Electricity Department, Government of Puducherry

As-is Study of the Electricity Department

August 2009
This report contains 56 pages
As-is Report.doc

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Document review and approval

Revision history

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1 Introduction

1.1 Background

The Electricity Act, 2003 (referred to as The Act from here on) came into force (except for section 121) on June 10, 2003. The Act professes that its basic premise is that SEBs should not be continued in their present form. The act makes it mandatory for all SEBs to unbundle into separate generation, transmission and distribution entities, to make them more efficient than vertically integrated utilities.

Government of Puducherry (GoP), to comply with the Act, has initiated reform and restructuring of power sector and conversion of functions of transmission and distribution into corporate bodies. This reform initiative is pursuant to the objective of creating conditions for sustainable development of power industry in the state by promoting competition, efficiency and transparency; thus improving the quality of the electricity services in the state.

Rrestructuring has brought overall improvement in the operations of the power utilities across country. Major improvements have been realized in the following areas:

- Metering, billing and collection of revenues
- Bridging the gap between expenditure and receipts
- Facilitation of flow of funds for capital works
- Reduction in AT&C losses
- Reduction in transformer failure rate
- Improved customer care

The Act also mandates the creation of various power regulatory committees at the national, regional and state levels to regulate tariff, generation, transmission and distribution. As a result, Central Government constituted a Joint Electricity Regulatory Commission (JERC) for the state of Goa and Union Territories. It is an autonomous authority responsible for regulation of the power sector in the state of Goa and Union Territories including Puducherry. It started to function with effect from August 2008 and issued certain draft regulations as mandated in the Act.

1.2 Objectives of the Consulting Support

The key objectives of the assignment include:

- Carrying out a diagnostic study of the Electricity Department to provide an objective analysis of the prevailing situation and create previous four year financial statements on the basis of data provided by the client
- Preparation of reform and restructuring plan in compliance with EA, 2003

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- Design and implementation of Transfer Scheme for efficient transformation process
- Formulation of strategy for creation of Terminal Benefits Trust
- Development of financial restructuring plan, business plan and investment plan for the successor entities
- Assist successor entities in their organizational design and preparation of HR policies
- Assist in developing loss reduction trends for three years
- Review notifications as given by JERC regarding institution of Ombudsman, Consumer Grievance Redressal Forum (CGRF) and District Level Advisory Committee (DLAC) and suggest steps to be taken to implement

1.3 Our Approach

The approach adopted in developing the As-is report is as mentioned hereunder:

- Assess the "As-is" situation of the Electricity Department with respect to the tasks as identified in the ToR.
- Conduct discussions with senior management and key functional experts of ED
- Conduct visits to key operational units of the business which include 230 kV substation, 110 kV substation, O&M Section, Revenue Section, System Control Centre (SCC) etc.

This report has been prepared based on extensive discussions held with the personnel of Electricity Department. The list of meetings and staff with whom interactions were carried is mentioned in Annexure – B.

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2 Electricity Department, Puducherry

- The Electricity Department (ED), GoP currently service more than 3.4 lakhs customers spread across four non-contiguous regions of the State namely Puducherry, Karaikal, Yanam and Mahe. The State has a mix of domestic, commercial, and high-tension (HT) industrial customers. The ED has had revenues of Rs.530 crore and sold 2072 MUs of power in the FY 2007-08.

- It is made responsible for procurement of power from generating stations, operation and maintenance of electricity network, ensure reliable supply of power, extent services like new connection, metering, billing, collection and fault restoration to consumers.

- System Control Centre (SCC), which is a part of Electricity Department, interacts with Regional Load Dispatch Centre (RLDC) for optimum scheduling and dispatch of electricity. It monitors grid operation on real time basis and passes on necessary instructions to field staff to control flow of energy.

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2.1 Organizational review

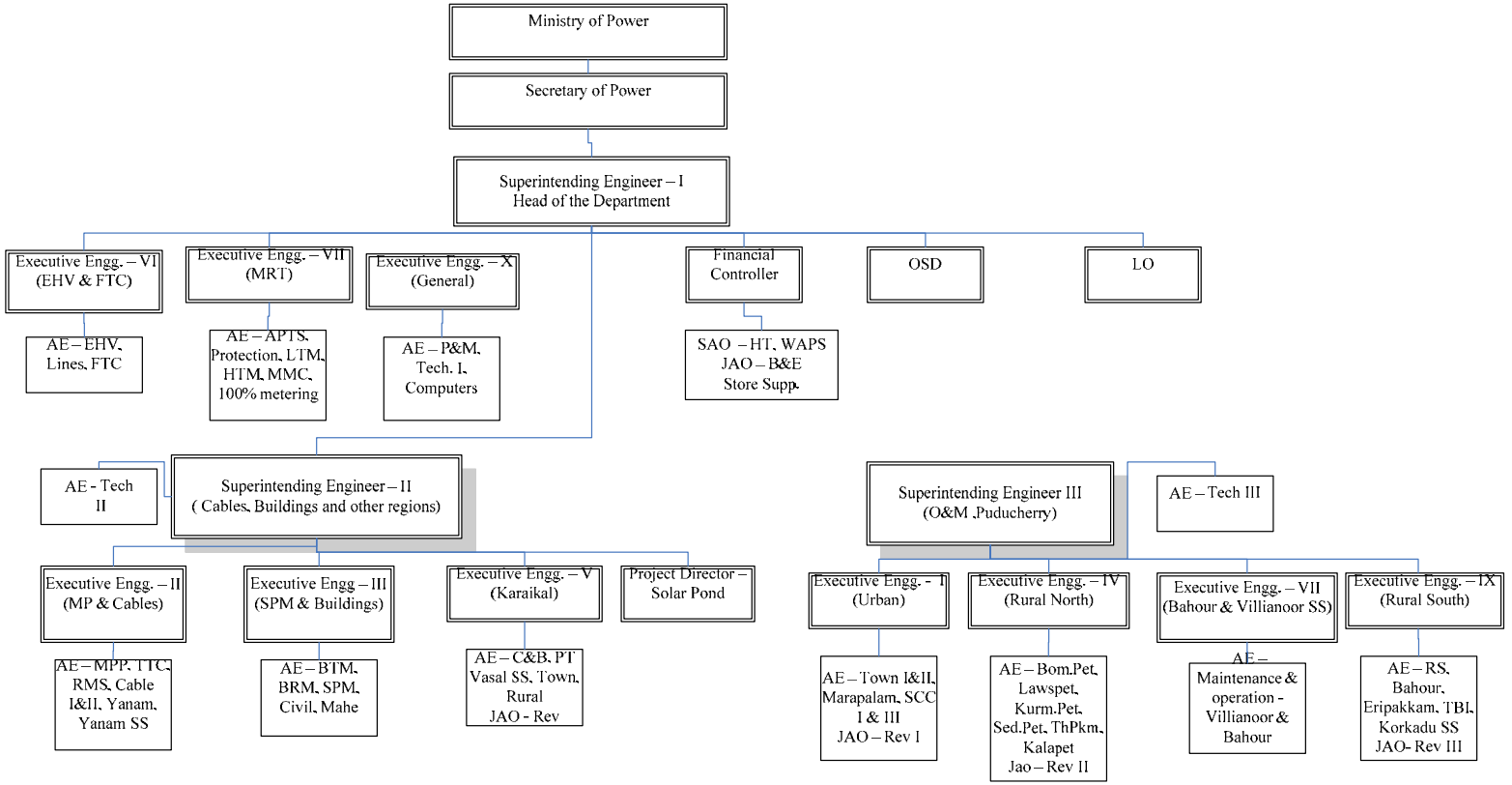

Figure 1: Organizational Structure of Puducherry Electricity Department

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- Puducherry Electricity Department is divided three circles each headed by a Superintending Engineer. Superintending Engineer I (Head of circle I) is also the head of the department. The three circles consist of totally ten (10) operations divisions and one Finance division. Each operations division is headed by an Executive Engineer and the Finance division is headed by the Financial Controller. Each division consists of three to seven Sub Divisions. Sub Division offices are headed by Assistant Executive Engineer or Assistant Engineer. There are fifty five Sub Division offices and they act as the link between the corporate office and the field offices consisting of Sections headed by Junior Engineers. Section office is the direct customer facing unit and plays a key role in customer satisfaction.

Note: Puducherry Power Corporation Limited

- In 1993, the Pondicherry Power Corporation Limited, an Undertaking of the Government of Pondicherry, was set up. This undertaking is the generating company and has established a 32.5 MW gas based power plant in the Karaikal region of the Union Territory. The entire funds for this undertaking have been provided by the Union Territory government in the form of share capital, received from the Planning Commission. Since this entity is already operating as a separate corporate entity this is not included in the study

2.1.1 Divisions

2.1.1.1 Activities of Divisions

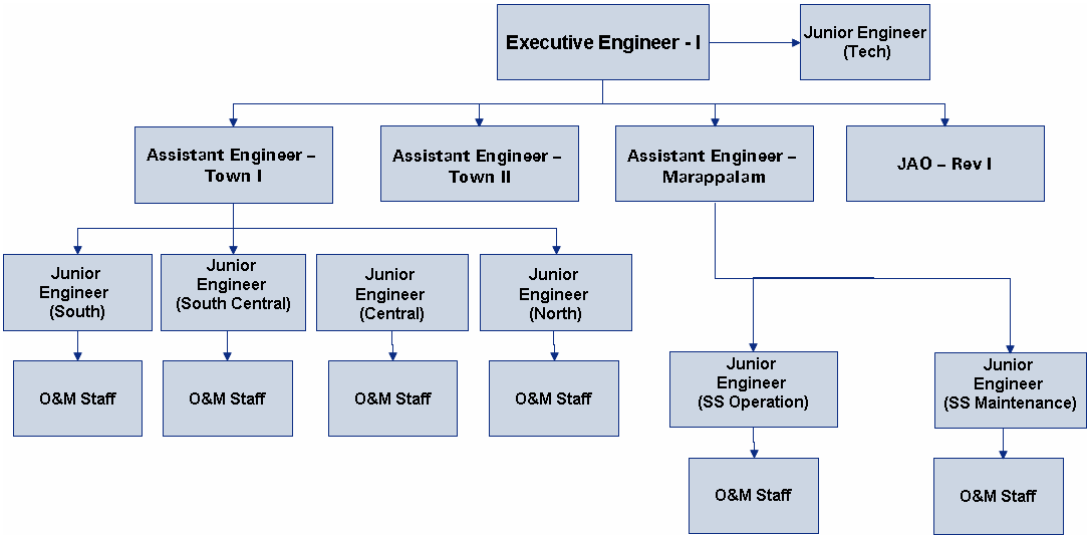

Figure 2: Structure of Distribution O&M

- The Operation and Maintenance function of the distribution network is headed by an Executive Engineer at the Division level. The division comprises of three to four Sub Divisions and each Sub Division in turn consists of three to four Sections. Each Sub Division is headed by an Assistant Engineer / Assistant Executive Engineer and each section

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is headed by a Junior Engineer. The section office is the consumer facing entity directly responsible for carrying out O&M activities. In addition to the O&M Sub Division, a Revenue division headed by a JAO is present to take care of all revenue related activities for the division.

- The main activities falling under O&M of distribution network are,
  - Releasing new service connections
  - Planning for improvement works
  - Managing breakdowns and fuse off calls
  - Breakdown and preventive maintenance of Sub Staions, DTRs, overhead lines and cables
  - Metering, Billing and Collection (by billing staff for LT srvices)
  - HT Meter reading (by JE)
  - Identification of pilferage and theft
  - Under the current set up maintenance of 110/22/11 KV Sub Stations falls under the purview of Distribution O&M. After unbundling, this needs to be transferred to the Transmission entity
- In the existing set up Distribution O&M is handled by Divisions I,IV and IX for Puducherry region, Division II for Yanam region, Division III for Mahe region and Division V for Karaikal region.

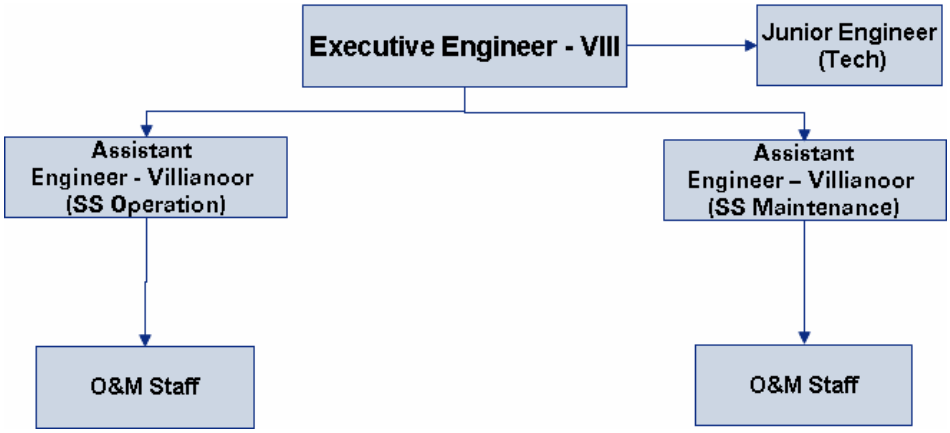

Figure 3: Structure of EHV SS Maintenance

- The Operation and Maintenance function of the EHV Sub Stations (230 KV) is headed by an Executive Engineer at the Division level. The division comprises of two Sub Divisions (Villianoor and Bahour) pertaining to two EHV Sub Stations. Each Sub Division is headed by an Assistant Engineer / Assistant Executive Engineer. The AE/AEE is assisted by a team of O&M staff.The Sub Division is responsible for the Operation & Maintenance of the EHV Sub Station. In the existing set up Maintenance of EHV Sub Stations is handled by Division VIII.

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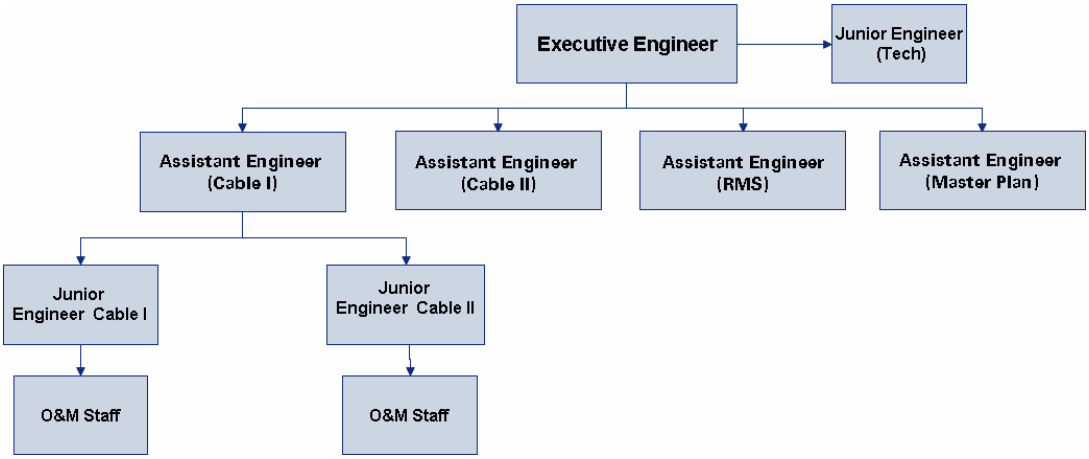

Figure 4: Structure of Construction Division (Cables)

- ***Division II*** is the cable construction division responsible planning, construction and augmentation works of underground cables for all the four regions. The division is headed by an Executive Engineer and there are two Sub Divisions for construction headed by Assistant Engineers. The Master Plan Sub Division is responsible for planning of Cable construction.

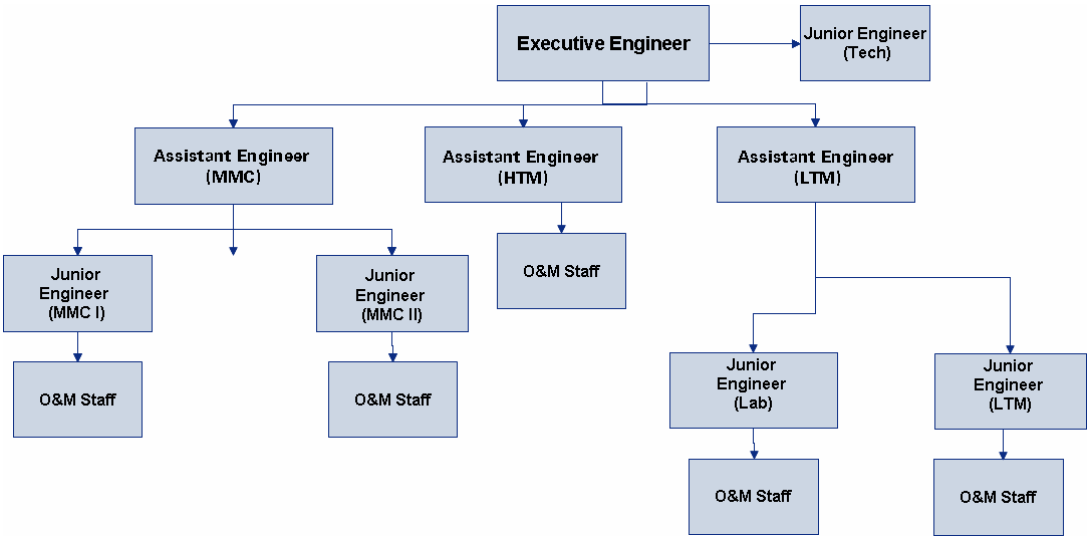

Figure 5: Structure of Procurement & MRT

- Division VII is responsible for material management and MRT. All procurement activities are carried out by this division. In addition to this all testing and validation of meters and testing of protection equipment is carried out by MRT. This division is also responsible for theft and pilferage detection.

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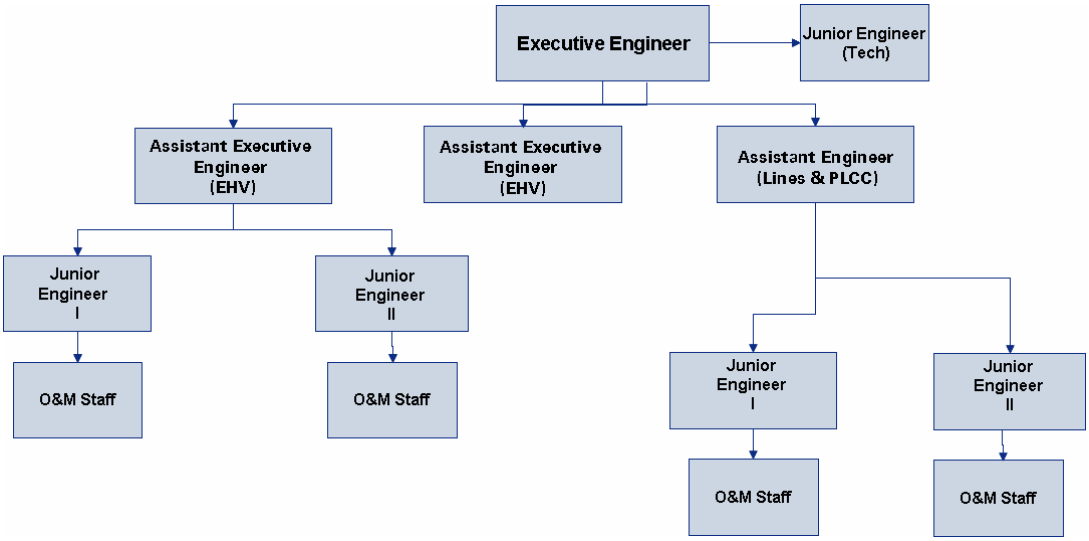

Figure 6: Structure of EHV SS and Lines Construction

- ***Division VI*** is responsible for all EHV construction activities (Transmission Lines and Sub Stations), new Feeder construction and augmentation works and release of new HT services. All EHV construction activities need to transferred to the Transmission entity and the other activities retained with the distribution entity.

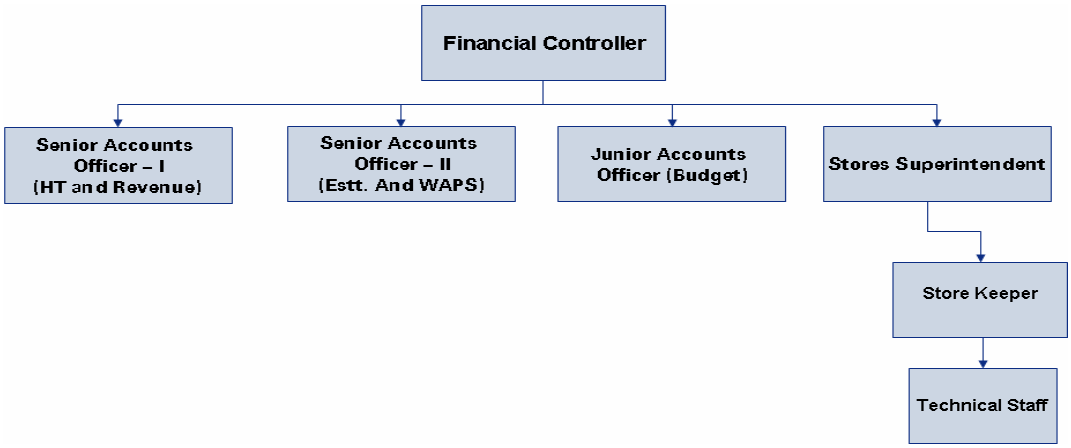

Figure 7: Structure of Financial Controller

- ***Financial Controller*** is responsible for all revenue and accounting activities of the department. Financial Controller is responsible for preparation of budget estimates, payment for power purchase and centrally procured items, CAG audit, Issue and close of Work Orders and Issue of Work Adjustment bills. Stores Superintendent is responsible for stores administration, i.e. Purchase for the whole department, Issue of materials etc …

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- ***Division III*** is responsible for maintenance of SPM shed, administration of workshop and electrical maintenance of government buildings.

  Building maintenance is a non core activity and cannot be absorbed in either distribution or transmission entities

- ***Division V*** is responsible for the overall operation of the Karaikal region. Division V handles the entire gamut of activities of the Karaikal region namely Operation & Maintenance, Construction and Building Maintenance. Building maintenance is a non core activity and cannot be absorbed in either distribution or transmission entities

- ***Division X*** is directly attached to the Head of the Department and is responsible for assisting the Head of the Department in technical matters, Budget Planning and Monitoring and the Issue of technical and work sanctions. This division also acts as the Public Relations Office

2.1.1.2 Issues to be Addressed

- ***Delegation of Powers:*** Junior Engineer has no financial powers and the financial powers of the Assistant Engineer/Assistant Executive Engineer are also very limited.

- ***New Service Connections:*** The process for releasing new service connection needs to be streamlined

- Absence of Centralised Breakdown ***(CBD)*** and Fuse off Call ***(FOC) gangs***

- Half Yearly billing cycle followed in rural areas which needs to brought into regular billing cycle

- ***Limited number of collection points:*** Currently Revenue Counters set up by Bill Collectors are the only means of payment. Any other payment mechanism like online payment, Anytime payment kiosks, tie up with banks, post offices etc …, is absent

- ***Utilization of staff*** in divisions with seasonal workload

- The technical training center is not utilized effectively. The center needs to be revamped and made more effective

- The workshop which was envisaged to be the manufacturing center for minor items is not functioning effectively due to lack of infrastructure and manpower

- Material Management practices need to be revamped for greater efficiency

- Adequate staffing and empowerment of Anti Power Theft Squad

- Rules and Powers for dealing with theft and pilferage cases not clearly defined

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- Absence of internal audit
- Absence of fully equipped IT wing
- Absence of full fledged HR department
- Absence of Regulatory Affairs Cell

2.1.1.3 Implications of unbundling

- The activities of the Divisions I,IV and IX totally pertain to the distribution business except the O&M of sub stations, hence all the substations will be placed under the transmission entity and the remaining part of these divisions will be placed under distribution utility
- Informal sharing of staff between O&M sections will be affected on placing the sub stations under the transmission utility. Hence the Sub Stations need to be adequately staffed
- The revenue section and establishment section consists of totally ministerial staff not belonging to the department. After unbundling the requisite number ministerial staff should be retained as staff of the new entities. Decision on the required number has to be made by the Department
- The construction activities of the Division II totally pertain to the distribution business, hence there will be no difficulty in placing this division entirely under the Distribution entity
- The technical training centre can also be placed under the Distribution entity as only Wiremen training is conducted by the centre
- The SPM shed and work shop of Division III can be part of the distribution entity
- Building maintenance of Division III is a non core activity and cannot be absorbed in either distribution or transmission entities
- Absorbing of staff from Building maintenance Sub Divisions after hiving off of the activities will be a challenge
- EHV construction activities (both lines and SS) of Division VI will be placed under the transmission entity
- Feeder construction and release of HT services of Division VI will be placed under distribution utility
- After unbundling sharing of staff among EHV and Feeder construction Sub Divisions cannot continue, hence all the Sub Divisions need to be adequately staffed

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- After unbundling both transmission and distribution entities will be in need of the services of Material Management and MRT Sub Divisions. Hence Division VII needs to divided between transmission and distribution entities

- Anti power theft squad and 100% metering will be placed under the distribution entity

- Maintenance of EHV Sub Stations with Division VIII will be placed under transmission utility

- The functions of this Division X can be attached to the office of the Head of the Department and this division can be abolished

- After unbundling both transmission and distribution entities will be in need of the services of Financial Controller. Hence this division needs to divided between transmission and distribution entities

2.1.2 Staffing

2.1.2.1 Tech & non-tech structuring and staffing

The total sanctioned employee strength of the department is 2860 of which 2248 belong to technical cadre and 612 belong to ministerial cadre. The ministerial cadre employees do not belong to the department and are appointed by the government.

Table 1: Staffing pattern across regions

	Pondy	**Karaikal**	**Yanam**	**Mahe**
Sanctioned Strength	2346	330	98	86
Vacancies	284	67	12	22

- ***Transferability:*** All technical employees are transferable to any of the four regions. The department does not have any control over the appointment or transfer of ministerial employees

2.1.3 Terminal Benefits

- The objective of the reforms programme is to create financially viable and self-sustaining organisations that would be managed on sound commercial footing. To achieve this objective, during the transition to such commercial environment several anomalies that existed in the past need to be corrected. One of the major issues that needs to be addressed is the securing payment of terminal benefits. Protecting such terminal benefits is also a statutory obligation under Section 133 of Electricity Act, 2003. Also as a part of corporatization, the company needs to follow AS 15 accounting standards which mandates the calculation of employee liabilities.

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2.1.3.1 Current System for payment of terminal Benefits

- The Provident Fund is paid from the contribution made by the employee during his service years
- The contribution is maintained in separate accounts by the DAT
- Other Benefits such as Pension, Gratuity, Leave encashment are paid by the government on 'pay as you go' basis and no separate corpus exists for the same

2.1.3.2 Implication of Unbundling

- After conversion to corporate entity, AS 15 needs to be followed. The accounting standards mandate creation of a separate trust for employee liabilities Hence following trusts need to be formed
    - A trust for administering Provident Fund contributions
    - A trust for administering the other benefits of pension, gratuity and leave encashment
    - Both these trusts need to be adequately funded to meet the employee liabilities
- Decision to be made on number of trusts to be created, i.e. whether separate trust needs to be created for transmission and distribution entities
- In case of creation of single master trust, allocation of liabilities to transmission and distribution entities
- Valuation of liabilities on account of pension, gratuity and leave encashment needs to be done by an Actuary
- Transfer of PF accounts of ministerial staff to the new set up will be a challenge

2.1.4 Training Needs

- Training is very vital for the effective implementation of reforms. The enactment of reform legislation has set expectation for new competencies like ,
    - Awareness & Comprehension of Open Access, Power Trading, Second Distribution Licensing, Licensing Conditions, ARR etc.
    - Designing & Maintaining Citizens' Charter (SOPs), Customer Service Orientation
    - Productivity Enhancement & Efficiencies

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- Environment Issues
- Regulatory Preparedness

- In addition to that corprotisation has led to a requirement of new skill sets like,
  - Developing Customer Orientation
  - Transition from Government Budgeting & Accounting to Strategic Management & Financial Planning
  - Costs Management
  - Professionalisation of HR Practices in manning, recruitment, selection, training and IR
  - Managing Change and developing Work Culture
  - Energy Audit
- These requirements make formulation and implementation of an effective training policy highly critical. The internal training center should be made equipped enough to handle all these trainings
- Employees recruited on compassionate grounds are found to be lacking in skills as compared to regular employees. They need to be appropriately trained for effective utilization

2.1.5 Data Gaps

- Employee Master data is available only for few divisions till date. Delay in obtaining Employee Master Data will lead to delays in formulation of transfer Scheme and calculation of employee liabilities.

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2.2 Technical review

- Electricity network of the ED spreads into four non-contiguous regions of UT. It supplies power to consumer through its 17 substations, 1400 kM of HT line, 1900 distribution transformer and 5000 kM of LT line. ED has also gone for 61 kM of HT and 730 kM of LT underground cabling of certain crowded areas.

Table 2: Network Details of PED

Sl. No	Category of Consumer/Service Connection		As on 31st March 2008				
			Pondy	KKL	Mahe	Yanam	Total for UT
1	230 kV Auto Sub-Stations	Nos	2	0	0	0	**2**
2	230 kV Auto Sub-Stations	mVA	360	0	0	0	**360**
3	230 kV Lines	kMs	16.2	0	0	0	**16.2**
4	132/110/33/22/11 kV SubStations	Nos	10	2	1	2	**15**
5	132/110/33/22/11 kV Sub-Stations	mVA	415	110	20	46	**591**
6	110 kV Feeders	Nos	16	2	1	1	**20**
7	110 kV Lines	kMs	122	36	2	0	**160**
8	33 kV Feeder	Nos	-	-	-	2	**2**
9	33 kV Feeder	kMs	-	-	-	19.3	**19.3**
10	22/11 kV Feeders	Nos	62	18	5	4	**89**
11	22/11 kV Overhead Lines	kMs	805	284	32	31	**1151**
12	22/11 kV Underground Cables	kMs	58	3	0	0	**62**
13	LT Overhead Lines	kMs	3105	759	246	107	**4217**
14	LT Underground Cables	kMs	640	83		6	**729**
15	22/11 kV DTRs	Nos	1494	272	67	60	**1893**
16	22/11 kV DTRs	mVA	313	48	8	11	**380**

- Puducherry has categorized its consumers in seven broad categories apart from HT and LT temporary connections – domestic, one hut one bulb (OHOB), commercial, agriculture, LT industrial, HT industrial and street light. HT consumers are further classified into three sub-categories namely Cat-I, Cat-II & Cat-III.

- HT Consumers, which are connected at 33/22/11 kV voltage levels, are grouped under HT – Category I whereas consumers connected at EHT (110 kV) voltage level are classified as HT – Category III. A separate category has been created for government bodies namely HT – Category II.

Table 3: Category-wise number of consumers

S.No.	Category	2005-06	2006-07	2007-08
1	Domestic	1,86,366	1,97,113	2,07,309
2	Commercial	34,824	36,205	37,407
3	LT Industrial	5,383	5,516	5,643
4	HT Industrial & Non-industrial	392	402	408
5	One Hut One Bulb (OHOB) Services	36,548	37,621	38,513

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6	Agriculture Services	8,772	8,834	8,897
7	Street Light Connections	41,880	43,421	44,859

2.2.1 Energy Balance

2.2.1.1 Power purchase

- Puducherry, for meeting its power requirement, is mainly dependent on Central Generating Stations (CGS) of NTPC (Ramagundam Stage I, II & III and Talchar Stage II), Neyveli Lignite Corporation (TS I Expn and TS II Stage I & II) and Madras & Kaiga Atomic Power Stations. Other than CGS, UT purchases power from TNEB and PPCL for Karaikal region and KSEB for Mahe region on drawal basis.

- GoP has signed Power Purchase Agreements (PPA) with all CGSs to generate and supply power, at station end, in proportion to the allocated share. GoP also has an agreement with KSEB to supply energy to Mahe region as HT service having contracted demand of 3250 kVA. However, GoP does not have any formal agreement with TNEB to supply energy to Puducherry and Karaikal regions.

- Puducherry Power Corporation Limited (PPCL) is state owned power generating company with one gas based power plant at Karaikal having installed capacity of 32 MW.

- Following was the power allocation/availability status in the year 2007-08:

Table 4: Break-up of Power Purchase by PED

	Central Generating Stations/Board/Company	**2007-08 (MW)**
1	Neyveli Lignite Corporation	109
2	NTPC	153
3	Madras Atomic Power Station	6
4	Kaiga Atomic Power Station	17
5	Tamil Nadu Electricity Board	76
6	PPCL	32
7	Kerala State Electricity Board	5
		397

- In 2007-08, ED purchased 2614 MU of energy at its bus bar from all above sources of supply and through UI mechanism. Out of total energy injected, NTPC contributed the maximum amounting to 43% followed by NLC which contributed almost 27% (Refer Fig. 8). It also overdrew 45 MU (2%) of energy under ABT system.

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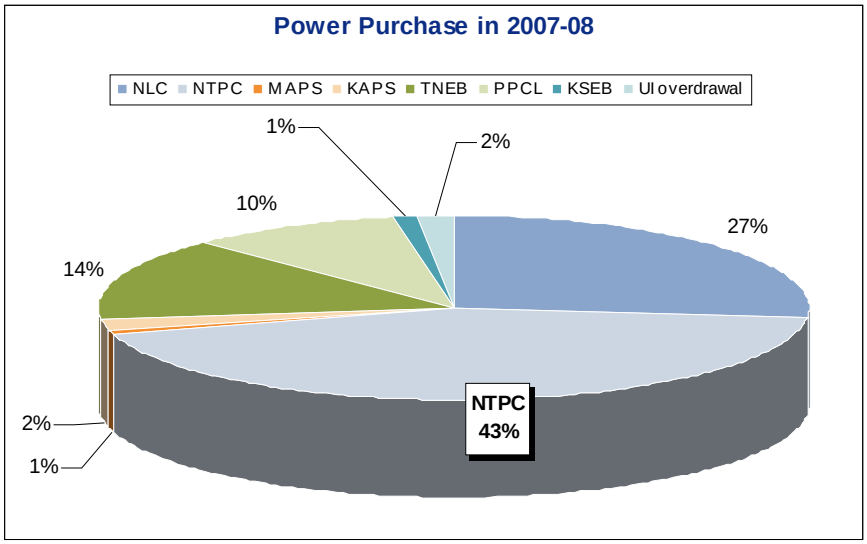

Figure 8: Power Purchase in 2007-08

- All injecting points pertaining to CGSs feeding to UT and all drawal points belonging to Puducherry and Yanam regions are covered under ABT regime. All these points are provided with ABT compliant interface meters according to CEA (Installation and Operation of Meters) Regulation, 2006.

- The System Control Centre (SCC) at Puducherry is made responsible to provide energy drawal schedule to Regional Load Dispatch Centre (RLDC) for above mentioned regions. It monitors grid operation and controls power flow on real time basis. The difference between schedule and actual drawal of energy is treated as Unscheduled Interchange (UI) and charged at prevailing UI rate in the particular 15 mins slot. Table 4 provides details of year-wise UT's over-drawal and under-drawal of energy under UI.

- Till 2007-08, UT's average rate of purchase of energy under UI was more than the average rate of sale. It indicates that UT underdrew energy in the peak hours and overdrew in the off-peak hours. However, situation has changed since then due to under realization of power from all CGSs.

Table 5: Details of UI purchase and sale by PED

		2004-05	**2005-06**	**2006-07**	**2007-08**
UI Over drawal	MU	87	36	68	45
Cost of purchase	Rs. Lakh	1615	278	1073	885
Average rate of purchase	Rs./Unit	1.87	0.78	1.58	1.98
UI Under drawal	MU	128	198	136	182
Revenue from sale	Rs. Lakh	2026	4236	2524	7298
Average rate of sale	Rs./Unit	1.58	2.14	1.85	4.01

- Currently, ED does not trade its allocated share of power in the market through trader or power exchange. UT can explore opportunity of selling it in the market at appropriate time of day to optimize its revenue.

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- Mahe and Karaikal regions are out of ABT regime and receive power as HT services from Kerala and Tamilnadu State Electricity Boards respectively.

- In the year 2006-07, ED purchased 2613 MUs of power, at station end, from various supply sources. In the next year, the power purchase increased by 4% to 2714 MUs. However, the power purchase cost, for the same period, has witnessed a sudden jump of 14% from Rs. 443 Cr. to Rs. 507 Cr.

Table 6: Power Purchase Trend

		2004-05	**2005-06**	**2006-07**	**2007-08**	**CAGR**
Power Purchase	MUs	2364	2475	2613	2714	4.7%
YoY Growth	%		4.7%	5.6%	3.9%	
Power Purchase Cost	Rs. Lakh	40,673	42,123	44,314	50,694	7.6%
YoY Growth	%		3.6%	5.2%	14.4%	

- The sudden increase in the power purchase cost in FY 08 is mainly due to increase in fuel cost of power plants of NLC and NTPC. In last three years, the per unit power purchase cost from NLC and NTPC power stations has increased with a CAGR of 7.6% and 3.4% respectively.

Table 7: Increase in Power Purchase Cost

	NLC	**NTPC**	**MAPS**	**KAPS**	**TNEB (Pondy)**	**TNEB (KKL)**	**PPCL**	**KSEB**
CAGR FY05-FY08 (%)	7.6%	3.4%	6.7%	0.1%	2.0%	0.6%	-0.5%	3.2%

2.2.1.2 Power sale

- In 2007-08, ED sold 2017 MU energy to its consumers. The category wise break up of sales indicates that three main consumer categories viz Domestic, HT Cat-I and HT Cat-III together account for almost 80% of the sale in the UT.

Table 8: Category-wise Power Sales by PED

S.No.	**Category**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**CAGR**
						MU
1	Domestic	274	312	344	380	11.5%
2	Commercial	85	109	130	132	16.0%
3	LT Industrial	100	114	122	130	9.1%
4	HT – Category I	945	953	997	1020	2.6%
5	HT – Category II	24	25	26	26	3.1%
6	HT – Category III	243	238	271	270	3.6%
7	Agriculture Services	118	89	101	82	-11.6%
8	One Hut One Bulb (OHOB) Services	12	12	13	13	1.7%
9	Street Light Connections	16	13	16	16	1.3%
10	Temp Supply (LT)	3	3	4	3	7.8%
11	Temp Supply (HT)	0	0	1	0	
	Total	**1819**	**1868**	**2025**	**2072**	**4.4%**

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- Growth of 16% in sale of power to commercial consumers can be supported by the fact that there has been rapid growth in tourism for last couple of years which is fueling commercial development in the state. In the period, from FY04 to FY07, visit of domestic and foreign tourist to UT has grown with a CAGR of 13% and 22% respectively.

Table 9: Tourist inflow to Puducherry

	2004	**2005**	**2006**	**2007**	**CAGR**
Domestic Tourist	558445	574011	652245	798528	13%
Foreign Tourist	32053	36009	46273	57682	22%

- Out of the total power sold, HT- Category I accounted for almost half of the total sales (49%, 1019.74 MU) for the entire Union Territory in year 2007-08. HT industries being the highest contributor in the sale gives an extra advantage to the UT to ensure sustainability of cash flows.

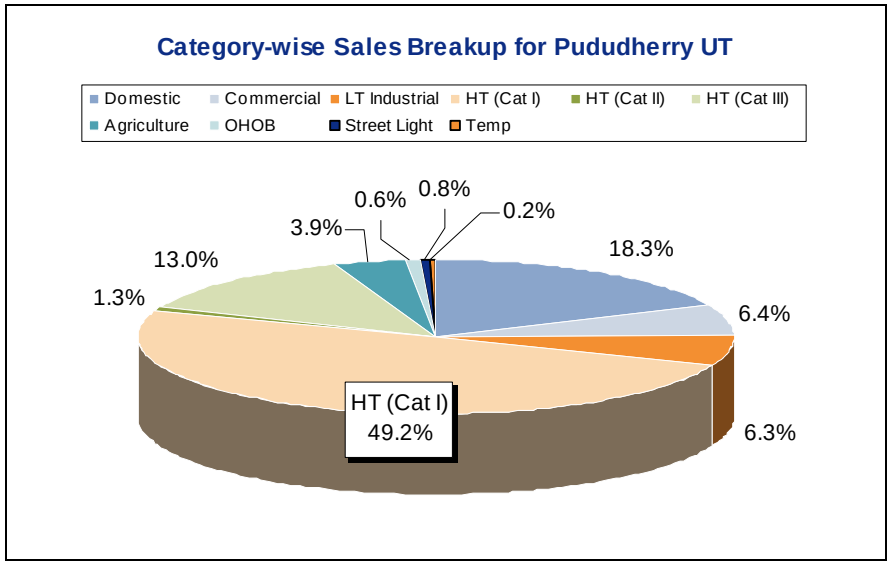

Figure 9: Category-wise Sales break-up for Puducherry UT in year 2007-08

- Even though sale to HT Cat-I has been increasing over the years, its share has been on the decline over the last four years (Refer Fig. 4), owing to the increase in sales to the domestic, commercial and LT industrial consumers (Refer Fig. 4).

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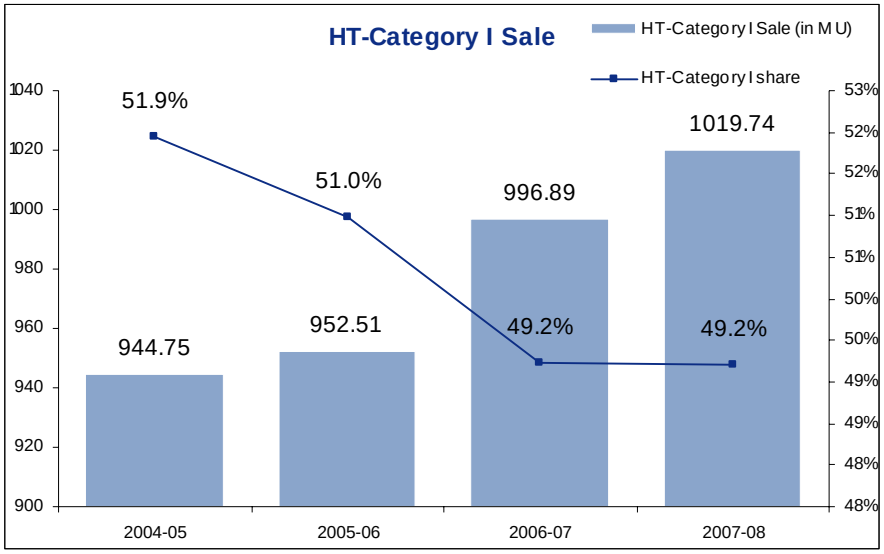

Figure 10: Trend HT-Category I sale

- Over the last four years, power sale to Commercial consumers witnessed the highest growth rate of approx. 16% but the growth has slowed down over the last two years. As stated above, the high growth in sales to Commercial category is due to the increase in tourism related activities.

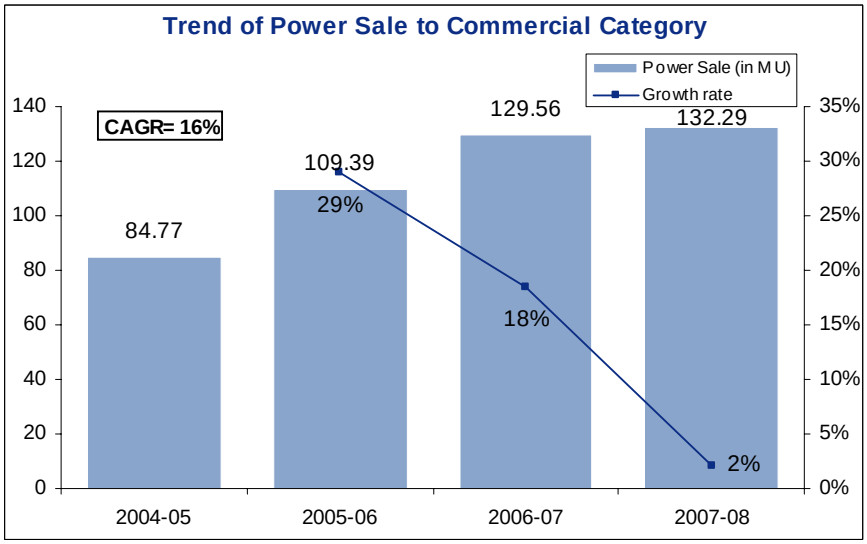

Figure 11: Trend of Power Sale to Commercial Category

- **Non-metered Consumers:** Among the two non-metered categories, viz. One-Hut-One-Bulb (OHOB) and Agriculture, the latter accounted for around 4% of the total sales in the UT in 2007-08. Agriculture sales witnessed a negative CAGR of 12% over the last 4 years due to

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large conversion of agriculture land into residential, commercial or industrial plots. OHOB sales have remained between 0.6% and 0.7% of the total sales.

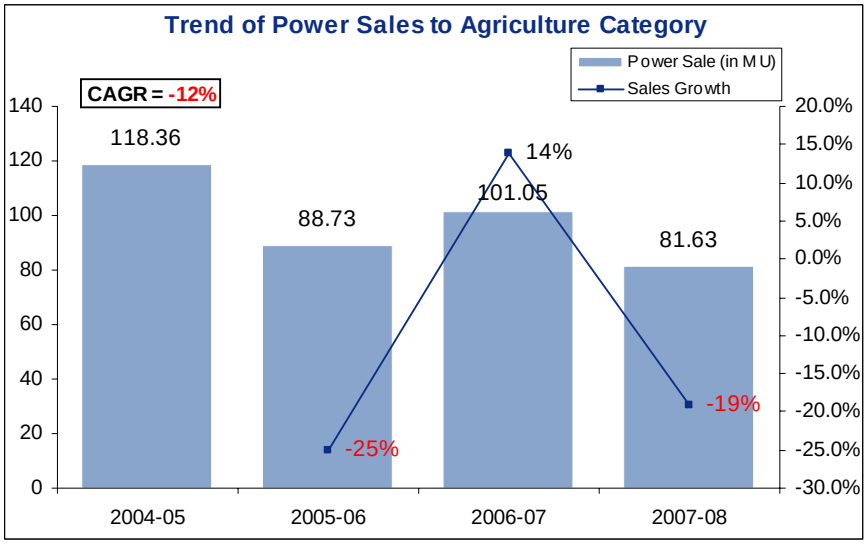

Figure 12: Trend of Power Sale to Agriculture Category

Regional Sales Profile

- Regional sales profile differs from the profile of the UT as a whole. Mahe has been catering pre-dominantly to Domestic consumers, who accounted for 11 MU or 48% of the total power sales in the region. In Yanam, HT-Category I was the dominant category before HT-Category III consumers were introduced into the system in 2005-06 and the sales to this category has been increasing since then on the expense of HT-Category I. In 2007-08, HT-Category III accounted for 29 MU or 38% of the total sales in the region.

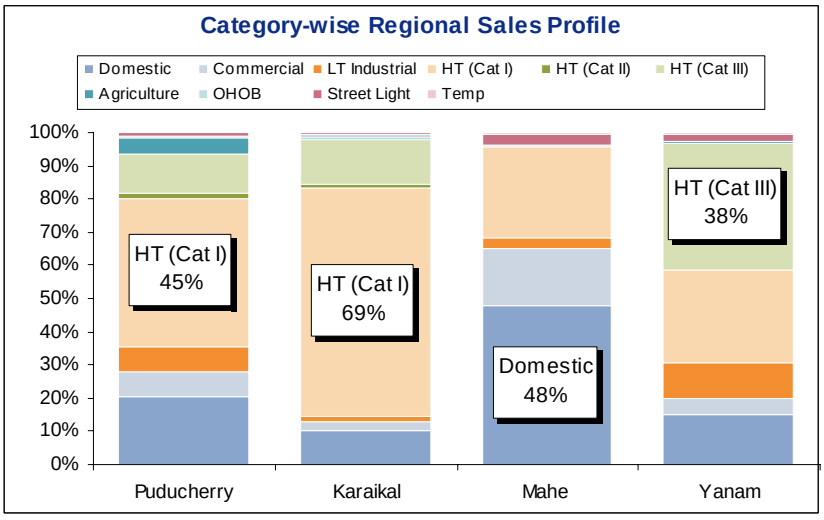

Figure 13: Category-wise Regional Sales profile

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2.2.1.3 T&D Losses

- Overall T&D losses, excluding UI sales in the year 2007-08 were 14.8%.

Table 10: T&D Losses

		2004-05	**2005-06**	**2006-07**	**2007-08**
Power Purchase (at station end)	MU	2364	2475	2613	2714
PGCIL Losses	%	3.1%	3.4%	3.8%	3.7%
Power Purchase (at UT end)	MU	2291	2392	2513	2614
Power Sale (excluding UI sale)	MU	1819	1868	2025	2072
T&D Losses	%	15.88%	14.84%	14.79%	14.80%

- *Impact of un-metered categories*: OHOB consumers are not metered and the consumption is calculated on the basis of number of houses consuming 90W per day. But it has come to the notice of the department that the actual consumption, in many cases, may exceed the sanctioned power.

- As per Government policy, ED should take following actions if a consumer under OHOB category is found consuming more than what is allowed.

  - Supply shall be disconnected with the immediate effect

  - Consumer shall be levied fixed penalty for resuming power supply

  - Consumer shall be billed for the previous excess consumption

  - If consumer is found repeating it second time he shall be permanently disconnected and given new connection under normal category.

- If we assume that all consumers under this category use basic appliances and their actual consumption is two times to what has been sanctioned, the T&D losses would reduce by 0.5%. Therefore, these consumers should be monitored for their actual consumption followed by an appropriate action in order to assess loss levels at a reasonably accurate level.

Table 11: Effect of OHOB consumers on T&D losses

	OHOB Sale	**Sale (MU)**	**Purchase (MU)**	**Loss (%)**
Current assessment as per 90 W	12.9	2072	2432	14.8%
Assessment as per 180 W	25.9	2085	2432	14.3%
Assessment as per 210 W	38.8	2098	2432	13.7%

2.2.2 Revenue

- UT has a favorable consumer-revenue mix. Three categories viz commercial, HT Cat-I and HT Cat-III, which are 11% in total number of consumers, when combined together contribute 85% in the total revenue[1] from sale of power. It means ED recovers 85% of the revenue from 11% of the consumers. In contrast, for utility like Paschim Kshetra Distribution Company of Madhya Pradesh consumer-revenue mix is 64% to 69%.

[1] This is a threat to the Distribution Company if under EA 2003, these consumers decide to shift to open access. It also leaves marginal headroom for the Company in tariff cross-subsidization.

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Table 12: Category-wise Revenue Details of PED

S.No.	Category	2004-05	2005-06	2006-07	2007-08	CAGR
						Rs. Lakh
1	Domestic	2,443	2,831	3,082	3,649	14.3%
2	Commercial	2,425	3,036	3,311	3,751	15.7%
3	LT Industrial	2,362	2,948	2,946	3,190	10.5%
4	HT – Category I	29,897	29,908	31,297	32,281	2.6%
5	HT – Category II	624	667	685	699	3.8%
6	HT – Category III	7,865	7,900	8,870	8,818	3.9%
7	Agriculture Services	64	63	64	73	4.3%
8	One Hut One Bulb (OHOB) Services	0	0	0	0	
9	Street Light Connections	458	519	528	471	0.9%
10	Temp Supply (LT)	52	77	107	58	3.3%
11	Temp Supply (HT)	0	0	47	0	
	Total	**46,191**	**47,948**	**50,937**	**52,991**	**4.7%**

- HT Category-I is the main contributor to department's revenue accounting for 61% (Rs. 32,281 lakhs) of the total revenue of the UT in year 2007-08. As mentioned above, other main categories of consumer, in terms of their contribution in revenue, are Commercial and HT Cat-III.

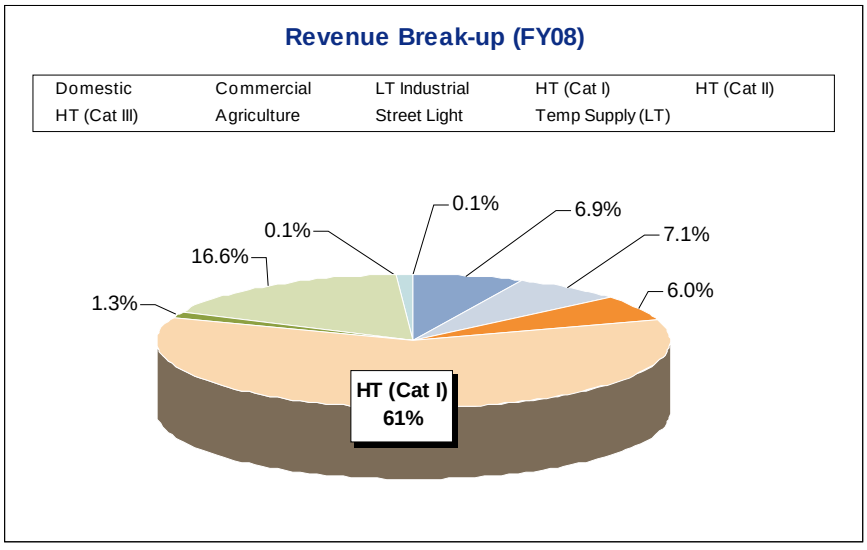

Figure 14: Revenue Break-up for FY08

- Commercial Category has witnessed the highest growth over the period of last three years, when it grew at a CAGR of 16%.

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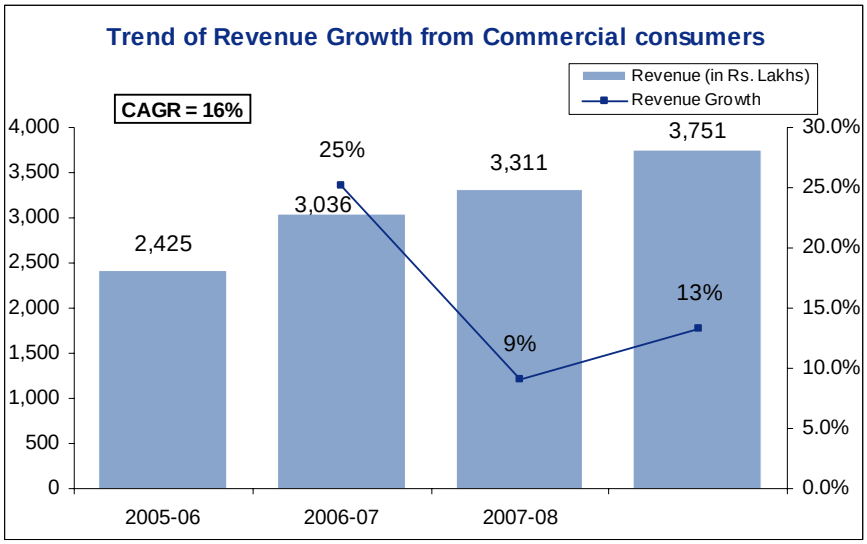

Figure 15: Trend of Revenue Growth from Commercial consumers

Regional Revenue Profile

- HT-Category I was the main contributor to the department's top-line in 3 regions except for Yanam where the EHT consumers added to the network have been the main contributor (Rs. 904 lakhs, 77% of total) to the revenue of that region.

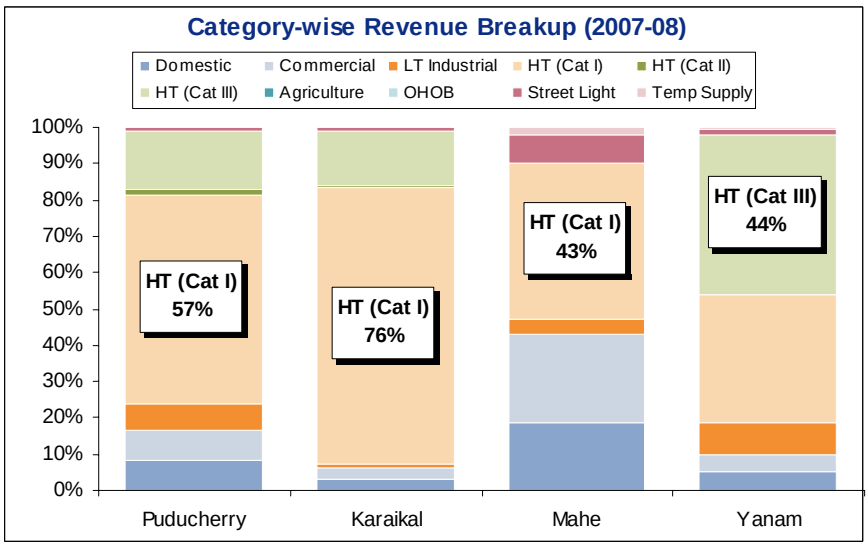

Figure 16: Category-wise Revenue Break-up in year 2007-08

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2.2.2.1 Billing and collection efficiency

- Billing Efficiency is defined as the ratio of number of consumers issued bills to the total number of consumers in a billing cycle. Since there is no objective metrics in the MIS, it is difficult to measure this efficiency for ED. Alternately, the number of "No reading taken" (NRT) cases for a month have been analyzed for the study.

- As a practice, bills are issued to all those consumers whose meters are read in a billing cycle. The primary reasons for NRT cases are:

  - O&M section releases the service connection to a consumer without ensuring updation of data at the Revenue Section.

  - Meter reader fails to locate the policy due to new construction, old premises abundant, consumer shifts without informing ED etc.

- Last month, approximately 1% of consumers covered under spot billing had not been issued bills due to one of the reasons mentioned above and categorized as NRT.

- As practiced by several other utilities, Collection Efficiency is defined as ratio of amount collected in a year to amount billed in that year. The Collection Efficiency of the department has marginally improved over the last three years.

Table 13: Collection Efficiency of PED

	2005-06	**2006-07**	**2007-08**
Revenue billed (Rs. Lakh)	47,948	50,937	52,991
Revenue collected (Rs. Lakh)	44,452	48,128	49,678
Collection Efficiency	93%	94%	94%

- If we compare growth in sales, revenue billed and revenue collected across categories in last three years, we will find that ED has improved collection efficiency of domestic, commercial, LT industry, HT Cat-III and street light services. For these categories the growth in revenue collected is more than growth in revenue billed. However, collection efficiency of HT Cat-I and agriculture services has gone down in this period. Since, HT Cat-I contributes highest in the revenue, it negatively impacted actual cash in-flow of the ED.

- Increase in sales to OHOB consumers indicates increase in number of these services. Their sales are assessed on the basis of number of services multiplied by a constant.

- For agriculture consumers, growth figures indicate that the consumers eligible for free power (below 5 HP) has grown rapidly than the consumers which are billed (5 HP and above). There is a growth pattern mismatch, for agriculture category, between energy sales and revenue billed due to inclusion of unbilled consumers in the sales figure.

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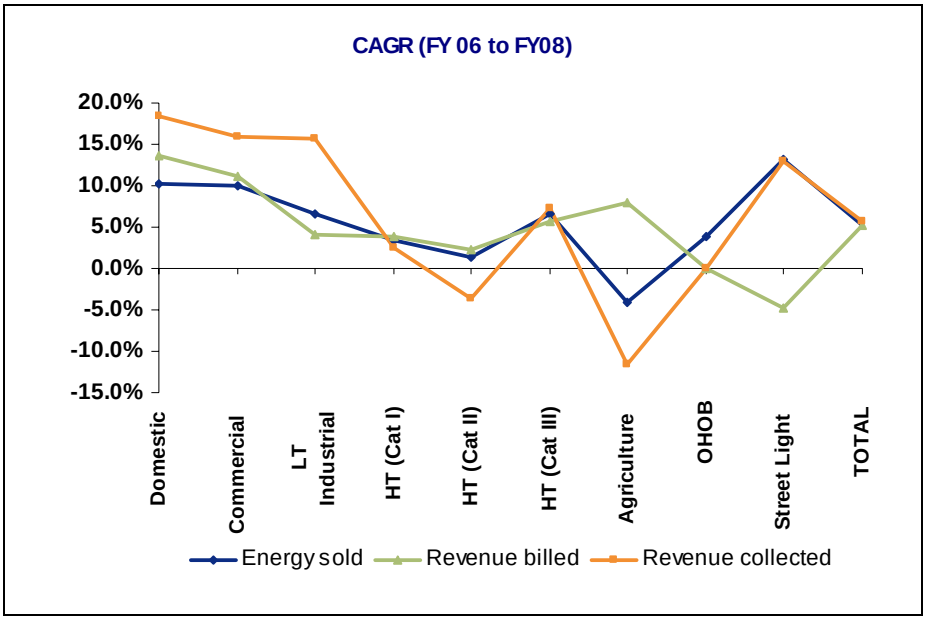

Figure 17:Category-wise CAGR of Power sale, Revenue billed and Revenue Collected

2.2.3 Metering, billing and collection (MBC)

2.2.3.1 Asset metering

- Puducherry region receives power from central generating stations at two of its 230/110 kV substations (Villianur and Bahour) through PGCIL transmission network. Both 230 kV input feeders are metered with 0.2 class of accuracy ABT complied meters.

- Yanam region is surrounded by Andhra Pradesh and receives power from AP transmission network at its 132/11 kV Mettakur Substation. This metering point is covered under ABT and installed with 0.2 class of accuracy ABT complied meter.

- Mahe and Karaikal regions are out of ABT regime. Mahe receives power at its 110/11 kV substation from KSEB whereas Karaikal receives power at its two 110/11 kV substations (Surakudy and Pillaitheruvasal) from TNEB and at 110/11 kV Polagam Substation from PPCL. All input feeders are metered with 0.2 class of accuracy meters.

- In addition to above, Puducherry region has nine 110/22 kV substations and one 110/22/11 kV substation and Yanam has one 33/11 kV substation. All incoming and outgoing feeders of these substations are metered.

- Distribution transformers are not metered in any of the region.

- Asset metering is a prerequisite for an energy auditing systems to be in place. Moreover, it is all the more important to ensure that these meters are maintained properly and read at the

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regular intervals. It helps a distribution company in identifying pockets of energy and revenue drain.

2.2.3.2 Consumer metering

- As mentioned already, there are seven broad categories of consumers in the UT. Consumer metering status of these categories depends on their electricity consumption and contribution in the revenue to Electricity Department.

- Consumers falling under OHOB category are eligible for free consumption of power restricted to one bulb in a house. Due to free power supply, these consumers are neither metered nor billed.

- Agriculture consumers, having irrigation pump load more than 3 HP, are supplied electricity at a predefined rate irrespective of their actual energy consumption. However, consumers below 3 HP pump load are supplied free power. Since actual energy consumption is irrelevant, these consumers are not metered.

- Following is the summary of consumer metering status in the UT:

Table 14: Consumer metering status in Puducherry UT

Consumer category	**% of consumer**	**Type of meter**
Domestic Services	80%	Mechanical meters (before 2003)
	20%	Electronic meters with 1 class of accuracy (introduced in 2003)
One Hut One Bulb (OHOB) Services	Nil	No metering due to following reasons: • Power supply free of charge • Very low consumption • Spread in large area
Commercial Services	100%	Mechanical meters (installed before 2003); Electronic meters (after 2003)
Agriculture Services	Nil	No metering due to following reasons: • Power supply at fixed rate • Spread in large area • Free power below 5 HP of pump load
LT Industrial Services	100%	Above 29 HP – 0.5 or 0.5S class of accuracy CT meters Below 29 HP - 1 class of accuracy meters
HT Consumer Services (110 kV)	100%	0.2 class of accuracy electronic meters
HT Consumer Services (Others)	100%	0.5 & 0.5S class of accuracy electronic meters
Street Light Connections	5%	For main streets and maintained by PWD

2.2.3.3 Manual Spot Billing

- ED has introduced manual spot billing mechanism in the year 1983 in Puducherry region. This mechanism aims at reducing working capital requirement through improving

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turnaround time. Practically, there is no time lag between meter reading and bill distribution in this mechanism. Currently, 167669 (81%) domestic, 34354 (92%) commercial, 3522 (62%) LT industrial and 182 other services (including 152 of agriculture consumers) are covered under spot billing across UT.

- In manual spot billing, meter reader notes down the reading on a bill carrying consumer's policy number, previous reading, average consumption of last three months, consumer category and arrears, if any. He calculates the monthly bill amount using ready reckoner and hands it over to consumer on the spot.

- Each O&M section is divided into areas for meter reading called as Cycle. A cycle number is given to each group of consumer which is supposed to be read in one day. Revenue section of the concerned division prepares a "Monthly Cycle-wise Bill Issue Statement" prior to the beginning of the billing month. On the basis of this statement, bills are printed two days prior to the bill issue date and sent to O&M section for distribution.

- *Non-reading meters (NRM):* In case the meter is found stuck, meter reader prepares a bill on the basis of consumer's average monthly consumption and marks MS (Meter Stuck) on the bill. As per last month's data, around 22% of the domestic meters are not reading actual consumption and categories as MS. Department doesn't take any self initiated action to rectify the problem.

- *Door Lock:* In case consumer premises are found locked, bill with minimum charge is issued to the consumer for first three months. Later, department issues an average bill based on his last three actual readings. Currently, the minimum charges for domestic and commercial consumers are Rs. 6 and Rs.12 per service respectively. Last month, approximately 9% of the premises were found lock during meter reading and billed under DL category.

- It means that approximately 30% of the consumers in a month are not recorded their actual consumption. Particularly, DL cases negatively impact losses as sales appear less than the actual.

2.2.3.4 Manual Billing: Domestic consumers

- Domestic consumers, if not covered under spot billing, are read and billed once in six months. These consumers are spread in the rural areas of UT and according to the officials it's not economical to read and bill them every month. Another reason mentioned for such delay is unavailability of adequate meter reading staff at O&M sections across UT.

- Each meter reader can efficiently read and bill around 100-150 services in a day. However, as per the current situation this figure is 270 to 350 in the UT which leaves considerable margin for human errors in the billing process. The errors may comprise skipping consumers, inaccurately read meters, inappropriately used tariff for assessing bill amount etc.

- Approximately, 39640 domestic consumers are yet to be covered under spot billing across Puducherry.

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2.2.3.5 Manual Billing: Commercial and LT industrial consumers

- Unlike domestic consumers, revenue per consumer and realization per unit of these consumers is high and hence they are read and billed every month.

- However, bills are distributed after one month of meter reading for consumers falling under this method of billing. While visiting the premises meter reader notes down the reading of previous month and hands over the month before bill to the consumer.

- *Impact on working capital requirement:* Working capital requirement changes with any delay in billing a consumer or collecting the billed amount. General practice across utilities is to form two months' of billed amount as part of working capital requirement. Analysis shows that it increases by 25% for ED caused by delay in billing and collection of dues.

Table 15 Impact of billing cycle on WC requirement

Category	**Number of Consumers**	**Revenue billed (FY08)**	**Part of WC requirement (2 months' of billed amount)**	**% of Cons. Not covered under Spot billing**	**Increase in WC req. under receivables**	**Comment**
		Rs. Lakh	Rs. Lakh	%	Rs.Lakh	
Domestic	207,309	3,649	608	19%	231	Six monthly
Commercial	37,407	3,751	625	8%	25	Month delay
LT Industrial	5,643	3,190	532	38%	101	Month delay
Agriculture	8,897	73	12	94%	69	Annual
Total			**1777**		**426**	**Increase by 24%**

2.2.3.6 Billing: HT consumers

- Being the highest contributor in the sales and revenue, a Junior Engineer of concerned O&M is made responsible for meter reading of these categories of consumers. In order to speed up revenue recovery, bills are generated and dispatched through Postal Department with in 10 days of meter reading.

- Temporary HT services, for billing and collection purposes, are treated in similar way as regular ones.

2.2.3.7 Assessment of sales of OHOB (One house one bulb) consumers

- GoP has provided support to weaker sections of society through supply of free power restricted to electricity consumption required to light one bulb per house. These consumers are clubbed under OHOB category.

- A consumer needs to fulfill following conditions to get a connection under this category:

  - The house should be built on the plot area not more than 300 square feet.

  - It should be built using material like brick, clay and thatch. The house roof should necessarily be built using thatch.

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- Consumer should not connect load more than 90 W bulb

- These consumers are neither metered nor issued bills. Department, irrespective of their actual consumption, assesses their consumption on the basis of assumption that each service, under this category, uses one 90 W bulb for 12 hours in a day throughout the year.

- However, it is noticed that the actual consumption of these consumers is more than what is being assessed. The underestimation of sales makes loss levels appear more than the actual.

2.2.3.8 Assessment of sales and billing of agriculture consumers

- Since agriculture consumers are not metered, their sales are assessed on the basis of assumption that each consumer runs his pump for 8 hours in a day and for 270 days in a year. Bills are issued annually only to consumers having pump load of 5 HP and more.

- GoP decides the per HP rate for these consumers which should be paid in three installments distributed across year. Currently, the rate is fixed at Rs. 75 per HP per annum and it's free for consumers having pump load below 5 HP.

2.2.3.9 Billing: Temporary LT consumers

- Temporary LT connections are primarily given for construction purpose. Department recovers one month advance on the basis of minimum charges and security deposit at the time of connection. Initially, the connection is given for a period of one month which can be extended up to maximum of one year with proper justification for the same.

- At present the minimum charges are set at Rs. 70 per month per kW of connected load. These services are metered and regularly monitored by O&M section.

2.2.3.10 Disconnection

- Based on amount outstanding, Revenue Section prepares a list of consumers and sends to O&M section for adequate action. The action could be in the form of a notice to pay outstanding amount within specified number of days, disconnection, public display of defaulter's name using media etc.

2.2.4 Energy auditing and capital expenditure

- At present, energy audit and accounting processes of the department is limited to finding annual transmission and distribution losses at regional level. Since, DTRs are not metered in any of the region, voltage wise loss assessment doesn't seem to be feasible.

- However, load flow studies can be carried out on sample feeders by installing meters at input/output points for specific period of time. The table below gives a snapshot of the dashboard created every year.

Table 16: T&D loss dashboard

FY 2007-08	Puducherry	Karaikal	Mahe	Yanam	Total

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Losses excluding UI sales	MU	MU	MU	MU	MU
Power availed at the respective regional end excluding UI sale	1,782	532	27	91	2,432
Power sold in the respective regions excluding UI sale	1,515	460	22	75	2,072
T &D loss excluding UI sale in units	267	72	5	16	360
T & D loss percentage excluding UI sale	**15.0%**	**13.6%**	**17.1%**	**17.3%**	**14.8%**

- Department doesn't have any energy auditing or network analysis software to study the current network condition and pin point areas of improvement and strengthening where investment should be made in future.

- A scientific approach is essential to arrive at adequate capital expenditure to strengthen and expand the existing network. Currently, the annual capital expenditure is derived on the basis of investment requirement generated by heads of divisions which is consolidated at central level and sent to Government for approval. Government decides adequacy of the funds on historical basis and disburses it as a part of planned budgetary allocation under the annual state budget. Therefore, Government's allocation under capital expenditure has been consistent over last four years.

Table 17: Government's allocation Capital Expenditure

	2005-06	**2006-07**	**2007-08**	**2008-09**
Capital Expense (Rs. Lakh)	2458	2598	2946	2442

2.2.5 Customer service

- One of the aims of the reforms is to improve customer service and quality & reliability of power supply. For a customer, availability of reliable power is the most important thing and any reforms undertaken must pass on this advantage to the consumers.

- Following measures of reliability have been considered to assess the power supply situation in the UT. Later, the indices have been compared with some progressive states like AP.

  1 Number of interruptions per feeder over a period of one year, which is ratio of total number of feeder interruptions to the total number of feeders in the entire UT

  2 Duration of interruption per feeder over a period of one year, which is ratio of total duration of interruptions to the total number of feeders in the entire UT

The feeders considered for the analysis are 132kV, 110kV, 22kV and 11kV feeders which directly service atleast one consumer.

Table 18: Reliability Indices for power supply (Considering both scheduled interruptions and breakdowns)

	Units	**2006-07**	**2007-08**	**2008-09**
Average number of interruptions per feeder	number/feeder	**131**	**175**	**222**
Average duration of interruptions per feeder	hours/feeder	**66**	**91**	**147**

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Average duration of each interruption	minutes	**30**	**31**	**40**

- As is seen from the above table, the reliability of power supply has decreased over the past three years.

Comparison with AP Discoms (only breakdowns)

- A Progressive state like AP has on an average, less than one number of breakdowns per feeder and the duration of breakdown per feeder is approximately 2 hours. ED is required to focus on improving reliability of supply to its end consumers. ED can demonstrate these reliability measures in lesser time, since it serves a much smaller area than AP.

Table 19: Comparison of power supply reliability with AP Discoms (considering only breakdowns in the month of May)

	Units	**Puducherry**	**AP Discoms**
Number of Breakdowns	Number	1046	1272
Duration of Breakdowns	Hours	706	3204
Number of Feeders	Number	96	1619
Average number of breakdowns per feeder	Number/feeder	10.9	0.8
Average duration of breakdowns per feeder	Hours/feeder	7.4	2.0

2.2.6 Loss reduction trend

- Given the current loss levels, UT, as a first step, needs to identify exact pockets of energy drain in the system through extensive energy auditing at all levels. For an efficient energy auditing system, Distribution Company must undertake following steps:
  - 100% consumer metering including agriculture consumers
  - 100% asset metering including distribution transformers and all import/export points
  - Asset mapping i.e. asset coding on the basis of energy flow rather than administrative hierarchy
  - 100% consumer indexing
- In initial couple of years, Distribution Company should target to fully compliant with the status mentioned above. Since highly focused and target oriented approach is required to reduce losses from hereon, the improved energy auditing system would guide Distribution Company to invest in the most optimal way.
- As a next step, Distribution Company may have to take some capital intensive actions like HVDS, ABC bunched cables, underground cabling, remote metering, etc. to reduce losses at a minimum level.
- For example, some of the utilities of AP have reduced their losses to a very low level in a structures manner (refer Annexure A).
- It is evident from the experience of Andhra Pradesh that reducing T&D loss by 1% every year below 20% level and 0.5% per year below 15% seems reasonable and can be achieved through micro management of processes, people and assets. However, the investment need increases exponentially with each percent drop in loss levels.

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- In absence of a detailed load flow studies, load projections and system planning, it seems difficult to provide any capital expenditure requirement for the Distribution Company. However, following loss reduction trend can assume to be targeted by the Distribution Company in the future.

Table 20: Loss Reduction Trend

	Actual				**Loss Reduction Trend**			
	2004-05	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**
T&D Loss (%)	15.9%	14.8%	14.8%	14.8%	14.3%	13.8%	13.3%	12.8%

2.2.7 Key findings

- UT should have a formal arrangement with TNEB to supply power to Puducherry and Karaikal regions. After restructuring of TNEB, Distribution Company of Tamilnadu may face pressure from regulator to manage its UI drawal which may severely impact power supply situation of these regions.

- Since UT underdraws energy in the peak hours and overdraws in the off-peak hours, it opens up a window of opportunity for the UT to optimize its revenue through sale of allocated share of power in the market at appropriate time of the day.

- As per PPAs with NCL and NTPC, any increase in fuel cost is directly passed through to the ED. UT witnessed annual average increase of 7.6% in power purchase cost from NLC and NTPC stations which can affect bottom line of the Distribution Company in the future. Going forward, Distribution Company should procure power through competitive bidding – Case-I route.

- Commercial development and tourism are interlinked activities in the State. Therefore, Distribution Company needs to be sensitive to any increase in tariff of this consumer category as it can be detrimental to the tourism which is recognized as the crucial industry of the State.

- The decreasing trend in the contribution by HT Cat-I in total sales and revenue is mainly attributed to restriction of power supply to industrial consumers due to low realization of power from generating stations and stagnancy in the industrial activity in the State. In order to give boost to the industry in the State, Distribution Company needs to ensure uninterrupted power supply to these consumers at competitive rate.

- Consumers under OHOB category should be monitored for their actual consumption followed by an appropriate action in order to assess loss levels at a reasonably accurate level.

- Distribution Company should provide facilities like spot billing, payment through internet/mobile/cheque/kiosk, dedicated fault restoration staff etc. to key consumers. It would not only facilitate consumers but also benefit Distribution Company by reducing collection time and by minimizing loss of revenue due to power outages.

- Agriculture consumers should be metered for accurate assessment of sale even though they are billed on kW basis.

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- Asset metering is a prerequisite for an energy auditing systems to be in place. Hence Distribution Company should focus on 100% asset metering and ensure that these meters are maintained properly and read at the regular intervals. It would help Distribution Company in identifying pockets of energy and revenue drain.

- Distribution Company should take self initiated action to reduce cases billed under Meter Stuck (MS) and Door Lock (DL) categories. It jeopardizes the energy auditing processes.

- O&M sections should prepare a walk plan for meter readers indicating location of consumer premises with the policy number. It assists a new meter reader to take a predefined route and reduces the chances of consumer left unread and hence unbilled.

- The contribution of LT industries in the total revenue of department is more than 6% and each consumer pays an average of Rs. 60,000 per year. It indicates that any delay in collection of billed amount would negatively impact working capital requirement. According to the billing process mentioned above, there is one and a half month gap between meter reading and revenue collection for almost 38% of these consumers which increases the working capital need by Rs. 300 Lakhs. The working capital scenario can be easily improved by transferring these consumers to spot billing method.

- A detailed study is required to revise the assumptions used for OHOB and agriculture sales assessment. The underestimation of sales makes loss levels appear more than the actual and vise-versa.

- Load growth projections and load flow studies (for sample feeders) are required to be carried out before arriving at the adequate capital investment for the next plan period.

- Distribution Company should focus on improving network condition and hence reliability of supply to consumers.

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2.3 Financial review

2.3.1 Financial overview

- The below section highlights key aspects of the financials of the Electricity Department over the past four years and analyzes trends and key implications of the same. The analysis has been carried out on the data provided by the Department as requested. In instances where the available data has been inadequate, reasonable estimation methods and surrogates have been developed for the same. The key conclusions of this section reflect both the current financial health of the department, and reveal key issues (notably on Employee liabilities, Capital expenditure, Revenue collection and Government support) moving ahead

  The data for the heads of Current Assets and Liabilities has been made through estimates, and is in the process of being verified against the actuals by the Department. Similarly, the revenues (sales, billing and collection numbers) for FY 09 are in the process of being consolidated by the Department. Upon finalization of the above data heads, the fields for the same shall be updated in the As – is Financials and the same would be used as the basis for the FRP and Investment plan

2.3.2 Accounting method

- The accounting method followed by the Department currently is largely cash based rather than accrual based. Due to the same, there is a significant drawback in terms of calculating performance trends (operating and financial) on a year on year basis. Significant instances of the impact of this treatment appear in the analysis of Power Purchase expenses, employee expenses and Revenues collected. The following notes on the financials have been made with incorporation of appropriate adjustments to bring out the numbers on an accrual basis (as needed for the financial statements) with least possible error.

2.3.3 Budget Process

- The following are the key elements of the budget process followed currently by the department, through which the ED submits its requirement of plan funding to the Government

  - Summary of Operating performance: This covers the heads of power purchased, sold, transmission and distribution losses (at an agglomerate level), trends across customer categories (at both revenue and subscription levels) and AT&C losses.

  - Summary of Financial performance: This covers a cash flow statement (not a P&L) consisting of Gross receipts, Revenue expenses (non plan, including Power purchase, Salaries, Operating and Maintenance expenses, Administrative expenses and other charges)

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- Financial projections and estimation of plan funding requirement: Based on the projected tariffs and expenses for the next 2 years (current year revisions and next year forecast), the Department projects the funding requirements towards Capital Expenditure (based on its 12th plan investment plan) and gap funding to be supplied by the State Government

- Some key observations on the Budget process

  - Since the accounting method is cash based, loss calculations are made only on the basis of net collected revenue receipts, which is inclusive of payments made towards power consumed in earlier years too.

  - Due to the above reason, the accuracy of the revenue and cost numbers vary from actuals on account of being consolidated inflows and outflows for the year in lieu of income and expenses due for that particular fiscal

  - As a trend, the budgetary requirement (plan Government support requested by the Department) has been increasing. In 2008 – 2009, it stood at Rs 7800 Lakhs vs a likely actual allotment of around Rs 4300 Lakhs. Since the whole of capital expenditure is made from the plan funding, this gap between desired and available funding has impacted the pace of infrastructure creation

2.3.4 Assets and Liabilities

- The Assets and liabilities statements have been drawn for the last four fiscals (FY 06 – FY 09) on the basis of available data. Some notes on key components of the statements

2.3.4.1 Employee pension liabilities

- Being a department of the Government, the employee liabilities of the Electricity Department have been till now, financed by the Government Treasury on a "pay as you go" basis. Due to the same, no estimate has been made of the size of the net liability towards pensions. However, as the Department seeks to become a corporate entity, the valuation of the above liabilities is of importance, as this would determine the Financial Restructuring Plan, the size and extent of Government support, and the modalities of creation of the Employee Benefits Trust. The Act mandates that the Employee trust needs to be fully funded and that its cash flows need to be de linked from either the revenue streams of the successor entities, or those of the Government

- As per the accounting standard -15, which became applicable from 2006, corporates have to calculate the last salary that will be drawn by an employee and provide for pension and gratuity liability on that basis. This will have to be certified by a professional actuary as well. On account of this shift, the employers will have to provide to the actuaries, assumptions, and projected salary growth. On that basis, the liability will be determined.

- The valuation of the above mentioned employee pension liabilities comes under the technical purview of an Actuary. Steps have been initiated towards appointment of an

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actuary to deal with the same. However, based on the benchmark numbers from the example of Andhra Pradesh during unbundling, the adjusted tentative liability has been estimated in the attached statements

- Upon Actuarial valuation of the Pension liabilities, the structure of ownership of the same needs to be decided through discussions between the Department and the Government. This would finalize the set of inputs required for the finalization of the Financial Restructuring Plan.

2.3.4.2 Long term Loans:

- Based on historical records, the Department does not have any external debt on its books. The only external liabilities are in the form of monthly payments towards the System Control Centre infrastructure that had been created by PGCIL in 2002 under the ULDC scheme through a mix of equity and debt. Towards the same, the Department pays monthly repayments in the form of ULDC tariff charges which were agreed to be paid over a period of 15 years, till June 2017. The current monthly charges towards this (June 2009 bill) amount to Rs 30.07 lakhs, being split as Rs. 22.26 lakhs towards state section investments (Capital investments) and the remaining Rs. 7.81 lakhs towards the Central sector portion

- Currently, this agreement is treated as a revenue expense. The repayments towards PGCIL have been grouped in the Plan Revenue Expenses, under the System Control Centre head. The Asset and Liability statements produced treat the above agreement as a loan liability, with the asset in the books of the Department. The size of the loan liability has been estimated based on the present value of the payments due to PGCIL till June 2017. As on March 31, 2009, the net value of this liability is at Rs 18.92 lakhs

- It is to be noted that the size of this liability would reduce and become zero post June 2017

2.3.4.3 Contingent Liabilities

- The contingent liabilities of the Department fall into two distinct categories – contingent liabilities involving customers, and those involving suppliers. The first category consists of ongoing court cases related to either damage claims for death/ accident (6.5%), claims against billing disputes (10%) and a claim on account of deficiency in service (83.5% - INR 1000 lakhs - Sangavi Industries, Karaikal – 2008). The total value of the contingent liabilities involving customers are to the tune of INR 1860 lakhs

  The second category (court cases with suppliers) involves the ongoing dispute with TNEB over the price of electricity supplied from 2001. In FY 2009, a payment of INR 7730 lakhs was directed to be paid by the Puducherry Electricity Board by the High Court interim judgement, implying a purchase price of Rs.1.914 against historically assumed price of Rs.1.69. However, the maximum liability (under the scenario of a retrospective award of power at Rs. 3.00 to the Department) comes to Rs. 34817 lakhs, split between Puducherry and Karaikal regions (Puducherry ~ Rs. 8070 lakhs and Karaikal ~ Rs. 26747 lakhs)

  Considering precedents in this regard, the above mentioned contingent liabilities, on materialization would be borne by the Puducherry Government.

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2.3.4.4 Government Equity

- The value of Government equity is to be obtained as a plug in figure after balancing out the net size of assets (Fixed and Current) against net liabilities (Employee liabilities, loans and current liabilities). Under the current accounting methods, the Government does not track this number. Moving ahead, post the actual determination of the value of employee liabilities by the Actuary, and subsequent agreed revaluation of current assets (receivables towards sale of power), this figure would be finalized. Further, the FRP (Financial Restructuring Plan), would project the year on year value of this head for the entire estimation period for the relevant successor entity/ entities

- Though the exact estimation of the current value of Government Equity in the Department would emerge only upon actuarial evaluation of employee liabilities, from the experiences of other states, the value of Government equity pre reforms has been negative. The negative sign on the Government equity occurs due to the complete segregation of the employee liabilities (pension payments) from the books of the new entities. As the Electricity Department is corporatized, the liabilities would be transferred to a special Trust, which in turn would be funded jointly by the successor entity and the Government (the extent of which would be mutually agreed upon during the FRP phase).

- On completion of payments to external parties (for the Trust funding), the Government equity would return to positive. In light of the mandatory 14% ROE requirement, the Government would be needed to structure its net holding in the successor entities appropriately into Equity and Other instruments (e.g. Convertible debt bearing variable interest as determined year upon year). This would need to be discussed in detail during the framing of the Financial Restructuring plan

2.3.4.5 Fixed Assets

- Since the current book keeping methods of the Government do not require an actual cash valuation of the assets, there has been no effort to calculate the present value of fixed assets. The Department keeps track of the fixed assets more through registers of capital works completed, capital work in progress and estimates requirements of capital moving forward based on its plans. The Proposal in respect of Annual Plan for FY 10 (Summary of Operating and Financial Performance), in Performa 2, captures the gross block of assets based on historical values fixed (278.01 Crore at start of FY 06) and year on year additions. In addition, field level information pertaining to decommissioning and refurbishment of fixed assets is primitive

- The year on year additions themselves are computed considering only the Major Works portion (including SCP) of Plan Capital Expenses. Significant expenses towards fixed assets through the System Control Centre head (currently under the Plan Revenue Expenditure) have not been incorporated into records of capital formation

- Furthermore, the depreciation numbers calculated for the years (Summary Statement of Operating and Financial performance) have been calculated at a flat rate of 3.76% on the gross block at the start of the year, along with half of the capital expenses for that year. However, the above calculated depreciation has not been used to arrive at a net block of assets

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- The estimation of current value of fixed assets is based on the list of fixed assets as given by the Department as on date. Based on this asset list, the fixed assets have been divided into key asset categories with each having a specific depreciation schedule. Based on the estimated median ages of each of these categories and the schedule of current costs of the same, deflation adjusted gross block estimates have been made for the relevant periods. Post this, asset category wise estimation of year on year depreciation, current values (net block) of the existing assets have been calculated. The depreciation method applied has been a variable depreciation schedule, based on the suggested asset class wise depreciation given by the CERC, with the assumption of a straight line basis with a 10% scrap value.

- Based on the above calculations, the Net Block of Fixed assets for the years FY 06 to FY 09 are respectively Rs. 19954 lakhs, Rs. 20730 lakhs, Rs. 21695 lakhs and Rs 22023 lakhs.

2.3.4.6 Stores and Inventory

- The department follows the procedure of placing material orders (towards both transmission and distribution infrastructure creation) through the Suspense Account. After the material has been sanctioned and purchased, it is allotted to the relevant project, post which the material head is moved from the Suspense account to the relevant Plan/ Non Plan head in the expenses register at purchase cost. It should be noted that no depreciation is done for items in the Suspense account since the eventual transfer is at purchase cost

- The portion of the Suspense account purchases that have not yet been allocated to any project head are retained in the Suspense Account at the end of the Financial year and reported as expenses thereof, with treatment under the head of Stores. They are moved to the respective account heads in the next financial year. This method of book keeping has resulted in inaccuracy in recording of the expenses due to the double counting of the same expense across two years.

- This error has been treated appropriately in the enclosed Financial Statements, where the Suspense account is not considered towards calculation of net expenses or towards depreciation.

2.3.4.7 Current Assets – Receivables against sale of Power

- The gross amount of receivables against sale of power for the Financial years 2006 to 2009 stood at Rs.7676.52 lakhs, Rs. 9180.46 lakhs, Rs. 11352 lakhs and Rs. 14459 lakhs (est.) respectively. Out of this amount the quantum under legal dispute and litigation is treated as doubtful, leaving net realizable receivables of Rs. 5836.52 lakhs, Rs. 7340.46 lakhs, Rs. 9608.72 lakhs and Rs. 12716 lakhs (est.) respectively

- However, under the current scheme of provisioning for doubtful accounts, the "realizable receivables" as a percentage of net amount billed has increased steadily from 12% in FY 06 to over 17% in FY 09. Moreover, the trends in collection efficiency on a cash basis (net amount collected for the year upon net amount billed) is consistently in the vicinity of 94.5%, indicating that the effective collection losses year on year are closer to 4.5%. This implies that, at steady state, including the payments towards arrears over the past years, a net amount of 5.5% remains uncollected. Though an exact quantification of repayment

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probabilities would require a split of receivables across duration categories, the overall loss levels appear to be around 5%

- Of the net "realizable receivables" identified in FY 08, an amount of Rs 4003 lakhs is due from Central Government/ State Government offices and undertakings. This has grown at a year on year rate of 36%. The remaining amount of Rs. 5606 lakhs is due from other customers, with a major part of it coming from Bulk/ HT customers, and has increased at a rate of 23%. These very high growth rates of unrecovered revenues, from experiences of other State Electricity Utilities indicate low potential for recovery

- The implications of this trend are significant on the future reserves towards bad accounts. The benchmark levels for collection efficiency are at around 2 – 2.5%. Consistent loss levels of around 5.5% need to be closely looked into, since moving ahead, the JERC would mandate strict control on the collection losses during the tariff filing process. As an illustrative impact of the effect of this issue on the balance sheet, if for instance, the receivables were written off to the tune of 50% (a conservative estimate, since historical trends point out non recovery of atleast 5% of yearly sales which would imply a write off of close to 90% of receivables due), the net asset size would be hit to the tune of over Rs 5000 lakh

- At the time of incorporation of the successor entity/ entities, based on discussions with the Government, a suitable modality has to be evolved for the revaluation of these assets. There have been precedents of State Governments providing securitization facilities (in part) for doubtful receivables, with collection responsibilities invested with the successor entities with suitable reward/ penalty mechanisms. In light of the above points, the Government needs to provide guidance on the restatement of the net realizable receivables in order to facilitate preparation of clean balance sheets for the successor entities

2.3.4.8 Current Assets – Cash and Banking agreements

- Consumer security deposits and Bank guarantees are the key heads under Current Assets of the Department. The outstanding amount of cash (imprest) with the Department is minimal with all transactions happening through the Government. On corporatization of the entities, the bank balances shall be transferred according to the Asset Transfer document.

2.3.4.9 Working Capital

- As all payments and receipts of the department are made from the Government funds (plan and non plan), there has been no need for a pool of working capital to fund the day to day activities of the Department. An idea of the extent of Working Capital however can be inferred from the Receivables and Payables periods.

- The department pays the Power Suppliers in advance (starting of the month) to avail the rebate offered on the power purchase price for early payments (2% rebate through credit notes and 1% rebate if paid through other means before 15 days). It should also be noted that barring special cases, the power purchase liabilities are usually at a conservative level. However, at the Receivables side, there is a collection period of over 15 days for realization of the billed amount. So, there is a total gap of 45 days (one month of power purchase cost

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in advance and 15 days time for realization of bills, assuming a majority of accounts under monthly billing)

- Hence, an estimate of the current working capital requirement would be to the tune of Rs. 7860 lakhs. The successor entities would be required to have this amount among the two of them put together.

2.3.5 P&L items

- The P&L statements have been drawn for the last four fiscals (FY 06 – FY 09) on the basis of available data. Notably, the revenue figures for FY 09 are in the process of being finalized. The estimated revenue attached is based on power purchased and latest AT&C loss figures, and shall be updated with actuals upon realization of the same. Some notes on key components of the statements

2.3.5.1 Revenue receipts

- The revenue metrics captured historically have been - revenue billed for the relevant financial year, the net revenue collected in the course of the financial year, and the net amount outstanding accumulated across the past, including for the current year

- It is to be noted that there is no method of actual segregation of the dues for the previous periods from those for the current period. The documents submitted to the State Government only have total values of net receivables outstanding, with the amount under litigation earmarked as a separate category with doubtful recovery. As mentioned already, the realizable receivables seem to be overstated, with consistent collection losses of around 4.5% bearing testimony to the hypothesis

- Moving ahead, since close monitoring of the loss levels would be vital, the revenue receipts would have to be categorized into buckets based on the period due. This would enable effective estimation of recovery levels at various pending periods to avoid a build up of practically unrealizable receivables in the current assets section and accurate statement of AT&C losses

2.3.5.2 Power Purchase

- Currently, the Department has standing power purchase agreements with Central Generation Stations (CGS comprising of NTPC, NLC, MAPS and KAPS), TNEB, PPCL, AP and KSEB (Kerala State Electricity Board). While the first two supply to Puducherry, PPCL supplies to Karaikal, AP to Yanam region and KSEB to Mahe.

- Due to the region wide power deficit in the Southern Region in FY 09, there has been significant under realization of power from all Generators, resulting in Puducherry Electricity Department having to introduce load shedding across consumer categories, especially HT industries.

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- The payments towards purchase of power are classified under non plan expenses (expense head OCPP) in the expense schedule. The payments to the power producers are made typically at the start of the month in the form of Credit notes, which together with the accumulated interest are balanced off against the power purchase bills. Provision for write offs. The statements have adjusted the cash based records of power purchase to accrual basis. Significant payments have been made in FY 08 and FY 09 towards liabilities accrued in previous years, pushing up the apparent power purchase costs in the later years.

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2.3.6 Financial statements and charts

Table: Balance Sheets (FY06 – FY09)

Particulars (all figures in Rupee Lakh)	2005-06	2006-07	2007-08	2008-09
LIABILITIES				
Shareholders' Funds				
Share Capital	-27718	-27275	-24762	-25739
Long-Term Liabilities				
Employee Liabilities (Pension)	46333	46333	46333	46333
New Long Term Loans	0	0	0	0
Existing Long Term Loans	2263	2152	2029	1892
Other Market Borrowings for Capital Expenditure	0	0	0	0
Other Market Borrowings for Revenue Deficit	0	0	0	0
Other Market Borrowings for Working Capital	0	0	0	0
Current Liabilities				
Consumer Security Deposits	10489	11033	12475	13022
Power Purchase Liabilities	-130	1073	1603	6243
Staff related liabilities	204	244	263	421
Liabilities towards suppliers	249	396	330	156
Interest accrued but not due	0	0	0	0
Others	0	0	0	0
Repayment due but not paid	4	7	4	13
Employee liabilities in respect of 6th Pay Commission arrears	1866	1866	945	945
Net of Current and Long term liabilities	61278	63103	63981	69025
Total Liabilties + Equity (Rs. Crs.)	33560	35828	39219	43286
ASSETS				
Gross block at the start of the year	36471	38928	41526	44472
Net block at start of year	24505	24971	25444	26118
Additions during year	2458	2598	2946	2442
Depreciation	1992	2124	2273	2396
Net block at year end	24971	25444	26118	26163
Current Assets				
Stores	510	654	936	1505
Gross Receivables against supply of power	7677	9180	11352	14624
Less: Provision for Doubtful items (under litigation) - previous dues	1840	1840	1743	1743
Less: Provision for Doubtful items - current dues	0	0	0	0
Less: Adjustment for write off of unrecoverable items	0	0	0	0
Net Receivables against supply of power	5837	7340	9609	12881
Cash	1	1	1	1
Bank Balance	3941	4395	4913	5513
Bonds	158	158	131	131
FDR, NSC	3622	3669	4125	4461
Bank Guarantees	2926	2969	3438	3049
Short Term Investments	249	263	282	340
Loan Advances	0	0	0	0
Sundry Receivables	0	0	0	0
Total Assets (Rs. Crs.)	**33560**	**35828**	**39219**	**43286**

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Table: Profit and Loss Account (FY06 – FY09)

PROFIT & LOSS				
Particulars (all figures in Rupee Lakh)	**2005-06**	**2006-07**	**2007-08**	**2008-09**
Revenue				
Tariff Income	52,184	53,451	60,288	59,554
Income from Wheeling Charges	-	-	-	-
Non-Tariff Income	324	242	269	300
Total Revenue (Rs. Crs.)	**52,508**	**53,693**	**60,557**	**59,854**
Expenditure				
Total Power Purchase Cost	44380	47114	52821	56219
Employee Cost - regular	2410	3840	3173	4822
Repairs and Maintainence (R&M) Expenses	529	979	876	740
Administration and General Expenses (AGM)	149	171	152	152
Provision for Bad Debts and Write-offs	0	0	0	0
Other Expenditure Items	89	73	92	106
Capitalized Expenses	2458	2598	2946	2442
Total Expenditure (Rs. Lakh)	47557	52176	57114	62038
PBDIT (Rs. Lakh)	**4951**	**1517**	**3443**	**-2184**
Less: Depreciation	1992	2124	2273	2396
Plus deferred depreciation			0	
PBIT (Rs. Lakh)	**2959**	**-607**	**1170**	**-4580**
Interest and Finance Charges (IFC)	360	360	360	360
Less: Interest and Finance Charges Capitalized	0	0	0	0
Advance against depreciation		0		
PBT (Rs. Lakh)	**2599**	**-967**	**810**	**-4940**
Less: Income Tax				
PAT (Rs. Lakh)				
Less: Payment of Dividend	**2599**	**-967**	**810**	**0**
Less: Payment of Dividend Tax				
Addition to Retained Earnings (Rs. Lakh)	**0**	**0**	**0**	**-4940**

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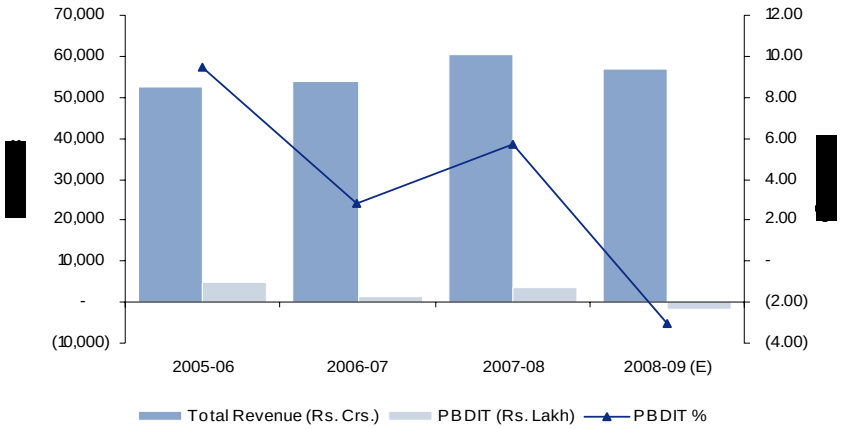
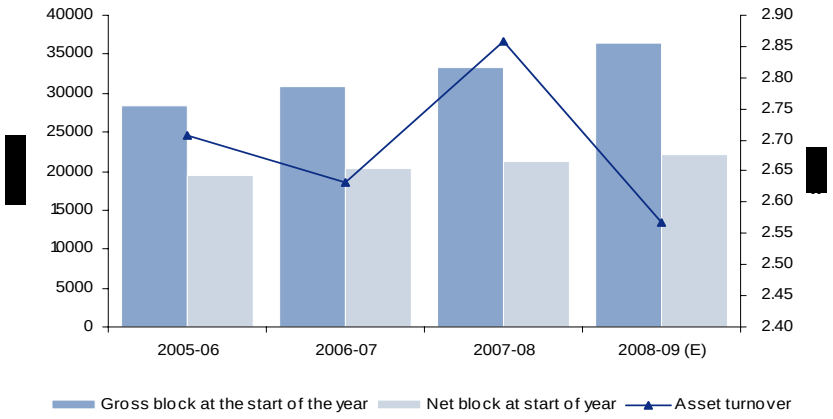
Profitability trends



Asset trends



Cost per unit – trends (Rs/unit)	2005-06	2006-07	2007-08	2008-09
Purchase cost per unit	1.86	1.88	2.02	2.15
Employee cost per unit	0.10	0.15	0.12	0.20
Other costs per unit	0.03	0.05	0.04	0.04
Total costs per unit	1.99	2.08	2.18	2.39

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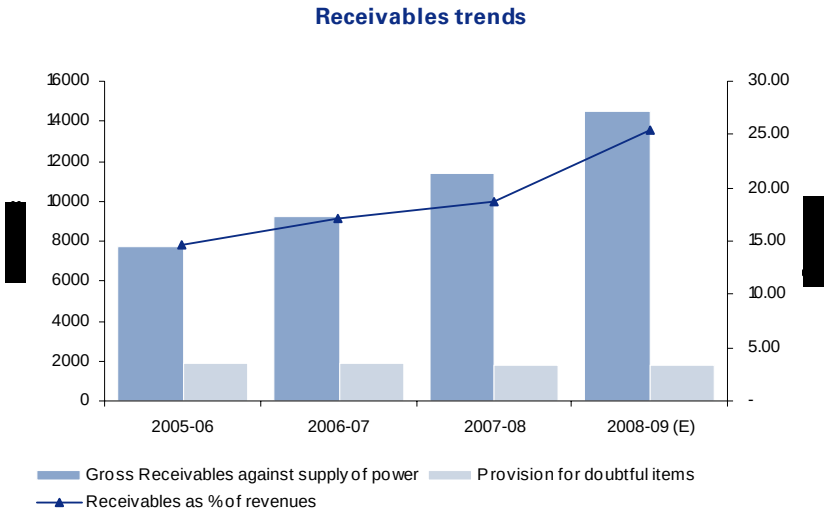

2.3.7 Financial review - Key notes

I. **Accounting method:** The current cash based accounting method followed by the Department is untenable on two counts – it disagrees with established accrual based accounting methods for companies under the Companies Act, and it distorts key parameters like revenues, costs and profitability. Moving forward, the accounts will have to be maintained in conformity with GAAP. Key accounting practices for the new entity will be outlined in the course of the Business Plan and Transfer plan

II. **Estimation of capital expenditure:** The current method of capital expenditure estimation is based on rough demand calculations and always lags demand. Moving ahead, there needs to be a scientific basis to capital expenditure, supported by load study (Transmission and distribution) and consumer profile mapping (distribution). This assumes added significance in light of ARR filing, since the JERC would require sufficient justification for the capital expenditure schedule, which in turn would have a bearing on the tariff levels

III. **Estimation of employee (pension) liabilities:** Since there is no current valuation of employee pension liabilities due to the "pay as you go" method, the value of Government Equity, along with Pension liabilities has been consolidated in the financial statements. According to AS 15, the successor entities need to recognize the value of pension liabilities and provide funding for the same. This estimation needs to be done by an Actuary, and is currently underway. An accurate evaluation of the extent of Employee liabilities, and hence Government equity would become available along with the FRP (Financial Restructuring Plan). Moreover, the ownership of the liability of existing pensioners needs to be confirmed by the Government.

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IV. **Valuation of fixed assets:** The method used for the valuation of fixed assets in the statements has been an accelerated depreciation method, recommended by the CEA. The same has been used (in a slightly modified form) by Andhra Pradesh. The value of the gross block has been apportioned across the asset categories on the basis of industry benchmarks, as well as data provided by the Department. Moving forward, a detailed asset register needs to be maintained, by asset category, to capture asset commissioning, decommissioning, repairs, relocation, scrap sale etc

V. **Valuation of receivables:** As seen in the financial statements and the highlighting graphs, the progressively increasing quantum of Receivables against sale of power as a percentage of revenues is a cause for concern. This figure is estimated to reach over 22% in FY 09. An immediate revaluation of the same, in light of historical collection efficiencies needs to be made. Alternatives for recovery of the same need to be examined. They could include Government securitization, securitization with collection onus on the successor entities with an appropriate risk – reward mechanism etc. It is to be noted that receivables from various Government departments have amounted to over Rs. 4000 lakhs as of FY 08

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3 Way forward

In terms of next step, it is expected that the Consultants shall prepare a reform and restructuring plan and come out with the Financial Restructuring Plan (FRP) for successor companies by the end of August 2009. Financials for FY 09 (Current Assets and Liabilities and FY 09 revenues) would be provided by the Department in the coming week and the same would be incorporated into the report, as well as the FRP and Investment plans. The Financial Restructuring Plan will provide projected financial statements of successor companies, their working capital requirement, terminal benefit liability and the extent of financial support required from the Government in future. However, in order to enable the same, KPMG would require the support of the project stakeholders (viz. GoP and Electricity Department) to arrive at a consensus on the industry structure.

Also following support would be required from the Government in completing the assignment:

- Approval on Transfer Scheme
  - Value of assets and liabilities to be transferred to the successor entities
  - Appointment of actuary to quantify terminal benefits liability (including existing pensioners) and method of funding the same
  - Terms and conditions of transfer of employees
- Approval on Financial Restructuring Plan
  - Financial support, if required, from Government of Puducherry
- Institutional Support
  - Strengthening technical, finance and account activities to ensure efficient independent functioning of successor entities

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4 Annexure

4.1 Annexure A – AP loss reduction case study

- All four distribution utilities of State of Andhra Pradesh are at different stages of loss reduction movement. While APSPDCL has high agriculture consumption and huge rural population to manage, APEPDCL has gone into micro management of assets and brought down losses at a very low level of 12%. Therefore, it seems logical to drive loss reduction trajectory of Puducherry with the help of learning from AP.

- In the year 1999-00 when APSEB got restructured, the State T&D losses were at a level of 38%. In next four years, through strict monitoring, adequate government support and adopting targeted investment approach the State had brought it down to 22%. Table shows the loss trajectory followed by the State after restructuring of SEB.

Table 21: Loss Trajectory of AP before and after restructuring of SEB

	1999-00	**2000-01**	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**
T&D Loss (%)	37.9%	34.8%	30.2%	26.1%	22.3%	21.4%	20.2%	19.8%

- Though State reduced its T&D losses at an average of 4% per year in initial four years of restructuring but after reaching at a level of 22% it could only be able to reduce it by 1% per year. And it is 0.5% below 20% of loss levels. Table below shows year on year T&D loss reduced by the state utilities.

Table 22: Loss Reduction trend by AP Discoms

	2004-05	**2005-06**	**2006-07**
APCPDCL	24.0%	18.8%	18.2%
APEPDCL	14.3%	12.7%	12.5%
APNPDCL	21.9%	19.2%	26.6%
APSPDCL	20.6%	16.5%	17.2%

Source: Indiastat

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4.2 Annexure B – Meetings held

Date	Context	Personnel Met
10/06/09	Discussion of the technical data required and available with the department	Mr. S Shankar; Mr. Vivek; Mr. Chanemougam
15/06/09	Get an overview of the billing process	Mr. Kaniyamuthan; Mr. Shammi
17/06/09	Discussion on power purchase details for the past 4 financial years	Mr. Chanemougam, Mr. Ganesan
19/06/2009	Check availability of information required to assess region-wise/voltage-wise/feeder-wise loss levels in the State	Mr. Ravi; Mr. Kaniyamuthan; Mr. Chanemougam
19/06/09	Template for listing and valuation of Fixed assets handed over	Mr. Ravi, Mr. Venkatesan, Mr. Vivek
19/06/09	Activity Listing of Urban Section Office	Mr. Ramesh and Mr. Senthil
23/06/09	Discussion on the treatment of expense heads – reconciliation of cash based accounting with the accrual method	Mr. Chanemougam, Mr. Ganesan
24/06/09	Understanding functioning of System Control Centre	Mr. Sreedhar
24/06/09	Understanding of the various consumer complaints processes currently followed by Puducherry Electricity Department	Mr. V Ravichandran, JE (South)
24/06/09	Understanding the functions of Section and Sub Division Office (O&M)	Mr. R Murali (AE Town I), Mr. Ravichandran (JE Town South)
25/06/09	Understanding structure, working, staff strength and work allocation in O&M offices	AE Town-I Division; JE Town South Section
25/06/09	Understanding working of 110/22 kV Marapalam SS	Mr. Vivek; Mr. Manohar
25/06/09	Understanding working of 230/110 kV Villianur SS	Mr. Vivek; Mr. Ramsubramaniam
01/07/09	Template for evaluation of current assets and liabilities for the past 4 financial years handed over	Mr. Ravi, Mr. Vivek
01/07/09	Understanding of Staffing pattern across Divisions	Mr. Ravi and Mr. Vivek
03/07/09	Understanding UI purchase and sales	Mr. Sreedhar
08/07/09	Discussion about power purchase and sale	Mr. Chanemougam
09/07/09	Understanding of activities of each division and	Mr. Ravi and Mr. Vivek

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	issues	
10/07/09	Understanding of activities of each division and issues	Mr. Ravi
10/07/09	Template for evaluation and identification of contingent liabilities handed over	Mr. Vivek
13/07/09	Discussion on effect of UI purchase and sales on loss	Mr. Chanemougam; Mr. Ganesan
14/07/09	Understanding the Metering, Billing and Collection (MB&C) Process of PED	Mr. Kaniyamuthan; Mr. Shammi
14/07/09	Understanding of activities of each division and issues	Mr. Ravi
15/07/09	Understanding of activities of each division and issues	Mr. Ravi
15/07/09	Understanding details about the MB&C processes	Mr. Shammi
17/07/09	Understanding of the structure of expenses and liabilities attached to the System Control Centre	Mr. Ravi, Mr. Thanigai
21/07/09	Discussion on obtaining the Revenue data for the Financial year 2009 region wise	Mr. Ravi
23/07/09	Discussing the gaps in feeder-wise data provided by the sub-stations	Mr. Ravi

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4.3 Annexure C – Abbreviations

ABT	Availability Based Tariff
AC	Air Conditioner
AE	Assistant Engineer
AP	Andhra Pradesh
APCPDCL	Andhra Pradesh Central Power Distribution Company Limited
APEPDCL	Andhra Pradesh Eastern Power Distribution Company Limited
APNPDCL	Andhra Pradesh Northern Power Distribution Company Limited
APSPDCL	Andhra Pradesh Southern Power Distribution Company Limited
AS	Accounting Standard
AT&C	Aggregate Technical and Commercial
CBD	Centralised Breakdown
CERC	Central Electricity Regulatory Commission
CGRF	Consumer Grievance Redressal Forum
CGS	Central Generating Station
Discom	Distribution Company
DL	Door Lock
DLAC	District Level Advisory Committee
DTR	Distribution Transformer
EA	Electricity Act
ED	Electricity Department
EE	Executive Engineer
EHT	Extra High Tension
EHV	Extra High Voltage
FOC	Fuse Off Call
FY	Financial Year
GoP	Government of Puducherry
HP	Horse Power
HR	Human Resource
HT	High Tension
JAO	Junior Accounts Officer
JE	Junior Engineer
JERC	Joint Electricity Regulatory Commission
KAPS	Kaiga Atomic Power Station
KSEB	Kerala State Electricity Board
LT	Low Tension
MAPS	Madras Atomic Power Station
MBC	Metering, Billing and Collection
MRT	Meter Relay Testing
MS	Meter Struck
MU	Million Unit
MW	Mega-watt
NLC	Neyveli Lignite Corporation
NRM	Non-reading Meter
NRT	No Reading Taken
NTPC	National Thermal Power Corporation
O&M	Operations & Maintenance

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OCPP	Other Charges Power Purchase
OHOB	One-Hut-One-Bulb
PF	Provident Fund
PGCIL	Power Grid Corporation of India Limited
PPA	Power Purchase Agreement
PPCL	Pondicherry Power Corporation Limited
RLDC	Regional Load Dispatch Centre
ROE	Return on Equity
SAO	Senior Accounts Officer
SCC	System Control Centre
SE	Superintendent Engineer
SEB	State Electricity Board
SS	Sub-station
T&D	Transmission and Distribution
TNEB	Tamil Nadu Electricity Board
TS	Thermal Station
UI	Unscheduled Interchange
UT	Union Territory

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