

## CHAPTER-II

### 2. Performance Audit relating to Government Company

#### Assam Power Distribution Company Limited

#### Performance Audit on the working of Assam Power Distribution Company Limited

#### Executive Summary

As part of power sector reforms, the erstwhile Assam State Electricity Board was unbundled and consequently, the business of power distribution is carried out by three distribution companies namely, Upper Assam Electricity Distribution Company Limited (UAEDCL), Lower Assam Electricity Distribution Company Limited (LAEDCL) and Central Assam Electricity Distribution Company Limited (CAEDCL), which were incorporated on 23 October 2003 under the Companies Act, 1956.

Subsequently, the two companies viz., UAEDCL and CAEDCL were merged with LAEDCL w.e.f. 1 April 2009 and LAEDCL was renamed as Assam Power Distribution Company Limited (APDCL) which was incorporated on 23 October 2009 under the Companies Act, 1956.

As on 31 March 2011, APDCL had distribution network of 1.12 lakh Circuit Kilometers (CKM) of lines, 36,240 sub-stations and 34,664 transformers of various categories catering to 19.13 lakh consumers.

#### *Distribution Network planning*

APDCL added 10,596 sub-stations during the period 2006-11. Further, as compared to the growth in connected load from 2,498.80 megawatt (MW) in 2006-07 to 3,294.96 MW in 2010-11, the increase in transformer capacity was from 1,342.26 mega volt ampere (MVA) to 1,901.08 MVA only, which meant that the transformer capacity fell short

by 2,217.62 MVA when compared to the connected load as on March 2011.

Wide gap between transformation capacity and connected load led to overloading of distribution system, excess failure of DTRs and higher quantum of energy losses.

#### *Implementation of Central/State sponsored schemes*

The percentage of achievement of electrification of un-electrified villages under Rajiv Gandhi Gramin Vidyutikaran Yojana (RGGVY) was 71 per cent and connection to BPL households was 57 per cent against the target as on 31 March 2011.

The shortfall in achievement of target was due to delay in approval of DPRs, delay in award and execution of works with consequential increase in cost of projects from ₹ 1,304.62 crore to ₹ 1,768.96 crore at award stages which would further go up on completion of all works.

Due to non-completion of various projects in time under Assam Bikash Yojana (ABY), APDCL did not avail the intended benefit of ₹ 4.02 crore by way of reduction in technical losses as projected in the DPR. Further, APDCL had also extended undue benefit to the extent of ₹ 2.42 crore to contractors.

#### *Metering*

APDCL attained metering of 17.84 lakh against total number of 19.13 lakh un-metered consumers as on 31 March 2011 and it took 2 days to 1975 days in replacing stop/defective meters as it did

not maintain reserve stock of meters in violation of directives of AERC.

**Operational efficiency**

The AT&C losses of APDCL decreased from 32.89 per cent in 2006-07 to 25.44 per cent in 2010-11, which was still above the approved norms of AERC (21.60 per cent).

**Financial position**

Accumulated losses of APDCL increased by 620.51 per cent from ₹ 142.90 crore in 2006-07 to ₹ 1,029.61 crore in 2010-11. The borrowings of APDCL increased by 74.40 per cent from ₹ 479.58 crore in 2006-07 to ₹ 836.40 crore in 2010-11.

The realisation per unit increased from ₹ 4.71 to ₹ 5.74 (21.87 per cent) during 2006-11, whereas the cost per unit increased from ₹ 5.02 to ₹ 7.00 (39.44 per cent) during the corresponding period.

**Billing and Revenue collection efficiency**

The percentage of energy billed against energy sold increased from 85.24 per cent in 2006-07 to 95.02 per cent in 2010-11. Despite increase in billing efficiency, APDCL had sustained losses amounting to ₹ 80.63 crore due to non-compliance of various directions of Assam Electricity Regulatory Commission (AERC).

The outstanding dues of APDCL increased by 43.35 per cent from ₹ 298.54 crore in 2006-07 to ₹ 427.96 crore in 2010-11, out of which ₹ 80.91 crore (18.91 per cent) realizable from permanently disconnected consumers were outstanding as on 31 March 2011.

**Financial Management**

Due to unnecessary drawal of loan fund and its non-utilisation, APDCL had burdened itself with a total interest liability of ₹ 42 lakh to Government of Assam.

**Energy Audit**

Direction of AERC to APDCL to analyse the consumption pattern of all Government building and initiate appropriate steps for reduction of energy consumption or reduction of energy losses was not complied by it.

Further, Energy audit data were not analysed or no corrective action taken by APDCL to minimise the energy losses.

**Monitoring by Top Management**

The monitoring system is inadequate as APDCL did not devise a proper MIS to monitor the work entrusted to contractors effectively or evaluate power demand and supply position in the State and control theft of energy.

## Introduction

**2.1** Electricity is an essential requirement for all facets of our life. It has been recognized as a basic human need. It is a critical infrastructure on which the socio-economic development of the country depends. Supply of electricity at reasonable rate to rural India is essential for its overall development. Equally important is availability of reliable and quality power at competitive rates to Indian industry to make it globally competitive and to enable it to exploit the tremendous potential of employment generation. Services sector has made significant contribution to the growth of our economy. Availability of quality supply of electricity is very crucial to sustained growth of this segment.

Recognizing that electricity is one of the key drivers for rapid economic growth and poverty alleviation, the Government of India (GOI) has set itself the target of providing access to electricity for all households in next five years. Major responsibility for achieving the key parameters of the above said importance of electricity devolves on the distribution sector. Distribution sector is very near to people. Distribution companies are first point of contact in the electricity sector for millions of consumers. This is the sector which provides electricity to the door step of every house hold. It serves various objectives of electricity sector such as supply of reliable and quality power of specified standards in an efficient manner and at reasonable rates and at the same time protects the consumer interest. Distribution companies need to make a financial turnaround and they should be commercially viable in order to achieve the above objectives.

The performance audit aims to analyse how far the distribution company, APDCL, planned its operations to achieve above objectives, achieve its financial turnaround and the extent of providing solutions to problems encountered during the five year period 2006-07 to 2010-11.

### ***Electricity reforms and electricity scenario in Assam***

**2.2** As part of power sector reforms, the erstwhile Assam State Electricity Board (ASEB) was unbundled and five companies were formed. Consequently, the business of distribution of power in Assam is carried out by three distribution companies namely, Upper Assam Electricity Distribution Company Limited (UAEDCL), Lower Assam Electricity Distribution Company Limited (LAEDCL) and Central Assam Electricity Distribution Company Limited (CAEDCL), which were incorporated on 23 October 2003 under the Companies Act, 1956 under the administrative control of Power Department, Government of Assam. Subsequently, the two companies *viz.*, UAEDCL and CAEDCL were merged with LAEDCL *w.e.f.*, 1 April 2009 and LAEDCL was renamed as Assam Power Distribution Company Limited (APDCL) which was incorporated on 23 October 2009. However, in this merger, the procedures prescribed under Companies Act, 1956 (Section 391 to 394 A) regarding reconstruction, amalgamation, merger and Section 396 regarding notification to be issued by the Central Government in public interest as well as Electricity Act, 2003 {Section 17(i) (b)} regarding obtaining permission from AERC for merger were not followed, which was pointed out in Para 1.3 of the Report of Comptroller and Auditor General of India (Commercial) 2009-10, Government of Assam. The management of APDCL is vested with a Board of Directors comprising eight directors appointed by the State Government. The day-to-day operations are carried out by the Chairman-cum-Managing Director, who is the Chief Executive of APDCL with the assistance of Chief General Managers, General Managers and Deputy General Managers.

### ***Vital parameters of electricity supply in Assam***

2.3 During 2006-07, 2244.33 million units (MUs) of energy was sold by APDCL which increased to 3,535.43 MUs in 2010-11, i.e. an increase of 57.53 *per cent* during 2006-11. As on 31 March 2011, APDCL had distribution network of 1.12 lakh circuit kilometre (CKM), 36,240 sub-stations and 34,664 transformers of various categories. The number of consumers as on 31 March 2011 was 19.13 lakh. The turnover of APDCL was ₹ 1559.68 crore in 2010-11, which was equal to 58.91 *per cent* and 1.50 *per cent* of the turnover of all State PSUs and State Gross Domestic Product respectively. It employed 11,477 employees as on 31 March 2011.

### ***Performance review of electricity sector***

2.4 Performance review on 'Implementation of Accelerated Power Development Reform Programme' in erstwhile ASEB was included in the Report of the Comptroller and Auditor General of India (Commercial)-Government of Assam (GOA) for the year ended 31 March 2007. The Report was discussed by the Committee on Public Undertakings (COPU) on 18 December 2009. Recommendations are awaited.

## **Scope and Methodology of Audit**

2.5 The present performance audit conducted during February 2011 to August 2011 covers the performance of the APDCL during the period 2006-07 to 2010-11 and 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. The audit involved scrutiny of records at the Head Office, one Central Stores division, 11 sub-divisions and various information submitted by the sub-divisions {selected based on number of consumers, sub-stations, distribution transformers (DTRs) *etc.*} of APDCL.

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

## **Audit Objectives**

2.6 The objectives of the performance audit were to assess whether:

- ❖ the financial management was sound enough to recover operational cost and to improve the financial health of APDCL by attaining desired

efficiency, timely and correctly filing of tariff petition, prompt and correct raising of energy bills and early collection of revenue;

- ❖ long-term comprehensive plans were made by APDCL for up-gradation of distribution networks and various schemes were implemented efficiently, effectively and economically to develop and augment the distribution networks systematically for attainment of the prime objective of the National Electricity Policy (NEP), 2005;
- ❖ metered supply of power was ensured for all consumers by installation of new meters and timely repairs/replacement of defective meters;
- ❖ operating efficiencies in distributing adequate and reliable power to all consumers were achieved by minimising and controlling technical and commercial losses of power;
- ❖ a system was in place to assess consumer satisfaction and redressal of grievances;
- ❖ loss reduction techniques and energy conservation measures were undertaken in line with the National Electricity Plan; and
- ❖ proper monitoring system existed and the same was utilised in review of the workings of APDCL.

### **Audit Criteria**

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

- ❖ National Electricity Plan, Plans and norms concerning distribution network of distribution companies (DISCOMs) and Planning criteria fixed by the State Electricity Regulatory Commission (SERC);
- ❖ 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;
- ❖ Guidelines/instructions/directions of AERC;
- ❖ Terms and conditions contained in the Central/State Scheme Documents; and
- ❖ Provisions of Electricity Act, 2003.

### **Audit Findings**

**2.8** We explained the audit objectives to APDCL during an 'Entry Conference' held on 16 March 2011. Audit findings were reported to APDCL and the Government of Assam (GOA) on 20 July 2011. APDCL replied to audit findings in August 2011. Audit findings were also discussed in an 'Exit Conference' held on 24 August 2011 in which Principal Secretary, Department of Power, GOA, Chairman-cum-Managing Director and other senior officials of APDCL participated. The GOA did not furnish any separate replies to audit findings. The views expressed by APDCL in the replies and the exit conference have been considered while finalising this report. Audit findings are discussed in subsequent paragraphs.

### **Distribution Network Planning**

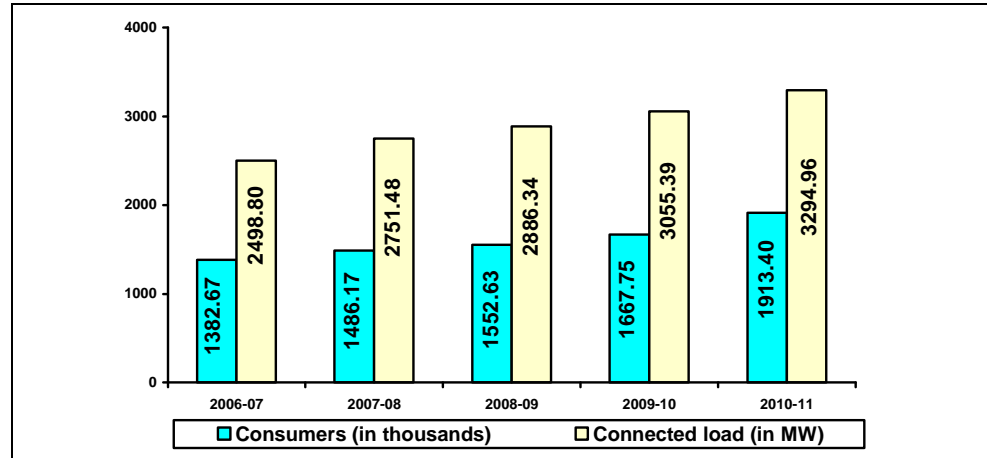
**2.9** The NEP was evolved with the following aims and objectives:-

- Access to electricity is to be made available to all households in five years commencing from 2005.
- Supply of reliable and quality power of specified standards in an efficient manner and reasonable rates.

To ensure access by all to electricity, the Power Distribution companies in the State are required to prepare long-term/annual plans for creation of infrastructural facilities for efficient distribution of electricity so as to cover maximum population in the State. Besides, the companies are required to ensure proper upkeep the existing network, ensure additions to distribution network as planned, keeping in view the demand/connected load, anticipated new connections and growth in demand. Considering these parameters, Capital Investment Plans are submitted to the State Government/AERC. The major components of the outlay include normal development and system improvement besides rural electrification and strengthening of IT enabled systems.

2.9.1 The position of consumers and their connected load during the period 2006-11 are given in *Chart-1*.

**Chart-1**



APDCL did not prepare any comprehensive long-term plans.

The capacity fell short by 2217.62 MVA to match the connected load by March 2011.

2.9.2 We noticed that APDCL did not prepare any comprehensive long-term plans; rather short-term plans were prepared on the basis of allocation of fund by the Central/State Government under various schemes and projects. APDCL added 10,596 sub-stations (11/0.4 KV: 10,542 and 33/11 KV: 54) during the period 2006-11. Further, as compared to the growth in connected load from 2,498.80 mega watt (MW) in 2006-07 to 3,294.96 MW {equivalent to 4,118.70 mega volt ampere (MVA) at 0.80 Power Factor} in 2010-11 as depicted in Chart 1, the increase in transformer capacity was only 1,342.26 MVA to 1,901.08 MVA and the capacity fell short by 2,217.62 MVA to match the connected load as in March 2011. Thus, the increase in distribution capacity did not match with the pace of growth in consumer demand and was not adequate to meet the projected load demand as per Electric Power Survey Committee in its 17<sup>th</sup> report. There was wide gap in the transformation capacity compared to connected load, it is clear that the actual addition of sub-stations was inadequate. This gap in transformation capacity led to overloading of the system and consequential rotational cuts, adverse voltage regulation and higher quantum of energy losses.

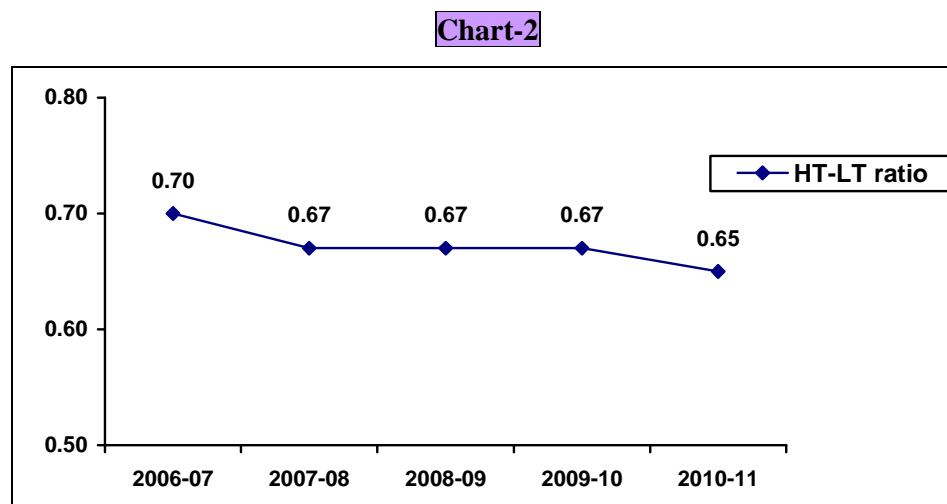
In reply, APDCL stated that though the transformation capacity was lower than the connected load, the peak demand was only 1,294 MVA, hence, there was no deficiency in transformation capacity. Further, it stated that in order to meet the growth of future demand, addition in transformation capacity would be required. The fact remains that APDCL is yet to achieve the ideal ratio of 1:1 of transformation capacity for a hassle-free operation of its transformation system.

Some observations indicating weakness in planning are discussed below:

**2.9.3** High voltage distribution system helps in ensuring effective reduction of technical losses, prevention of theft, improved voltage profile and better consumer service. GOI had also stressed (February 2001) on the need to adopt such a system of distribution through replacement of existing LT lines with HT lines and reduce distribution losses.

### **Implementation of LT less system**

**2.9.3.1** The HT-LT ratio over the period 2006-11 is depicted in the *Chart-2*.



**The ratio of HT to LT ranged between 0.65:1 and 0.70:1 during 2006-11.**

The ratio of HT to LT thus ranged between 0.65:1 and 0.70:1 during 2006-11. APDCL failed to reduce the same as the HT-LT ratio remained at the same load indicating inadequacy of initiatives taken for reduction of energy loss.

APDCL in its reply stated that it has taken various steps under Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) and Restructured Accelerated Power Development Reforms Programme (R-APDRP) scheme to improve the HT-LT ratio. Progress of the schemes were, however, tardy, as could be seen from *paragraphs 2.10 and 2.11*.

## **IMPLEMENTATION OF CENTRAL/STATE SPONSORED SCHEMES**

### **Rural Electrification**

**2.10** The NEP, *inter alia*, states that the key objective of development of the power sector is to supply electricity to all areas including rural areas for achieving which, the GOI and the State Governments would jointly endeavour. Accordingly, the RGGVY was launched in April 2005, which aimed at providing access to electricity to all households in five years for which the GOI provides 90 per cent capital subsidy.



Besides, the GOI notified the Rural Electrification Policy (REP) in August 2006 which *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 2012. The other schemes viz., Accelerated Electrification of one lakh villages and one crore household and Minimum Needs Programme were merged with RGGVY. The features of the erstwhile 'Kutir Jyoti Programme' were also suitably integrated into this scheme.

**2.10.1** As on 31 March 2006, out of 26,312 villages in the State (as *per* 2001 Census), 18,567 villages were electrified (70.56 *per cent*). The year-wise target vis-à-vis achievement of electrification under RGGVY during 2006-11 is shown in **Table-1**.

**Table-1**

Year	Electrified villages in the beginning of the year	Target for electrification during the year			Electrified during the year			Electrified villages in the end of the year	Percentage of achievement against target during the year		
		UEV*	EV*	BPL	UEV	EV	BPL		UEV	EV	BPL
2006-07	18,567	-	-	-	-	-	-	18,567	-	-	-
2007-08	18,567	64	91	-	64	91	-	18,631	100	100	-
2008-09	18,631	891	1,568	1,08,660	492	522	13,389	19,123	55	33	12
2009-10	19,358	2,057	3,566	3,21,918	1,204	1,875	1,51,223	20,327	59	53	47
2010-11	21,579	3,805	4,303	3,48,609	3,078	4,236	2,75,808	23,405	81	98	79
<b>Total</b>		<b>6,817</b>	<b>9,528</b>	<b>7,79,187</b>	<b>4,838</b>	<b>6,724</b>	<b>4,40,420</b>		<b>71</b>	<b>71</b>	<b>57</b>

As against the target of electrification of 16,345 villages and providing 7,79,187 connections to below poverty line (BPL) households, APDCL achieved electrification of 11,562 villages (71 *per cent*) and providing electricity connections to 4,40,420 BPL households (57 *per cent*) respectively.

Some reasons for shortfall in achievement of targets as observed in audit are summarised in the following paragraphs:

#### **Delay in approval of scheme and Detailed Project Reports (DPRs)**

**2.10.2** As per provisions of the scheme, execution of project shall be completed within an implementation period of 2 years and for effective implementation, a tripartite agreement shall have to be concluded amongst Rural Electrification Corporation Limited (REC), State Government (GOA) and the State Power Utility, stipulating the terms and conditions for flow of funds and other modalities. Accordingly, APDCL signed a tripartite agreement with GOA and REC in July 2005 and forwarded 17 DPRs<sup>†</sup> during October

\* Un-electrified village.    ∞ Intensification of already electrified villages.

† Jorhat, Nalbari, Morigaon, Barpeta, Golaghat, Darrang, Bongaigaon, Dhubri, Nagaon, Tinsukia, Goalpara, Dhemaji, NC Hills, Karbi Anglong, Kamrup, Lakhimpur and Kokrajhar.

2005 to December 2006 for approval and sanction by REC at an estimated cost of ₹1,304.62 crore involving electrification of 12,53,353 rural households (including 7,79,187 BPL households) in 16,345 villages. REC accorded approval to 2 DPRs\* only by May 2006 and informed (April 2007) that implementation of scheme in other districts be kept on hold, as directed by Ministry of Power, Government of India.

**Implementation of the scheme was kept on hold in 15 districts due to time taken by REC in field verification and time lost in furnishing clarifications by APDCL on the DPRs.**

The DPRs of the other 15 districts for electrification of 11,59,529 rural households (including 7,03,734 BPL households) in 14,586 villages (6,144 un-electrified villages and 8,442 electrified villages) at an estimated cost of ₹1,211.65 crore were approved (March 2008 and November 2009) by REC after APDCL complied with the remarks/observations of REC on those DPRs. Thus, approval of all DPRs was received nearly three years from the month of sending the last DPR in December 2006. Approval of DPR was delayed as implementation of the scheme was kept on hold in 15 districts due to time taken by REC in field verification and time lost in furnishing clarifications by APDCL on the DPRs.

### ***Delay in award of works***

**2.10.3** The implementation of the scheme was divided into 96 packages covering all 17 districts. Separate tenders for each package were invited (April 2006 to July 2009) and work orders were issued (February 2007 and November 2009). Records revealed that time taken in award of works ranged between 4 and 30 months from the date of floating notice inviting tender mainly on account of delay in processing and finalisation of tenders, negotiation with the bidders, obtaining fresh sanction of REC in those cases where L-1 bid was more than 110 *per cent* of sanctioned cost.

### ***Delay in execution of works***

**2.10.4** Out of 96 packages, only 25 packages were completed till March 2011 and as regards non-completion of 71 packages\* of 14 districts, it was noticed that though scheduled dates of completion of the works as per award letters were over between April 2009 and September 2010, physical progress of works ranged between 4.87 and 98.76 *per cent* for un-electrified villages and nil to 91.83 *per cent* for BPL households as on March 2011 in addition to time overrun of 24 to 92 weeks from the stipulated date of completion.

**Physical progress of works ranged between 4.87 and 98.76 *per cent* for un-electrified villages and nil to 91.83 *per cent* for BPL households as on March 2011.**

Further, as on 31 August 2011, the physical progress of works in 14 uncompleted districts ranged between 42.50 and 99.20 *per cent* for un-electrified villages and 25.10 to 99.40 *per cent* for BPL households as in August 2011. It was also observed that in 5 packages†, out of 2,039 villages, survey of 136 villages could not be completed. Again, out of targeted

\* Tinsukia and Goalpara.

\* Excluding 2 packages in Kokrajhar district scheduled to be completed in May 2011.

† Bongaigaon PKG 1, Dhubri PKG-1, Nagaon PKG-3, Dhemaji PKG-1 and Kokrajhar PKG-1.

electrification of 13,024 rural villages under 61 packages, the contractor did not commence work in 1,130 villages till August 2011. Further, as envisaged in the DPRs, APDCL did not provide any service connection to rural households except BPL households.

The reasons for failure in timely execution of works were, preparation of faulty DPRs resulting in inclusion of new villages and substituting already approved villages due to non-detection of the same at implementation stages, change in specification and increase in volume of works, delay in handing over of sites to the contractor, litigation cases, delay in submission of Guaranteed Technical Particulars (GTP) and drawings and subsequent approval thereon and delay on part of the contractors in commencement of work as well as slow progress of work.

### ***Increase in sanctioned cost of the scheme***

**2.10.5** The reasons for delays as discussed in *paragraphs 2.10.2 to 2.10.4* had not only defeated the main objectives of the scheme but also resulted in increase in sanctioned cost of the project from ₹ 1,304.62 crore to ₹ 1,768.96 crore at award stages which would further go up on completion of all the works. DPR estimates considered base rate (SOR rate) of 2005-06 whereas works were awarded on SOR rate of 2008-09, as well as preparation of estimates without considering tax element and contractor's margin contributed to increase in project cost.

**2.10.6** The position of funds received under RGGVY for rural electrification vis-à-vis their utilisation during the five years ending 31 March 2011 is depicted in *Table-2*.

**Table-2**

(₹ in crore)

Year	Opening Balance	Funds received during the year	Total funds available	Funds Utilised	Unspent funds at the end of the year
2007-08	-	135.10	135.10	72.51	62.59
2008-09	62.59	335.95	398.54	109.20	289.34
2009-10	289.34	384.47	673.81	353.24	320.57
2010-11	320.57	579.75	900.32	448.59	451.73
<b>Total</b>	<b>-</b>	<b>1435.27</b>	<b>-</b>	<b>983.54</b>	<b>-</b>

Out of total funds of ₹ 1435.27 crore received, APDCL could utilise only ₹ 983.54 crore.

Out of total funds of ₹ 1435.27 crore received, APDCL could utilise only ₹ 983.54 crore (68.53 per cent). Funds remained unspent due to slow progress of work by contractors, inadequate monitoring by management and release of fund by the REC at the fag end of the year.

The following points were further observed in the course of audit:

***Loss due to excess payment to the contractor***

**Due to inherent deficiency in the agreement, APDCL had to pay avoidable amount of ₹1.41 crore to the contractors.**

**2.10.7** Test check of records revealed that while awarding contracts for five\* packages, the supply prices were considered inclusive of excise duty (14 per cent to 16 per cent). Subsequently, the rate of excise duty came down to 14 per cent, 10 per cent and 8 per cent in a phased manner. In the absence of any clause in the agreement to pay excise duty at actuals, APDCL paid excise duty on supply of materials at the fixed rates agreed upon. Thus, due to inherent deficiency in the agreement, APDCL had to pay an otherwise avoidable amount of ₹1.41 crore to the contractors.

In reply, APDCL stated that the format of price bid as prescribed by REC did not have any provision for inclusion of taxes and duties separately. The reply is not acceptable as clause 4.2 of the Special Conditions of Contract (Volume-IA) prescribed by REC clearly states that taxes and duties shall not be included in the quoted price but shall be indicated separately, wherever applicable.

***Irregular enhancement of contract price***

**No investigation was made to identify the schemes under which the villages were stated to be electrified earlier.**

**2.10.8** The works under Tinsukia district (Package II) for providing service connections to BPL households were awarded (February 2007) to ECI Engineering and Construction Company Limited at a cost of ₹ 64.66 crore with the scheduled date of completion by February 2009. The contractor informed (October 2009) that 73 villages which were earlier declared in the DPR as already electrified had no infrastructure at all. The concerned Electrical Circle was directed (October 2009) to furnish a field report after survey and also to obtain a certificate from the concerned Deputy Commissioner (DC) in this regard. However, the field unit neither obtained any certificate from the DC nor furnished field report but informed (October 2009) APDCL that the villages had no infrastructure to provide electricity connection based on contractor's report. The contractor estimated (December 2009) an additional amount of ₹ 12.46 crore for re-electrification of these villages. The estimate of the contractor was approved by APDCL without preparing its own estimate based on field survey and obtaining certificate from DC. Further, no investigation was made to identify the schemes under which the villages were earlier electrified. Reasons for and extent to which the earlier infrastructure was missing also remained unexplained.

In reply, APDCL stated that it did not carry out any separate survey as the concerned villages were declared by Governor as de-electrified. The reply is not acceptable as the Governor's report indicated 99 villages as de-electrified in Tinsukia district as on 31 March 2007 which was considered by APDCL in preparation of DPR. The additional 73 villages which were subsequently

\* Tinsukia (Package-1), Jorhat {Package 1 & 2A(ii)} and Golaghat (Package 2A & 2B)

considered de-electrified by APDCL were over and above the existing 99 de-electrified villages and no separate report on this was issued by the Governor.

**Delay in handing over of completed villages to sub-divisions**

**2.10.9** Scrutiny of records revealed that all villages where electrification works were completed were not handed over to the respective sub-divisions. **Table-3** describes position of electrification and handing over of villages in respect of five districts as on 31 March 2011.

**Table-3**

Sl. No.	Districts	Date of Work order	Villages where electrification is completed	Villages handed over	Percentage of village handed over
1	Kokrajhar	November 2009	25	3	12
2	Karbi Anglong	January 2009	1414	748	53
3	Darrang	September 2008	981	533	54
4	Kamrup	January 2009	610	385	63
5	NC Hills	January 2009	140	89	64

Villages where electrification was completed were not handed over to the respective sub-divisions, mainly because of lack of proper co-ordination between the contractors and the sub-divisions and non-submission of records by contractors in five cases etc. Delay in handing over has a negative impact on revenue collection and occurrence of theft of electricity also could not be ruled out. Accepting the facts, APDCL stated that there was delay in handing over of completed villages due to operational constraints like overloading of transformers, non-charging of 33/11 KV sub-station etc.

**Non levy of liquidated damages**

**2.10.10** The clause in the agreement to levy liquidated damages (LD) on the contractor for delay on their part is a tool available to APDCL for exerting pressure on the contractor to enable him to adhere to completion schedule without justifiable reasons and finally impose the same in cases of unreasonable and avoidable delay. All agreements entered with the contractors, included a clause (No.11) providing for levy of LD at the rate of 0.50 per cent per week up to a maximum of 5 per cent of the total value of contract for non-completion of work due to contractor’s fault within the stipulated dates. It was, however, observed that in 14 districts involving 61 packages, work was not completed within the scheduled time. Position of delay in completion of works in respect of 14 districts is given in **Annexure-7**.

**APDCL did not levy LD, as it and its field units did not maintain any hindrance registers.**

Proper records are required to be maintained by APDCL and its field units/divisions to invoke clause 11 of the agreements in support of delays attributable to contractors. Though substantial portion of the delays were attributable to slow progress of works by contractors, APDCL did not levy

LD, as its field units did not maintain any hindrance registers containing an analysis of the factors for delay and make the contractors accountable. A sample case is described below, as an illustration.

Work of supply and erection of materials under NCH-I package was awarded (January 2009) at ₹ 79.13 crore to Diamond Power Infrastructure Limited and the work was scheduled to be completed by July 2010. However, even after time-overrun of eight months therefrom (31 March 2011), the contractor completed 25.00 *per cent* electrification of un-electrified villages and provided service connection to 47.42 *per cent* BPL households. The reasons cited by the contractor, for slow progress *viz.*, unapproachable road condition, hilly terrain and law and order problem were not accepted by APDCL on any occasion. Despite unsatisfactory performance of the contractor, LD amounting to ₹ 3.96 crore was not levied on the contractor.

In reply, APDCL stated that as REC has extended the completion schedule upto March 2012, LD shall be levied only after that period. The reply is not acceptable as the extension given by REC had nothing to do with delay by contractor and the extension letter clearly stated that the other terms and conditions of the contract shall remain unchanged. Extension of the benefit of rescheduling of work by delaying levy of LD on contractor was not justified.

#### ***Non billing of BPL consumers***

**2.10.11** BPL households were to be provided free service connection under this Scheme and were to be billed for energy consumption on monthly basis from the date of providing such connections. Scrutiny of records at four electrical sub-divisions revealed that out of 5,200 BPL households which were provided service connection up to 31 March 2011, only 2,849 BPL households were handed over to the sub-divisions of which, only 1,237 BPL households (23.79 *per cent*) were billed by the sub-divisions.

**Only 23.79 per cent BPL households were billed by the four sub-divisions.**

We observed that the main reasons of non-billing on remaining 1,612 BPL households were:

- The contractor failed to submit the DTR wise list of the BPL consumers to the sub-division. The list of BPL consumers was classified on the basis of Gaon Panchayats which was not compatible with software in use in the sub-divisions.
- Lack of proper monitoring and co-ordination among the contractor, RE monitoring officer and sub-division created further confusion for which all BPL households were not identified even on actual inspection in the field.
- Names and locations of various DTRs could not be verified due to inconsistency in DTRs submitted by the contractor from time to time. The lists of DTRs and BPL consumers were being submitted by the contractor

to the sub-divisions directly without being channelised through the RE monitoring officer of respective package.

### ***Restructured Accelerated Power Development Reforms Programme***

**2.11** The GOI approved the Accelerated Power Development Reforms Programme (APDRP) to leverage reforms in power sector through State Governments. This scheme was implemented by the power sector companies through the State Government with the objectives of up-gradation of sub-transmission and distribution system including energy accounting and metering under financial support provided by GOI.

In order to carry on the reforms further, GOI launched the R-APDRP in July 2008 as a Central Sector Scheme for XI Plan. In the State of Assam, the R-APDRP scheme was sanctioned (September 2008) by the GOI. The scheme comprised two parts: Part A with the objective of establishment of IT enabled system for achieving reliable and verifiable baseline data system in all towns besides installation of SCADA\*/Distribution Management System for which, 100 *per cent* loan was provided which was likely to be converted into grant on completion and verification of same by third party independent evaluating agencies and Part B that dealt with strengthening of existing sub-transmission and distribution system and up-gradation of projects. Our scrutiny of records revealed the following:

#### ***Establishment of IT enabled system***

**2.11.1** The Power Finance Corporation (PFC) appointed APDCL the nodal agency for establishment of IT enabled in December 2009 at a cost of ₹ 173.18 crore for 66 towns and ₹ 0.60 crore for another town in August 2010. APDCL signed a memorandum of agreement with PFC on 15 March 2010. The standard scheduled completion period of the Part-A is 24 months from the date of sanction i.e., December 2011. PFC released the first instalment of ₹ 51.54 crore to APDCL on 17 March 2010, which, however, did not make any progress in implementation except appointment of IT implementing agency (Tata Consultancy Services Limited, Mumbai) at a cost of ₹ 215.32 crore in July 2011. The delay in appointment in IT implementing agency was due to filing (January 2011) of Court case by one dissatisfied bidder and its subsequent award (June 2011) by the Court in favour of APDCL and delayed decision (February 2010) of GOI to set up a common Data Centre and Data Recovery centre for all North-Eastern States.

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

### SCADA project

APDCL appointed (24 December 2010) Tata Consulting Engineers Limited (TCEL) at a contract price of ₹ 29.56 lakh for implementation of SCADA system in Guwahati city. As per LOA, DPR was to be submitted within 75 days (*i.e.* by 9 March 2011), whereas the consultant submitted the final DPR in July 2011. The delay in submission of DPR was due to delay in signing of contract by TCEL and incorporation of several modifications to rectify the discrepancies in the DPR noted by APDCL.

### Strengthening of sub-transmission and distribution system under Part B of the project

2.11.2 APDCL appointed (June 2010) National Power Training Institute (NPTI) for preparation of DPR for 66 towns and consultancy services at a negotiated rate of ₹ 1.40 crore without inviting tender for Part-B of the scheme. NPTI was required to submit the DPR by October 2010 but submitted the same only in May 2011. The reason for delay in submission of DPR was mainly non-submission of details of ring fencing by APDCL, *i.e.*, mapping of the 11KV feeders with both rural and urban loads in a particular town/city under the project implementation area which was a pre-requisite for implementation of Part-B of the project. APDCL stated that all DPRs have since been prepared and submitted to PFC for scrutiny and approval (September 2011).

### Assam Bikash Yojana

2.12 GOA launched a scheme 'Assam Bikash Yojana' (ABY) in 2007-08. It sanctioned and released an amount of ₹ 165.31 crore during 2007-10 in favour of APDCL for carrying out works relating to construction of distribution lines, sub-stations, installation of transformers and energy meters etc. The year-wise break-up of funds received and actual financial progress made there against were as given in *Table-4*.

**Table-4**

(₹ in crore)

Year	Amount sanctioned and released by the GOA	Amount of works awarded by APDCL	Actual financial progress as on March 2011	Percentage progress w.r.t. works awarded
2007-08	52.72	62.09	43.96	70.80
2008-09	67.11	36.36	21.49	59.10
2009-10	45.48	34.81	13.32	38.26
<b>Total</b>	<b>165.31</b>	<b>133.26</b>	<b>78.77</b>	<b>59.11</b>

As against the total fund of ₹ 165.31 crore received from GOA, APDCL awarded works valuing ₹ 133.26 crore only, as on 31 March 2010. This was



because the tendered cost was much lower than the estimated/approved cost. Financial progress ranged between 38.26 *per cent* and 70.80 *per cent*. Reasons for slow progress were delay in award of work and delay on the part of the contractor in completion of the work.

Our examination of the implementation of the scheme revealed the following:

APDCL invited (January 2008) a limited-tender and awarded (July 2008) works valuing ₹ 7.36 crore under three packages to the lowest bidder Shri Gopikrishna Infrastructure Private Limited, Hyderabad (SGIPL), which was to complete and commission all works within January 2009. It was, however, noticed that SGIPL completed erection of 1784 out of 2656 PSC poles (Under 3 Packages) till April 2011 and since then, the works were held up due to 'right of way' (ROW) problem. As the project was not completed as per scheduled date (January 2009), APDCL failed to achieve the intended benefit of ₹ 4.02 crore by way of reduction in technical losses as projected in the DPR. Further, there was delay of four months by the contractor in submission of GTP of material and drawings which was in turn, due to delay in completion of survey. The contractor also started (March 2009) procurement of material only after scheduled completion date *i.e.*, January 2009. Although LD was recoverable at the rate of one *per cent per week* of the contract price or part thereof for delay by contractor subject to maximum of 10 *per cent*, APDCL did not invoke the aforesaid clause.

**APDCL failed to achieve the intended benefit of ₹ 4.02 crore.**

In reply, APDCL stated that it had not yet sorted out the problem of ROW and as a result, imposing LD was not considered and that there is scope for deduction of LD from retention money and erection payment if the delay was due to contractor's fault. The fact remains that no LD was imposed to the extent of delay that had already occurred due to the fault of the contractor.

### ***Undue benefit to the contractor***

**2.12.1** As per work order, the contractor was to supply 277 km of AAAC Wolf Conductors at quoted rate of ₹ 1.29 lakh *per km*. Scrutiny of records revealed that the contractor supplied (March 2009) 211 km of conductors which were below the standard specification mentioned in bid documents. APDCL had, without verification of corresponding rate of conductors actually supplied, released payment at approved rates. This resulted in extension of undue financial benefit to the tune of ₹ 1.60 crore to the contractor.

In reply, APDCL stated that these being turnkey contracts, evaluation with reference to market rates was not made; it had inspected and tested the material at manufacturer's workshop and approved the specification.

Reply was silent on the fact that the rates were not negotiated with the supplier for ensuring that supply of materials was not below the specification mentioned in the bid document.

**2.12.2** A provision of ₹ two crore under ABY was made in the DPR for 2008-09 towards procurement of 148 DTRs of 100 KVA capacity for up-gradation and augmentation of the Distribution Network System under 4 electrical circles. The cost estimate for one 11/0.4 KV, 100 KVA DTR was ₹ 2.39 lakh. As per the technical parameters specified in the bid document, the 'Full Load Loss and No Load Loss' of the transformers should be 1240 Watts and 180 Watts respectively. On the basis of lowest quoted rates, APDCL placed (March 2009) purchase orders on 4 different contractors for the above 4 circles at unit prices ranging from ₹ 1.19 lakh to ₹ 1.55 lakh.

Our examination of records revealed that the contractor supplied DTRs from approved local manufacturers with lower specifications (Full Load Loss-1760 Watts and No Load Loss-260 Watts), than the standard specification mentioned in the bid documents ostensibly on account of non-availability of DTR of specified rating. We noticed that APDCL had purchased DTRs of similar specification from the approved local manufacturers under the same scheme at ₹ 81,050 *per* DTR. APDCL, however, did not claim the benefit of corresponding price reduction for DTRs that were below the bid specified standards from the contractors. This resulted in extending undue financial benefit to the contractors to the tune of ₹ 81.74 lakh.

APDCL in its reply stated (August 2011) that the tender specification was prepared considering specification of 3 star rated DTRs while the estimate was prepared on the old approved rate of earlier specification. Further, it stated that the specified parameter in the bid was for 63 KVA DTRs which were incorrectly printed as 100 KVA. The reply is not convincing as even the estimated cost of 100 KVA DTRs procured was taken as ₹ 2.39 lakh instead of ₹ 0.81 lakh which was the rate of the 100 KVA DTRs at the relevant time. The fact, therefore, remains that APDCL purchased 100 KVA DTRs of lower specification at a higher rate, which could have been avoided through a corrigendum in the work order and negotiating the price on realisation of the deficiency or incorrectness in estimates.

### **Consumer metering**

**2.13** The Electricity Act, 2003 envisages 100 *per cent* consumer metering. AERC introduced (May 2005) the 'Jeevan Dhara' category of consumers in lieu of rural un-metered category and directed APDCL to complete 100 *per cent* metering, within three months i.e., by August 2005.

APDCL took up (May 2006) the work of 100 *per cent* metering under the Assam Power Sector Reforms Programme financed by Asian Development Bank (ADB), which sanctioned (March 2006) an amount of ₹ 89.66 crore. The work order for supply and installation of meters were issued (May 2006) under three packages at a total cost of ₹ 89.66 crore for 3,72,185 meters scheduled to be installed/completed by November 2007. The status of achievement of metering of all consumers (of various categories) in the State is indicated in

**APDCL attained metering of only 17.84 lakh consumers (93.22 *per cent*) against total number of 19.13 lakh consumers as on 31 March 2011.**

**Annexure-8.** We noticed that APDCL attained metering of only 17,83,712 consumers (93.22 per cent) against total number of 19,13,396 consumers as on 31 March 2011 thus failing to comply with the directions of AERC for 100 per cent metering till date (September 2011).

Further examination of records in respect of the above work revealed the following:

### **Purchase of meters at higher cost**

**2.13.1** The work orders for supply of meters were issued to three different contractors at different rates for the same capacity of meters as detailed in **Table-5**.

**Table-5**

Name of the supplier	Single phase meter		3 Phase (5-20 A) meter		3 phase CT meter	
	Nos	Rate/Unit (₹)	Nos	Rate/Unit (₹)	Nos	Rate/Unit (₹)
Secure Meters (Pkg-I)	145515	1850	7640	4495	800	12031
HPL Socomoc (Pkg-II)	110013	1800	5090	4500	600	10800
L&T (Pkg-III)	96522	1950	5405	4816	600	10266
<b>Total</b>	<b>352050</b>		<b>18135</b>		<b>2000</b>	

The rate paid to the contractors was in the range of ₹ 1,800 to ₹ 1,950 for Single Phase meters, ₹ 4,495 to ₹ 4,816 for 3 Phase meters and ₹ 10,266 to ₹ 12,031 for 3 Phase CT meters. Though the rate quoted by the contractors for meters of similar specification under various packages differed substantially, APDCL did not compare the rates and negotiate with the contractors to bring the rates to the lowest level. This inaction of APDCL led to an avoidable loss of ₹ 2.52 crore against the supplies made by the three suppliers of electricity meters.

APDCL, in reply, stated that the difference in rate was due to supply of other assorted items like MCCB meter seal, switch box, PVC cable, etc. It also stated that meters were not of identical rating for all the three packages and the terrain of the works was also considered while evaluating the price. The reply is not acceptable as the comparison is made on the basis of ex-work price of meter and included all the required assorted items. Meters of even lower weight were procured at higher price. Further, the elements of freight and insurance which were different depending on distance and condition of sites were excluded by us, while comparing the prices of meters.

### **Observations on installation of meters**

**2.13.2** Details of physical target and achievement of metering under the project based on the information furnished (2010) by the field units are depicted in **Table-6**.

**Table-6**

Purpose of meter installation	Single phase meter		3 Phase (5-20 A) meter		3 phase CT operated meter		Total	
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
Un-metered	42182	10465	1800	157	3	39	43985	10661
Stop/Defective	284197	290462	10709	12158	594	1262	295500	303882
New Consumers	25671	18339	5626	1989	1403	217	32700	20545
<b>Total</b>	<b>352050</b>	<b>319266</b>	<b>18135</b>	<b>14304</b>	<b>2000</b>	<b>1518</b>	<b>372185</b>	<b>335088</b>

Shortfall in achieving the target was mainly due to delay in submission of drawings, meters not conforming to the specification, public protests etc. The contractors also failed to replace 4,137 (Single phase: 3,417, 3 Phase: 681 and LTCT: 39) meters valuing ₹ 96.12 lakh, which were found defective after installation. It was observed that there was no reconciliation between the number of meter installed as per field units and head office. As per field units meters installed by contractors were 3.11 lakh and as per head office, it was 3.27 lakh meters installed. APDCL failed to reconcile the figure till date (August 2011).

APDCL stated (August 2011) that the vendor installed 3.27 lakh meters and receipt and replacement of defective meters was a continuous process and these were handed over and taken over locally at the circle level at regular intervals. Further, there is no monitoring at circle level and sub-division level for replacement of defective meters by the contractors.

### *Delay in replacement of stopped/defective meters*

Scrutiny of records at electrical sub-divisions, revealed the following position:

**2.13.3** As per AERC Regulation, APDCL shall replace stop/defective meters within a maximum period of 30 days from the date on which meter is found/reported defective. Test check of replacement of 595 stop/defective meters in 11 electrical sub-divisions revealed delay ranging from 2 days to 1975 days in replacing the meters.

Further, there were 14,088 stop/defective meters in 11 sub-divisions as on May 2011, which were yet to be replaced. The main reason for non-replacement of meters was shortage of meters, as APDCL failed to comply with the directives of AERC and maintain the reserve stock of meters. The consumers were provisionally billed on average basis.

### **Operational efficiency**

**2.14** The operational performance of APDCL can be judged on the basis of availability of adequate power for distribution, adequacy and reliability of distribution network, minimizing line losses, detection of theft of electricity, etc. Results of examination in audit of these areas are discussed in the next page:

### Transmission & Distribution Losses

**2.14.1** 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 Distribution Company 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 energy is carried from one place to another. On the other hand, commercial losses occur due to theft of energy, defective meters and drawal of unmetered supply.

**Table-7** indicates the status of energy losses in the State as a whole for last five years upto 2010-11.

**Table-7**

(In Million Units)

Sl. No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1.	Energy purchased	3344.31	3717.48	3975.06	4391.98	4741.51
2.	Energy sold	2244.33	2496.43	2797.59	3247.32	3535.43
3.	Energy losses (1 – 2)	1099.98	1221.05	1177.47	1144.66	1206.08
4.	Percentage of energy losses ( <i>per cent</i> ) $\{(3 / 1) \times 100\}$	32.89	32.85	29.62	26.06	25.44
5.	Percentage of losses allowed by AERC ( <i>per cent</i> )	27.36	25.05	24.24	22.65	21.60
6.	Excess losses (in MUs)	184.98	289.82	213.92	149.88	181.91
7.	Average realisation rate <i>per unit</i> (in ₹)	4.55	4.73	4.60	4.33	4.41
8.	Value of excess losses (₹ in crore) (6 x 7)	84.17	137.08	98.40	64.90	80.22

Losses in energy distribution exceeded the norms by 3.41 *per cent* to 7.80 *per cent*.

Losses in energy distribution thus ranged between 25.44 and 32.89 *per cent* during the last five years ending 31 March 2011, it exceeded the norms approved by AERC by 149.88 MU (3.41 *per cent*) to 289.82 MU (7.80 *per cent*) in the review period. We noticed that long length of the feeders, non-installation of capacitor banks, low power factor, un-metered consumers and theft of electricity *etc.* had contributed to energy losses.

APDCL, in reply, stated that it had taken various steps for improvement of sub-transmission and distribution losses *viz.* addition of transformation

capacity as per 17<sup>th</sup> report of Electric Power Survey Committee, installation of meters for un-metered consumers, replacement of stop/defective meters and reduction in theft cases. However, the fact remains that APDCL was yet to achieve AERC norms for energy losses.

### **Performance of Distribution Transformers**

**2.14.2** AERC has fixed the norms for failure of DTRs in its tariff orders. The percentage of failure of DTRs ranged between 6.55 *per cent* and 8.43 *per cent*, it was within norms approved by AERC (10 *per cent*) during the period 2006-11. Cause-wise analysis of failure of DTRs revealed that the percentage of failure due to over-loading ranged between 10.99 to 14.63 *per cent* during the period as shown in **Table-8**.

**Table-8**

Year	Total Number of DTRs failed during the year*	Number of failures due to over-loading	Percentage of failures due to over-loading
2006-07	1985	276	13.90
2007-08	2276	333	14.63
2008-09	2136	299	14.00
2009-10	2092	230	10.99
2010-11	2921	358	12.26

Analysis of DTR failure reports of four electrical circles revealed that out of 319 failed DTRs, 104 DTRs (i.e., 32.60 *per cent*) had failed on account of lightening which could have been avoided through installation of lightening arrestors which were either not provided or provided with damaged ones.

In reply, APDCL stated that action was being taken to make the protective devices healthy so as to reduce the failure of DTRs and also stated that the feasibility of installation of lightening arrestors shall be determined, in due course.

### **Capacitor Banks**

**2.15** Capacitor bank improves power factor by regulating the current flow and voltage regulation. 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. APDCL had installed 5,685<sup>†</sup> capacitor banks of various capacities in 93 electrical sub-divisions out of 154 electrical sub-divisions, with a total installed capacity of 79.122 MVAR (Mega Volt Ampere Reactive Power). Based on the total number of DTRs as

\* Excluding failures due to manufacturing defects

† 6 KVAR (2,569), 9 KVAR (1,566), 27 KVAR (1,332), 60 KVAR (199) and 90 KVAR (19).

on March 2011, the actual requirement of capacitor banks to be installed was 341.88 MVAR. Thus, there was significant shortfall of 262.758 MVAR in the capacity of capacitor banks. A test check of 18 electrical sub-divisions, we observed that no capacitor bank was installed in 13 electrical sub-divisions and in the remaining 5 sub-divisions; though these were installed the same were not in working condition.

### Commercial losses

**2.16** Principal commercial losses related to consumer metering and billing besides pilferage of energy. While various deficiencies relating to billing and metering works have been commented in *paragraphs 2.18.6 and 2.13* respectively, the other deficiencies/observations relating to commercial losses are discussed below:

#### *High incidence of 11 KV feeder loss*

**2.16.1** Gist of the analysis of seven electrical circles as regards 11 KV feeder losses for 2010-11 is given in *Table-9*.

**Table-9**

Name of the Circle	No. of Sub-Divisions	Total No. of 11 KV Feeders	T&D Loss above 28.18 per cent	Range of loss
Bongaigaon	9	43	38	30-90
Rangia	4	24	23	29-49
Sibsagar	7	25	13	29-48
Jorhat	13	111	99	29-71
Kokrajhar	10	32	27	30-77
GEC-II	7	40	27	29-79
Kanch	8	40	36	29-94
<b>TOTAL</b>	<b>58</b>	<b>315</b>	<b>263</b>	<b>29-94</b>

Out of 315 feeders, the losses were above the aggregate loss of 28.18 per cent in 263 feeders (83.49 per cent) for 2010-11. Further, in 110 feeders, the losses were abnormally high in the range of 50 to 94 per cent in five circles (except Rangia and Sibsaagar). The reasons for losses were long line length of 11 KV feeders, theft of energy and inadequate preventive maintenance of the lines. APDCL did not analyse the causes of high loss in these individual feeders so that effective steps could be taken to control the losses in a phased manner.

APDCL, in its reply, stated that it had taken steps to analyse the causes of high losses in individual feeders but the actual loss could not be ascertained because of supply of power/energy to BPL consumers and subsequent non-billing of BPL consumers.

### High incidence of theft

**2.16.2** Substantial commercial losses are caused due to theft of energy through tampering of meters by the consumers and unauthorised tapping/hooking by the unscrupulous persons/organisations. As per Section 135 of Electricity Act, 2003, theft of energy is a punishable offence. The targets for checking, theft cases, assessed amount and amount realised there against are given in *Annexure-9*.

Our examination revealed that the percentage of checking to total consumers ranged between 0.31 and 0.43 *per cent* which cannot be considered adequate.

Further, against the target of ₹ 6.18 crore for realisation of assessed amount, APDCL realised ₹ 5 crore.

### Performance of Raid Teams

**2.16.3** In order to minimise the cases of pilferage/loss of energy and to save APDCL 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. APDCL has a Vigilance Cell headed by a retired Superintendent of Police and total staff strength of 10 personnel for this purpose but it did not set any target for raids to be conducted by the raid team. The number of raids conducted during the period 2007-11 ranged from 1,690 to 3,247 against a total of 19.13 lakh consumers as on March 2011. The outcome of the raids conducted was also not monitored by the Vigilance Cell.

## Financial Position and Working Results

**2.17** One of the major aims and objectives of the NEP is ensuring financial turnaround and commercial viability of electricity sector.

**2.17.1** The summarized financial position of APDCL for the five years ending 2010-11 are given in *Table-10*.

**Table-10**

(₹ in crore)

Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
<b>A. Liabilities</b>	<b>Provisional</b>				
Paid up Capital	162.77	162.77	162.77	250.81	250.81
Reserve & Surplus (including Capital Grants but excluding Depreciation Reserve)	599.43	766.86	1421.17	2069.01	2730.48
<b>Borrowings (Loan Funds)</b>					
Secured	16.89	23.91	42.66	54.41	42.58



Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
<b>A. Liabilities</b>					<b>Provisional</b>
Unsecured	462.69	724.40	611.97	693.97	793.82
Current Liabilities & Provisions	902.61	1022.53	1400.21	2041.13	2317.87
<b>Total</b>	<b>2144.39</b>	<b>2700.47</b>	<b>3638.78</b>	<b>5109.33</b>	<b>6135.55</b>
<b>B. Assets</b>					
Gross Block	853.47	984.92	1518.93	1632.07	1780.47
Less: Depreciation	562.20	622.98	676.79	742.75	823.03
Net Fixed Assets	291.27	361.94	842.14	889.32	957.44
Capital works-in-progress	916.60	947.90	597.50	925.94	1161.24
Investments	121.01	87.75	-	-	-
Current Assets, Loans and Advances	672.61	1084.06	1933.68	2712.04	2987.26
Accumulated losses	142.90	218.82	265.46	582.03	1029.61
<b>Total</b>	<b>2144.39</b>	<b>2700.47</b>	<b>3638.78</b>	<b>5109.33</b>	<b>6135.55</b>
<b>Debt : Equity</b>	2.95:1	4.60:1	4.02:1	2.98:1	3.33:1
<b>Net Worth*</b>	19.87	-56.05	-102.69	-331.22	-778.80

It may be seen from the above that the accumulated losses increased by ₹ 886.71 crore from ₹ 142.90 crore in 2006-07 to ₹ 1,029.61 crore in 2010-11. Further, the debt-equity ratio ranged between 2.95:1 and 4.60:1 during the same period. Increase in debt-equity ratio in 2010-11 as compared to 2006-07 was due to increase in unsecured loans.

### Working Results

2.17.2 Details of working results including cost of electricity vis-à-vis revenue realization *per unit* therefrom are indicated in **Table-11**.

**Table-11**

(₹ in crore)

Sl.No.	Description	2006-07	2007-08	2008-09	2009-10	2010-11
<b>1.</b>	<b>Income</b>					
(i)	Revenue from Sale of Power	1020.82	1181.89	1286.20	1407.99	1559.68
(ii)	Other income including interest	37.22	380.88	403.94	146.05	470.51
	<b>Total Income</b>	<b>1058.04</b>	<b>1562.77</b>	<b>1690.14</b>	<b>1554.04</b>	<b>2030.19</b>
<b>2.</b>	<b>Distribution (In MUs)</b>					
(i)	Total power purchased	3344.31	3717.48	3975.06	4391.98	4741.51
(ii)	Less: Sub-transmission & distribution losses	1099.98	1221.05	1177.47	1144.66	1206.08
	<b>Net power sold</b>	<b>2244.33</b>	<b>2496.43</b>	<b>2797.59</b>	<b>3247.32</b>	<b>3535.43</b>
<b>3.</b>	<b>Expenditure on distribution of electricity</b>					
(a)	<b>Fixed cost</b>					
(i)	Employees cost	229.49	290.94	329.44	357.98	391.28
(ii)	Administrative and General expenses	12.42	12.54	11.90	20.13	16.85

\* Net Worth = Paid-up Capital – Accumulated losses

Sl.No.	Description	2006-07	2007-08	2008-09	2009-10	2010-11
(iii)	Depreciation	28.18	41.84	54.57	63.14	78.27
(iv)	Interest and finance charges	42.41	56.37	66.77	68.59	76.73
(v)	Other Expenses	13.15	18.94	4.35	9.99	4.22
	<b>Total fixed cost</b>	<b>325.65</b>	<b>420.63</b>	<b>467.03</b>	<b>519.83</b>	<b>567.35</b>
(b)	<b>Variable cost</b>					
(i)	Purchase of Power	598.44	966.39	939.23	1020.27	1530.26
(ii)	Transmission/Wheeling Charges	181.18	216.15	335.42	301.47	341.21
(ii)	Repairs & Maintenance	21.91	22.96	28.16	31.04	36.92
	<b>Total variable cost</b>	<b>801.53</b>	<b>1205.50</b>	<b>1302.81</b>	<b>1352.79</b>	<b>1908.39</b>
(C)	<b>Total cost 3(a) + (b)</b>	<b>1127.18</b>	<b>1626.13</b>	<b>1769.84</b>	<b>1872.62</b>	<b>2475.73</b>
4.	Realisation (₹ per unit) (including interest)	4.71	6.26	6.04	4.79	5.74
4 (a)	Realisation from sale of energy	4.55	4.73	4.60	4.33	4.41
5.	Fixed cost (₹ per unit)	1.45	1.68	1.67	1.60	1.60
6.	Variable cost (₹ per unit)	3.57	4.83	4.66	4.17	5.40
7.	Total cost per unit (in ₹) (5+6)	5.02	6.51	6.33	5.77	7.00
8.	Contribution (4-6) (₹ per unit)	1.14	1.43	1.38	0.62	0.34
9	<b>Profit (+)/Loss(-) per unit (in ₹) (4-7)</b>	<b>(-) 0.31</b>	<b>(-) 0.25</b>	<b>(-) 0.28</b>	<b>(-) 0.98</b>	<b>(-) 1.26</b>

There was a revenue gap of ₹ 69.14 crore in 2006-07 which increased to ₹ 445.54 crore in 2010-11. Though the realisation *per unit* increased from ₹ 4.71 to ₹ 5.74 (21.87 *per cent*) during the period covered in this audit, the cost *per unit* increased from ₹ 5.02 to ₹ 7.00 (39.44 *per cent*) during the corresponding period. The fall in realisation *per unit* from ₹ 6.04 (2008-09) to ₹ 5.74 (2010-11) was mainly because of decrease in other income. Further, contribution *per unit* had decreased by 70.18 *per cent* during the period 2006-2011.

**2.18** Financial viability was generally influenced by various factors such as:

- Timely revision of tariff;
- Adequacy of revision of tariff to cover the cost of operation;
- Disallowance of expenditure;
- Cross subsidization policy of the GOA and its implementation;
- Financial Management; and
- Revenue billing and collection efficiency.

Each of these factors is discussed in the following paragraphs.

**a) Timely revision of tariff**

**2.18.1** The tariff structure of the power distribution Company(s) is/are subject to revision as approved by the respective SERC after the objections, if

any, received against Annual Revenue Requirement (ARR) petition filed by them within the stipulated date are considered by the AERC. APDCL was required to file the ARR for each year 120 days before the commencement of the respective year. AERC accepts the application filed with such modifications/conditions as may be deemed just and appropriate and after considering all suggestions and objections from public and other stakeholders. **Table-12** 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.

**Table-12**

Year	Due date of filing	Actual date of filing	Delay in days	Date of approval	Effective date
2006-07	1 December 2005	11 April 2006 (Revised)	131	28 April 2006	1 August 2006
2007-08	1 December 2006	5 April 2007 (Revised)	94	12 September 2007	20 September 2007
2008-09	1 December 2007	8 April 2008	372	24 July 2009	1 August 2009
2009-10					
2010-11	1 December 2009	15 February 2010	74	16 May 2011	24 May 2011

**Delay in filing of tariff petition ranged between 74 days and 372 days.**

From the above table, it may be seen that the delay in filing of tariff petition ranged between 74 days and 372 days which consequently delayed the approval of 'Tariff Order' of the respective year by AERC. The delay in filing of ARR was mainly due to non-preparation of annual accounts, delay in approval of earlier year's tariff etc. An amount of ₹ 5.66 crore, ₹ 5.05 crore, ₹ 53.88 crore, ₹ 19.28 crore and ₹ 78.21 crore could not be recovered by APDCL during 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11 respectively, due to delay in submission of tariff petition by APDCL and its approval by AERC.

Some of the amounts which could have been recovered through truing-up petition subsequently, inspite of delayed submission of tariff petition to AERC, and their position were as follows:

(i) Against actual increase of ₹ 0.05 to ₹ 0.50 *per unit* under various categories of consumers in tariff order 2006-07, APDCL claimed (December 2008) an average increase of ₹ 0.15 *per unit* in its truing-up petition which was approved by AERC at ₹ 3.74 crore. Thus, due to incorrect lower claim, APDCL lost ₹ 1.92 crore (₹ 5.66- ₹ 3.74).

In reply, the management stated that the claim was made on the basis of average increase (₹ 0.06) *per unit*. The fact remains that APDCL had not considered the actual increase in tariff while claiming the amount receivable due to delay in approval of tariff.

(ii) Though APDCL submitted (February 2010) its truing-up petition to AERC for 2007-08 and 2008-09, it failed to claim recovery of loss amounting to

₹ 58.93 crore due to delayed implementation of tariff. Thus, AERC did not consider this aspect in its truing-up exercise. However, APDCL filed a review petition for recovery of the amount.

(iii) APDCL did not file (September 2011) its truing-up petition for 2009-10 and 2010-11, due to non-finalisation of Annual Accounts.

**b) Adequacy of revision of tariff to cover the cost of operation.**

**2.18.2** Examination in audit revealed that the extent of tariff was lower than breakeven levels (in percentage terms) 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 **Table-13**.

**Table-13**

(₹ 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	1,020.82	801.53	325.65	219.29	106.36	10.42
2007-08	1,181.89	1,205.50	420.63	-23.61	444.24	37.59
2008-09	1,286.20	1,302.81	467.03	-16.61	483.64	37.60
2009-10	1,407.99	1,352.79	519.83	55.20	464.63	33.00
2010-11	1,559.68	1,908.39	567.35	-348.71	916.06	58.73

**Reasons for fall in per unit of revenue from sale of power were failure to attain “sales-mix” and non-achievement of the target sub-transmission and distribution loss as approved by AERC.**

APDCL thus could not contribute towards its fixed cost in any of the years and also failed to recover the variable cost in 2007-08, 2008-09 and 2010-11. Though there was an increase of 50 to 70 paise *per* unit in the tariff, the realisation *per* unit from sale of power decreased from ₹ 4.55 to ₹ 4.41 during the period 2006-11. Reasons for fall in *per* unit of revenue from sale of power were failure of APDCL to attain category-wise ‘sales mix’ approved by AERC and non-achievement of the target of sub-transmission and distribution loss as approved by AERC, which in turn, were due to non-achievement of targets emphasised in the various schemes as discussed in **paragraphs 2.10 to 2.12**.

Though it appeared that the tariff was on lower side and may require revision for recovery of costs, it may be mentioned here that the same could be brought down by improving operational efficiency, viz., reduction in/control on AT&C losses, conversion of LT lines to HT lines, metering of unmetered connections/defective meters, improving billing and collection efficiency, etc. which have been discussed separately in the report. Further, reduction of cross subsidisation among various categories of consumers might also help in improving the position as discussed in **paragraph-2.18.4**.

**c) Disallowance of expenditure**

**2.18.3** The cost parameters are approved by AERC on the basis of the data available at that time. In case the actual cost exceeds the approved cost, there is no mechanism to recover the excess expenditure in that year as the tariff cannot be amended more than once in a year as *per* Section 5.1 of the terms and conditions for determination of Tariff Regulation, 2006 of AERC. The distribution licensee thus submits the 'truing up' petition in the subsequent ARR based on the actuals. AERC analyses the same based on the Annual Audited Financial Statements and allows/disallows the recovery of the actual expenditure through the present tariff, subject to prudent checking. While issuing orders on the APDCL's 'truing up' petition, AERC disallowed the following expenditure:

- (i) ₹ 18.89 crore (2006-07), being interest on General Provident Fund (GPF) contribution of employees as APDCL had failed to create separate GPF Fund and ensure investment of the same.
- (ii) Power purchase cost of ₹ 89.41 (2006-07: ₹ 59.88 crore, 2007-08: ₹ 21.70 crore and 2008-09: ₹ 7.83 crore) due to failure of APDCL to achieve the 'T&D' loss approved by AERC for the respective years.
- (iii) Excess Repairs and Maintenance and Administrative & General expenditure of ₹ 10.60 crore (2007-09) on the ground of that these were controllable items.
- (iv) Expenditure of ₹ 40.62 crore (2007-09) as interest on loans from GOA was disallowed by AERC as APDCL failed to submit documentary evidence to establish the fact that the loans were utilised to create assets.

Thus, due to delay in filling of ARR, inefficiency and non-maintenance of proper records, APDCL suffered an irrecoverable loss of ₹ 159.52 crore.

In reply, APDCL stated that against the average increase of ₹ 0.06 *per* unit it considered ₹ 0.15 *per* unit for 2006-07. Further, it stated that 'truing-up' exercise is carried only after annual accounts are prepared. The reply is not convincing as it failed to claim its loss on the basis of actual figures available and even for the period (2006-07 to 2008-09) for which accounts were available, APDCL could not recover the losses due to its inefficiencies.

**d) Cross subsidization policy of the Government and its implementation**

**2.18.4** Section 61 of Electricity Act, 2003 stipulates that the tariff should progressively reflect the average cost of supply (ACoS) of electricity and also reduce cross subsidy in a phased manner as specified by AERC. National Tariff Policy (NTP) envisaged that tariff of all categories of consumers should range within plus or minus 20 *per cent* of the ACoS by 2010- 2011. The position of cross-subsidies provided to various consumers is depicted in **Annexure-10**.

**APDCL failed to comply with the directives of the National Tariff Policy, by adopting a tariff structure through which the burden of revenue realisation from the consumers could be equitably distributed.**

It may be seen from the Annexure that consumers under Jeevan-Dhara, Domestic-A, Agricultural, Rural Small Industries and HT Small Industries categories were provided subsidy by APDCL in excess of 20 *per cent* of ACoS during 2009-10. The subsidy provided to these consumers also increased in 2009-10 as compared to 2006-07. Further, APDCL recovered from the consumers under Commercial, Tea, Coffee & Rubber and Oil & Coal categories, in excess of 20 *per cent* of ACoS during 2009-10. The recovery percentage from these consumers also increased in 2009-10 as compared to 2008-09. This clearly indicates APDCL's failure to comply with the directives of the NTP, by adopting a tariff structure through which the burden of revenue realisation from the consumers could be equitably distributed.

#### ***e) Financial Management***

**2.18.5** Efficient fund management serves as a tool for decision making, through optimum utilisation of available resources and timely borrowings at favourable terms. Financial management includes revenue collection, billing, borrowings, grants, transfer of funds, interest recovery/payments, restructuring of loans, security deposits, bank reconciliation and other related transactions.

We observed that the borrowed funds increased from ₹ 479.58 crore in 2006-07 to ₹ 836.40 crore (74.40 *per cent*) in 2010-11. APDCL could not generate any cash and cash equivalent from its operating activities which indicated its over dependence on borrowed funds. Therefore, there is an urgent need to optimize internal resource generation by improving billing and collection efficiency, vigorous persuasion of outstanding government dues, reducing the T&D loss etc. An instance of imprudent financial management is described in **paragraph 2.18.5.1**.

**2.18.5.1** GOA sanctioned (January 2007) loan of ₹ 1 crore to APDCL for implementation of a scheme 'Individual metering at Tea Garden Labour Quarter'. Under the scheme, 50 gardens with 13,330 labour quarters in 9 districts were proposed for providing hybrid electronic meters with mechanical counter display. APDCL received ₹ 1 crore from GOA in March 2007 for the purpose. APDCL invited a limited tender on 28 August 2007 for procurement of 6,000 single phase hybrid electronic meters with mechanical counter display, but cancelled the tender on 28 December 2007 as Central Electricity Authority stipulated installation of only static meters with LCD display. No progress was made towards procurement of meters and the fund was kept idle in APDCL's current account. Thus, unnecessary drawal of loan fund and its non-utilisation led to APDCL burdening itself with an avoidable interest liability of ₹ 42 lakh to GOA (10.50 *per cent* on ₹ 1 crore for 4 years).

#### ***f) Revenue billing efficiency***

**2.18.6** As per AERC Regulation, APDCL is required to arrange to take the reading of energy consumption of each consumer at the end of the notified billing cycles and issue bills to consumers for consumption of energy. Sale of

energy to metered categories consists of two parts viz., metered and assessed units. The assessed units are those where meter reading is not available due to meter defects, door lock etc. Billing of all the consumers was being done at sub-division level. All consumers were being billed on monthly basis. The efficiency in billing of energy lay in distribution/sale of maximum energy to consumers. The position of billing and assessed sales is given in **Table-14**.

**Table-14**

(Figures in MUs)

Sl.No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1.	Energy available for sale	3344.31	3717.48	3975.06	4391.98	4741.51
2.	Energy sold	2244.33	2496.43	2797.59	3247.32	3535.43
3.	Free supply	Nil	Nil	Nil	Nil	Nil
4.	Energy billed	1912.96	2372.20	2552.19	3020.56	3280.79
5.	Assessed sales	331.37	124.23	245.40	226.76	254.64
6.	Assessed sales as percentage of metered sales	17.32	5.23	9.62	7.51	7.76

It would be seen from the above that energy billed during 2006-11 ranged between 85.24 per cent and 95.02 per cent of the total energy sold. Further, assessed sales were within the norm of 10 per cent allowed by AERC except in 2006-07.

Some instances of undue favour extended to consumers noticed during audit, are described in *paragraphs 2.18.6.1 to 2.18.6.3*.

**Incorrect application of tariff**

**2.18.6.1** Tariff Order dated 27 May 2005 issued by AERC abolished rural un-metered category of consumers and introduced a new category of consumers titled 'Jeevan Dhara'. The order *ibid*, also stipulated that consumers failing to convert to metered connection within three months from the date of issue of the tariff order are to be charged @ ₹ 250 per connection up to ten connected points. We noticed that the number of un-metered consumers ranging between 10,718 and 30,114 during April 2006 to March 2011 were not brought under 'Jeevan-Dhara' category. Instead, they were billed at the rate of ₹ 25 per connected point as per old provisions. Violation of the above order of AERC resulted in non-realisation of revenue of ₹ 4.19 crore. APDCL stated that un-metered consumers would be metered in a phased manner and billed as per direction of AERC.

**Under assessment of revenue**

**2.18.6.2** Clause 4.2.2.4 of the Terms and Conditions of the Regulation notified by AERC on 13 June 2007 stipulated that in the event of any meter being found 'prima facie' incorrect (which includes a stopped, slow or fast meter) and where actual errors of reading could not be ascertained, the assessed quantity of energy consumed could be determined by taking the

**Violation of the AERC order resulted in non-realisation of revenue of ₹ 4.19 crore.**

average consumption for the previous three months, preceding the date on which the defect was detected or the next three months after correction, whichever is higher and bills were to be prepared and preferred accordingly.

We observed that in four sub-divisions, meters of 10 consumers became defective from time to time. However, the sub-divisions billed the consumers on the basis of average of previous reading without observing the aforesaid provisions in this regard. This resulted in loss of revenue of ₹ 1.04 crore. APDCL stated that action taken against the consumers and date of recovery of the short billed amount would be intimated in due course. The fact, however, remains that due to short/wrong billing, APDCL could not recover its due amount in time.

#### **Under charge/ non levy of initial/ additional security**

**2.18.6.3** As per Clause 6.2.1.1 of the Terms and Conditions, Regulations notified by AERC, all existing consumers shall have to deposit load security money equal to two months charges (Energy charges + Fixed/Demand charge) calculated on monthly average consumption of last financial year and at estimated consumption for new consumers. Further, Clause 6.2.1.2.1 *ibid*, states that the load security obtainable from a consumer shall be reviewed every year on the basis of consumption of previous year. Test check of the 11 units revealed that none of them had revised the load security of the consumers after 2004.

**Short realisation of ₹ 75.40 crore towards load security.**

However, based on total connected load of various categories of consumers as on 31 March 2010, an amount of ₹ 283.75 crore was worked out as the amount recoverable towards load security. APDCL realised an amount of ₹ 208.35 crore only resulting in short realisation of ₹ 75.40 crore. Had APDCL realised the amount, it could have utilised it as working capital thereby saving an interest expenditure of ₹ 3.39 crore.

APDCL accepted the fact and stated that it was not always possible to review such huge volume of consumers as required under the Clause 6.2.1.1 of the Terms and Conditions of Regulation notified by AERC. Further, it also stated that in the case of large consumers, it had conducted load reviews. The fact remains that APDCL had not complied with the orders of AERC and deprived itself of the opportunity of saving an expenditure of ₹ 3.39 crore.

#### **Revenue collection efficiency**

**2.19** As revenue from sale of energy is the main source of income of APDCL, prompt collection of revenue assumes great significance.

**Table-15** indicates the dues outstanding at the beginning of the year, revenue assessed during the year, revenue collected and the balance outstanding at the end of the year during last five years ending 2010-11.



**Table-15**

(₹ in crore)

Sl.No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1	Balance outstanding at the beginning of the year	279.68	298.54	305.36	342.42	378.88
2	Revenue assessed/Billed during the year	1046.63	1196.8	1331.01	1463.19	1656.00
3	Total amount due for realisation (1+2)	1326.31	1495.34	1636.37	1805.61	2034.88
4	Amount realised during the year	1020.82	1181.89	1286.2	1407.99	1559.68
5	Amount waived/written off during the year	6.95	8.09	7.75	18.74	47.24
6	Balance outstanding at the end of the year	298.54	305.36	342.42	378.88	427.96
7	Percentage of amount realised to total dues (4/3)	76.97	79.04	78.60	77.98	76.65
8	Arrears in terms of No. of months assessment	3.42	3.06	3.09	3.11	3.10

We observed that:

- ❖ The dues outstanding at the end of the year increased from ₹ 298.54 crore in 2006-07 to ₹ 427.96 crore in 2010-11 due to ineffective persuasion to realise the same. The major categories of consumers having huge outstanding dues are Domestic: ₹ 144.09 crore (33.67 per cent), Commercial: ₹ 41.80 (9.77 per cent) and Government: ₹ 41.47 crore (9.69 per cent).
- ❖ APDCL did not have any records as regards the age-wise analysis of the arrears.
- ❖ The amount of arrears from 53,878 permanently disconnected consumers as on 31 March 2011 was ₹ 80.91 crore which was 18.91 per cent of the total arrears. As APDCL did not take adequate action to realise the arrear amount, the chances of recovery are remote and in the absence of age-wise records of defaulting consumers, the possibilities of amounts becoming time-barred cannot be ruled out.

### **Failure to finalise Permanent Disconnection cases**

**2.19.1** As per Clause 4.3.3 of the norms notified by AERC, sum due from the consumers shall not be recoverable after a period of two years from the date when it became first due, unless it has been shown continuously as arrear of charges recoverable for electricity supplied. Scrutiny of records at nine electrical sub-divisions revealed that out of 1,48,684 consumers, 3,306 consumers with an arrear of ₹ 3.21 crore were permanently disconnected for non-payment of their dues as on 31 March 2011. Against these, 2,247 consumers with an arrear of ₹ 2.42 crore had not cleared their dues for more

than two years. APDCL neither claimed the amount nor lodged any recovery suit during the intervening period. By virtue of the above provision, the claim had become time-barred, and APDCL lost the opportunity to recover the same. Thus, APDCL had to incur a loss of ₹ 2.42 crore. APDCL stated that it had filed a case in Court against four consumers. The scope of recovery is remote, as the existence of defaulting consumers is difficult to establish now.

APDCL stated that in 2004 it had written-off a substantial portion of dues from permanently disconnected consumers after review and such effort shall be taken in future also to wipe out the dues. The fact, however, remained that APDCL had not initiated any steps to recover the amount from the disconnected consumers and was left with the only option of writing-off the dues.

### ***Non-disconnection of supply of consumers with heavy arrears***

**2.19.2** As per Clause 4.3.1.1 of the norms notified by AERC, on failure of a consumer to pay the electricity dues within the date mentioned in the bill and after 15 days of notice period, his service connection should be disconnected. We observed that in eight sub-divisions out of 1,31,952 consumers, 2,500 consumers having arrears ranging from ₹ 1,041 to ₹ 19,725 did not make payment of electricity dues for five to 128 months but their supply of electricity was not disconnected. Non-disconnection of supply of these defaulting consumers, resulted in accumulation of arrears amounting to ₹ 1.95 crore (March 2011).

APDCL, in reply, stated that due to remoteness of areas, shortage of manpower and insurgency problem, disconnection could not be done. The reply is not convincing as our test check included consumers located in urban areas where such problems were not there and the extent of delay in disconnection extended to several months.

## **Consumer Satisfaction**

**2.20** One of the key purposes of the Power Sector Reforms was protection of the interest of the consumers and 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 new connections or extension of connected load, frequent tripping on lines and/or transformers and improper metering and billing.

APDCL was required to introduce consumer friendly steps like computerized billing, online bill payment, establishment of customer care centres etc., to enhance satisfaction of consumers and reduce the scope for grievances among them. The billing issues have already been discussed in **paragraph-2.18.6**. The position of redressal of grievances is discussed in the next page:

### Redressal of Grievances

**2.20.1** AERC specified the mode and time frame for redressal of grievances in terms and conditions and regulations issued in pursuance of the Electricity Act, 2003 and issued orders i.e., standards of performance for Company prescribing the time limit for rendering services to consumers and in cases of failure prescribed consequential compensation to be paid for not adhering to the same. The nature of services contained in the standards *inter-alia* include line breakdowns, DTR failures, period of load shedding/ scheduled outages, voltage variations, meter complaints, installation of new meters/ connections or reconnection thereof etc.

The overall position as regards receipt of complaints and their clearance is depicted in **Table-16**.

**Table-16**

Sl. No.	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11
1.	Total complaints received	2,13,998	2,66,220	2,79,680	2,81,273	11,70,245
2.	Complaints redressed within time	1,94,744	2,50,057	2,60,100	2,54,202	2,40,783
3.	Complaints redressed beyond time	19,210	16,008	19,652	20,168	18,179
4.	Pending complaints	44	135	156	6,082	1,396
5.	Percentage of complaints redressed beyond time to total complaints	8.98	6.01	7.03	7.17	1.55
6.	Compensation paid, if any, to Consumers (₹ in lakh/ crore)	NIL	NIL	NIL	NIL	NIL

**APDCL redressed more than 90 per cent of the complaints within time.**

Though APDCL redressed more than 90 *per cent* of the complaints within time, there was scope for further improvement as Clause 3.2 of Terms & Conditions of the Regulations of AERC, stipulated that service connection be provided to LT consumers within 30 and 36 days from the date of receipt of application for urban and rural areas respectively. Test check of records of six electrical sub-division revealed that 1,706 applications received for service connections during the month of August 2010 to April 2011 were pending. The sub-divisional authorities stated that delay in providing service connection was due to delay in receipt of energy meters. We observed that APDCL did not maintain any reserve stock of energy meters for providing service connections in time.

### Energy Conservation/Audit

**2.21** Recognising the fact that efficient use of energy and its conservation is the least-cost option to mitigate the gap between demand and supply, GOI

enacted the Energy Conservation Act, 2001. Conservation of energy being a multi-faceted activity, the Act specifies both promotional and regulatory roles on the part of various state utilities. 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. A concept of comprehensive energy audit was put in place by APDCL with the objectives of identifying the areas of energy losses and initiating appropriate steps for reduction of rate of energy loss through system improvements besides accurately accounting for the units purchased/sold and loss at each level.

We observed that:

**APDCL had made no efforts for conducting energy audit of government buildings.**

- APDCL had made no efforts for conducting energy audit of government buildings, though a study conducted by Bureau of Energy Efficiency, GOI, indicated that such energy audit would result in approximately 27 to 46 *per cent* savings in energy.
- The field units submitted the information required for energy audit to the Energy Audit Cell of APDCL. However, those were not analysed and no corrective action was taken to minimise the loss.
- No consumer has availed the benefit of financial incentive scheme introduced by APDCL for use of solar water heaters.
- APDCL had recently introduced Ministry of Non-Renewable Energy (MNRE), GOI, scheme of distribution of CFL bulbs and solar lanterns in the remote villages, the implementation of which is in progress.

### **Monitoring by top Management**

**Monitoring by top management was either absent or not effective.**

**2.22** Monitoring by top management is essential for an organisation involved in distribution of power to succeed in operating economically, efficiently and effectively. We observed that the monitoring by top management was either absent or not effective as it failed to ensure timely finalisation of annual accounts, fix time limits for finalisation of tenders and complete various schemes within target dates through effective and proper monitoring. The management had also not planned in advance to provide metered supply of energy to all consumers by procuring adequate number of energy meters, prevent failure of DTRs from lightning and augment the capacity of the capacitor banks. No target for raid teams was also fixed to prevent theft of energy.

## Conclusion

- ❖ APDCL did not prepare long-term plans for creation of infrastructure facilities to bridge the wide gap between connected load and transformer capacity.
- ❖ Targets of village electrification, establishment of IT-enabled system and improvement in distribution systems were not achieved due to non-implementation of Central and State sponsored schemes in time on account of delay in obtaining approval on DPRs, issue of work orders, slow progress of work and lack of proper monitoring.
- ❖ No records were maintained to note the reasons for delay in executing the works which prevented APDCL from taking suitable measures against the contractors as per agreement for the delay on their part.
- ❖ APDCL failed to provide metered supply of energy to all its consumers in violation of the Electricity Act, 2003 and directives of AERC.
- ❖ Energy losses increased compared to AERC norms as APDCL did not reduce the length of feeders, did not increase the capacity of capacitor bank, did not improve power factor, did not avoid un-metered supply of energy, did not effectively check/control theft of electricity, did not arrest the delay in replacement of DTRs and implement LT-less system.
- ❖ The accumulated losses of APDCL increased during the period 2006-11. It could not recover its operational cost in any of the years as it failed to attain category wise sales-mix and restrict sub-transmission and distribution losses within the limits prescribed by AERC.
- ❖ Due to delay in preparation of annual accounts, filing of tariff petitions, submission of incorrect and non-submission of claims, APDCL lost the opportunity to recover its revenue in truing-up process. Disallowance of expenditure by AERC in truing-up process, inefficiency in revenue billing as well as in collection of revenue were the other causes of weak financial management that adversely affected the financial health of APDCL.
- ❖ Consumer satisfaction level was still lagging behind the AERC norm for want of computerised billing, online-bill payment system and non-establishment of customer care centres *etc.*
- ❖ Initiatives for energy conservation were not upto the mark as mandatory directions in energy savings were not issued. Energy audit was inadequate as Energy audit cell of APDCL did not analyse the consumption pattern of all government buildings to take suitable steps for reduction of energy consumption or loss.

### **Recommendations**

- Long term plans for creating adequate infrastructure facilities may be drawn up to set right the deficiencies in the distribution system by reducing the gap between connected load and transformer capacity.
- Proper records for analyzing the causes of delay in execution of projects may be maintained to take suitable action against the contractors for delay on their part and also for taking corrective measures to avoid recurrence of such incidents in future.
- Before releasing payment for supply of materials beyond bid specification, market rates of such materials should be considered to avoid extra payment.
- Adequate number of energy meters should be procured and stocked so that all consumers can be brought under metered supply through installation of meters and replacement of defective meters at the shortest possible time.
- Adequate steps should be taken to restrict energy loss within the norm fixed by AERC by reducing length of feeders, increasing capacity of capacitor banks, improving power factors, delay in replacement of DTRs and avoiding un-metered supply of energy.
- Targets for checks and its implementation to detect cases of theft, malpractice and unauthorized connections should be enhanced so that these are commensurate with the number of consumers.
- Billing efficiency may be increased by raising bills as per approved norms and timely replacement of the defective meters. Intensive drives for timely collection of dues should be put in place and action against defaulting consumers should be taken strictly.
- To ensure that the tariff petitions are filed in time, the process of finalisation of annual accounts should be speeded up by preparing monthly, quarterly and half-yearly accounts in a time bound manner, issuing instruction to all departments to co-ordinate with accounts section in preparation of accounts in time and vigorous persuasion with statutory auditors for completion of audit and submission of report thereon, within a reasonable time.
- Customer satisfaction level can be further improved by providing facilities of computerised billing, on-line bill payment system and customer care centres.
- More emphasis should be given on energy conservation and energy audit to avoid loss of energy and reduce the gap between demand and supply. The 'Good Practices' followed by the Department of Power, Government of National Capital Territory of Delhi on Energy Conservation by issue of mandatory directions to use Solar Water Heating system in commercial and Government Buildings; use of CFL and electronic chokes in Government Buildings, Government aided institutions, Boards and

Corporations and use of ISI marked motor pump sets, power capacitors in agricultural sectors should be introduced with the active participation of the State Government.

- The management is also required to evolve proper MIS covering all important areas to enable the decision makers to take prompt action on policy matters.