CRM Practices in Electricity Distribution in India – Supply Side Perspective
Chapter 1

1.0 Background

Electricity is the backbone of any modern economy. The function of electricity distribution is the interface of the electricity supply chain with its customer. This report is a study of customer relationship management practices in the business of electricity distribution in India from a supply side perspective. As Indian electricity distribution companies of a variety of ownership, this is a comparative study of CRM practices in a private, state owned and newly privatized joint venture utility.

1.1 Brief country overview

With a population of over 1.2 billion, i.e. about 15% of the world’s population, India has emerged as a global player with the world’s largest economy in purchasing parity terms.\(^1\) India’s GDP is estimated at $1.848 trillion – the tenth largest in the world in 2011. However, a GNI per capita of US$ 1410 in 2011 in PPP (current international $) puts India in the lower middle income classification.

Although there has been a slow down of the GDP growth rate, India continues to grow between 5% to 6%. Along with economic growth, there is enormous pressure on the augmentation of India’s infrastructure particularly that of energy in the coming years. In 2009, it was estimated that only 66.3% of the population had access to electricity and electricity consumption was 818.9 kwh in 2010-11.

India is also undergoing a massive urban transformation. By the year 2030, it is estimated that 40% of India’s population will live in the urban areas – doubling the urban population within a span of thirty years.\(^2\) The sustainability of this urbanization will depend largely on access to appropriate infrastructure including that of access to electricity.

1.2 Objectives of the research

This study is part of a larger study conducted by Lirneasia to cover Sri Lanka, Bangladesh and India to study Customer Relationship Management (CRM) and the use of Information and Communication Technology (ICT). This is a country study of India and the specific objectives of this study are:

- To study the customer relationship management practices in the electricity sector in India, and analyze how these can be improved with better services design and the increased use of ICTs. The specific focus of the study is urban micro entrepreneurs (ME) and those at the bottom of the pyramid (or the BOP, defined as those belonging to socio-economic classification D and E), and how these two groups are served.

\(^1\) http://www.worldbank.org/en/country/india/overview  
\(^2\) http://www.worldbank.org/en/country/india/overview
• To provide expert input (based on above work and knowledge of best practices in other parts of the world) to the specialized design consultancy team that will be designing, new or improved services in the telecom sector that will better serve the BOP and urban MEs.

• To engage with policy makers, regulators and mobile network operators to communicate the research findings as well as the possible new service elements that have been designed taking into account user input.

The scope of the study is specifically electricity distribution in urban India for customer classes belonging to the Bottom of the pyramid (BOP) and micro entrepreneurs.

1.3 Overview of Electricity Sector in India

The electricity sector in India is predominantly controlled by the Government both at the centre and the states. The Ministry of Power is the apex body responsible for the development of electrical energy in the country. India is world's 6th largest energy consumer, accounting for 3.4% of global energy consumption. Due to India's economic rise, the demand for energy has grown at an average of 3.6% per annum over the past 30 years.

In February 2013 the installed power generation capacity of India stood at 214630 MW of which 29% of it was from the private sector. About 75% of the electricity consumed in India is generated by thermal power plants, 21% by hydroelectric power plants and 3% by nuclear power plants. More than 66% of India's commercial energy demand is met through coal of which the country's has vast reserves.
To transmit 214630 MW of power India has developed its transmission network to a large extent. Till Feb 2013, 115727 ckm of 400 kV Transmission line, 139801 cKm of 220 kV transmission line was erected. To support this transmission infrastructure there are 400 kV substations with overall capacity of 164417 MVA and 220 kV substations with overall capacity of 241164 MVA at the end of Feb 2013. With growing demand and tremendous power generation growth, India is moving towards 765 kV transmission line which contributes to 6459 ckm as of now. High Voltage Direct Current (HVDC) lines are also been erected across the country. There are 132 kV lines and 132 kV substations which fed into distribution system that is considered from 33kV and below.

Electricity losses in India in distribution are extremely high and vary between less than 10% to more than 50% across distribution companies. The total distribution system losses were estimated at 31% for 2010-11. The financial health of power utilities particularly those of distribution companies continues to be a matter of grave concern considering that their losses have reached an alarming level of Rs. 82,000 crores of aggregate losses after subsidy and rs.179,000 crs before subsidy. Out of total energy generated, approximately only 55% is billed and only 41% is realized. The gap between average revenue realization and average cost of supply has been constantly increasing. In 2009-10, the cost of supply was

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3 Central Electricity Data on transmission Feb 2013
4 Report of the High Level panel on financial Position of Distribution Utilities, chapter 3. This figure is likely to be an underestimate as agricultural consumption is not metered and an estimate and typically some of the losses on account of theft, managerial & operational inefficiencies and technical reasons are allocated to agricultural consumption.
5 Report of the High Level panel on financial Position of Distribution Utilities, page 11
354 p/kWh, the average realization was only 268p/kWh including agriculture. The realization from agriculture sector was 89.0 p/kWh. The AT&C losses for 2010-11 was 26.15%.

### 1.3.1 Legal, Policy and Regulatory Framework

The Electricity Act (EA) 2003, is the key legislation governing the electricity sector in India. Enacted in 2003, the EA consolidates all previous legislation and brings the consumer to the fore front of the legislative provision. The preamble Section 3 (b) states: the Act aims at “… generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interests of consumers;” (italics mine)

Section 57 of the EA is with regard to Consumer protection particularly the Standards of Performance (SOP) wherein the Regulatory commission, after consultation with the licensees and persons likely to be affected, specify standards of performance of a licensee or a class of licensees. If a licensee fails to meet the standards specified under subsection, he shall be liable to pay such compensation to the person affected as may be determined by the Appropriate Commission within 90 days of such determination. Section 58 provides for the specification of different standards of performance for different licensees by the ERCs. Section 59 mandates that every licensee shall provide information to the ERC regarding the level of performance achieved as the SOP determined by the ERC and the number and category of cases where compensation was made. Section 59 (2) also states that the ERCs would publish, at least once a year, information regarding the discoms’ compliance to SOP.

Even with regard to Tariff regulation (Section 61), the Act states that tariff should be determined in such a manner “.. Safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner).

The EA provides for the constitution of a Central Advisory Committee to the Central Electricity Regulatory Commission (CERC) (Section 80(2) ) and the State Advisory Committee for State Electricity Regulatory Commissions (SERCs) (Section 87(2). Both the central and State Committees would have consumer representatives on the Committees and one of the objects of the committee is the protection of consumer interests.

The EA 2003 mandates that all distribution companies must establish a forum for redressal of grievances of the consumers in accordance with the guidelines as may be specified by the State Commission.

Any consumer, who is aggrieved by non-redressal of his grievances may make a representation for the redressal of his grievance to an authority to be known as Ombudsman to be appointed or designated by the State Commission. The Ombudsman shall settle the grievance of the consumer within such time and in such manner as may be specified by the State Commission.

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6 As per PFC for utilities selling directly to consumers source: CEA  
7 Stated in Section 81 (iv) for the Central Advisory Committee and Section 87(2) for the State Advisory committee  
8 EA 2003 Section 42 (5)  
9 EA 2003 Section 42 (6)  
10 EA 2003 Section 42 (7)
The EA 2003 also provides for the establishment of an Appellate Tribunal for Electricity (APTEL) set up by the Central government to hear appeals against the orders of the adjudicating officer or the Appropriate Commission under this Act. Section 111 (1) states that *Any person aggrieved by an order made by an adjudicating officer under this Act (except under section 127) or an order made by the Appropriate Commission under this Act may prefer an appeal to the Appellate Tribunal for Electricity.*

The EA 2003 provides for stringent measures against the theft of electricity as well as special courts to try and dispose such cases in a time bound manner.\(^\text{11}\)

The EA 2003 is supported by two key policies – the National electricity Policy (NEP) 2005 and the Tariff Policy 2006. One of the stated objectives of the NEP 2005 is the protection of consumers’ interest.\(^\text{12}\)

Two key issues that the Policy seeks to address are: \(^\text{13}\)

(a) Competition aimed at consumer benefits  
(b) Protection of consumer interests and quality standards

The Policy prescribes several technical interventions to safeguard consumers – it stipulates that all connections must be metered (Section 5.4.8), the use of modern information systems “… to facilitate creation of network information and customer data base which will help in management of load, improvement in quality, detection of theft and tampering, customer information and prompt and correct billing and collection. Special emphasis should be placed on consumer indexing and mapping in a time bound manner.” NEP also prescribes for the induction of competition, particularly in the generation segment as a means to provide benefits to consumer.\(^\text{14}\)

The NEP 2005 prescribes the regulation of quality of power supply by the SERCs as a means to protect the interest of the consumers. Section 5.13.1 states that the parameters should include, amongst others, frequency and duration of interruption, voltage parameters, harmonics, transformer failure rates, waiting time for restoration of supply, percentage defective meters and waiting list of new connections. The Standards of Performance would be prescribed by the SERCs and compliance is also expected to be monitored by them. Distribution companies are expected to indicate the Reliability Index (RI) of supply to consumers. The SERCs are expected to indicate the road map to achieve the targets for all cities, towns as well as the rural areas.

The Tariff policy 2006 too has certain features that support the consumer interest. The first objective of the Policy is to “Ensure availability of electricity to consumers at reasonable and competitive rates;”.\(^\text{15}\)

The underlying premise of the Tariff Policy is that the introduction of competition in its various dimensions to the sector is one way of ensuring significant benefits to consumers.

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\(^{11}\) EA 2003 Section 135 and Section 153  
\(^{12}\) NEP 2005 Section 2.0  
\(^{13}\) NEP 2005 Section 4.0  
\(^{14}\) NEP 2005 Section 5.7  
\(^{15}\) Tariff Policy, p 2 Section 4 (a)
1.3.2 The Structure of the Electricity Sector in India

The electricity sector in India is on the concurrent list of the constitution and hence both the Centre and the States having significant jurisdiction over the sector. Until 1975, each state had a State Electricity Board that was a vertically integrated monopoly responsible for generation, transmission and distribution of electricity in that particular state. In 1975, the central government established generation companies such as NTPC, NHPC and NEEPCO under the central sector to augment the much needed capacity addition in the country. Soon after, Powergrid was set up to provide interstate and inter-regional transmission connectivity and capacity leading to the development of a national network. However, the sector continued to be plagued by demand-supply gaps, high technical and commercial losses particularly in the distribution segment as well as poor financial and operational performance.

In 1991, the GoI initiated reforms of the power sector as part of the larger exercise liberalizing the Indian economy. In order to augment the supply-demand gap, the GoI permitted the entry of the private sector in electricity generation. There was no law barring private sector in electricity distribution even though most of sector was currently under the state governments.

In the mid-1990s, it was recognized that the mere augmentation of capacity would not be adequate and the sector required far more focused interventions. At the behest of the World Bank, the Government of Orissa enacted the Orissa Power Reforms Act in 1995 which entailed the restructuring of the Orissa State Electricity Board through a process of functional unbundling and the setting up of the Orissa Electricity Regulatory Commission (OERC) as an independent regulator for the sector. This model was reforms was copied (sometimes with minor variations) in several other states across the country such as Andhra Pradesh, Karnataka, Uttar Pradesh, Haryana etc.

In 1998, the GoI enacted the Electricity Regulatory Commissions Act which enabled the states to set up regulatory commissions but did not provide the legislative foundation for restructuring the sector. Both restructuring and setting up an ERC continued to be an option that states could exercise but was not mandatory. It was only after the enactment of the EA 2003 was the setting up of a Regulatory Commission in every state made mandatory. However, as far as unbundling was concerned, the only mandatory requirement was the separation of the transmission wires from trading for the purpose of facilitating open access as a precursor to competition. The distribution companies continued to be local area monopolies even if a single state-wide distribution company was split into several companies for the sake of improving operational efficiency.

The EA 2003 provides for the grant of multiple distribution licensees in the same area through independent distribution systems, in order to facilitate competition in the distribution business. Section 62 (1)(d) specifies that in case there are more than one distribution licensee in the same area, the SERC may determine only the ceiling on the retail tariff in order to promote competition. With a view to provide benefits of competition to all section of consumers, the second and subsequent licensee for distribution in the same area shall have obligation to supply to all consumers in accordance with provisions of section 43 of the Electricity Act 2003. The SERCs are required to regulate the tariff including connection charges to be recovered by a distribution licensee under the provisions of the Act. This is expected to ensure that second distribution licensee does not resort to cherry picking by
demanding unreasonable connection charges from consumers. An overview of the current structure is represented as below:

**Current Structure – Post EA 2003**

1.3.3 Current Status

Despite reforms and several other initiatives in the Indian power sector, the sector continues to be in a state of crises on account of

(a) Demand – supply gaps
(b) Fuel shortages
(c) Financial crises of distribution companies

The country continues to be plagued by a demand supply gap that it has not been able to bridge over the last several decades. Recent estimates put it at an energy shortage of 8.5% and a peak shortage of 10.6% in 2010-11. This is despite a growth rate of 8.1% in generation. For 2012-13, the anticipated energy deficit is 9.3% and peak deficit is 10.6%.

Although the country has added almost 55,000 MW of capacity in the 11th Plan period, the recent fuel crises has led to stranded capacity on account of the shortage of coal and gas in the country. The loss of

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16 NEP 5.4.7. After the experience of multiple distribution licensees in Mumbai city, there are discussions regarding an amendment to the Act to provide for the separation of the wires from the retail supply business in the distribution companies.

17 Operation Performance of Generating Stations in the Country during the year 2011-12, An Overview, Central Electricity Authority, New Delhi, April 2012, p 1

18 CEA estimates. The actuals for 2011-12 was 79,313 MU in energy terms and 13,815 MW of peak capacity.
generation on account of shortage of coal was 8.82 BU, on account of poor quality of coal, 5.94 BU and shortage of gas 7.7 BU in 2011-12, a total of 22.46 BU.\textsuperscript{19}

The distribution companies continue to be under severe financial stress. Apart from issues related to poor governance structures, high transmission and distribution losses continue to contribute to the financial pressures. Nearly a third of the country's electricity supply is unpaid for.\textsuperscript{20} Slum dwellers' unofficial hook-ups are the most visible sign of India's power theft crisis. Meter tampering by middle class households, electricity theft by industrial enterprises are other means for which the industry is bearing the brunt. In spite of stringent laws to punish those caught for power theft, the use of electricity as a significant means of garnering votes defeats the purpose of law and management of discoms.

Politicians often regard laxness about revenue collection as a vote-winner. The political aspect is probably most blatant in rural areas. The powerful farmers' lobby is hard for politicians to ignore in a country where a majority of the population still makes its living from agriculture. Several state governments in India provide electricity at subsidized rates or even free to some sections particularly and low income or BPL households.\textsuperscript{21} The provision for these subsidies are made through cross subsidies by charging other consumers particularly industrial, commercial and high end domestic consumers over and above the cost of supply as well as a budgetary provision made by the State governments.

Severe power shortages, coupled with the above governance related issues have in fact impinged on the ability of the distribution companies to chalk out and adhere to state of art CRM practices. The following chapter will detail the Distribution Sector in India including the structure, challenges, initiatives and the regulatory interface.

\textsuperscript{19} Operation Performance of Generating Stations in the Country during the year 2011-12, An Overview, Central Electricity Authority, New Delhi, April 2012, p 14
\textsuperscript{20} No other country suffers revenue losses on this scale. In China, Asia’s other emerging economic giant, no more than 3% of the nation's power supply is lost to theft as part of 8% total power transmission losses. OECD countries’ transmission and distribution losses are just 7%.
\textsuperscript{21} BPL is an acronym for below the poverty line. In electricity, BPL households (as identified by the GoI) are provided free electricity for one light per household which is about 30 kwh per month.
Chapter 2

2.0 Overview of electricity distribution in India

Distribution is the vital segment of electricity value chain as it completes the revenue cycle. Unfortunately, in India, it is also the weakest link plagued as it is by poor financial health, poor collection efficiencies, poor governance, poor managerial practices and lack of accountability.

The distribution sector caters to rural and urban areas. Post restructuring of the electricity sector, most of the states have carved out multiple distribution companies with its monopoly area. Currently India has seven categories of distribution entities:

a. Distribution companies carved out of erstwhile SEBs in the state; for example Andhra Pradesh has four companies, Karnataka five, Haryana two etc. Some States such as Kerala, Tamil Nadu and Punjab continue to have a distribution company for the entire state in conjunction with generation, with only the transmission company hived off.

b. Private distribution licensees which have been operating since several decades if not about a century. Examples are Torrent Power (in Gujarat), R Infra-D in Mumbai, CESC in Kolkata etc

c. Municipal Undertakings also distributing electricity – examples are NDMC in Delhi, BEST in Mumbai

d. Newly privatized companies as part of the reforms process. These companies are actually joint ventures with 51% stake held by the private company and 49% by the state government entity. Examples – all the four distribution utilities in Orissa and three in Delhi.

e. Distribution franchisees which are designated by the distribution company for a sub-area of their distribution with a fixed term of contract and often fixed performance improvement goals. However franchisees are not licensees and hence do not have a locus standi vis a vis the SERC of the respective state. Example is Bhiwandi in the Maharashtra Electricity Distribution Company Limited Area.

f. Some of the smaller states have electricity departments of the states responsible for the distribution of power. Examples are Puduchery, and the union territories.

g. Rural cooperatives of which a few have survived such as Hukkeri in Karnataka and Anakapalli in Andhra Pradesh

Most of the distribution companies have an area of service across urban and rural areas. The rural distribution segment in India is characterized by wide dispersal of network in large areas with long lines, high cost of supply, low paying capacity of the consumers, large number of subsidized customers (particularly agricultural and low-income households), un-metered flat rate supply to farmers, non-metering due to high cost and practical difficulties and low load. Several states such as Andhra Pradesh, also have a policy of free power to farmers. The consumer mix in rural areas is mainly agriculture and residential.
Urban distribution, on the other hand, is characterized by high consumer density, and higher rate of growth of load. The consumer mix in urban areas is mostly commercial, residential, and industrial. The urban areas of the country have large “slum” areas where metering is politically difficult and revenue collection even more so. Some cities have cultural ghettos where reading the meter by entering a household is difficult. Both the rural and urban segments are distinct with different problems and issues. However, the urban areas are more amenable to the use of technology particularly ICT for improving managerial efficiencies.

One of the biggest challenges facing distribution utilities are the high distribution losses partly on account of technical reasons and largely on account of theft, pilferage and poor metering practices leading to poor collection efficiencies. The all India figure for T&D losses in 2010-11 was 23.97%. As distribution loss figures did not capture the gap between the billing and the collection, the concept of Aggregate Technical & Commercial (AT&C) loss was introduced in 2001-2002 to capture the total performance of a distribution utility. There is a wide variation of losses among the states and variation among the distribution companies within the states. AT&C losses are presently in the range of 15.35% (2011-12 in Andhra Pradesh) to 73.02% (in Manipur). The average is 33.45%. Apart from rampant theft, the distribution sector is beset with poor billing (only 55%) and collection (only 41%) efficiency in many of the States. More than 75-80% of the total technical loss and almost the entire commercial loss occur at the distribution stage. It is estimated that 1% reduction in T&D losses would generate savings of over Rs.700 to Rs.800 crores. Reduction of T&D loss to around 10% will release energy equivalent to an additional capacity of 10,000-12,000 MW.

2.1 Market structure of distribution

Electricity Distribution is a network industry which comprises two separate and distinctly different businesses – (a) the hardware component comprising the wires and associated transformers meters etc. and (b) the software component comprising actual supply and the customer interface. In India, distribution companies across most of the states are a local area monopoly comprising both distribution and supply.

22 Source: CEA Provisional Figures
T&D losses are the power losses that are caused in the process of transmission of electricity from the generation end to the consumers. A large part of the losses are technical in nature, however, faulty meters and power thefts have also resulted in commercial losses. Together, the losses have been termed as Aggregate Technical and Commercial (AT&C) losses. AT&C losses provide a realistic picture of the actual energy loss at the distribution end. The technical losses depend on the type of conductors used, transformer capacity, and other equipments used for transmission and distribution of electricity. These losses are intrinsic to power transmission system and all the countries report some percentage of technical losses. The Commercial losses are caused due to illegal consumption of electricity. These are caused due to discrepancy in meter reading, faulty meters, power theft and collection inefficiency. Source: Prasad, M (2012) Decoding India’s T&D Losses, Electrical Monitor, November 26, 2012

Much of the distribution business in India is owned and managed by state government. Although owned by the government, these distribution companies have been corporatised with the expectation that it would provide them the required autonomy and to incorporate state-of-art managerial practices even as they have monopoly right of distribution in their area. However, certain long standing distribution licensees have been operating in the private sector since the introduction of electricity in the country. Examples are Tata Power, R Infra D (formerly BSES) in Mumbai, CESC in Kolkata and Torrent in Ahmedabad and Surat in Gujarat.

The Electricity Act 2003 however allows for the regulator to provide for multiple and parallel distribution licensees in the same area of operation provided that the second licensee constructs its own distribution network. This still does not provide for customer choice except at the commencement of the relationship between the utility and customer nor does it provide for switching.

For historical reasons, it is only the city of Mumbai, where multiple distribution licensees have operated, in their customer choice. The residents of Mumbai, the commercial capital of the country, enjoy 24X7 electricity supply and do not have inverters or voltage stabilizers which are the typical coping mechanisms for electricity consumers in other parts of the country. Mumbai city has four separate distribution licensees operating as follows:

**Structure of Electricity Distribution in Mumbai**

<table>
<thead>
<tr>
<th>Distribution Licensee</th>
<th>Areas under Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brihan Mumbai Electric Supply and Transport Undertaking (BEST)</td>
<td>Island city of South Mumbai (Colaba to Sion &amp; Mahim)</td>
</tr>
<tr>
<td>Reliance Infrastructure Limited (RInfra)</td>
<td>Mumbai suburbs (Bandra to Bhayandar &amp; Chunabhatti to Mankhurd and Vikhroli)</td>
</tr>
<tr>
<td>The Tata Power Company Limited (TPC)</td>
<td>Operates in the entire BEST and RInfra area.</td>
</tr>
<tr>
<td>Maharashtra State Electricity Distribution Company Limited (MSEDCL)</td>
<td>Remaining parts of Mumbai suburbs (Kanjurmarg to Mulund) and Rest of Maharashtra</td>
</tr>
</tbody>
</table>
While R Infra-D, BEST and MSEDCL had their distinct area of operation, Tata Power Company (TPC), one of India’s oldest and largest power companies, traditionally generated power and supplied it to R Infra (formerly BSES) and BEST for onward distribution to their consumers. For almost a hundred years, TPC’s license gave it a right but no obligation to supply consumers. In the 1980s as demand for electricity grew, Tata Power increased capacity at its Trombay Thermal Power Station which was approved and set up to supply the consumers of Mumbai. In 1998 it began to exercise its right to distribution and began to supply commercial and industrial consumers as bulk purchases by laying its own lines. Later in 2008, under a Supreme Court judgment, TPC was recognized to be holding a license to supply electricity to even retail consumers in BEST and the R Infra-D areas. TPC began operating as a parallel distribution licensee in these areas. As consumers began to exercise choice, it became untenable for TPC to lay its own lines and the Maharashtra Electricity Regulatory Commission came out with an order allowing for the use of open access on the distribution network for a wheeling charge and a cross subsidy surcharge.

On 30th November 2011, the Ministry of Power issued a circular stating that consumers with a capacity of 1 MW and above were considered open access consumers and the regulator had no jurisdiction on fixing energy charges for them. This notification was reiterated on 3 August 2012 directing the CERC and the Forum of Regulators to comply with the notification. Currently none of the states have operationalised the notification though many of them have had public hearings on the matter and put it on hold. If this notification does become operationalised, the impact on the structure of electricity distribution would be significant as they would no longer be local area monopolies at least for large customers.

A recent trend in distribution management has been the carving out of franchisee areas particularly that comprising of urban areas or urban areas with a rural component and call for a competitive bid for an input-based franchisee. The target for revenue collection and T&D loss reduction is determined through a bidding mechanism. The franchisee also becomes a partner in loss reduction and tries to reduce theft in the system. The franchisee will also buy the electricity from the utility and shall pay the energy charges to the utility at a pre-determined rate. The energy supplied / purchased will be as shown in the 11 kV metering unit. The franchisee will have to collect revenues from the consumers through raising bills so as to have sustainable commercial operation. The early success of Torrent Power taking over an area of Bhiwandi in the north of Mumbai, an area with notoriously high losses – both financial and physical – and successfully improving it, has spawned a number of such initiatives across Maharashtra and Uttar Pradesh.

Newly privatized distribution utilities which are joint ventures with the state governments have had a mixed results. In Orissa the four distribution companies covering both the urban and rural areas have not performed satisfactorily for a variety of reasons. The three distribution companies in Delhi have had better success.

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25 Hon’ble Supreme Court Judgment dated July 08, 2008 in Civil Appeal No. 2898 of 2006,
26 The GoI has suggested several franchisee Models that Distribution companies can adopt for the purpose of improving distribution efficiencies. [http://www.rggvy.gov.in/rggvy/rggvyportal/franchisee_model.htm](http://www.rggvy.gov.in/rggvy/rggvyportal/franchisee_model.htm)
The distribution sector in India is therefore predominantly government owned within a designated monopoly area, while there are entities that are privately owned, in a cooperative mode, department owned or owned and operated by the municipalities. The introduction of open access to large consumers of 1 MW and above seeks to break the monopoly structure and provide customer choice – however it is yet to be operationalised. The unique case of a multiple distribution licensee in Mumbai has been outlined above but it is an exception rather than a rule. A spurt of interest in franchisees or public private partnerships rather than outright privatization is currently gaining grown as a way of improving efficiency without overtly disturbing the ownership or market structure in the distribution segment.

2.2 Distribution utility and Regulatory interface

There are several points of interface of the distribution utility with the State Electricity Regulatory Commissions. Section 86 (i) of the EA 2003 specifies that the ERC should “specify or enforce standards with respect to quality, continuity and reliability of service by licensees”. In the context of consumers the two most important facets of interface are

(a) Determination of the Standards of Performance (SOP), its monitoring of compliance and
(b) Putting into place an appropriate consumer grievance mechanism

2.2.1 Standards of Performance

The SOP determined by the SERCs, after discussions with distribution utilities, are constrained by the base performance and the likely standard that the utilities can achieve practically. The parameters covered under the SOP include:27

- Operation of Call Centre
- Provision of Supply
  - New connection
  - Temporary connection
- Restoration of Supply
  - Fuse Off Call
  - Line Breakdown
  - Distribution Transformer Failure
  - Underground Cable Fault
  - Scheduled Outage
- Quality of Supply
  - Maintenance of Voltage
  - Control of Harmonics
- Meter
  - Restoration of supply in case of burnt meter

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27 For the purpose of illustration, this has been taken from the DRAFT Maharashtra Electricity Regulatory Commission (Standards of Performance of Distribution Licensees, Period for Giving Supply and Determination of Compensation) Regulations, 2010. The Forum of Regulators has come out with model SOP regulations from which many of the SERCs draw on.
● Meter inspection and replacement in case of customer complaint regarding meters

Reconnection

● Complaints on Consumer’s Bills Acknowledgment of receipt of consumer complaint

● Resolution of billing complaints

Consumer charter / service

Other Services

● Reading of consumer’s meter

● Time period for other services from the date of application:
  ▪ change of name
  ▪ change of tariff category
  ▪ reduction in contract demand / sanctioned load
  ▪ Closure of account

The SOP regulations provide for the guaranteed standards as well as the compensation payable by the distribution licensee in case of default.

2.2.2 Consumer Grievance Redressel Mechanism

Under the EA 2003, all SERCs are mandated to bring out regulations stipulating how distribution utilities would handle consumer grievances. The first call of complaint is with the distribution company itself. If the grievance is not addressed, all distribution utilities are statutorily expected to have well publicised consumer forums which is the next level of redressal. Under the EA 2003, all SERCs have an ombudsman in the commission which is the third level of redressal. The SERCs are also expected to monitoring the consumer grievances redressal system and

● Keep a record of consumer grievances brought to it and the results thereof relating to each Licensee;

● Arrange for publication of the data relating to the grievances;

● Take notice of its record of consumer grievances in any proceeding including but not limited to proceedings relating to licences and tariffs.28

Some of the more proactive state regulatory commissions like the SERC conduct customer satisfaction surveys and take cues from these surveys to direct the utilities on what spheres of operations they need to improve on. The following is an illustration of the DERC website on information related to consumers.

28 For the purpose of illustration, this has been taken from the Delhi Electricity Regulatory Commission (Redressal of Consumers’ Grievances) Regulations, 2003.
## Information related to Consumers

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<thead>
<tr>
<th>Title</th>
<th>Language</th>
<th>Date</th>
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<td></td>
<td>Hindi Version</td>
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<td>Complaint Handling Procedures</td>
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<td>Forum for Redressal of Grievances of the Consumers</td>
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<td>Minutes of Monthly Hearings of GROs</td>
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<tr>
<td>Press Release Consumer Satisfaction Survey 2009</td>
<td></td>
<td>16th June, 2009</td>
</tr>
</tbody>
</table>

### 2.3 Initiatives to Improve Distribution Sector

Recognising that the distribution sector was the weakest link in the electricity value chain, the government of India put in place a variety of schemes to augment the distribution segment. The first of such schemes was the APDRP i.e. the Accelerated Power Development and Reforms Programme.

The APDRP was launched in March 2003 as additional central assistance to states for strengthening and upgrading of sub-transmission and distribution systems of high-density load centres like towns and industrial areas with main objectives of reduction in AT&C and commercial losses; improve quality and reliability of supply of power. Under this, states were given investment for financing distribution sector projects and it also provided incentives for the improvement in performance. A total 574 projects at the cost of Rs.17,329 crore were sanctioned under APDRP in the X Plan period.

The government had targeted to bring down the AT&C losses to 15 per cent by the end of X Plan, from the 33 per cent in the beginning of the Plan. In the X Plan, nine states showed cash loss reduction of Rs.5,255 crore against their loss in 2001-02 under the APDRP. However, the actual AT&C losses of most of the state power utilities remained high and this made them financially sick. The losses continued to be around 27 per cent by the end of the X plan.

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29 www.derc.gov.in
The APDRP succeeded to an extent. Under the program, the metering status in the country improved considerably. The 11kV feeder metering reached 98 per cent in 2008 from 81 per cent in 2002. Consumer meeting was reported to be 89 per cent. Delhi, Haryana and Kerala achieved 100 per cent consumer metering. However its under-achievement in reducing AT&C losses and reinstating financial viability of the distribution companies, made it necessary for the government to reintroduce the programme in the 12th Plan period.

2.3.1 R-APDRP

The GoI continued the APDRP in the XI Plan period as Restructured APDRP. Certain terms and conditions of the APDRP scheme were revised and the scheme was launched in 2008. The focus of the R-APDRP scheme was to establish base line data, fix accountability, strengthen and upgrade sub-transmission network and reduce AT&C losses up to 15 per cent. Projects under the scheme were proposed to be taken up under two parts - Part A and Part B. Projects under Part A included base line establishment and IT applications for energy auditing. The projects under Part B included strengthening of sub-transmission and distribution projects. The review of R-APDRP is currently under progress and the final performance report is yet to come out.

The R-APDRP had several components to incorporate the use of IT in improving the management of the distribution utilities. The key features of R-APDRP included:

- GIS-based consumer indexing and electrical network mapping: GIS is envisaged as a tool for the development of consumer and electrical network database, used by various applications like customer information system, asset management, billing system, customer services, energy audit and load flow studies. Several Indian DISCOMs are using GIS technology to map their HT/LT consumers and electrical network assets. This involves conducting GPS survey of consumer households, connected electrical feeders and distribution transformers. All the consumers are then indexed and given a unique electrical address (Consumer Index Number or CIN), making it possible to segregate consumers for energy audit and accounting purposes. The geo-referenced data is further mapped on the underlying satellite imagery of appropriate scale.

- Automated Meter Reading (AMR): The amount of data read by electronic meters has increased manifold and meters have to be read more often for load profiling and analysis. AMR has become a necessity for effective energy management, energy accounting and to overcome the problems of manual readings. The preparation of electrical network database, consumer indexing and documentation is the first step for effective AMR and correct energy accounting. The quality of AMR data depends on the quality and health of electronic meters used in the system.

- Energy Audit and Accounting: The advantages of AMR can be further leveraged in correctly identifying the areas of low voltages, over-loading and causes of high energy losses. AMR also helps in bringing accountability and operational efficiency, thus significantly contributing to improved revenue realisation.
Load Flow Analysis: For total energy accounting, it is essential to capture energy consumption data and load pattern of consumers during various time intervals for analysis purposes. This also emphasises the need for an integrated meter data management system interfaced with AMR.

Meter Data Logging System: The system must be capable of controlling the energy consumption by setting load threshold at the meter which when exceeded trips the meter circuit breaker. The system must incorporate business rules regarding meter data measurement, aggregation, validation, load estimation and exceptions handling. It must integrate seamlessly with other applications like customer information system, asset management, outage management, energy billing, revenue accounting and MIS.

IVRS-based consumer call centre: For a distribution utility, a centralised, automated interactive voice response system (IVRS)-based call centre can be beneficial to improve customer services, increasing staff efficiency and single-window clearance of all types of customer complaints. The call centre is designed to address consumer complaints ranging from „no power“ or those related to wrong billing, payments, metering or connection-related.

Spot billing machines: Spot billing machines are hand-held computers (HHC) or Personal Digital Assistants (PDA) which captures meter data either manually or through optical or wireless interface. The in-built billing software processes the consumer details and metering information to generate bills on the spot at the consumer premises itself.

Prepaid Metering System: Prepaid metering system uses a smart card for a pre-set value of electricity that the consumers wish to consume. The amount paid along with other consumer information is encoded into the smart card. The consumer inserts the card in the prepaid meter, which reads the data and when the pre-paid energy is used up, the consumer gets the card recharged/ reprogrammed in the utility office. It eliminates problems related to meter reading, bill distribution and billing disputes.

Any-time payment (ATP) machines: These machines are used for bill collection facilitation for the benefit of the consumers. ATP machines are kept at vantage points easily accessible to the consumers. It may either operate in stand-alone mode or connected to the remote utility billing server via network. It uses customised software to access consumer database and billing details, accepts payments and generates receipt. The revenue collections are then updated in the main billing server through software.

The funding under R-APDRP is contingent upon actual, demonstrable performance in terms of sustained reduction of AT&C losses. Many of the technological interventions under the R-APDRP are those that seek to improve and support the CRM efforts of the distribution utilities.

Other initiatives that are still in the pilot stages include the introduction of smart grids, and smart meters as part of smart grids.

The above outline of the structure of the distribution sector in India and the initiatives in the distribution sector particularly those dealing with ICT augmentation provide the contact for the study of CRM practices in the distribution utilities.
Chapter 3 Scope and Methodology

3.1 Scope

The scope for this study is the supply side perspective of CRM initiatives with the use of ICT for the BOP segments and micro entrepreneurs in urban areas.

BOP –

ME -

3.2 Methodology

The methodology for this study comprised

a. Desk research on CRM practices and the use of IT in electricity distribution companies in India and elsewhere

b. The selection of three discoms for the field study comprising

   a. APCPDCL – a government owned distribution company in Andhra Pradesh, a southern part of India. The power sector reform process in Andhra Pradesh has led to an unbundling of the power sector in the state but all of the companies i.e. one generation company, one transmission company and four distribution companies have continued to be owned by the state government.

   b. R Infra – D – a private distribution licensee in operating in the suburbs of Mumbai which acquired the Bombay Suburban Electricity Supply Co (BSES) in 2002. BSES is one of India’s oldest power utilities operating since the turn of the 20th century.

   c. Tata Power Delhi Distribution Company – was the erstwhile North Delhi Power Ltd. (NDPL) which was carved out of the Delhi Vidyut Board, a state government owned vertically integrated utility in Delhi. The Delhi Power Reforms process unbundled the DVB into its functional components of generation, transmission and distribution wherein three separate distribution companies were carved out in Delhi. The three companies were privatized in 2000 into a joint venture with the private party holding 51% equity stake and management control. Tata Power acquired NDPL which covers the northern part of Delhi and in 2012, the name was changed to Tata Power DDL.

The choice of the three distribution companies provides scope for an interesting study of the CRM practices amongst a government owned utility, a private utility and a recently privatized utility. The
following section provides details of the three utilities. While TATA Power DDL and R Infra –D distribute electricity only in the urban areas, APCPDCL has a mix of urban, towns and rural areas.

### 3.2.1 APCPDCL

The Central Power Distribution Company (APCPDCL) is the largest Distribution company in Andhra Pradesh covering seven districts and catering to over 8 million customers. APCPDCL was formed on the 31st March 2000 as part of the Andhra Pradesh Power Reforms process wherein the erstwhile Andhra Pradesh Electricity Board was unbundled into a Generation company (APGENCO), a transmission company (APTRANSCO) and four distribution companies of which APCPDCL was one covering the districts of Ranga Reddy, Ananthapur, Mahaboobnagar, Malgonda, Kurnool, Medak as well as the State’s capital Hyderabad.

### 3.2.2 R Infra D

The Bombay Suburban Electric License was granted in the year 1926 under the Indian Electricity Act 1910 by the Government of Bombay to cater the electricity demand of suburban Bombay in those days. Later on this license had been transferred by way of sale to the Bombay Suburban Electric Supply Limited on 13 May 1930 by order of the Governor –in – Council, Mr. A X Moraes, Acting Joint Secretary to the Government of Bombay, Public Works Department. The area of license was delineated to suburban Mumbai broadly between the Maheem Creek to Dahisar Creek towards north side and Sion to Vashi Creek towards east side.

In the Year 2002, India was opening doors to private sector and Reliance took over Bombay Suburban Electricity Supply Limited (BSES Ltd.) to cater the demand and need of electricity in suburban Bombay (Mumbai).

Currently, Reliance Infra – Distribution Business normally referred as RInfra – D has license area in North Mumbai and Suburban areas (Approx. from Bandra to Dahisar, Mira/Bhayander/Chunabhatti to Mankhurd and Vikhroli Etc. The area comprises to 385 Sq Km with approx. Number of Consumers of 26.50 Lakhs. RInfra-D mainly gets power from Dahanu TPS (Which belongs to their own group company RInfra-Generation) of 500 MW, Renewable Power Sources, Short Term purchases from external sources.

RInfra – D operates for 24 x 7 supply at 99.97% reliability being one of the highest in the country. Their distribution losses are at about 10 per cent which are amongst the lowest in the country as compared to national average of over 30 per cent. 40% of RInfra-D consumers live in unorganised developments (slums) which also contribute to higher losses.

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30 Memorandum of Consent No. 562 – D dated 13th May, 1930 by Public Works Department, Government of Bombay
31 http://www.rel.co.in/HTML/know_CompanyProfile.html
32 URT Report : Task 5 – Scientific Study for Implementing Uniform Tariffs in Mumbai by PwC to MERC July 2011
33 Reliance Infrastructure Limited – Mumbai Distribution Business
3.2.3 Tata Power Delhi Distribution Co Ltd.

The Tata Power Delhi Distribution co. (TP DDL) was one of the three distribution companies carved out of the erstwhile Delhi Vidyut Board (DVB) and privatised in the early 2000s. In February 1999, the Government of National Capital Territory of Delhi (GNCTD) issued a strategy paper highlighting the need to reform the power sector which would imply a restructuring of the government owned vertically integrated power utility the Delhi Vidyut Board (DVB). The Delhi Reforms Act 2000 was enacted to provide a legal foundation to the reforms process which comprised the restructuring of the DVB as well as setting up the Delhi Electricity Regulatory Commission (DERC) to regulate the sector.

In 2001 the GNCTD gave policy directions to the restructuring process as well as declared that the distribution companies would be privatized. The policy provided directions regarding the privatization process and the support it would provide the newly privatized companies in the transition phase. The policy declared that the distribution companies would be privatized and 51% of the equity stake would be handed over to a private party though a competitive bidding process. The policy also reiterated the importance of improving the operational efficiency of the distribution segment and stated that proposed reduction in Aggregate Technical & Commercial Losses (AT&C losses) would be the bidding parameter.

Following the policy directives, the DVB was unbundled into six companies – one holding company, one generation company (GENCO), one transmission company (TRANSCO) and three distribution companies (DISCOMS) in 2002. Soon after, the three distribution companies which are the key to improving consumer services and commercial viability of operations were privatised on 31st May, 2002. BSES acquired a controlling interest in two of the distribution companies, viz. South-West Delhi Electricity Distribution Company Ltd. and Central-East Delhi Electricity Distribution Company Ltd., and the Tata Power Company took over the management of the third distribution company, viz. North-Northwest Delhi Distribution Company Ltd.

Tatapower DDL

Tatapower DDL (which was formerly North Delhi Power Company Ltd. – NDPCL) was created by the Tata Power Company acquiring 51% equity stake in the distribution area comprising North and North West part of Delhi.

The Following table provides a comparative status of the three distribution utilities in the study sample.

3.2.4 Comparative Status of the Select Discoms

<table>
<thead>
<tr>
<th>Parameter</th>
<th>APCPDCL</th>
<th>R Infra - D</th>
<th>TP DDL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Geographical Area (Sq. Kms)</td>
<td>216866</td>
<td>384</td>
<td>510</td>
</tr>
<tr>
<td>2 Total Consumers (Mn)</td>
<td>8</td>
<td>2.8</td>
<td>1.2</td>
</tr>
<tr>
<td>3 Consumer Density (No per Sq Km)</td>
<td>37</td>
<td>7292</td>
<td>2353</td>
</tr>
<tr>
<td>4 Peak Demand (MW)</td>
<td>5468</td>
<td>1250</td>
<td>1350</td>
</tr>
<tr>
<td>5 Annual Energy Consumption (MU)</td>
<td>31893</td>
<td>9422.66</td>
<td>7305.68</td>
</tr>
<tr>
<td>6 AT&amp;C Losses 2011-12</td>
<td>14.34</td>
<td>14.31</td>
<td>13</td>
</tr>
</tbody>
</table>
Chapter 4 Literature Review

4.1 CRM Practices in Distribution Utilities

The distribution system in India has been always characterized by inefficiency, low productivity, frequent interruption in supply and poor voltage. In an IT Task Force, Nandan Nilekani, mentioned that some fundamental changes were imperative in the working of the power sector entities to realize the vision of “reliable, affordable and quality power for all by 2012”.

Many efforts have been taken to improve the distribution sector in last decade as outlined in chapter 2. Accelerated Power Development Programme (APDP) has been undertaken from the year 2000-01 as a last means for restoring the commercial viability of the distribution sector. Later on, during 2002-03, APDP was rechristened as Accelerated Power Development and Reforms Programme (APDRP) to achieve commercial viability of Distribution Sector. In 2008, Government of India approved the central Sector scheme, with revised terms and conditions as R-APDRP, with an emphasis on the incorporation of ICT.

The scheme provided the support to establish baseline data, IT applications for energy accounting / auditing and IT based consumer service centres. It also supported distribution utility strengthening projects by improving the network and managerial practices. Major activities considered in this scheme are:

1. Consumer indexing
2. GIS Mapping
3. Metering of Distribution Transformers and Feeders
4. Automatic Data logging for all Distribution Transformers, Feeders
5. SCADA and Distribution Management System
6. Asset mapping of the entire distribution network
7. Adoption of IT applications for meter reading, Billing and Collection, energy accounting & auditing, MIS
8. Redressal of Consumer Grievances
9. Establishment of IT enabled consumer service centres

The above efforts acted as the driving force to improve distribution utilities in recent past. Many utilities are implementing all above activities through R-APDRP funding. It also paves the way for establishment of smart grid in India. However funds under the R-APDRP are available only for government owned utilities and not private or joint venture utilities.

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34 IT Task force report for Power Sector
35 http://www.apdrp.gov.in/Forms/Know_More.aspx
Almost all utilities across India have responded towards CRM either by purchasing and installing a tightly integrated Enterprise Resource Planning (ERP) Suite or by implementing and integrating “Best of Breed” applications.

Historically, information subsystems were paper based across all the utilities. Customer Relationship Management was in an abysmal condition. In the last three to four decades, utility officials considered it as a service industry to extend electricity access in their area with very little attention to quality of service and grievance redressal. The term CRM in the context of electricity was introduced as part of the reforms process. The monopolistic nature of electricity business did not emphasize the need for a focus on customers. A few of the major problems in customer relationship management were

1. No communication strategy with consumers
2. Absence of Consumer charters
3. Many problems in every activity related to customer-utility interface, right from application to electricity connection to bill payment
4. No easy accessible channels for complaints, grievances etc
5. No comfortable, convenient payment channels
6. No consumer service centres
7. Ill equipped utility offices to handle customers in a single day operation
8. No complaint tracking system

Hence there was huge gap between electricity distribution utilities and customers’ expectations. One way of overcoming the problem of poor customer service and CRM would be the introduction of competition and customer choice. However, the introduction of retail competition in electricity is complicated and is currently not on the reform agenda. The exception, as outlined in chapter 2, is in Mumbai which has multiple distribution licenses and the MoP directive stating that all customers of 1 MW and above would be deemed open access customers. The latter is yet to be implemented. In the absence of retail competition, the legal foundation for CRM in found in the EA 2003.

Consumer protection was one of the mandates of Electricity Act 2003. It defines effective regulatory mechanism for consumer protection, consumer participation in regulatory process and guides electricity utilities to protect consumer interests.

The Electricity Act 2003 provides for consumers to play a pro-active role in protecting their interests in the sector and it provides for Regulators the platform to support consumers’ role

- Section 23 – which inter-alia refers to issue of directions to licensees for promoting competition
- Section 42(6) provides for appointment of an Ombudsman by the State Commission
- Section 57(2) which makes a licensee liable to pay compensation, for non-compliance with the Standards of Performance, to the person affected as may be determined by the Regulatory Commission
Section 64(3) which refers to the procedure for making tariff order after considering all suggestions and objections received from the public.

Section 61 regarding the factors which are to be kept in view in tariff determination. Sub-section(c) thereof refers to encouragement of competition, efficiency, economical use of resources, good performance and optimum investments.

Under the provisions of the Electricity Act 2003, several ERCs had issued various notifications as below:

- Conduct of Business Regulation
  - It clearly mentions that all proceedings of the Commission should be open to the public.

- Standards of Performance
  - The objective of this document is to facilitate protection of consumer interest through service standards.

- Electricity Supply Code
  - Various procedures adopted by the licensee for billing, connection, disconnection and restoration of electricity supply.

- Complaint Redressal Mechanism
  - The main objective is to ensure more customer satisfaction and improve service delivery.

Through the above legislature provision ad regulatory intervention the culture of CRM was infused into the distribution utilities with varying degrees of responsiveness and success. Utilities understood that their business should be customer oriented. A common architecture of customer relationship management by utilities can be observed in almost all utilities with some different flavour according to utilities’ financial position and ability to accept change.

A CRM system is designed to provide information to allow the utility to service customers more efficiently. CRM concentrates on service-oriented activities such as:

- Customer set-up,
- Switching to or adding other services,
- Settling accounts,
- Fault correction,
- Servicing requests for information.

CRM may or may not include billing and payment functions, although it will certainly be linked to a billing system.

Technology is currently playing a pivotal role in CRM in electricity sector in India, but thinking about CRM solely in technological terms is proven wrong. It is not about solving a technology problem, it is a process that aligns your business around your customers’ needs. Software is only one component of this process.
4.2 Use of IT in CRM

The key needs of the customers are depicted well in the IT Task Force Report. It mentioned following parameters which can be improved by the use of IT:

1. Quality and Reliability of Supply
   a. Scheduled and Unscheduled outages
   b. Communication from Utility on possible outages and outage time

2. Accuracy of Bills
   a. Inaccurate meter reading or no meter reading
   b. Meter reading taken but not reported
   c. No posting of collection
   d. Changed meter status
   e. Split between cycles
   f. Wrong calculation

3. Payment Mechanism
   a. Bill not delivered in time to make payment
   b. Waiting time for bill payment
   c. Preferred vs available mode of payments

4. Complaint Handling
   a. Demand vs. Provision of new connection
   b. Responsiveness to bill queries
   c. Preferred vs available facilities

Real time monitoring of system and maintaining real time information is one of the solutions to quality and reliability of supply. Utility officials as well as customers can benefit from these systems as they know about outage or possible outage and its duration. Some of the IT applications are identified as below:

- SCADA to start with and then progressing to distribution automation
- Outage and work management system including trouble call management system for faster restoration of outages
- GIS (Geographical Information System) for identifying area and equipments
- CIS (Customer Information System) using Internet, phones, call-centres, etc.
- IVR for complaints and call back on restoration of supply

Accuracy of bills can be improved by bringing automation in electricity meter reading. GPRS and mobile technology is providing a platform to reduce manual intervention in the system which enhances the transparency in billing. Some of the IT applications are as below:

- Download devices for meter readings
CRM in Electricity Distribution in India

- Meter reading interface with billing applications
- Billing applications

As discussed earlier, historically, payment channels were not available. Consumers had to go personally to substation/section office/other office of electricity utility to pay their bills. Later on utilities asked banks to collect the bills. Now with IT interface the payment channels are improved vastly.

- Electronic payments, including direct debit payments
- Prepaid metering
- Bar coding facility even when payment is made in person, for faster payment
- Multiple payment locations and not restricted to a particular division or subdivision

The same case was with complaint logging and complaint related problems. IT applications to improve complaint handling are

- Call centres with IVR for outages and bill related complaints
- Call back from IVR on restoration of supply or redressal of any bill related complaint
- Customer facilitation centres
- Customer friendly kiosks (Customer Information Systems)
- Customer friendly kiosks (Customer interactive systems – where you can pay bills also)

Broadly, IT architecture for CRM activities in India is observed across all utilities as below:
With IT intervention and R-APDRP funding, State Electricity Utilities are beginning to treat customers as professional partners. They now understand customer needs and are trying to deliver quality supply. They now conduct customer meetings and developing a proximity with customers to understand their requirements. Government owned public electricity suppliers are also practising many of above things, but the practice is inclined to urban customers rather than all customers including rural customers. Even in urban areas, government utilities functions more effectively based on the consumer profile of that area and directly proportionate to the capacity of consumers to pay bribes.

Many Government utilities are still engulfed in the ‘transition period’ where paper based systems and IT systems simultaneously exist resulting in redundancy of information. It also leads to confusion as paper based system sometimes exposed to infiltration as it does not have proper security system. It leads into conflict of information with IT systems. There is great deal of resistance from state utility officials to a fully integrated IT system.

Further, IT systems, if properly been used, it can give you insight for vigilance, commercial intelligence and track other vested interests and the people involved in it can be easily tapped. This is why utility officials commonly oppose IT integration and use of IT in day to day activities.

Chapter 5 CRM Practices in Electricity Distribution in India – Select Discoms

This Chapter outlines the CRM practices that were observed in the 3 distribution companies

a) APCPDCL – to cover Hyderabad and seven districts of Andhra Pradesh
b) R-infra D in Mumbai
c) Tata Power Delhi Distribution Limited (TPDDL) in Delhi

APCPDCL is a state government owned utility, R-Infra D is a private utility and TPDDL is a privatized joint venture with private managed.

5.1 CRM Practices in APCPDCL

Andhra Pradesh Central Power Distribution Company (APCPDCL) initiated focused customer service activities as part of its reform process in the early 2000. In order to provide better and quick services to the consumers, the APCPDCL has initiated customer relationship management in the below areas:

1. Service Strategy
2. Customer Service Standards
3. Communication with customer and customer relations
4. Billing Collection practices and Billing cycle
5. Regulatory Compliance
6. Infrastructural development initiatives
1. **Service Strategy:** APCPDCL has drawn a comprehensive framework for its customer relationship management based on the value chain in power distribution. By mapping all activities in the value chain, APCPDCL has come up with many initiatives which laid the roadmap for customer relationship management in the organization. The value chain mapping is as shown in the figure below.

The systematic approach towards customer relationship management was supposed to lead to the efficient operation of the utility.

2. **Customer Service Standards:** According to above mapping, APCPDCL has set its customer service standards adhering to APERC Standards of Performance and other regulations and guidelines. It has initiated

   1. Citizen Charter
   2. Compliance monitoring system through customer service centres/ call centres

3. **Communication with customers and customer relations:** With the support of better strategy and defined customer service standards APCPDCL has come up with various channels of customer communication and customer relations:

   1. Integrated customer service centres
   2. District call centres and customer service centres at every subdivision office
   3. Monitoring of power supply to industrial dedicated express feeder
   4. Vidyut Adalats (Electricity Courts) which later converted into Consumer Grievance Redressal Forums

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Customer Service and Billing Programs in APCPDCL by C. Mohan Rao, Director, APCPDCL 2004
5. Farmer’s meetings

4. **Billing Collection standards and Billing Cycle**: The entire process was redesigned for ease of understanding and improvement has been initiated. Unfortunately, implementation has been fragmented and hence customers have been below expectation.
   1. Billing Cycle is changed to monthly billing from bimonthly billing
   2. In rural areas bimonthly billing is still continued
   3. Introduction of spot billing – wherein the bills are been issued on the spot to the consumers with the help of a hand held computer. Further it has been enhanced with on the spot bill collection recently.
   4. Collection facilities were been improved drastically
      a. Electricity revenue office counters
      b. Cheque drop boxes
      c. Tie – up with e-Seva centres where the customer can pay the bills anywhere in the city
      d. Payment through many banks – with the help of agencies like ‘billjunction.com’ and bildesk
      e. Online payment through the utility website – ‘www.apcentralpower.com’

5. **Regulatory Compliance**:
   1. Citizen charter in line with APERC Standards of Performance, Electricity rules and grid code
   2. APCPDCL has established ‘consumer grievance redressal forums’ and working in line with the consumer grievance procedure suggested by APERC.

6. **Infrastructure Development Initiatives**
   1. Circle wise strategic investment plans
   2. Segregation of domestic load and industrial load
   3. Conversion of Low voltage network to High Voltage network to improve HT:LT ratio
   4. Laying Aerial Bunch Cable in theft prone areas to arrest direct tapping – especially in bottom of pyramid localities
   5. Underground cabling in City of Hyderabad
   6. Implementation of massive metering plan

5.1.1 **Customer Service Centres in APCPCL**
APCPDCL has set up an Integrated Customer Service Centres and Customer Service Centres throughout its company for registration of new service connection applications and complaints received from the consumers. The applications will be forwarded to the concerned field officers for releasing the services and attending the complaints.
<table>
<thead>
<tr>
<th>Particulars</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of Customer Service Centres</td>
<td>109</td>
</tr>
<tr>
<td>Total number of Integrated Customer Service Centres in the Company</td>
<td>15</td>
</tr>
<tr>
<td>Number of Integrated Customer Service Centres in Greater Hyderabad area</td>
<td>10</td>
</tr>
<tr>
<td>Number of Integrated Customer Service Centres in Rural Districts</td>
<td>5</td>
</tr>
<tr>
<td>Total Number of Customer Service Centres in the Company</td>
<td>94</td>
</tr>
<tr>
<td>Number of Customer Service Centres in Greater Hyderabad Area</td>
<td>18</td>
</tr>
<tr>
<td>Number of Customer Service Centres in Rural Districts</td>
<td>76</td>
</tr>
</tbody>
</table>

Integrated Customer Service Centres are working with more than one Sub-Division, with Divisional Engineer/Operation as the controlling authority. Whereas Customer Service Centres are working with one Sub-Division, with Assistant Divisional Engineer/Operation as controlling authority. Activities that are handled at the Integrated Customer Service Centres and the Customer Service Centres can be summarized as below:

1. Providing necessary information to the consumer about the services provided, procedure for application and associated charges, time taken for the service, etc.
2. Receipt of the new connection requests and complaints, registering them in the CSC software and providing consumer with an acknowledgement containing unique registration number and date.
3. Despatch of the registered applications to the concerned field officers.
4. Monitoring the progress of the new service connection requests and complaints attendance.
5. Updating the services released and complaints attended in the CSC software. Keeping records and track for the pending requests.
6. Review on their respective performance reports.

The other activities handled at the Integrated Customer Service Centres in addition to the above are collection of electricity bill payments. The nature of the requests that can be made by the consumers and the complaints that are being attended at the CSCs/ICSCs are as follows:

1. Title Transfer
2. Name of change/correction
3. Category change
4. Additional Load
5. Burn out of meter
6. Address Correction
7. Billing Correction
8. Load Reduction
9. Additional Charges Deposit
10. Arrears Dispute
11. Back Billing Dispute
12. Door Locked Dispute
13. Late Bill Receipt
14. Meter Reading Correction Request
15. Meter Reading not taken
16. On Demand Bill Request
17. Wrong Billing Request
18. DTR Shift
19. Line Shift
20. Shift of Service
21. Dismantle of service

The controlling authorities of the Integrated Customer Service Centres and Customer Service Centres are responsible for rendering the services registered by the consumers as per the citizen charter approved by the APERC.

**Web based systems used:**

   a. Periodical reports will be generated with standards of performance in releasing the new service connections and attending the complaints which are registered at the respective Customer Service Centres.
   b. Pending new services and complaints will be generated from the reports and will be reviewed periodically with the concerned officers.

2. Consumer complaints sent by mail to the Customer Services login through the CPDCL website (http://mail.apcentralpower.com):
   a. Consumer queries and complaints mailed to the Customer Services login will be attended daily and reply will be sent to the consumer. There will be regular pursuance from the field officers for attending the online consumer complaints without any delay.
   b.
5.1.2 Other Efforts by APCPDCL for CRM\textsuperscript{37}

1. Approval has been accorded for setting up of 6 Nos Integrated Customer Service Centres in Greater Hyderabad area out of which 2 Nos Integrated Customer Service Centres have started functioning for convenience of the consumers in 2013.

2. Providing logins for Assistant Divisional Engineers/Operation in the Customer Service Centre software for following up, tracking and rectifying the complaints registered at Customer Service Centres within time.

3. Approval has been accorded for including detailed breakup of payments in the acknowledgement issued to the consumer at the time of registration of New Service Connections and Complaints for providing detailed information to the consumers about their payments.

4. Web cameras are being provided at all the Integrated Customer Service Centres and also at some of the Customer Service Centres for taking photograph of the consumers at the time of registration in order to avoid the involvement of middlemen.

5. Rejection notice included in the acknowledgement itself in order to provide necessary information to the consumer regarding reasons for rejection of their application and also reduce the consumer side pending cases.

6. Consumer can know the status of his new service connection application/complaint registered at any Customer Service Centre from the CPDCL website by entering the application registration number.

7. The address and telephone numbers of all the Customer Service Centres existing in the Company are provided in the CPDCL website for information to the consumer.

8. The contact numbers of all the field officers are kept available in the CPDCL website, so that the consumers can also share their complaints to the concerned officers directly for immediate rectification.

9. A Centralized call centre is introduced with 155333

10. A new 24 x 7 call centre opened for Agriculture consumers (1800 – 425 – 3600)

5.1.3 Extent of Use of IT in CRM

Information Technology is extensively been used in CRM in APCPDCL. The Customer Service Centre Architecture in APCPDCL is as below:

\textsuperscript{37} Data and information provided by APCPDCL
A typical tracking and release of HT service connection through CSC is shown as below:
APCPDCL has not only set up this framework with IT application but also defined time line for all the services. One such example of release of LT (Low Tension) Multi services is shown as below:

Apart from integrated ERP services in APCPDCL there are many applications that have IT usage and IT intervention as discussed above:

1. Spot Billing
2. Time of Day tariff with TOD meters
3. Meter Reading Instruments
4. Automated Meter Reading for Industrial Consumers in and around Hyderabad
5. Supervisory control and Data Acquisition system for Distribution Network
With all the above systems, APCPDCL is well equipped with modern customer relationship management envisaged by National Electricity Policy, EA 2003 and ERC guidelines and regulations. But at the ground, the scenario is quite different. The SCADA system with one of its unique position as first SCADA in Indian Electricity Distribution System is currently not in working condition due to poor maintenance and lack of knowledge within the organization to maintain the system. The knowledge transfer has not taken place and the system is in a pitiable condition.

The total number of consumers in APCPDCL are approximately around 3.8 million\(^{38}\) with only 109 customer service centres giving the ratio of 1:35752. This is a discouraging figure about the approach of implementation of the best initiatives discussed above.

Further the analysis of call centres, average number of lines per call centre, average calls received does not show any encouraging, phenomenal change in the systems raising the questions and doubts about the success of CRM practices in APCPDCL.

<table>
<thead>
<tr>
<th>Number of Customer facilitation centers</th>
<th>109 No. (ICK – 15 N, CK – 94)(^{39})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of call centers (including any back up call center for emergency)</td>
<td>One (16 lines)</td>
</tr>
<tr>
<td>Average Number of calls you receive per day</td>
<td>6000</td>
</tr>
<tr>
<td>Average Number of complaints resolved through call center mechanism per day</td>
<td>6000 Approx.</td>
</tr>
<tr>
<td>Average time for customer to reach call center executive after he gets connected to call</td>
<td>Instantaneously*</td>
</tr>
</tbody>
</table>

*APCPDCL claims that it is instantaneous but our experience shows some time lag

It is been observed that APCPDCL regularly submits the data on Reliability indices to APERC. Unfortunately, It became rather regulatory compliance mechanism than any analytical approach for system improvement for customer satisfaction as APCPDCL itself is not conducting customer satisfaction survey since the last few years.

5.1.4 Grievance Redressal
The Complaint handing procedure relating to distribution and retail supply are well defined in line with APERC regulations and Standards of Performance. The nature of complaint, the escalation procedure is also defined in the system. Provision of appealing before highest authority i.e MD of Distribution Utility is also defined to give a chance to complainant for his/her grievance redressal.

\(^{38}\) Data and information provided by APCPDCL 2012-2013  
\(^{39}\) ICK – Integrated Customer Centres, CK – Customer care centres without integrated software systems
With Consumer Grievance forum active in each district place, complaints are getting resolved through these forums on fast track mode. The analysis of data regarding percentage of redressal through different modes is given as below:

<table>
<thead>
<tr>
<th>Mode</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual</td>
<td>15%</td>
</tr>
<tr>
<td>Telephone</td>
<td>15%</td>
</tr>
<tr>
<td>Call Centre</td>
<td>70%</td>
</tr>
</tbody>
</table>

5.2 Reliance Infra – Distribution: CRM Practices

At Reliance Infra – Distribution, the understanding of importance of customer relationship management is at a maturity stage. Apart from the fact that their customers can exercise choice and switch to a competing utility, that is an inherent organizational culture that seeks an excellence.

The R-infra Distribution are has been decentralized across 5 divisional locations in the Mumbai suburban area i.e. South, South Central, Central, North and East and set up Complaint Management Cell (CMC) that looks into supply related complaints. The time lines are well defined and the cell ensures that the complaint redressal will take minimal time.

These five controlling stations, one in each division comprising of executives and complaint handling personnel, work round the clock. Every divisional controlling station monitors all the activities of the complaint handling centres attached to it. There are more than 40 nos. of complaint attending centres from where the field crews operate. All the field crews are provided with motor cycles and required tools and tackles to efficiently attend to the complaints keeping in mind Safety as the driving force.

To facilitate operational ease, further strategic locations for complaint handling were identified at more than 15 locations. The sole purpose of various Complaint Management Cells is to provide comfort and convenience to the customers for accessing customer support with ease.

CMS Architecture

To manage ‘No Supply’ complaints, CMC dept. has developed in-house software called “Complaint Management System (CMS)”. This software is a highly extensible and is proving to be a boon in complaint handling process since its development. This software can be accessed from anywhere for real time monitoring of no supply complaint status. Complaint management system is user friendly and has several functionalities that cater to customer queries related to supply interruptions, analysis and MIS purpose.
This software is internally developed using oracle as back-end and dot-net as front-end language. It is integrated with ISU-CCS (Billing) and SAP-R3 (O&M) for customer information, material management and abnormality normalization.

The CMS software is installed in a server at centralized location of Dhiru Bhai Ambani Knowledge Centre (DAKC) from where the call centre also operates. There are several modes for complaint registration like IVR, CSR, KAM’s etc. The backbone of the system is the highly reliable fiber optic connectivity of this server with all the complaint handling and monitoring locations.

The Features / functionalities of the software are as follows:

1. Complaint registration for no-supply: When a customer calls on toll free number to DAKC (Reliance call centre) for registration of complaint, the details of the customers are entered in the Complaint registration page and a system generated complaint number is given to customer for future reference. Also customer can use IVR system to register complaint using account number.

2. As the system is integrated with ISU-CCS and SAP-R3, call centre representative (CSR) can provide information about outage and its duration to customer calls for complaint registration or enquiry.

3. System facilitates to decide the priority of Complaint based on type of customer and complaint. System has an intelligence developed to send the SMS to concern engineers where the Supply of the Premium /VIP customer is affected.

4. Display of complaint to complaint handling centres: The registered complaint is routed to particular complaint handling centre based on the area of the customer (Remote complaint centre code). RCC code is defined based on methodologies defined under complaint handling centre. The system indicates the new complaint registered to complaint handling personnel.

5. Allocation and updation of complaints: The complaint handling personnel at complaint handling centre dispatches the field crew to resolve the complaint based on the operational area of the crew. After resolving the complaint, field crew conveys details like nature of problem and action taken for restoration to complaint handling personnel for updating in CMS software. There are 42 standard reasons / statuses for which customer registers complaints of power failure, out of which complaint handling personnel select appropriate one.

6. As this system is integrated with SAP-R3, the orders/notifications are created through system for reasons as mentioned in the complaint details to enable the maintenance teams for material management and resource allocation for rectification of abnormality. System has an intelligence developed to send the SMS to concern engineers where the Supply of the customer is affected.

7. Reports: System has facility to track the various stages of redressal of the complaints at any given point of time. There are several reports that have been developed for monitoring purposes which assist in timely intervention by the complaint handling personnel and executives resulting in faster complaint redressal. Various reports have also been developed in the system from time to time that aid the CMS team and other O&M personnel for weak areas

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40 IVR call centres, CSR – Customer care centres, KAM - Kiosks
identification, analysis and subsequent corrective action that are necessary for the mitigation of the recurrence of the abnormality.

As mentioned earlier CMC dept plays major role in “No Supply Complaint” resolution. Every single complaint registered in Complaint management system is closely monitored by CMC upto supply restoration.

As a step in providing better and better service to customers, Reliance Infra - D continually develops new functionalities in the CMS system thereby enhancing the reach of the system and making the system more user friendly. The CMS team also believes in continually providing inputs to the maintenance teams backed by data extracted from the system of the problem areas and the location wise issues that need to be addressed. These effective inputs have resulted in reduction in abnormalities and events thereby improving the system availability and other measured indices like frequency index and duration index.

The supply of electricity is governed by MERC (Maharashtra Electricity Regulatory Commission) Rules. There are certain Standards of Performance levels that are set by MERC which need to be adhered to. Any deviations from the targets set are to be indicated to the commission.

Every month the performance of the team is critically analyzed and discussed. The improvement areas are identified and new targets are set.

<table>
<thead>
<tr>
<th>Supply Activity/ Event</th>
<th>MERC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuse of Call</td>
<td>4 Hours (urban) 24 Hours (rural)</td>
</tr>
<tr>
<td>Distribution Transformer Failure</td>
<td>24 Hours (urban) 48 Hours (rural)</td>
</tr>
<tr>
<td>Underground Cable Fault</td>
<td>12 Hours</td>
</tr>
<tr>
<td>Scheduled Outage</td>
<td>12 Hours per day</td>
</tr>
</tbody>
</table>

The effective CMS and CMCS resulted into great success as below:

1. 100% of the registered technical complaints been attending within 2 hours.
2. Real time monitoring of complaints, substation wise, has reduced Distribution Transformer interruption time drastically.
4. Overall reduction in total numbers of technical complaints and premium customer complaints.
5. Mapping of all HT related interruption in locally developed Outage management System, which gives information to the CCR of all customers affected by the interruptions, so that the updated information can be given to the customers.
6. Development of several reports for information /analysis of repeated occurrence of abnormalities.
7. Development of system for technical complaint handling using PDA.

Below are some ways that Reliance Infra – D has devised to resolve any dispute/query/issue with lightning fast speed:

1. Customers can walk into any of their eight conveniently located customer care centers and customers will be attended to, within 20 minutes.
2. Customers can place a call to 24 X 7 toll free call center at 1800 200 3030 and get answered by customer service representative within 2 minutes
3. Customers can call up 24 X 7 toll free call center at 1800 200 3030 and get answered instantly on automated response device
4. They assure customers that customers’ complaints/requests would be resolved/processed within 7 working days.
5. Bill Delivery and Meter Reading dates are now available for registered “My Account” users on just a click
6. If Customer write to energy.helpdesk@relianceada.com, customer is promised to get reply within next 48 hours

Various Payment modes have been designed considering the comfort of customers and convenience of customer. Payment gets updated within a maximum of 3 working days.

1. Collecting Banks
2. Drop Boxes
3. Easy Bill Outlets
4. Internet
   1. Credit card
   2. Net banking
   3. Cash card
5. Cheques by mail

Mobile and Email Alerts:

Customer can register his/her mobile number and e-mail address with the Reliance – Infra D and get an alert each time customer’s account is transacted on:

- Bill/PPI
- Meter reading date
- Payment acknowledgement
- Payment/Due Date reminder
• Complaint registration
• Complaint closure
• ECS registration
• ECS mandate crossed
• ECS balance information
• Cheque bouncing
• VDS registration
• VDS balance information
• VDS balance replenishment

5.2.1 Customer Service Centres in Reliance – Infra – D

Reliance has taken many pioneering steps in the field of customer Relationship Management in India. They set up world class customer care centres, world class call centres and 4 color bill which is the first of its kind in India. They also started an initiative to give bill in customer’s choice of language. They ventured into ‘Braile’ bill for visually challenged customers. Apart from these initiatives, R-Infra D has implemented SCADA system for its distribution network and utility call centres in 4 languages to take care of multilingual communities in suburban areas of Mumbai. To achieve great success in CRM, Reliance went for SAP ISU-CC/S implementation to strengthen its operation and keep transparency to share the information to customers.

R-Infra D worked on the following five aspects of CRM to improve their customer Service:

1. Billing Initiatives
2. Payment Options
3. Call Centre
4. Customer Care Centres
5. Web i.e. Reliance web portal
6. Value added services

1. Billing Initiatives: Systematic efforts have been put to redesign the bill for better understanding of bill details to customer. Reliance not only used 4 colors to send the message to customers but made it more attractive. It used this opportunity to send important messages to customers creating a dedicated space in the bill. As part of trust building and get connected to customers, Reliance is sending the bills in customers’ choice of languages reducing the total dependability of customers’ on others to understand the bill.
2. Payment Options

As seen in APCPDCL efforts, Reliance has also taken many efforts to provide better payment options to customers of their choice, convenience and comfort. There are 500 to 2000 options are available for payment in this utility such as:

- Collection Centres
- Bank Branches
- Credit Cards
- ECS & VDS
- Net Banking
- Easy Bill Outlets
- ITZ Cash Card
- Bill Pay using RIM
- Drop Boxes
  - Railway Stations
  - Housing Societies
  - Skypak
  - Post offices
  - Reliance World
  - Standard Chartered Bank

New Payment options like payment kiosks and payment by WAP have also been introduced by this utility.
3. **Call Centres**: Reliance launched toll free number of 18002003030. Through Monsoon Quick Response IVR system it ensures quicker call handling through message broadcasting. This system can take care of call load during disaster scenario by increased numbers.

Reliance deputed multi lingual agents, priority support to premium and VIP customers, well equipped ERP system to deal with customers from various segments. These agents using their database support and ERP support, answer calls related to service, billing, and supply. They also call customers and inform them about call centre visit experience, confirm bill receipt (for premium customers only) and random no supply satisfaction survey. Agents also reply e-mails to solve the queries from customers and post information they sought.

Reliance recently launched online chat services through their website [www.rinfra.com](http://www.rinfra.com) through ‘My Account Service’. Customer can obtain information pertaining to ‘Change of Name request’, ‘E-Bill and SMS alerts’, ‘Billing and Payment’, ‘Web based services’ and other value added services. It also gives the customers many benefits like negligible waiting period for basic queries, Instant status and procedural information and real time service experience.

4. **Customer Care Centres**: Reliance has come up with world class customer care centres with single window for all customer requirements, multi tasked service counters, automated token systems and preferential treatment to handicapped, senior citizens and ladies with child in arm. It provides complete automated customer communication via state of the art systems developed and implemented by Reliance Infra –D.
5. **Web Site:** Reliance used its portal to reach consumer’s heart. The portal gives newsletters, information, Major happening events in the city merged with energy related information, monsoon conditions merged with its outage information and supply information etc. It also provides WAP enabled services for mobile users through m.rinfra.com. The features available with this system are:

- Check Bill Amount
- Pay Bill
- Usage History
- Scheduled Dates
- Payment Centre Locator
- Cheque drop box locator
- Check Complaint Status
6. **Other Value added Services**
   a. Information alerts (SMS / Emails)
      i. Bill Delivery information
      ii. Information of meter reading date
      iii. Payment reminder
      iv. Payment Acknowledgement
      v. ECS Registration Confirmation
      vi. VDS Registration confirmation
      vii. Intimation in case the bill amount crosses the ECS mandate
      viii. Intimation in case the VDS balance needs replenishments
      ix. Bounced cheque intimation
      x. Complaint registration
      xi. Complaint closure
   b. Various initiatives for energy conservation in schools
   c. Various CSR activities
   d. Demand Side Management Programmes

### 5.3 Tata Power Delhi Distribution Company Limited

#### 5.3.1 CRM Practices

When Tata Power took over the North Delhi Distribution once from the erstwhile Delhi Vidyut Board (DVB) a state government owned utility one of its first initiatives was to put in place a process that demonstrated the positive aspect of change in ownership to customers. This was made possible through an emphasis on CRM – phone response times shortened to a maximum of three rings, customer friendly offices and the focus on listening to the customer. Over time, TPDDL has strived to adopt the best CRM practices from other service industries such as telecommunications, banking etc.

TPDDL categorized its consumers according load profile and consumer profile. The consumers have been categorized into high value, LT, JJ etc. It is one the electricity utility that have category for Jhuggi Jhopdi (Low end consumers – slum dwellers).
<table>
<thead>
<tr>
<th>Segments</th>
<th>Micro</th>
<th>Load/Consumer Profile</th>
<th>Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro</td>
<td>High End</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>XPRESS</td>
<td>Load &gt; 500KW : Essential Services [Water Utility, Metro Rail, Hospitals] Malls, Industries etc</td>
<td>The express KCG group has a dedicated client Manager. A new concept that has been borrowed from the banking sector</td>
</tr>
<tr>
<td></td>
<td>KCG</td>
<td>Load 100 KW to 499 KW : Industries, Malls etc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HRB</td>
<td>Load 11 KW to 99 KW : Small scale Industries &amp; Commercial building</td>
<td></td>
</tr>
<tr>
<td>Opinion Influencers</td>
<td>G&amp;I</td>
<td>Load upto 99 KW : Govt and Institutional connection (MCD, Schools, MTNL etc)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HCB</td>
<td>Load Upto 10 KW : Domestic House hold</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SCG</td>
<td>Slum dwellers (JJ Clusters)</td>
<td>JJ customers who are the BOP customers as well as LT commercial, which would be the low-end customer staff, have a separate outreach group to ensure that CSR activities are linked to payments</td>
</tr>
</tbody>
</table>

TPDDL has developed its CRM practice on basis of:

1. Building Relationship Management
2. Voice of consumer
3. Consumer grievances
4. Services
5. Performance assurance

TPDDL captures customer requirements and expectations through various channels like call centres, customer care centres, Customer relationship management and uses this information to improve the systems. TPDDL has a customer segment and a social segment. The customer segment takes care of customer meets, understand their problems, escalate their problems to higher officials. Social segment is active in social media, cultural events, and use other media to convey their message to customers effectively. TPDDL, by integrating its customer and social segments, i.e. CRM and CSR activities has developed a unique model to address JJ or BOP customers.

TPDDL pays special attention to bottom of pyramid consumers (JJ Segment) which is not found in other utilities. They have devised invitation practices of offering insurance policies, mobile dispensaries, drug d-addiction camps providing free services to all those who can produce the latest paid electricity bill. There are also schemes for all those who pay their bills for lucky dip, which has won prizes from every
These prizes include motorbikes, fridges etc. The lucky dip is conducted in front of the local MLA or the RWA Presidents.

TPDDL pays attention to sensitize the process owners across origanisation towards customer centricity. Internal processes and Customer Relationship management is interlinked with a most advanced ERP system.

Customer Relationship Management started in 2003 with ‘No supply Call Centre’ with the number 66404040. Later on, the year 2007 marked with IVRS facility for commercial requests and commercial call centre was established with the number – 66111912.

In 2008, in-house CRM effort through the Samband outreach program has been put in place. The system was integrated with commercial processes, auto request forwarding, escalation mechanism etc. The system used ICT usage for getting the customer information which they call ‘Pull’ service. Customers could send messages ‘SMS’ to 56070 to post information to the utility. TPDDL developed systematic approach to process this information and to respond accordingly to customers. They formed quick response teams for escalated cases.

In 2011, Integrated call centre has been established which started it operation on common CRM platform for both the no supply call centres and commercial call centres.

TPDDL has 1.3 million customers and categorized as below:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Revenue Base (Sanctioned Load greater than 10KW upto 99 KW)</td>
<td>52359</td>
</tr>
<tr>
<td>High Consumer Base (Sanctioned Load 1KW to 10KW)</td>
<td>1116928</td>
</tr>
<tr>
<td>Special Consumer Base (Domestic JJ Cluster Connection with load upto 2KW)</td>
<td>132694</td>
</tr>
</tbody>
</table>
Key Consumer Group

<table>
<thead>
<tr>
<th>Consumer Group</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Express Consumer (Load upto or greater than 500KW)</td>
<td>242</td>
</tr>
<tr>
<td>997</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>1303220</td>
</tr>
</tbody>
</table>

With................. customer care centres, and well established call centres, TPDDL is receiving average complaints per day as below:

### Operation Complaints

<table>
<thead>
<tr>
<th>Complaint Type</th>
<th>Average Number per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Supply Complaint</td>
<td>1133</td>
</tr>
<tr>
<td>Street Light Complaint</td>
<td>226</td>
</tr>
<tr>
<td>Operation Complaint Total</td>
<td>1358</td>
</tr>
</tbody>
</table>

### Commercial Complaint

<table>
<thead>
<tr>
<th>Complaint/Request Type</th>
<th>Average Number per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Connection Request</td>
<td>440</td>
</tr>
<tr>
<td>Attribute Change Request</td>
<td>173</td>
</tr>
<tr>
<td>Reading Complaint</td>
<td>23</td>
</tr>
<tr>
<td>Meter Complaint</td>
<td>59</td>
</tr>
<tr>
<td>Moveout-Final Bill Request</td>
<td>55</td>
</tr>
<tr>
<td>Reconnection &lt;= 6mth Request</td>
<td>36</td>
</tr>
<tr>
<td>Refund Request</td>
<td>35</td>
</tr>
<tr>
<td>Meter Shifting</td>
<td>34</td>
</tr>
<tr>
<td>DATA MODIFICATION</td>
<td>19</td>
</tr>
<tr>
<td>Seal instal/removal</td>
<td>19</td>
</tr>
<tr>
<td>Bill Delivery Req.</td>
<td>17</td>
</tr>
<tr>
<td>Meter Testing</td>
<td>16</td>
</tr>
<tr>
<td>Other Complaint (Bill Revision/Payment Complaint etc)</td>
<td>37</td>
</tr>
<tr>
<td>Commercial Complaint/Request Total</td>
<td>962</td>
</tr>
</tbody>
</table>

It is been observed that call centre receives an average of 6000 calls per month with 94% of the calls get proper answer. TPDDL claims that they have achieved service level percentage in 20 seconds with 83% of calls.
5.3.2 Use of IT in CRM in TPDDL

TPDDL has developed the most advanced CRM software with Business communication Manager Module. The module gives customer linked information to the call centre agent before taking the call. Agent gets screen open with that customer information linked with the phone number of the customer. It also provides simplified IVRS system with better voice quality with direct linkage with CRM screen.

The business communication manager is linked with Outage Management System which gives information about outage, crew location, duration to repair/get solution etc. It has facility to get feedback from customer once problem solved. Hence TPDDL developed entire closed look CRM for its improvement and give better service to customers.

Major functions of an OMS include:
- Prediction of location of fuse or breaker that opened upon failure.
- Prioritizing restoration efforts and managing resources based upon criteria such as locations of emergency facilities, size of outages, and duration of outages.
- Providing information on extent of outages and number of customers impacted to management.
- Calculation of estimation of restoration times/Management of crews assisting in restoration.

The CRM is system is also linked with complaint management system which is a great tool to track the complaint, escalate it to higher official, and get solution quickly.
TPDDCL is also using ICT in its CRM in an extensive manner. It categorized services of ICT into Push and Pull Service which are as below:

**PUSH Service**

- Outage Information – Planned/Emergency
- Bill Generation
- Bill Payment
- Notification Registration/Closure
- Due date reminder

**PULL Service**

- New Connection registration
- Information regarding Payment/Bill/Reading etc.

TPDDL is taking many steps to strengthen its CRM by

- Empowerment for spot resolution at front desks—wrong reading correction, billing address updation, due date extension, first bill generation, bill installments
- Desk wise escalation of complaint
- Performance Assurance Group for monitoring resolution Timeline
- Compliant resolution linked with KRA – Performance Standard/Assurance
Consumer Complaint Analysis Group (CCAG) - Redressal of escalated complaints and analysis to take Preventive actions

Customer complaints normally escalated from Customer touch points to District Management/Commercial Manager. If Customer is not satisfied, the problem will be escalated to Consumer Complaint Analysis Group (CCAG) and further unresolved problems escalated to Consumer Grievance Redressal Forums (CGRF).

### 5.3.3 Other Value added services

TPDDL regularly initiates various activities aimed at increasing awareness amongst its consumers, about the existing and new service offerings, Value Added Services, Tariff Change, Online Services etc through various mediums such as:

1. Website
2. Posters / Leaflets / Banners / Standees at various touch points
3. e-Sampark – Consumer Newsletter
4. Consumer Interaction meets
5. SMS
6. E-mailers
7. Autodialers
8. IVRS

### 5.4 Summing Up

This chapter has summarized the CRM practices, particularly with the use of ICT, in the three distribution utilities. All three utilities, particularly the two private utilities that operate exclusively in urban the area, have incorporated advanced ICT to professionalise their CRM. While APCPDDL strives to keep up with the state of art interventions, it is constrained by the fact that it has a vast rural area as well as the mindset of its officials with their resistance to change.

### 6 Chapter 6 Observations and Conclusions

The focus on CRM, particularly through the use of ICT, has taken root in all the three distribution utilities that have been studied. However, it is the private companies, on account of the profit maximization motive as well as a compulsion to excel compared to their peers, have developed and inculcated a culture of being customer focused. This culture is only now seeping into government owned utilities where even now it is often seen as a peripheral activity compared to the core business of supply electricity. The observations and conclusions are categorized in terms of

a. CRM interventions with a focus on ICT

b. Regulatory Interface to support CRM

c. CRM Interventions for BOP and ME customers
6.1 CRM initiatives with a focus on ICT
<table>
<thead>
<tr>
<th>#</th>
<th>Parameter</th>
<th>R Infra D</th>
<th>Tata Power - DDL</th>
<th>APCPDCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ICT Architecture for CRM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ERP</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>GIS based consumer indexing</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>GIS based network mapping</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>SCADA &amp; Distribution Management System</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Web Based Services</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Use of Mobile Services</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>WAP enabled websites for CRM</td>
<td>√</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Metering, Billing and Payment Initiatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Automated Meter Reading</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Meter data Logging System</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Pre Paid Metering</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>TOD Meters</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Any time Payment machines</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Multiple Payment locations</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Information Kiosks</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Web based payment mechanism</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>ECS clearing for Payment</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>SMS Reminders regarding billing and payment</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Bar Coding facility on Bills to facilitate payment</td>
<td>√</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Complaints and Response Systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IVRS Consumer Call Centre</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>IT enabled consumer service centres</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Web based response</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Emails</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Online chats</td>
<td>√</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>SMS for rectification of faults</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>SMS regarding information on outages</td>
<td>x</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>SMS for pulling out information from customer</td>
<td>x</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>Monitoring of CRM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Integrated CRM with Supply management system</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Calculation of Reliability Indices</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Data on Compliance to SOP</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Monitoring of nature of complaints and time taken to address them</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
</tbody>
</table>
The above table provides a summary of the CRM interventions, particularly with the use of ICT, in the three DISCOMS in the categories of

- ICT architecture for CRM
- Metering, billing and payment initiatives
- Complaint and Response systems
- Monitoring of CRM
- Outreach

Observations:

GIS based network mapping is there in all utilities but APCPDCL is currently not using it for fault location and outage management system to inform nearest maintenance team to attend the fault with no time

SCADA - APCPDCL SCADA is not in working condition

Pre paid meters – R Infra D supplies prepaid meters to Slum dwellers in Mumbai, TPDDL to Delhi – Government offices and APCPDCL to BOP

Calculation of Reliability Indices – It is just a mechanism to which nobody pays attention for improvement, particularly in APCPDCL

Data on compliance to SoP – compliance reports have become a routine activity particularly for government owned utilities. There is no validation by the ERC in this regard.

Customer friendly kiosks are there in every utility but number matters. APCPDCL has very few kiosks which are in working condition even in the urban areas.

Communication regarding Grievance handling system is present in almost all three utilities but less effective in APCPDCL. Channels of this communication are very limited In government owned utility
The private utilities have a far more robust CRM mechanism in place than APCPDCL. One should however note that APCPDCL has a larger area that covers both rural and urban areas

### 6.2 Regulatory Interface to Support CRM

The following table summarizes the Regulatory support to CRM initiatives in terms of

- Regulations for (a) Standards of Performance and (b) Consumer Grievance Redressal guidelines
- Implementation of Consumer Grievance Handling
- Monitoring of Compliance
- Publication / Outreach of utility compliance

**Status of Regulator – Discom Interface for CRM**
<table>
<thead>
<tr>
<th>Status of Regulator – Discom Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Regulations:</strong></td>
</tr>
<tr>
<td>Standards of Performance Regulations</td>
</tr>
<tr>
<td>MERC – Regulates R Infra-D</td>
</tr>
<tr>
<td>DERC – regulates Tata Power DDL</td>
</tr>
<tr>
<td>APERC – regulates ACPDPCL</td>
</tr>
<tr>
<td>- Code of Practice on Payment of Bills by Consumers and for Disconnecting Electricity Supply for Non Payment</td>
</tr>
<tr>
<td>- Delhi Electricity Supply Code &amp; Performance Standards 23 April 2007</td>
</tr>
<tr>
<td>- Consumer grievance Redressal Forum &amp; Electricity Ombudsman Regulations, 2006</td>
</tr>
<tr>
<td>- Amendment to the Consumer grievance Redressal Forum &amp; Electricity Ombudsman Regulations, 2006</td>
</tr>
<tr>
<td>- Appointment of the CGRF Member on nomination by MERC including process, eligibility conditions &amp; selection criteria</td>
</tr>
<tr>
<td>- MERC Order – Advocate In CGRF EO Proceedings 03-09-2010</td>
</tr>
<tr>
<td>- Practice Directions 20-09-2010 to CGRFs</td>
</tr>
<tr>
<td>- Order overseeing Area 28-07-2011</td>
</tr>
<tr>
<td>- Clarification on Appeal/ representation against decision of Forum and/or Ombudsman</td>
</tr>
<tr>
<td>- Practice Directions under Regulation 21 of MERC (Consumer grievance Redressal Forum &amp; Ombudsman Regulations 2003)</td>
</tr>
<tr>
<td>- Hearing of CGRF &amp; Ombudsman – Presentation thereof</td>
</tr>
<tr>
<td>- APERC Complaint Handling Procedure relating to Distribution and Retail Supply</td>
</tr>
<tr>
<td>- Regulation No. 7 - Consumer’s Right to Information, dated -08-</td>
</tr>
</tbody>
</table>
## Consumer Grievance Redressal mechanism - Implementation

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointment of Ombudsman</td>
<td>√</td>
</tr>
<tr>
<td>No of Consumer Forums in the State set up by the utilities</td>
<td>To be added</td>
</tr>
</tbody>
</table>

### Monitoring of Compliance

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance Reports of SOP</td>
<td>Posted on website</td>
</tr>
<tr>
<td>Report of Compensation Paid</td>
<td>Not available</td>
</tr>
<tr>
<td>Publication / outreach of utility compliance</td>
<td>Not available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Satisfaction Surveys</td>
<td>2010 – 11 (Only for Government owned utility)</td>
</tr>
<tr>
<td>Consumer Rights Statement</td>
<td>-</td>
</tr>
</tbody>
</table>

- APERC Consumer Rights Statement 2002
CRM in Electricity Distribution in India

Source: Compiled from various websites and through discussions

Observations:

- All electricity regulatory commissions have committed to put in place a Regulatory Information management System (RIMS) which would assist the monitoring mechanism regarding CRM practices and adherence to SOP. RIMS would have to be supported by input of data by the distribution utilities. However, none of the ERCS have established RIMS.

- The ERCs have all the required regulations and guidelines in place. However, there is a very poor mechanism of monitoring compliance to the regulations particularly that of SOP. There are no penalties on the Discoms for poor adherence to the regulations or guidelines.

- Although the SOP Regulations provide for compensation to customers for non-adherence to SOP, all utilities stated that the compensation is not automatic and is given only when the customer requests for the compensation.

6.3 CRM Initiatives for BOP and ME Customers

<table>
<thead>
<tr>
<th>Customer Category</th>
<th>R Infra D</th>
<th>Tata Power DDL</th>
<th>APCPDCL</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOP</td>
<td>X</td>
<td>√</td>
<td>X</td>
<td>R-Infra D conveyed that in the city of Mumbai, even the customers living in the slums were technologically savvy and had mobile phones and they did not see a need to have specific programmes for BOP customers. Tata Power DDL had specific BOP interventions to improve collections e.g. medical camps to those who could produce a receipt for the electricity bill paid etc. APDPCL has no specific interventions for BOP customers even in the rural areas. There is a GoI scheme that supports single bulb households with a subsidy and that is applicable to BPL households in the rural areas.</td>
</tr>
<tr>
<td>ME</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Micro entrepreneurs as a specific category do not exist in all the three discoms. Micro entrepreneurs would come under commercial or LT industry.</td>
</tr>
</tbody>
</table>

Note: BOP Bottom of Pyramid customers; ME:- Micro Entrepreneurs
Observations:

- No distribution utility defines ME customers with regard to connected load and the usage of electricity for commercial purpose. There is therefore no specific customer category for ME.

- BOP households can be aligned to BPL (Below the Poverty line) households in all the three discoms. However, it is only rural BPL households that get government. In the urban areas, BOP customers are categorized as slum dwellers or Juggi-Jopadi (JJ) customers but there is usually no specific focus on this group except for trying to improve metering, billing and revenue collection in these areas. TPDDL has a unique approach to integrating CRM with CSR.

- Some ME customers who have small entrepreneurial ventures like selling snacks in from of their houses etc continue to use residential connections as their requirement of power over and above their household use is meager. Neither the discoms nor the ERCs insist on a re-categorisation.

- Utilities usually have a drive to check whether residential customers are making use of their premises for commercial purposes. Utilities then use their discretion to decide whether a connection should be commercial or residentially. Usually the use of residential premises to make and sell snacks, sued for tailoring etc. are exempted from re-categorisation to commercial. If there is a grocery shop or any other commercial activity on residential premises, utilities provide separate meters for the commercial activities in residential premises. In Andhra Pradesh there have been customer groups who have pointed out the lack of equitability of billing even someone with a kiosk shop as a commercial establishment.

6.4 Conclusions

This study has shown that there is a growing focus on CRM and CRM supported by ICT across all distribution utilities. However, the development of an organizational culture tuned to address the issues of CRM is predominantly in the private companies including newly privatized utilities.

While the Electricity Regulatory Commissions have put in place a framework of regulations and guidelines to direct and support CRM initiatives, monitoring of compliance has been somewhat tardy.

Distribution Utilities do not have specific mechanisms for CRM towards BOP and ME customers. All customers are considered alike except VIP customers. There are specific initiatives to try and ensure appropriate metering, billing and revenue collection practices amongst BOP households which include pre paid meters. TPDDL has tried to integrate its CSR and CRM activities through a series of CSR initiatives directed at those who have paid their bills.
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