

intervention in the areas of shortfall need to be identified and remedial action taken accordingly.

- Effective planning and implementation is required to impart training to all the untrained teachers and upgrade the qualifications of the under-qualified teachers to achieve the objective of quality elementary education.
- Considering the poor infrastructure in the State, the basic facilities need to be given priority. The technical inputs as envisaged in the guidelines needs to be provided for ensuring proper and quality construction.
- Specific need-based training of community leaders and field functionaries needs to be carried out in order to achieve the objective of the programme.
- Efforts should be made to address the issues relating to out of school children and children with special needs.

## POWER DEPARTMENT

### 3.4 Billing and collection of revenue in Power Department with specific emphasis on Transmission & Distribution Losses

*Performance review of Billing and collection of revenue in Power Department revealed T&D losses in excess of norms, non-revision of tariff, short billing and inadequate efforts in collection of arrears, etc.*

#### *Highlights*

*The State Government had not set up Regulatory Commission. Fixation of tariff at rates lower than the purchase cost (average) resulted in loss of potential revenue of Rs.153.64 crore.*

*(Paragraph 3.4.7 & 3.4.8)*

*Transmission and Distribution losses in excess of the prescribed norms resulted in loss of potential revenue of Rs.100.50 crore.*

*(Paragraph 3.4.10)*

*Short billing of 100.38 MU resulted in loss of potential revenue of Rs.17.83 crore.*

*(Paragraph 3.4.12)*

***Out of Rs.34.50 crore being arrears of revenue, Rs.14.63 crore was treated as bad debts by the concerned divisions without the approval of the Government.***

*(Paragraphs 3.4.15 & 3.4.17)*

***Non-installation of 'Digital Energy Meters' led to blocking of funds amounting to Rs.37.01 lakh.***

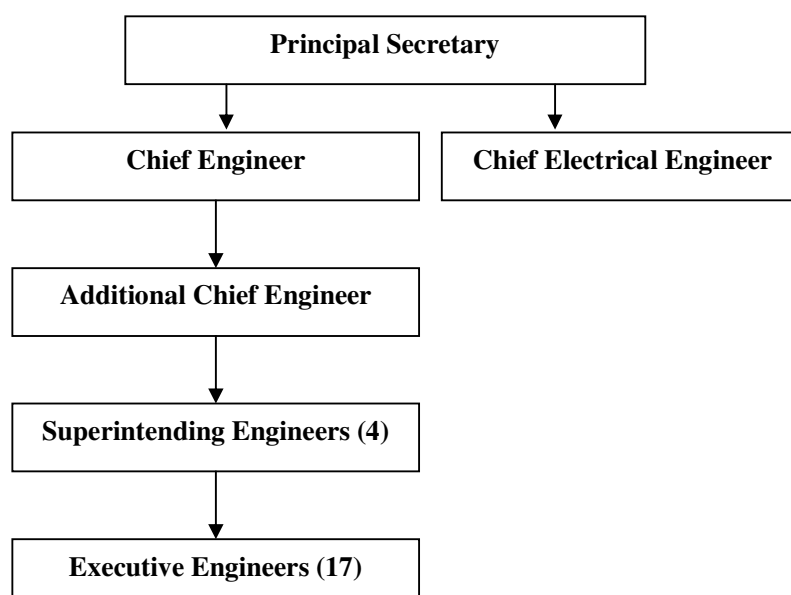
*(Paragraph 3.4.18)*

### **3.4.1 Introduction**

The Department of Power, Nagaland, was established in 1964 to provide power supply to public, industry and agriculture sectors in the State. Power generation being very negligible in the State (about one *per cent* of the total requirement of power of the State), the major requirement (about 99 *per cent*) is being met by purchasing power from the Central PSUs such as North Eastern Electric Power Corporation Ltd. (NEEPCO), National Hydroelectric Power Corporation Ltd. (NHPC) and Power Grid Corporation of India Ltd. (PGCIL). The Department is responsible for transmission, distribution of power and maintenance of transmission and distribution network in the State.

### **3.4.2 Organisational setup**

The Department is headed by the Principal Secretary to the Government of Nagaland who is assisted by one Chief Engineer, one Chief Electrical Inspector in the rank of Chief Engineer, one Additional Chief Engineer, four Superintending Engineers and 17 Engineers. The organisational structure of the Department is given below:



### **3.4.3 Scope of audit**

The performance review conducted during the period April 2006 to June 2006 covers examination of overall efficiency of the Department in billing of all categories of consumers for energy sold, collection of revenue and its accountal with specific emphasis on Transmission and Distribution loss during 2001-02 to 2005-06. Out of 11 districts having 11 electrical divisions, two transmission divisions, three districts covering five divisions (38 *per cent* of the total number of divisions) were selected for test check in audit.

### **3.4.4 Audit objectives**

The audit objectives were to ascertain whether:

- the fixation/revision of tariff was efficient and effective and conforms to the norms fixed by the Department;
- billing process was carried out efficiently and effectively;
- collection of revenue was prompt and accountal of the same was appropriate;
- T&D losses were identified and steps taken to limit them within the norms prescribed by the Central Electricity Authority; and
- internal control system was efficient and effective.

### **3.4.5 Audit criteria**

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

- Provisions of the Electricity Act, 2003;
- Guidelines/ instructions issued by the State Government;
- Tariff orders and instructions issued by the Department for billing for power supplied to consumers;
- guidelines issued by the Department regarding collection of revenue and its accountal; and
- norms for T&D losses as prescribed by the Central Electricity Authority.

### **3.4.6 Audit methodology**

The following mix of audit methodologies were adopted for achievement of the audit objectives:

- orders/distribution codes and commercial and revenue manual/orders and tariff structure;
- annual reports, performance reports etc.;
- agreements executed with consumers, billing files of consumers;
- targets and achievements of revenue and effectiveness in recovery of revenue from consumers and T&D losses;

### ***Audit findings***

Audit findings arising from the performance review were reported to the Department/ Government in October 2006 and also discussed in the exit conference with the officers of the Department held on 17 October 2006 which was attended by the Addl. Chief Engineers and other officers of the Department. The views expressed in the meeting have been taken into consideration while finalising the Performance review.

Audit findings are discussed in the succeeding paragraphs.

### ***3.4.7 Purchase and Sale of Power***

The table below shows the power purchased by the Department from outside agencies, power generated in the State, total power available for sale and power actually sold during the period 2001-02 to 2005-06.

**Table 3.4.1**

<b>Particulars</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>
Purchase of Power (in MU)	239.80	257.50	280.93	271.08	325.14
Generation of Power in the State (in MU)	8.06	23.65	3.50	3.50	3.75
Total Power available for sale (in MU)	247.86	281.15	284.43	274.58	328.89
Units sold (in MU) <sup>2</sup>	104.10	125.62	135.56	139.15	161.67
Number of consumers	137389	140000	149634	149634	161604
Revenue realised per unit (in paise)	196	165	194	167	175
Average cost per unit (in paise)	367	332	404	285	282
Loss per unit (in paise)	171	167	210	118	107
Loss of revenue (Rs. in crore)	17.80	21.13	28.47	16.42	17.30

*(Source- Departmental figures)*

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<sup>2</sup> The difference between the units available for sale and units actually sold is due to transmission and distribution losses as detailed in para 6.2.9.

Despite increase in number of consumers and units sold, the loss per unit persisted (total loss suffered during 2001-02 to 2005-06 amounted to Rs.153.64 crore) which was mainly due to fixation of tariff below the purchase cost, non-revision of tariff, excessive transmission and distribution losses and deficiencies in billing and collection of revenue.

### 3.4.8 Tariff

The State Government had not set up the State Electricity Regulatory Commission as envisaged under Section 82(1) of the Electricity Act, 2003. In the absence of the Commission, the State Government is fixing and regulating the tariff under the provisions of Electricity Act. The Department had not revised the tariff to reduce revenue losses during the period covered by audit. The tariff was, however, revised in April 2006.

### 3.4.9 Deficit between expenditure and revenue realised on sale of power

The difference between the revenue expenditure and revenue realised was very high. The year-wise position of deficit is shown below:

**Table 3.4.2**

(Rupees in crore)

	2001-02	2002-03	2003-04	2004-05	2005-06
Revenue expenditure	59.38	58.37	80.90	94.52	99.43
Revenue realized	20.36	20.86	26.30	39.49	39.74
Deficit	39.02	37.51	54.60	55.10	59.69
Percentage of deficit to expenditure	66	64	67	58	60

It would be seen from the above table that the percentage of deficit ranged between 58 and 67 per cent. No remedial action i.e., fixation of a rational and realistic tariff, reduction of transmission and distribution losses, modern metering, billing and collection system, replacement of equipment etc., was taken by the Department to address this issue.

### 3.4.10 Transmission and distribution losses

Against the norm of 15.5 per cent of transmission and distribution (T&D) losses as prescribed by the Central Electricity Authority (CEA), T&D losses during the period from 2001-02 to 2005-06 ranged between 49.32 and 58 per cent of the total power available for sale as detailed below:

**Table 3.4.3**

	2001-02	2002-03	2003-04	2004-05	2005-06
Total power available for sale (MU)	247.86	281.15	284.43	274.58	328.89
Power sold (MU)	104.10	125.62	135.56	139.15	161.67
Transmission & Distribution losses (MU)	143.76	155.63	148.87	135.43	167.22
Percentage of T&D losses to total power available for sale	58.00	55.32	52.34	49.32	50.84
T&D losses in excess of 15.5 per cent (MU)	105.34	111.95	104.78	92.87	116.24
<b>Loss (Rupees in crore)</b>	<b>19.17</b>	<b>18.80</b>	<b>21.38</b>	<b>18.48</b>	<b>22.67</b>

(Source- Departmental figures)

Out of the total losses, the Department considers losses ranging between 16.50 and 23 *per cent* as technical losses on account of resistance, thermal, inductance and corona losses. The balance T & D losses are considered as commercial losses which are attributed to theft of energy, defective meters, tampering of meters, by-passing meters, billing problems, etc.

Due to higher T&D losses over and above the CEA norms of 15.5 *per cent*, the Department suffered loss of potential revenue of Rs.100.50 crore on account of loss of 531.18 MU power during the period from 2001-02 to 2005-06. Considering that 99 *per cent* of total power requirement of the State was purchased from outside the State during 2001-06 at an average cost per unit between Rs.2.82-Rs.4.04, the State cannot afford to have such high T&D losses.

Audit could not also assess the impact of the annual increase in the cost of establishment on the loss of revenue since the information relating to cost of establishment was not furnished.

#### **3.4.11 Billing and collection**

As per the procedure prescribed in the Commercial and Revenue manuals, billing is done monthly on the basis of consumption recorded in the meter installed at the premises of the consumers. Computerised billing system has been introduced only in two divisions (Kohima and Dimapur) out of 11 divisions.

#### **3.4.12 Loss of revenue due to short billing of energy charges**

Test check of the records of the divisions by Audit where computerised billing system has been introduced (Dimapur and Kohima) revealed that there was loss of revenue of Rs.17.83 crore due to short billing of 100.38 MU against 353.07 MU sold to the consumers of different categories during the period 2001-02 to 2005-06 (*Appendix-XXXII*). The Department stated (October 2006) that short billing was due to incorrect meter reading, average billing due to defective meters and tampering of meters by the consumers. It was noticed in audit that the Department has not initiated any corrective measures to reduce losses and increase revenue.

#### **3.4.13 Defective/inoperative meters**

As per the conditions of supply of Electrical Energy, if a meter is faulty, assessment is to be made on the basis of average consumption for the previous three months.

Test check of four selected Divisions (Kohima, Dimapur, Dimapur Transmission and Mokokchung) by Audit revealed that, out of 83904 meters installed in the premises of different types of consumers, 28320 meters (33.75 *per cent*) remained out of order during the last five years as detailed below:

Table 3.4.4

Name of Division	Total No. of meters installed as on March 2006	No. of defective meters (cumulative figure)				
		2001-02	2002-03	2003-04	2004-05	2005-06
Kohima Electrical Division	26488	5334	5834	6232	6515	6989
Dimapur Electrical Division	32126	7544	7596	8565	8556	9370
Dimapur Transmission Division	9676	3256	3293	3357	3502	3502
Mokokchung Electrical Division	15614	7994	8123	8279	8438	8459
<b>Total</b>	<b>83904</b>	<b>24128</b>	<b>24846</b>	<b>26433</b>	<b>27011</b>	<b>28320</b>

(Source- Departmental figure)

The Department did not replace the defective meters but continued to bill the consumers on average basis. The Department in reply stated (October 2006) that the defective meters could not be replaced/repared due to non-availability of new meters/accessories. The Department, however, did not initiate any action to analyse/segregate the amount collected against working meters and on average basis against defective meters to assess the losses. Under these circumstances, the actual loss could not be quantified in audit.

### 3.4.14 Collection and remittance of revenue

#### 3.4.14.1 Target and achievement

The target fixed for collection of revenue and achievement thereof during the period for 2001-02 to 2005-06 is shown below:

Table 3.4.5

(Rupees in crore)

Year	Target	Achievement	Excess (+) Shortfall (-)
2001-02	19.00	20.36	(+) 1.36
2002-03	22.73	20.86	(-) 1.87
2003-04	25.00	26.30	(+) 1.30
2004-05	32.00	39.49	(+) 7.49
2005-06	38.00	39.74	(+) 1.74

(Source- Departmental figure)

The Finance Department of the State Government sets the target for collection of revenue by the Department and accordingly the Department further sets the target for revenue earning Divisions on the basis of (i) number of consumers, (ii) connected load, (iii) approximate energy to be supplied to the consumers under a Division and (iv) extent of the revenue arrears of the Divisions. It was noticed in Audit that the targets fixed were not realistic as the Government while fixing the targets did not take into account the actual outstanding arrears due for collection. The achievement was more than the targets in four out of five years as figures of power supplied to other states were also included in the achievements. Thus, the figures of achievement as shown above were not realistic.

### **3.4.15 Arrears of revenue**

The amount of revenue recoverable from different categories of consumers remaining unrealised at the end of each year during 2001-02 to 2005-06 is detailed below:

**Table 3.4.6**

*(Rupees in crore)*

<b>Year</b>	<b>Amount of Arrears</b>
2001-02	28.42
2002-03	27.57
2003-04	30.07
2004-05	32.37
2005-06	34.50

From the above table, it would be seen that arrears of revenue due for collection increased from Rs.28.42 crore in 2001-02 to Rs.34.50 crore in 2005-06. The Department had not taken any concrete action to streamline the system of collection of the arrears of revenue.

### **3.4.16 Disconnection of power supply**

Under Section 56 of the Electricity Act, 2003 if the consumer fails to pay the arrears within 15 days after receipt of notice, power supply is to be disconnected. Test check of records of Electrical Division, Kohima revealed that the arrears of revenue increased from Rs.4.22 crore in 2001-02 to Rs.6.04 crore at the end of March 2006. The Division had, however, not issued notice to any consumer for disconnection of power supply. As a result, there was no deterrent effect on the consumer to pay his electricity bills in time.

### **3.4.17 Bad debts**

Test check of records revealed that arrears of revenue amounting to Rs.14.63 crore were declared as bad debts by the following Divisions:

**Table 3.4.7**

<b>Division</b>	<b>Revenue (Rupees in crore)</b>
Kohima	2.26
Dimapur	6.72
Mokokchung	0.42
Changtongia	3.72
Tuensang	0.24
Wokha	0.06
Phek	0.95
Chumukedima	0.26
<b>Total</b>	<b>14.63</b>

*(Source- Departmental figure)*

It was noticed in Audit that the Divisions declared the above arrears of revenue as bad debts without the approval of the State Government. Effective

steps were not taken to realize/reduce revenue arrears. This was especially necessary because the State's own generation of power reduced from 8.06 MU in 2001-02 to 3.75 MU in 2005-06 and purchase of power from outside increased from 239.80 MU in 2001-02 to 325.14 MU in 2005-06. No criteria was fixed to determine the bad debts.

#### **3.4.18 Non-utilisation of Digital Energy Meters**

For reliable, accurate energy reading and improved collection of revenue, the Department proposed to replace the old electro-mechanical meters by installing digital energy meter (electronic) both for LT/HT consumers. Accordingly, 11178 digital energy meters of different capacities were procured during 1999-2000 and 2000-01 out of which, only 9318 meters (August 2004) were installed in different divisions and the remaining 1860 meters valued at Rs.37.01 lakh were lying idle in Electrical Store Division, Dimapur (March 2006). Procurement of digital energy meters (electronic) without proper planning resulted in idle investment of Government funds.

#### **3.4.19 Excess expenditure due to non-availing of rebate**

An amount of Rs.6.06 crore was offered as rebate by the Central PSUs for payment of the bills within due date for purchase of 1499.02 MU (2001-02 to 2005-06) of energy. Against this, the Department could avail of rebate of Rs.5.62 crore by making timely payments and balance rebate of Rs.44 lakh could not be availed as the payments were delayed. Thus, failure on the part of the Department for timely payment resulted in non-availing of rebate of Rs.44 lakh.

#### **3.4.20 Misappropriation of cash**

According to Rule 6 of Receipts and Payment Rules, all money received by or tendered to the Government officers on account of revenue or receipts or dues of the Government shall without undue delay be deposited in full in the accredited bank for inclusion in the Government account.

Analysis of cash book in two Divisions (Kohima Electrical Division and Dimapur Transmission Division) revealed that revenue of Rs.16.46 lakh<sup>3</sup> was misappropriated in three cases during 2001 and 2005, out of which, Rs.0.46 lakh was recovered and Rs.16 lakh remained un-recovered till March 2006. This indicates lack of proper financial control at the Division/Sub-division level.

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<sup>3</sup> Kohima Electrical Division, Rs.4.53 lakh + Rs.6.42 lakh and Dimapur Transmission Division Rs.5.51 lakh = Rs.16.46 lakh – Rs.0.46 lakh = Rs.16 lakh.

#### **3.4.21 Delay in deposit/remittance**

Test check of four selected divisions (Kohima, Dimapur, Mokokchung Electrical Divisions and Dimapur Transmission Division) revealed that revenue of energy charges ranging from Rs.4.61 lakh to Rs. 52.43 lakh were retained in cash by the Divisions at the end of each month (*Appendix-XXXIII*). Retention of money in cash and delay in deposit into Government account not only amounts to financial irregularity but also leaves scope for misappropriation.

#### **3.4.22 Internal control and Monitoring**

Effective internal control mechanism, monitoring system and evaluation of performance are essential for smooth running of the Department. The Department of Power had not streamlined the internal controls and monitoring mechanism which has resulted in huge accumulation of arrears of revenue, meters lying defective, not repaired or replaced for years together, delay in deposit of revenue, misappropriation of revenue, etc.

The Department had constituted Meter Inspection Testing Cell (MITC) in all the Divisions to carry out surprise inspection of meters and report to the office of the Chief Engineer. The MITC detected 1411 cases of pilferage of energy and imposed a fine of Rs.11.88 lakh in two divisions (Dimapur and Kohima) out of the three Divisions test checked. It was observed by Audit that no norms or targets have been fixed for the MITC's. In the absence of any norms or targets, there was no basis for monitoring the performance of these MITC's.

#### **3.4.23 Conclusion**

The performance of the Department for generation, transmission and distribution of power in the State was found to be deficient due to non-setting up of State Electricity Regulatory Commission, non-revision of tariff on time, ineffective billing system, non repair of faulty meters, T&D losses in excess of norms, and ineffective collection of revenue. Also due to higher T&D losses over and above the CEA norms of 15.5 *per cent*, the Department suffered loss of potential revenue of Rs.100.50 crore on account of loss of 531.18 MU power during the period from 2001-02 to 2005-06.

#### **3.4.24 Recommendations**

- Timely revision of tariff needs to be carried out keeping in view the rising cost of purchase of power.
- Effective steps need to be taken for timely repair and replacement of defective meters.
- Effective measures should be taken to reduce the T&D losses.

- Effective steps should be taken for collection and accountal of revenue with special emphasis on collection of arrears of revenue.
- Internal control and monitoring system needs to be strengthened/streamlined and made more effective.