‘Business Efficiency’ Model

BSES

By: Madhukar Moolwaney
In this Presentation

Pre-privatization Scenario

Business Process Changes by BSES
- Technical Intervention
- Metering
- Commercial Practices
- Customer Care
- Policy Support

Outcome

Organizational Changes / Restructuring

New Initiatives

Energy Audit
Demand Forecasting
Demand Side Management

Lessons Learned

Debt Financing
Regulatory Risk
Power Purchase Cost

Regulatory vs. Accounts

Conclusion
1. Pre-privatization scenario
Inefficiency
Mounting Losses
Rising RST— inadequate to cover losses
Default in PP
Curtailing Supply
Unsatisfied Consumer
Delhi Distribution Scenario

- Age Old Network
- High Theft
  - High loss levels
- High Equipment
  - Burn-outs
- Outdated Technology
  - No Processes
- Deep rooted Corruption
- Unprofessional Work Culture
- Insensitive Consumer Service
- Inadequate Investment

Business not geared to meet Rapid growth in Demand

Need for reforms due to Delhi’s grave power problems and deteriorating financial position of DVB.
Reform Milestones

Feb., 99 - GoNCTD Strategy Paper

Dec., 99 - Regulator Appointed

Oct., 00 - Tripartite agreement between staff, DVB and GoNCTD.

Feb., 01 - RFQ issued

Mar., 01 - Delhi Electricity Reforms Act, 2000 notified

Nov., 01 - RFP issued

Nov., 01 - Policy Directions notified

Jul., 02 - Transfer Scheme operationalised
Reform Highlights

- Reform Consultants Valued Assets at Rs.3160 Cr. for successor entities
- No time between Corporatisation and Privatization.
- Tripartite Agreement - protect interests of existing employees
- Opening AT & C Losses fixed by Regulator on realistic basis.
- Transco to procure power for first 5 years - Uniform RST
- Rs 3450 cr loan to Transco (transitional support) to avoid RST shock
- ARR - First 5 years AT & C Loss on the basis of successful bid
- Incentives on over-achievement - DISCOMS: Consumers::50:50.
- DISCOMS earn 16% Return on Equity and free reserves for 5 years
### Profile of Delhi DISCOMs

#### Commercial

<table>
<thead>
<tr>
<th>Category</th>
<th>BYPL MU</th>
<th>BRPL MU</th>
<th>NDPL MU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>1060</td>
<td>2023</td>
<td>1104</td>
</tr>
<tr>
<td>Non Domestic</td>
<td>343</td>
<td>431</td>
<td>202</td>
</tr>
<tr>
<td>Industrial</td>
<td>473</td>
<td>965</td>
<td>908</td>
</tr>
<tr>
<td>Others</td>
<td>91</td>
<td>208</td>
<td>304</td>
</tr>
</tbody>
</table>

#### Consumer Mix

<table>
<thead>
<tr>
<th>Category</th>
<th>BYPL MU</th>
<th>BRPL MU</th>
<th>NDPL MU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>1060</td>
<td>2023</td>
<td>1104</td>
</tr>
<tr>
<td>Non Domestic</td>
<td>343</td>
<td>431</td>
<td>202</td>
</tr>
<tr>
<td>Industrial</td>
<td>473</td>
<td>965</td>
<td>908</td>
</tr>
<tr>
<td>Others</td>
<td>91</td>
<td>208</td>
<td>304</td>
</tr>
</tbody>
</table>

**SN** | **Particulars** | **Unit** | **BYPL** | **BRPL** | **NDPL**
---|-----------------|----------|----------|----------|----------|
1 | Area | sq. km | 160 | 691 | 501 |
2 | No. of customers | Lacs | 8.61 | 8.49 | 7.42 |
3 | Load | MW | 1463 | 2360 | 1824 |
4 | AT&C Loss | % | 61 | 52 | 49 |
5 | Employee | | 5907 | 7336 | 5562 |
6 | Revenue Billed | Rs. Cr. | 740 | 1326 | 965 |
7 | Bills on Meter Reading | % | 57 | 59 | 61 |
8 | Receivables | Rs. Cr. | 715 | 771 | 502 |
9 | Receivables > 36 moths | % | 64 | 51 | 54 |
## Profile of Delhi DISCOMs

### Financial

<table>
<thead>
<tr>
<th>SN</th>
<th>Liabilities</th>
<th>BYPL</th>
<th>BRPL</th>
<th>NDPL</th>
<th>SN</th>
<th>Assets</th>
<th>BYPL</th>
<th>BRPL</th>
<th>NDPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Long term Liabilities</td>
<td>290</td>
<td>1150</td>
<td>920</td>
<td>A</td>
<td>Net Fixed Assets</td>
<td>290</td>
<td>1150</td>
<td>920</td>
</tr>
<tr>
<td>1</td>
<td>Share Capital</td>
<td>116</td>
<td>460</td>
<td>368</td>
<td>1</td>
<td>Gross Fixed Assets</td>
<td>360</td>
<td>1533</td>
<td>1210</td>
</tr>
<tr>
<td>2</td>
<td>Secured Loans payable to DPCL</td>
<td>174</td>
<td>690</td>
<td>552</td>
<td>2</td>
<td>Less: Accumulated Depreciation</td>
<td>70</td>
<td>383</td>
<td>290</td>
</tr>
<tr>
<td>B</td>
<td>Current Liability</td>
<td>91</td>
<td>148</td>
<td>110</td>
<td>B</td>
<td>Current Assets</td>
<td>91</td>
<td>148</td>
<td>110</td>
</tr>
<tr>
<td>1</td>
<td>Payable to DPCL</td>
<td>15</td>
<td>15</td>
<td>12</td>
<td>1</td>
<td>Receivables</td>
<td>68</td>
<td>122</td>
<td>88</td>
</tr>
<tr>
<td>2</td>
<td>Payable to TRANSCO</td>
<td>68</td>
<td>122</td>
<td>88</td>
<td>2</td>
<td>Cash and Bank Balance</td>
<td>12</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Consumer Security Deposit</td>
<td>8</td>
<td>11</td>
<td>10</td>
<td>3</td>
<td>Stores and Spares</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>Loan to Personnel</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>C</td>
<td>Total Liability (A+B)</td>
<td>381</td>
<td>1298</td>
<td>1030</td>
<td>C</td>
<td>Total Assets (A+B)</td>
<td>381</td>
<td>1298</td>
<td>1030</td>
</tr>
</tbody>
</table>

**Tenure**: 12 years  
**ROI**: 12% p.a.  
**Moratorium**: First 3 years for both Interest & Principal

Value of Stores & Spares and Loans to Personnel shall be adjusted (with current liability payable to DPCL) to reflect actual book value as on Date of Transfer.
Reform Objectives

- Reduce high commercial losses in distribution.
  - Protect investor’s interest
  - Reduce technical losses
  - Increase efficiency
  - Motivate for Demand Side Management activities

- Distancing government from management & business.
  - Better services to the consumers
  - Faster decision and monitoring of projects
  - Attract investors
2. Business Process Changes
Processes Re-engineered

**COMMERCIAL PRACTICES**
- New connection camps
- Electrification schemes
- Settlement of Legal cases
- AMR installations

**CUSTOMER CARE**
- CCC – Increase accessibility
- Robust billing practices
- Multiple payment options
- Web based initiatives

**POLICY SUPPORT**
- Transfer Scheme
- Electricity Act 2003
- DERC Supply Code
- Special Voluntary Retirement Scheme
- Amnesty Scheme

**TECHNICAL INTERVENTIONS**
- New GRID stations
- Upgrading Power Transformers
- Enhancing EHV Capacities
- Safe loading of Distribution Transformer
- LT AB Cable / HVDS / Secured Station
- SCADA / GIS

**METERING**
- Downloadable electronic meter
- Grid metering / DT metering
- Intensive Enforcement
- Energy Audit

**GRID Stations** → **Distribution Transformer** → **Meter & Customers**

**BILLING** → **Cash Realized**

**METER READING** → **BILLING**
2 a. Technical Intervention
System Improvement at the ground

<table>
<thead>
<tr>
<th>UoM</th>
<th>Capital Expenditure</th>
<th>Capitalisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BYPL</td>
<td>Rs. Cr.</td>
<td>1720</td>
</tr>
<tr>
<td>BRPL</td>
<td>Rs. Cr.</td>
<td>2699</td>
</tr>
</tbody>
</table>
Capacity Addition

GRIDs

9 GRID stations added by each Company
Capacity Addition
Power Transformers and EHV Capacity

Power Transformers added:
- BYPL: 35
- BRPL: 46

EHV Capacity enhanced:
- BYPL: 45%
- BRPL: 38%
Capacity Addition

Distribution Transformers

<table>
<thead>
<tr>
<th>BYPL</th>
<th>BRPL</th>
<th>FY 03</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>36%</td>
<td>20%</td>
<td>36%</td>
<td>20%</td>
<td>36%</td>
<td>20%</td>
<td>36%</td>
<td>20%</td>
<td>36%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Distribution Transformers Capacity (MVA)

<table>
<thead>
<tr>
<th>BYPL</th>
<th>BRPL</th>
<th>FY 03</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>54%</td>
<td>34%</td>
<td>54%</td>
<td>34%</td>
<td>54%</td>
<td>34%</td>
<td>54%</td>
<td>34%</td>
<td>54%</td>
<td>34%</td>
</tr>
</tbody>
</table>

BSES
Capacity Addition
HVDS, LVDS and Secured Substation

High Voltage Distribution System (HVDS)
- Reduction in technical losses.
- Increased system reliability.
- Breakdown affects lesser number of consumers.
- Improvement in voltage profile.
- It discourages “theft”

LT Aerial Bunched Cable (LVDS)
- Bare conductors replaced with Insulated AB cable
- Distribution box installed on pole
- Provision of separate street light cable

Secured Substation
- Avoid mis-happening & theft
- Routine preventive maintenance
IT intervention

SCADA

GIS

SAP

AMR

IT

CALL CENTER

OMS
Capacity Addition

IT & Infrastructure development

- Commissioning of SCADA for System operations.
- GIS and SAP ISU implementation
- All offices connected through intranet
- Completely automated billing system
- Consumer friendly customer care centers
- Automated Meter Reading for Key consumers
- 24x7 Call Center for technical & commercial queries
- Efficient grievance redressal system
2 b. Metering
Meters
Advantages of Electronic Meters

• Replacement of Electromechanical meters by new improved Electronic meters
  - Sustained accuracy
  - Downloadable
  - Tamper resistant
  - High accuracy
  - Inbuilt Data / History Storage
• BSES is the only company in India and one of the few companies in the world which uses Optical Download System for downloading meter data.
All meters removed at site for suspected tampering are tested in meter lab
Energy Audit

**Cluster-wise Energy Audit**

- Location wise segregation of all 11 kV Feeders
- Almost 100 % metering of 11 kV Feeders
- Cluster wise loss calculation

**Distribution Transformer-wise Energy Audit**

- Almost 100 % DT metering achieved with downloadable meters.
- DT augmentation and Load Balancing are routinely carried out on the basis of downloaded data.
- Pole marking in progress and will be completed this year for further tagging of the consumer meters.
Grid metering / DT metering

DT Health Monitoring System

- DT Meter Download
- Data Processing
- MIS Report Generation
- Analysis & Corrective Actions
- Monitoring of Overload DT & LT feeders
- Relative Load Unbalance
- Power Factor Monitoring
- Voltage Unbalance

Methodology

Key Health Parameters

DT Loss Audit

- Consumer Indexing
- In-House Software for calculation
- Field Action Tracking
- Focus DT's for loss reduction
- Framing of Action Plan is specific
- Monitoring of limited network is easy
- Customers & network assets Data Bank

Methodology

Advantages

BSES
2 c. Commercial Practices
<table>
<thead>
<tr>
<th>S.No.</th>
<th>Item</th>
<th>Unit</th>
<th>Earlier</th>
<th>Today</th>
<th>Remarks HAPPY CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New connection</td>
<td>Days</td>
<td>45</td>
<td>Tatkal (24 hrs), Connection at consumer premise</td>
<td>☺</td>
</tr>
<tr>
<td>2</td>
<td>Name Change / Load enhancement</td>
<td>Days</td>
<td>15</td>
<td>Single window for all matters</td>
<td>☺</td>
</tr>
<tr>
<td>3</td>
<td>First visit closures</td>
<td>Nos.</td>
<td>No concept</td>
<td>&gt; 70%</td>
<td>☺</td>
</tr>
<tr>
<td>4</td>
<td>Call centre (Technical / Commercial)</td>
<td>No.</td>
<td>No concept</td>
<td>Both inbound and outbound calls done</td>
<td>☺</td>
</tr>
<tr>
<td>5</td>
<td>Percentage of Provisional / Average bills</td>
<td>%</td>
<td>No concept</td>
<td>1%</td>
<td>☺</td>
</tr>
<tr>
<td>6</td>
<td>Payment options</td>
<td>Nos.</td>
<td>Only cash counter</td>
<td>Wide variety (&gt;2000), more than any utility in India</td>
<td>☺</td>
</tr>
<tr>
<td>7</td>
<td>Consumer interaction</td>
<td>Type</td>
<td>No concept</td>
<td>Aap ke Dwar, Bhagidari, RWA meets, Saturday Consumer day</td>
<td>☺</td>
</tr>
</tbody>
</table>
Commercial Practices
Launch of Tatkal Scheme

New connections within 24 hours
Aimed at the Economically Weaker Section
40,000 consumers targeted

Empowered team set up single window camps
Team assists consumers in filing application
Payment of Service Line Charges in installments
## Commercial Practices

*Lok Adalat*

<table>
<thead>
<tr>
<th></th>
<th>Mar'09</th>
<th>Sep '09</th>
<th>Feb'10 / Mar'10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BRPL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases settled</td>
<td>1056</td>
<td>1308</td>
<td>1727</td>
</tr>
<tr>
<td>Amount Realised (Rs. Cr.)</td>
<td>1.35</td>
<td>2.25</td>
<td>5.63</td>
</tr>
<tr>
<td><strong>BYPL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cases settled</td>
<td>1277</td>
<td>1293</td>
<td>800</td>
</tr>
<tr>
<td>Amount Realised (Rs. Cr.)</td>
<td>1.31</td>
<td>2.06</td>
<td>1.25</td>
</tr>
</tbody>
</table>
## Commercial Practices

### Other Initiatives

- **Women Bill Distributors**
- **Queue Number and Estimated Wait time on the IVRS service**
- **Duplicate Bill through SMS**
- **ATM type Bill Payment kiosks**
- **GIS – assisting in field processes, O&M, Planning, etc.**
- **Aapke Dwar – interactions with consumers**
- **Parivartan – Pilot project to reduce AT & C losses in high power theft areas**
- **Electrician training program**
- **Street Light automation**
Commercial Practices
Other Initiatives

- Buy one get one CFL
- Consumer is King - ‘On-the-spot’ grievance resolution
- Online Bill payment facilities
- LPSC waiver scheme
- Distribution Transformer Management System (DTMS)
- Customer Care Centers – Deposit Cash, Resolve Bill dispute, Lodge No Supply Complaint
- Own meters / Third party meter testing
- Bhagidari – an initiative with GoNCTD
2 d. Customer Care
Customer Care

Increased accessibility

**Then**

**Now**

- State of the art Customer Care Centers
- Customer Counters
- Mobile Customer Care Vans

BSES Office - within range of 2.5 Kms
Customer Care
Understanding Energy Bills

Then

1. Dull Colors, Font size 8
2. Non categorization of information
3. No clear contact information
4. Unclear Bill payment information
5. No mention of Energy Charge calculation

Now

1. Bright Colors, Font size 12
2. Categorization of information by type
3. Highlighting contact details
4. Clear bill payment instructions
5. Inclusion of Energy Charge calculation
6. Bar Coding
7. Space for Public Information
Customer Care
*Increased payment options*

**Then**
- **A mere hole in the Wall**

**Now**
- **Dedicated counters**: 120 no.(s)
  - Project “NIKAT” – 150 boxes
  - Pay by Phone
  - Internet
- **Automated kiosks**
  - ECS
- **Mobile Cash Vans**: 05 no.(s)
- **Easy bill options**: 850 no.(s)

**Approx. 2000 multiple option payment touch points**
Features & Facilities

- Option for Duplicate Bill Printing
- Bill status
- Six months billing data
- Bills via E-mail
- Online Complaint Registration
- Download forms
- Payment option details
- Online payment
- Energy Calculator
- Contact details
- Energy conservation & Safety tips
- Meter specifications & Vendor details
- Suggestions & Feedback
- Trained Electrician List

SMS based services
- Bill Alert
- Bill Amount / Due date
- Payment confirmation

Customer Care
Web based initiatives
2 e. Policy Support
Policy Support

Transfer Scheme – Transition support by Government

Electricity Act 2003 – Forums for consumer grievance redressal

DERC Supply Code – Regulations for New Connections / Meter Replacement

Special Voluntary Retirement Scheme

Amnesty Scheme – LPSC waiver, DVB Arrears
3. The Outcome
Loss Reduction
Transmission and Distribution Loss

Pre - Privatisation

Note: Preprivatisation data source : DESU/DVB Statistical Hand Book/ MIS Reports, Information Memorandum and Feb’2002 Tariff Order.
Loss Reduction
Collection Efficiency

Pre - Privatisation

Financial Year

Collection Efficiency

Note: Pre-privatisation data source : DESU/DVB Statistical Hand Book/MIS Reports, Information Memorandum and Feb’2002 Tariff Order
Loss Reduction
AT&C Loss

Financial Year
83-84 84-85 85-86 86-87 87-88 88-89 89-90 90-91 91-92 92-93 93-94 94-95 95-96 96-97 97-98 98-99 99-00 00-01 01-02 02-03 03-04 04-05 05-06 06-07 07-08 08-09 09-10

AT & C Loss levels
10.00 20.00 30.00 40.00 50.00 60.00 70.00

Pre - Privatisation

Note: Preprivatisation data source : DESU/DVB Statistical Hand Book/ MIS Reports, Information Memorandum and Feb’2002 Tariff Order

BRPL
BYPL
01-02 53.8% 63.8%
09-10 19.0% 23.1%
Commercial Efficiency

**Pre-Privatization**
- RPL - 46 units
- YPL - 36 units

**2009-10**
- RPL - 81 units
- YPL - 77 units

Rs. 522 cr shared by BSES with consumers for over-achievement of AT&C loss Targets
Savings to Govt.

**AT&C Loss Reduction**
- **BRPL**: Rs 6,089 cr
- **BYPL**: Rs 4,191 cr
- **NDPL**: Rs 4,577 cr

**Capital Expenditure**
- **BRPL**: Rs 2,699 cr
- **BYPL**: Rs 1,719 cr
- **NDPL**: Rs 2,528 cr

**Loan Payback** (to Holding Company)
- **BRPL**: Rs 690 cr
- **BYPL**: Rs 174 cr
- **NDPL**: Rs 552 cr

**E Tax Payment**
- **BRPL**: Rs 652 cr
- **BYPL**: Rs 337 cr
- **NDPL**: Rs 468 cr

**Figures in Rs. Cr till 2009-10**

3 Discoms - Rs 14,857 cr
3 Discoms - Rs 6,946 cr
3 Discoms - Rs 1,416 cr
3 Discoms - Rs 1,457 cr

Money available for other areas viz; Roads, Hospitals, Transport etc.

**Cumulative savings to Delhi Govt. (including DVB Arrears) ~ ` 24,676 cr**
Cost Reflective Tariff

**Pre-Privatisation** (1990-91 to 2001-02)
- 6 tariff orders in 11 years period
- CAGR - overall tariff hike(based on tariff rate) is around 15%
- Range across categories: 13% to 18%.

**Post-Privatisation** (2002-03 to 2009-10)
- 5 tariff orders in 8 years period
- CAGR - tariff hike(based on Average Billing rate) is 2.17 %

**Pre-privatization tariff hike steeper compared to Post-privatization**
Quality of Supply
Average monthly Distribution Transformer failure

<table>
<thead>
<tr>
<th>Year</th>
<th>YPL</th>
<th>YPL</th>
<th>YPL</th>
<th>YPL</th>
<th>YPL</th>
<th>YPL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998</td>
<td>1999</td>
<td>2001</td>
<td>FY 08</td>
<td>FY 09</td>
<td>FY 10</td>
</tr>
<tr>
<td>YPL</td>
<td>47.36</td>
<td>39.45</td>
<td>37.50</td>
<td>3.00</td>
<td>0.75</td>
<td>1.33</td>
</tr>
<tr>
<td>RPL</td>
<td>61.27</td>
<td>53.55</td>
<td>48.63</td>
<td>1.00</td>
<td>0.42</td>
<td>0.83</td>
</tr>
</tbody>
</table>

Then

Now
Quality of Supply

DT failures are amongst the lowest in the country....

DT Failure of Towns / Cities

(Source: Minutes of Regional Review Meetings on Financial turnaround of State Power Utilities, MoP, GoI)

BSES
Quality of Supply

R&M Expenses per kWh

Financial Year

Now

Then

07-08

08-09

09-10

R&M Expenses (after adjustment of Inflation) / kWh

Now

Then

- 0.02

0.04

0.06

0.08

0.10

0.12

0.14

0.16

BSES
Quality of Supply
Load Shedding

Then

Now

FY 99 FY 00 FY 01 FY 08 FY 09 FY 10

Load Shedding (MU)

DVB | TRANSCO | BSES

Then

Now
Discom Achievements
- Performance Transition

<table>
<thead>
<tr>
<th>FY 2002-03</th>
<th>FY 2009-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load shedding av 6 hr Per day</td>
<td>Zero load shedding</td>
</tr>
<tr>
<td>Transformer failure rate More than 500 / yr</td>
<td>Less than 10 transformer failure rate</td>
</tr>
<tr>
<td>Peak demand of Delhi was 3093 MW</td>
<td>Peak Demand increased by 53 % To 4720 MW in 2010</td>
</tr>
<tr>
<td>Poor metering practices/ Manual Reading/ Electromechanical meters</td>
<td>Direct downloading of meters More than 99 %; AMRs installed on key consumers</td>
</tr>
<tr>
<td>Inaccurate / provisional billing</td>
<td>Actual billing more than 99.5 %</td>
</tr>
<tr>
<td>Abysmal Collection efficiencies</td>
<td>Collection efficiency Of 100 %</td>
</tr>
<tr>
<td>Rampant Theft</td>
<td>Theft effectively controlled</td>
</tr>
</tbody>
</table>
Retail Supply Tariff
Less than Grocery bills

2.17% average annual Increase in Electricity Tariff's in the last 8 years

VS.

Hindustan Times
(Page 1 dt 6th October)

FRP - 7.6 p.a. for first 5 years

GROCERY BILL UP 25% IN JUST ONE YEAR

Cost of essentials from oil to onions goes through the roof

Household budgets have gone up. For instance, Swagata Dasgupta, a resident of Mayur Vihar, is spending 30% more on household items every month. In Delhi, mustard oil costs around Rs 2 per litre more compared to last year. But the prices have increased. From Rs 8 a litre to Rs 20 in the last year. A rise of more than 150%.

Wheat, a staple for most Indian households, is selling almost 10% higher than in the same period last year. Analysts say that wheat will be costlier as the government is importing 5,11,000 tonnes of the grain at Rs 16 a kilo, against the Rs 6 a kilo procurement price it paid to domestic growers.

Even the prices of pulses are moving north — while dal costs Rs 4 more. India is a major importer of pulses and prices of these items have been shooting up internationally, as in the case of wheat.

Manohar Singh, an East Delhi grocer, says his customers are buying less than usual. "There is a 25 to 30% drop in sale of pulses and oils," he says.

The one sweet spot in this grim picture is the steady decline in price of sugar, from Rs 31 to Rs 16.4 a kg.

BSES
4. Organizational Changes / Restructuring
Restructuring

Number of Employees – Then and Now

<table>
<thead>
<tr>
<th>Company</th>
<th>Nov-01</th>
<th>Mar-10</th>
<th>Nov-01</th>
<th>Mar-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRPL</td>
<td>8000</td>
<td>6000</td>
<td>7000</td>
<td>5000</td>
</tr>
<tr>
<td>BYPL</td>
<td>3000</td>
<td>4000</td>
<td>3000</td>
<td>4000</td>
</tr>
</tbody>
</table>

GPA  CTC  Contractual

FRESH TALENT

GOLDEN HANDSHAKE
Voluntary Retirement Scheme

Objectives

- Lean Organization
- Promote Efficiency
- Reduce Employee Cost
- Rationalize Manpower Requirement
- Reduce Age Profile of the Organization
- Bringing in new Talent
5. New Initiatives
5 a. Energy Audit
Energy Audit

Primary Objective

**LOSS REDUCTION**

- Identify the theft prone areas/factors
- Action Plan for loss reduction

**HEALTH OF NETWORK**

- Identify the abnormal conditions in network
- Action Plan for rectification

BSES
Loss Reduction

Energy Audit – Other consumers

- LTST Module
  DT-Pole Tagging

- CPS Module
  Pole-consumer Tagging

Energy Audit Module
DT-consumer Tagging
Loss Report Generation

- Un-billed consumers
- Direct theft
- Mechanical meters
- Manually controlled Street lights
- Stair-case/hoarding lights/water pumps direct connected

BSES
## Loss Reduction

**Energy Audit – Other consumers - Examples**

<table>
<thead>
<tr>
<th>Div</th>
<th>DT Name</th>
<th>No of DT</th>
<th>No of Consumers</th>
<th>Earlier Loss</th>
<th>Revised Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sep-09</td>
<td>Oct-09</td>
</tr>
<tr>
<td>Janakpuri</td>
<td>Tihar jail Qtr</td>
<td>1</td>
<td>174</td>
<td>45.3%</td>
<td>41.9%</td>
</tr>
</tbody>
</table>

**Observations:**

- 26 no flats found **direct connected** to bus-bars
- 2 no **electro-mechanical meters**
- 54 consumers are **missing to be tagged**
4 meters not found in billing database may be unbilled

28 no electro-mechanical meters found

All street lights are manually controlled

145 no connections missing in tagging
## Tagging Summary as on 05-04-2010

<table>
<thead>
<tr>
<th>Circle Name</th>
<th>%age Total DT Tagged</th>
<th>%age Total Pole Tagged by O&amp;M in comparison to business</th>
<th>%age Total Consumer Tagged</th>
</tr>
</thead>
<tbody>
<tr>
<td>South - 1</td>
<td>96.84</td>
<td>62.09</td>
<td>93.21</td>
</tr>
<tr>
<td>South - 2</td>
<td>96.13</td>
<td>81.48</td>
<td>92.35</td>
</tr>
<tr>
<td>West - 1</td>
<td>98.80</td>
<td>81.68</td>
<td>94.54</td>
</tr>
<tr>
<td>West - 2</td>
<td>96.42</td>
<td>64.43</td>
<td>96.13</td>
</tr>
<tr>
<td>BRPL</td>
<td>96.97</td>
<td>72.47</td>
<td>94.30</td>
</tr>
</tbody>
</table>
Network Health

*DT and LT Feeder Health*

- Over loading
- Under loading
- Relative Phase Unbalance
- Low Power Factor
- Over loading of LT feeders
- Power On/Off report
# Network Health

## DT Overloading / Underloading Summary - South

<table>
<thead>
<tr>
<th>DIVISION NAME</th>
<th>Overload DT</th>
<th>Underloaded DT</th>
<th>Relative phase unbalance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt;80%</td>
<td>&gt;100%</td>
<td>&lt;20%</td>
</tr>
<tr>
<td>ALAKNANDA</td>
<td>72</td>
<td>20</td>
<td>70</td>
</tr>
<tr>
<td>KHANPUR</td>
<td>28</td>
<td>6</td>
<td>36</td>
</tr>
<tr>
<td>NEHRUPLACE</td>
<td>48</td>
<td>12</td>
<td>52</td>
</tr>
<tr>
<td>NIZAMUDDIN</td>
<td>54</td>
<td>21</td>
<td>86</td>
</tr>
<tr>
<td>SARITA VIHAR</td>
<td>32</td>
<td>23</td>
<td>109</td>
</tr>
<tr>
<td>SOUTH-1</td>
<td>234</td>
<td>82</td>
<td>353</td>
</tr>
<tr>
<td>SAKET</td>
<td>66</td>
<td>42</td>
<td>159</td>
</tr>
<tr>
<td>VASANTKUNJ</td>
<td>40</td>
<td>31</td>
<td>114</td>
</tr>
<tr>
<td>R K PURAM</td>
<td>25</td>
<td>13</td>
<td>70</td>
</tr>
<tr>
<td>HAUZ KHAS</td>
<td>39</td>
<td>14</td>
<td>84</td>
</tr>
<tr>
<td>SOUTH-2</td>
<td>170</td>
<td>100</td>
<td>427</td>
</tr>
<tr>
<td>SOUTH TOTAL</td>
<td>404</td>
<td>182</td>
<td>780</td>
</tr>
</tbody>
</table>

### DT Health

- **May’09-Sep’09**
  - BSES
- **Oct’09-Feb’10**
  - DT Health

### Relative phase unbalance

- **ALAKNANDA**
  - >80%: 9
  - >100%: 0
  - <20%: 84
  - 0-50%: 29
  - >150%: 17
- **KHANPUR**
  - >80%: 3
  - >100%: 0
  - <20%: 26
  - 0-50%: 12
  - >150%: 8
- **NEHRUPLACE**
  - >80%: 3
  - >100%: 2
  - <20%: 101
  - 0-50%: 28
  - >150%: 24
- **NIZAMUDDIN**
  - >80%: 19
  - >100%: 3
  - <20%: 85
  - 0-50%: 28
  - >150%: 29
- **SARITA VIHAR**
  - >80%: 19
  - >100%: 1
  - <20%: 111
  - 0-50%: 27
  - >150%: 25
- **BRPL (SOUTH-1)**
  - >80%: 53
  - >100%: 6
  - <20%: 407
  - 0-50%: 124
  - >150%: 103
- **SAKET**
  - >80%: 29
  - >100%: 5
  - <20%: 111
  - 0-50%: 51
  - >150%: 45
- **VASANTKUNJ**
  - >80%: 31
  - >100%: 7
  - <20%: 106
  - 0-50%: 48
  - >150%: 34
- **R K PURAM**
  - >80%: 7
  - >100%: 0
  - <20%: 59
  - 0-50%: 25
  - >150%: 22
- **HAUZ KHAS**
  - >80%: 6
  - >100%: 0
  - <20%: 64
  - 0-50%: 22
  - >150%: 19
- **BRPL (SOUTH-2)**
  - >80%: 73
  - >100%: 12
  - <20%: 340
  - 0-50%: 146
  - >150%: 120
- **SOUTH TOTAL**
  - >80%: 126
  - >100%: 18
  - <20%: 747
  - 0-50%: 270
  - >150%: 223
**Network Health**

*Divisions with Power Factor < 0.88*

<table>
<thead>
<tr>
<th>S NO.</th>
<th>DIVISION CODE</th>
<th>DIVISION NAME</th>
<th>DT COUNT IN PF RANGE</th>
<th>100 KVA</th>
<th>400 KVA</th>
<th>630 KVA</th>
<th>990/1000 KVA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2510</td>
<td>ALAKNANDA</td>
<td></td>
<td>3</td>
<td>9</td>
<td>21</td>
<td>35</td>
<td>68</td>
</tr>
<tr>
<td>2</td>
<td>2511</td>
<td>KHANPUR</td>
<td></td>
<td>2</td>
<td>4</td>
<td>11</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>2530</td>
<td>NEHRUPLACE</td>
<td></td>
<td>2</td>
<td>10</td>
<td>31</td>
<td>41</td>
<td>84</td>
</tr>
<tr>
<td>4</td>
<td>2540</td>
<td>NIZAMUDDIN</td>
<td></td>
<td>2</td>
<td>8</td>
<td>29</td>
<td>42</td>
<td>81</td>
</tr>
<tr>
<td>5</td>
<td>2541</td>
<td>SARITA VIHAR</td>
<td></td>
<td>10</td>
<td>10</td>
<td>28</td>
<td>11</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOUTH-1</td>
<td></td>
<td>19</td>
<td>41</td>
<td>120</td>
<td>137</td>
<td>317</td>
</tr>
<tr>
<td>6</td>
<td>2520</td>
<td>SAKET</td>
<td></td>
<td>26</td>
<td>28</td>
<td>37</td>
<td>15</td>
<td>106</td>
</tr>
<tr>
<td>7</td>
<td>2521</td>
<td>VASANTKUNJ</td>
<td></td>
<td>13</td>
<td>22</td>
<td>16</td>
<td>1</td>
<td>52</td>
</tr>
<tr>
<td>8</td>
<td>2550</td>
<td>R K PURAM</td>
<td></td>
<td>3</td>
<td>19</td>
<td>30</td>
<td>23</td>
<td>75</td>
</tr>
<tr>
<td>9</td>
<td>2551</td>
<td>HAUZ KHAS</td>
<td></td>
<td>0</td>
<td>7</td>
<td>13</td>
<td>37</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOUTH-2</td>
<td></td>
<td>42</td>
<td>76</td>
<td>96</td>
<td>76</td>
<td>290</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOUTH TOTAL</td>
<td></td>
<td>61</td>
<td>117</td>
<td>216</td>
<td>213</td>
<td>607</td>
</tr>
</tbody>
</table>

**DT Health (Low p.f.)**

- **May’09-Sep’09**
- **Oct’09-Feb’10**
5 b. Demand Forecasting
Demand Estimation

Approaches

- CAGR
  - Pros
    - Simplicity, speed and low cost
  - Cons
    - Backward looking
    - Insensitive to change in underlying parameters

- Time series
  - Pros
    - Low cost, high short term accuracy
  - Cons
    - Insensitive to change in underlying parameters

- End use survey
  - Pros
    - Bottom up approach
    - Internalizes new uses
  - Cons
    - Insensitive to change in underlying parameters
    - Initial data difficult to collect
    - High cost

- Econometric methods
  - Pros
    - Internalizes impact of underlying parameters
    - Higher accuracy
  - Cons
    - Requires high degree of skill and experience
    - High cost.

- Hybrid techniques
  - Pros
    - Combine advantages of econometric and end use methodologies
  - Cons
    - Large effort and time
    - High cost.
Demand Estimation

Factors affecting Demand

- Base Load
- Peak Load

Factors:
- Weather Conditions
- Regulations
- Special Events / Games / Special Telecast & related developments in the city

Use of Hybrid Techniques
Present Accuracy - 95%

BSES
5 c. Demand Side Management
Initiatives

- Energy efficient Lighting Products
  - MoU with industries to promote new technologies like LED, etc.

- Bachat Lamp Yojana
  - CFL units at a very competitive price

- Electronic choke for street lights
  - Inbuilt capacitor unit helps improving Power Factor

- Consumer Awareness
  - Industrial units appraised about benefits for improving Power Factor

- Energy Conservation Meet
  - Major Industrial Areas

- Own Offices
  - Roof top solar plant, Roof Paints, Efficient Lighting fixtures, etc.

- BRPL Green Club
  - Remote disconnection of non essential load (declared by consumer) during peak hour

- Street Light
  - Automated Switching
  - Replacement of FTL 40 W lights with T-5 lights
6. Lessons Learned
6a. Debt Financing
Working Capital

Requirement: To Finance

• Working capital due to time gap between realization of energy consumption (avg. 45-50 days based on billing cycle) and suppliers’ credit (30 days)
• Revenue gap due to truing up of annual accounts - Gap of 1-1.5 years
• Letter of credits (SBLCs) - Power generators / transmitters as a security for timely payment
• Bank Guarantee - Govt. agencies for carrying out network upgradation work

Sources:

• Suppliers’ credit
• Working Capital facilities with working capital consortium bankers
  – Fund based limits for cash credit facility
  – Non-fund based limits for LC & BG
• Short term loans from Power Stabilisation Fund established by GoNCTD.
• Corporate loans from Banks to finance revenue gaps
Working Capital Consortium

- Consortium arrangement with 9 member banks led by SBI as consortium leader
- Annual assessment for WC facility limits (for renewal and/or enhancement) done by the Banks based on submission of projected financials (CMA-credit monitoring arrangement data) annually and assignment of Banks’ internal rating on the audited accounts of the Company
- Stipulated margin-25% on inventory of stores & spares and 15% on receivables (upto 90 days)
- Monthly stock and debtors statements and qtrly. financial follow-up reports (FFRs) on actual vs.projected financials are submitted to the Banks
- Meeting of WC members are held quarterly to assess and discuss qtrly. financial performance of the Company

Security offered for WC facilities:

- 1\textsuperscript{st} pari-passu charge on stores & spares
- 1\textsuperscript{st} pari-passu charge on receivables upto LC limits
- 2\textsuperscript{nd} pari-passu charge on receivables for other WC facilities except LC limits
- 2\textsuperscript{nd} pari-passu charge on fixed assets as collateral security
Capital Expenditure

**Requirement:**

- To finance yearly Capital Expenditure Program approved by the Regulator

**Sources:**

- Contribution from consumers for capital works
  - for load < 100 KW- contribution as per the supply code
  - for load > 100 KW-sharing of capital cost on 50:50 basis
  - for grid requirement by developers like DDA, MCD, Pvt. Builders etc. undertaking area development work-100% contribution by the respective developers
- Term loan from Banks / Financial Institution for capacity augmentation, load growth, strengthening and modernising distribution network etc.
Financing by Commercial Banks

- Multiple banking arrangement
- In the form of long term loan of 6-8 years with first 1-2 years of moratorium in principal repayment
- Submission of detailed project report along with projected financials for the tenure of loan
- Appraisal of term loan based past performance, internal ratings by the banks
- Periodic review of the progress of project
- Contribution margin stipulation depending on the nature and cost of project
- Submission of end use certificate of loan by practicing chartered accountants

Security offered:

- 1st pari-passu charge on fixed assets (present and future)
- Residual charge on the receivables
Pricing

Based on
- Bank’s internal rating on financial parameters
- Rating by external credit rating agencies

Linked to prime lending rate (PLR) or base rate of the Bank
- PLR / Base rate + borrower specific charge which will include product-specific operating costs, credit risk premium and tenure premium
6b. Regulatory Risk
Regulatory Framework

Process:
- First MY Control Period (2007-08 to 2010-11)
  - Regulations specifying Parameters as Controllable and Uncontrollable
  - Variation in revenue/expenditure on account of uncontrollable sales and power purchase to be trued up every year
  - For controllable parameters:
- Any surplus or deficit on account of O&M expenses will be to the account of the licensee and shall not be trued up in ARR.
- Depreciation and RoCE to be trued up at the end of the control period.
  - Three ARR Petitions filed by Discoms
  - Tariff Order issued against two of them.
The trends/ facts show that the actual cost have been exceeding the projected/forecasted figures of power purchase cost.

It’s important to shift from “projection” based approach to “actual” data based approach – currently, and since 2000, the DERC working-model is a “projection based” model.

Efficiency gains through loss reduction being offset to a great extent by the increase in Power Purchase Costs.

<table>
<thead>
<tr>
<th>Year</th>
<th>BRPL Approved</th>
<th>BRPL Actual</th>
<th>BYPL Approved</th>
<th>BYPL Actual</th>
<th>NDPL Approved</th>
<th>NDPL Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>2.70</td>
<td>2.80</td>
<td>2.21</td>
<td>2.02</td>
<td>2.93</td>
<td>3.00</td>
</tr>
<tr>
<td>2008-09</td>
<td>2.70</td>
<td>2.92</td>
<td>2.52</td>
<td>2.43</td>
<td>2.68</td>
<td>2.86</td>
</tr>
<tr>
<td>2009-10</td>
<td>2.55</td>
<td>3.68</td>
<td>2.45</td>
<td>3.18</td>
<td>2.63</td>
<td>3.68</td>
</tr>
</tbody>
</table>

Purchase Cost Difference FY 2009-10 - BRPL: 45%, BYPL: 30%, NDPL: 40%
### Mismatch

**Tariff Order vs. Actual**

<table>
<thead>
<tr>
<th>BRPL</th>
<th>FY 03</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Gap/(Surplus) determined by DERC in the Tariff Order (Rs. Cr.)</td>
<td>(11.00)</td>
<td>16.00</td>
<td>31.37</td>
<td>(225.14)</td>
<td>(216.82)</td>
<td>(331.22)</td>
<td>(510.02)</td>
<td></td>
</tr>
<tr>
<td>Revenue Gap/(Surplus) determined by DERC while Truing up in the next T.O.#</td>
<td>34.00</td>
<td>10.00</td>
<td>221.00</td>
<td>79.00</td>
<td>404.47</td>
<td>128.95</td>
<td>428.05</td>
<td>1326.47</td>
</tr>
<tr>
<td>Gap between assumed surplus and Actual (in Rs. Cr.)</td>
<td>34.00</td>
<td>21.00</td>
<td>205.00</td>
<td>47.63</td>
<td>629.61</td>
<td>345.77</td>
<td>759.27</td>
<td>1836.49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BYPL</th>
<th>FY 03</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Gap/(Surplus) determined by DERC in the Tariff Order</td>
<td>53.00</td>
<td>20.00</td>
<td>(30.00)</td>
<td>(140.47)</td>
<td>(143.68)</td>
<td>(27.01)</td>
<td>(151.17)</td>
<td></td>
</tr>
<tr>
<td>Revenue Gap/(Surplus) determined by DERC while Truing up in the next T.O.#</td>
<td>25.00</td>
<td>48.00</td>
<td>121.00</td>
<td>15.00</td>
<td>158.50</td>
<td>(53.72)</td>
<td>118.88</td>
<td>820.85</td>
</tr>
<tr>
<td>Gap between assumed surplus and Actual (in Rs. Cr.)</td>
<td>25.00</td>
<td>(5.00)</td>
<td>101.00</td>
<td>45.00</td>
<td>298.97</td>
<td>89.96</td>
<td>145.89</td>
<td>972.02</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NDPL</th>
<th>FY 03</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Gap/(Surplus) determined by DERC in the Tariff Order</td>
<td>(16.05)</td>
<td>(5.00)</td>
<td>101.00</td>
<td>(100.00)</td>
<td>(19.85)</td>
<td>(207.72)</td>
<td>(241.75)</td>
<td></td>
</tr>
<tr>
<td>Revenue Gap/(Surplus) determined by DERC while Truing up in the next T.O.#</td>
<td>22.30</td>
<td>29.00</td>
<td>207.00</td>
<td>2.00</td>
<td>138.94</td>
<td>183.72</td>
<td>103.05</td>
<td>629.29</td>
</tr>
<tr>
<td>Gap between assumed surplus and Actual (in Rs. Cr.)</td>
<td>22.30</td>
<td>45.05</td>
<td>212.00</td>
<td>(99.00)</td>
<td>238.94</td>
<td>203.57</td>
<td>310.77</td>
<td>871.04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3 Discoms</th>
<th>FY 03</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
<th>FY 08</th>
<th>FY 09</th>
<th>FY 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Gap/(Surplus) determined by DERC in the Tariff Order</td>
<td>25.95</td>
<td>31.00</td>
<td>102.37</td>
<td>(465.61)</td>
<td>(380.35)</td>
<td>(565.95)</td>
<td>(902.94)</td>
<td></td>
</tr>
<tr>
<td>Revenue Gap/(Surplus) determined by DERC while Truing up in the next T.O.#</td>
<td>81.30</td>
<td>87.00</td>
<td>549.00</td>
<td>96.00</td>
<td>701.91</td>
<td>258.95</td>
<td>649.98</td>
<td>2776.61</td>
</tr>
<tr>
<td>Gap between assumed surplus and Actual (in Rs. Cr.)</td>
<td>81.30</td>
<td>61.05</td>
<td>518.00</td>
<td>(6.37)</td>
<td>1167.52</td>
<td>639.30</td>
<td>1215.93</td>
<td>3679.55</td>
</tr>
</tbody>
</table>

Wide gap between Regulator's projections in Tariff Order and the actual expenses of DISCOMs resulting in creation of Regulatory Assets
6c. Power Purchase Cost
Power Purchase Cost

Unbundled Tariff

Transmission Costs = 0.44
Distribution Costs = 0.69
Reasonable Return = 0.17
Retail Supply Tariff

Transmission Losses = 0.16

Reasonable Return = 0.17
Retail & Wheeling Consumers = 5.40

PP Cost = 3.24
Transmission Wheeling Cost = 0.44
Distribution Wheeling Tariff

Bulk Supply Tariff

Fuel Cost
Depreciation & Interest
Reasonable Return
Auxiliary Consumption

Transmission Tariff

Retail Supply Tariff

DISTRIBUTION & RETAIL SUPPLY

Transmission Costs

Distribution Losses = 0.86
Distribution Costs = 0.69

O&M Expenses

BSES
7. Regulatory Vs Accounting
Regulatory treatment Vs. Accounting treatment

- Regulation recognizes revenue actually realized in AT&C calculations
- Return is a fixed rate based on capital employed
- Capital expenditure vs. Capitalisation (a disincentive for delays in capitalization)
- Depreciation rate could be different in regulation and accounts
- Debt equity recognized under regulation is 70:30
- Working capital is based on normative guidelines defined in regulation
- Achievement incentive is awarded through enhanced returns
Consumer contribution as a means of finance

Capital Expenditure is well controlled – DPR and final approval

Concept of Controllable and Uncontrollable cost

Uncontrollable cost like power cost is trued up on actual basis

Controllable cost like employee / O&M costs are fixed in nature

Time gap in realization of actual cost thru tariff results into revenue gap

Revenue Gap / Surplus can be accounted for in financial books

Above reasons gives rise to certain timing and/or permanent differences
8. Conclusion
Pre-requisites for successful reforms

- Transparent and objective selection of reform agents.
- Policy framework and administrative support
- Regulatory support
- Creating environment for consumer buy in
- Support from allied agencies
Conclusion

For a successful privatisation model, discoms need to have :-
• Government support
• Political will
• Institutional framework
• Local involvement
• Adequate return
• Private participation
Thank You

www.bsesdelhi.com
AT & C Loss = 1 - (Billing Efficiency) \times (Collection Efficiency)

Billing Efficiency = \frac{Units Billed}{Input Units}

Collection Efficiency = \frac{Amount Collected}{Amount Billed}

<table>
<thead>
<tr>
<th>Particulars</th>
<th>UoM</th>
<th>Computation</th>
<th>BRPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Input</td>
<td>MU</td>
<td>100</td>
<td>9666</td>
</tr>
<tr>
<td>Amount Billed</td>
<td>Rs. Cr.</td>
<td>250</td>
<td>3594</td>
</tr>
<tr>
<td>Units Billed</td>
<td>MU</td>
<td>80</td>
<td>7839</td>
</tr>
<tr>
<td>Amount Collected</td>
<td>Rs. Cr.</td>
<td>246</td>
<td>3589</td>
</tr>
<tr>
<td>Billing Efficiency</td>
<td>%</td>
<td>80.0%</td>
<td>81.1%</td>
</tr>
<tr>
<td>Collection Efficiency</td>
<td>%</td>
<td>98.4%</td>
<td>99.9%</td>
</tr>
<tr>
<td>AT&amp;C Losses</td>
<td>%</td>
<td>21.3%</td>
<td>19.0%</td>
</tr>
</tbody>
</table>