

The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of explaining scope of audit and audit objectives to top Management, scrutiny of records at Head Office and selected units, interaction with the auditee personnel, analysis of data with reference to audit criteria, raising of audit queries, discussion of audit findings with the Management and issue of draft performance audit report to the Management for comments.

Audit objectives

2.3 The objectives of the performance audit were to assess:

- whether aims and objectives of National Electricity Policy/Plans were adhered to and distribution reforms achieved;
- adequacy and effectiveness of network planning and its execution;
- efficiency and effectiveness in implementation of the central schemes such as, Accelerated/Restructured Power Development & Reform Programme (APDRP/R-APDRP) and Rajiv Gandhi Gramin Vidyutikaran Yojna (RGGVY);
- operational efficiency in meeting the power demand of the consumers in the state;
- billing and collection efficiency of revenue from consumers;
- whether financial management was effective and surplus funds, if any, were judiciously invested;
- whether a system is in place to assess consumer satisfaction and redressal of grievances;
- that energy conservation measures were undertaken; and
- that a monitoring system is in place and the same is utilised in overall working of DISCOMs.

Audit criteria

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

- provisions of Electricity Act 2003;
- National Electricity Policy, plans and norms concerning distribution network of DISCOMs and planning criteria fixed by the Uttar Pradesh Electricity Regulatory Commission (UPERC);
- terms and conditions contained in the Central scheme documents;
- standard procedures for award of contract with reference to principles of economy, efficiency and effectiveness;
- norms prescribed by various agencies with regard to operational activities;
- norms of technical and non-technical losses; and
- guidelines/instructions/directions of State Government/UPERC.

Financial position and working results

2.5 The financial position of the PVVNL, KESCO and all DISCOMs for the five years ending 2010-11 is given in ***Annexure-7, 8 and 9*** respectively:

It may be seen from Annexures that:

PVVNL (*Annexure-7*)

- The accumulated losses increased by 210.65 *per cent* from ₹ 1,905.80 crore in 2006-07 to ₹ 5,920.46 crore in 2010-11.
- The debt-equity ratio declined from 1.62:1 in 2006-07 to 0.58:1 in 2010-11. The Net Worth remained negative during the audit period and it decreased from ₹ (-) 698.83 crore in 2006-07 to ₹ (-) 1,238.99 crore in 2010-11, despite increase in the Paid up Capital from ₹ 805.03 crore in 2006-07 to ₹ 3,600.30 crore in 2010-11.
- The current ratio ranged between 0.46:1 and 0.63:1 during the audit period against the ideal ratio of 2:1. The Working Capital remained negative during the audit period ranging between ₹ (-) 922.17 crore to ₹ (-) 3,963.77 crore, indicating that short term liquidity position was not sound.

KESCO (*Annexure-8*)

- The accumulated losses increased by 77.28 *per cent* from ₹ 1,043.91 crore in 2006-07 to ₹ 1,850.64 crore in 2010-11.
- The debt-equity ratio decreased from 4.77:1 in 2006-07 to 2.03:1 in 2010-11. The Net Worth remained negative and decreased considerably from ₹ (-) 903.17 crore in 2006-07 to ₹ (-) 1,583.18 crore in 2010-11 despite increase in Paid up Capital.
- The current ratio ranged from 0.60:1 to 0.47:1 during the audit period. The Working Capital remained negative during the audit period ranging between ₹ (-) 827.85 crore and ₹ (-) 1,544.92 crore, which indicated unhealthy liquidity position.

Accumulated losses of the DISCOMs increased by 205.28 *per cent* from ₹ 9,521.94 crore in 2006-07 to ₹ 29,068.78 crore in 2010-11.

It may be seen from the ***Annexure-9*** that the accumulated losses of all DISCOMs increased by 205.28 *per cent* from ₹ 9,521.94 crore in 2006-07 to ₹ 29,068.78 crore in 2010-11. Further, the debt-equity ratio declined from 1.19:1 in 2006-07 to 0.46:1 in 2010-11 due to infusion of equity of ₹ 1,816.64 crore, ₹ 2,159.24 crore, ₹ 1,966.57 crore, ₹ 3,989.02 crore and ₹ 2,069.99 crore in 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11 respectively by the State Government. The Net Worth indicated a decreasing trend and reached to ₹ (-) 11,264.57 crore in 2010-11 against ₹ (-) 3,629.72 crore in 2006-07. The Working Capital remained negative during the audit period reflecting unhealthy liquidity position. The current ratio ranged between 0.66:1 and 0.81:1 during the audit period indicating that the DISCOMs had not been able to meet out their short term obligations.

The particulars of cost of electricity *vis-à-vis* revenue realisation per unit there from in respect of PVVNL, KESCO and all DISCOMs are indicated in ***Annexure-10, 11 and 12*** respectively:

It may been seen from Annexures that:

PVVNL (*Annexure-10*)

- The loss per unit during the four years up to 2009-10 ranged between ₹ 0.56 per unit and ₹ 0.72 per unit and it sharply increased to ₹ 1.15 per unit in 2010-11.
- The main reasons of increase in loss by ₹ 916.48 crore in 2010-11 over the previous year were increase in employees cost by ₹ 135.06 crore and interest & finance charges by ₹ 573.40 crore.
- The revenue gap of ₹ 793.65 crore in 2006-07 increased to ₹ 1766.26 crore in 2010-11.

KESCO (*Annexure-11*)

- Though the realisation *per* unit increased from ₹ 3.91 to ₹ 4.25 during audit period (8.70 *per cent*), the cost per unit increased from ₹ 4.95 to ₹ 5.46 (10.30 *per cent*) during the corresponding period.
- Loss of ₹ 140.45 crore in 2006-07 increased to ₹ 233.67 crore in 2010-11 mainly due to increase in employee cost by ₹ 80.14 crore (187.20 *per cent*).
- The revenue gap of ₹ 156.75 crore in 2006-07 increased to ₹ 263.18 crore in 2010-11.

It may be seen from the ***Annexure-12*** that in respect of all the DISCOMs though the realisation *per* unit increased from ₹ 2.84 to ₹ 3.96 during the audit period, the cost per unit increased from ₹ 4.06 to ₹ 5.37, during the corresponding period. As a result, the contribution per unit remained negative during the period 2006-2011. Further, cost of power purchase, interest and financial charges and employee cost constituted the major elements of cost which represented 78.97, 8.32 and 5.21 *per cent* respectively of the total cost in 2010-11. The revenue gap increased from ₹ 4097.79 crore in 2006-07 to ₹ 6865.33 crore in 2010-11.

The steep increase in revenue gap needs immediate attention of the State Government for necessary remedial action. Our analysis revealed that the main reasons for high cost of sale of energy as compared to revenue from sale of power were attributable to high incidence of aggregate technical and commercial losses, un-metered supply, short billing, incorrect application of tariff, etc. as discussed in the succeeding paragraphs.

Audit findings

2.6 We explained the audit objectives, audit criteria and scope of audit to the Management during an ‘Entry Conference’ held at PVVNL on 28 February 2011 and at KESCO on 23 March 2011. Subsequently, audit findings were reported to the Management and the State Government in August 2011 and discussed in an ‘Exit Conference’ held on 12 November 2011 at PVVNL and on 25 November 2011 at KESCO. The Exit Conference in PVVNL and KESCO was attended by Managing Director, Director (Finance)/Dy. Chief Accounts Officer and Chief Engineers. Replies from PVVNL and KESCO to audit findings were received in November/December 2011. The replies from the Government have so far (December 2011) not been received. The views expressed by the Management have been considered while finalising this performance audit report. The audit findings are discussed in subsequent paragraphs.

Distribution network planning

2.7 The Power Distribution Companies in the State are required to prepare long term/ annual plan for creation of infrastructural facilities for efficient distribution of electricity so as to cover maximum population in the State. Besides the upkeep of the existing network, additions in distribution network are planned keeping in view the demand/ connected load, anticipated new connections and growth in demand based on Electric Power Survey. Considering physical parameters, Capital Investment Plans are submitted to the Government/UPERC. The major components of the outlay include normal development and system improvement besides rural electrification and strengthening of IT enabled systems.

The particulars of consumers and their connected load during audit period is given below:

	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
PVVNL	Consumers (nos. in thousand)	2578	2766	2972	3144	3278
	Connected load (MVA)	7802	8912	9708	9959	11170
	Transformation capacity (MVA)	7044	7147	7445	8260	9095
KESCO	Consumers (nos. in thousand)	455	470	496	512	536
	Connected load (MVA)	1134	1249	1425	1568	1548
	Transformation capacity (MVA)	867	881	937	992	1020
All DISCOMs (including PVVNL and KESCO)	Consumers (nos. in thousand)	9415	10016	10757	11442	11186
	Connected load (MVA)	23730	26817	29549	30057	32504
	Transformation capacity (MVA)	20440	21186	22645	24258	26250

Source: Data submitted by the DISCOMs

It may be seen from the above table that:

- In PVVNL growth in the transformation capacity from 7044 MVA in 2006-07 to 9095 MVA (29 *per cent*) in 2010-11 did not match with the growth of connected load from 7802 MVA in 2006-07 to 11170 MVA (43 *per cent*) in 2010-11.
- In KESCO growth in the transformation capacity from 867 MVA in 2006-07 to 1020 MVA (18 *per cent*) in 2010-11 also did not match with the growth of connected load from 1134 MVA in 2006-07 to 1548 MVA (37 *per cent*) in 2010-11.

In DISCOMs there was 36.*98 per cent* growth in connected load but the transformation capacity increased by only 32.29 *per cent* during 2006-11.

While the system improvement and rural electrification schemes have been dealt with separately under subsequent paragraphs, the particulars of distribution network planned *vis-à-vis* achievement there against in the State as a whole is depicted in ***Annexure-13***. It may be seen from the Annexure that in DISCOMs, against the planned additions of 609 sub-stations, over the audit period, only 498 sub-stations were actually added. Further, as compared to the growth of connected load of 23730 Mega Volt Ampere (MVA) in 2006-07 to 32504 MVA (36.98 *per cent)*} in 2010-11 as depicted in the table, the increase in transformation capacity was from 19842 MVA to 26250 MVA only (32.29 *per cent*). Thus, the increase in distribution capacity could not match with the pace of growth in consumer demand. At the connected load of 32504 MVA as at the end of March 2011, the requirement of transformers capacity would be 34,216 MVA after considering the requirement of spin reserve of 5 *per cent*. After giving allowance for the maximum load of 80 *per cent* at which transformers can function in normal manner, the required transformers capacity would work out to 42,770 MVA. However, the actual capacity by the end of March 2011 was only 26,250 MVA, i.e., 61.37 *per cent* of required capacity, which was not adequate to meet the projected load demand as per 17

Electric Power Survey. This led to overloading of network and consequential rotational cuts in distribution of electricity.

Instances of irregularities in implementation of developmental work, award of work and delay in execution of work which led to avoidable extra expenditure besides postponing the envisaged benefits to the consumers are discussed below:

Delayed construction of sub-stations

2.8 PVVNL planned construction of 226 sub-stations of 33/11 kV at different places during 2006-07 to 2010-11. As per the Detailed Project Reports (DPRs), the works were to be completed within one year. The cost benefit analysis of 179 sub-stations undertaken for execution during 2006-07 to 2009-10, envisaged an annual financial benefit of ₹ 0.37 lakh to ₹ 9.81 crore per sub-station.

PVVNL could not get envisaged financial benefit of ₹ 67.64 crore during the period 2007-08 to 2010-11.

We noticed that these sub-stations could not be completed within their scheduled period of one year and delay ranged from one month to 48 months. The delay was attributable to delay in sanction of work, preparation of line-chart, clearances from various Government departments, road/communication crossings, cutting of trees, etc. The Management failed to address these factors and was deprived of envisaged financial benefit of ₹ 67.64 crore during the period 2007-08 to 2010-11.

The Management stated (November 2011) that financial benefits envisaged are based on theoretical calculations. The progress of work was also regularly monitored to complete the work within minimum time. The reply is not acceptable as financial viability of the construction of sub-stations was considered by the Management itself on the above financial assumptions. Further, the factors responsible for delay in execution of work were controllable and the Management failed to check these bottlenecks.

2.9 KESCO planned to construct 18 new 33/11 KV Sub-stations and to augment the capacity of existing 13 Sub-stations during 2006-07 to 2010-11.

Our examination of records revealed that four new sub-stations were constructed with a delay of 48 to 326 days and augmentation of seven sub-stations was completed after a delay of 94 to 485 days. The delay was mainly on account of delay in acquisition of land, shifting of transformers, procurement of material, construction of 33 kV bay by transmission wing, construction of control room by Civil Division and delay in execution of work.

The Management accepted (November 2011) the delay and stated that delay was unavoidable. The reply is not acceptable as the Company could have avoided delay by proper planning, co-ordination with Transmission Wing and Civil Division to get the work completed within scheduled period. Delay in construction and augmentation of sub stations resulted in overloading of distribution net work.

Excess provision of material in DPR

2.10 DPR of any work forms basis for execution of the work which *inter-alia* provides details of the different component/item required for the execution of work along with their quantity and value. The cost arrived at on this basis becomes the benchmark for ascertaining quantity as well as value of the work to be executed. PVVNL prepared 20 DPRs on the basis of norms prescribed in cost schedule of RESSPO[4] rates for construction of 33 KV lines during 2009-10 and 2010-11.

Incorrect preparation of DPRs led to excess provision of materials of ₹ 28.84 crore.

We noticed that the quantity of PCC poles and ST poles, etc. were taken in the DPRs on higher side by 33 to 100 *per cent* when compared with the norms of RESSPO. The value of such excess material (9292 PCC and 11537 ST poles) included in DPRs of construction of 33 kV line during 2009-10 and 2010-11 worked out to ₹ 28.84[5] crore. The actual consumption of materials could, however, not be verified as the related records were not provided to audit.

The Management stated (November 2011) that RESSPO provides cost schedules to be used for formulation of schemes/projects only and the estimates are prepared on actual basis which was done by PVVNL. The reply is not acceptable as cost schedule of RESSPO provides the quantity as well as value of material to be consumed. Further, the DPRs did not contain any reason for deviation from the RESSPO norms.

Extra Expenditure due to discriminate purchase policy

Change in purchase policy in PVVNL led to extra expenditure of ₹ 2.26 crore on purchase of 400 transformers.

2.11 PVVNL had evaluated tenders floated for procurement of material on the basis of Free On Rail (FOR) price which included packing, forwarding and all taxes and duties. This policy was, however, not adopted for purchase of transformers *w.e.f.* June 2009. These were evaluated on the basis of ex-works prices and packing and forwarding charges but excluded taxes and duties. Resultantly, landed cost of transformers so purchased by PVVNL was more than the lowest FOR price quoted by the tenderers against the same tenders in 2009-10. Due to this, PVVNL had to incur extra expenditure of ₹ 2.26 crore on purchase of 400 transformers[6] of various capacities.

The Management stated (November 2011) that the evaluation of tenders for purchase of transformers was done as per the orders of UPPCL (20 June 2009). The Management, however, failed to furnish justification for evaluation of tenders for purchase of other items on FOR basis and purchase of transformers on ex-works price basis.

Implementation of Centrally Sponsored Schemes

2.12 We examined implementation of Centrally Sponsored Schemes viz. Rajiv Gandhi Gramin Vidyutikaran Yojna and Accelerated/Restructured Power Development and Reforms Programme (APDRP/R-APDRP). We found that the Management overlooked the cannons of financial propriety in implementation of the scheme. As a result, the schemes were being implemented at much higher cost. Scheme wise deficiencies and irregularities are being discussed *infra*.

Rajiv Gandhi Gramin Vidyutikaran Yojna

2.13 The National Electricity Policy (NEP) states that the key objective of development of the Power Sector is to supply electricity to all areas including rural areas for which the Government of India (GoI) and the State Governments would jointly endeavor to achieve this objective. Accordingly, the Rajiv Gandhi Gramin Vidyutikaran Yojna (RGGVY) was launched in April 2005, which aimed at providing access to electricity for all households in five years for which the Government provides 90 *per cent* capital subsidy.

4 Rural Electrification & Secondary System Planning Organisation.
5 PCC poles: ₹ 7.17 crore *plus* ST poles: ₹ 21.67 crore.
6 50 nos. 10 MVA, 200 nos. 250 kVA and 150 nos. 400 kVA transformers.

Besides, the GoI notified the Rural Electrification Policy (REP) in August 2006. The REP *inter-alia* aims at providing access to electricity for all households by 2009 and Minimum lifeline consumption of one unit per household per day as a merit good by the year 2012. The other Rural Electrification schemes *viz*., Accelerated Electrification of One lakh villages and one crore household, Minimum Needs Programme were merged into RGGVY. The features of the erstwhile 'Kutir Jyoti Programme' were also suitably integrated into this scheme.

As on 31 March 2006, out of 97,942 villages in the State (as per 2001 Census), 57,638 villages were electrified[7] (59 *per cent*). The year-wise target *vis-à-vis* achievement of electrification under RGGVY scheme during the audit period is shown in the table below:

Year	Villages electrified in the beginning of the year	Villages targeted for electrification during the year	Villages electrified during the year	Villages electrified up to the end of the year	Percentage of achievement against target during the year
2006-07	57638	9621	8910	66548	92.61
2007-08	66548	10593	10327	76875	97.49
2008-09	76875	2891	2638	79513	91.25
2009-10	79513	187	165	79678	88.24
2010-11	79678	33	22	79700	66.67
Total	**-**	**23325**	**22062**	**-**	**-**

From the above table, it may be seen that against 40,304[8] un-electrified villages at the beginning of 2006-07, electrification of only 23,325 villages were planned up to the year 2010-11 under the scheme leaving a gap of 16,979 villages.

The DISCOMs received funds under RGGVY for rural electrification. The position of the funds available *vis-à-vis* utilised under the schemes during the five years ending 31 March 2011 is depicted in the table below.

(₹ in crore)

Year	Opening Balance	Funds received during the year	Total funds available	Funds Utilised	Unspent funds at the end of the year
2006-07	6.88	1119.06	1125.94	1088.79	37.15
2007-08	37.15	353.62	390.77	232.42	158.35
2008-09	158.35	101.30	259.65	219.61	40.04
2009-10	40.04	113.20	153.24	94.56	58.68
2010-11	58.68	46.95	105.63	51.62	54.01
Total		**1734.13**		**1687.00**	

Source: Data submitted by the DISCOMs

It is evident from the above tables that 23,325 villages were targeted for electrification for which ₹ 1,734.13 crore were released by Rural Electrification Corporation Limited (REC) for the electrification during 2006-11. Funds of ₹ 54.01 crore available at the end of 2010-11 was insufficient[9] for electrification of 1,263 uncovered villages. This indicated that the expenditure incurred on electrification of villages was in excess of their sanctioned cost.

Our further analysis of the implementation of the scheme is discussed as under:

Works awarded without adherence to cannons of financial propriety

2.14 Our test check of the contracts awarded to various private contractors for rural electrification works under the RGGVY revealed that the Management did not observe the cannons of financial propriety while

7 As per RGGVY scheme, a village would be declared as electrified if, at least 10 *per cent* of the households be electrified, electricity is provided to public places as schools, community centres and distribution networks are provided in inhabitat localities as well as dalit bastis.

8 (97,942-57,638=40,304)

9 Average electrification cost per village = ₹ 1741.01 crore/ (₹ 1734.13 + ₹ 6.88 crore)/23325 villages = ₹ 7.46 lakh. Fund required for 1,263 unelectrified villages = ₹ 7.46 lakh x 1,263 villages = ₹ 94.22 crore.

finalising the contracts and the DISCOMs incurred extra expenditure as discussed in succeeding paragraphs.

Profit Margin: supply of materials

2.15 Three DISCOMs[10] invited open tenders for electrification of villages under the scheme of RGGVY and executed (July to September 2005) 21 contracts with seven contractors[11] for rural electrification of 33 districts[12] on turnkey basis. The turnkey contracts were divided in two parts *viz,* supply of materials, erection and commissioning with their price break up for which Letter of Awards (LOAs) were issued separately to contractors. DISCOMs issued LOAs to contractors for supply of materials at FOR destination prices in July-September 2005. Payments were made for supply of materials against the purchase vouchers of the contractors.

Contractors charged a profit margin of 16 to 430 *per cent*. This resulted in extra expenditure of ₹ 49.84 crore.

We compared the rates awarded to the contractors with their own purchase rates, market rates and UPPCL purchase rates and found that for the rates of only five major items[13], the contractors had quoted and received profit percentages ranging from 16 to 430 which were between one to 28 times higher than the accepted DSR[14] profit of 15 *per cent*. We found that the above DISCOMs, obviously, had not conducted any due diligence like market survey and comparison with UPPCL purchase rates for the main material components of the contracts in order to examine genuineness of the rates quoted by the contractors, before award of the rates for supply of materials to them. This resulted in extra expenditure of ₹ 49.84 crore (MVVNL: ₹ 11.45 crore, PuVVNL: ₹ 18.11 crore, DVVNL: ₹ 20.28 crore) as per ***Annexure-14*** in purchase of these items alone under RGGVY.

The Management stated (November/December 2011) that tenders had been evaluated as a whole being turnkey projects rather than on the basis of rates of individual item/work. The reply is not acceptable as the cost of material in the turnkey contracts constituted major portion (71.12 to 94.65 *per cent*) of the contract value. Hence, financial prudence called for examination of market value of main material components, which was not adhered to prior to evaluation of the tenders to verify the genuineness of the item rates quoted by the contractors.

Supply of materials at higher rates

2.16 The four DISCOMs excluding KESCO invited open tenders for electrification of villages selected under the scheme. Due to the high value of the tenders, invited by the DISCOMs, approval of the short listed tenders was accorded by the Corporate Store Purchase Committee (CSPC) of UPPCL. Agreements were executed between July and September 2005 by the DISCOMs with the successful bidders.

We noticed that the DISCOMs, while short listing the tenders and CSPC while finalising the rates for different tenders, did not consider the rates obtained against tenders invited across the DISCOMs/ within the same DISCOM for

[10] MVVNL, PuVVNL and DVVNL

[11] Nagarjuna Construction Company Limited:2, IVRCL Infrastructure and Projects Limited:4, Reliance Energy Limited:7, Kalptaru Power Transmission Limited:1, ABB Limited:3, Vijay Electricals Limited:2 and KEC International Limited:2.

[12] Faizabad, Ambedkarnagar, Bahraich, Shrawasti, Shahjahanpur, Hardoi, Unnao, Badaun, Allahabad, Mirzapur,Chandauli, Ghazipur, Sonebhadra, S. Ravidas Nagar, Jaunpur, Gorakhpur, Kaushambi, Fatehpur, Pratapgarh, Etawah, Auraiya, Kanpur Nagar, Kanpur Dehat, Banda, Hamirpur, Lalitpur, Jhansi, Farrukhabad, Kannauj, Agra, Aligarh, Hathras and Mathura.

[13] 2.5 sq mm x 2 core PVC cables, 10 kVA & 16 kVA distribution transformers, 5 MVA, 8 MVA power transformers.

[14] Delhi Schedule of Rates.

similar RGGVY works. We analysed the rates awarded and payments made for construction (supply of materials consisting of 32 items) of 159 number of 33/11 kV sub-stations of 5 MVA capacity awarded by three DISCOMs[15] to 11 contractors.[16] Our analysis revealed that the rates awarded ranged between ₹ 99.88 lakh and ₹ 184.22 lakh per sub-station across three DISCOMs ((MVVNL, PVVNL, DVVNL). When compared with the lowest rate of ₹ 99.88 lakh quoted by Reliance Energy Limited (REL), the rates of other contractors were higher by ₹ 1.12 lakh to ₹ 84.34 lakh per sub-station. Thus, award of the works at higher rates resulted in extra expenditure of ₹ 38.97 crore as shown in ***Annexure-15***.

Due to not considering the rates obtained against tenders invited across the DISCOMs, extra expenditure was incurred to the extent of ₹ 68.72 crore.

We further noticed that PVVNL awarded similar work (33/11 kV sub-station of 5 MVA capacity) to Jitco Overseas Projects Limited (JOPL) in July 2005. The JOPL had, however, quoted the rates for 25 items only. We considered the rates of remaining seven items of the lowest bidder viz. REL and loaded the rate of these items on the Jitco contracts. The resultant lowest rate per sub-station worked out to ₹ 81.17 lakh across the four DISCOMs concerned with RGGVY work. When compared to this lowest rate, the extra expenditure for supply of materials of 159 Sub-stations, worked out to ₹ 68.72 crore (MVVNL: ₹ 22.24 crore, PuVVNL: ₹ 27.61 crore, DVVNL: ₹ 18.87 crore) as detailed in ***Annexure-16***.

The Management stated (November/December 2011) that the tenders were finalised by the competent authority i.e. CSPC in favour of the lowest bidder considering the composite rate of the turnkey contracts. We feel that, while finalising the contracts, the rates quoted by the contractors across the DISCOMs should have been compared and considered.

Excess payment due to incorrect calculation

2.17 MVVNL entered (July/August 2005) into agreements[17] with IVRCL Infrastructure Limited and S.T. Electricals, Pune for supply of equipment and material for rural electrification works in Bahraich-Shrawasti and Lucknow-Balrampur districts respectively on turnkey basis under RGGVY. The turnkey contracts were divided into two parts *viz.* supply of materials and erection and commissioning with their price break up for which Letters of Award (LOAs) was issued separately to the contractors. For arriving at FOR price of the items of supply, the Excise Duty, Trade Tax against Form III D and freight charges were added in ex-works prices. Payments were made for supply of materials against the purchase vouchers of the contractors.

Our analysis of FOR prices of the items of supply as mentioned in the agreement and payment vouchers relating to the supply revealed that:

- S.T. Electricals, while quoting its rates under the agreement added the element of Excise Duty and Trade Tax at the rate of 18 *per cent* and 14 *per cent* against the prevailing rates of Excise Duty of 16.32 *per cent* and Trade Tax of 4 *per cent* respectively. Thus, due to application of incorrect rates, the contractor was awarded the supply of each item at higher FOR rates by 1.68 *per cent* and 10 *per cent* in respect of

---

15 MVVNl, PuVVNL and DVVNL.

16 Nagarjuna Construction Company Limited, IVRCL Infrastructure and Projects Limited, Reliance Energy Limited, Kalptaru Power Transmission Limited, ABB Limited, Vijay Electricals Limited , KEC International Limited, S T Electricals Limited, L&T Limited, Subhash Projects and Marketing Limited and Accurate Transformers Limited.

17 ST Elecricals Agreement no. C-274/MVVNL/RGGVY/Lucknow/Balrampur dt: 01.08.2005 against tender specification no.131/Medco/AREP/Lucknow/Balrampur/2005 and IVRCL Agreement no. C-249/MVVNL/ RGGVY/130/Bahraich/ shrawasti/2005 against tender specification no. 130/MEDCO/AREP/Bahraich/ Shrawasti/ 2005.

Excise Duty and Trade Tax respectively. As a result of higher FOR rates, MVVNL made excess payment of ₹ 1.53 crore (Excise Duty: ₹ 0.19 crore and Trade Tax: ₹ 1.34 crore) against executed quantities up to February 2009.

- S.T. Electricals supplied 15,235 PCC poles to MVVNL during the period January 2006 to February 2009. Out of those, 10,090 poles were procured by S.T. Electricals from local manufacturers[18] who did not pay Excise Duty because of exemption from Excise Duty under the provisions of the Central Excise Act. MVVNL was, therefore, not required to pay the element of Excise Duty on the supply of the PCC poles procured from the local manufacturers. MVVNL did not ensure the adherence to clause 3.4 (iii) of the agreement which would have enabled the examination of invoices of the contractor as proof of Excise Duty paid. As a result, the MVVNL paid Excise Duty of ₹ 67.55 lakh to the contractor.
- MVVNL made payment to IVRCL Infrastructure Limited for 1,155 transformers of 10 kVA and 610 transformers of 16 kVA at the rate of ₹ 31,393 and ₹ 36,440 per transformer respectively without deducting 15 *per cent* erection charges. Though MVVNL deducted 15 *per cent* from June 2006 and onward supplies but it did not recover the excess paid amount of ₹ 94 lakh on supplies prior to June 2006, even after a lapse of more than five years.

Due to release of payment at incorrect rate, the MVVNL had made excess payment of ₹ 3.15 crore.

Thus, due to incorrect computation of rates of Excise Duty, Trade Tax and release of payment at incorrect rate, MVVNL had made excess payment of ₹ 3.15 crore.

The Management stated (December 2011) that they have started the process of recovery of excess payment from pending retention money bills of the contractors. The fact remains that there is a complete lack of internal control and managerial oversight which led to these over payments.

Excess payment of Trade Tax

2.18 Section 3 (3) (a) of the U.P. Trade Tax Act, 1948 provides that a dealer shall be liable to pay Tax on the sale of goods imported by him from outside Uttar Pradesh, the turnover whereof is liable to Tax under sub-Section (1) of Section 3-A. Subsequently, the State Government vide notification No. 1283 dated 13 July 2006 exempted the UPPCL and DISCOMs[19] from the payment of Tax on materials imported from outside the State for implementation of RGGVY and APDRP schemes. The UPPCL and DISCOMs were, therefore, required to make payment to suppliers at the reduced rates on account of exemption in Tax on the material imported from other States and supplied on or after 13 July 2006.

We noticed that the DISCOMs[20] received material valued at ₹ 558.81crore during 13 July 2006 to June 2010 against agreements executed during 2004-05 and 2005-06 wherein the contractors quoted their rates for materials inclusive of Excise Duty and Trade Tax. The DISCOMs made payment to the suppliers without reducing the element of Tax exempted by the Government from 13

[18] Anand Industrial Enterprises (Pole Division) and Kalbaniya Electricals Pvt. Ltd., Faizabad, Rohit Enterprises, Nadarganj, Lucknow and Raj Product Co. Pallia Kalan, Lakhimpur Khiri.
[19] MVVNL, PVVNL, PuVVNL, DVVNL, and KESCO.
[20] MVVNL, DVVNL, PuVVNL and PVVNL.

The DISCOMs made excess payment of ₹ 21.49 crore to contractors on account of Trade Tax exempted by the Government.

July 2006. As a result, the DISCOMs made excess payment of ₹ 21.49 crore (MVVNL: ₹ 8.02 crore, PuVVNL: ₹ 7.86 crore, DVVNL: ₹ 5.32 crore and PVVNL: ₹ 29.19 lakh) as depicted in ***Annexure-17***.

The Management stated (November/December 2011) that they have started the process of recovery of Trade Tax from the pending bills of the contractors. The fact remains that there is a complete lack of internal control and managerial oversight which led to over payment.

Non deduction of Trade Tax

2.19 Section 8 D(1) of the U.P. Trade Tax Act, 1948 stipulates that every person responsible for making payment to any dealer for discharge of any liability on account of valuable consideration payable for the transfer of property in goods in pursuance of a works contract shall, at the time of making such payment to the contractor, deduct an amount equal to four *per cent* of such sum towards part or, as the case may be, full satisfaction of the Tax payable under this Act on account of such works contract. Sub-section 6 of the Section 8 D of the Act further stipulates that if any such person fails to make the deductions, the assessing authority may direct that such person shall pay by way of penalty a sum not exceeding twice the amount deductible but not so deducted. The DISCOMs[20] entered into 25 turnkey agreements with the contractors for erection works during May 2005 to September 2006 and made payment of ₹ 201.85 crore to the contractors during 2004-05 to 2009-10 on execution of erection works as detailed in ***Annexure-18.***

Due to non-deduction of TDS of Trade Tax amounting to ₹ 8.02 crore, the DISCOMs became liable for payment of penalty of ₹ 16.04 crore.

We noticed (November 2010) that, while making payment to the works contractors, the DISCOMs did not deduct Trade Tax amounting to ₹ 8.02 crore (PuVVNL: ₹ 5.81 crore, DVVNL: ₹ 1.11 crore, MVVNL: ₹ 90.64 lakh and PVVNL: ₹ 19.38 lakh). Since the DISCOMs failed to deduct Tax while making payments as required in the Act, they became liable for payment of penalty of ₹ 16.04 crore being twice the amount of Tax not deducted.

The Management of MVVNL had started the process for recovery of Trade Tax from the bills of the contractors at the instance of audit. The Management of other three DISCOMs[21] stated (November/December 2011) that the provision of section 8(D) of the Trade Tax Act, 1948 are applicable only to the non-divisible contracts; therefore, TDS has not been made under the contracts.

The reply is not acceptable in view of the clear position of the UPTT/UPVAT Act. Also some of the Divisions of all DISCOMs had correctly made TDS deductions amounting to ₹ 3.30 crore (MVVNL: ₹ 3.18 crore and PVVNL: ₹ 11.06 lakh) from the bills of the contractors in respect of similar seven contracts under the scheme. The contracts under the scheme were turnkey contracts which were not divisible; therefore, TDS should have been made from the bills of the contractors. UPPCL did not issue any clear directives to its subsidiaries for compliance of Statutory provisions despite a similar case decided in November 2006, after which Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (a subsidiary of UPPCL) had to pay a penalty of ₹ 8.85 crore on its failure to deduct Trade Tax at source.

Award of work of BPL connections at higher rates

2.20 The guidelines issued by the REC/GoI under RGGVY, inter-alia, provided for releasing electricity connection to Below Poverty Line (BPL) households free of charge in the villages electrified. It was also provided that

[21] DVVNL, PuVVNL and PVVNL.

100 *per cent* subsidy would be given to the implementing agency as per norms of *Kutir Jyoti* Scheme which was ₹ 1,500 per connection including initial security of ₹ 300. This implied that expenditure on release of BPL connections should have been limited to the admissible limit.

Award of the works of BPL connections at higher rates resulted in extra expenditure of ₹ 43.32 crore.

We noticed that the DISCOMs[22] did not retain the security amount of ₹ 12.08 crore and awarded the work to the turnkey contractors at the higher rates ranging between ₹ 1,670 and ₹ 8,000 per connection against the sanctioned rate of ₹ 1,500 per connection. Prior to award of work at such higher rates, the DISCOMs, did not make efforts to get the subsidy amount enhanced from GOI to the extent of expenditure to be incurred on release of connections to BPL households. This resulted in extra expenditure of ₹ 43.32 crore worked out at differential rate for release of 4,02,807[23] connections in 56 districts of the state under the scheme.

The Management stated (May/November 2011) that the tenders were evaluated on total package basis and not item wise under the turnkey contracts. The reply is not acceptable.

Extra expenditure on account of price adjustment

2.21 The DISCOMs entered into (July to September 2005) 33 agreements with various contractors for the work of rural electrification on turnkey basis with stipulation to complete the works by 31 March 2007. According to price adjustments clause of the supply orders, ex-works prices of Aluminum Conductor Steel Reinforced (ACSR) conductor, power and distribution transformers (DTRs) and Cross Link Poly Ethylene (XLPE) cables were variable in accordance with the Indian Electrical and Electronics Manufacturers Association (IEEMA) formulae.

Similarly, these DISCOMs also entered into (November 2004 to April 2009) various agreements with various contractors under APDRP on turnkey basis with price break up for supply of materials and erection and commissioning. The prices for supply of materials were firm and no price adjustment was admissible under these contracts.

We examined seven agreements of two contractors[24] made (July to September 2005) under RGGVY and three agreements[25] of these same contractors made (June/July 2005 and June 2006) under APDRP; compared the rates of the items for which price variation was allowed under RGGVY with the rates of those items under APDRP and found that the basic rates awarded under RGGVY were already 5 to 113 *per cent* higher than the basic rates awarded under APDRP. Despite this, a further price variation of ₹ 11.13 crore was also allowed on these higher basic rates under RGGVY to these two contractors.

Price variation factor should be identical for the same supply month for the same base month; we noticed that different price variation factors were applied in payments of price variation for the supplies made in the same month.

Since all these agreements were finalised by CSPC, there was a clear lack of managerial oversight which led to two different types of agreements being finalised by the DISCOMs during the same time i.e. firm prices for APDRP and with price variation for RGGVY scheme.

[22] MVVNL, DVVNL, PVVNL and PuVVNL.

[23] MVVNL: 167854 households in 15 districts, PuVVNL: 107306 households in 15 districts, DVVNL: 115935 households in 20 districts and PVVNL: 11712 households in six districts.

[24] ABB Limited and IVRCL Infrastructure Limited.

[25] MVVNL/APDRP/05-06/1/BDN, 2699/PVVNL-MT/501-2005 and 3175 & 3177/PVVNL-MT/520/547-2004.

The Management stated (December 2011) that work completion period was six months and 18 months under APDRP and RGGVY schemes respectively. Works under RGGVY were to be executed in rural areas, whereas, under APDRP scheme, works were to be executed in urban areas. Accordingly, rates in the RGGVY scheme were higher as compared to that of APDRP and price adjustment clause was incorporated in the agreements of RGGVY in accordance with directions of the REC. We feel that as the FOR rates under RGGVY were already higher by five to 113 *per cent* in comparison of the rates of APDRP; hence, price variations should have not been allowed. Further, REC had indicated that price variation may be allowed if completion period was more than one year, but in case of APDRP too, the actual completion period was always more than one year, yet the APDRP prices were firm.

Irregular utilisation of interest earned on loan funds

2.22 According to the provisions of the tripartite agreement entered into (January 2005) among State Government, REC and DVVNL, the REC directly released loan to DVVNL for implementation of projects under RGGVY on behalf of the State Government. The State Government undertook to repay the loan and interest accrued thereon and other charges to REC.

We noticed (September 2010) that out of the funds of ₹ 528.14 crore from REC, DVVNL invested (during April 2005 to November 2005) ₹ 116.88 crore in fixed deposits (FDR) and earned interest of ₹ 3.87 crore. DVVNL, however, did not give credit of ₹ 3.87 crore to the loan fund in terms of the State Government order of December 1993 which stipulates that interest earned on Government funds shall not be the income of PSU and shall be added to the funds provided by the Government. Instead, DVVNL diverted the interest amount for its own capital work, operation and maintenance and for mobilisation advance. Thus, utilisation of interest amount of ₹ 3.87 crore on work of DVVNL was irregular.

The Management stated (July 2011) that the REC had been apprised that interest was earned on the funds provided by them and REC will adjust the interest amount while releasing the final installment of loan to DVVNL. The reply is not convincing as the fact remains that diversion of interest amount by DVVNL for its own work was not regular.

Accelerated/Restructured Accelerated Power Development Reforms Programme

Accelerated Power Development Reforms Programme (APDRP)

2.23 The GoI approved in June 2003 the Accelerated Power Development Reforms Programme (APDRP) to leverage the reforms in Power Sector through the State Governments. This scheme was implemented by the Power Sector companies through the State Government with the objective of up-gradation of sub-transmission and distribution system including energy accounting and metering. Under the scheme 25 *per cent* of the project cost was provided as grant and 25 *per cent* as loan by the GOI and remaining 50 *per cent* was to be arranged by the DISCOMs from Power Finance Corporation or other Financial Institutions.

Financial performance

2.24 The year wise details of the funds released by GoI, mobilized from other agencies (including REC/Power Finance Corporation (PFC)/Commercial Banks) under APDRP, utilisation there against and balances in respect of the all the DISCOMs in the State are depicted below:

(₹ in crore)

Year	Opening balance	Funds released by		Funds available	Funds utilised	Balance	Percentage of balance to funds available
		GoI	Others (loan from PFC)				
2006-07	2.06	348.29	728.21	1078.56	1008.03	70.53	6.54
2007-08	70.53	74.05	522.46	667.04	579.94	87.10	13.06
2008-09	87.10	36.41	922.37	1045.88	985.89	59.99	5.74
2009-10	59.99	52.95	936.51	1049.45	809.93	239.52	22.82
2010-11	239.52	18.20	348.04	605.76	394.48	211.28	34.88

Source: Data submitted by the DISCOMs

For execution of the projects under APDRP, DISCOMs borrowed funds from PFC at an interest rate of 8.5 *per cent* to 14 *per cent* per annum besides release of funds from Government of India as grant.

Unspent fund increased from ₹ 70.53 crore in 2006-07 to ₹ 211.28 crore in 2010-11.

We noticed that DISCOMs had no system of linking the requirement of funds with reference to physical progress of work. As a result, actual amount of loan taken from PFC was in excess of the requirement of fund. As would be seen from the above table, unspent balance of fund increased from ₹ 70.53 crore in 2006-07 to ₹ 211.28 crore in 2010-11 which was kept either in current account carrying no interest or in short term deposit carrying lower rate of interest.

Irregularities noticed in execution of work under APDRP are discussed in succeeding paragraphs.

Supply of materials at higher rates

2.25 PVVNL executed turnkey agreements with Naresh Kumar Agrawal (NKA), Ghaziabad in January 2005 and Jyoti Buildtech (P) Limited (JBPL), New Delhi in July 2005 for supply of material and erection work of new LT Sub-stations and Augmentation of Distribution Transformers (DTRs) in Muzaffarnagar and Ghaziabad respectively under APDRP scheme.

We compared (September 2011) the unit rate of supply of material quoted by the above two contractors for 10 common items (comprised 67 to 76 *per cent* of the total value of the material supply) and found that the item rates quoted by JBPL for 10 common items were higher by 5.71 *per cent* to 241 *per cent* as compared to that quoted by NKA.

Award of higher rates for the same items at the same time resulted in extra expenditure of ₹ 4.06 crore

Thus, the Company, while finalising the agreement with JBPL, did not consider the available lowest rate for each item of materials of total supply which resulted in extra expenditure of ₹ 4.06 crore.

The Management stated (November/December 2011) that the tenders were finalised by the competent authority i.e. CSPC in favour of the lowest bidder considering the composite rate of the turnkey contracts. We feel that award of higher rates for the same items at the same time was not justified and the rates of NKA should have been taken into consideration which was much lower than the rates offered by JBPL.

Excess payment of Trade Tax

2.26 Section 3 (3) (a) of the U.P. Trade Tax Act, 1948 provides that a dealer shall be liable to pay Tax on the sale of goods imported by him from outside Uttar Pradesh, the turnover whereof is liable to Tax under sub-Section (1) of

Section 3-A. Subsequently, the State Government vide notification No. 1283 dated 13 July 2006 exempted the UPPCL and DISCOMs[26] from the payment of Tax on materials imported from outside the State for implementation of APDRP. The UPPCL and DISCOMs were, therefore, required to make payment to supplier at the reduced rates on account of exemption in Tax on the material imported from other States and supplied on or after 13 July 2006.

The DISCOMs made excess payment of ₹ 6.08 crore to contractors on account of Trade Tax exempted by the Government.

We noticed that the DISCOMs received material valuing ₹ 158.16 crore during 13 July 2006 to September 2010 against agreements executed during 2004-05 and 2009-10 wherein the contractors quoted their rates for materials inclusive of Excise Duty and Trade Tax. The DISCOMs made payment to the suppliers without reducing the element of Tax exempted by the Government from 13 July 2006. As a result, the DISCOMs made excess payment of ₹ 6.08 crore (DVVNL: ₹ 3.91 crore, PVVNL: ₹ 1 crore, KESCO: ₹ 63.45 lakh and MVVNL: ₹ 53.53 lakh) as detailed in ***Annexure-19***.

The Management stated (November/December 2011) that they have started the process of recovery of Trade Tax from the pending bills of the contractors. The fact remains that there is a complete lack of internal control and managerial oversight which led to over payment.

Non deduction of Trade Tax

2.27 Similar to the details narrated at Paragraph 2.19 above, the DISCOMs entered into 60 agreements with the contractors for erection works during March 2004 to March 2008 and made payment of ₹ 80.25 crore to the contractors during 2004-05 to 2009-10 on execution of erection works as detailed in ***Annexure-20.***

Due to non- deduction of TDS of Trade Tax amounting to ₹ 3.18 crore, the DISCOMs became liable for payment of penalty of ₹ 6.36 crore.

While making payment to the works contractors, the DISCOMs did not deduct Trade Tax amounting to ₹ 3.18 crore (DVVNL: ₹ 1.41 crore, PuVVNL: ₹ 0.87 crore, PVVNL: ₹ 0.70 crore and MVVNL: ₹ 19.85 lakh). Since the DISCOMs failed to deduct Tax while making payments as required in the Act, they became liable for payment of penalty of ₹ 6.36 crore being twice the amount of Tax not deducted.

The Management of MVVNL had started the process for recovery of Trade Tax from the bills of the contractors at the instance of audit. The Management of other three DISCOMs[27] stated (November/December 2011) that the provision of section 8(D) of the Trade Tax Act, 1948 are applicable only to the non-divisible contracts; therefore, TDS has not been made under the contracts.

The reply is not acceptable as the Company failed to comply with the Statutory provisions.

The observations noticed in selected DISCOMs are discussed below:

PVVNL

Incorrect DPRs led to non-recovery of expenditure

2.28 Due to preparation of DPRs of seven projects[28] on incorrect assumptions/basis like adoption of old issue rate of material, short-provision of work, non-provision of certain items, etc., the expenditure of ₹ 42.89 crore spent beyond the sanctioned cost could not be recouped as detailed below:

[26] MVVNL, PVVNL, PuVVNL, DVVNL, and KESCO.
[27] DVVNL, PuVVNL and PVVNL.
[28] 1.Meerut 2. Ghaziabad 3. Saharanpur 4. Baghpat 5. Amroha 6. Bulandshshr 7. Sambhal.

Preparation of incorrect DPRs led to non-recovery of expenditure of ₹ 42.89 crore incurred beyond sanctioned cost.

I	No. of projects	7
II	Original sanctioned cost	₹ 130.08 crore
III	Revised estimated cost	₹ 222.77 crore
IV	Percentage of escalation to sanctioned cost	71
V	Actual expenditure incurred (projects short closed)	₹ 172.97 crore
VI	Expenditure beyond sanctioned cost	₹ 42.89 crore

Source: Financial progress submitted by PVVNL

KESCO

Cost overrun due to delayed execution of work

2.29 KESCO proposed six projects consisting of 18 works valuing ₹ 94.66 crore under the APDRP. The works were scheduled to be completed during March to August 2006.

We noticed that three works[29] having sanctioned cost of ₹ 16.34 crore were completed (December 2006/March 2007) at a cost of ₹ 18.58 crore after a delay of 166 to 400 days. This was mainly due to delay in handing over of sites to the contractors, approval of drawings and inspection of power transformers. All these factors delayed the completion of work with cost overrun of ₹ 2.24 crore.

Incorrect inclusion of work under APDRP

2.30 As per Clause 4.9 of Uttar Pradesh Electricity Supply Code, 2005 (Supply Code), the DISCOM had to recover the cost of distribution system to be created in the colony developed by the Development Authority.

The KESCO constructed (December 2006) one 2 x 5 MVA sub-station and line at a cost of ₹ 2.58 crore in the colony developed by Kanpur Development Authority (KDA). In terms of the supply code, the cost of such sub-station and line should have been recovered from the KDA. The Company as such should have undertaken the work only after recovering the cost of work in advance from KDA.

KESCO constructed a sub-station without receipt of advance from KDA (in deposit scheme) at a cost of ₹ 2.58 crore.

We noticed that the Company incorrectly included the work under APDRP and constructed the sub-station without recovering the cost from KDA. Thus, inclusion of construction of above sub-station and line under APDRP deprived the Company of creating additional distribution system to the extent of ₹ 2.58 crore under the scheme.

The Management stated (November 2011) that KDA was requested to deposit the cost of sub-station and line but it did not deposit the same. It was further stated that apart from Indira Nagar, New Azad Nagar and Dayanand Vihar areas are also being fed through this sub-station.

The reply is not acceptable as the work should not have been taken up without receipt of advance from KDA. Moreover, there was no restriction to emanate feeder for feeding adjacent areas.

Restructured Accelerated Power Development Reforms Programme (RAPDRP)

2.31 In order to carry on the reforms further, the GoI launched the Restructured APDRP (R-APDRP) in July 2008 as a central sector scheme for XI plan (2007-08 to 2011-12). The R-APDRP scheme comprises Part A and

[29] 1. Laying of ABC –Dee Control Ele. Pvt. Ltd.
2. Construction of 33 kV sub-station at Indira Nagar & Mandi Parisar- Sanchaem Engineers
3. Supply and errection & commissioning of 400 kVA sub-station –Anand Transformers.

B. Part A was dedicated to establishment of IT enabled system for achieving reliable and verifiable baseline data system in all towns besides installation of SCADA[30]/Distribution Management System. For this, 100 *per cent* loan is provided, and was convertible into grant on completion and verification of same by third party independent evaluating agencies. The Part B of the scheme deals with strengthening of regular sub-transmission and distribution system and up-gradation projects.

R-APDRP was not implemented in KESCO.

The year-wise details of funds released by GOI, mobilized from other agencies (PFC/Commercial banks), utilization their against and balance in respect of PVVNL is given below:

Year	Funds released by		Funds available	Funds utilized	Balance	Percentage of balance to funds available
	GOI	Others				
2009-10	--	60.90	60.90	--	60.90	100
2010-11	--	71.12	132.02	27.78	104.25[31]	78.96

Establishment of IT enabled system

2.32 PVVNL, after a delay of 11 months, got sanctioned (June 2009) a loan of ₹ 203.01 crore by PFC for establishment of IT enabled system. The work was awarded (February 2010) to HCL Technologies Limited after a delay of 18 months. Due to delayed arrangement of fund and award of work to contractor, the objective of the scheme regarding establishment of centre remained unachieved so far (November 2011).

Drawal of loan without requirement resulted in avoidable interest liability of ₹ 3.88 crore.

Though the work was awarded in February 2010, PVVNL drew the loan of ₹ 60.90 crore as early as in October 2009, i.e., four months before the award of work to the contractor. Out of it, ₹ 20.59 crore only could be utilised as advance payment to contractor during June 2010 to November 2010. Thus, due to delay in award of work and drawal of loan in excess of requirement, the whole amount of ₹ 60.90 crore remained idle in current account for a period of more than seven months (November 2009 to May 2010) and ₹ 40.31 crore for another seven months (June 2010 to December 2010) thereby resulting in avoidable interest liability of ₹ 3.88 crore.

The specific reply to the audit observation was not furnished by the Management (December 2011).

Aggregate technical & commercial losses

2.33 One of the prime objectives of APDRP scheme was to strengthen the distribution system with the focus on reduction of AT&C losses on sustainable basis. The table below depicts the AT&C losses over the audit period in the DISCOMs:

Year	PVVNL		KESCO		ALL DISCOMs	
	Target	Actual	Target	Actual	Target	Actual
2006-07	29.10	26.73	30.47	40.00	27.40	29.11
2007-08	22.40	28.14	28.97	40.77	27.40	28.76
2008-09	22.40	24.95	25.00	29.07	27.40	23.41
2009-10	24.00	26.77	21.27	27.26	25.21	25.46
2010-11	24.00	24.05	21.27	28.01	25.21	24.08

Sources: figures of 2006-07 and 2007-08 are as per audited accounts and 2008-09 to 2010-11 are provisional as furnished by the DISCOMs.

Analysis revealed the following:

[30] Supervisory Control And Data Acquisition – It generally refers to industrial control systems: computer systems that monitor and control industrial, infrastructure, or facility-based processes.

[31] Including ₹ 71.12 crore transferred to UPPCL.

AT&C losses of the PVVNL and KESCO ranged between 24.05 to 28.14 *per cent* and 27.26 to 40.77 *per cent* respectively during the audit period.

- In PVVNL, 12 nos. of projects valuing ₹ 297.28 crore were implemented under APDRP scheme. Inspite of such huge investments, the targets of AT&C losses fixed by UPERC could not be achieved during 2007-08 to 2010-11 and the actual losses ranged between 24.05 and 28.14 *per cent* during the audit period. The Management stated (November 2011) that R-APDRP scheme was yet to be implemented and that the norms for energy losses were fixed by the UPERC for an ideal situation.
- In KESCO, six projects valuing ₹ 94.66 crore were implemented under APDRP scheme. The AT&C losses ranged between 27.26 and 40.77 *per cent* during the audit period, but it was more than the target of 30.47 *per cent* to 21.27 *per cent* as fixed by UPERC. The Management stated (November 2011) that achieving the norm of 21.27 *per cent* loss was not possible in such a short period.
- The actual AT&C losses in all DISCOMs ranged between 23.41 and 29.11 *per cent* during audit period which were even higher than the targets of AT&C losses fixed by UPERC.

Consumer metering

2.34 Attainment of 100 *per cent* metering was one of the requirements of Uttar Pradesh Electricity Supply Code, 2005. Accordingly, the work of metering of un-metered consumers and replacement of defective meters was to be under taken. Metering position of consumers in the State is indicated in the ***Annexure-21***. The following observations are made:

- against targeted installation of 98.20 lakh meters in the State, the DISCOMs installed only 18.83 lakh (19.18 *per cent*) meters during audit period which indicated poor planning and monitoring.
- PVVNL did not fix any target for metering and it installed 4.30 lakh meters during audit period. Against total 32.78 lakh consumers at the end of 2010-11, only 18.96 lakh were metered consumers (57.84 *per cent*). As a result, number of un-metered consumers remained 13.82 lakh (42.16 *per cent*) at the end of 2010-11.
- KESCO planned to install 2.63 lakh meters during the audit period, against which it installed only 0.96 lakh meters thereby registering a shortfall of 1.67 lakh meters (63.50 *per cent*). As a result, the number of un-metered consumers could not be reduced and was 1.32 lakh[32] at the end of 2010-11.

The detailed analysis of the selected Units/ Circles in PVVNL and KESCO revealed the following:

Expenditure on installation of double meters without adequate planning and monitoring

2.35 PVVNL installed 25138 double meters during 2008-09 to 2010-11 outside the premises of the consumers having a contracted load of 10 kVA to 56 kVA. The purpose of installation of a double meter in addition to the main meter, was to locate the deviation in consumption of energy recorded by both the meters and take corrective action accordingly to check theft of energy. PVVNL incurred cost of installation of such meters at the rate of ₹ 7,000 per meter for load up to 27 kVA and ₹ 15,000 per meter for load beyond 27 kVA and up to 56 kVA. We noticed that Meter Reading Instrument (MRI) reports of these meters could not be taken up to 2010-11. No arrangement had been

[32] Total number of consumers:536079 – Meters installed :404050.

Expenditure of ₹ 29.71 crore incurred on installation of double meters proved to be futile as PVVNL did not make arrangement for taking meter reading of double meters.

made for taking meter reading of such double meters installed in respect of consumers having load up to 56 kVA. As a result, the purpose of installation of double meters was defeated and expenditure of ₹ 29.71 crore incurred thereon, also proved to be futile.

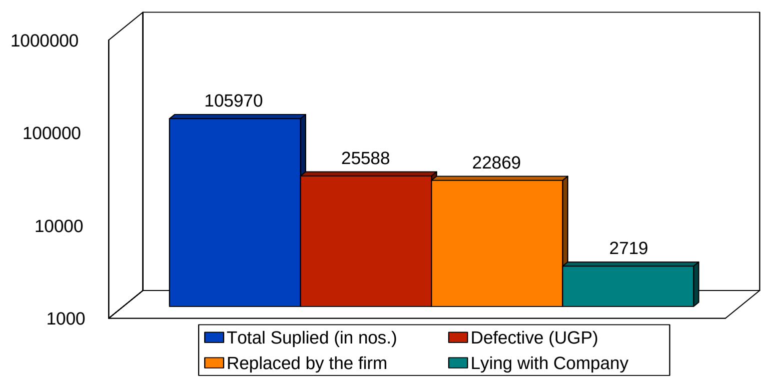
The Management stated (November 2011) that the double metering was done in order to put mental pressure on the consumers, compare the readings, for emergency conditions and energy audit purpose. It was further stated that an agreement had been entered (April 2011) into in Noida Circle for meter reading. PVVNL took corrective action only after lapse of three years of installation of double meters which indicated poor planning and monitoring system of PVVNL.

Procurement of substandard material

Energy meters

2.36 The DISCOMs are required to provide 100 *per cent* metered supply to its consumers which requires installation of meters of sound quality and high standard at metering point.

KESCO procured 1,05,970 single phase electronic meters (10-60 amp.) at the rate of ₹ 739 during August 2006 to June 2008 from Elymer International Pvt. Limited. In case of 50,000 meters, KESCO waived the condition of inspection prior to despatch of meters. The meters supplied by the firm were installed at the premises of the consumers without checking and the majority of installed meters were subsequently found defective.



Source: Data as furnished by KESCO.

Waiver of condition of pre-dispatch inspection facilitated the firm to supply defective meters leading to wasteful expenditure of ₹ 1.89 crore on procurement of 25,588 defective meters.

Out of 50,000 meters, 22,869 meters replaced by the firm were also found defective, just after installation. The waiver of condition of pre-dispatch inspection facilitated the firm to supply defective meters leading to wasteful expenditure of ₹ 1.89 crore on procurement of 25,588 defective meters. It further resulted in under realisation of revenue from the consumers with defective meters as they were being billed on assessment basis which was on the lower side as discussed in the Paragraph 2.55 *infra*.

The Management accepted (November 2011) the fact and stated that no meters were available in stores. The reply is not acceptable as 2,719 meters were lying in Test Divisions of the Company.

Power transformers

2.37 KESCO purchased (December 2005) one 10 MVA transformer (T/F) for ₹ 41.29 lakh from PM Electronics Limited, Noida. The T/F damaged (February 2007) within one month of its installation. This T/F was got repaired in May 2007 and it again damaged in July 2008. KESCO ignoring the poor performance of T/F supplied by the firm, again procured one T/F of the same capacity from the same firm in August 2007. This also damaged four times during August 2008 to February 2010. Repeated failure of the T/Fs indicated manufacturing defect in the T/Fs which could not be removed despite several repair of these T/Fs. Thus, KESCO purchased sub-standard T/Fs giving unsatisfactory performance which entailed disturbance in supply of power to the consumers.

Slow/non replacement of defective meters of consumers

2.38 As per Clause 5.7 of the Supply Code, in case a meter is found defective; the same shall be replaced within 15 days. Further, as per clause 6.2 of the Supply Code, the provisional billing should not be extended for more than two billing cycles.

The test check of billing data of KESCO for the period July 2009 to December 2010 revealed the followings:

- Out of 4,26,864 meters installed in the premises of consumers of various categories, 1,26,196 meters (29.56 *per cent*) were lying defective (IDF/ADF/RDF[33]) at the end of December 2010 which was abnormally higher.
- Out of 1,26,196 defective meters, 80,851 meters (approx 64 *per cent*) were lying defective since July 2009. Thus, the defective meters could not be replaced for one and half years against prescribed replacement time of 15 days. This indicated lackadaisical approach of the Management towards replacement of defective meters.
- The defective meters and line loss in Aaloo Mandi Division was 58 *per cent* and 43.39 *per cent* respectively (December 2006) which was highest among the Divisions of KESCO. This indicated that non-replacement of defective meters attributed to high percentage of line loss as the actual consumption being not recorded in defective meters could be more than the billed amount.
- Delay in installation of meters of new consumers ranged from 18 to 673 days.

The Management stated (November 2011) that they have started replacement of meters and replaced 71,042 meters so far (October 2011).

Operational efficiency

2.39 The operational performance of the DISCOMs is judged on the basis of availability of adequate power for distribution, adequacy and reliability of distribution network, minimising line losses, detection of theft of electricity, *etc*. These aspects have been discussed below.

[33] IDF=Identified Defective; ADF=Appeared Defective; RDF=Reading Defective.

Sub-transmission & distribution losses

2.40 The distribution system is an important and essential link between the power generation source and the ultimate consumer of electricity. For efficient functioning of the system, it must be ensured that there are minimum losses in sub-transmission and distributing the power. While energy is carried from the generation source to the consumer, some energy is lost in the network. The losses at 33 kV stage are termed as sub-transmission losses while those at 11 kV and below are termed as distribution losses. These are based on the difference between energy received (paid for) by the DISCOMs and energy billed to consumers. The percentage of losses to available power indicates the effectiveness of distribution system. The losses occur mainly on two counts, *i.e.*, technical and commercial. Technical losses occur due to inherent character of equipment used for transmitting and distributing power and resistance in conductors through which the energy is carried from one place to another. On the other hand, commercial losses occur due to theft of energy, defective meters and drawl of un-metered supply, etc.

The table below indicates the energy losses for all DISCOMs for last five years up to 2010-11:

(In Million Units)

SL. No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
				(Prov.)	(Prov.)	(Prov.)
1.	Energy purchased	47395	51031	54605	58616	64244
2.	Energy sold	33598	36357	41824	43695	48771
3.	Energy losses (1 – 2)	13797	14674	12781	14921	15473
4.	Percentage of energy losses (*per cent*) {(3 / 1) x 100}	29.11	28.76	23.41	25.46	24.08
5.	Percentage of losses allowed by UPERC (*per cent*)	27.40	27.40	27.40	25.21	25.21
6.	Excess losses (in MUs)	810	694	-	147	-
7.	Average realisation rate per unit (in ₹)	2.84	3.17	2.88	3.36	3.96
8.	Value of excess losses (₹ in crore) (6 x 7)	230.04	220.00	-	49.39	-

Source: Data as furnished by theDISCOMs.

It would be seen from the above table that losses ranged between 23.41 and 29.11 *per cent* during the last five years ending 31 March 2011. We observed that though there was a decreasing trend in energy losses, these were still on the higher side as compared to the maximum level of 15.5 *per cent* fixed by the Central Electricity Authority. Reduction in these losses is the most significant step towards making the DISCOMs financially self-sustaining. The importance of reducing losses can be gauged from the fact that one *per cent* decrease in losses could have added ₹ 254.41[34] crore to the revenue of the DISCOMs.

The main reasons for such high energy losses were insufficient transformation capacity, inadequate working capacity of capacitor banks, low power factor, heavy quantum of un-metered consumers and theft of electricity etc. as discussed below:

Inadequate transformation capacity

2.41 Transformer is a static device installed for stepping up or stepping down voltage in transmission and distribution of electricity. The energy received at

[34] One *per cent* of energy purchased in 2010-11 x average realisation rate per unit.

high voltage (132 kV, 66 kV, 33 kV) from primary sub-stations of the Transmission Companies is transformed to lower voltage (11 kV) at 33/11 kV sub-stations of the DISCOMs to make it usable by the consumers. In order to cater to the entire connected load, the transformation capacity should be adequate. The ideal ratio of transformation capacity to connected load is considered as 1:1. The table below indicates the details of transformation capacity at 33/11 kV sub-stations and connected load of the consumers in PVVNL, KESCO and all DISCOMs during the period 2006-11.

Particulars	Year	Transformation capacity (in MVA)	Connected load (in MVA)	Gap in transformation capacity	Ratio of transformation capacity to connected load
PVVNL	2006-07	7044	7802	758	0.90
	2007-08	7147	8912	1765	0.80
	2008-09	7445	9708	2263	0.77
	2009-10	8260	9959	1699	0.83
	2010-11	9095	11170	2075	0.81
KESCO	2006-07	867	1134	267	0.76
	2007-08	881	1249	368	0.71
	2008-09	937	1425	488	0.66
	2009-10	992	1568	576	0.63
	2010-11	1020	1548	528	0.66
ALL DISCOMs	2006-07	20440	23730	3290	0.86
	2007-08	21186	26817	5631	0.79
	2008-09	22645	29549	6904	0.77
	2009-10	24258	30057	5799	0.81
	2010-11	26250	32504	6254	0.81

Source: Data as furnished by the DISCOMs.

It can be seen from the table above that:

PVVNL

- The ratio of transformation capacity to total connected load was 0.90:1 in 2006-07 which declined to 0.81:1 in 2010-11.

KESCO

- The ratio of transformation capacity to total connected load declined from 0.76:1 to 0.66:1 in 2010-11.

The ratio of transformation capacity to total connected load in all DISCOMs ranged between 0.77:1 and 0.86:1.

The above indicated that there was a gap of transformation capacity. Such a gap of transformation capacity led to overloading of the system resulting in frequent tripping and adverse voltage regulation with consequential higher quantum of energy losses.

Performance of distribution transformers

2.42 The UPERC had fixed the norm of failure of DTRs in its tariff orders. The details of norms fixed, actual DTRs failed and the expenditure incurred on their repairs in respect of PVVNL, KESCO and all DISCOMs is depicted in the table below:

Particulars	Year	Existing DTRs at the close of the year (in Nos.)	DTRs failure (in Nos.)	Percentage of failures	Norms allowed by DISCOMs (in percentage)	Excess failure percentage over norms	Expenditure on repair of failed DTRs (in crore)
PVVNL	2006-07	121625	16225	13.34	5	8.34	61.07
	2007-08	125343	15321	12.22	5	7.22	77.45
	2008-09	134555	22387	16.64	5	11.64	81.13
	2009-10	150908	28174	18.67	5	13.67	67.51
	2010-11	161516	24634	15.25	5	10.25	85.67
KESCO	2006-07	2924	1014	34.68	5	29.68	3.05
	2007-08	3251	962	29.59	5	24.59	3.33
	2008-09	3323	1158	34.85	5	29.85	4.82
	2009-10	3603	1282	35.58	5	30.58	4.07
	2010-11	3760	1258	33.46	5	28.46	4.10
ALL DISCOMs	2006-07	388932	66707	17.15	5	12.15	158.09
	2007-08	422917	66672	15.76	5	10.76	202.53
	2008-09	472369	73045	15.46	5	10.46	219.42
	2009-10	565147	95245	16.85	5	11.85	196.59
	2010-11	603904	93279	15.45	5	10.45	229.19

Sources: ***Tariff orders issued by UPERC, figures of 2006-07 & 2007-08 are as per audited accounts and 2008-09 to 2010-11 are provisional as furnished by the DISCOMs.***

It may be seen from the above table that:

PVVNL

- The percentage of failures of DTRs increased from 13.34 *per cent* in 2006-07 to 15.25 *per cent* in 2010-11.

KESCO

Against the norm of 5 *per cent*, the failure of transformers was 15.45 *per cent* to 17.15 *per cent* in all DISCOMs.

- The percentage of failures of DTRs decreased from 34.68 *per cent* in the year 2006-07 to 33.46 *per cent* in the year 2010-11.

It may be seen from the table that the failure of DTRs in all DISCOMs also remained as high as 15.45 *per cent* to 17.15 *per cent* and were not within the norm of DISCOMs even after implementation of various schemes for system improvement.

Failure of DTRs could be minimised by taking adequate steps for preventive maintenance and avoiding over-loading of the same. It was noticed that PVVNL and KESCO had not evolved any system for preventive maintenance of DTRs. Cause-wise analysis of failure of DTRs revealed that the percentage of failure due to over-loading in PVVNL ranged between 54.30 and 63.20 *per cent* and in all DISCOMs it ranged between 48 and 58 *per cent*. The other reasons being leakage of oil, fire, absence of lightening arrestors and internal defects, etc. during the years (2006-11) as shown in the table below:

Year	Total Number of DTRs failed during the year		Number of failures due to over-loading		Percentage of failures due to over-loading	
	PVVNL	All DISCOMs	PVVNL	All DISCOMs	PVVNL	All DISCOMs
2006-07	16225	66707	10254	31746	63.20	48
2007-08	15321	66672	9392	33747	61.30	51
2008-09	22387	73045	13186	37551	58.90	51
2009-10	28174	95245	15834	54907	56.20	58
2010-11	24634	93279	13376	54367	54.30	58

Source: Data as furnished by the DISCOMs.

The above shows alarming position of failure of DTRs due to overloading which could have been controlled by proper checking of consumers' load, timely preventive maintenance and installation of DTRs of appropriate capacities.

PVVNL did not offer any comment for excessive failure of DTRs due to overloading.

In KESCO, the position of failure of DTRs due to overloading was not maintained. However, test check of damage reports of 195 transformers revealed that 48 DTRs were damaged due to overloading, 13 due to shortage of oil, 91 due to internal defect, 27 due to fire and 16 due to other reason which were, by and large, controllable.

The Management of KESCO stated (November 2011) that the reason for damage of transformers were over loading, poor quality, lack of proper protection system, proper maintenance and unbalanced load and theft of energy. The facts remains as all these reasons could have been controlled with better management.

Delay in repair of distribution transformers

2.43 DISCOMs undertake repair of damaged transformers both in-house and through outside agencies also. The DTRs repairable in own workshops are retained by the DISCOMs and in respect of other, intimation to repairing firms are sent immediately to lift the damaged DTRs for repair. However, no time limit was prescribed for lifting of DTRs by the repairing firms. A period of three months was prescribed for return of repaired transformers by outside agencies but no time limit was prescribed for in-house repairs of the damaged DTRs. Further, as per the general terms and conditions of purchase order, the suppliers were required to guarantee the performance of DTRs for 42/36 months from the date of supply/ installation. These were required to be replaced/ repaired in one month. In house repaired transformers were guaranteed for six months.

We noticed the following points:

PVVNL

- In Electricity Store Divisions (ESD) at Ghaziabad, Meerut and Moradabad, 302 DTRs failed within guarantee period which were lying in the Divisions awaiting repairs/replacement. No action was, however, taken by PVVNL to repair these transformers damaged under guarantee period. This indicated lack of effective management control over the same.
- In Workshop Division Meerut, 1,085 DTRs (10 kVA to 16 kVA) damaged during April 2008 to December 2010 were lying in the divisions which could not be repaired due to not making arrangement for repair of these transformers.

KESCO

- Out of 2,841 DTRs repaired in-house, 1,362 DTRs (48 *per cent*) were damaged under guarantee period of six months during the audit period. This indicated poor performance of in-house workshop which warrants for taking corrective action to improve the quality of repair of DTRs.
- The Company got repaired 734 damaged DTRs from outside agencies during last five years ending March 2011. Among these repaired DTRs, there occurred 788 incidences of damages within the guarantee period. Frequent failure of repaired DTRs within the guarantee period indicated poor performance of the repairing firms. Though, the DTRs damaged under guarantee period were repaired by the firms free of cost, frequent damage of DTRs had an adverse effect on quality of supply of energy to the consumers.
- It issued 34 DTRs[35] valuing ₹ 1.09 crore to six firms during July 1999 to February 2010, which had not been returned back after repair and were lying with the firms (April 2011).

[35] Two number 25 kVA, two numbers 160 kVA, five numbers 250 kVA, two numbers 630 kVA & 23 numbers 400 kVA.

Avoidable purchase of transformers

2.44 In KESCO, 69 repairable transformers of 100 kVA to 630 kVA capacity valued at ₹ 1.92 crore were transferred from Khalasi line store to RPH store during January/February 2009. The Company did not take any action to get these transformers repaired and were lying in the RPH store for more than two years. In the mean time, copper coil (5,985 kg) and transformer oil (8,260 liters), valued at ₹ 20.43 lakh was stolen from 37 transformers. KESCO procured 204 transformers of the same capacity during March 2009 to September 2010.

Non-repair of 69 transformers led to avoidable purchase of new transformers valuing ₹ 1.92 crore.

We noticed that, at the time of procurement of transformers, availability of repairable transformers in RPH store was not considered. Had KESCO got repaired these damaged transformers, purchase of 69 transformers valuing ₹ 1.92 crore and theft of material amounting to ₹ 20.43 lakh could have been avoided.

Capacitor banks

2.45 Capacitor bank improves power factor by regulating the current flow and voltage. In the event of voltage falling below normal, the situation can be set right by providing sufficient capacity of capacitor banks to the system as it improves the voltage profile and reduces dissipation of energy to a great extent thereby saving loss of energy.

According to the scheme framed (July 1993) by erstwhile UPSEB one capacitor bank of 2.4 MVAR[36] capacity at 5 MVA secondary sub-station (33/11 kV sub-station) saves energy of 0.118 MU per annum.

PVVNL

- Capacitor banks of 56.66 MVAR were installed against required 3,381 MVAR in 2006-07. Despite such a major gap, PVVNL did not plan for installation of capacitor banks and it installed meager number of capacitor banks of 26.40 MVAR only in last five years and thus installed capacity of capacitor banks aggregated to 83.06 MVAR against 4,365.80 MVAR required at the end of 2010-11. This led to loss of energy of 210.50 MU valuing ₹ 68.20 crore.

The Management stated (November 2011) that provision of installation of automatic capacitor banks has been made in the new agreements executed for construction of sub-stations.

KESCO

- The Company did not install capacitor banks at its sub-stations of 1020 MVA capacity despite the directives (February 2003) of UPERC. This led to loss of energy of 24.07 MU valuing ₹ 9.53 crore in 2010-11.

The Management stated (November 2011) that the investment on this account from its own sources was not possible. The reply is not acceptable as despite UPERC directives for installation of capacitor banks, the work was not included in APDRP scheme which was funded by PFC/MoP.

It may be seen from the *Annexure-22* that capacitor banks of only 13.14 MVAR capacity were targeted in all DISCOMs and 234.31 MVAR installed during 2006-11. The total capacity of capacitor banks, thus, aggregated to 394.616 MVAR at the end of 2010-11 as against the requirement of 12,600

[36] Mega Volt Ampere Reactive.

Non-installation of capacitor banks of 12205.35 MVAR resulted in loss of energy of 600.10 MU valuing ₹ 237.64 crore.

MVAR worked out considering the total capacity of (26,250 MVA) sub-station in the State. This indicated a wide gap of 12,205.38 MVAR capacity of capacitor banks which led to non-saving of energy of 600.10 MU valued at ₹ 237.64 crore in 2010-11.

Commercial losses

2.46 The majority of commercial losses relate to consumer metering and billing besides pilferage of energy. While the metering and billing aspects have been covered under implementation of R-APDRP scheme and billing efficiency, respectively; the other observations relating to commercial losses are discussed below:

Implementation of LT less system

2.47 High voltage distribution system is an effective method of reduction of technical losses, prevention of theft, improved voltage profile and better consumer service. The GoI had also stressed (February 2001) the need to adopt LT less system of distribution through replacement of existing LT lines by HT lines to reduce the distribution losses. The HT-LT ratios of PVVNL and KESCO over the audit period have been depicted in the table below:

Year	PVVNL			KESCO		
	HT Lines	LT Lines	Ratio of HT/LT	HT Lines	LT Lines	Ratio of HT/LT
2006-07	67370	149581	0.45	1220	2351	0.52
2007-08	68884	151647	0.45	1220	2351	0.52
2008-09	71005	15569	0.46	1320	2416	0.55
2009-10	72908	158483	0.46	1320	2416	0.55
2010-11	75220	160934	0.47	1340	2466	0.54

In order to reduce the losses it was required to switch to LT less system, we noticed that:

PVVNL

- The Company constructed 10,419 km of HT lines and 12,342 km of LT lines during last five years up to 2010-11. This reflected that the focus of PVVNL was not on the LT less system. Resultantly, HT-LT ratio could not be improved and it remained between 0.45:1 and 0.47:1 during the audit period. In reply the Management stated that from 2010-11 and 2011-12 the work of LT less system and new lines was being taken up under feeder segregation work.

KESCO

- HT-LT Ratio remained constant at the level of 0.52:1 in 2006-07 and 2007-08 and increased to 0.55:1 in 2008-09 but again dropped to 0.54:1 in 2010-11. KESCO had projected (2005) to increase the ratio up to 0.63:1 by 2008-09 but investment of ₹ 6.52 crore made by it for conversion of LT into HT lines under APDRP scheme did not yield the desired results.

Conversion of LT conductors into Aerial Bunch Cables

2.48 Aerial Bunch Cables (ABC) prevent illegal tapping of low voltage distribution lines and help in reducing overloading of DTRs and maintain voltage of supply. KESCO received a loan[37] of ₹ 40.22 crore during 2008-09 and 2009-10 from PFC and further ₹ 6.47 crore as budgetary support for laying of 1,190 km ABC. Against this it incurred an expenditure of ₹ 43.18 crore on laying of 1021.65 km ABC till January 2011.

[37] At the interest rate 11.75% *per cent* after rebate of 0.25 *per cent* for timely payment.

We observed that:

as per project report of the scheme for laying of ABC, the work was to be completed by April 2009. After implementation of the scheme annual benefit of ₹ 71.80 crore was projected. There was a delay of 21 months in completion (January 2011) of work due to delay in procurement of material, award of contract and execution of work. As a result, KESCO suffered a loss of ₹ 125.65[38] crore due to non reduction of targeted line losses by 11 *per cent* during the delayed period.

Due to short-closure of the scheme for laying of ABC, KESCO did not utilise loan of ₹ 3.51 crore on which it paid interest of ₹ 41.24 lakh per annum (March 2011).

Avoidable expenditure on laying of ABC

2.49 KESCO placed (September 2008) an order for ₹ 4.36 crore on Datagen Power System for replacement of 1000 km LT overhead lines by ABC. The scope of the work, *inter-alia*, consisted of replacement of LT line with ABC, fixing of distribution boxes and strengthening of damaged ST Poles etc.

Extra expenditure of ₹ 70.88 lakh was incurred due to award of work at higher rates.

KESCO, against tender invited in June 2008, also awarded (October 2008) work of replacement of 30 km LT line by ABC to Radha Traders with same scope of work. The rates awarded to Radha Traders were higher as compared to the rates awarded to Datagen Power System. We noticed that KESCO did not invite fresh tenders and awarded (during September 2008 to March 2009) 13 orders to six firms at the rates of Radha Traders which were higher as aforesaid. This led to extra expenditure of ₹ 70.88 lakh worked out at the differential rates for replacement of 245.5 km line by the six firms.

The Management stated (November 2011) that the award of higher rates to Radha Traders was due to "Performance guarantee of 12 months" and better quality of work. The reply is not acceptable as the same performance guarantee was offered by Datagen Power System also.

High incidence of theft

2.50 Substantial commercial losses are caused due to theft of energy by tampering of meters by the consumers and unauthorised tapping/hooking by the non-consumers. As per section 135 of Electricity Act 2003, theft of energy is an offence punishable under the Act. The numbers of checking, theft cases, assessed amount and amount realised there against are given in ***Annexure-23***.

An analysis of the annexure revealed that DISCOMs had never fixed any target for checking of the connections.

Performance of Raid Team

2.51 In order to minimise the cases of pilferage/loss of energy and to save the DISCOMs from sustaining heavy financial losses on this account, Section 163 of Electricity Act 2003 provides that the licensee may enter in the premises of a consumer for inspection and testing the apparatus. Vigilance team of DISCOM headed by the officer of the rank of Inspector General of Police at its headquarters was entrusted with the work of conducting raids for checking the premises of the consumers with the assistance of Assistant Engineer and other departmental officer of the DISCOMs concerned. Executive engineers of the concerned Divisions were supposed to prepare work plan to conduct raids by identifying such consumers/areas where large scale theft was suspected. Due to lack of coordination between the vigilance

[38] Annual benefit: ₹ 71.80 crore x 21 months/ 12.

wing and the concerned Divisions, raids did not yield the desired results. Following was the position of raids conducted in PVVNL, KESCO and in all DISCOMs during audit period:

(₹ in lakh)

Particulars	Year	Total Nos. of consumers as on 31 March	Nos. of consumers checked	Assessed amount (₹ in lakh)	Realised amount (₹ in lakh)	Unrealized amount (₹ in lakh)	Percentage of unrealized amount to assessed amount	Percentage of checking to total Nos. of consumers.
1	2	3	4	5	6	7	8	9
PVVNL	2006-07	2577706	126276	3101.22	2472.06	629.16	20.29	4.90
	2007-08	2765751	120068	4856.33	3626.16	1230.17	25.33	4.34
	2008-09	2971675	128276	2967.27	2393.95	573.32	19.32	4.32
	2009-10	3144046	268152	1376.72	1153.80	222.92	16.19	8.53
	2010-11	3277919	216335	1645.46	1202.56	442.90	26.92	6.60
KESCO	2006-07	455468	8296	584.30	488.89	95.41	16.33	1.82
	2007-08	470061	41448	1280.42	462.02	818.40	63.92	8.82
	2008-09	496485	61713	690.96	207.99	482.97	69.90	12.43
	2009-10	512245	119577	662.90	165.37	497.53	75.05	23.34
	2010-11	536079	13742	952.60	605.27	347.33	36.46	2.56
ALL DISCOMs	2006-07	9414869	298037	10260.32	7749.28	2511.24	24.47	3.17
	2007-08	10016271	661903	9075.75	6457.57	2618.18	28.85	6.61
	2008-09	10757109	835436	5992.93	5147.28	845.65	14.11	7.77
	2009-10	11442402	1183103	4350.40	3107.15	1243.25	28.58	10.34
	2010-11	11185566	936378	5508.06	4014.51	1493.55	27.12	8.37

Source: Data as furnished by the DISCOMs.

It may been from the above table that:

PVVNL

- The percentage of checking to total number of consumers ranged between 4.32 and 8.53 during the audit period. The percentage of unrealised amount increased from 20.29 in 2006-07 to 26.92 in 2010-11 which indicated that recovery actions were inadequate.

KESCO

- The percentage of checking to total number of consumers increased from 1.82 *per cent* to 23.34 *per cent* during 2006-07 to 2010-11. The increase in percentage of unrealised amount ranged between 16.33 and 75.05 during 2006-07 to 2010-11.The lack of concerted efforts towards this resulted in non- realisation of revenue to the extent of ₹ 22.31 crore.

The Management stated (November 2011) that the main reason of non-realisation was due to pending court cases. The reply is not acceptable as recovery of dues may be affected after proper pursuance of court cases.

The percentage of checking to total number of consumers in all DISCOMs increased from 3.17 in 2006-07 to 8.37 in 2010-11, the percentage of unrealised to assessed amount increased from 24.47 in 2006-07 to 27.12 in 2010-11.

Billing efficiency

2.52 As per procedure prescribed in the Supply Code, DISCOMs are required to take the reading of energy consumption of each consumer at the end of the notified billing cycle. After obtaining the meter readings, the DISCOMs issue bill to the consumers for consumption of energy. Sale of energy to metered categories consists of two parts viz., metered and assessed units. The assessed units refer to the units billed to consumers in case meter reading is not available due to meter defects, door lock etc. Billing of all the consumers were being done at Division level. Domestic rural consumers were being billed bi-monthly basis, while other consumers were being billed on monthly basis.

The efficiency in billing of energy lies in distribution/sale of maximum energy by DISCOMs to its consumers and realisation of revenue from them in time.

The table below indicates the billing efficiency in DISCOMs:

(Figures in MUs)

Particulars	Year	Energy available for sale	Energy billed	Metered energy billed	Un-metered energy billed	Metered sales as percentage of energy available for sale(5*100/3)	Un-metered sales as percentage of metered sales (6*100/5)	Percentage of energy billed to energy available for sale(4*100/3)
1	2	3	4	5	6	7	8	9
PVVNL	2006-07	15086	11054	7265	3789	48.16	52.15	73.27
	2007-08	16652	11966	8303	3663	49.86	44.12	71.86
	2008-09	16699	12532	8843	3689	52.96	41.72	75.05
	2009-10	17766	13010	9410	3600	52.97	38.26	73.23
	2010-11	20068	15241	11293	3948	56.27	34.96	75.95
KESCO	2006-07	2511	1506	1471	35	58.58	2.38	59.98
	2007-08	2633	1560	1521	39	57.77	2.56	59.25
	2008-09	2632	1867	1817	50	69.03	2.75	70.93
	2009-10	2722	1980	1931	49	70.74	2.54	72.54
	2010-11	3027	2179	1739	440	57.45	25.30	71.99
ALL DISCOMs	2006-07	47395	33598	22629	10969	47.75	48.47	70.89
	2007-08	51031	36357	25621	10736	50.21	41.90	71.24
	2008-09	54605	41824	30281	11543	55.45	38.12	76.59
	2009-10	58616	43695	31734	11961	54.14	37.69	74.54
	2010-11	64244	48771	33334	15437	51.89	46.31	75.92

Source: Data as furnished by the DISCOMs.

It would be seen from the above table that:

PVVNL

- The percentage of energy billed to energy available for sale ranged between 71.86 and 75.95 during the audit period. The percentage of metered sale to energy available for sale, however, ranged between 48.16 and 56.27 during the same period.

- The Supply Codes stipulates that new connection should not be released without meter and all un-metered connections be installed with meters. As on March 2011, out of 33.70 lakh consumers in PVVNL, there were only 19.96 lakh (59.23 *per cent*) metered consumers. This indicated lack of proper planning for assessment of requirement of meters, its procurement and installation at the consumers' premises to ensure the correct assessment of energy consumed. In test check of records of six[39] Divisions, we found that 89,851 consumers of domestic rural categories were being given un-metered supply and were billed at flat rate per connection per month whereas in case of metered supply, the bills were to be raised at the rate per unit of energy consumed *plus* fixed charges per KW. This resulted in loss of revenue of ₹ 3.99 crore[40], worked out on 114.15 MU supplied during 2010-11.

Loss of revenue of ₹ 3.99 crore due to un-metered supply to 89851 rural domestic consumers.

KESCO

- The percentage of energy billed to energy available for sale ranged between 59.25 and 72.74 during the audit period. The percentage of

[39] EDD-I & II Rampur, EDD Hapur, EDD Khurja, EDD-II Bulandshahar and EDD-I Moradabad.

[40] Chargeable ₹ 14.04 crore (value of 114.15 MU = ₹11.41 crore *plus* fixed charges ₹ 2.63 crore), charged ₹10.05 crore.

metered sale to energy available for sale, however, ranged between 57.45 and 70.94 during the same period.

It would be seen from the above table that energy billed by all DISCOMs (State) ranged between 70.89 and 76.59 *per cent* of the total energy available for sale. The metered sales ranged between 47.75 and 55.45 *per cent* of the total energy available for sale during the audit period. The un-metered supply ranged between 37.69 and 48.47 *per cent* to metered sales during the audit period.

Instances of deficiencies in billing are illustrated below:

Incorrect application of tariff

2.53 Due to not raising the bills as per rate schedule by two Distribution Divisions of PVVNL and KESCO, the consumers were under charged to the tune of ₹ 1.64 crore as detailed in following table:

Sl. No	Company/ Division	Nature of Consumer	No. of consumers (Load)	Period	Amount (₹ in lakh)	Incorrect application of tariff
	PVVNL					
1.	EUDD-1 Noida	Public Lamp (LMV-3)	06 (2485 KW)	May 2010 to March 2011	80.02	Instead of charging at the rate of ₹1800/ KW/ month consumer billed on the basis of assessed units.
2.	EUDD-II Noida	Public Lamp (LMV-3)	02 (2765 KW)	May 2010 to March 2011	70.96	Instead of charging at the rate of ₹1800/KW / month consumer billed on the basis of assessed units.
3.	KESCO	Public Institutions (LMV-4(a))	02	February 2005 to April 2011	10.05	Consumers billed under LMV 4(a) instead of LMV-2
		Public Institutions (LMV-4(a))	01(88 kVA)	July 2008 to March 2011	2.68	Supply connected at 11 kV but billed under LMV-4(a) instead of HV-1
Total					**163.71**	

Sources: Billing records of the DISCOMs.

Under assessment of revenue

2.54 General Provision 1(i) of Rate Schedule 2008-09 and 2009-10 provided that fractional load (kW) of consumer shall be taken as next higher kW for billing purpose. We noticed that in KESCO, 10,316 cases of consumers were billed on the basis of fractional load which resulted in under billing of ₹ 13.88 lakh during July 2009 to December 2010.

Short assessment against consumers having defective meters

In KESCO, 41,435 consumers were billed under defective category on the basis of fixed units instead of average consumption of previous three billing cycles resulting in short assessment of ₹ 2.82 crore.

2.55 According to General provision (4) of tariff order 2009-10 read with Clause 5.7 (d) & (e) of Supply Code modified, billing in case of defective meter is to be done on the basis of average consumption of previous three billing cycles prior to period when meter became defective.

In KESCO, we observed that, in 41,435 cases, consumers were billed under defective category during October 2009 to December 2010 on the basis of fixed units instead of average consumption of previous three billing cycles available for the period up to September 2009. This resulted in short assessment to the extent of 7.83 MU valuing ₹ 2.82 crore.

The Management accepted the fact and stated (November 2011) that short assessment was due to faulty software. The corrective action needs to be urgently taken to prevent further short assessment.

Under charge/ non levy of initial/additional security

2.56 The initial security is required to be deposited by various consumers for getting electricity connection as per details indicated below in accordance with order of UPPCL (April 2010).

Category of Consumers	Rate
Private Tubewell	₹ *300 per HP*
Industrial Consumers	₹ *1,000 per* KW
Commercial	₹ *1,000 per* KW
Public Water Works	₹ *1,200 per* kVA

Sources: Cost Data Book of UPERC.

Scrutiny of the records in respect of 10 Divisions[41] of PVVNL and KESCO revealed that additional security to the extent of ₹ 20.43 crore from Government / Non Government consumers had not been realised.

Non-levy of late payment surcharge

2.57 Tariff order issued from time to time by UPERC provides levy of late payment surcharge (LPS) at the rate of 1.25 *per cent* per month for first three months and at 1.50 *per cent* per month thereafter on the amount of bill remaining unpaid.

Late payment surcharge of ₹ 6.28 crore was not levied.

In KESCO, the LPS of ₹ 6.28 crore was not levied on 21 consumers for delayed payment of bills during April 2009 to March 2011.

Non-levy of Electricity Duty

2.58 Notification (January 1997) of Energy Department of the State Government provides that Electricity Duty (ED) should be charged at the rate of 3 to 9 paise per unit of energy supplied to the consumer having metered supply and at the rate of 20 *per cent* of rate of charge in case of un-metered supply.

Electricity Duty amounting to ₹ 6.92 crore was not charged.

Scrutiny of billing files in respect of seven Distribution[42] Divisions of PVVNL revealed that ED amounting to ₹ 6.92 crore relating to the period from April 2006 to March 2011 was not charged by them.

The Management stated (November 2011) that bills for ₹ 6.98 crore has been issued. The fact remains that, since the consumers relate to State Tube Wells and outstanding dues relate to very old period; the chances of recovery are remote.

Inadmissible load factor rebate

2.59 According to para 5 of rate schedule HV-2 effective from 17 April 2008 read with clarification issued (October 2008) by UPERC, load factor rebate was not admissible to the consumers against whom there was outstanding arrears on account of additional security.

We noticed that KESCO allowed load factor rebate of ₹ 38.02 lakh during August 2008 to March 2011 to eight consumers who had defaulted in payment of additional security.

The Management stated (November 2011) that there was no provision in tariff orders in this regard. The reply is not acceptable as according to UPERC clarification (6 October 2008), non deposition of additional security is within the meaning of terms of "Arrear" and such consumers have been debarred from the eligibility of load factor rebate.

Non levy of penalty in cases whose meters is "Not Accessible"or "Not Read"

2.60 According to Clause 3 of the General provision of tariff order 2008-09 & 2010-11 read with Clause 6.2 (b) & (C) of the Supply Code, if the meters are

[41] 1. EDD -1 Moradabad 2. EDD-1 Rampur 3. EDD-II Rampur 4. EDD Khurja 5. EDD Hapur 6. EDD-1 Bulandshshar 7. EDD-II Bulandshshar 8. EUDD-1 Moradabad 9. EUDD-1 Noida 10. EUDD-II Noida.

[42] 1. EDD-1 Moradabad- ₹ 260.35 lakh 2. EDD-1 Rampur - ₹ 77.19 lakh 3. EDD-II Rampur -₹ 179.00 lakh, 4. EDD Hapur - ₹ 54.27 lakh, 5. EDD-1 Bulandshshar -₹ 21.57 lakh, 6. EDD-II Bulandshshsr- ₹ 39.35 lakh, 7. EDD Khurja- ₹ 60.44 lakh.

KESCO billed 6136 consumers on NA/NR basis continuously but neither notice of penalty was issued nor the penalty of ₹ 5.95 crore was charged.

not made accessible by the consumers to get the meter read in two consecutive billing cycles and even after issue of 7 days notice by the licensee, a penalty at the rate of ₹ 300/kW/month from third monthly billing cycle was to be imposed on such consumers.

We noticed that KESCO billed to 6136 consumers for load of 12399 kW on NA/NR basis continuously during July 2009 to December 2010. It, however, neither issued notice of penalty nor charged the penalty of ₹ 5.95 crore (12,399 *16*300).

The Management stated (November 2011) that concerning Divisions have been directed to locate such consumers and issue notice of penalty.

Delay in issue of bills

2.61 Clause 6.1 (e) of the Supply Code stipulates that, whenever the bills are generated with the help of metering data downloaded by MRI, the licensee shall deliver the bill to the consumer within seven days.

Test check of records of the five bulk consumers of KESCO, where bills were generated with the help of metering data downloaded by MRI, revealed that during July 2008 to February 2011, there was delay of three to 15 days in issuing the bills in 64 cases resulting in delayed receipt of revenue.

The Management stated (November 2011) that due to scattered position of consumers, the bills were issued belatedly. The reply is not acceptable as the bill data was computerized, the data of such cases could be easily checked in a centralized report form and bills issued timely.

Revenue collection efficiency

2.62 As revenue from sale of energy is the main source of income of DISCOMs, prompt collection of revenue assumes great significance.

The ***Annexures-24, 25 & 26*** indicate the balance outstanding at the beginning of the year, revenue assessed during the year, revenue collected and the balance outstanding at the end of the year in respect of PVVNL, KESCO and all DISCOMs respectively during last five years ending 2010-11.

It may be seen from Annexures that:

PVVNL

- Outstanding dues increased from ₹ 430.41 crore to ₹ 1181.96 crore and dues ranged between 2.49 and 2.77 months during the audit period.

KESCO

- Outstanding dues of ₹ 973.65 crore increased to ₹ 1494.71 crore and dues were as high as 19.37 to 25.01 months during the audit period.
- As per provision of U.P. Transfer of KESA Zone (now KESCO) Electricity Distribution Undertaking Scheme 2000, total debtors were ₹ 630 crore. Out of this ₹ 60 crore pertained to KESCO and ₹ 570 crore to UPPCL. Realisation made against the dues of UPPCL was to be remitted to them after deduction of collection charges at the rate of 15 *per cent* of the amount realised. KESCO, however, did not maintain records relating to recovery made by it against dues of the UPPCL.

The Management stated (November 2011) that due to non availability of list of debtors of UPPCL under Transfer scheme; recovery against these debtors could not be ascertained. The reply is not acceptable as these debtors pertain to erstwhile KESA (now KESCO), the list of such debtors should have been with KESCO itself and not with the UPPCL.

The balance dues outstanding in respect of all DISCOMs at the end of the year increased from ₹ 4,982.19 crore in 2006-07 to ₹ 12,985.36 crore in 2010-11 and dues in terms of number of months ranged between eight and 11.

Percentage of amount realised to total dues ranged between 46 and 58 during 2006-11.

Heavy unrealised dues were noticed despite launching of One Time Settlement (OTS) scheme to clear the arrears every year by DISCOMs. This indicated that special drives undertaken by DISCOMs to realise dues, did not yield desired results.

The age wise analysis of the debts was not being done in DISCOMs for pursuing recovery of old debts.

Non realisation of dues

2.63 We noticed lackadaisical approach of the Management in recovering the dues from consumers as discussed below:

- The connection of J.K. Jute Mills (load 2,000 kVA) was disconnected (April 2010) against the dues of ₹ 21.60 lakh which accumulated to ₹ 53.55 lakh at the end of October 2010. Besides, the consumer did not deposit additional security amounting ₹ 49.44 lakh. KESCO neither took any action to realise the dues nor initiated action for permanent disconnection of the consumer. Consequently, dues amounting to ₹ 1.03 crore remained unrealised (April 2011).

The Management stated (November 2011) that ₹ 40.12 lakh has been recovered. The fact remains that an amount of ₹ 62.87 lakh still remains un-recovered.

- The consumer (Vinod Mehta) found (November 2008) indulged in theft of energy, was assessed (January 2010) for ₹ 17.67 lakh. The consumer filed a case in the High Court against the assessment but the Court declined (May 2010) to interfere in the matter. On being pointed out by audit, the Company has issued Recovery Certificate in October 2011 but no recovery has been made so far (November 2011).

Non-disconnection of supply of consumers with heavy arrears

2.64 As per Supply Code, in case the electricity dues are not deposited by the consumer within due date, the supply shall be disconnected temporarily within a maximum period of 15 days of notice. Further, the supply shall be disconnected permanently if the cause for which the supply was temporarily disconnected is not removed within six months period. Analysis of outstanding dues in PVVNL and KESCO revealed the following:

PVVNL

- In three Divisions[43], 3,922 consumers, having arrears of more than ₹ one lakh each, did not make payment of electricity dues for more than 12 months but their supply was not disconnected. Non-

[43] EDD Khurja, Hapur & EDD-1 Bulandshahr.

Non-disconnection of supply resulted in arrears of revenue of ₹ 846.94 crore.

disconnection of supply of these defaulting consumers resulted in accumulation of arrears to the extent of ₹ 114.48 crore.

KESCO

- 39,647 consumers having arrears of more than ₹ one lakh each, did not make payment of electricity dues for one to 52 months during November 2006 to March 2011 but their supply was not disconnected as per the above provisions. Non-disconnection of supply of these defaulting consumers resulted in accumulation of arrears to the extent of ₹ 732.46 crore (March 2011).

The Management stated (November 2011) that rigorous efforts were being made to recover the dues. The reply is not relevant as the action for disconnection of supply of 37,030 (93 *per cent*) consumers has not been taken so far.

Failure to finalise permanent disconnection cases

2.65 Forty one consumers in four Divisions[44] of PVVNL and 13 consumers in KESCO having arrear of more than ₹ 1 lakh, did not deposit their dues for more than 12 months. The supply of these consumers was disconnected temporarily and billing was stopped. The Companies neither disconnected supply permanently nor finalised the accounts of these consumers. This resulted in non-realisation of arrears amounting to ₹ 1.87 crore (PVVNL: ₹ 0.92 crore and KESCO: ₹ 0.95 crore).

Un-cashed cheques

2.66 In five Divisions[45] of PVVNL, cheques amounting to ₹ 14.52 crore deposited in bank during June 2005 to June 2010 were not credited into the accounts of PVVNL by the banks. In the absence of details of these cheques, reversal entries could not be made in the accounts of respective consumers. Resultantly, recovery of dues of ₹ 14.52 crore from the consumers could not be ensured by the Division.

The reply (November 2011) of the Management was silent on this issue.

Delay in transfer of funds

2.67 PVVNL could not utilise the available funds for the intended purpose and kept the funds in current account/short term deposits from time to time. Some instances of imprudent financial management noticed were as follows:

- The daily collections of revenue were deposited in a non-operating account on day-to-day basis in the specified branches of the banks. These funds were being transferred thrice in a week in Revenue Receipt Accounts and fortnightly basis in Capital Receipt Accounts, both being maintained at the Company's Headquarters. As with the overall development of IT system and advancement in the banking system, the remittances from Divisions to Headquarters could have been on daily basis to avoid keeping the fund idle at the Divisional bank accounts carrying no interest.

In test check of transfer of funds by three Divisions[46] to Headquarters account, we noticed that, had divisions transferred funds to Headquarters account on daily basis which ranged from ₹ 2,532 to ₹ 2.20 crore during the period 2009-10 and 2010-11, PVVNL could have drawn lesser amount of loans to that

[44] EDD Khurja, Hapur, EDD-I Bulandshar, Moradabad.
[45] EUDD-I Noida, Moradabad, EDD - Hapur, Khurja, EDD-I Buland shahar.
[46] EDD Hapur, EDD-I & II Bulandshahr.

extent and, thereby, could have saved payment of interest of ₹ 38.88 lakh worked out at the rate of 10 *per cent*[47] per annum on the daily bank balances for the above period.

- The funds transferred from Headquarters to the Divisions of PVVNL for expenditure were being kept in non-interest bearing current accounts in the banks.

The Management stated (November 2011) that Headquarter had made arrangement with the bank for transfer of funds leaving ₹ 1,000 thrice in a week. Reply is not correct as the funds retained by the bank were more than permissible limit. Further, for operating the expenditure account as Current Account at division level, the Management did not offer any comment.

Tariff fixation

2.68 The financial viability of DISCOMs depends upon generation of surplus (including fair returns) from the operations to finance their operating needs and future capital expansion programme by adopting prudent financial practices. Revenue collection is the main source of generation of funds for the DISCOMs. While other aspects relating to revenue collection have been discussed in preceding paragraphs, the issues relating to tariff are discussed here under.

The tariff structure of the Power Distribution Companies, subject to revision approved by the UPERC after the objections, if any, received against Annual Revenue Requirement (ARR) petition filed by them within the stipulated date. The DISCOMs was required to file the ARR for each year; four months before the commencement of the respective year. The ARR is to be accompanied with audited accounts of the DISCOMs for validation of data of ARR. The DISCOMs, so far, have finalised their accounts only up to 2007-08. The UPERC accepts the application filed by the DISCOMs with such modifications/conditions as may be deemed just and appropriate and after considering all suggestions and objections from public and other stakeholders. The table below shows the due date of filing ARR, actual date of filing, date of approval of tariff petition and the effective date of the revised tariff.

Year	Due date of filing	Actual date of filing	Delay in days	Date of approval	Effective date
2006-07	30 November 2005	05 July 2006	217	10 May 2007	13 August 2007
2007-08	30 November 2006	04 October 2007	308	19 October 2007	11 November 2007
2008-09	30 November 2007	19 December 2007	19	15 April 2008	27 April 2008
2009-10	30 November 2008	30 July 2009	242	31 March 2010	15 April 2010
2010-11	30 November 2009	25 March 2011	479	N.A.	N.A.

Sources: Data as furnished by the UPPCL.

Delayed implementation of new tariff rates due to delay in filing of ARRs resulted in non-realisation of potential revenue of ₹ 550.90 crore.

From the above it may be seen that a delay of 19 to 479 days was observed in filing of ARR during 2006-11. The main reasons for delay in filing of ARR were pendency of annual accounts of the DISCOMs, frequent revisions in the data of ARR by the DISCOMs/ UPPCL and delay in receipt of directions from Government of U.P. regarding tariff and related matters (subsidy). This resulted in non-realisation of potential revenue of ₹ 550.90[48] crore during 2006-07 to 2009-10 ***(Annexure-27)*** due to delayed implementation of new tariff rates.

---

[47] At an average rate ranging between seven and 14 *per cent* at which loans were taken from REC/PFC.
[48] Increase in the approved Average rate of revenue per unit x Energy sold during respective period of delay.

Detailed analysis revealed that the extent of tariff was lower (11 to 23 *per cent*) than breakeven levels of revenue from sale of power at the present level of operations and efficiency for the last five years ending 31 March 2011 as shown in the table given below:

(₹ in crore)

Year	Sales (excluding subsidy)	Variable costs	Fixed costs	Contribution	Deficit in recovery of fixed costs	Deficit as percentage of sales
(1)	(2)	(3)	(4)	(5) = (2) – (3)	(6) = (4) – (5)	(7)={(6)/ (2)} X 100
2006-07	7997.40	11938.77	1703.80	(3941.37)	5645.17	70.59
2007-08	9652.48	13568.49	2062.29	(3916.01)	5978.30	61.94
2008-09	10472.24	14961.29	2158.24	(4489.05)	6647.29	63.48
2009-10	12846.76	16985.58	3148.67	(4138.82)	7287.49	56.73
2010-11	17272.04	21629.65	4547.71	(4357.61)	8905.32	51.56

Sources: Data furnished by the DISCOMs.

It may be seen from above table that, during the audit period, contribution remained negative and it decreased from ₹ 3,941.37 crore to ₹ 4,357.61 crore reason being that the sales of the Companies were less than the variable cost. The percentage of deficit to sales ranged between 51.56 and 70.59 mainly due to delayed filing of ARR by DISCOMs and consequently, non-revision of the tariff led to realisation of revenue on the older tariff.

Though it appears that the tariff was on lower side and needs to be revised for recovery of the costs, the same can be brought in by improving operational efficiency, *viz*., reduction in/control of AT & C losses, conversion of LT lines to HT lines, metering of un-metered connections/ defective meters, improving billing and collection efficiency, etc., which have been discussed *supra*.

We also observed from the tariff orders (2007-08 to 2009-10) for KESCO, that ₹ 196.80 crore, ₹ 104.83 crore and ₹ 54.30 crore were disallowed by the UPERC on account of purchase of power, provision for bad and doubtful debts and returns on equity on the ground of lower approval norm of distribution losses, absence of clear cut bad debts policy and non performance in areas of reduction in distribution losses and capital expenditure respectively.

Consumer satisfaction

2.69 One of the key elements of the Power Sector Reforms was to protect the interest of the consumers and to ensure better quality of service to them. The consumers often face problems relating to supply of power such as non-availability of the distribution system for the release of new connections or extension of connected load, frequent tripping on lines and/ or transformers and improper metering and billing.

The DISCOMs was required to introduce consumer friendly actions like introduction of computerised billing, online bill payment, establishment of customer care centres, etc. to enhance satisfaction of consumers and reduce the advent of grievances among them. The redressal of grievances is discussed below:

Redressal of grievances

2.70 The UPERC specified the mode and time frame for redressal of grievance in UPERC (Consumer Grievance Redressal Forum and Ombudsman) Regulations, 2003, in pursuance of the Electricity Act 2003.

- The standards of performance for DISCOMs in which the time limit for rendering services to the consumers and compensation payable for not adhering to the same.

- The nature of services contained in the Standards *inter-alia* included line breakdowns, DTR failures, period of load shedding/ scheduled outages, voltage variations, meter complaints, installation of new meters/ connections or shifting thereof, etc.
- The system in place provides that any aggrieved consumer may file a complaint with the Licensee, who on non-settlement within time limits/ or on being dissatisfied by the decision of the Licensee, may file a complaint in the forum as per specified procedures.
- Any consumer, aggrieved by non-redressal of his grievances by the forum may make a representation for the redressal of his grievance to an Ombudsman as designated/appointed by the Commission in accordance with the procedure specified in the regulations.

To enable the compilation of complaints for assessing the performance on this account, separate registers were maintained by the DISCOMs. The overall position[49] as regard receipt of complaints and their clearances is depicted in the table below:

Sl. No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1.	Total complaints received	1086082	1063834	1049593	1089288	1079569
2.	Complaints redressed within time	992062	1060069	1046366	1086213	1073006
3.	Complaints redressed beyond time	93548	3386	2936	2068	3537
4.	Pending complaints	472	379	291	1007	3026
5.	Percentage of complaints redressed beyond time to total complaints	8.61	0.32	0.28	0.19	0.33

Sources: Data as furnished by the DISCOMs.

It may be seen from the above table that total complaints received remained more or less the same but there was gradual improvement in redressal in time. The UPERC also had directed (September 2006) the DISCOMs to submit quarterly information on registration and redressal of complaints. We noticed that KESCO did not maintain any information / records relating to grievance redressal up to 2008-09 and PVVNL up to 2009-10.

Energy conservation

2.71 Recognising the fact that efficient use of energy and its conservation is the least-cost option to mitigate the gap between demand and supply, the GoI enacted the Energy Conservation Act, 2001. The conservation of energy being a multi-faceted activity, the Act provides both promotional and regulatory roles on the part of various organisations. The promotional role includes awareness campaigns, education and training, demonstration projects, R & D and feasibility studies. The regulatory role includes framing rules for mandatory audits for large energy consumers, devising norms of energy consumption for various sectors, implementation of standards and provision of fiscal and financial incentives.

We observed that PVVNL and KESCO had not taken effective steps towards above said promotional activities except publicity regarding use of CFL.

Energy audit

2.72 A concept of comprehensive energy audit was put in place with the objective to identifying the areas of energy losses and take steps to reduce the same through system improvements besides accurately accounting for the

[49] Information not furnished by KESCO for 2006-07 to 2008-09, PVVNL for 2006-07 to 2009-10 and MVVNL for 2006-07 to 2007-08.

units purchased/ sold and losses at each level. The UPERC directed (March 2010) the DISCOMs to carry out the energy audit with voltage wise break up of distribution losses into technical loss and commercial loss.

We observed that:

- no energy audit was in place in PVVNL.
- for purpose of energy accounting, auditing and checking commercial losses, KESCO procured 2,820 DTRs meters from Secure Meters Limited at a cost of ₹ 5.18 crore till February 2007. Out of these, only 2,352 meters had been installed and 468 meters valuing ₹ 83.93 lakh were lying (November 2011) in the stores of KESCO. Further, transformer wise energy accounting, auditing and checking of losses was not being done. Thus, very purpose of procurement and installation of DTRs meters for energy accounting was defeated and expenditure of ₹ 6.34 crore (value of DTRs meters: ₹ 5.18 crore and Installation charges: ₹ 1.16 crore) became wasteful.

Due to non-conducting of transformer wise energy accounting and auditing, expenditure of ₹ 6.34 crore incurred on installation of DTRs meters became wasteful.

The Management accepted the fact and stated (November 2011) that, in case of damage of such DTRs meters, the transformers also damaged. It indicates that installation of DTRs meters was not feasible as damage of DTRs meters (CT failure) causes failure of transformers.

Monitoring by top Management

2.73 The Power Distribution Companies play an important role in the State economy. For such a giant organisation to succeed in operating economically, efficiently and effectively, there has to be a Management Information System (MIS) for monitoring by top Management.

During scrutiny of records in PVVNL and KESCO selected for performance audit, we observed that:

- regular information in the prescribed proforma were being submitted containing monthly as well as progressive information such as number of consumers, connected load, billing details, revenue realisations, waiver, arrears, energy account, etc. to top Management. However, our observation showed that it is not being effectively used otherwise the losses as pointed out in the performance audit could have been checked/ reduced.
- MIS regarding physical progress of construction works, repair of DTRs, replacement / installation of meters, inventory and court cases etc. are not being prepared on monthly basis.

Conclusion

Performance audit of distribution of power by the DISCOMs disclosed that:

- **The DISCOMs failed to recover the cost of operation. The accumulated losses increased by 205.28 *per cent* from ₹ 9,521.94 crore in 2006-07 to ₹ 29,068.78 crore in 2010-11 and the entire capital including reserves and surplus was eroded.**
- **Could not achieve capacity addition plans as against the addition of 609 Sub-stations planned over audit period, only 498 Sub-stations were added.**
- **Full benefits of the Centrally Sponsored Schemes introduced for electrification and strengthening of distribution system could not**

be derived and the DISCOMs failed to implement them economically, efficiently and effectively.

- **The performance parameters regarding AT&C losses, failure of distribution transformers, implementation of LT less system, installation of meters & capacitor banks and replacement of defective meters were not achieved.**
- **DISCOMs failed to raise the energy bills correctly and in realisation of revenue and also failed to adhere the time schedule prescribed for filing of ARR petition which led to loss of potential revenue.**
- **The targets/milestones for carrying out the energy conservation, energy audit were not fixed annually.**

Recommendations

The DISCOMs need to:

- **make the plans to bring out the system upgradation, ensure timely implementation of various schemes, reduction of T&D losses and power thefts to generate sources of additional revenue to make the power distribution commercially viable.**
- **adhere to cannons of financial propriety while finalising the contracts so as to get the work done economically and at the genuine rates.**
- **strive to achieve performance parameters and targets set by UPERC.**
- **strengthen the internal control mechanism so as to avoid/minimize leakage of revenue, incorrect application of tariff or rates, and non-levy of Electricity duty, late payment surcharges.**
- **submit Annual Revenue Requirement (ARR) petition to UPERC timely.**
- **fix yearly targets/milestones for energy conservation and energy audit.**

The matter was reported to the Government in August 2011, their reply is awaited (December 2011).