POWER DISTRIBUTION IN INDIA 2016
Trends, Development and Sector Outlook

- Report (PDF)
- Data-set (Excel)

India Infrastructure Research
## SECTION A: SECTOR ANALYSIS AND OUTLOOK

1. **Executive Summary**

2. **Sector Size and Growth**
   - Growth in Line Length (by voltage)
   - Growth in Transformer Capacity (by voltage)
   - Trends in Energy Sales and Consumer Base
   - Trends in AT&C Losses
   - Performance of Reliability Indices
   - Growth Drivers
   - Issues and Challenges

3. **Key Recent Developments**
   - Update on UDAY
   - Update on IPDS
   - Update on DDUGJY
   - DEEP Guidelines for Short-term Power Procurement
   - Discom Rankings as per Annual Ratings
   - National Tariff Policy Amendments
   - Proposed Amendments in the Electricity Act, 2003
   - Update on Compensatory Tariffs
   - Recent Franchisee Appointments
   - Tariff Revisions (2016-17)
   - Recent Case I and Case II Bids

4. **Inter-discom Comparison**
   - Line Length
   - Transformer Capacity
   - AT&C Losses
   - Metering Status
   - Number of Consumers
   - Power Purchase Costs
   - Revenues and Expenditure
   - Net Profit/Losses

5. **Future Outlook and Projections**
   - Projected Network Additions
   - Projected Power Procurement Costs
   - Metering Requirements
   - Projected Capex
   - Tariff Outlook
   - Outlook on Discom Finances

6. **Discom Finances and UDAY Scheme**
   - Key Trends
     - Revenue
     - Expenditure
     - Profits/Losses
     - Subsidies
   - Analysis of Key ratios
   - UDAY
     - Overview
     - Objectives, Coverage and Components
     - Debt Takeover Mechanism
     - Current Status
     - Impact
   - Future Outlook

7. **Integrated Power Development Scheme (IPDS)**
   - Restructured Accelerated Power Development and Reforms Programme (R-APDRP)
   - Introduction to IPDS
   - Components of IPDS
   - Coverage of IPDS
   - Outlay and Funding
   - AT&C Loss Reduction Trajectory under IPDS
   - Status of IPDS
   - Recent Initiatives under IPDS
   - IT-Enablement of Additional Towns
   - Impact of IPDS
   - Issues and Challenges

8. **Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)**
   - Background of Rural Electrification in India
   - Trends in Rural Electrification Till Date
   - Status of Rural Electrification So Far
   - DDUGJY
     - Overview
     - Components and Physical Infrastructure Plans
     - Implementation and Funding Mechanism
     - Scheme Outlay
   - Status of Electrification under DDUGj Y
   - Funding Status
   - State-wise Project Cost and Funds Released
   - Issues and Challenges

9. **Capital Expenditure**
   - Key Capex Trends
   - Discom-wise Capex Trends
   - State-wise Capex Trends
   - Key Elements of Capex
   - Planned Capex (2016-17 to 2020-21)
   - Discom-wise Planned Capex for 2016-17
   - Funding Sources

10. **Trends in Power Purchase Cost and Competitive Bidding**
    - Factors Impacting Power Purchase Costs
    - Trends in Power Purchase Costs
    - Source-wise Power Purchase Costs
    - Long-term and Short-term Power Purchase
    - Capacity and Tariff Trends under Competitive Bidding
    - Short-term Power Procurement Trends
    - Case-I and Case-II Bids
    - Recent DEEP Bidding Results
    - Outlook

11. **Tariff Trends**
    - Introduction
    - Factors Affecting Tariff
    - Tariff Revisions
    - Agricultural Tariff Trend
    - Domestic Tariff Trend
    - Commercial Tariff Trend
    - LT Industrial Tariff Trend
    - HT Industrial Tariff Trend
    - Fuel and Power Purchase Cost Adjustment
    - Tariff Outlook

---

### Table of Contents:

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Integrated Power Development Scheme (IPDS)</td>
</tr>
<tr>
<td></td>
<td>Restructured Accelerated Power Development and Reforms Programme (R-APDRP)</td>
</tr>
<tr>
<td></td>
<td>Introduction to IPDS</td>
</tr>
<tr>
<td></td>
<td>Components of IPDS</td>
</tr>
<tr>
<td></td>
<td>Coverage of IPDS</td>
</tr>
<tr>
<td></td>
<td>Outlay and Funding</td>
</tr>
<tr>
<td></td>
<td>AT&amp;C Loss Reduction Trajectory under IPDS</td>
</tr>
<tr>
<td></td>
<td>Status of IPDS</td>
</tr>
<tr>
<td></td>
<td>Recent Initiatives under IPDS</td>
</tr>
<tr>
<td></td>
<td>IT-Enablement of Additional Towns</td>
</tr>
<tr>
<td></td>
<td>Impact of IPDS</td>
</tr>
<tr>
<td></td>
<td>Issues and Challenges</td>
</tr>
<tr>
<td>8.</td>
<td>Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)</td>
</tr>
<tr>
<td></td>
<td>Background of Rural Electrification in India</td>
</tr>
<tr>
<td></td>
<td>Trends in Rural Electrification Till Date</td>
</tr>
<tr>
<td></td>
<td>Status of Rural Electrification So Far</td>
</tr>
<tr>
<td></td>
<td>DDUGJY</td>
</tr>
<tr>
<td></td>
<td>Overview</td>
</tr>
<tr>
<td></td>
<td>Components and Physical Infrastructure Plans</td>
</tr>
<tr>
<td></td>
<td>Implementation and Funding Mechanism</td>
</tr>
<tr>
<td></td>
<td>Scheme Outlay</td>
</tr>
<tr>
<td></td>
<td>Status of Electrification under DDUGj Y</td>
</tr>
<tr>
<td></td>
<td>Funding Status</td>
</tr>
<tr>
<td></td>
<td>State-wise Project Cost and Funds Released</td>
</tr>
<tr>
<td></td>
<td>Issues and Challenges</td>
</tr>
<tr>
<td>9.</td>
<td>Capital Expenditure</td>
</tr>
<tr>
<td></td>
<td>Key Capex Trends</td>
</tr>
<tr>
<td></td>
<td>Discom-wise Capex Trends</td>
</tr>
<tr>
<td></td>
<td>State-wise Capex Trends</td>
</tr>
<tr>
<td></td>
<td>Key Elements of Capex</td>
</tr>
<tr>
<td></td>
<td>Planned Capex (2016-17 to 2020-21)</td>
</tr>
<tr>
<td></td>
<td>Discom-wise Planned Capex for 2016-17</td>
</tr>
<tr>
<td></td>
<td>Funding Sources</td>
</tr>
<tr>
<td>10.</td>
<td>Trends in Power Purchase Cost and Competitive Bidding</td>
</tr>
<tr>
<td></td>
<td>Factors Impacting Power Purchase Costs</td>
</tr>
<tr>
<td></td>
<td>Trends in Power Purchase Costs</td>
</tr>
<tr>
<td></td>
<td>Source-wise Power Purchase Costs</td>
</tr>
<tr>
<td></td>
<td>Long-term and Short-term Power Purchase</td>
</tr>
<tr>
<td></td>
<td>Capacity and Tariff Trends under Competitive Bidding</td>
</tr>
<tr>
<td></td>
<td>Short-term Power Procurement Trends</td>
</tr>
<tr>
<td></td>
<td>Case-I and Case-II Bids</td>
</tr>
<tr>
<td></td>
<td>Recent DEEP Bidding Results</td>
</tr>
<tr>
<td></td>
<td>Outlook</td>
</tr>
<tr>
<td>11.</td>
<td>Tariff Trends</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td>Factors Affecting Tariff</td>
</tr>
<tr>
<td></td>
<td>Tariff Revisions</td>
</tr>
<tr>
<td></td>
<td>Agricultural Tariff Trend</td>
</tr>
<tr>
<td></td>
<td>Domestic Tariff Trend</td>
</tr>
<tr>
<td></td>
<td>Commercial Tariff Trend</td>
</tr>
<tr>
<td></td>
<td>LT Industrial Tariff Trend</td>
</tr>
<tr>
<td></td>
<td>HT Industrial Tariff Trend</td>
</tr>
<tr>
<td></td>
<td>Fuel and Power Purchase Cost Adjustment</td>
</tr>
<tr>
<td></td>
<td>Tariff Outlook</td>
</tr>
</tbody>
</table>
12. Distribution Franchises
- Experience So Far
  - History
  - DF Models
  - Operational Franchisee
  - Terminated Franchisee
- Profiles of Operational Franchises
- Recent Awards
- Issues and Challenges
- Key Success Factors
- Future Outlook

13. Smart Grids
- Introduction
- Update on National Smart Grid Mission
- Update on Pilot Projects
- Key Technologies/Functionalities
- AMI Initiatives
- Smart Energy for Smart Cities
- Implementation Issues

14. Metering
- Current Metering Coverage
- Discom-wise Comparison
- Smart Metering Initiatives
- Prepaid Metering Experience
- Status of Net Metering
- Future Metering Requirements

SECTION B: DISCOM PROFILES
Discom Summary Slides (Detailed Profiles in Excel Spreadsheet)
- Andhra Pradesh
- Assam
- Bihar
- Chhattisgarh
- Delhi
- Gujarat
- Haryana
- Himachal Pradesh
- Jammu & Kashmir
- Jharkhand
- Karnataka
- Kerala
- Madhya Pradesh
- Maharashtra
- Meghalaya
- Odisha
- Punjab
- Rajasthan
- Tamil Nadu
- Telangana
- Tripura
- Uttar Pradesh
- West Bengal

About Us
India Infrastructure Research is a division of India Infrastructure Publishing Private Limited, a company dedicated to providing information on infrastructure sectors through magazines, conferences, newsletters and research reports. It publishes five magazines - Indian Infrastructure, Renewable Watch, Power Line, tele.net and Gujarat Infrastructure.

India Infrastructure Research publishes research reports in the areas of power, oil & gas, ports & shipping, roads & bridges, telecommunications, aviation, and water. Our reports are acknowledged as high-quality, user-friendly, up-to-date, accurate and comprehensive sources of information.

Our clients include most organisations involved in the infrastructure sectors - multinationals, top Indian corporates, commercial and investment banks, consulting companies, public sector companies, government agencies, multilateral agencies, and legal firms.
List of Tables and Figures

List of Tables
Reliability Indices for Discoms for March 2016
IPDS Status (As of September 2016)
RAPDRP Status (As of September 2016)
DDUGY Y Status
Discom-wise Annual Rating List for 2014-15
Case I Bidding Results in Recent Past
Tariff Revisions 2016-17
Discom-wise Line Length across Voltages (‘000 ct km) (2015-16)
Discom-wise Transformer Capacity across Voltage Levels (2015-16) (in MVA)
AT&C Loss Rate (2015-16)
Top 10 Discoms in terms of AT&C Losses (2015-16)
Bottom 10 Discoms in terms of AT&C Losses (2015-16)
Utility-wise Metering Coverage (%)
Discom-wise Net Profits/Losses for 2015-16 (Rs. million)
Top 10 Distribution Utilities in terms of Consumer Base
Top 10 Distribution Utilities in terms of Energy Sales (2015-16)
Projected Power Procurement Costs of Select Discoms
Utility-wise Total Income (Rs million)
Utility-wise Total Expenditure (Rs million)
Utility-wise Total Expenditure (Rs million)
Trend in Profits/Losses of Distribution Utilities (Rs billion)
Utility-wise Gross Profits/Losses (Rs million)
Utility-wise Net Profits/Losses (Rs million)
Subsidy Booked by Distribution Utilities (Rs million)
Utility-wise RoE (%) Utility-wise RoW (%) Utility-wise RoCE (%) Utility-wise D/E Ratio
Utility-wise AT&C Loss Reduction Trajectory under UDAY
Utility-wise Proposed Tariff Revisions under UDAY (%) Pre-UDAY state-wise losses and debt (Rs billion)
Estimated Benefits from implementation of UDAY as per the MoUs signed between MoR Geol and respective state govern- ments (Rs billion) Estimated ACS-ARR gap (Rs per unit)
RAPDRP Progress so far (As of September 2016)
State-wise No. of Towns, Sanctioned Costs and Disbursements under R-APDRP (Rs billion)
State-wise Progress under R-APDRP Part A (SCADA)
State-wise Progress under R-APDRP Part B Detailed Outlay for Proposed Work under IPDS
Agency-wise Funding Available under IPDS Gross Budgetary Support Available under IPDS (Rs billion)
State-wise AT&C Loss Reduction Trajectory by 2022 (%) State-wise Sanctions and Disbursements under IPDS
Agency-wise Funding Available under DDUGY Y Gross Budgetary Support under DDUGY Y (Rs billion)
Outlay under DDUGY Y (Excluding RGGVY component)
State-wise Progress and Status of Village Electrification (no.) Details of Grid Projects Sanctioned under DDUGY Y Details of Off-grid Projects Sanctioned under DDUGY Y State-wise Project Cost and Funds Released for Grid-connected Projects (Rs billion)
Capital Expenditure Incurred by Discoms during 2012-13 to 2015-16 (Rs billion)
Capex on other Projects (Rs million)
Year-wise Power Purchase Cost Trend (Rs million)
Trend in Per Unit Power Purchase Cost (Rs/kWh)
Source-wise Power Purchase Cost for discoms for 2015-16 (Rs/kWh)
Average retail supply tariff hike by states for 2014-15 and 2015-16
Mechanism and Frequency of Adjustment in Some States Distribution Franchise Models Distribution Franchises - Operational Distribution Franchises - Terminated
ENZEN for Kendanapara I & II, Jagatshingpur, Dhenkanal, Angul, and Talcher, Odisha - Performance Trend ENZEN for Kendanapara I & II, Jagatshingpur, Dhenkanal, Angul, and Talcher, Odisha- Key indicators (2015-16)
Essel Vidyyut Vitaran for Muzaffarpur, Bihar - Key indicators prior to takeover (2011-12)
FEDCO for Puri, Nayagarh, Khurda and Balugona, Odisha - Key indicators (2015-16)
FEDCO for Puri, Nayagarh, Khurda and Balugona, Odisha - Performance Trend
RUPIL and SUPIL for Cuttack city, Athagarh, Salipur and Nimapara, Odisha - Performance Trend RUPIL and SUPIL for Cuttack city, Athagarh, Salipur and Nimapara, Odisha - Key indicators (2015-16)
Spanco Nagpur Discom Limited for Nagpur, Maharashtra - Performance Trend SPML Infra Limited for Bhagualpur, Bihar - Key indicators prior to takeover (2011-12)
Torrent Power Limited for Agra, Uttar Pradesh- Performance Trend Torrent Power Limited for Bhiwandi, Maharashtra - Performance Trend
NSGM’s Estimated Expenditure Outlay for Twelfth Plan Smart Grid Projects approved under NSGM Status of Smart Grid Pilot Projects (As of September 2016) Key functionalities being evaluated in Smart Grid Pilot Projects in India List of 20 Smart Cities Metring?Discom-wise Comparison Net metering regulations
Snapshot of Net Metering Framework across States
List of Tables and Figures

Trend in Expenditure of Distribution Utilities
Trend in Cost Structure of Distribution Utilities
Cost Break-up of Distribution Utilities - 2015-16
Trend in Subsidy Booked and Subsidy Received by Distribution Utilities
Growth in losses of state discoms (Rs billion)
Estimated reduction in ACS (Rs per unit)
Metering status (%)
State-wise UDAY bonds issued in 2015-16 (Rs billion)
State-wise Progress under R-APDRP Part A (IT)
State-wise Number of Towns Covered under IPDS
State-wise Number of Project Areas under IPDS (Total - 526 areas)
Component-wise Funds Earmarked under IPDS (Rs billion)
Category-wise Share in O&M for Proposed Work under IPDS
State-wise Total Project Cost under IPDS
States-wise Grant Approved and Grant Released under IPDS
Year-wise Electrification of Villages
Status of Village Electrification (as of March 2015)
Status of Household Electrification (as of March 2015)
No. of Un electrified Villages (as of March 2015)
State-wise Un electrified Villages (as of March 2015)
Component-wise Allocations under DDUGJY
State-wise Allocations under DDUGY
Trend in Capital Expenditure of Discoms (Rs billion)
Break-up of Capital Expenditure by Discoms across Major Areas in 2015-16
Discoms with Highest Capex on Distribution/System Strengthening Projects (Rs million)
Discoms with Highest Capex on Rural Electrification Schemes (Rs million)
Discoms with Highest Capex on R-APDRP/IPDS (Rs billion)
Planned Capex for 2016-20 to 2020-21 (Rs billion)
Discoms with Highest Planned Capex for 2016-17 (Rs billion)
Trend in Source-wise Power Purchase Cost
Source-wise breakup of Total Units Purchased (2015-16)
Source-wise breakup of Cost of Power Purchase (2015-16)
Long-term and Short-term Power Procurement Trend
Trend in Case-I Bids
Trend in Case-II Bids
Recent Case-I bids released
Segment-wise volume of short-term transactions (2015-16)
Segment-wise variations in prices of electricity transacted through short-term market (Rs per unit)
Summary of transactions completed through DEEP
ACs vs. AER Trend (2010-11 to 2014-15)
State-wise Agricultural Tariff Trend (2015-16 and 2016-17)
Average domestic tariff trend
State-wise Trend of Average Domestic Tariffs
State-wise Trend of Average Commercial Tariffs
Average LT Industrial Tariff Trend
State-wise Trend of Average LT Industrial Tariffs
Average HT Industrial Tariff Trend
State-wise Trend of Average HT Industrial Tariffs
Metering Coverage in 2015-16 (%) - System Metering
Metering Coverage in 2015-16 (%) - Metering by Consumer Category
Metering Requirements (2016-17 to 2020-21)
<table>
<thead>
<tr>
<th>Format (PDF)</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Licence (Single Location)</td>
<td>Rs 75,000</td>
</tr>
<tr>
<td>Service tax (15%)</td>
<td>Rs 11,250</td>
</tr>
<tr>
<td>Total</td>
<td>Rs 86,250</td>
</tr>
<tr>
<td>Enterprise Licence (Multiple Locations)</td>
<td>Rs 112,500</td>
</tr>
<tr>
<td>Service tax (15%)</td>
<td>Rs 16,875</td>
</tr>
<tr>
<td>Total</td>
<td>Rs 129,375</td>
</tr>
</tbody>
</table>

I am enclosing a cheque/demand draft for Rs. ______________________, vide cheque/demand draft no. ____________________ drawn on _________________________ dated ________________ in favour of “India Infrastructure Publishing Pvt. Ltd.”

Signature

Name (BLOCK LETTERS) __________________________________________

Designation __________________________________________________________________________

Company ________________________________________________________________________________

Mailing Address __________________________________________________________________________

Telephone ______________________________________________________________________________

Mobile __________________________________________________________________________________

Fax _____________________________________________________________________________________

E-mail ___________________________________________________________________________________

**Wire transfer details:**

<table>
<thead>
<tr>
<th>Beneficiary</th>
<th>India Infrastructure Publishing Pvt. Ltd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Name</td>
<td>The Hongkong and Shanghai Banking Corporation Ltd</td>
</tr>
<tr>
<td>Bank Address</td>
<td>R-47, Greater Kailash -1, New Delhi 110048</td>
</tr>
<tr>
<td>Account No.</td>
<td>094179587002</td>
</tr>
<tr>
<td>Swift Code</td>
<td>HSBCINBB</td>
</tr>
<tr>
<td>IFSC Code</td>
<td>HSBC0110006</td>
</tr>
</tbody>
</table>

**Contact details:**

**Angad Gurtu**

General Manager-Information Products

India Infrastructure Publishing Pvt. Ltd.

B-17, Qutab Institutional Area, New Delhi 110016, India

Tel: +91-11-45793069 , 41034600, 41034601; Fax: +91-11-26531196

Mobile: +91-9810596916

Email: angad.gurtu@indiainfrastructure.com