



# Catalogue of Research Reports on Infrastructure Sectors

---

*- August 2017*



# ABOUT US

---

**India Infrastructure Research** is a division of India Infrastructure Publishing Private Limited, a company dedicated to providing information on the infrastructure sectors through magazines, conferences, newsletters and research reports.

**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. They range from sector overviews (**Power in India**, for example) to more intensive studies of segments and subsegments (such as **Power Transmission in India** and **Power Distribution in India**).

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.

# TABLE OF CONTENTS

## ENERGY

<i>T&amp;D Equipment Market In India</i>	1
<i>City Gas Distribution Market in India</i>	2
<i>Industrial and Commercial Grid Power Market in India</i>	3
<i>Oil in India</i>	4
<i>Power Distribution in India</i>	5
<i>Electricity Market in India</i>	6
<i>Power Equipment Market in India</i>	7
<i>Power Transmission in India</i>	8
<i>Distribution Network Growth and Capital Expenditure</i>	9
<i>Discom Finances, Power Purchase Costs and Tariffs</i>	10
<i>Captive Power in India</i>	11
<i>Coal in India</i>	12
<i>Coal-based Power Generation in India</i>	13
<i>Hydro Power in India</i>	14
<i>Gas in India</i>	15
<i>Bio-mass Power in India</i>	16
<i>Solar Power in India</i>	17
<i>Wind Power in India</i>	18
<i>Captive Coal Mining</i>	19
<i>Cost of Power for Industrial Users: Electricity, Fuel, Equipment-Trends and Future Projections</i>	20
<i>Solar Plant Performance in India</i>	21
<i>Solar Project Performance in India</i>	22
<i>Renewable Energy Finance in India</i>	23

## TRANSPORTATION

<i>Railways in India</i>	24
<i>Ports in India</i>	25
<i>Dredging in India</i>	26
<i>Freight Market in India</i>	27
<i>Storage Infrastructure in India</i>	28
<i>Airports in India</i>	29
<i>Road Development in India</i>	30
<i>Urban Rail in India</i>	31
<i>Urban Bus Transport in India</i>	32
<i>Container Market in India</i>	33

## CONSTRUCTION & MINING

<i>Construction in India</i>	34
<i>Construction Materials Market</i>	35
<i>Mining in India</i>	36
<i>Bridges, Flyovers and Elevated MRTS Structures</i>	37
<i>Tunnelling in India</i>	38
<i>Mining Equipment Market</i>	39

## URBAN INFRASTRUCTURE

<i>Affordable Housing in India</i>	40
<i>Smart Cities in India</i>	41
<i>Industrial Water Sector</i>	42
<i>Municipal Water Sector</i>	43
<i>Municipal Solid Waste in India</i>	44
<i>Sewage Treatment Market in India</i>	45
<i>Real Estate in India</i>	46

## TELECOM

<i>Enterprise Mobility in India</i>	47
<i>Telecom Tower and Fibre Infrastructure</i>	48

## MULTI-SECTOR

<i>Infrastructure Finance and Investment</i>	49
<i>Infrastructure Projects in Pipeline</i>	50
<i>Investment and Market Opportunities in Myanmar's Infrastructure</i>	51
<i>Investment and Market Opportunities in African Infrastructure</i>	52
<i>Investment and Market Opportunities in Southeast Asian Infrastructure</i>	53
<i>Indian Defence Industry</i>	54
<i>Healthcare Infrastructure and Market in India</i>	55
<i>Banking Infrastructure in India</i>	56
<i>Investment Experience and Opportunities in Infrastructure</i>	57
<i>Irrigation Market in India</i>	58
<i>Banking Technology in India</i>	59
<i>Mergers and Acquisitions in Infrastructure and Real Estate</i>	60

## NEWSLETTERS

## ORDER FORM

Demand Outlook and Projections (till 2021-22)

Table of Contents

1. EXECUTIVE SUMMARY

SECTION I: T&D MARKET TRENDS AND OUTLOOK

- 2. T&D MARKET OVERVIEW .....
  - Current Size and Growth, Network Addition Trends, Policy and Regulatory Developments, Issues and Challenges, Outlook
- 3. RECENT TRENDS AND DEVELOPMENTS IN EQUIPMENT MARKET ....
  - Product and Technology Trends, Changing Competitive Landscape, Equipment Price/Cost Trends, Trends in Procurement Process
- 4. PROGRAMMES/INITIATIVES IMPACTING EQUIPMENT MARKET .....
  - Update on Key Government Programmes (Power for All, UDAY, IPDS and DDUGJY), Private Participation in Transmission, Green Energy Corridors, Smart Grids, Initiatives for Innovations in Equipment Technology, Others
- 5. T&D MARKET OUTLOOK AND PROJECTIONS (TILL 2021-22) .....
  - Network Addition Estimates, Projected Investments in T&D Network, Key Demand Drivers, T&D Equipment Market Projections, Outlook for T&D Equipment Market

SECTION II: TRANSMISSION EQUIPMENT ANALYSIS AND PROJECTIONS

- 6. TRANSMISSION TOWERS .....
  - Technology Overview, Recent Trends and Advances: Multi-circuit towers, Delta configuration towers, Monopoles, Others
  - Major Players
  - Projections for Transmission Line Length (2017-22)
  - Projected Demand for Transmission Towers (2017-22)
- 7. CONDUCTORS AND CABLES .....
  - Technology Overview
  - Recent Trends and Advances: HTLS Conductors, High Performance Superconductors, Gas-insulated Lines, XLPE Cables, Others
  - Utility Initiatives for Underground Cabling, Major Players
  - Projections for Transmission Line Length (2017-22)
  - Projected Demand for Overhead Conductors (2017-22)
- 8. POWER TRANSFORMERS .....
  - Technology Overview
  - Recent Trends and Advances: HVDC Converter Transformers, Transformers for Renewable Integration, Mobile Transformers, Smart Transformers, Others
  - Major Players
  - Projections for Transformer Capacity (2017-22)
  - Projected Demand for Transformers (2017-22)
- 9. INSULATORS .....
  - Technology Overview, Recent Trends and Advances, Projections for Transmission Line Length (2017-22), Projected Demand for Insulators (2017-22)
- 10. SWITCHGEAR .....
  - Technology Overview
  - Recent Trends and Advances: Gas-insulated Switchgear, Hybrid Switchgear, Intelligent Switchgear, Others
  - Projections for Substation Addition (2017-22)
  - Projected Demand for Switchgear (2017-22)

- 11. REACTIVE POWER EQUIPMENT .....
  - Technology Overview
  - Recent Trends and Advances
    - Dynamic compensation - FACTS (SVC, STATCOM)
    - Fixed compensation - FSC, TCSC

- Major Players
- Reactive Power Equipment under Implementation (as per NEP)
  - Bus and Line Reactors
  - Dynamic Compensation Devices

SECTION III: DISTRIBUTION EQUIPMENT ANALYSIS AND PROJECTIONS

- 12. DISTRIBUTION POLES .....
  - Technology Overview
  - Recent Trends and Advances: Steel Poles (Rail, H-Beam, Steel Tubular, etc.), Others
  - Major Players
  - Projections for Distribution Line Length (2017-22)
  - Projected Demand for Poles (2017-22)
- 13. CABLES .....
  - Technology Overview
  - Recent Trends and Advances: ABC Cables, XLPE Cables, Underground Cables
  - Utility Initiatives for Underground Cabling
  - Major Players
  - Projections for Distribution Line Length (2017-22)
  - Projected Demand for Cables (2017-22): Overhead Cables, Underground Cables
- 14. DISTRIBUTION TRANSFORMERS .....
  - Technology Overview
  - Recent Trends and Advances: Dry-type Transformers, Ester-fluid filled Transformers, Green Transformers
  - Major Players
  - Projections for Distribution Transformer Capacity (2017-22)
  - Projected Demand for Transformers (2017-22)
- 15. SWITCHGEAR .....
  - Technology Overview
  - Recent Trends and Advances: Medium-voltage Switchgear, Low-voltage Switchgear
  - Major Players
  - Projections for Substation Addition
  - Projected Demand for Switchgear (2017-22)
- 16. ENERGY METERS .....
  - Technology Overview, Focus on Smart Meters, Demand drivers
  - Projected Demand for Meters (2017-22): DT Meters, Consumer Meters, Smart Meters

SECTION IV: KEY EQUIPMENT MANUFACTURER AND SUPPLIER PROFILES

- 17. KEY EQUIPMENT MANUFACTURERS AND SUPPLIERS .....
  - ABB Limited, Aditya Birla Insulators, Apar Industries, Bharat Heavy Electricals Limited, Crompton Greaves Limited, Diamond Power Infrastructure, General Electric, Jyoti Structures Limited, Kalpataru Power Transmission Limited, KEC International Limited, KEI Industries, LS Cable & System, RPG Cables, Siemens AG, Sterlite Technologies, Skipper Limited, Sumitomo Electric Industries Limited, Tebian Electric Apparatus Stock Co., Ltd, Transformers & Rectifiers (India) Limited, Voltamp Transformers, Vijai Electricals Limited, WEG S.A., Other Manufacturers and Suppliers

(Each profile will cover existing and planned manufacturing capacity, product portfolio, recent orders, financial performance, etc.)



The report will be available in a PDF format.

(July 2017)

## Table of Contents

## 1. EXECUTIVE SUMMARY

## SECTION I: OVERALL MARKET SCENARIO

## 2. OVERVIEW

- Network Size and Growth, Key Consumer Segments, Gas Supply for CGD, Recent Authorisations, Major Players, Key Growth Drivers and Inhibitors, Projected Demand, Key Issues and Challenges, Future Outlook

## 3. RECENT POLICY AND REGULATORY DEVELOPMENTS

- Institutional Framework
- Licensing Regime
- Domestic Gas Allocation Principles
- Key Policies
- New Gas Pricing Policy for HPHT and Deepwater Fields
- New HELP Regime
- Key Acts and Guidelines
- Other Proposed PNGRB Regulations

## 4. SIZE AND GROWTH

- Current Network Size
- Growth in CNG Network
- Growth in Network – By State
- Growth in Network – By Operator
- Growth in PNG Network
- Growth in Network-By State
- Growth in Network-By Operator
- Sales by Key CGD operations
- Trends in Network Tariffs

## 5. UPDATE ON LICENSING ROUNDS

- Status of First Six Rounds
- Update on the 7th and 8th Rounds
- Grant of Authorisations under the Seven Bidding Rounds
- Progress Under Authorised GAs
- Progress Under GAs Authorised during July 2016-June 2017
- Key Issues and Challenges

## 6. BIDDING EXPERIENCE

- Experience so Far
- Amendments in Bidding Criteria
- Recent Aggressive Bids
- Trends in Network and Compression Charges
- Expected Impact of Aggressive Bids
- Key Lessons Learnt

## 7. COSTS AND TARIFFS

- Commercial Viability of CGD Projects
- Cost Competitiveness of CNG
- Cost Competitiveness of PNG
- Tariffs in Recent Bids
- Pricing Strategies of CGD Players
- Profitability/Margins of CGD Players
- Historical and Expected Returns

## 8. GAS SUPPLY AVAILABILITY AND OUTLOOK

- Current Production
- Sourcing Options of CGD Players
- Gas Supply Projections (till 2024-25) – All Domestic Fields
- Expected Production from New Fields
- Expected Production from Discovered Small Fields

## 9. R-LNG MARKET SCENARIO

- Overall Trends in LNG Imports
- Global Price Trends
- Demand from the CGD Sector
- LNG Sourcing Options
- India's Existing LNG Re-gasification Capacity
- Upcoming LNG Re-gasification Capacity

## 10. UPDATE ON PIPELINE INFRASTRUCTURE

- Current Status of Pipeline Connectivity
- Major Projects Under Implementation: Project-wise, Operator-wise, Transnational
- Proposed Projects and Investments: Domestic, Transnational

## SECTION II: OUTLOOK AND OPPORTUNITIES

## 11. DEMAND PROJECTIONS (till 2024-25)

- Growth Drivers, Overall Demand Projections, Projected Demand By Sector, Potential Markets, Investment Projections

## 12. MARKET OPPORTUNITIES IN UPCOMING GAS (till 2024-25)

- Upcoming GAs Under the 7th and 8th Rounds
- Expected Roll-out of Projects (short term and long term)
- Opportunities for CGD players
- Opportunities for Service Providers (CNG stations, piping, compression equipment, transportation, etc.)

## SECTION III: MAJOR PLAYERS

## 13. COMPETITIVE LANDSCAPE

- Key CGD Companies, Operational Performance, Growth in Network, Financial Performance, Future Plans

## 14. PROFILES OF KEY PLAYERS

- Gujarat Gas Limited, Mahanagar Gas Limited, Indraprastha Gas Limited, Adani Gas Limited, Sabarmati Gas Limited, Maharashtra Natural Gas Limited, Assam Gas Company Limited, Tripura Natural Gas Company Limited, Central UP Gas Limited, GAIL Gas Limited Green Gas Limited, Green Gas Limited, Haryana City Gas Distribution Limited, Aavantika Gas Limited, Bhagyanagar Gas Limited, Rajasthan State Gas Limited, Sanwariya Gas, Great Eastern Energy Corporation Limited, BPCL, Others

## SECTION IV: TECHNOLOGY TRENDS AND OPPORTUNITIES

## 15. NETWORK AND ASSET MANAGEMENT

- Current Market Practices: GIS, SCADA, ERP
- Key Growth Drivers
- Technology Trends and Advancements
- Future Plans and Outlook

## 16. METERING AND BILLING

- Current Market Size and Practices
- Key Growth Drivers
- Technology Trends and Advancements
- Expected Trends and Future Plans
- Future Outlook



The report is available in a PDF format.

Table of Contents

1. EXECUTIVE SUMMARY .....

SECTION I: HT CONSUMERS MARKET

2. MARKET OVERVIEW .....

- Historical Trends
  - Sale of Power to HT Consumers
  - Share of HT Consumers in Total Power Sales
  - Revenues from HT Consumers
  - Share of HT Consumers in Total Discom Revenues
- Key Drivers
- Outlook and Projections

3. TARIFF TRENDS .....

- All-India Average HT Industrial Tariff Revisions
- State- and Utility-wise Trends in Average Rate of Sale of Power
- HT Tariffs as a Percentage of Average Cost of Supply
- Year-on-Year Changes in Tariffs
- Trends in Cross-Subsidy Surcharges for HT Industrial Consumers

4. INTER-STATE COMPARISON .....

- Utility-wise Sale of Power to HT Consumers
- Utility-wise Share of HT Consumers in Sale of Power
- Utility-wise Revenues from HT Consumers
- Utility-wise Share of HT Consumers in Total Revenues

SECTION II: LT CONSUMERS MARKET

5. MARKET OVERVIEW .....

- Historical Trends
  - Sale of Power to LT Consumers
  - Share of LT Consumers in Total Power Sales
  - Revenues from LT Consumers
  - Share of LT Consumers in Total Discom Revenues
- Key Drivers
- Outlook and Projections

6. TARIFF TRENDS .....

- All-India Average LT Industrial Tariff Revisions
- State- and Utility-wise Trends in Average Rate of Sale of Power
- Year-on-Year Changes in Tariffs

7. INTER-STATE COMPARISON .....

- Utility-wise Sale of Power to LT Consumers
- Utility-wise Share of LT consumers in Sale of Power
- Utility-wise Revenues from LT Consumers
- Utility-wise Share of LT consumers in Total Revenues

SECTION III: COMMERCIAL CONSUMERS MARKET

8. MARKET OVERVIEW .....

- Historical Trends
  - Sale of Power to Commercial Consumers
  - Share of Commercial Consumers in Total Power Sales
  - Revenues from Commercial Consumers
  - Share of Commercial Consumers in Total Discom Revenues
- Key Drivers
- Outlook and Projections

9. TARIFF TRENDS .....

- All-India Average Commercial Industrial Tariff Revisions
- State- and Utility-wise Trends in Average Rate of Sale of Power
- Year-on-Year Changes in Tariffs

10. INTER-STATE COMPARISON .....

- Utility-wise Sale of Power to Commercial Consumers
- Utility-wise Share of Commercial Consumers in Sale of Power
- Utility-wise Revenues from Commercial Consumers
- Utility-wise Share of Commercial Consumers in Total Revenues

11. STATE-WISE DISCOM MARKET ANALYSIS .....

- 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
- Uttarakhand
- Uttar Pradesh
- West Bengal



The report is available in a PDF format.

## Segment Analysis, Outlook and Projections

## Table of Contents

<p><b>1. OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- India's Energy Mix</li> <li>- Historical Journey of Oil in India</li> <li>- Demand and Supply Scenario</li> <li>- New Initiatives by the Government</li> <li>- Growth Drivers</li> <li>- Key Challenges</li> <li>- Growth Opportunities</li> </ul> <p><b>2. NEW POLICY INITIATIVES</b> .....</p> <ul style="list-style-type: none"> <li>- Policy Overview, New Exploration Licensing Policy (NELP), Historical Investments, Issues with NELP, Hydrocarbon Exploration and Licensing Policy (HELP), Other Policy Details, New Policy Impact, Comparison - HELP vs NELP, PSC vs RSC, Other Key Policy Initiatives, GST Bill, Legal Framework of GST, Impact of GST on Oil and Gas Sector, Other Key Policies</li> </ul> <p><b>3. REGULATORY FRAMEWORK AND DEVELOPMENTS</b> .....</p> <ul style="list-style-type: none"> <li>- Key Governing Bodies and their Role</li> <li>- Ministry of Petroleum and Natural Gas (MOPNG)</li> <li>- Other Key Government Bodies</li> <li>- Evolution of Regulations in India</li> <li>- New Regulations in Pipeline</li> <li>- Regulatory Risks</li> </ul> <p><b>4. RECENT DEVELOPMENTS (past 15-18 months)</b> .....</p> <ul style="list-style-type: none"> <li>- Price Trends (Domestic and International)</li> <li>- New Discoveries</li> <li>- Key Discoveries</li> <li>- Planned Refinery Capacity Additions</li> <li>- New Pipeline Projects</li> <li>- Overseas Assets Acquisition</li> <li>- Proposed Strategic Reserves</li> </ul> <p><b>5. DEMAND ANALYSIS &amp; PROJECTIONS</b> .....</p> <ul style="list-style-type: none"> <li>- Trends in Industrial Growth, Consumption Trends, Key Consuming Sectors, Growth Drivers, Renewables vs Fossil Fuels, Demand Projections</li> </ul> <p><b>6. SUPPLY ANALYSIS &amp; PROJECTIONS</b> .....</p> <ul style="list-style-type: none"> <li>- Supply Trends</li> <li>- State-wise Analysis</li> <li>- Import vs Export Statistics</li> <li>- Domestic vs International Supply</li> <li>- Key Factors Affecting Supply</li> <li>- Supply Projections</li> <li>- Risk of Future Projections</li> </ul> <p><b>7. HISTORICAL DATA AND CHALLENGES</b> .....</p> <ul style="list-style-type: none"> <li>- Historical Statistics of Production, Refineries</li> <li>- Historical Statistics for Pipeline</li> <li>- Crude Oil Processed by Refineries ('000 metric tonnes)</li> <li>- Key Challenges and Future Outlook</li> <li>- Future Outlook, Trends</li> </ul> <p><b>8. EXPLORATION AND PRODUCTION OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Overview of Basins</li> <li>- Basin-wise Blocks</li> <li>- Exploration Activities (past 2 years)</li> <li>- Government Initiatives</li> <li>- PSC vs RSC</li> <li>- Key Risks and Challenges</li> <li>- Key E&amp;P Players</li> <li>- Profit Petroleum</li> <li>- Future Exploration Plans</li> <li>- Outlook and Opportunities</li> </ul>	<p><b>9. MIDSTREAM SECTOR OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Existing Pipeline Network, Last-mile Connectivity, Regulations, Key Projects Under Implementation, Key Proposed Projects, Segment Opportunities, Key Risks for Operators</li> </ul> <p><b>10. DOWNSTREAM REFINING OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Segment Overview, Existing Capacity, Supply and Demand Scenario, Distribution through Retail Outlets, Upcoming Refineries, Key Risks and Challenges, Segment Opportunities</li> </ul> <p><b>11. SUBSIDIES OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Historical Overview of Subsidies</li> <li>- Impact of Subsidies on Pricing</li> <li>- Subsidy Regimes for Petroleum Products</li> <li>- Long Term View on Subsidies</li> <li>- Under Recoveries of Key Players</li> </ul> <p><b>12. EXISTING INFRASTRUCTURE - E&amp;P/MIDSTREAM/DOWNSTREAM</b> . . .</p> <ul style="list-style-type: none"> <li>- Ageing Installations</li> <li>- Challenges in Production Surveillance</li> <li>- Need for Infrastructure Revamp</li> <li>- Losses Attributed to Ageing Infrastructure</li> </ul> <p><b>13. NEW INFRASTRUCTURE INITIATIVES</b> .....</p> <ul style="list-style-type: none"> <li>- Initiatives by Government Run Companies</li> <li>- EPC Projects Overview</li> <li>- Key Challenges</li> <li>- Future Outlook</li> </ul> <p><b>14. KEY CHALLENGES IN THE SECTOR - E&amp;P/ MIDSTREAM/ DOWNSTREAM</b> .....</p> <ul style="list-style-type: none"> <li>- Top 10 Challenges in E&amp;P, Midstream, Downstream</li> </ul> <p><b>15. GEOPOLITICAL CONSIDERATIONS</b> .....</p> <ul style="list-style-type: none"> <li>- Effect of Geopolitics on India's Growth Aspirations</li> <li>- Key Factors Affecting India</li> <li>- Gas Scenario</li> <li>- OPEC Deal</li> <li>- Projects Affected by Geopolitical Factors</li> </ul> <p><b>16. PROJECT PIPELINE AND NEW INVESTMENTS</b> .....</p> <ul style="list-style-type: none"> <li>- New Projects Planned</li> <li>- New Initiatives by Key Operators/Players</li> <li>- Project Pipeline</li> <li>- Opportunity Areas</li> </ul> <p><b>17. FUTURE OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Overall Outlook by 2030</li> <li>- Hydrocarbon Vision 2030 for North-East</li> <li>- Importance of Oil in Future</li> <li>- Growth Projections</li> <li>- Conventional vs Unconventional</li> <li>- Key Areas of Opportunities</li> </ul> <p><b>18. KEY COMPANIES PROFILES</b> .....</p> <ul style="list-style-type: none"> <li>- ONGC &amp; OVL, Oil India Ltd., IOCL, BPCL, GAIL, HPCL, Reliance Industries Ltd (RIL), Essar Oil Ltd., Cairn India Ltd.</li> </ul>
---	--



The report is available in a PDF format.



Trends, Development and Sector Outlook

Table of Contents

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 DDUGJY, 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

**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

- Andhra Pradesh (APSPDCL, APEPDCL), Assam (APDCL), Bihar (NBPDC, SBPDCL), Chhattisgarh (CSPDCL), Delhi (BRPL, BYPL, TPDDL), Gujarat (PGVCL, UGVCL, MGVCL, DGVCL, Torrent Power), Haryana (UHBVN, DHBVN), Himachal Pradesh (HPSEB Limited), Jammu & Kashmir (JKPDD), Jharkhand (JSEB), Karnataka (BESCOM, HESCOM, GESCOM, CESCO, MESCOM), Kerala (KSEB), Madhya Pradesh (MP Paschim, MP Poorv, MP Madhya), Maharashtra (MSEDCL, Rinfra, Tata Power, BEST), Meghalaya (MePDCL), Orissa (CESU, WESCO, NESCO, SOUTHCO), Punjab (PSPCL), Rajasthan (JVVNL, AVVNL, JVVNL), Tamil Nadu (TANGEDCO), Telangana (TSNPDCL, TSSPDCL), Tripura (TSECL), Uttarakhand (UPCL), Uttar Pradesh (UPPCL, KESCO, NPCL), West Bengal (WBSEDCL, CESC, India Power)

Each discom profile includes the following:

- Operational Area, Line Length, Transformer Capacity, Number of Consumers, Energy Sales, AT&C Losses, Planned Capex, Metering Status, Reliability Indices, Planned Network Additions, Key Financials, Tariffs, Power Purchase Cost, Cost of Power Purchase per Unit, etc.



The report is available in a PDF format.

## Demand, Supply and Price Outlook (2016-21)

## Table of Contents

<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION A: DEMAND OUTLOOK AND PROJECTIONS</b></p> <p><b>2. POWER DEMAND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Historical Trends</li> <li>- Factors Influencing Power Demand</li> <li>- Power Demand Projections by CEA</li> <li>- Power Demand Projections by India Infrastructure Research for 2016-21: Based on Energy Elasticity, Growth in Category-wise Consumption and Based on 'Power for All' Estimates</li> </ul> <p><b>3. DEMAND PROJECTIONS BY CONSUMER CATEGORY</b> .....</p> <ul style="list-style-type: none"> <li>- Historical Trends in Category-wise Power Consumption</li> <li>- Current Demand and Key Demand Drivers</li> <li>- Demand Projections by CEA</li> <li>- Consumer Category-wise Demand Projections for 2016-21</li> </ul> <p><b>4. REGION-WISE POWER DEMAND</b> .....</p> <ul style="list-style-type: none"> <li>- Historical Trends in Region-wise Power Consumption</li> <li>- Current Demand</li> <li>- Demand Projections by CEA</li> <li>- Demand Projections for 2016-21</li> </ul> <p><b>SECTION B: SUPPLY OUTLOOK AND PROJECTIONS</b></p> <p><b>5. THERMAL POWER SUPPLY TRENDS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Trends in Capacity Addition and Units Generated</li> <li>- PLF Trends</li> <li>- Projects in Pipeline</li> <li>- Projected Capacity Addition and Units Generated (2016-21)</li> <li>- Issues and Challenges</li> <li>- Outlook</li> </ul> <p><b>6. HYDRO POWER SUPPLY TRENDS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Installed Capacity</li> <li>- Hydro Power Potential</li> <li>- Trends in Capacity Addition</li> <li>- Hydro Power Generation</li> <li>- Generation Performance</li> <li>- Plant Availability Factor</li> <li>- Projects in Pipeline</li> <li>- Projected Capacity Addition</li> <li>- Projections for Units Generated</li> <li>- Issues and Challenges</li> <li>- Future Outlook</li> </ul> <p><b>7. RENEWABLE ENERGY SUPPLY TRENDS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Solar-Size and Growth</li> <li>- Wind-Size and Growth</li> <li>- Biomass-Size and Growth</li> <li>- Small Hydro-Size and Growth</li> <li>- Solar-Trends in Units Generated</li> <li>- Wind-Trends in Units Generated</li> <li>- Biomass and Others-Trends in Units Generated</li> <li>- Capacity Awarded-Solar</li> <li>- Projected Capacity Addition (2016-21)</li> <li>- Issues and Challenges</li> <li>- Outlook</li> </ul>	<p><b>8. NUCLEAR POWER SUPPLY TRENDS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Trends in Capacity Addition and Units Generated</li> <li>- PLF Trends</li> <li>- Projects in Pipeline</li> <li>- Projected Capacity Addition (2016-21)</li> <li>- Projections for Units Generated (2016-21)</li> <li>- Issues and Challenges</li> <li>- Outlook</li> </ul> <p><b>9. CAPTIVE POWER SUPPLY TRENDS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Captive Power Capacity Trends</li> <li>- Distribution of Captive Power Capacity: By Size, Fuel, Industry and State</li> <li>- Key Demand Drivers</li> <li>- Upcoming Captive Power Capacity</li> </ul> <p><b>10. FUEL OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Trend in Coal Demand and Supply</li> <li>- Coal Demand-Supply Gap</li> <li>- Coal Imports and Price Trends</li> <li>- Price Outlook</li> <li>- Coal Demand and Supply Projections</li> <li>- Trend in Gas Demand and Supply</li> <li>- Issues and Challenges</li> <li>- Gas Demand and Supply Projections</li> <li>- Future Outlook</li> </ul> <p><b>SECTION C: POWER MARKETS AND PRICES</b></p> <p><b>11. LONG-TERM POWER PROCUREMENT TRENDS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Capacity Trends Under Competitive Bidding</li> <li>- Tariff Trends Under Competitive Bidding</li> <li>- Impact of Discom Finances on Long-term Power Procurement</li> <li>- Issues and Challenges</li> <li>- Outlook</li> </ul> <p><b>12. SHORT-TERM POWER MARKET TRENDS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth</li> <li>- Volume and Price Trends in Power Exchanges</li> <li>- Major Buyers and Sellers of Electricity in Power Exchanges</li> <li>- Open Access Participation in Power Exchanges</li> <li>- Volume Trends in Bilateral Trading</li> <li>- Price Trends and Major Players in Bilateral Trading</li> <li>- Bilateral Trading Directly Between Discoms</li> <li>- Challenges and Way Forward</li> </ul> <p><b>13. COSTS AND TARIFFS</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Generation Cost Trend</li> <li>- Cost of Supply and Retail Tariff Trends</li> <li>- Factors Impacting Tariffs</li> <li>- Outlook</li> </ul>
---	---



The report is available in a PDF format.

Table of Contents

SECTION A: POWER SECTOR TRENDS AND DEVELOPMENTS

1. SECTOR TRENDS AND OUTLOOK

- Sector Size and Growth
- Key Trends in Generation
- Key Trends in Transmission
- Key Trends in Distribution
- Capacity Addition Estimates
- Fuel Trends
- Issue and Challenges

2. KEY RECENT DEVELOPMENTS

- Capacity Addition
- Government Initiatives and Programmes
- Policy and Regulatory Developments
- Fuel-related Developments
- New Manufacturing Facilities
- Conclusion

SECTION B: GENERATION EQUIPMENT DEMAND AND OUTLOOK

3. BTG EQUIPMENT

- Demand Drivers
- Trends in Thermal Power Capacity
- Projections for Thermal Power Capacity (2016-21)
- Demand for Boilers by Unit Size (2016-21)
- Demand for TG Sets by Unit Size (2016-21)
- Manufacturing Capacity
- Future Outlook

4. HYDRO POWER EQUIPMENT

- Growth Drivers
- Installed Capacity
- Hydro Power Potential
- Projected Capacity Addition
- Projections in Demand for Hydro Power Turbines
- Projections in Demand for Hydro Power Generators
- Outstanding Orders
- Key Players

5. THERMAL BOP EQUIPMENT

- Introduction
- Demand Drivers
- Projections for Thermal Power Capacity (2016-21)
- Demand for BoP Equipment
  - Coal Handling Plants
  - Ash Handling Plants
  - DM Water Plants
  - Cooling Towers
- Summing Up

SECTION C: T&D EQUIPMENT DEMAND AND OUTLOOK

6. CONDUCTORS

- Demand Drivers
- Technology Trends
- Key Indian Players
- Trends in Transmission Line Length
- Projections for Transmission Line Length (2016-21)
- Demand for Conductors (2016-21)

7. TRANSMISSION TOWERS

- Product and Technology Trends
- Key Indian Players
- Projections for Transmission Line Length
- Demand for Transmission Towers (2016-21)

8. TRANSFORMERS

- Product and Technology Trends
- Trends in Transformer Capacity
- Projections for Transformer Capacity (2016-21)
- Demand for Transformers by Voltage (2016-21)

9. INSULATORS

- Product and Technology Trends
- Market Trends
- Projections for Transmission Line Length (2016-21)
- Demand for Insulators by Voltage (2016-21)

10. SWITCHGEAR

- Product and Technology Trends
- Projections for Substation Additions
- Demand for Switchgear by Voltage (2016-21)

11. ENERGY METERS

- Product and Technology Trends
- Metering Scenario in India
- Demand for Meters (2016-21)
  - DT Meters
  - Consumer Meters

SECTION D: RENEWABLE ENERGY EQUIPMENT DEMAND AND OUTLOOK

12. SOLAR POWER EQUIPMENT OVERVIEW

- Size and Growth
- Demand Drivers
- MNRE's Targets for Solar Power Capacity
- Projections for Solar Power Capacity Additions
- CERC-determined Capital Costs of Solar PV Projects
- Demand Projections for Solar Power Equipment
  - Modules
  - Inverters
  - Mounting Structures
- Technology Trends

13. WIND POWER EQUIPMENT OVERVIEW

- Size and Growth
- Demand Drivers
- Projections for Wind Power Capacity Additions
- CERC-determined Capital Costs of Wind Energy Projects
- Cost Breakdown
- Projected Demand for Wind Power Equipment
  - Towers and Blades
  - Drives and Motors
- Technology Trends



The report is available in a PDF format.

## Sector Analysis, Outlook and Opportunities

## Table of Contents

## SECTION A: SECTOR ANALYSIS

1. EXECUTIVE SUMMARY .....
2. SECTOR SIZE AND GROWTH .....

  - Industry Structure, Growth in Transmission Line Length (by ownership and by voltage), Growth in Transformer Capacity (by ownership and by voltage), Increase in the Number of Substations (by ownership and by voltage), Growth in Inter-regional Transfer Capacity, Growth in Transmission against Generation Capacity, Trends in Network Reliability, Increase in Sector Investments, Key Growth Drivers

3. RECENT DEVELOPMENTS .....

  - Transmission Network Growth, Recently Commissioned Transmission Projects, Recently Awarded Projects Under TBCB, Mergers and Acquisitions, Key Financings, Ancillary Services, Reduction in System Congestion, Smart Grid Technology Deployment

4. POLICY DEVELOPMENTS .....

  - Introduction, National Tariff Policy Amendments, Proposed Amendments to the Electricity Act, 2003, Proposed Unbundling of Powergrid's CTU Function, Introduction of Reverse Auction and E-bidding for Transmission Projects, Revision of SBD for ISTS under TBCB, Incentives for Early Commissioning of Transmission Projects, Compensation for RoW, Waiver of Transmission Charges for Renewable Energy, Guidelines on Cross-border Trade of Electricity, Summary

5. REGULATORY DEVELOPMENTS .....

  - Introduction; Draft Regulations on Transmission Planning; Regulations on Ancillary Services; Framework for Forecasting, Scheduling and Imbalance Handling; Assessment of Stranded Transmission Capacity and Relinquishment Charges; Key Amendments; Upcoming Regulations/Amendments

6. INTER-UTILITY COMPARISON .....

  - Transmission Line Length, Transformer Capacity, Number of substations, Transmission losses, System Availability, Capital Expenditure, Revenues, Net Profit/Losses

7. PRIVATE SECTOR PARTICIPATION .....

  - Existing Framework, TBCB Experience
  - Private Participation in Inter-state Projects, Intra-state Projects
  - Key Issues and Concerns

8. TRANSMISSION TARIFFS .....

  - Introduction
  - PoC Methodology and Charges
  - Interstate, Intra-state Transmission Tariffs

## SECTION B: OUTLOOK AND PROJECTIONS

9. FUTURE OUTLOOK .....

  - Demand Drivers, Transmission Capacity Requirement, Investment Projections (2016-25), Policy and Regulatory Outlook, Opportunities for the Private Sector, Opportunities for Equipment Suppliers, Key Issues and Concerns

10. UTILITY PLANS UNDER POWER FOR ALL INITIATIVE .....

  - Overview, State-wise Investment Plans, State-wise Capacity Addition Plans, Summary

11. NETWORK GROWTH PROJECTIONS .....

  - Transmission Line Length
  - Transformer Capacity
  - Number of Substations
  - Inter-regional Transfer Capacity

## SECTION C: KEY PROJECTS

12. HIGH CAPACITY POWER TRANSMISSION CORRIDORS .....

  - Existing Inter-regional Transfer Capacity
  - Key Drivers for HCPTC Projects
  - Status of ongoing HCPTC Projects

13. RENEWABLE ENERGY INTEGRATION PROJECTS .....

  - Projected Renewable Energy Capacity Addition
  - Challenges in Grid Integration of Renewable Energy
  - Green Energy Corridor (GEC) Projects
  - Renewable Energy Management Centres, Desert Power Plan

14. TARIFF-BASED COMPETITIVE BIDDING PROJECTS .....

  - Introduction, Status of Projects Awarded so Far, Projects under Bidding, New Project Pipeline

15. CROSS-BORDER INTERCONNECTIONS .....

  - Introduction; Existing India-Bangladesh, India-Bhutan, India-Nepal Interconnections; Ongoing Interconnection Projects; Interconnections under Planning

16. INTRA-STATE PROJECTS .....

  - Analysis of Ongoing High Voltage Projects
  - Technology Initiatives of State Utilities
  - Key Challenges in Intra State Network Development

## SECTION D: TRANSMISSION UTILITY PROFILES

17. CENTRAL TRANSMISSION UTILITIES .....

  - Power Grid Corporation of India Limited
  - Damodar Valley Corporation
  - Bhakra Beas Management Board

18. STATE TRANSMISSION UTILITIES .....

  - Gujarat Energy Transmission Corporation Ltd, Maharashtra State Electricity Transmission Company Ltd, Karnataka Power Transmission Corporation Ltd, Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Madhya Pradesh Power Transmission Company Ltd, Uttar Pradesh Power Transmission Corporation Ltd, Tamil Nadu Transmission Corporation Ltd, Transmission Corporation of Andhra Pradesh Ltd, Transmission Corporation of Telangana Ltd, Haryana Vidyut Prasaran Nigam Ltd, Orissa Power Transmission Corporation Ltd, West Bengal State Electricity Transmission Company Ltd, Punjab State Transmission Corporation Ltd, Chhattisgarh State Power Transmission Company Ltd, Kerala State Electricity Board Ltd, Bihar State Power Transmission Company Ltd, Assam Electricity Grid Corporation Ltd, Himachal Pradesh Power Transmission Corporation Ltd, Jharkhand Urja Sancharan Nigam Ltd, Jammu and Kashmir Power Development Department, Power Transmission Corporation of Uttarakhand Ltd, Meghalaya Power Transmission Corporation Ltd, Delhi Transco Ltd, Tripura State Electricity Corporation Ltd

19. PRIVATE TRANSMISSION COMPANIES .....

  - Reliance Infrastructure, Sterlite Technologies Ltd, Adani PowerAdani Transmission Ltd, Sterlite Power Transmission Ltd, Reliance Power Transmission Ltd, EsselInfraprojects Ltd, Kalpataru Power Transmission, InstalacionesInabensa S.A., Essar Power Transmission Company Ltd, L&T Infrastructure Projects Ltd, Techno Electric & Engineering Company Ltd, Other companies (JSW Energy, Emco Ltd, IsoluxCorsanConcesiones, Instalaciones Inabensa, RattanIndia Power Ltd, Cobra Instalaciones, Megha Engineering and Infrastructures, Patel Engineering, BS Ltd, Simplex Infrastructure)



The report is available in a PDF format.

## Table of Contents

### SECTION A: TRENDS, COMPARISON AND ANALYSIS

#### 1. EXECUTIVE SUMMARY .....

#### 2. NETWORK SIZE AND GROWTH .....

- Growth in Distribution Line Length
- Utility-wise Distribution Line Length
- Growth in Transformer Capacity
- Utility-wise Transformer Capacity
- Growth in No. of Substations
- Utility-wise No. of Substations
- Number of Feeders Installed with Discoms

#### 3. CAPITAL EXPENDITURE .....

- Trend in Capital Expenditure of Discoms
- Break-up of Capital Expenditure across Major Areas
  - Capex on Distribution/System Strengthening Projects
  - Capex on Rural Electrification Schemes
  - Capex on R-APDRP
  - Capex on Other Projects
- Projected Capex by Discoms
- Funding Sources
- Exposure of Public Sector Banks to State Discoms

#### 4. OPERATIONAL PERFORMANCE .....

- Number of Consumers
- Utility-wise Number of Consumers
- Year-wise Growth in Number of Consumers
- Sale of Energy by Discoms
- Utility-wise Energy Sales
- Category-wise Energy Sales
- All India Average AT&C Losses
- Utility-wise Reduction in AT&C Losses
- Metering Coverage of Discoms
- Reliability Indices of Select Discoms

#### 5. FUTURE OUTLOOK AND PROJECTIONS .....

- Power Demand Projections based on Energy Elasticity Approach
- Power Demand Projections as per CEA
- Power Demand Projections based on Consensus Estimates
- Energy Sales Projections
- Consumer Growth Projections
- Distribution Line Length Projections
- Transformer Capacity Projections
- Projections of Number of Substations
- Metering Requirement Projections
- Break-up of Projected Capital Expenditures by Discoms
- Investment Requirements over the Next Five Years

### SECTION B: DISCOM PROFILES

Each discom profile includes the following:

- Operational Area
- Line Length (by voltage)
- Transformer Capacity (by voltage)
- Number of Substations (by voltage)
- Number of Feeders
- Number of Consumers (by category)
- Energy Sales (by category)
- AT&C losses
- Planned Capex
- Metering Status
- Reliability Indices
- Planned Network Additions

#### 6. DISCOM PROFILES .....

- Andhra Pradesh (APEPDCL, APSPDCL)
- Assam (APDCL)
- Bihar (NBPDC, SBPDCL)
- Chhattisgarh (CSPDCL)
- Delhi (BRPL, BYPL, TPDDL)
- Gujarat (DGVCL, MGVCL, PGVCL, UGVCL, Torrent Power)
- Haryana (UHBVN, DHBVN)
- Himachal Pradesh (HPSEB Limited)
- Jammu & Kashmir (JKPDD)
- Jharkhand (JSEB)
- Karnataka (BESCOM, HESCOM, GESCOM, CESCO, MESCOM)
- Kerala (KSEB)
- Madhya Pradesh (MP Paschim, MP Poorv, MP Madhya)
- Maharashtra (MSEDCL, RInfra, Tata Power, BEST)
- Meghalaya (MePDCL)
- Orissa (CESU, WESCO, NESCO, SOUTHCO)
- Punjab (PSPCL)
- Rajasthan (JVVNL, AVVNL, JdVVNL)
- Tamil Nadu (TANGEDCO)
- Telangana (TSNPDCL, TSSPDCL)
- Tripura (TSECL)
- Uttarakhand (UPCL)
- Uttar Pradesh (UPPCL, KESCo, NPCL)
- West Bengal (WBSEDCL, CESC, India Power)



The report is available in a PDF format.

(September 2015) (No. of slides: 454)

## Table of Contents

## SECTION A: TRENDS, COMPARISON AND ANALYSIS

## 1. EXECUTIVE SUMMARY .....

## 2. DISCOM FINANCES .....

- Trend in Total Income of Discoms
- Trend in Expenditure of Discoms
- Trend in Discoms' Gross Profits/Losses
- Trend in Discoms' Net Profits/Losses
- Annual Trend in Subsidies Received and Booked
- Cost Structure of Discoms
- Utility-wise Key Ratios - RoE, RoNW, RoCE, Debt-equity
- AT&C Loss Performance by Discoms between 2010-11 & 2014-15

## 3. DISCOMS' COST OF POWER PURCHASE .....

- Trend in Overall Power Purchase Costs
- Trend in Unit Power Purchase Cost
- Discom-wise Share of Power Purchase Cost in Total Expenses
- Discom-wise Long-term Power Purchase Cost
- Discom-wise Short-term Power Purchase Cost
- Factors Impacting Power Purchase Costs
- Source-wise Trend in Power Procurement Cost by Discoms
  - Thermal
  - Hydro
  - Renewable Energy
- Summing up

## 4. TARIFF TRENDS .....

- Average Retail Tariff Hikes by States (up to 2014-15)
- Recent Tariff Revisions (2015-16)
- Trends in Customer Category-wise Tariffs
  - Domestic Tariffs
  - Commercial Tariffs
  - HT Industrial Tariffs
  - LT Industrial Tariffs
  - Agricultural Tariff
- Fuel and Power Purchase Price Adjustment
- Way Forward

## 5. FUTURE OUTLOOK AND PROJECTIONS .....

- Factors Impacting Long-term Power Purchase Costs
  - Historical Trend in Linkage coal Prices
  - Trend in Coal Imports
  - International Coal Prices
  - Impact of Coal Block Auctions
  - Impact of LNG Auctions
  - Price Trends in Competitive bidding
- Outlook for Prices in Short term Power Market
- Outlook for Retail Tariffs
- Outlook for Discom Finances

## SECTION B: DISCOM PROFILES

*Each discom profile includes the following:*

- Key Financials (Revenue, Expenses, Gross Profit/Loss, Net Profit/Loss, Break-up of Costs, Key Ratios, AT&C Losses, etc.)
- Total Power Purchase Cost
- Cost of Power Purchase per Unit
- Source-wise Power Purchase Cost (Long-term vs Short-term; Thermal vs Hydro vs Renewable)
- Category-wise Tariffs
- Trends in Tariff Growth

## 6. COMPANY PROFILES .....

- Andhra Pradesh (APSPDCL, APEPDCL)
- Assam (APDCL)
- Bihar (NBPDC, SBPDCL)
- Chhattisgarh (CSPDCL)
- Delhi (BRPL, BYPL, TPDDL)
- Gujarat (PGVCL, UGVCL, MGVCL, DGVCL, Torrent Power)
- Haryana (UHBVN, DHBVN)
- Himachal Pradesh (HPSEB Limited)
- Jammu & Kashmir (JKPDD)
- Jharkhand (JSEB)
- Karnataka (BESCOM, HESCOM, GESCOM, CESCO, MESCOM)
- Kerala (KSEB)
- Madhya Pradesh (MP Paschim, MP Poorv, MP Madhya)
- Maharashtra (MSEDCL, RInfra, Tata Power, BEST)
- Meghalaya (MePDCL)
- Orissa (CESU, WESCO, NESCO, SOUTHCO)
- Punjab (PSPCL)
- Rajasthan (JVNL, AVVNL, JdVVNL)
- Tamil Nadu (TANGEDCO)
- Telangana (TSNPDCL, TSSPDCL)
- Tripura (TSECL)
- Uttarakhand (UPCL)
- Uttar Pradesh (UPPCL, KESCO, NPCL)
- West Bengal (WBSEDCL, CESC, India Power)

*The report is available in a PDF format.*



Table of Contents

1. EXECUTIVE SUMMARY .....

SECTION I: MARKET SIZE, TRENDS AND OUTLOOK

2. CAPTIVE POWER OVERVIEW .....

- Size and Growth
- Growth Drivers
- Key Trends
- Key Developments
- Emerging Models
- Plans and Investments
- Future Outlook

3. INSTALLED CAPACITY ANALYSIS .....

- Estimated Total Captive Capacity
- Distribution of Captive Capacity: By Size, Fuel, Industry, State

4. OUTLOOK AND PROJECTIONS .....

- Growth Drivers
- Upcoming Captive Power Capacity
- Key Issues and Challenges

5. CAPTIVE POWER ECONOMICS .....

- Introduction
- Technology Options
- Capex of CPPs: Overview, Coal-based CPPs, Gas-based CPPs, Liquid fuel-based CPPs
- Opex of CPPs: Overview, Coal-based CPPs, Gas-based CPPs, Liquid fuel-based CPPs

6. GRID POWER TARIFFS .....

- HT Industrial Tariff Trend
- HT Industrial Tariff Revision
- LT Industrial Tariff Trend
- LT Industrial Tariff Revision
- Commercial Tariff Trend
- Commercial Tariff Revision
- Open Access Charges and Losses
- Cross-subsidiation Trends
- Future Outlook

7. FUEL OUTLOOK

- Coal: Coal Demand, Domestic Coal Production, E-auction of Coal, Coal Imports, Coal Demand Supply Gap, Linkage Coal Prices, International Coal Prices, Demand and Supply Projections
- Gas: Trend in Gas Consumption, Domestic Gas Supply, Natural Gas Off-take, Import of LNG, Global LNG Prices, Domestic Gas Pricing, Gas Supply Projections, Gas Demand Projections, Projected Gas Demand-Supply Deficit, Issues and Concerns
- Liquid Fuels: Trends in Consumption and Production, Trend in Crude Oil and Diesel Prices

8. POLICY AND REGULATORY FRAMEWORK .....

- Current Policy Framework
- National Tariff Policy, 2006 and Amendments
- Electricity Rules, 2005 and Amendments
- Open Access
- Policy on Auction of Coal Linkages
- Special Forward E-auction Scheme, 2015
- Captive Coal Block Auction Policy
- Other Policies

SECTION II: RENEWABLE SOURCES

9. POLICY MEASURES AND INCENTIVES .....

- RPO Target and Compliance
- Open Access Policy and Regulation
- Wheeling Charges
- Intra-state Transmission Tariff
- Transmission Charges Waiver for Renewable Energy Projects
- Renewable Energy Certificates

10. RENEWABLE ENERGY: SIZE AND GROWTH .....

- Overview
- Capacity Addition Trends: By Source, State
- Growth Drivers
- Key Issues and Outlook

11. COST ECONOMICS AND TARIFF .....

- Capital Costs and Opex
- Power Sale Options
- Tariff Trends
- Analysis of Returns

12. RENEWABLE ENERGY CERTIFICATE TRADING .....

- Overview
- Volume Trends
- Price Trends
- Issues and Challenges
- Outlook

SECTION III: TRADING OPTIONS

13. BILATERAL TRADING .....

- Overview
- Types of Contracts
- Current Size
- Volume Trends
- Price Trends
- Market Structure
- Key Issues and Challenges
- Key Drivers and Outlook

14. Power Exchanges

- Overview
- Existing Product Portfolio
- Current Size
- Volume Trends in DAM and TAM
- Price Trends
- Major Buyers and Sellers
- Open Access Participation in Exchanges
- Key Issues
- Key Drivers and Outlook

SECTION IV: INCLUDES A DATABASE OF CAPTIVE POWER PLANTS

*(The most comprehensive database of captive power plants covering more than 2,500 captive power plants with information on owner, capacity, location and fuel type)*



The report is available in a PDF format.

## Table of Contents

## SECTION A: SECTOR OVERVIEW

<b>1. EXECUTIVE SUMMARY</b> .....	
<b>2. OVERVIEW</b> .....	
- Primary Energy Consumption in India	
- Coal Demand-Supply Scenario	
- Pricing Trends	
- Coal Imports	
- Issues and Challenges	
- Future Outlook	
<b>3. RECENT POLICY DEVELOPMENTS (last one year)</b> .....	
- Coal Block Auctions	
- Allocation of Coal Blocks to Public Sector Companies	
- Proposed Auction of Coal Linkages	
- Ministry's One billion tonnes Production Target	
- Rationalisation of Linkages to Thermal Power Plants	
<b>4. COAL BLOCK AUCTIONS</b> .....	
- Blocks Awarded so far	
- Allottees	
- Bid Price Analysis	
- Present Status	
- Expected Production	
- Future Outlook	
<b>5. COAL RESERVES</b> .....	
- By Type of Coal, State, Mine, Nature of Reserves	
- Trend in Exploration by CMPDI	
<b>6. DOMESTIC SUPPLY</b> .....	
- Coal Production Trend	
- Demand Supply Gap	
- CIL's Production Plans by 2020	
- Plans of SCCL	
- Expected Production from Coal Blocks Awarded	
- Future Outlook	
<b>7. KEY CONSUMER SEGMENT – POWER</b> .....	
- Coal Demand	
- Coal Availability and Stocks at Thermal Power Stations	
- PLF Trends of Thermal Power Stations	
- Generation Loss due to Coal Shortages	
- Coal Import by Power Sector	
- Growth Drivers and Demand Outlook	
<b>8. KEY CONSUMER SEGMENTS – OTHERS (STEEL, CEMENT, SPONGE IRON, ETC.)</b> .....	
- Coal Demand	
- Sources of Supply	
- Import Trends	
- Growth Drivers and Future Outlook	
<b>9. PRICE TRENDS</b> .....	
- Domestic Coal Prices (Linkage coal)	
- E-Auction Prices	
- Global Price Trends	
- Future Outlook and Projections	
<b>10. COAL IMPORTS AND GLOBAL TRENDS</b> .....	
- Import Trends	
- Key Sources of Imports	
- Global Demand-Supply Trends	
- Recent Trend in Prices	
- Future Outlook	

<b>11. COAL TRANSPORTATION AND LOGISTICS</b> .....	
- Share of Various Modes in Coal Transport	
- Railways Infrastructure for Coal Transport	
- Status of Critical Rail Connectivity Projects	
- Ports Capacity for Handling Coal	
- Upcoming Railways and Ports Capacity	
- Key Issues and Challenges	
<b>12. COAL WASHING</b> .....	
- Coal Washing Capacity in India	
- MoEF&CC Regulations	
- Coal Washing Trends	
- Key Players	
- Upcoming Coal Washing Capacity	
<b>13. TECHNOLOGY AND EQUIPMENT</b> .....	
- Major Equipment used by CIL	
- Technology Trends in Dumpers and Dozers	
- Use of Surface Miner Technology for Opencast Mining	
- Use of New Technologies for Underground Mining	
- Issues and Challenges	
<b>14. FOCUS ON UNDERGROUND MINING</b> .....	
- Share of Underground Mining	
- Underground Mining Production Trend	
- Economics of Underground versus Opencast Mining	
- Productivity of Underground versus Opencast Mining	
- Challenges in Underground Mining	
- Future Outlook	
<b>15. MARKET OPPORTUNITY FOR MDOS</b> .....	
- Advantages of MDO Model	
- Key Players	
- CIL's Plans for Appointment of MDOs	
- Recent Experience	
- Issues and Challenges	
<b>16. FUTURE OUTLOOK AND PROJECTIONS (till 2019-20)</b> .....	
- Demand, Domestic Supply and Imports	
- Overall Sector Outlook	

## SECTION B: COAL PRODUCER PROFILES

<b>17. COAL INDIA LIMITED AND ITS SUBSIDIARIES</b> .....	
<b>18. SINGARENI COLLIERIES COMPANY LIMITED</b> .....	
<b>19. NEYVELI LIGNITE CORPORATION</b> .....	
<i>Each producer profile covers Reserves, Production, Operational Performance, Financials, Strategy and Outlook</i>	
<b>20. LEADING CAPTIVE PLAYERS</b> .....	
- GMR, CESC, Essar Power, Monnet Power, Adani Power, Hindalco, Jaiprakash Group, JSW Steel, Ultratech Cement, Ambuja Cement, Others	

*Each player profile covers Allotted Coal Blocks, Reserves, End-use, Price Bid, Present Status, Expected Production*



The report is available along with a presentation in PDF format.



Table of Contents

<p><b>EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION A: OVERVIEW</b></p> <p><b>1. GENERATION OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Installed Capacity, Electricity Generation Trend, Fuel Mix in Power Generation, Power Demand and Supply, Capacity Addition Projections, Issues and Concerns</li> </ul> <p><b>2. COAL-BASED GENERATION: SIZE AND GROWTH</b> .....</p> <ul style="list-style-type: none"> <li>- Growth in Installed Capacity, Analysis of the Existing Capacity, Trends in Generation, Trends in PLF</li> </ul> <p><b>3. KEY RECENT DEVELOPMENTS</b> .....</p> <ul style="list-style-type: none"> <li>- Increase in Installed Capacity, Decrease in PLF Levels, Increase in Coal Production and Supply, Captive Blocks Resume Production, Policy Moves on Coal Linkages, APTEL Order on Compensatory Tariffs, Lower Tariffs on E-based Procurement, Consolidation and M&amp;A, Tighter Environmental Regulations</li> </ul> <p><b>SECTION B: POLICY AND REGULATORY DEVELOPMENTS</b></p> <p><b>4. RECENT POLICY INITIATIVES</b> .....</p> <ul style="list-style-type: none"> <li>- Flexibility in Utilisation of Domestic Coal, Automatic Transfer of Coal Linkages, Auction of Linkages to Non-regulated Sector, Coal Bridge Linkage Policy, Special Forward E-auctions for Power Sector, Amendments to the National Tariff Policy, Update on FSAs, Replacement and Upgradation of Old Units, Other Proposed Policies</li> </ul> <p><b>5. RECENT REGULATORY DEVELOPMENTS</b> .....</p> <ul style="list-style-type: none"> <li>- Update on Compensatory Tariffs</li> <li>- Revised Competitive Bidding Guidelines for Power Procurement</li> <li>- Power Procurement Guidelines for Medium Term</li> </ul> <p><b>6. RECENT ENVIRONMENTAL REGULATIONS</b> .....</p> <ul style="list-style-type: none"> <li>- New Environmental Standards, Emission Control, Water Consumption and Management, Fly-ash Utilisation Norms, Use of Washed Coal</li> </ul> <p><b>SECTION C: COAL DEMAND, SUPPLY AND PRICES</b></p> <p><b>7. COAL DEMAND-SUPPLY SCENARIO</b> .....</p> <ul style="list-style-type: none"> <li>- Coal Demand for Thermal Power Plants, Current Production from CIL and SCCL, Supply of Non-coking and Coking Coal, Captive Coal Production, Coal Demand-Supply Gap, Projections for Coal Demand and Supply</li> </ul> <p><b>8. COAL PROCUREMENT BY SOURCE</b> .....</p> <ul style="list-style-type: none"> <li>- Source Comparison, Linkage Volume and Trends, E-auction Volume &amp; Trends, Captive Volume and Trends, Imported Volume &amp; Trends</li> </ul> <p><b>9. OVERSEAS SOURCES OF SUPPLY</b> .....</p> <ul style="list-style-type: none"> <li>- Trends in Coal Imports, Source-wise Comparison of Coal Imports, Trends in Price of Imported Coal, Developer-owned Overseas Mines, Global Demand-Supply Scenario</li> </ul> <p><b>10. UPDATE ON CAPTIVE COAL MINING AND COAL BLOCKS</b> .....</p> <ul style="list-style-type: none"> <li>- Experience so Far, Status of Captive Block Allocation, Production Trends, Key Issues &amp; Concerns, Recent &amp; Upcoming Auctions, Outlook</li> </ul> <p><b>11. COAL PRICES</b> .....</p> <ul style="list-style-type: none"> <li>- Domestic Coal Prices, E-auction Prices, Global Price Trend, Pricing Outlook and Forecasts</li> </ul> <p><b>12. COAL QUALITY AND GRADES</b> .....</p> <ul style="list-style-type: none"> <li>- Grade Classifications, Production/Supply Analysis by Grade, Issues and Concerns, Measures to Ensure Quality, Measures to Improve Quality, Third Party Coal Sampling Guidelines</li> </ul> <p><b>13. COAL WASHING</b> .....</p> <ul style="list-style-type: none"> <li>- New Regulations, Capacity Requirement, Existing Capacity, Upcoming Capacity, Impact on Costs</li> </ul>	<p><b>SECTION D: PLANT PROFILE AND OPERATING PERFORMANCE</b></p> <p><b>14. ANALYSIS OF EXISTING PLANTS</b> .....</p> <ul style="list-style-type: none"> <li>- Size of Plants and Units, Subcritical and Supercritical Units, Age of Units, Boiler and Turbine Makes</li> </ul> <p><b>15. PLF TREND ANALYSIS</b></p> <ul style="list-style-type: none"> <li>- Historical Trend; Sector-wise, Inter-plant, Inter-developer, Inter-state Comparison; Outlook</li> </ul> <p><b>16. HEAT RATE TREND ANALYSIS</b> .....</p> <ul style="list-style-type: none"> <li>- Historical Trend; Sector-wise, Inter-plant, Inter-developer, Inter-state Comparison; Outlook</li> </ul> <p><b>17. AUXILIARY CONSUMPTION TRENDS</b> .....</p> <ul style="list-style-type: none"> <li>- Historical Trend; Sector-wise, Inter-plant, Inter-developer, Inter-state Comparison; Outlook</li> </ul> <p><b>18. RENOVATION AND MODERNISATION (R&amp;M)</b> .....</p> <ul style="list-style-type: none"> <li>- Achievements of R&amp;M Projects; R&amp;M Projects in 12th Plan; Current R&amp;M Projects; Potential, Candidates for R&amp;M; Candidate Plants for Closure</li> </ul> <p><b>SECTION E: COSTS AND TARIFFS</b></p> <p><b>19. TARIFFS AND PRICES</b> .....</p> <ul style="list-style-type: none"> <li>- Factors Affecting Tariff, Tariff Trends, Tariff Trends in PPAs, Tariff Discovered under Recent Case 1 &amp; 2 Bids, Tariff Discovered under DEEP, Prices on Power Exchanges, Outlook for Tariffs &amp; Prices</li> </ul> <p><b>20. GENERATION COSTS: NEW PLANTS</b> .....</p> <ul style="list-style-type: none"> <li>- Factors Affecting Cost of Generation, Energy Charges and Equipment Costs for New Plants, Other Costs, Future Outlook</li> </ul> <p><b>SECTION F: STRESSED AND STRANDED PROJECTS</b></p> <p><b>21. PROJECTS WITH COAL SUPPLY ISSUES</b> .....</p> <ul style="list-style-type: none"> <li>- Coal Availability with Power Plants, Commissioned Projects with No Linkages, Upcoming Commissioning of Projects with No Linkages, Implications</li> </ul> <p><b>22. FINANCIAL STRESS AND M&amp;A</b> .....</p> <ul style="list-style-type: none"> <li>- Stressed Assets in Power Sector, Stressed Projects and Developers, Structuring and Restructuring Schemes, Debt Restructuring and Refinancing Activity, Recent Acquisitions, Deals under Discussions, Potential Buyers and Sellers, Future Outlook</li> </ul> <p><b>SECTION G: FUTURE OUTLOOK</b></p> <p><b>23. NEW PROJECT PIPELINE</b> .....</p> <ul style="list-style-type: none"> <li>- Current Project Pipeline; Projects on Hold; Analysis of Upcoming Capacity; Upcoming Capacity by Size of Units; Sector-wise, Region-wise, State-wise Upcoming Capacity; Outlook and Projections</li> </ul> <p><b>24. IMPACT OF RENEWABLES</b> .....</p> <ul style="list-style-type: none"> <li>- Impact on Dispatch Order, PLFs, Flexibilisation Requirements</li> </ul> <p><b>25. FUTURE OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Capacity Addition Outlook, Coal Demand and Supply Outlook, Outlook on Generation Tariffs, Issues and Challenges</li> </ul> <p><b>SECTION H: KEY POWER PRODUCERS</b></p> <p><b>26. KEY POWER PRODUCERS</b> .....</p> <ul style="list-style-type: none"> <li>- NTPC Ltd, Damodar Valley Corporation, NLC India Ltd, Adani Power Ltd, Tata Power Company Ltd, Reliance Power Ltd, JSW Energy Ltd, Jindal Power Ltd, Essar Power Ltd, GMR Energy Ltd, etc.</li> </ul> <p><i>The profiles include information on current capacity, upcoming projects, operating performance and financial performance.</i></p>
--	---



The report is available in a PDF format.

## Trends, Developments and Future Outlook

## Table of Contents

## SECTION I: MARKET OVERVIEW AND OUTLOOK

- 1. EXECUTIVE SUMMARY** .....
- 2. SECTOR SIZE AND GROWTH** .....
- Hydro Power Potential, Growth in Installed Capacity, Trends in Thermal-hydro Mix, Trends in Hydro Capacity Additions vis-a-vis Other Sources, Sector and Utility-wise Additions, Pumped Storage Capacity Additions, Trends in Generation Performance, Issues and Challenges
- 3. KEY RECENT DEVELOPMENTS** .....
- Recent Capacity Additions, Recent Generation Performance, Recent Policy Developments, Recent M&A Deals and Financings, Environmental and Forest Clearances
- 4. NEW HYDRO POWER POLICY** .....
- Proposed Features, Expected Fiscal Benefits, Expected Impact on the Sector, Issues and Concerns
- 5. OTHER POLICY AND REGULATORY DEVELOPMENTS** .....
- Cross-border Electricity Trade Guidelines, National Tariff Policy 2016 Provisions for Hydro Projects, Government's Scheme for Basin-wise Review of Hydro Power Potential, Peaking & Load Balancing
- 6. COSTS AND TARIFFS** .....
- Key Factors Impacting Costs, Project Cost Trends, Trends in Tariffs, Tariffs of Recently Commissioned Projects, Issues and Concerns, Outlook
- 7. FINANCING** .....
- Funding Options, Recent Financings, M&A Deals, Stressed Projects, Investment Requirements, Issues and Concerns
- 8. DELAYED AND STALLED PROJECTS** .....
- Key Reasons for Project Delays, Analysis of Stalled Projects, Outlook for Stalled Projects, Impact on Capacity Addition
- 9. CROSS-BORDER INITIATIVES** .....
- Existing Power Ties with Nepal and Bhutan
  - New Guidelines on Cross-border Electricity Trade and Impact
  - Upcoming Projects in Bhutan
  - Upcoming Projects in Nepal
  - Existing and Proposed Transmission Interconnections
  - Issues and Challenges
- 10. STATE INITIATIVES (Uttarakhand, Himachal Pradesh, Jammu & Kashmir, Sikkim, Arunachal Pradesh)** .....
- Institutional Framework and Key Incentives, Potential vs Development, Upcoming Capacities, Issues and Concerns
- 11. FUTURE OUTLOOK** .....
- Projected Capacity Additions, Investment Requirements, Outlook on Costs and Tariffs, Impact of Renewables and Role in Balancing, Risks and Challenges, Market Opportunities (For EPC contractors, equipment providers, financiers)

## SECTION II: PLANT PERFORMANCE ANALYSIS

- 12. ANALYSIS OF EXISTING CAPACITY** .....
- By Project Size, Ownership, Player, Type of Project (Run-of-river, PSP), Age of Project, State, Equipment-make

- 13. GENERATION PERFORMANCE ANALYSIS** .....
- Historical Trends, Targets vs Achievements, Best Performing Plants, Inter-plant Comparison, Inter-state Comparison, Inter-developer Comparison, Plant Availability Factor Analysis, Trend in Outages
- 14. RENOVATION AND MODERNISATION** .....
- Age-profile of Existing Projects, Completed R&M Projects in Twelfth Plan, Projects Proposed for R&M, R&M Contracts Awarded

## SECTION III: UPCOMING PROJECT ANALYSIS

- 15. PIPELINE OF UPCOMING PROJECTS** .....
- Projects Under Construction, Projects Under Planning, Survey and Investigation, Projects Allotted by States, Stalled Projects
- 16. ANALYSIS OF UPCOMING CAPACITY** .....
- By Year of Commissioning, Ownership, Unit Size, Location, Equipment-make, Type (Dam-based/Run-of-river), Status (awaiting clearances, land acquisition, etc.)
- 17. ANALYSIS OF DELAYED PROJECTS** .....
- Delayed Project Capacity, Average Time Overruns, Average Cost Overruns, Reasons for Delays, Mitigation Strategies
- 18. KEY PROJECTS UNDER EXECUTION (Lower Subansiri, Tehri PSS, Polavaram, Ratle, Parbati-II, Kameng, Tapovan Vishnugad, Teesta VI, etc.)** .....
- Project Background, Progress so Far, Key Issues Impacting the Project, Completion Schedule
- 19. UPCOMING PROJECT PROFILES** .....
- Capacity, Location, Unit Size, Developer, Expected Year of Commissioning, Investments Proposed, Key Contractors, Construction Status

## SECTION IV: DEVELOPER PROFILES

*(Each profile will include information on existing projects, operational performance, future plans, status of upcoming projects and financial performance.)*

- 20. CENTRAL PUBLIC SECTOR UNITS** .....
- NHPC, SJVN, THDC India, NTPC, NHDC, NEEPCO, BBMB, DVC
- 21. STATE-OWNED GENCOS** .....
- Karnataka Power Corporation Limited, Maharashtra State Power Generation Company Limited, Tamil Nadu Generation and Distribution Corporation, Orissa Hydro Power Corporation Limited, Kerala State Electricity Board, Andhra Pradesh Power Generation Corporation Limited, Telangana State Power Generation Corporation Limited, Sardar Sarovar Narmada Nigam Limited, Uttarakhand Jal Vidyut Nigam Limited, Punjab State Power Corporation Limited, Jammu & Kashmir State Power Development Corporation Limited, Teesta Urja Limited
- 22. INDEPENDENT POWER PRODUCERS (IPPs)** .....
- JSW Energy, LNJ Bhilwara Group, Jaiprakash Power Ventures, Tata Power, Greenko, Lanco Infratech, GMR Energy, GVK Power and Infrastructure, Indo Arya Energy, Everest Power, Gati Infrastructure, Dans Energy, Sneha Kinetic, Others



*The report will be available in a PDF format.*

Table of Contents

SECTION I: INDUSTRY OVERVIEW AND OUTLOOK

- 1. EXECUTIVE SUMMARY .....
- 2. OVERVIEW .....

  - India's Energy Scenario, Role and Share of Natural Gas, Demand-Supply Dynamics, Key Trends, Growth Drivers, Upcoming Opportunities and Investments, Issues and Concerns

- 3. NEW HYDROCARBON EXPLORATION AND LICENSING POLICY .....

  - Key Features, NELP versus HELP, Update on HELP, Expected Impact on the Sector, Key Challenges

- 4. OTHER KEY POLICY INITIATIVES .....

  - Hydrocarbon Vision 2030 for Northeast India, Discovered Small Field Policy 2015, Revision in Domestic Prices, Grant of Extension of PSCs for Small and Medium-sized Discovered Fields, Others

- 5. RECENT INDUSTRY DEVELOPMENTS .....

  - New Discoveries, LNG Contract Renegotiations, Auctions for Stranded Power Plants, New Authorisations to CGD Players, Overseas Asset Acquisitions, Others

- 6. DEMAND ANALYSIS AND PROJECTIONS .....

  - Consumption Trends
  - Industry-wise Offtake of Natural Gas
  - Domestic Gas Allocations
  - Key Consuming Sectors: Power, Fertiliser, City Gas Distribution, Industrial Demand for Gas, Sponge Iron, Refineries and Petrochemicals, Captive Power
  - Growth Drivers
  - Key Constraining Factors
  - Demand Projections (till 2020-21)

- 7. SUPPLY ANALYSIS AND PROJECTIONS .....

  - Domestic Supply: Recent Trends, Gross Natural Gas Production: Recent Trends, LNG Imports: Recent Trends, Key Sources of Domestic Gas Production, States-wise Analysis, Public Sector Undertakings, Private/Joint Venture Companies, Basin-wise Production, Reliance Industries Limited, LNG Imports-country-wise, Key Sources of Unconventional Gas, Key Drivers, Constraining Factors, Supply Outlook and Projections (upto 2021)

SECTION II: E&P MARKET

- 8. EXPLORATION AND PRODUCTION SCENARIO .....

  - Sedimentary Basins, Gas Reserves, Exploration & Production Blocks, Exploration Activities, Exploration Trends, Exploration Activities in 2014-15, Development Activities in 2014-15, Hydrocarbon Discoveries, Gas Discoveries Online to Production, NELP Rounds, Features, Progressive Modifications in T&C in Different NELP Rounds, Update, NELP gives way to HELP, HELP: Features and Likely Impact, Other Government Initiatives to Promote E&P, Key Challenges

- 9. COMPETITIVE LANDSCAPE .....

  - Key E&P Players, Size and Growth, Operational and Financial Performance, Recent Mergers and Acquisitions, Exploration and Investment Plans of Key E&P Players, Future Outlook

- 10. DOMESTIC GAS PRICING SCENARIO .....

  - Historical Trends: Timeline, Gas Regime: Pre-2014 Reforms, CBM Pricing, Rangarajan Committee Proposal (2013), New Domestic Gas Pricing Guidelines, 2014, Recent Price Revisions, Impact on E&P Players, Impact on Key Consuming Segments, Outlook

- 11. UNCONVENTIONAL GAS .....

  - Coal Bed Methane: Reserves and Production, Review of Bidding Rounds, Current Status of CBM Blocks Awarded, Key Issues and Challenges, Major Players, Production Outlook, Future CBM Production Drivers
  - Shale Gas Prospects: Indian Shale Gas Deposit Estimates, Key Developments, Shale Gas Policy for National Oil Companies under the Nomination Regime: Key Features, Shale Gas Policy for National Oil Companies under the Nomination Regime: Current Status, Issues and Concerns

SECTION III: FOCUS ON LNG

- 12. EXISTING LNG INFRASTRUCTURE .....

  - Size and Growth, Key Players, Existing Terminals, Capacity, Infrastructure, Pipeline Connectivity, Sourcing, Expansion Plans at Existing Terminals

- 13. PRICE DYNAMICS AND CONTRACT NEGOTIATIONS .....

  - Global Price Trends, Recent Trends in Spot Prices, Price Negotiations of PLL's Long Term Contracts with RasGas, Impact on the LNG Industry, Key Long Term Contracts of India, Price Forecasts

- 14. LNG SOURCING TRENDS .....

  - Trends, Recent Contracts, Sourcing Options: Qatar, Australia, Russia, USA, Canada, Mozambique, Other LNG Exporting Countries, Projected LNG Demand

- 15. PLANNED LNG INFRASTRUCTURE AND CAPACITIES .....

  - Under Construction LNG Terminals
  - Proposed/Announced LNG Terminals

SECTION IV: PIPELINE INFRASTRUCTURE

- 16. NETWORK SIZE AND GROWTH .....

  - Current Status of Pipeline Connectivity, Policy and Regulations, Major Projects under Implementation, Key Issues, Major Players

- 17. FUTURE OUTLOOK .....

  - Key Drivers
  - Proposed Projects and Investments
  - Policy and Regulatory Outlook

SECTION V: CGD MARKET GROWTH AND OPPORTUNITIES

- 18. SIZE AND GROWTH .....

  - Current Network Size, Growth in the Last Five Years, Growth in Network-By State, Growth in Network-By Operator, Growth in PNG and CNG Segments, Trends in Network Tariffs

- 19. CGD BIDDING ROUNDS AND EXPERIENCE .....

  - Licensing Regime, Status of First Three Rounds, Update on Fourth, Fifth and Sixth Rounds, Bidding Experience, Recent Authorisations, Commercial Viability of CGD Projects, Returns and Pricing Strategies of CGD Players, Key Challenges

- 20. MARKET POTENTIAL AND PROJECTIONS .....

  - List of Identified GAS
  - Projected Demand (till 2021-22)
  - Opportunities for CGD Players
  - Investment Projections



The report is available in a PDF format.

## Table of Contents

## SECTION I: OVERALL SECTOR ANALYSIS

## 1. EXECUTIVE SUMMARY .....

## 2. OVERVIEW .....

- Introduction
- Biomass Potential
- Size and Growth
- Inter-state Comparison
- Growth Drivers
- Issues and Challenges
- Emerging Trends
- Conclusion

## 3. POLICY AND REGULATORY FRAMEWORK .....

- Introduction
- Policy and Legal Framework
- Current Policy Guidelines
- Regulatory Framework
- State Initiatives
- Issues and Challenges
- The Way Forward

## 4. FUEL SUPPLY AND LOGISTICS .....

- Introduction
- Current Scenario
- Fuel Price Trends
- Evolving Fuel Management Strategies
- Conclusion

## 5. COST ECONOMICS AND TARIFFS .....

- Introduction
- Cost Components
- Indicative Capital Cost of Existing Plants
- Biomass Energy Tariffs
- Incentive Options Driving Project Economics
- Conclusion

## 6. EQUIPMENT AND TECHNOLOGY .....

- Introduction
- Key Technologies
- Key Equipment
- Market Overview
- Issues and the Way Forward

## 7. FINANCING .....

- Introduction
- Size and Growth
- Sources of Funding
- Equity Financing
- Debt Financing
- External Financing
- Issues and Challenges
- Future Outlook

## 8. OFF-GRID BIOMASS .....

- Introduction
- Size and Growth
- Growth Drivers
- Government Initiatives and Programmes
- Biomass-based Microgrids
- Conclusion

## 9. FUTURE OUTLOOK .....

- Introduction
- Future Growth Drivers
- Capacity Addition Outlook
- Investment and Financing Outlook
- Emerging Policy and Regulatory Framework
- Conclusion

## SECTION II: PROJECTS AND DEVELOPERS

## 10. PROJECT PROFILES .....

- Rake Power Limited's 10 MW Project in Nagpur
- Usher Eco Power's 16 MW Cogen Plant in Mathura
- ASET's 1.2 MW Gasification-Based Plant in Vadodara
- MPPPL's 4.5 MW Plant in Kirugavali
- Malwa Power's 7.5 MW Plant in Muktsar
- DEE Development's 8 MW Plant in Fazilka
- PBPL's 12 MW Plant in Patiala
- SWIVPL's 9.9 MW Project in Mohindergarh
- Auro Mira's 7.5 MW Plant in Pudukottai
- KPTL's 7.8 MW Plant in Ganganagar
- Greenko's 8 MW ISA Power Project in Dhamtari
- STPPP's 6 MW Plant in Beechpally
- RRREL's 18 MW Plant in Pamboor
- MUUL's 7.5 MW Plant in Raipur
- Suryachakra Global's 9.8 MW Plant in Janjgir
- Abellon's 9.9 MW Plant in Khas
- GAPS Power's 13 MW Plant in Shendra
- OGPL's 10 MW Plant in Narsimhapur
- Chambal Power's 7.5 MW Project in Kota
- A.A. Energy's 10 MW Project in Gadchiroli

## 11. DEVELOPER PROFILES .....

- Introduction
- AllGreen Energy India Private Limited
- Auro Mira Energy Company Private Limited
- Bermaco Energy Limited
- Clenergen India Private Limited
- MPPL Renewable Energy Private Limited
- Orient Green Power Company Limited
- Shalivahana Green Energy Limited
- Usher Eco Power Limited

## 12. APPENDIX .....



The report is available along with a presentation in PDF format.

### SECTION A: OVERALL MARKET SCENARIO AND OUTLOOK

- 1. SECTOR OVERVIEW**
  - Size and Growth, Key Growth Enablers, Industry Structure, Existing and Emerging Sub-segments, Investment and Financing, Policy and Regulations, Costs & Tariffs, Issues & Challenges, Future Roadmap
- 2. RECENT DEVELOPMENTS**
  - Recent Capacity Addition Trends, Emerging State Order, Emerging Cost and Tariff Trends, Recent Policies and Regulations, Recent Financing Trends, New Opportunities
- 3. GRID INTEGRATION AND POWER EVACUATION**
  - Current Scenario, Update on Green Energy Corridors, State-wise Transmission Infrastructure Development Plans, Financing Requirements, Key Issues & Challenges, Emerging Technology Solutions
- 4. INVESTMENT AND FINANCING**
  - Investment Trends, Financing Options, Sources of Financing, Emerging Financial Instruments, Investment Requirements
- 5. DOMESTIC MANUFACTURING**
  - Industry Snapshot, Key Trends and Developments, Make in India, Plans and Investments - Domestic Players, Market Opportunities for Foreign Manufacturers, Plans and Investments - International Players, Current Production Capacity, Changing Business Model, WTO Ruling and Domestic Content Requirement, Issues and Challenges, Outlook
- 6. FUTURE OUTLOOK AND PROJECTIONS**
  - Capacity Addition, Policy and Regulations, RPO Trajectory, Domestic Manufacturing, Costs and Tariffs, Solar Capacity Addition Projections, Equipment Outlook, Investment and Financing Outlook

### SECTION B: UTILITY SCALE MARKET

- 7. CAPACITY GROWTH TRENDS**
  - Size and Growth, Recent Capacity Additions, Key Growth Drivers, Capacity Allocations, Issues & Concerns, Outlook and Way Forward
- 8. POLICY AND REGULATORY SCENARIO**
  - Introduction, Key Policies, Key Regulations, Open Access Policy, Solar RPO Trajectory, Solar RPO Compliance, Solar REC Trends, Key Challenges
- 9. SOLAR PARKS**
  - MNRE's Solar Park Policy, Solar Park Charges, Key Features of Existing Solar Parks, Key Features of Approved Parks, Recent and Upcoming Tenders
- 10. SOLAR HYBRIDS AND ENERGY STORAGE**
  - Solar-wind Hybrids: Estimated Potential, Key Policy Features, Pilot Projects, Key Issues and Challenges
  - Energy Storage: Cost Economics, Case for Energy Storage Systems, Types of Storage Systems, Current Policy Scenario, SECI's Initiatives, CERC's Initiatives, Emerging Technology
- 11. STATE INITIATIVES**
  - Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh
- 12. COST ECONOMICS AND TARIFF TRENDS**
  - Cost of Generation, CERC-determined Tariffs, Capital Cost Breakdown, Tender-wise Analysis of Tariffs Realised, Future Outlook

### SECTION C: ROOFTOP MARKET

- 13. ROOFTOP SEGMENT OVERVIEW**
  - MNRE's Plans and Targets, Potential and Growth, Size and Growth, Emerging Trends, Ongoing Tenders, Recent Projects, Key Players, Key Growth Drivers, Issues & Concerns, Outlook & The Way Forward
- 14. POLICY AND REGULATORY SCENARIO**
  - MNRE's Initiatives, Key Policies and Regulations, State Policy Initiatives, State-wise Rooftop Policies and Targets, Initiatives by Local Administration and Authorities, State-wise Tariffs and Incentives, Metering, Key Features of State-wise Net Metering Policy, Key Issues and The Way Forward
- 15. SECI'S ROOFTOP PROGRAMME**
  - Introduction, Implementation Model and Allocations, Snapshot of Results for Key Allocated Tender, Summary of Phase V Rooftop Tender - 500 MW, Upcoming 500 MW Rooftop Tender, Achievement-linked Incentives Scheme, Key Vendors, Key Issues and Challenges
- 16. COST ECONOMICS AND TARIFF TRENDS**
  - Cost of Generation, Capital Cost Breakdown, SERC-determined Tariffs, Tender-wise Analysis of Tariffs Realised, Future Outlook

### SECTION D: DECENTRALISED MARKET

- 17. MICROGRIDS**
  - Overview, Key Players, Issues and Challenges, Emerging Best Practices, Case Studies
- 18. SOLAR PUMPSETS**
  - Background, Government Initiatives, Central Financial Assistance for Solar Pumps, State-wise Sanctions and Disbursements, State Initiatives, Size and Growth, Current Installation Status, Key Issues and Challenges
- 19. OTHER OFF-GRID MARKET SEGMENTS**
  - Introduction, Solar Water Heaters, Solar Cooking, Solar Lighting
  - Solar Cooling
  - Telecom Towers

### SECTION E: SOLAR POWER EQUIPMENT

- 20. EQUIPMENT MARKET OVERVIEW**
  - Current Size by Equipment: Modules; Inverters; Mounting Structures and Trackers; Cables, Connectors and Junction Boxes
  - Cost Structure
  - Current Demand versus Supply
  - Key Players and Market Shares
  - Price Trends
- 21. EQUIPMENT OUTLOOK AND KEY PROJECTIONS**
  - MNRE's Targets for Solar Power Capacity
  - Projections for Solar Power Capacity Addition
  - Demand Projections by Segment (2017-22): Utility-scale, Rooftop
  - Demand Outlook by Equipment (2017-22): Modules, Inverters, Mounting Structures, Trackers



The report is available in a PDF format.



## Table of Contents

<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION A: SECTOR ANALYSIS, RECENT DEVELOPMENTS AND OUTLOOK</b></p> <p><b>2. OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Emerging Power Mix</li> <li>- Wind Power Potential</li> <li>- Size and Growth</li> <li>- Capacity Addition Trends: By State, Year, Players</li> <li>- Growth Drivers</li> <li>- Recent Developments</li> <li>- Issues and Challenges</li> <li>- Investment Plans and Outlook (till 2021-22)</li> </ul> <p><b>3. CHANGING MARKET DYNAMICS</b> .....</p> <ul style="list-style-type: none"> <li>- Key Players and their Capacity: IPPs, Equipment Vendors</li> <li>- Year-wise Trends in Market Shares</li> <li>- Ongoing Market Consolidation</li> <li>- Key M&amp;A Deals</li> <li>- Entry of New Players</li> <li>- Future Outlook</li> </ul> <p><b>4. COMPETITIVE BIDDING</b> .....</p> <ul style="list-style-type: none"> <li>- Key Features of MNRE's Competitive Bidding Guidelines</li> <li>- Impact Analysis of Competitive Bidding</li> <li>- Analysis of SECI's 1 GW Tender Result</li> <li>- State-wise Update on Competitive Bidding</li> <li>- Upcoming Tenders</li> <li>- Future Outlook</li> </ul> <p><b>5. POLICY AND REGULATORY ROUND-UP</b> .....</p> <ul style="list-style-type: none"> <li>- Key Policy Initiatives</li> <li>- Update on AD and GBI</li> <li>- Highlights of Draft Renewable Energy Act</li> <li>- State-wise Open Access Policy</li> <li>- State-wise Feed-in Tariffs</li> <li>- Non-Solar RPOs: National Trajectory, State-wise Trajectory, State-wise Compliance, State-wise Action</li> <li>- Amendments in REC Mechanism</li> <li>- REC Market Trends (market clearing price &amp; volume, &amp; participants)</li> <li>- Upcoming Policies and Regulations</li> </ul> <p><b>6. COST AND FINANCING</b> .....</p> <ul style="list-style-type: none"> <li>- Cost Economics: FIT-based Projects, REC-based Projects, Captive/Group Captive</li> <li>- Risk-Return Analysis</li> <li>- Recent Financings: Bond Market, Debt Deals, Equity Transactions (project equity, PE/VC, etc.)</li> <li>- Emerging Financing Instruments: Green/Masala Bonds, InvITs, Green Infrastructure Funds, Others</li> <li>- Investment Requirements (till 2022)</li> </ul> <p><b>7. GRID INTEGRATION AND PLANNING</b> .....</p> <ul style="list-style-type: none"> <li>- Grid Requirements for Renewables</li> <li>- Update on Green Energy Corridors</li> <li>- State-wise Transmission Plans</li> <li>- Forecasting, Scheduling and Deviation Settlement Mechanism <ul style="list-style-type: none"> <li>● Key Features</li> <li>● State-wise Implementation Status</li> </ul> </li> <li>- Power System Development Fund Regulations</li> <li>- Update on REMCs</li> <li>- Key Issues and Challenges</li> </ul>	<p><b>8. EQUIPMENT AND TECHNOLOGY MARKET</b> .....</p> <ul style="list-style-type: none"> <li>- Current Production Capacity</li> <li>- Player-wise Analysis: Production Capacity, Rated Capacity, Turbine Class and Make</li> <li>- Support Mechanisms for Domestic Manufacturing: Make in India, Focus on Localisation, Export Promotions, Exemptions on Imported Duty, SEZ Benefits</li> <li>- Technology Trends: Towers and Blades, Drives and Motors</li> <li>- Key Challenges</li> <li>- Future Procurement and Upgradation Plans</li> </ul> <p><b>9. OUTLOOK AND OPPORTUNITIES (TILL 2021-22)</b> .....</p> <ul style="list-style-type: none"> <li>- Government Plans and Targets</li> <li>- Plans of Major Players: IPPs, Captive Power Producers, Equipment Vendors</li> <li>- Project Pipeline</li> <li>- Emerging Opportunities: Repowering, Wind-Solar Hybrids, Offshore Wind</li> <li>- Policy and Regulatory Outlook</li> </ul> <p><b>10. IMPACT OF GST</b> .....</p> <ul style="list-style-type: none"> <li>- Highlights of the GST Framework</li> <li>- Likely Impact on IPPs</li> <li>- Likely Impact on Equipment Manufacturers</li> <li>- Key Unaddressed Issues</li> <li>- Outlook</li> </ul> <p><b>SECTION B: EMERGING AREAS OF OPPORTUNITY</b></p> <p><b>11. ENERGY STORAGE</b> .....</p> <ul style="list-style-type: none"> <li>- Pilot Projects</li> <li>- Technology Options</li> <li>- Cost Economics</li> <li>- Issues and Challenges</li> <li>- Global Experience</li> <li>- Outlook</li> </ul> <p><b>12. WIND-SOLAR HYBRIDS</b> .....</p> <ul style="list-style-type: none"> <li>- Estimated Potential</li> <li>- Key Policy Features</li> <li>- Pilot Projects</li> <li>- Key Issues and Challenges</li> </ul> <p><b>13. WIND REPOWERING</b> .....</p> <ul style="list-style-type: none"> <li>- Estimated Potential</li> <li>- Key Policy Features</li> <li>- Pilot Projects</li> <li>- Key Issues and Challenges</li> </ul> <p><b>14. OFFSHORE WIND</b> .....</p> <ul style="list-style-type: none"> <li>- Key Policy Features</li> <li>- Government Initiatives</li> <li>- Key Issues and Challenges</li> <li>- Global Trends</li> </ul> <p><b>SECTION C: DATABASE OF EXISTING WIND POWER PLANTS</b>  <i>(This includes information on owner, project capacity, location, turbine make, rated capacity, year of commissioning, etc.)</i></p>
--	---



The report is available in a PDF format.

**SECTION A – MACRO ANALYSIS**

**1. COAL SECTOR OVERVIEW**

- Introduction
- Size and Growth
- Industry Structure
- Policy and Regulation
- Recent Developments
- Key Consuming Segments
- Issues and Concerns
- Conclusion

**2. CAPTIVE COAL MINING POLICY FRAMEWORK**

- Introduction
- Guidelines & Conditions for Block Allocation
- CAG Report and Implications
- Rules for Auction of Coal Blocks by Competitive Bidding, 2012
- Other Relevant Policies and Notifications
- Policy Outlook

**3. CAPTIVE COAL MINES ALLOCATION AND PRODUCTION TRENDS**

- Introduction
- Coal Block Allocation History
- Production Trends
- Leading Producers
- Allocation and Production by End-use
- Conclusion

**4. UPCOMING AUCTIONS**

- Introduction
- Auction Methodology
- Blocks on Offer
- Likely Terms and Conditions
- Timelines
- Conclusion

**5. COAL PRICING AND ECONOMICS OF CAPTIVE MINING**

- Introduction
- Captive Coal Mining Costs
- Coal Prices in Industry
- Cost Comparison
- Conclusion

**6. MDOS**

- Introduction
- MDO Model
- Experience so far with MDOS
- Future Opportunities
- Issues and challenges
- Conclusion

**7. RISKS AND CHALLENGES**

- Introduction
- Environmental and Forestry Clearances
- Joint Allocation
- Infrastructural Bottlenecks
- Land Acquisition Constraints
- Commercial Issues
- Experience So Far
- Conclusion

**8. OUTLOOK**

- Introduction
- Key Demand Drivers
- Projected Demand and Production
- Investment Projection
- Conclusion

**SECTION B – PROJECT PROFILES**

**9. BLOCKS UNDER PRODUCTION**

- Introduction
- Project Profiles

**10. PROJECTS UNDER DEVELOPMENT**

- Introduction
- Project Profiles

**11. DE-ALLOCATED BLOCKS**

- Introduction
- Project Profiles

**12. APPENDIX**



The report is available along with a presentation in PDF format.

## Table of Contents

<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>2. COST OF POWER IN KEY INDUSTRIES</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Key Trends in Industrial Power Tariff</li> <li>- Cost of Power for Key Industries</li> <li>- Cross-Industry Analysis</li> <li>- Cost Management Strategies</li> <li>- Future Outlook</li> </ul> <p><b>3. GRID POWER TARIFFS</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Key Determinants and Drivers</li> <li>- Key Trends</li> <li>- HT Tariffs by State</li> <li>- LT Industrial Tariffs</li> <li>- ToD Tariffs</li> <li>- Outlook and Projections</li> <li>- Conclusion</li> </ul> <p><b>4. COST OF CAPTIVE POWER GENERATION</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Coal-based Captive Power Plants</li> <li>- Gas-based Captive Power Plants</li> <li>- Liquid Fuel-based Captive Power Plants</li> <li>- Conclusion</li> </ul> <p><b>5. COST OF TRADED POWER</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Short-term Power Market Overview</li> <li>- Trading Licensees</li> <li>- Power Exchanges</li> <li>- Outlook and Projections</li> </ul> <p><b>6. COST OF RENEWABLE ENERGY OPTIONS</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Wind Power Plants</li> <li>- Solar Power</li> <li>- Biomass Power</li> <li>- Bagasse-based Power</li> <li>- REC Trading</li> </ul> <p><b>7. FUEL COSTS: TRENDS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Coal</li> <li>- Gas</li> <li>- Diesel</li> <li>- Conclusion</li> </ul>	<p><b>8. EQUIPMENT COSTS</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Coal-based Power Plants</li> <li>- Gas-based Power Plants</li> <li>- DG Sets</li> <li>- Outlook and Projections</li> </ul>
---	--



The report is available in presentation and traditional formats (PDF).



Table of Contents

<p><b>1. SOLAR SECTOR POWER OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth</li> <li>- Grid-connected Solar Segment</li> <li>- Rooftop Solar Segment</li> <li>- Key Growth Drivers</li> <li>- Recent Developments</li> <li>- Assessment of Key Challenges</li> <li>- Future Outlook</li> <li>- Assumptions and Caveats</li> </ul> <p><b>2. REVIEW OF SOLAR PLANT PERFORMANCE</b> .....</p> <ul style="list-style-type: none"> <li>- Key Demographics</li> <li>- Overall Performance Trends                             <ul style="list-style-type: none"> <li>• Year-wise Performance</li> <li>• Project Size-wise Performance</li> <li>• State-wise Performance</li> <li>• Technology-wise Performance</li> <li>• Developer Type-wise Performance</li> </ul> </li> </ul> <p><b>3. PLANT PERFORMANCE BY YEAR OF COMMISSIONING</b> .....</p> <ul style="list-style-type: none"> <li>- Year-wise Distribution of Plants Tracked</li> <li>- Annual Trends</li> <li>- Seasonality Trends</li> <li>- Conclusion</li> </ul> <p><b>4. PLANT PERFORMANCE BY STATE</b> .....</p> <ul style="list-style-type: none"> <li>- Assumptions and Caveats</li> <li>- Overview</li> <li>- Yearly Generation per MW</li> <li>- Interstate Comparison</li> <li>- Annual Trends</li> <li>- Intra-state Comparison</li> </ul> <p><b>5. PROJECT PERFORMANCE BY PLANT SIZE</b> .....</p> <ul style="list-style-type: none"> <li>- Size-wise Distribution of Plants Tracked</li> <li>- State-wise Number of Tracked Projects and Installed Capacity by Plant Size</li> <li>- Comparative Performance Analysis</li> <li>- Seasonality Trends</li> <li>- Performance Analysis based on Highest CUF Achieved</li> <li>- Conclusion</li> </ul> <p><b>6. PLANT PERFORMANCE BY TECHNOLOGY</b> .....</p> <ul style="list-style-type: none"> <li>- Distribution of Plants Tracked</li> <li>- Annual Trends</li> <li>- Seasonality Trends</li> <li>- Conclusion</li> </ul> <p><b>7. SOLAR TRACKERS</b> .....</p> <ul style="list-style-type: none"> <li>- Overview</li> <li>- Profiles of Key Solar Tracker Providers: Scorpius, NexTracker, Smarttrak</li> </ul> <p><b>8. PLANT PERFORMANCE BY DEVELOPER TYPE</b> .....</p> <ul style="list-style-type: none"> <li>- Share of Tracked Capacity by Developer Type</li> <li>- Performance of Plants Developed by Integrated Solar Project Developers</li> </ul>	<ul style="list-style-type: none"> <li>- Performance of Plants Developed by Independent Power Producers</li> <li>- Performance of Plants Developed by Power Generation Companies</li> <li>- Performance of Plants Developed by Diversified Players</li> <li>- Comparative Performance Analysis</li> <li>- Conclusion</li> </ul> <p><b>9. PLANT PERFORMANCE BY KEY DEVELOPERS</b> .....</p> <ul style="list-style-type: none"> <li>- Current Market Share of Developers</li> <li>- Summary of Key Developers in Plants Tracked</li> <li>- Trends in Average Annual CUFs</li> <li>- Performance of Key Developers: ACME Solar, Adani Power, Azure Power, Essel Infra, First Solar, Hero Solar Energy, Hindustan Cleanenergy Limited, NTPC, Renew Power, Tata Power Renewable Energy Limited</li> </ul> <p><b>10. PLANT PERFORMANCE BY KEY MODULE MANUFACTURERS</b> .....</p> <ul style="list-style-type: none"> <li>- Solar Module Manufacturing Scenario in India</li> <li>- Share of Key Module Manufacturers in Plants Tracked</li> <li>- Trends in Average Annual CUF</li> <li>- Performance of Plants by Module Manufacturers: BHEL, Canadian Solar, First Solar, Hanhwa Q Cells, Moser Baer, ReneSola, Tata Power Solar, Trina Solar, Vikram Solar, Waaree Energies</li> </ul> <p><b>11. PLANT PERFORMANCE BY KEY EPC CONTRACTORS</b> .....</p> <ul style="list-style-type: none"> <li>- Current Market Share of EPC Contractors</li> <li>- Share of Key EPC Contractors in Plants Tracked</li> <li>- Comparative Performance Analysis</li> <li>- Performance of Key EPC Contractors: Gamesa Solar, Lanco Solar, Larsen &amp; Toubro, Mahindra Susten, Premier Solar, Rays Power Infra, Sterling &amp; Wilson, Tata Power Solar, Ujaas Energy</li> </ul> <p><b>12. PLANT PERFORMANCE BY KEY INVERTER MANUFACTURERS</b> .....</p> <ul style="list-style-type: none"> <li>- Current Market Share of Key Inverter Manufacturers</li> <li>- Profiles of Key Inverter Manufacturers: ABB, Delta, Hitachi, Huawei, Schneider Electric, SMA, Sungrow, TMEIC</li> </ul> <p><b>13. MODULE DEGRADATION</b> .....</p> <ul style="list-style-type: none"> <li>- Key Factors for Degradation</li> <li>- Types of Degradation</li> <li>- Global versus Indian Scenario</li> <li>- Case Studies - Global, India</li> </ul> <p><b>14. CASE STUDIES</b> .....</p> <ul style="list-style-type: none"> <li>- KVR Construction, Welspun Solar Madhya Pradesh Private Limited, Rajgarh Solar, Waaneep Solar Private Limited, Azure Tahliwala (Tahliwal Jattan), SolaireDirect, Dharangwala, Fazilka, Sand Land Real Estate, Visual Percept Solar Projects, ACME Solar Technologies (Gujarat), Sai Sudhir Solar Plant (Kalyandurg), Welspun Solar Energy Private Limited, Premier Solar</li> </ul> <p><b>15. DATABASE OF PLANTS TRACKED</b> .....</p> <p>(This includes month-wise power generation, developer, location, size, EPC contractor, etc.)</p>
--	---



The report is available in a PDF format.

## Data Analysis, Trends and Insight

## Table of Contents

<p><b>1. SOLAR POWER OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Size and Growth</li> <li>- Key Trends and Developments</li> <li>- Investment Requirements and Opportunities</li> <li>- Issues and the Way Forward</li> </ul> <p><b>2. REVIEW OF SOLAR PROJECT PERFORMANCE</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Generation/Net Exported Power</li> <li>- Capacity Utilisation Factor</li> <li>- Seasonality</li> <li>- Issues and Challenges</li> </ul> <p><b>3. PROJECT PERFORMANCE BY LOCATION</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Inter-state Comparison</li> <li>- Intra-state Comparison</li> <li>- Impact of Location on Project Performance</li> <li>- Summing Up</li> </ul> <p><b>4. PROJECT PERFORMANCE BY SIZE</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Project Size 1-5 MW</li> <li>- Project Size over 5 MW</li> <li>- Impact of Project Size on Performance</li> <li>- Summing Up</li> </ul> <p><b>5. PROJECT PERFORMANCE BY TECHNOLOGY</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Level of Adoption</li> <li>- Technology Providers</li> <li>- Inverter Providers</li> <li>- Projects using Crystalline Silicon Technology</li> <li>- Projects using Thin-Film Technology</li> <li>- Projects using Crystalline and Thin-film Technology</li> <li>- Impact of Technology on Project Performance</li> <li>- Summing up</li> </ul> <p><b>6. PROJECT PERFORMANCE BY DEVELOPER TYPE</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Share of Capacity by Developer Type</li> <li>- Performance of Projects Developed by Integrated Solar Project Developers</li> <li>- Performance of Projects Developed by Independent Power Producers</li> <li>- Performance of Projects Developed by Power Generation</li> </ul>	<ul style="list-style-type: none"> <li>Companies</li> <li>- Performance of Projects Developed by Diversified Players</li> <li>- Comparative Performance Analysis</li> <li>- Summing up</li> </ul> <p><b>7. PERFORMANCE OF SOLAR TRACKER-BASED PROJECTS</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Level of Adoption of Solar Tracker Technology</li> <li>- Economics of using Solar Trackers</li> <li>- Performance Analysis of Tracker-based Projects</li> <li>- Conclusion</li> </ul> <p><b>8. CASE STUDIES</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction</li> <li>- Narmada Canal-top Project</li> <li>- Azure Solar, Nagaur</li> <li>- SunEdison, Patan</li> <li>- Tata Power, Mithapur</li> <li>- Mahagenco, Sakri Project</li> <li>- Adani Power, Kutch</li> <li>- Acme Solar, Khambat</li> <li>- Reliance Power, Dhursar</li> <li>- Green Infra, Rajkot</li> <li>- M and B Switchgears' Rajgarh Project</li> <li>- C&amp;S Electric's Bhiwani Project</li> <li>- Mahindra Solar One, Rajasthan</li> </ul> <p><b>9. DATABASE</b> .....</p>
---	--



The report is available along with a presentation in PDF format.

**SECTION I: OVERALL ANALYSIS**

**1. OVERVIEW** .....

- Introduction
- Cross-segment Comparison
- Investment Trends
- Financing Trends
- Growth Drivers
- Risks and Mitigation Strategies
- Conclusion

**2. GOVERNMENT INITIATIVES** .....

- Introduction
- Preferential Tariffs
- Capital Subsidies
- AD and GBI
- Viability Gap Funding
- Renewable Energy Certificates
- Renewable Purchase Obligations
- Conclusion and the Way Forward

**3. DEBT FINANCE** .....

- Introduction
- Types of Debt Finance
- Sources of Debt Finance
- Renewable Energy Portfolio of Select Domestic Financial Institutions
- Renewable Energy Portfolio of Select International Funding Institutions
- Risks and Challenges
- Conclusion

**4. PRIVATE EQUITY AND VENTURE CAPITAL** .....

- Introduction
- Size and Growth
- Recent Deals
- Key Players
- Risk Factors
- The Way Forward

**5. EMERGING FINANCING INSTRUMENTS** .....

- Introduction
- Bridge Financing
- Mezzanine Financing
- Takeout Financing
- Pooled Financing
- Other Financing Instruments
- Conclusion

**6. FUTURE OUTLOOK** .....

- Introduction
- Segment-wise Financing Requirement
- Emerging Financing Trends
- Financing Transmission Infrastructure
- Conclusion

**SECTION II: SEGMENT ANALYSIS**

**7. WIND POWER** .....

- Introduction
- Size and Growth
- Key Trends and Developments
- Investment Requirements and Opportunities
- Rates of Return
- Recent Financings
- The Way Forward

**8. SOLAR POWER** .....

- Introduction
- Size and Growth
- Key Trends and Developments
- Investment Requirements and Opportunities
- Rates of Return
- Recent Financings
- Issues and the Way Forward

**9. SMALL HYDRO** .....

- Introduction
- Size and Growth
- Key Players
- Key Trends and Developments
- Investment Requirements and Opportunities
- Recent Financings
- Issues and the Way Forward

**10. BIOMASS** .....

- Introduction
- Size and Growth
- Key Trends and Developments
- Investment Requirements and Opportunities
- Rates of Return
- Recent Financings
- The Way Forward

**11. APPENDIX** .....



The report is available along with a presentation in PDF format.

## Market Analysis, Outlook and Opportunities

## Table of Contents

## SECTION I : MARKET OVERVIEW AND OUTLOOK

1. OVERVIEW .....
  - Size and Growth, Growth in Past 10 Years, Share of Rail in Transport, Key Sector Trends, Operational and Financial Challenges, Investment Requirements, Future Outlook and Opportunities
2. RECENT INITIATIVES AND KEY DEVELOPMENTS .....
  - Tariff Rationalisation, Dynamic Pricing, LIC Funding, Focus on Seven Missions, Update on Vision 2020, Infrastructure Improvement, Expanding Freight Basket, Passenger Amenities, Semi-high Speed and High-speed Rail
3. INVESTMENTS, OPPORTUNITIES AND OUTLOOK .....
  - Rail Budget 2016-17, Non-budget Funding Options, Investment Projections till 2019-20, Projected Funding Requirement - Short-term and Medium-term, Market Opportunities - Focus Areas for Future Investment, Sector Outlook
4. PPP OPPORTUNITIES .....
  - Experience so Far, Key Milestones for PPP in Railways, PPP Models in Railways, Policies and Schemes, Project Financing for PPP Projects, Key Completed and Ongoing Projects, PPP Opportunities and Investments, Key Issues and Challenges
5. PROJECT PIPELINE AND ANALYSIS .....
  - Project Pipeline and Analysis, Projects Under Implementation, Upcoming Projects, Investment Outlook
6. MAKE IN INDIA .....
  - Focus on Indigenisation, Ease of Doing Business, FDI Trends, Collaboration and Tie-ups, New Production Units, Areas of Opportunity, Prospective Projects for Investment, The Way Forward

## SECTION II: OPERATING PERFORMANCE

7. FINANCIAL PERFORMANCE .....
  - Financial Performance of IR-A Snapshot, Revenue Trends, Cost Components and Trends, Revenue Surplus, Operating Ratio, New Revenue Streams, Policy Initiatives to Increase Non-fare Revenue, Issues and Challenges
8. EFFICIENCY INDICATORS .....
  - Wagon Loading (per day), Average Load (per wagon), Daily Freight Train Loading, Wagon Turnaround Time, Average Train Load, Net tonne km per Route km, Passenger-km per Route km, Other Indicators, Zonal Performance and Analysis
9. TRENDS IN FREIGHT TRAFFIC AND EARNINGS .....
  - Freight Traffic Trends; Freight Earnings Trends; Freight Traffic and Earnings Monthly Trend in 2016-17; Trends in Rail Share; Strategies to Improve Rail Share; Zone-wise Analysis: Traffic and Earnings Share, Traffic during 2011-12 and 2015-16, Traffic Targets and Achievements (2016-17); Outlook and Projections
10. CATEGORY-WISE FREIGHT TRENDS .....
  - Overall Analysis; Category-wise Freight Traffic and Earnings Analysis: Coal, Iron Ore, Cement, Container, Other Commodities; Sector Outlook
11. TRENDS IN PASSENGER TRAFFIC AND EARNINGS .....
  - Traffic & Earnings Trends (2011-12) to (2016-17), Trends in 2016-17, Suburban & Non-suburban Traffic & Earnings Analysis, Class-Wise Traffic & Earnings Analysis, Zone-wise Analysis, Initiatives for Improving Passenger Services, Segment Outlook & Projections

## SECTION III: SEGMENT ANALYSIS, OPPORTUNITIES AND OUTLOOK

12. PROCUREMENT PLANS AND NEW PRACTICES .....
  - Procurement Requirements, Mission PACE, Key Changes in Practices, Expected Impact
13. ROLLING STOCK .....
  - Snapshot of IR's Rolling Stock, Size and Growth (coaches, wagons and locomotives), Targets and Achievements, Budget Proposal (2016-17), Manufacturing Units, Technology Trends, Recent Developments, Issues and Challenges, Outlook and Projections
14. SIGNALLING AND TRAIN CONTROL .....
  - Budgetary Allocation, Size and Growth, Technology Trends, Investment Requirements, Recent Initiatives, Key Challenges, The Way Forward

15. TELECOMMUNICATIONS .....
  - Budgetary Allocation, Size and Growth, Technology Applications so Far, Recent Initiatives, Key Challenges, Investment Requirements, Short-term and Long-term Plans - The Way Forward
16. SAFETY .....
  - Safety Performance, Funding and Investments, Recent Initiatives, Key Challenges, The Way Forward
17. ENERGY REQUIREMENT AND PLANS .....
  - Electricity and Diesel Requirement, Increase in IR's Fuel Bill, Electricity Consumption and Expenditure, IR's Traction Power Distribution System, Diesel Consumption and Expenditure, Direct Sourcing of Electricity, Captive Power, Transmission Network, Renewable Energy, Initiatives to reduce Traction and Non-traction Energy Consumption, Other Key Developments, The Way Forward
18. TRACK CONSTRUCTION AND RENEWAL .....
  - Current Size - Route km, Running km and Total Track km, State-wise Network - Route km, Network Expansion - New Lines, Gauge Conversion and Doubling, Track Electrification, Renewal and Repair, Recently Completed Projects, Key Ongoing Projects (new line, line doubling and gauge conversion), Upcoming Projects, Recently Approved Projects, Medium-term Investment Requirements, Short-term Opportunity, The Way Forward
19. BRIDGES .....
  - Market Size and Growth, Key Trends, Key Completed Projects, Key Ongoing Projects, Key Upcoming Projects, Recent Contracts and Tenders, Investment Requirement, Growth Drivers, Investment Outlook and Projections, The Way Forward
20. RAILWAY TUNNELS .....
  - Size and Growth, Key Trends, Analysis of Completed Projects, Key Completed Projects, Analysis of Ongoing Projects, Key Ongoing Projects, Upcoming Projects and Recent Contracts, Railway Tunnels in the Pipeline, Outlook and Projections

## SECTION IV : FOCUS ON INFRASTRUCTURE

21. DEDICATED FREIGHT CORRIDOR .....
  - Project Overview, Corridor Route, Key Features, Project Status, Project Financing and Status, Phase-wise Commissioning of DFC, Key Milestones and Challenges Future Corridors and Opportunities
22. NORTH-EAST RAIL INFRASTRUCTURE .....
  - North-east Rail Connectivity, Current Network in North-east Region, Recent Developments, Expenditure on Rail Connectivity in NER, Summary of Ongoing and Upcoming Projects in NER, Summary of Projects in NER, Other Key Projects in NER, Key Issues and Challenges, The Way Forward
23. HIGH-SPEED RAIL .....
  - Background, Corridors under Consideration, High-speed Rail Corridors, Diamond Quadrilateral, Corridors for Semi-high-speed Trains, Recent Developments, Short-term and Long-term Action Plan, Key Challenges, Opportunities and the Way Forward
24. STATION INFRASTRUCTURE .....
  - Size & Growth, Policy Initiatives, Schemes & Programmes, Key Developments, Role of Private Sector, Investment Requirement, Outlook
25. TERMINALS AND LOGISTICS PARKS .....
  - Terminals, Logistics Parks, Outlook and Projections

## SECTION V : PROFILE OF RAILWAY PSUs

26. KEY RAILWAY PSUs .....
  - Braithwaite & Company Ltd, Burn Standard Company Ltd, Centre for Railway Information Systems, Container Corporation of India Ltd, Dedicated Freight Corridor Corporation of India Ltd, Indian Railway Finance Corporation Ltd, Etc.

## TWO SPECIAL UPDATES

- Update 1: Special Budget Bulletin (February 2017)
- Update 2: New Projects and Sector Developments (May 2017)



The report is available in a PDF format.

Table of Contents

**SECTION I: MARKET ANALYSIS AND OUTLOOK**

- 1. SECTOR OVERVIEW**
  - Macroeconomic and Trade Scenario, Snapshot of Indian Ports, Size and Growth, Recent Trends and Developments, Investment Projections, Key Issues and Challenges, Outlook and Projections
- 2. RECENT POLICY INITIATIVES AND IMPACT (12-15 months)**
  - Major Port Authorities Bill, 2016; Amendments to Model Concession Agreement; Dredging Guidelines for Major Ports, 2015; Cabotage Relaxation; Berthing Policy for Dry Bulk Cargo; Ease of Doing Business; Goods and Services Tax; Other Initiatives
- 3. SAGARMALA: PROGRESS AND OPPORTUNITIES**
  - Programme Scope, Key Milestones, National Perspective Plan, Investment Requirement, Progress so Far, Upcoming Opportunities for Stakeholders, The Way Forward
- 4. INTER-PORT COMPARISON**
  - Capacity, Capacity Utilisation, Cargo Traffic, Vessel Traffic, Efficiency Performance, Financial Performance
- 5. PROJECT PIPELINE AND INVESTMENT OUTLOOK**
  - Overall Project Pipeline, Port-wise Analysis, Category-wise Analysis, Stage-wise Analysis, Mode-wise Analysis
- 6. MARKET OPPORTUNITIES AND SECTOR OUTLOOK**
  - Growth Drivers, Traffic Projections, Capacity Projections, Upcoming Project Pipeline, Market Opportunities: For Developers, Construction Contractors
- 7. PPP OUTLOOK**
  - Experience so Far, Risk and Concerns, Project Pipeline, The Way Forward

**SECTION II: UPCOMING PROJECTS AND OPPORTUNITIES**

- 8. PROJECTS AT MAJOR PORTS (Ongoing and upcoming)**
  - Overall Analysis; Ongoing Projects at Major Ports: Container Terminals, Construction and Reconstruction of Berths and Jetties, Dredging, Port Connectivity, Other Projects; Upcoming Projects at Major Ports: Container Terminals, Dry Cargo Berths, Liquid Cargo Berths, Dredging, Port Connectivity, Other Projects
- 9. PROJECTS AT NON-MAJOR PORTS (ongoing and upcoming)**
  - Overall Project Pipeline
  - Expansion Projects at Existing Non-major Ports
  - New Non-major Ports: Astaranga Port, Odisha; Azhikkal Port, Kerala; Beypore Port, Kerala; Bhavanapadu Port, Andhra Pradesh; Chudamani Port, Odisha; Dahej Port, Gujarat; Machilipatnam Port, Andhra Pradesh; Nargol Port, Gujarat; Ponnani Port, Kerala; Subarnarekha Port, Odisha; Tadadi Port, Karnataka; Vijaydurg Port, Maharashtra; Vizhinjam Port, Kerala; Yogayatan Port, Maharashtra

**SECTION III: CARGO-WISE ANALYSIS**

- 10. DRY BULK CARGO**
  - Traffic Trends - Overall, Coal, Iron Ore, Fertilisers and Fertiliser Raw Materials, Dry Bulk Vessel Traffic, Berthing Facilities, Efficiency Performance, Key Ongoing Projects, Key Upcoming Projects, Key Issues & Challenges, Opportunities & Projections, The Way Forward
- 11. CONTAINER CARGO**
  - Traffic Trends, Container Handling Capacity, Market Structure and Key Players, Performance of Container Terminals, Planned Capacity Addition, Impact of Dedicated Freight Corridor, Key Issues and Challenges, Growth Drivers, Outlook and Projections

- 12. LIQUID CARGO**
  - Traffic Trends, POL, Refineries in India, Coastal Traffic, Market Structure and Key Players, Upcoming Projects and Investments, Key Issues and Challenges, Outlook and Projections

**SECTION IV: KEY FOCUS AREAS**

- 13. COASTAL SHIPPING**
  - Traffic Trends, Coastal Vessels and Tonnage, Market Structure and Key Players, Key Users of Coastal Shipping, Existing and Planned Infrastructure - Vessels and Berths, Recent Policy Initiatives, Key Issues and Concerns, Outlook and Opportunities
- 14. INLAND WATER TRANSPORT**
  - Existing Infrastructure, Traffic Trends, Recent Initiatives, Key Ongoing Projects, Key Issues & Concerns, Outlook & Opportunities
- 15. MODERNISATION AND MECHANISATION**
  - Mechanised v/s Conventional Handling at Major Ports, Efficiency Indicators, Impact of Sagarmala, Key Initiatives, Key Issues and Challenges
- 16. PORT CONNECTIVITY**
  - Mode of Evacuation of Cargo - Overall Scenario, Port-wise Analysis
  - Experience so Far - Rail Port Connectivity Projects
  - Indian Port Rail Corporation Limited - Objective and Composition
  - Experience so Far - Road-port Connectivity
  - Upcoming Projects and Investments - Rail, Road Connectivity
  - The Way Forward
- 17. DREDGING**
  - Size & Growth, Eleventh & Twelfth Plan Targets and Achievement
  - Key Ongoing Projects: Major & Non-major Ports, Inland Waterways
  - Key Upcoming Projects: Major & Non-major Ports, Inland Waterways
  - Indigenous Manufacturing of Dredgers, Opportunity Areas, Issues and Challenges, The Way Forward
- 18. NG TERMINALS**
  - Existing Terminals, Traffic and Capacity Trends, Expansion Plans at Existing Terminals, Upcoming LNG Terminals, Key Challenges, Projected Demand and Supply, Challenges and Outlook
- 19. OTHER FOCUS AREAS**
  - Roll-on, Roll-off, Tourism, Renewable Energy, Smart Port Cities, Port-based SEZs/ Coastal Economic Zones (CEZs)

**SECTION V: PORT PROFILES**

- 20. MAJOR PORTS**
  - Overview, Kandla Port, Gujarat, Paradip Port, Odisha, Jawaharlal Nehru Port Trust, Maharashtra, Mumbai Port, Maharashtra, Visakhapatnam Port, Andhra Pradesh, Kolkata Port, West Bengal, Chennai Port, Tamil Nadu, V O Chidambaranar Port, Tamil Nadu, New Mangalore Port, Karnataka, Kamarajar Port, Tamil Nadu, Cochin Port, Kerala, Mormugao Port, Goa
- 21. PRIVATE NON-MAJOR PORTS**
  - Overview, Dahej Port, Gujarat, Dhamra Port, Odisha, Dighi Port, Maharashtra, Gangavaram Port, Andhra Pradesh, Gopalpur Port, Odisha, Hazira Port, Gujarat; JSW Jaigarh Port, Maharashtra; Kakinada Seaports, Andhra Pradesh; Karaikal Ports, Puducherry; Kattupalli Port, Tamil Nadu; Krishnapatnam Port, Andhra Pradesh; Mundra Port, Gujarat; Port of Pipavav, Gujarat



The report is available in a PDF format.

## Table of Contents

## SECTION I: SECTOR OVERVIEW AND OUTLOOK

- 1. EXECUTIVE SUMMARY** .....
- 2. OVERVIEW** .....
- Size and Growth, Eleventh and Twelfth Plan Targets and Achievements, Recent Developments, Key Trends, Issues and Challenges, Growth Drivers, Sector Outlook and Projections
- 3. PROJECT PIPELINE ANALYSIS -MAJOR PORTS** .....
- Project Pipeline Analysis -New Ports under Sagarmala
  - Project Pipeline Analysis -Non-major Ports
  - Project Pipeline Analysis -Inland Waterways
  - Project Pipeline Analysis -Other Areas
- 4. MARKET OPPORTUNITIES AND OUTLOOK** .....
- Opportunities for Dredging Contractors: Major Ports, Non-major Ports, Inland Waterways
  - Opportunities for Equipment Providers and Shipyards
  - Opportunities for Consultants and Survey and Investigation Firms
  - Potential Utilisation of Dredged Material
- 5. NEW GOVERNMENT PROGRAMMES** .....
- Sagarmala: Programme Scope, Key Milestones
  - Jal Marg Vikas: Programme Scope, Key Milestones
  - National Mission for Clean Ganga -Programme Scope
  - Dredging Requirement -Overview
    - Dredging Requirement under Sagarmala Programme
    - Dredging Requirement under Jal Marg Vikas
    - Dredging Requirement under Clean Ganga
  - Market Opportunities
  - Issues and Challenges
- 6. POLICY, FISCAL AND REGULATORY FRAMEWORK** .....
- Policy and Institutional Framework
  - FIDIC Guidelines: Overview, Indian Experience
  - Dredging Guidelines for Major Ports, 2015-Key Features
  - Other Recent Initiatives, Tax Structure, Fiscal Incentives
- 7. KEY CONTRACTORS** .....
- Market Structure (public versus private)
  - Key Contractors-Utilisation Rate
  - Leading Players and Key Projects
  - Recent Contracts: Overview, List of Recently Awarded Contracts
  - Issues and Challenges
  - Dredging Opportunities for Contractors at Major & Non-Major Ports
  - List of Upcoming Dredging Projects at Ports
  - Dredging Opportunities for Contractors in Other Areas
- 8. DREDGER SIZE AND GROWTH** .....
- Types of Dredgers, Current Size, Import of Dredgers, Dredgers under Indian Flag, Indigenous Manufacturing -Experience and Potential, Market and Technology Trends
  - Market Outlook and Projections
    - Overall Dredger Requirement
    - Dredgers on Order
- 9. DREDGING EQUIPMENT** .....
- Type of Equipment, Key Suppliers and Products, Services Provided by Key Equipment Suppliers, Market Trends, Technology Trends, Market Outlook

- 10. SURVEY AND INVESTIGATION** .....
- Need for Survey and Investigation
  - Types of Survey and Investigation
  - Key Developments -New Innovations and Techniques and Recent Contracts
  - Dredging Guidelines for Major Ports 2015 -Survey and Investigation
  - Issues and Concerns

## SECTION II: SEGMENT ANALYSIS AND PROJECTIONS (till 2020-21)

- 11. DREDGING AT MAJOR PORTS** .....
- Size and Growth: Capital Dredging, Maintenance Dredging
  - Key Completed Projects
  - Future Requirement: For Existing Ports, New Ports
  - Key Ongoing Projects: Capital Dredging, Maintenance Dredging
  - Outlook and Projections

- 12. DREDGING AT NON-MAJOR PORTS** .....
- Size and Growth, Capital and Maintenance Dredging
  - Snapshot of Key Completed Projects at Non-major Ports
  - Key Completed Projects at Non-major Ports
  - Key Ongoing Projects at Non-major Ports
  - Growth Drivers
  - Future Requirements for Existing and New Ports
  - Outlook and Projections

- 13. OVERVIEW OF NATIONAL WATERWAYS** .....
- Experience So Far, Existing Infrastructure, Dredging Fleet Owned by IWA, Key Completed Projects, Key Ongoing Projects -Major Works, Key Ongoing Projects -Minor Works, Issues and Challenges, Growth Drivers, Key Upcoming Projects
  - Dredging Opportunity in the next 10 years
    - Massive Dredging Opportunity from 106 New NWS
    - NW-16: Dredging on River Barak
    - NW-40: Dredging on River Ghaghra
  - The Way Forward

- 14. DREDGING IN OTHER AREAS** .....
- Experience So Far
  - Analysis of Completed Projects
  - Completed, Ongoing, Upcoming Projects includes Overall Analysis, and Sector/Client-wise List of Projects

## SECTION III: KEY PLAYER PROFILES

- 15. KEY DREDGING PLAYERS** .....
- Public Sector: Dredging Corporation of India Limited
  - Private Sector (Domestic Players): Adani Ports and Special Economic Zone Ltd, Amrut Dredging and Shipping Ltd, Dharti Dredging and Infrastructure Ltd, IMS Ship Management Private Ltd, International Seaport Dredging Private Ltd, KSR Marine Services Private Ltd, Meka Dredging Company Private Ltd, Mercator Ltd, Rock and Reef Dredging Private Ltd, Private Sector (Foreign Players), National Marine Dredging Company, Van Oord
  - Other Players
- (Each profile covers fleet size, key completed and ongoing projects, future plans and key contacts)*



The report is available in a PDF format.



1. EXECUTIVE SUMMARY

SECTION I: MARKET OVERVIEW, TRENDS AND OUTLOOK

2. OVERVIEW

- Macroeconomic and Trade Scenario, Size and Growth, Modal Split, Competitive Landscape, Industry Structure, Policy and Regulatory Framework, Recent Trends and Developments, Upcoming Projects and Investments, Key Issues and Challenges, Outlook and Projections (till 2022-23)

3. FUTURE OUTLOOK AND INVESTMENT OPPORTUNITIES

- Growth Drivers; Policy and Regulatory Outlook; Union Budget 2017-18 - Announcements and Impact; Investment Requirements; Upcoming Projects (rail freight terminals, cargo/container berths at ports, cargo terminals at airports, express cargo terminals, connectivity, etc.); Market Opportunities for: Developers, Construction Contractors, Technology Providers, Equipment Suppliers, Raw Material Suppliers, Financiers/Investors

4. KEY PROJECTIONS (TILL 2022-23)

- Growth Drivers
- Freight Traffic Projections By Mode of Transportation (rail, ports, air, roads, and others)
- Cargo Capacity Projections
- Projected Freight Rates

5. IMPACT OF GST

- Introduction to GST; Key Features; Specific Impact on: Road Transportation and Trucking Industry, Developers and Operators, Contractors, Container Train Operators, Shipping Companies, Airlines, Express Cargo Carriers, etc.; Key Challenges in Implementation

SECTION II: ANALYSIS OF KEY MODES OF TRANSPORT

6. ROADS

- Size and Growth, Policy and Regulatory Framework, Government Schemes/Initiatives, Key Trends and Developments, Technological Advancements, Industry Structure and Key Players, Pricing Trends, Growth Drivers, Investment Requirement, Issues and Challenges, Outlook and Projections (till 2022-23)

7. RAIL

- Size and Growth (freight traffic, freight earnings, efficiency performance, etc.), Policy and Regulatory Framework, Government Schemes/Initiatives, Key Trends and Developments, Technological Advancements, Impact of DFC on the Freight Segment, Industry Structure and Key Players, Pricing Trends, Growth Drivers, Investment Requirement, Key Issues and Challenges, Outlook and Projections (till 2022-23)

8. PORTS

- Size and Growth (cargo traffic, export and import traffic, cargo capacity, vessel traffic), Major Trading Partners of EXIM Cargo, Mode of Evacuation of EXIM Cargo (roads, rail, water, pipeline), Efficiency Performance, Policy and Regulatory Framework, Government Schemes/Initiatives, Key Trends and Developments,

Technological Advancements, Impact of Sagarmala on Port Traffic, Industry Structure and Key Players, Pricing/Tariff Trends, Growth Drivers, Investment Requirement, Key Issues and Challenges, Outlook and Projections (till 2022-23)

9. AIR

- Size and Growth (freight traffic, cargo capacity, efficiency performance), Policy and Regulatory Framework, Government Schemes/Initiatives, Key Trends and Developments, Technological Advancements, Industry Structure and Key Players, Pricing Trends, Investment Requirement, Key Issues and Challenges, Outlook and Projections (till 2022-23)

10. INLAND WATER TRANSPORT

- Inland Water Transport Traffic, Commodity Composition, Policy and Regulatory Framework, Government Schemes/Initiatives, Key Trends and Developments, Industry Structure and Key Players, Growth Drivers, Investment Requirement, Key Issues and Challenges, Outlook and Projections (till 2022-23)

11. COASTAL SHIPPING

- Coastal Traffic at Indian Ports, Commodity Composition, Policy and Regulatory Framework, Government Schemes/Initiatives, Key Trends and Developments, Industry Structure and Key Players, Coastal Tariff at Indian Ports, Growth Drivers, Investment Requirement, Key Issues and Challenges, Outlook and Projections (till 2022-23)

SECTION III: KEY USER INDUSTRIES

12. KEY CUSTOMER SEGMENTS

- Size and Growth
- Key Trends and Developments
- Market Structure and Key Players
- Logistics Need and Requirements
- Growth Drivers
- Key Issues and Challenges
- Outlook and Projections (till 2022-23)

*The industries covered will include brick and mortar retail, food processing, chemicals, engineering goods, textiles, electronics, pharmaceutical and automobiles*

13. E-COMMERCE

- Size and Growth
- Key Trends and Developments
- Logistics Need and Requirements
- Growth Drivers
- Key Issues and Challenges,
- Outlook and Projections (till 2022-23)

14. EXPRESS INDUSTRY

- Segment Size and Growth, Mail/Parcel Traffic through Modes of Transport (air, rail, etc.), Government Schemes/Initiatives, Key Trends and Developments, Pricing Trends, Industry Structure and Key Players, Logistics Need and Requirements, Growth Drivers, Key Issues and Challenges, Outlook and Projections (till 2022-23)



*The report will be available in a PDF format.*

## Market Size, Outlook and Projections (till 2022-23)

## Table of Contents

<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION I: MARKET SIZE, TRENDS AND OUTLOOK</b></p> <p><b>2. SECTOR OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Market Size and Growth</li> <li>- Industry Structure</li> <li>- Policy and Regulatory Framework</li> <li>- Recent Trends and Developments</li> <li>- Major Warehousing Hubs</li> <li>- Upcoming Projects and Investments</li> <li>- Issues and Challenges</li> <li>- Outlook and Projections (till 2022-23)</li> </ul> <p><b>3. FUTURE OUTLOOK AND MARKET OPPORTUNITIES (TILL 2022-23)</b> ...</p> <ul style="list-style-type: none"> <li>- Growth Drivers</li> <li>- Policy and Regulatory Outlook</li> <li>- Union Budget 2017-18 - Announcements and Impact</li> <li>- Investment Requirements</li> <li>- Upcoming Projects and Investment</li> <li>- Market Opportunities for: Construction Contractors, Material Suppliers, Technology Providers, Equipment Suppliers, Others</li> </ul> <p><b>4. WAREHOUSING DEMAND PROJECTIONS (TILL 2022-23)</b> .....</p> <ul style="list-style-type: none"> <li>- Demand Drivers</li> <li>- Warehousing/Storage Requirements across Segments: Manufacturing, Consumption, EXIM</li> <li>- Industry-wise Demand Projections</li> <li>- Warehousing Requirements of Top Hubs/Cities</li> </ul> <p><b>5. IMPACT OF GST</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction to GST</li> <li>- Key Features</li> <li>- Overall Impact on: Cost of Operations, Consolidation, Demand Planning and Inventory Management, Technology Implementation, Others</li> <li>- Impact on Specific Segments: Agriculture warehousing, Industrial warehousing, ICDs &amp; CFSS, Cold Storages, Logistics Parks, FTWZs</li> <li>- Impact on Key Stakeholders: Contractors, Equipment and Technology Providers, Material Suppliers</li> <li>- Challenges in Implementation</li> </ul> <p><b>SECTION II: SEGMENT ANALYSIS AND OUTLOOK</b></p> <p><b>6. AGRICULTURE WAREHOUSING</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth, Government Schemes/Initiatives, Key Trends and Developments, Market Structure and Key Players, Growth Drivers, Key Issues and Challenges, Outlook and Projections (till 2022-23)</li> </ul> <p><b>7. INDUSTRIAL WAREHOUSING</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth, Key Trends and Developments, Market Structure and Key Players, Growth Drivers, Key Issues and Challenges, Outlook and Projections (till 2022-23)</li> </ul> <p><b>8. COLD STORAGES</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth, Government Schemes/Initiatives, Key Trends and Developments, Market Structure and Key Players, Growth Drivers, Key Issues and Challenges, Outlook and Projections (till 2022-23)</li> </ul>	<p><b>9. LIQUID STORAGE (Crude, Petroleum Products, Chemicals, etc.)</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth, Key Trends and Developments, Market Structure and Key Players, Growth Drivers, Key Issues and Challenges, Outlook and Projections (till 2022-23)</li> </ul> <p><b>10. CONTAINER FREIGHT STATIONS (CFSS)/Inland Container Depots (ICDs)</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth</li> <li>- Key Trends and Developments</li> <li>- Impact of Direct Port Delivery on CFSS/ICDs</li> <li>- Market Structure and Key Players</li> <li>- Growth Drivers</li> <li>- Upcoming Projects</li> <li>- Key Issues and Challenges</li> <li>- Outlook and Projections (till 2022-23)</li> </ul> <p><b>SECTION III: EMERGING WAREHOUSING/STORAGE MODELS</b></p> <p><b>11. LOGISTICS PARKS/MULTI-MODAL LOGISTICS PARKS</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth</li> <li>- Key Trends and Developments</li> <li>- Market Structure and Key Players</li> <li>- Growth Drivers</li> <li>- Upcoming Projects and Investments</li> <li>- Key Issues and Challenges</li> <li>- Segment Outlook</li> </ul> <p><b>12. FREE TRADE WAREHOUSING ZONES</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth, Key Trends and Developments, Market Structure and Key Players, Growth Drivers, Upcoming Projects and Investments, Key Issues and Challenges, Segment Outlook</li> </ul> <p><b>SECTION IV: KEY USER INDUSTRIES</b></p> <p><b>13. MAJOR CONSUMING SEGMENTS</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth, Key Trends and Developments, Market Structure and Key Players, Warehousing Need and Requirements, Growth Drivers, Key Issues and Challenges, Outlook and Projections (till 2022-23)</li> </ul> <p><i>The industries covered will include brick and mortar retail, food processing, chemicals, engineering goods, textiles, electronics, pharmaceutical and automobiles</i></p> <p><b>14. FOCUS ON E-COMMERCE</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth, Key Trends and Developments, Warehousing Need and Requirements, Growth Drivers, Key Issues and Challenges, Outlook and Projections (till 2022-23)</li> </ul> <p><b>SECTION V: ANALYSIS OF TOP WAREHOUSING HUBS</b></p> <p><b>15. KEY WAREHOUSING HUBS</b></p> <ul style="list-style-type: none"> <li>- Ahmedabad, Bengaluru, Chennai, Hyderabad, Kolkata, Mumbai, NCR-Delhi, Pune, Others</li> </ul> <p><i>Each city will cover the industrial activity, infrastructure connectivity, warehousing clusters in the cities, growth drivers, warehousing space requirements, indicative warehouse rentals (wherever available), average land cost, expected investor returns, etc.</i></p>
--	---



The report will be available in a PDF format.



**SECTION I: MARKET ANALYSIS AND OUTLOOK**

- 1. SECTOR OVERVIEW**
  - Snapshot of Indian Airports Sector; India's Macroeconomic Scenario and Air Travel; Size and Growth: Passenger Segment, Freight Segment, Airlines, Capacity; Key Trends; Opportunity Areas; Key Issues & Challenges; Outlook and Projections; SWOT Analysis
- 2. RECENT TRENDS AND DEVELOPMENTS**
  - Union Budget 2017-18; National Civil Aviation Policy, 2016; Relaxation of Foreign Direct Investment Norms; Other Policy and Regulatory Developments; Projects Award; Projects Completion; Projects under Tendering; Recent Financings; Recent Bilateral Agreements; Key Technology Initiatives; Others
- 3. PROJECT PIPELINE**
  - Overall Project Pipeline, Analysis by Type of Projects, Category of Projects, Stage, Mode of Implementation
- 4. SECTOR OUTLOOK AND MARKET OPPORTUNITIES**
  - Growth Drivers
  - Key Projections - Traffic, Capacity
  - Investment Projections and Outlook
  - Market Opportunities: For Developers, Contractors, Consultants, Technology and Equipment Providers
  - New Areas of Growth: Maintenance, Repair and Overhaul, Green Energy Initiatives, Commercial Development
  - The Way Forward
- 5. REGIONAL AIRPORT DEVELOPMENT**
  - Existing Regional Airports, Regional Connectivity Scheme (RCS)-UDAN, Business Models, Growth Drivers, Upcoming Airports/Airstrips
- 6. INTER-AIRPORT COMPARISON: KEY AIRPORTS**
  - Capacity, Capacity Utilisation, Passenger Traffic, Freight Traffic, Aircraft Movement, Financial Performance
- 7. ECONOMICS OF AIRPORT PROJECTS**
  - Key Cost Components, Key Revenue Components, Trends in Air Turbine Fuel Prices and Consumption, Tariff at Key Airports, New Business Models
- 8. INVESTMENT EXPERIENCE AND OUTLOOK**
  - Investment Trends, PPP Experience, Successes and Failures, Historical and Expected Returns, Investment Requirement and Opportunities, Key Issues and Challenges, Investment Outlook
- 9. AIRLINE OVERVIEW**
  - Market Structure, Market Share, Fleet Size, Aircraft Movement Trends, Operational Performance, Efficiency Performance, Financial Performance, Recent Initiatives and Developments, Expansion Plans, Outlook for Airline Industry

**SECTION II: PASSENGER SEGMENT ANALYSIS**

- 10. PASSENGER SIZE AND GROWTH**
  - Overall Passenger Traffic Trends; Domestic vs. International Passenger Traffic; Foreign vs. Indian Passenger Carriers; Airline-wise Passenger Traffic: International, Domestic; Distribution of India's International Passenger Traffic: Region-wise, Country-wise, Airport-wise; Top Passenger Traffic Handling Airports; Passenger Capacity Trends: Metro Airports, Major AAI Airports; Key Issues and Challenges
- 11. PASSENGER OUTLOOK AND PROJECTIONS**
  - Key Growth Drivers, Overall Requirement - Capacity and Investment, Planned Capacity Addition, Planned Investments, Upcoming Projects, Traffic Projections, AAI's Departmental Action Plan

**SECTION III: CARGO SEGMENT ANALYSIS**

- 12. CARGO SIZE AND GROWTH**
  - Overall Cargo Traffic Trends, Region-wise Growth in Traffic, Freight Vs. Mail Traffic, Domestic Vs. International Traffic, Foreign Vs Indian Carriers, Airline-wise Cargo Traffic, Belly Cargo Vs. Dedicated Cargo, Region-wise Distribution of India's International Freight Traffic, Top Air Cargo Traffic Handling Airports, Cargo Capacity Trends, New Initiatives in the Cargo Segment, Key Issues and Challenges
- 13. CARGO OUTLOOK AND PROJECTIONS**
  - Growth Drivers, Planned Capacity Addition, Planned Investments and Upcoming Projects, Traffic and Capacity Projections

**SECTION IV: PROFILES - AIRPORTS AND AIRPORT OPERATORS**

- 14. KEY OPERATIONAL AIRPORTS**
  - Indira Gandhi International Airport (IGIA), Delhi; Chhatrapati Shivaji International Airport (CSIA), Mumbai; Kempegowda International Airport Bengaluru (KIAB); Chennai International Airport (ChIA), Tamil Nadu; Netaji Subhash Chandra Bose International Airport (NSCIA), Kolkata; Rajiv Gandhi International Airport, Hyderabad; Cochin International Airport, Kerala; Kazi Nazrul Islam Airport, West Bengal
- 15. GREENFIELD AIRPORTS**
  - Navi Mumbai Airport, Maharashtra; Mopa Airport, Goa; Bhogapuram Airport, Andhra Pradesh; Kannur Airport, Kerala; Dholera Airport, Gujarat; Hassan Airport, Karnataka; Pakyong Airport, Sikkim; Kushinagar Airport, Uttar Pradesh; Sindhudurg Airport, Maharashtra; Deoghar Airport, Jharkhand; Shirdi Airport, Maharashtra; Dagadarthi Airport, Andhra Pradesh; Orvakal Airport, Andhra Pradesh; Dabra Airport, Madhya Pradesh; Bijapur Airport, Karnataka; Shimoga Airport, Karnataka; Gulbarga Airport, Karnataka; Karaikal Airport, Puducherry; Others
- 16. KEY AIRPORT PLAYERS**
  - Airports Authority of India, GMR Infrastructure Limited, GVK Power & Infrastructure Limited, Larsen & Toubro Limited, City and Industrial Development Corporation of Maharashtra Limited, Bengal Aerotropolis Projects Limited, Punj Lloyd Limited

**SECTION V: EQUIPMENT AND TECHNOLOGY MARKET**

- 17. COMMUNICATION EQUIPMENT**
  - Current Infrastructure, Key Suppliers, Key Growth Drivers, Recent Trends and Advancements, Key Plans in the Communication Segment, Future Outlook
- 18. NAVIGATION EQUIPMENT**
  - Current Infrastructure, Key Suppliers, Key Growth Drivers, Recent Trends and Advancements: GAGAN, Others
  - Key Plans in the Navigation Segment
  - Future Outlook
- 19. SURVEILLANCE EQUIPMENT**
  - Current Infrastructure, Key Suppliers, Key Growth Drivers, Recent Trends and Advancements, Key Plans in the Surveillance Segment, Future Outlook
- 20. PASSENGER FACILITATION TECHNOLOGIES**
  - Current Infrastructure, Key Growth Drivers, Technology Trends and Advancements, Recent Initiatives, Plans at Key Airports, Future Outlook



The report is available in a PDF format.

## Table of Contents

## SECTION I: MARKET OVERVIEW, TRENDS AND OUTLOOK

1. EXECUTIVE SUMMARY .....
2. OVERVIEW .....

  - Network Size and Growth, Policy and Institutional Framework, Recent Developments, New Government Initiatives, Key Sector Trends, Project Targets and Achievements, Performance of Major Players, Issues and Concerns, Sector Outlook

3. POLICY CHANGES AND IMPACT .....

  - Key Policy Changes, Recent Announcements, Amendments to Existing Policies, Kelkar Committee Recommendations, State-level Policy Developments, Proposed Policy Changes, Industry Concerns and Expectations

4. NEW GOVERNMENT INITIATIVES .....

  - Launch and Impact of Online Portals, Measures to Improve Road Safety, Green Highway Mission, Tolling Technology Initiatives, Other Upcoming/Proposed Initiatives

5. EMERGING IMPLEMENTATION MODELS .....

  - Hybrid Annuity Model, Toll-Operate-Transfer (TOT) Model
  - Others (Land Pooling, Swiss Challenge, etc.)

6. PROJECT PIPELINE .....

  - National Highways, State Highways, Road Bridges, Flyovers and Elevated Roads, Road Tunnels

7. SECTOR OUTLOOK AND INVESTMENT OPPORTUNITIES .....

  - Growth Drivers, Project Award and Completion Targets, Investment Requirement, Opportunity by Mode of Development, Opportunity by Stakeholder, Sector and Investment Outlook

8. EPC EXPERIENCE AND OPPORTUNITY .....

  - Overall Experience, Project Award and Completion, Project Pipeline, Key Challenges, Impact of GST on EPC, EPC Outlook

9. BOT EXPERIENCE AND PROSPECTS .....

  - Experience So Far, Pace of Project Award and Completion, Key Successes and Failures, Re-award of Languishing Projects, Key Initiatives, Project Pipeline, Industry Expectations, Key Concerns, Outlook

10. FINANCING EXPERIENCE .....

  - Current Scenario, Key Funding Sources, Recent Deals/Transactions, Level of Stressed Assets, Initiatives to Ease Financing, New Financing Instruments, Opportunities for Long-term Investors, Historical and Expected Rates of Return, Industry Expectation, Key Risks and Challenges

11. OMT EXPERIENCE AND OUTLOOK .....

  - Performance So Far, Industry Experience, Current Tolling Practices, Progress Under ETC Implementation, Update on Technology Deployment, Key OMT Players, The TOT Model, Expected Impact of TOT, Issues and Concerns, Market Opportunities (till 2022-23)

12. EQUIPMENT MARKET .....

  - Market Size, Production and Sales, Equipment-wise Sales, Imports and Exports, Industry Structure, Key Trends, Rental and Leasing Market, New Products, Market Projections (till 2022-23)

13. MATERIAL MARKET SIZE AND OUTLOOK .....

  - Types of Materials
  - Current size and Growth
  - Key Players
  - New Innovations and Technologies
  - Market Outlook and Projections

## SECTION II: KEY GOVERNMENT PROGRAMMES

14. UPDATE ON NHDP .....

  - Progress So Far
  - Project Award and Completion in 2016-17
  - Trend in Construction Rate
  - Recent Bidding Scenario
  - Progress under Expressway Development
  - Project Pipeline
  - The Way Forward

15. ROAD DEVELOPMENT IN THE NORTHEAST .....

  - Overview of Road Development in the Northeast
  - Overview of NHIDCL's Operations
  - NHIDCL Project Update
  - Projects Awarded by NHIDCL during 2014-15
  - Projects Awarded by NHIDCL during 2015-16
  - NHIDCL Targets for 2016-17
  - Key Projects Awarded in 2016-17
  - Costs Incurred by NHIDCL
  - Key Recent Tenders
  - JICA's Support in Building Roads in the Northeast
  - Key Initiatives and Strategies
  - Future Plans
  - Key Concerns

16. UPCOMING GOVERNMENT PROGRAMMES .....

  - Bharatmala Programme
  - Setu Bharatam
  - Char Dham Connectivity
  - District and Regional Connectivity
  - Others

## SECTION III: STATE ROAD DEVELOPMENT

17. INTER-STATE COMPARISON .....

  - Network Size and Growth
  - Key Initiatives
  - Analysis of Project Pipeline
  - Investment Plans and Outlook
  - Market Opportunities

18. PROFILES OF KEY STATES .....

  - Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand, West Bengal

## SECTION IV: KEY PLAYERS

19. INTER-PLAYER PERFORMANCE COMPARISON .....

  - Market Structure, Market Share, Current Portfolio, Recent Contracts, Road Segment Profitability, Key Financial Moves

20. PROFILES OF LEADING PLAYERS .....

  - Ashoka Buildcon Limited, Dilip Buildcon Limited, Gayatri Projects Limited, GR Infraprojects Limited, GMR Infrastructure Limited, Hindustan Construction Company Limited, IL&FS Transportation Networks Limited, IRB Infrastructure Developers Limited, KMC Constructions Limited, Larsen & Toubro Limited, MEP Infrastructure Developers Limited, NCC Limited, Oriental Structural Engineers Limited, Reliance Infrastructure Limited, Sadbhav Engineering Limited, Others



The report is available in a PDF format.

Table of Contents

SECTION I: MARKET OVERVIEW AND OUTLOOK

- 1. EXECUTIVE SUMMARY .....
- 2. OVERVIEW .....

  - Network Size, Growth in Ridership, Key Sector Trends, Recent Government Initiatives, Criteria for Mode Selection, Investment Requirements (till 2023-24), Issues and Challenges, Outlook and Projections (till 2023-24)

- 3. RECENT DEVELOPMENTS .....

  - Projects Completed, Projects Approved, Recent Contracts Awarded, Union Budget Outlay 2017-18, Recent Financings

- 4. PROJECT PIPELINE, OPPORTUNITIES AND OUTLOOK .....

  - Growth Drivers, Key Projects in the Pipeline, Expected Network Addition, Investment Projections, Market Opportunities, Sector Outlook

- 5. ECONOMICS AND FINANCING .....

  - Experience So Far
  - Key Financing Models and Sources
  - Economics of Urban Rail Projects
  - Revenue Sources: Fare Box Revenues, Non-fare Box Revenues
  - Investment Requirements
  - Risks and Challenges
  - The Way Forward

- 6. PPP POTENTIAL .....

  - Experience So Far, Projects Completed, Projects Under Implementation, Upcoming/Planned Projects on PPP, Greater Thrust on Private Participation: Proposed Metro Rail Policy, Learning Points, Issues and Challenges, Success Factors, The Way Forward

SECTION II: SEGMENT ANALYSIS, OUTLOOK AND OPPORTUNITIES

- 7. ROLLING STOCK .....

  - Nature of Fleet and Specifications, Size and Growth, Recent Orders (past 15-18 months), Upcoming Bids and Tenders, Major Players, Focus on Indigenous Production, Recent Trends and Developments, Outlook and Projections

- 8. SIGNALLING, TRAIN CONTROL AND TELECOMMUNICATIONS .....

  - Market Size and Growth
  - Technologies and Systems in Use
  - Major Players
  - Recent Contracts (past 15-18 months)
  - Upcoming Bids and Tenders
  - Recent Developments
  - Outlook and Projections (till 2023-24)

- 9. FARE COLLECTION SYSTEMS .....

  - Market Size and Growth
  - Specifications of Systems in Use
  - Global Scenario
  - Major Players
  - Recent Contracts
  - Upcoming Bids and Tenders
  - Plans of Key Metro Systems
  - Key Trends
  - Case Study: Kochi Metro Rail Project
  - Recent Developments
  - Outlook and Projections (till 2023-24)

- 10. METRO TUNNELS .....

  - Size and Growth, Analysis of TBM Market, Major Players, NATM - An Emerging Trend, Recent Contracts (past 15-18 months), Upcoming Bids and Tenders, Recent Developments, Outlook and Opportunities (till 2023-24)

- 11. CONSTRUCTION .....

  - Size and Growth, Per-km Construction Cost, Prevalent Methods and Techniques, Key Contractors, Recent Contracts, Upcoming Tenders, Key Trends, Outlook and Projections (till 2023-24)

- 12. TRACTION AND E&M .....

  - Traction Systems, Market Size, Specifications of Traction and E&M Systems, Energy Consumption and Expenditure, Energy Conservation Initiatives, Recent Contracts, Upcoming Tenders, Outlook and Projections

SECTION III: PROJECT PROFILES

- 13. OPERATIONAL AND UNDER CONSTRUCTION PROJECTS .....

  - Ahmedabad-Gandhinagar Metro Rail Project Phase I, Bangalore Metro Rail Project Phase I and II, Chennai Metro Rail Project Phase I, Delhi Metro Rail Project Phase I, II and III, Rapid Metro Rail Project Gurgaon Phase I and II, Hyderabad Metro Rail Project Phase I, . . . Jaipur Metro Rail Project Phase I, Kochi Metro Rail Project Phase I, Kolkata Metro Rail Project (East-West and Expansion projects), Lucknow Metro Rail Project, Mumbai Metro Rail Project Phase I (Line 1, 2A, 3 and 7), Mumbai Monorail Project Line 1, Nagpur Metro Rail Project, Navi Mumbai Metro Rail Project Phase I, Noida-Greater Noida Metro Rail Project

- 14. ANNOUNCED AND PLANNED PROJECTS .....

  - Metro Rail Projects: Agra Metro Rail Project, Bangalore Metro Rail Project Phase 2A, Bhubaneswar-Cuttack Metro Rail Project, Chandigarh Metro Rail Project, Chennai Metro Rail Project Phase II, Dehradun-Haridwar-Rishikesh Metro Rail Project, Delhi Metro Rail Project Phase IV, Greater Noida-IGI Airport Metro Rail Project, Greater Noida-Yamuna Expressway Metro Rail Project, Gurgaon-Manesar-Bawal Metro Rail Project, Guwahati Metro Rail Project Phase I, Iffco Chowk-Dwarka Metro Rail Project, Jaipur Metro Rail Project Phase II, Kanpur Metro Rail Project Phase I, Kochi Metro Rail Project Phase II, Meerut Metro Rail Project, Mumbai Metro Line 2B Project, Mumbai Metro Line 4 Project, Mumbai Metro Line 6 Project, Noida Sector 142-Kalindi Kunj Metro Rail Project, Noida Sector 71-Knowledge Park V Metro Rail Project, Patna Metro Rail Project Phase I, Pune Metro Rail Project Phase I, Srinagar Metro Rail Project, Surat Metro Rail Project, Varanasi Metro Rail Project, Vijayawada Metro Rail Project Phase I, Visakhapatnam Metro Rail Project Phase I
  - Light Rail Transit Projects: Bangalore LRT Project, Bhopal LRT Project, Indore LRT Project, Kozhikode LRT Project, Ranchi LRT Project, Thiruvananthapuram LRT Project
  - Monorail Projects: Chennai Monorail Project (First Corridor), Delhi Monorail Project, Kolkata Monorail Project

Each profile covers information on project background and scope (network length, number of stations, rolling stock, fare system, signalling and telecommunication, traction, etc.), implementing agency, project cost, time and cost overruns, key consultants, key contractors, key milestones, sources of fund, recent contracts, upcoming tenders, current status, etc.



The report is available in a PDF format.

## Table of Contents

## SECTION I: URBAN BUS TRANSPORT OVERVIEW AND OUTLOOK

<b>1. EXECUTIVE SUMMARY</b> .....	
<b>2. OVERVIEW</b> .....	
- Size and Growth	
- Institutional and Policy Framework	
- Investment and Financing Pattern	
- Role of Private Sector	
- Use of Technology and ITS	
- Key Sector Trends	
- Issues and Concerns	
- The Way Forward	
<b>3. JAWAHARLAL NEHRU NATIONAL URBAN RENEWAL MISSION</b> .....	
- Reforms Goals and Achievements	
- Financing Structure	
- Funding for Buses	
- Urban Bus Transport Projects under JNNURM	
- Recent Developments	
- The Way Forward	
<b>4. NEW GOVERNMENT PROGRAMMES</b> .....	
- New Government's Approach to Urbanisation	
- New Government's Stance on Urban Transport	
- Budgetary Support	
- Need for Multi-modal Transport	
- Stance on City-bus Service Projects	
- Focus on Urban Renewal	
<b>5. MANAGEMENT/OPERATOR PERSPECTIVE</b> .....	
- Goals and Objectives	
- Key Performance Benchmarks	
- Operational and Commercial Performance	
- Issues and Challenges	
- Potential Strategies	
<b>6. ECONOMICS OF BUS-BASED PROJECTS</b> .....	
- Introduction	
- Key Cost Components	
- Revenue Sources and Analysis	
- Tariff Analysis	
- Taxes and Subsidies	
- Conclusion	
<b>7. FINANCING AND PPP</b> .....	
- Investment Requirements	
- Current Funding Sources	
- PPP Models and Options	
<b>8. ROLLING STOCK AND ALLIED INFRASTRUCTURE</b> .....	
- Introduction	
- Nature of Fleet	
- Market Size and Growth	
- Key Players	
- Recent Contracts and Orders	
- Market for Allied Infrastructure	
- The Way Forward	
<b>9. TECHNOLOGY AND ITS</b> .....	
- Technologies in Use, Key Projects, Key Players, Recent Tenders and Contracts, Outlook and Investment Projections	
<b>10. FARE COLLECTION SYSTEMS</b> .....	
- Overview	
- Technology Options	
- Current Status	
- Future Opportunities	

<b>11. FUTURE OUTLOOK AND MARKET OPPORTUNITIES</b> .....	
- Key Growth Drivers	
- Projects in Pipeline	
- Projected Investments	
- Market Opportunities	
- Issues and Concerns	
- The Way Forward	

## SECTION II: PROFILES-CITY-BUS SERVICE PROVIDERS

<b>12. INTER-CITY COMPARISON</b> .....	
- Fleet Strength	
- Fleet Utilisation	
- Vehicle Efficiency	
- Staff per Bus Ratio	
- Average Age of Fleet	
- Number of Accidents	
- Revenue per Bus per Day	
- Cost per Bus per Day	
- Net Profit/Loss	
<b>13. CITY-BUS SERVICE PROVIDERS</b> .....	
- Ahmedabad Municipal Transport Services	
- Atal Indore City Transport Services Limited	
- Bangalore Metropolitan Transport Corporation	
- Brihanmumbai Electric Supply and Transport Undertaking	
- Calcutta State Transport Corporation	
- Chandigarh Transport Undertaking	
- Delhi Transport Corporation	
- Metropolitan Transport Corporation Limited (Chennai)	
- Pune Mahanagar Parivahan Mahamandal Limited	
- Amritsar City Transport Services Limited	
- Bhopal City Link Limited	
- Bhubaneswar-Puri Transport Services Limited	
- Jabalpur City Transport Services Limited	
- Jaipur City Transport Services Limited	
- Ludhiana City Bus Services Limited	
- Raipur City Bus Limited	
- Vadodara City Bus Service	

## SECTION III: PROFILES-BRTS

<b>14. KEY BRTS PROFILES</b> .....	
- Ahmedabad BRTS	
- Amritsar BRTS	
- Bhopal BRTS	
- Delhi BRTS	
- Hubli-dharwad BRTS	
- Indore BRTS	
- Jaipur BRTS	
- Kolkata BRTS	
- Naya Raipur	
- Pimpri-Chinchwad BRTS	
- Pune BRTS	
- Rajkot BRTS	
- Surat BRTS	
- Vijayawada BRTS	
- Visakhapatnam BRTS	

<b>15. APPENDIX</b> .....	
---------------------------	--



The report is available along with a presentation in PDF format.

### Table of Contents

<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION I: MARKET SIZE AND OUTLOOK</b></p> <p><b>2. OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- India's Macroeconomic Scenario, India's Modal Mix, Level of Containerisation, Region-wise Containerised Commodities, Trade of Major Containerised Commodities, Size and Growth, Trend in Freight Rates, Recent Developments and Initiatives, Issues and Challenges, Outlook and Opportunities</li> </ul> <p><b>3. INVESTMENTS, OPPORTUNITIES AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Growth Drivers, Union Budget 2017-18 – Announcements and Impact, Traffic Projections, Upcoming Projects and Investments, Market Opportunities, Sector Outlook</li> </ul> <p><b>4. IMPACT OF GST</b> .....</p> <ul style="list-style-type: none"> <li>- Key Features of GST; Current Status and Timelines; Recent Developments; Likely Impact: Port Operators, Road Transportation and Trucking Industry, Container Train Operators, Shipping Companies, ICDS and CFSS, Logistics Parks, FTWZs; Key Issues and Challenges</li> </ul> <p><b>SECTION II: SEGMENT TREND AND OPPORTUNITIES</b></p> <p><b>5. PORTS</b> .....</p> <ul style="list-style-type: none"> <li>- Traffic Trends, Container Handling Capacity, Efficiency Trends, Mode of Evacuation, Impact of Sagarmala on Container Market, Recent Initiatives, Key Ongoing Projects, Key Upcoming Projects, Key Issues and Challenges, Growth Drivers, Outlook and Projections</li> </ul> <p><b>6. RAILWAYS</b> .....</p> <ul style="list-style-type: none"> <li>- Share of Container in IR's Freight Traffic and Earnings; Traffic Trends: Overall – IR's Container Traffic, Zone-wise, EXIM and Domestic; Trends in Earnings: Overall – IR's Container Freight Earnings, Zone-wise, EXIM and Domestic; Recent Developments/Initiatives; Container Train Operators: Industry Structure, Current Infrastructure: Analysis of Charges and Fees; Issues and Challenges; Outlook and Projections (till 2022-23)</li> </ul> <p><b>7. DEDICATED FREIGHT CORRIDOR</b> .....</p> <ul style="list-style-type: none"> <li>- Project Overview, Corridor Route, Key Features, Phased Commissioning of DFC, Current Status, Impact of DFC on the Container Market, DMIC- Key Features, DMIC- Likely Impact on the Container Market, Issues and Challenges, Projected Container Traffic Growth, Future Corridors and Opportunities</li> </ul> <p><b>8. ROADS</b> .....</p> <ul style="list-style-type: none"> <li>- Current Scenario, Cost of Container Movement, Connectivity to Container Handling Ports, Market Structure and Key Players, Issues and Challenges, Outlook and Projections</li> </ul> <p><b>9. INLAND WATER TRANSPORT</b> .....</p> <ul style="list-style-type: none"> <li>- Overview - National Waterways</li> <li>- Current Infrastructure - Container Handling</li> <li>- Container Movement on NW-3 - Experience so Far</li> <li>- Container Movement on NW-3 - Potential Routes/Commodities</li> <li>- Recent Government Initiatives: Jal Marg Vikas, Kaladan Multi-Modal Transit Transport Project, Indo-Bangladesh Protocol, National Waterways Act</li> <li>- Key Ongoing Projects: NW-1, NW-2, NW-3, NW-4, NW-5</li> <li>- Key Upcoming Projects</li> <li>- Key Issues and Concerns</li> <li>- Potential for Container Movement</li> </ul>	<p><b>10. COASTAL SHIPPING</b> .....</p> <ul style="list-style-type: none"> <li>- Coastal Container Traffic at Indian Ports: Overall, Port-wise, Year-on-Year Growth</li> <li>- Market Structure and Key Players: Recent Developments, Policy Initiatives, New Players and Acquisition of Vessels</li> <li>- Key Issues and Concerns</li> <li>- Outlook and Projections</li> </ul> <p><b>11. REFRIGERATED CONTAINER TRANSPORT</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth, Regional Analysis, State-wise Analysis, Market Structure and Key Players, Growth Drivers, Recent Developments, Issues and Challenges, Outlook and Projections</li> </ul> <p><b>12. CFSS AND ICDS</b> .....</p> <ul style="list-style-type: none"> <li>- Institutional Framework: Procedure for Approval, Basic Requirements, Agencies Involved; Existing Infrastructure: CFSS and ICDS, CFSS, ICDS; Market Structure and Key Players; Projects under Implementation; Proposed Projects; Key Issues and Challenges; Outlook and Opportunities</li> </ul> <p><b>13. LOGISTICS PARKS AND FTWZS</b> .....</p> <ul style="list-style-type: none"> <li>- Size and Growth - Operational Projects, Key Ongoing Projects, Market Structure and Key Players, Recent Developments, Growth Potential, Issues and Challenges, Upcoming Projects, Outlook and Projections</li> </ul> <p><b>SECTION III: PROFILES OF PORT CONTAINER TERMINALS</b></p> <p><b>14. KEY PORT CONTAINER TERMINALS</b> .....</p> <ul style="list-style-type: none"> <li>- Adani CMA Mundra Terminal, Adani Hazira Container Terminal, Adani International Container Terminal, Adani Mundra Container Terminal, APM Terminals Mumbai, APM Terminals Pipavav, Chennai Container Terminal Limited, Chennai International Terminals Private Limited, Dakshin Bharat Gateway Terminal, Haldia Container Terminal, International Container Transshipment Terminal (ICTT) Vallarpadam, Jawaharlal Nehru Port Container Terminal, Kandla International Container Terminal, Kattupalli International Container Terminal, Krishnapatnam Port Container Terminal, Mundra International Container Terminal, Netaji Subhas Dock Container Terminal, Nhava Sheva International Container Terminal, Nhava Sheva International Gateway Terminal, PSA Sical Container Terminal, Visakha Container Terminal</li> </ul> <p><i>Each profile covers information on traffic handled, capacity, capacity utilisation, draught levels, equipment and planned expansion, etc.</i></p> <p><b>SECTION IV: PROFILES OF CONTAINER TRAIN OPERATORS</b></p> <p><b>15. KEY CONTAINER TRAIN OPERATORS</b> .....</p> <ul style="list-style-type: none"> <li>- Adani Logistics Limited, Arshiya Rail Infrastructure Limited, Container Corporation of India Limited, Central Warehousing Corporation, Distribution Logistics Infrastructure Private Limited, Gateway Rail Freight Limited, Hind Terminals Private Limited, IndiaLinx, Inlogistics, International Cargo Terminals and Rail Infrastructure Private Limited, Kribhco Infrastructure Limited, Sical Multimodal and Rail Transport Limited, TransRail Logistics Limited, Other Key Container Train Operators</li> </ul> <p><i>Each profile covers information on company overview, existing infrastructure, network/route covered, financial performance, future plans, key contacts, etc.</i></p>
---	---



The report is available in a PDF format.



**Table of Contents**

**SECTION I: CONSTRUCTION MARKET OVERVIEW**

- 1. EXECUTIVE SUMMARY** .....
  - 2. OVERVIEW** .....
    - Size and Growth, Demand from Infrastructure and Housing, Key Trends and Developments, Construction Formats, Investment Projections, Issues and Challenges, Outlook and Opportunities (till 2022-23)  - 3. SECTOR OUTLOOK AND MARKET OPPORTUNITIES** .....
    - Growth Drivers, Upcoming Project Pipeline, Equipment Market Projections, Material Market Projections
    - Market Opportunities: For Construction Contractors, Developers, Equipment Providers, Consultants, Financiers and Investors  - 4. NEW POLICY INITIATIVES AND IMPACT** .....
    - Recent Announcements, Amendments to Existing Policies, Fiscal Initiatives, Sector-level Policy Developments, Proposed Policy Changes, Industry Concerns and Expectations  - 5. IMPACT OF GST** .....
    - Progress so Far, Timelines
    - Likely Impact: On Project Owners/Developers, Contract Structuring, Construction Contractors/EPC Players, Equipment and Material Providers; Key Actions Required  - 6. FINANCING NEEDS AND CHALLENGES** .....
    - Key Funding Sources, Investment Requirement, Financial Position of Companies, CDR Cases, New Sources of Funds, Key Issues and Concerns
- SECTION II: CONSTRUCTION DEMAND – INFRASTRUCTURE & HOUSING**
- 7. ROADS AND BRIDGES** .....
    - Network Size and Growth, Key Trends, Launch and Impact of Online Portals, Expected Investments and Capacity Addition, Long Term Investment Requirement, Project Pipeline, Construction Opportunity, Key Issues and Challenges, Sector Outlook, Projected Investments  - 8. PORTS** .....
    - Sector Size and Growth - Traffic, Capacity
    - Key Trends, Project Pipeline, Planned Capacity Addition, Expected Investments, Construction Opportunity, Key Issues and Challenges, Outlook and Projections  - 9. POWER** .....
    - Sector Size and Growth, Key Trends, Expected Investments and Capacity Addition, Project Pipeline, Construction Opportunity, Key Issues & Challenges, Sector Outlook, Capacity Addition Projections  - 10. AIRPORTS** .....
    - Sector Size and Growth, Key Trends, Expected Investments, Project Pipeline, Construction Opportunity, Key Issues and Challenges, Outlook and Projections  - 11. WATER AND IRRIGATION** .....
    - Sector Size and Growth, Key Trends, Project Pipeline, Planned Capacity Addition, Expected Investments, Construction Opportunity, Key Issues and Challenges, Outlook and Projections  - 12. URBAN TRANSPORT** .....
    - Sector Size and Growth, Key Trends, Project Pipeline, Planned Network Addition, Expected Investments, Construction Opportunity, Key Issues and Challenges, Outlook  - 13. RAILWAYS** .....
    - Sector Size and Growth, Key Trends, Investment Requirement by the IR, Planned Capacity Addition, Project Pipeline, Construction Opportunity, Focus on DFC: Future Corridors and Opportunities, Key Issues and Challenges, Key Projections, Sector Outlook

- 14. HOUSING** .....

  - Sector Size and Growth, Key Trends, Project Pipeline, Expected Investments, Construction Opportunity, Demand and Supply Challenges, Regulatory Constraints, Outlook and Projections

- 15. TUNNELS** .....

  - Sector Size and Growth, Key Trends
  - Planned Network Addition - By Sector, State
  - Expected Investments, Project Pipeline, Construction Opportunity, Key Issues and Challenges, Outlook and Projections

**SECTION III: CONTRACTING CAPACITY AND PERFORMANCE**

- 16. MARKET SIZE AND KEY PLAYERS** .....

  - Current Market Structure, Contractor Capacity, Recent Trends, Key Issues, Sector Outlook

- 17. INTER-CONTRACTOR PERFORMANCE** .....

  - Leading Players, Order Books, Revenues, Debt Servicing, Profits and Profit Margins, Key Ratios/Margins

**SECTION IV: EQUIPMENT MARKET**

- 18. EQUIPMENT SIZE AND GROWTH** .....

  - Market Size, Production and Sales, Equipment-wise Sales, Imports and Exports, Industry Structure, Key Trends, Rental and Leasing Market, New Products, Market Projections (till 2022-23), Outlook and Opportunities

- 19. OUTLOOK AND PROJECTIONS** .....

  - Future Plans by Key Players, Demand Projections for Equipment, Sales Projections for Equipment, National Capital Goods Policy 2016, Opportunities for Equipment Providers

**SECTION V: KEY MATERIALS**

- 20. MATERIAL MARKET OUTLOOK AND PROJECTIONS** .....

  - Planned Capacity Additions by Key Suppliers, Planned Investments by Key Suppliers, Demand Projections for Materials, Supply Projections for Materials, Opportunities for Material Suppliers

- 21. CEMENT** .....

  - Key Consuming Segments, Demand-Supply Scenario, Existing Capacity and Utilisation, Production and Consumption Trends, Import/Export Trends, Pricing Trends, Impact of Demonetisation, Industry Structure and Key Players, New Innovations/Technologies, Demand Drivers, Market Outlook and Key Projections (till 2022-23)

- 22. STEEL** .....

  - Key Consuming Segments, Demand-Supply Scenario, Existing Capacity and Utilisation, Production and Consumption Trends, Import and Export Trends, Pricing Trends, Industry Structure and Key Players, New Innovations/Technologies, Demand Drivers, Key Projections, Market Outlook

- 23. BITUMEN** .....

  - Production and Consumption Trends, State-wise Consumption of Bitumen, Import Trends, Export Trends, Pricing and Cost Trends, Industry Structure and Key Players, Operational Parameters of Key Bitumen Manufacturers, Demand Drivers, Market Projections and Projections

- 24. OTHER MATERIALS** .....

  - Production and Consumption Trends, Industry Structure and Key Players, Demand Drivers, Market Projections and Projections



*The report is available in a PDF format.*

Table of Contents

SECTION I: MARKET OVERVIEW AND OUTLOOK

1. EXECUTIVE SUMMARY .....

2. OVERVIEW .....

- Market Market Size and Growth
- Current Demand from Infrastructure
- Policy, Institutional and Regulatory Framework
- Recent Initiatives
- Trends and Developments
- New Materials and Innovations
- Issues and Challenges
- Outlook and Projections
- SWOT Analysis of Indian Construction Materials Market

3. CONSTRUCTION DEMAND PROJECTIONS FROM KEY SECTORS .....

- Roads, Power (including hydro and transmission), Railways, Ports, Airports, Urban Rail, Tunnels, Housing/Buildings

4. MATERIAL MARKET OUTLOOK AND PROJECTIONS .....

- Growth Drivers
- Policy and Regulatory Outlook
- Demand Projections for Materials
- Planned Capacity Additions by Key Suppliers
- Supply Projections for Materials
- Planned Investments by Key Suppliers
- Construction Opportunities in Various Sectors
- Opportunities for Material Suppliers by Key Sectors
- The Way Forward

5. COSTS AND PRICING .....

- Key Cost Components
- Cost Trends of Key Materials
- Pricing Trends of Key Materials
- Key Determinants of Pricing
- Cost and Pricing Outlook

SECTION II: KEY MATERIALS

6. CEMENT .....

- Key Consuming Segments
- Demand-Supply Scenario
- Installed Capacity and Utilisation
- Production and Consumption Trends
- Import/Export Trends
- Pricing Trends
- Industry Structure and Key Players
- New Innovations/Technologies
- Demand Drivers
- Market Outlook and Key Projections (till 2020-21)

7. STEEL .....

- Key Facts
- Key Consuming Segments
- Installed Capacity and Utilisation
- Production and Consumption Trends
- Import/Export Trends
- Pricing Trends
- Industry Structure and Key Players
- New Innovations/Technologies
- Demand Drivers
- Market Outlook and Key Projections (till 2020-21)

8. BITUMEN .....

- Types of Bitumen and Key Consuming Segments
- Production and Consumption Trends
- State-wise Consumption of Bitumen
- Import, Export, Pricing Trends
- Industry Structure and Key Players
- Operational Parameters of Key Bitumen Manufacturers
- Demand Drivers
- Market Outlook and Projections

9. BUILDING MATERIALS .....

- Brick Industry: Overview, Types of Bricks, Housing Materials - Policy and Regulatory Outlook, Technology, Geographical Spread, Industry Structure and Key Players, Demand Drivers, Outlook
- Ready Mix Concrete: Overview, Production and Regional Distribution, Industry Structure, Key Players, Demand Drivers and Outlook
- Ceramics: Overview, Size and Growth, Products, Industry Structure and Key Players, Outlook and Key Growth Drivers

10. OTHER MATERIALS .....

- Geosynthetics: Introduction, Current Market Size and Growth, Geosynthetics in Infrastructure Projects, Key Consuming Segments, Roads and Related Structures, Coastal Protection, Industry Structure and Key Players, Demand Drivers, Challenges and Recommendations, Outlook
- Aggregates: Market Size and Growth, Key Consuming Sectors, Industry Structure and Key Players, Challenges, Demand Drivers, Outlook

SECTION III: FOCUS ON CEMENT SUPPLIERS

11. COMPARATIVE PERFORMANCE: KEY CEMENT PLAYERS .....

- Market Share, Capacity, Revenue and Profits, Key Ratios/Margins

12. PROFILES OF KEY CEMENT PLAYERS .....

- ACC Limited, Ambuja Cements, UltraTech Cement Limited, India Cements, Shree Cement, JK Cement Limited, Century Textiles and Industries Limited, Dalmia Bharat Limited, Ramco Cements Limited, Cement Corporation of India Limited

SECTION IV: FOCUS ON STEEL SUPPLIERS

13. COMPARATIVE PERFORMANCE: KEY STEEL PLAYERS .....

- Market Share
- Capacity
- Revenues and Profits
- Key Ratios/Margins

14. PROFILES OF KEY STEEL PLAYERS .....

- Steel Authority of India Limited (SAIL)
- Tata Steel
- Jindal Steel and Power
- JSW Steel
- Essar Steel
- Bhushan Steel Limited
- Rashtriya Ispat Nigam Limited



The report is available in a PDF format.

**Sector Analysis, Outlook and Opportunities**

**Table of Contents**

**1. EXECUTIVE SUMMARY** .....

**SECTION I: MARKET TRENDS, OPPORTUNITIES AND OUTLOOK**

**2. OVERVIEW** .....

- Mineral Reserves, Production, Demand and Consumption, Exports and Imports, Policy Developments, Issues and Concerns, Outlook and Projections (till 2022-23)

**3. NATIONAL MINERAL EXPLORATION POLICY 2016** .....

- Key Features: Auctioning of Identified Exploration Blocks, National Aerogeophysical Program, National Geoscientific Data Repository, Etc.
- Planned Expenditure under the Policy
- Expected Impact on the Mining Industry
- Issues and Challenges

**4. POLICY AND RECENT DEVELOPMENTS** .....

- MMDR (Amendment) Act, 2016, Coal Bridge Linkage Policy, Commercial Mining in Coal, Expected Impact of Policy Changes, Update on Mine Auctions, Capacity Addition in the Past Two Years, Projects Completed and Awarded, Initiatives for Mine Safety, Initiatives for Curbing Illegal Mining, Others

**5. PROJECT PIPELINE AND MARKET OPPORTUNITIES (till 2022-23)**

- Overall Project Pipeline
- Analysis: By Minerals, Stage, State, Ownership
- Market Opportunities: For MDOs, Equipment Providers, Technology Providers

**6. SECTOR OUTLOOK AND PROJECTIONS (till 2022-23)** .....

- Key Growth Drivers, Demand-Supply Projections of Key Minerals, Investment Outlook, Key Upcoming Projects

**7. EXPLORATION NEEDS AND REQUIREMENTS** .....

- Current Exploration Spent of Mining Companies, Current Drilling Levels, Investment Needs and Requirements for Exploration, Future Exploration/Drilling Targets of Key Companies, Funding Options for Mining Companies, New Financing Instruments, Key Challenges

**8. RISKS AND CHALLENGES** .....

- Macro Economic Factors, Project Execution Challenges, Inadequate Transportation Infrastructure, Sustainability Issues (safety, environment, etc.), Geological Risks, Others

**9. MDO EXPERIENCE AND PLANS** .....

- Experience so Far, Key Trends, Issues and Challenges, Opportunities for MDOs, Outlook

**SECTION II: FOCUS ON COAL MINING**

**10. SIZE AND GROWTH** .....

- Coal Reserves, Demand and Supply Trends, Demand-Supply Gap, Domestic Coal Production, Import Trends, Recent Policy Developments, Price Trends (domestic and global), Demand and Supply Projections (till 2022-23), Future Outlook

**11. UPDATE ON COAL MINING AUCTIONS** .....

- Experience so Far, Government's Plan and Targets, Status and Results of Captive Block Allocations, E-auction Prices, Recent and Upcoming Auctions, Key Issues and Challenges, Future Outlook

**12. PROSPECTS FOR COMMERCIAL MINING IN COAL** .....

- Plans for 2017-18, Proposed Methodology and Eligibility Conditions, Marketing and Pricing Strategy, Expected Impact on the Sector, Industry/Stakeholder Views, Areas of Concern

**SECTION III: TRENDS IN KEY MINERALS**

**13. LIGNITE** .....

- Reserves, Production, Major Consuming Segments, Price Trends, Key Producers, Recent and Upcoming Auctions, Key Investment Plans and Projects, Mineral Outlook and Projections

**14. BAUXITE** .....

- Reserves, Production, Major Consuming Segments, Price Trends, Key Producers, Recent and Upcoming Auctions, Key Investment Plans and Projects, Mineral Outlook and Projections

**15. IRON ORE** .....

- Reserves, Production, Major Consuming Segments, Price Trends, Key Producers, Recent and Upcoming Auctions, Key Investment Plans and Projects, Mineral Outlook and Projections

**16. COPPER** .....

- Reserves, Production, Foreign Trade, Price Trends, Key Producers, Recent and Upcoming Auctions, Key Investment Plans and Projects, Mineral Outlook and Projections

**17. LEAD AND ZINC** .....

- Reserves, Production, Foreign Trade, Price Trends, Key Producers, Recent and Upcoming Auctions, Key Investment Plans and Projects, Mineral Outlook and Projections

**18. OTHER MINERALS (Limestone, Dolomite, Quartz, Kaolin, Magnesite, Silica and other sand, etc.)**

- Reserves, Production, Foreign Trade, Price Trends, Key Producers, Recent and Upcoming Auctions, Key Investment Plans and Projects, Mineral Outlook and Projections

**SECTION IV: EQUIPMENT AND TECHNOLOGY MARKET**

**19. EQUIPMENT MARKET SIZE AND PROJECTIONS** .....

- Size and Growth (drilling, loading, haulage, crushing, etc.); Equipment Productivity and Utilisation; Procurement Plans of Key Mining Companies; Industry Structure; Key Equipment Providers; Issues and Challenges; Outlook and Projections (till 2022-23)

**20. TECHNOLOGY UPGRADATION TRENDS** .....

- Current Level of Mechanisation
- Trends in Automation and Technology
- New Technology Solutions/Advancements
- Technology Upgrade Plans of Major Players

**SECTION V: COMPANY PROFILES**

**21. COMPETITIVE LANDSCAPE** .....

- Industry Structure, Size and Growth, Operational Performance, Financial Performance, Investment Plans of Key Players

**22. PROFILES OF KEY MINING COMPANIES** .....

- Coal India Limited, Singareni Collieries Company Limited, Gujarat Mineral Development Corporation Limited, Neyveli Lignite Corporation, National Aluminium Company Limited, Hindalco Industries Limited, NMDC Limited, Vedanta Resources, Steel Authority of India Limited, Tata Steel Limited, Hindustan Copper Limited, Hindustan Zinc Limited, Others

*Each profile will include information on company operations, production and sales, financial performance, key projects, expansion plans, outlook, etc.*



*The report will be available in a PDF format.*



#### SECTION I: MARKET OVERVIEW AND OUTLOOK

##### 1. OVERVIEW

- Size and Growth
- Recent Developments
- Key Trends
- Growth Drivers
- Issues and Challenges
- Market Opportunities
- Sector Outlook and Projections
- The Way Forward

##### 2. PROJECT PIPELINE

- Summary of Project Pipeline
- Pipeline By Sector, Stage of Development, State, Region, Cost of Key Projects

##### 3. EQUIPMENT MARKET SIZE AND OUTLOOK

- Equipment Market Size and Structure - Overall
- Sourcing Options
- Types of Equipment - Major Segments
- Current Size and Growth
- Earthmoving Equipment - The Largest Equipment Segment in India
- Equipment-wise Sales in India
- Key Equipment Providers
- Key Trends
- Issues and Challenges
- Equipment Outlook and Projections

##### 4. BRIDGE DESIGN TECHNIQUES AND PRACTICES

- Current Techniques and Practices
- Key Trends
- Advancements in Technologies
- Analysis of Key Projects (completed and ongoing)
- Issues and Challenges

##### 5. MATERIAL MARKET

- Types of Materials
- Key Materials - Steel
- Key Materials - Cement
- Key Materials Used - Project-wise
- Material-wise Types of Bridges
- Current Size and Growth
- Needs and Requirements
- New Innovations and Products
- Project-wise New Innovations
- Projections of Key Materials

##### 6. CONTRACTING MARKET

- Market Structure, Market Share, Key Players, Recent Contracts, Key Projects, Issues and Challenges, Market Opportunities

#### SECTION II: SEGMENT ANALYSIS AND PROJECTIONS

##### 7. ROAD BRIDGES

- Market Size and Growth
- Key Trends
- Key Completed Projects
- Key Ongoing Projects
- Key Upcoming Projects

- Recent Contracts and Tenders
- Major Players
- Growth Drivers
- Outlook and Projections
- The Way Forward

##### 8. URBAN FLYOVERS

- Market Size and Growth
- Key Trends
- Key Completed Projects
- Key Ongoing Projects
- Key Upcoming Projects
- Recent Contracts and Tenders
- Major Players
- Growth Drivers
- Outlook and Projections
- The Way Forward

##### 9. ELEVATED MRTS STRUCTURES

- Market Size and Growth
- Key Trends
- Key Completed Projects
- Key Ongoing Projects
- Key Upcoming Projects
- Key Contracts
- Major Players
- Growth Drivers
- Outlook and Projections
- The Way Forward

##### 10. RAILWAY BRIDGES

- Market Size and Growth
- Key Trends
- Key Completed Projects
- Key Ongoing Projects
- Key Upcoming Projects
- Recent Contracts and Tenders
- Major Players
- Growth Drivers
- Outlook and Projections
- The Way Forward

#### SECTION III: DATABASE OF KEY PROJECTS

- Standalone Road Bridges, Urban Flyovers, Elevated MRTS Projects, Railway Bridges

*Each project includes information on state, length, project cost, current status, developer, contractor, completion date, etc.*

#### FOUR QUARTERLY UPDATES

The quarterly updates include:

- Summary of New Developments
- Major Trends
- Update of Key Projects: Announced, Tendering stage, Completed
- Key Data and Statistics



*The report is available in a PDF format.*

**Table of Contents**

**SECTION I: SECTOR OVERVIEW AND OUTLOOK**

**1. OVERVIEW** .....

- Size and Growth: By Sector, State
- Notable Trends
- Key Developments (past 15-18 months)
- Recent Contracts
- Issues and Challenges
- Outlook and Opportunities

**2. PROJECT PIPELINE AND ANALYSIS** .....

- Overall Project Pipeline
- Analysis by Sector (metro, rail, hydropower, roads, water supply and sewage and irrigation)
- Analysis by Stage of Development (completed, ongoing, upcoming)
- Analysis by Region and State
- Analysis by Completion Period (till 2020-21, between 2020-21 and 2024-25)

**3. SECTOR OUTLOOK AND MARKET OPPORTUNITIES** .....

- Growth Drivers
- Upcoming Project Pipeline
- Investment Requirements
- Equipment Requirement and Outlook
- Material Market Projections
- Market Opportunities: For Construction Contractors, Equipment Providers, Consultants

**4. CONTRACTING - MARKET SIZE AND KEY PAYERS** .....

- Size and Growth
- Market Structure
- Leading Players and Key Projects
- Impact of GST
- Issues and Challenges
- Project Pipeline
- Market Opportunities

**SECTION II: SEGMENT ANALYSIS, OUTLOOK AND PROJECTIONS (Till 2024-25)**

**5. METRO RAIL TUNNELS** .....

- Size and Growth: Overall Size; Analysis by City/State, Technique
- Key Projects (completed and ongoing)
- Key Contractors
- Key Equipment Providers
- Upcoming Projects
- Recent Tenders
- Outlook and Projections (till 2024-25)

**6. RAILWAY TUNNELS** .....

- Size and Growth: Overall Size; Analysis by City/State, Technique
- Key Projects (completed and ongoing)
- Key Contractors
- Key Equipment Providers
- Upcoming Projects
- Recent Tenders
- Outlook and Projections (till 2024-25)

**7. TUNNELS IN THE HYDROPOWER SECTOR** .....

- Size and Growth: Overall Size; Analysis by City/State, Technique
- Key Projects (completed and ongoing)
- Key Contractors
- Key Equipment Providers
- Upcoming Projects
- Recent Tenders
- Outlook and Projections (till 2024-25)

**8. ROAD TUNNELS** .....

- Size and Growth: Overall Size; Analysis by City/State, Technique
- Key Projects (completed and ongoing)
- Key Contractors
- Key Equipment Providers
- Upcoming Projects
- Recent Tenders
- Outlook and Projections (till 2024-25)

**9. IRRIGATION TUNNELS** .....

- Size and Growth: Overall Size; Analysis by City/State, Technique
- Key Projects (completed and ongoing)
- Key Contractors
- Key Equipment Providers
- Upcoming Projects
- Recent Tenders
- Outlook and Projections (till 2024-25)

**10. WATER SUPPLY AND SEWAGE TUNNELS** .....

- Size and Growth: Overall Size; Analysis by City/State, Technique
- Key Projects (completed and ongoing)
- Key Contractors
- Key Equipment Providers
- Upcoming Projects
- Recent Tenders
- Outlook and Projections (till 2024-25)

**SECTION III: EQUIPMENT AND MATERIALS**

**11. DRILL AND BLAST (INCLUDING NATM)** .....

- Current Size
- Type of Equipment
- Sourcing Options
- Notable Trends
- Key Projects (using D&B/NATM)
- Key Equipment Providers
- Issues and Challenges
- Segment Outlook

**12. TBM - MARKET SIZE AND OUTLOOK** .....

- Current Size
- Type of Equipment
- Sourcing Options
- Notable Trends
- Key Projects (using TBM)
- Key Equipment Providers
- Issues and Challenges
- Segment Outlook

**13. CONSTRUCTION MATERIALS** .....

- Type of Materials
- Key Requirements
- Pricing Trends
- New Materials and Innovation
- Issues and Challenges
- Outlook and Projections



The report will be available in a PDF format.

**Table of Contents**

**SECTION I: SECTOR OVERVIEW AND ANALYSIS**

**1. EXECUTIVE SUMMARY** .....

**2. MINING - TRENDS AND OUTLOOK** .....

- Production
- Consumption
- Exports and Imports
- Recent Developments
- Other Key Initiatives
- Key Trends
- Issues and Challenges
- Investment Requirement and Plans
- Outlook and Projections (2016-20)
- The Way Forward

**3. EQUIPMENT SIZE AND GROWTH** .....

- Market Size, Industry Structure, Changing Competitive Landscape, Key Trends, Key Recent Developments, Outlook and Opportunities, Market Projections (till 2019-20)

**4. PRODUCTIVITY AND MECHANISATION** .....

- Mining Techniques
- Mining Equipment and Technologies
- Equipment Productivity
- Equipment Utilisation
- Level of Mechanisation
- Growth Drivers for Mechanisation
- Trends in Automation and Technology
- New Technology Solutions: Emerging Trends
- Issues and Challenges
- CIL's Technology Upgrade Plans
- Industry Suggestions
- Outlook

**5. KEY CONSUMING SECTORS** .....

- Coal: Reserves, Production, Key Players, Coal Offtake, Investment Plans and Requirements, Key Projects
- Lignite: Reserves, Production, Key Players, Key Investment Plans and Requirements
- Bauxite: Reserves, Production, Foreign Trade, Key Players, Key Investment Plans and Projects
- Copper: Reserves, Production, State-wise Production, Foreign Trade, Key Players, Key Investment Plans and Requirements
- Iron ore: Reserves, Production, Foreign Trade, Key Players, Key Investment Plans and Projects - NMDC Limited, Key Investment Plans and Projects - SAIL, Key Projects - OMCL and Tata Steel, Iron Ore Block Auctions
- Lead and Zinc: Reserves, Production - Ore, Production - Concentrates, Foreign Trade, Key Producers and Projects
- Other Non-Metallic Minerals: Reserves, Limestone - Production, Limestone Block Auctions, Cement (Key Production, Key Producers, Key Investments and, Projects, Market Outlook and Key Projections (till 2020-21), Dolomite, Quartz, Silica and Other Sand, Kaolin

**6. PROCUREMENT PLANS OF MINING COMPANIES** .....

- Coal India Limited, South Eastern Coalfields Limited, Western Coalfields Limited, Central Coalfields Limited, Eastern Coalfields Limited, Mahanadi Coalfields Limited, Northern Coalfields Limited, Private Players

**7. ROLE OF PRIVATE SECTOR AND CONTRACT MINING** .....

- Current Scenario
- MDO/Contractual Mining: Scope and Advantages
- Experience so far
- Trends in MDO/Contract Mining

- Issues and Challenges
- Opportunities for Contractual Mining/MDOs
- Prospects for Technology and Equipment Usage
- SWOT Analysis of MDO Segment
- Industry Recommendations

**8. IMPACT OF NEW POLICY DEVELOPMENTS ON MINING TECHNOLOGY AND EQUIPMENT** .....

- MMDR (Amendment) Act 2015
- National Minerals Exploration Trust (NMET) Rules, 2015
- Mineral (Auction) Rules, 2015
- MMDR (Amendment) Act, 2016
- National Mineral Exploration Policy (Non-Fuel and Non Coal Minerals), 2016
- Impact on Use of Technology and Equipment

**SECTION II: SEGMENT ANALYSIS AND PROJECTIONS**

**9. EQUIPMENT TYPE AND TECHNOLOGY** .....

- Market by Usage in Supply Chain
- Market by Mining Technology
- Market by Type of Mineral

**10. DRILLING** .....

- Market Trends
- Technology
- Demand Drivers
- Market Projections (till 2019-20)

**11. LOADING** .....

- Market and Technology Trends
- Demand Drivers
- Market Projections (till 2019-20)

**12. HAULAGE** .....

- Market and Technology Trends
- Demand Drivers
- Market Projections (till 2019-20)

**13. CRUSHING, SIZING AND SCREENING** .....

- Market Trends
- Technology Trends
- Demand Drivers
- Market Projections (till 2019-20)

**14. AUXILIARY AND SUPPORT EQUIPMENT** .....

- Market Type and Key Trends
- Market Projections (till 2019-20)

**SECTION III: EQUIPMENT PROVIDERS**

**15. PROFILES OF KEY PLAYERS** .....

- Action Construction Equipment Limited, Atlas Copco, BEML, Case New Holland Construction Equipment India Private Limited, Caterpillar Inc., Daimler India Commercial Vehicles, Eimco Elecon (India) Limited, Escorts Limited, Hyundai Construction Equipment India Private Limited, JCB India, Komatsu, L&T Construction Equipment Limited, Liebherr India Private Limited, Mahindra Construction Equipment, Metso, Sandvik Asia Private Limited, Scania, Tata Hitachi Construction Machinery Company Private Limited, Terex India, Volvo India Private Limited, Other Key Players (Doosan Infracore, Voltas M&CE)



*The report is available in a PDF format.*

## Table of Contents

<p><b>1. OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Growing Urbanisation and Housing</li> <li>- Large-scale Affordable Housing is Today's Necessity</li> <li>- Disposable Income and House Affordability</li> <li>- Criteria for Affordable Housing</li> <li>- Snapshot of India's Current Housing Stock</li> <li>- Current Housing Stock and Status</li> <li>- Institutional Framework -Facilitators, Enablers and Participants</li> <li>- Role of Different Stakeholders</li> <li>- Policy Impetus for Affordable Housing</li> <li>- Private Sector Participation</li> <li>- Demand and Supply-Side Challenges</li> <li>- Regulatory Constraints</li> <li>- Opportunity and Outlook</li> <li>- The Way Forward</li> </ul> <p><b>2. DEMAND AND SUPPLY</b> .....</p> <ul style="list-style-type: none"> <li>- Housing Demand and Supply: Housing Scenario - Households vs Housing Stock, Urban and Rural Demand and Supply, Households by Tenure Status of Dwelling Units, Houses by Habitable Conditions</li> <li>- Affordable Housing Demand and Supply: Overview, Affordable Rental Housing Market, House Congestion, Houseless Population and Slum Households</li> <li>- Housing Shortage: Overall Housing Shortage, State-wise Urban Housing Shortage, Housing Shortage in Rural Areas, Housing Shortage in Urban Areas, Shortage by Income Category, Tenure-wise Urban Housing Shortage</li> </ul> <p><b>3. GOVERNMENT INITIATIVES AND PROGRAMMES</b> .....</p> <ul style="list-style-type: none"> <li>- Key Central Level Schemes <ul style="list-style-type: none"> <li>● PradhanMantriAwasYojana - Housing for All</li> <li>● PradhanMantriAwasYojana - Urban</li> <li>● PradhanMantriAwasYojana - Gramin</li> <li>● IndiraAwasYojana</li> <li>● DeendayalAntyodayaYojana - National Urban Livelihoods Mission</li> <li>● Rajiv AwasYojana</li> <li>● Affordable Housing in Partnership</li> <li>● Basic Services to the Urban Poor</li> <li>● Integrated Housing and Slum Development Programme</li> </ul> </li> <li>- Comparison of Central Level Housing Schemes</li> <li>- Building Development Norms under Central Level Housing Schemes</li> <li>- Incentives and Subsidies</li> </ul> <p><b>4. FINANCING FOR AFFORDABLE HOUSING</b> .....</p> <ul style="list-style-type: none"> <li>- Indian Housing Finance Sector -Overview</li> <li>- Role of National Housing Bank</li> <li>- NHB Schemes for Lending Institutions</li> <li>- NHB's Recent Regulatory Initiatives</li> <li>- NHB and Housing for All</li> <li>- Key Financing Groups -Banks</li> <li>- Priority Sector Lending to Housing</li> <li>- Trends in Housing Loans of Scheduled Commercial Banks</li> <li>- Housing Finance Companies</li> <li>- Co-operative Housing Groups</li> <li>- Access to Home Finance -Tax Incentives to Buyers</li> <li>- Foreign Direct Investments</li> <li>- External Commercial Borrowings</li> <li>- Funding Source for Developers -REITs</li> <li>- Recent Financial Transactions</li> </ul> <p><b>5. OUTLOOK, OPPORTUNITIES AND PROJECTIONS</b> .....</p> <ul style="list-style-type: none"> <li>- Key Demand Drivers</li> <li>- Housing Need by 2022</li> <li>- Housing Requirement and Projections</li> <li>- Housing Need By States and Region (by 2022)</li> <li>- Land Requirement</li> </ul>	<ul style="list-style-type: none"> <li>- Market Opportunities for Stakeholders</li> <li>- Key Projects in Pipeline</li> <li>- PMAY Report Card -Progress and Learnings</li> <li>- Key Requirements for Housing for All Vision 2022</li> <li>- Larger Role of Private Sector</li> <li>- Thrust on Rental Housing</li> <li>- New/Green Materials and Technologies</li> <li>- Sector Outlook and Way Forward</li> </ul> <p><b>6. PROJECT ECONOMICS</b> .....</p> <ul style="list-style-type: none"> <li>- Cost Components, Pricing and Profitability, Revenue Model, Typical Affordable Housing Project, Project Lifecycle, Investments and Returns, Factors Impacting Project Viability, Enabling an Environment of Project Feasibility</li> </ul> <p><b>7. TECHNOLOGY, MATERIAL AND EQUIPMENT</b> .....</p> <ul style="list-style-type: none"> <li>- High Construction Costs and Key Requirements</li> <li>- Selection of Technologies</li> <li>- New Techniques and Methods</li> <li>- PACS Certified Housing Technologies of Vendors</li> <li>- Low-cost Alternatives</li> <li>- Traditional versus New Construction Techniques</li> <li>- Innovative and Green Materials for Low-cost housing</li> <li>- Key Limitations and Challenges</li> <li>- Technology Sub-mission under PMAY</li> <li>- Outlook</li> </ul> <p><b>8. INTERNATIONAL EXPERIENCE</b> .....</p> <ul style="list-style-type: none"> <li>- Summary of Housing Policies</li> <li>- Case Studies: Brazil, Singapore, Netherlands, Vienna, Canada and Malaysia</li> <li>- Other Countries</li> <li>- Lessons from International Experience</li> </ul> <p><b>9. KEY GOVERNMENT AGENCIES</b> .....</p> <ul style="list-style-type: none"> <li>- Andhra Pradesh Housing Board, Gujarat Housing Board, Haryana Housing Board, Karnataka Housing Board, Madhya Pradesh Housing and Infrastructure Development Board, Maharashtra Housing and Area Development Authority, Rajasthan Housing Board, West Bengal Housing Board</li> </ul> <p><b>10. PRIVATE DEVELOPERS</b> .....</p> <ul style="list-style-type: none"> <li>- Market Structure</li> <li>- Key Driving Factors for Private Developers</li> <li>- Private Developers in Affordable Housing</li> <li>- Advantages of PPP in Affordable Housing</li> <li>- Guidelines and Incentives for PPP -PMAY</li> <li>- Incentives for PPP -State Policies</li> <li>- Key Risks and Constraints in Affordable Housing</li> <li>- Progress so Far</li> <li>- Experience so Far</li> <li>- Outlook</li> <li>- Profiles of Key Players: Design Build Serve, Dreams Group, Foliage Real Estate Developers, Mahindra Lifespaces, Maple Shelters, Panvelkar Group, Poddar Housing and Development, Shapoorji Pallonji, Tata Housing, VBHC Value Homes</li> </ul> <p><b>11. STATE-WISE PROFILES AND ANALYSIS</b> .....</p> <ul style="list-style-type: none"> <li>- Andhra Pradesh, Bihar, Chhattisgarh, Delhi, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, West Bengal</li> </ul>
---	---



The report is available in a PDF format.

<p><b>1. OVERVIEW</b></p> <ul style="list-style-type: none"> <li>- Basis of Conceptualisation</li> <li>- Key Aspects and Features</li> <li>- Smart Cities Mission: Overview, Key Steps, 100 Smart Cities, Selected Cities Ranking and Scoring, (Round I and Fast-Track Competition)</li> <li>- IIR's Analysis of Smart Cities Mission: Execution Process, Smart Cities, Area-based Development vs. Pan-City Solutions, Dependence on PPP and the Model's Shortcomings, 'Smart' vs 'Functional' Component, Selection of Cities</li> <li>- Recent MoUs and Bilateral Agreements</li> <li>- Key Issues and Challenges</li> <li>- Drivers for Investments</li> <li>- Upcoming Projects and Opportunities</li> <li>- Future Outlook and the Way Forward</li> </ul> <p><b>2. KEY AGENCIES, ROLES AND STRUCTURES</b></p> <ul style="list-style-type: none"> <li>- Institutional Framework - Central and State Government, Role of MoUD, Role of State Mission, SPV Structure, Role of Consultants</li> </ul> <p><b>3. FIRST 20 SELECTED CITIES - ROUND I</b></p> <ul style="list-style-type: none"> <li>- Selected 20 Cities - Type and Population</li> <li>- SPV Progress, Structure and Composition</li> <li>- Current Infrastructure: Transport, Water, Waste, Energy</li> <li>- Funding and Investment Requirement</li> <li>- City Profiles: Ahmedabad, Belagavi, Bhubaneswar, Chennai, Coimbatore, Davangere, Guwahati, Indore, Jabalpur, Jaipur, Kakinada, Kochi, Ludhiana, New Delhi (NDMC), Pune, Solapur, Surat, Udaipur, Visakhapatnam</li> </ul> <p><b>4. FAST-TRACK PROGRAMME - 13 CITIES</b></p> <ul style="list-style-type: none"> <li>- City Profile and Demographics</li> <li>- Current Infrastructure: Transport, Water, Waste, Energy</li> <li>- Recent Initiatives and Project Proposals</li> <li>- Segment-wise Investments</li> <li>- Profiles of 13 Selected Cities: Agartala, Bhagalpur, Chandigarh, Dharamshala, Faridabad, Imphal, Lucknow, New Town Kolkata, Panaji, Port Blair, Raipur, Ranchi, Warangal</li> </ul> <p><b>5. REMAINING CITIES FOR ROUND II</b></p> <ul style="list-style-type: none"> <li>- City Demographics and Implementing Agencies, Current Infrastructure, Access to Basic Amenities, Communication Infrastructure and Access, Transport Infrastructure Indicators, Possible Intervention Areas, Smart Mobility, Smart Water and Waste Management, Other Smart Areas, Expected Investments</li> </ul> <p><b>6. LEADING NON-SELECTED CITIES</b></p> <ul style="list-style-type: none"> <li>- Experience So Far</li> <li>- Bengaluru, Delhi, Jamshedpur, Jodhpur, Kozhikode, Kolkata, Meerut, Mysore, Patna, Vijayawada, Dhanbad</li> </ul> <p><b>7. PROJECT COSTS AND FUNDING</b></p> <ul style="list-style-type: none"> <li>- Financing Options, New/Innovative Sources of Funding, City-wise Capital Requirement, City-wise O&amp;M Costs, Outlay for Area-based Development, Outlay for Pan-City Solutions, Central Government Allocation and Disbursements, Sector-wise Investments and PPP Component, Proposed Revenue Sources, MoUs/Bilateral Agreements, Challenges in Financing Smart Cities</li> </ul> <p><b>8. RISKS, CHALLENGES, AND IMPACT ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>- Key Success Factors, Impact of Smart City Development, Types of Risks, Initial Project Risks and Mitigation Strategies, Implementation Risks and Mitigation Strategies, Post-Implementation Risks and Mitigation Strategies</li> </ul> <p><b>9. CONVERGENCE WITH CENTRAL GOVERNMENT SCHEMES</b></p> <ul style="list-style-type: none"> <li>- Introduction, City-wise Convergence with Schemes, Atal Mission for Rejuvenation and Urban Transformation, Integrated Power Development Scheme, Pradhan Mantri Awas Yojana, Digital India, Swachh Bharat Mission, Other Schemes: Heritage City Development Scheme, Skill India, National Urban Health Mission, Jawaharlal Nehru National Solar Mission, National Smart Grid Mission, Unnat Jyoti by Affordable LEDs for All and Safe Cities</li> </ul>	<p><b>10. SMART ENERGY</b></p> <ul style="list-style-type: none"> <li>- Introduction, City-wise Electricity Supply Scenario, City-wise Provisions for RE Initiatives, Overall Project Pipeline: City-wise Spread, City-wise Participation in Improving T&amp;D Infrastructure, Recent Initiatives, City-wise Focus Area, Overall Project Pipeline, Convergence with Central Government Schemes, Pan-city Solutions versus Area-based Development, Upcoming Projects and Opportunities till 2018, Upcoming Projects and Opportunities Beyond 2018, Investment Requirement, Growth Drivers and Challenges</li> </ul> <p><b>11. SMART MOBILITY</b></p> <ul style="list-style-type: none"> <li>- Introduction, Key ICT Solutions, Key Performance Indicators, Recent Initiatives and Plans, Integration with Others Schemes, Area-based Development, Pan-City Solutions, Upcoming Projects and Opportunities till 2017-18, Future Projects and Opportunities till 2021-22, Investment Requirement, Key Drivers and Challenges</li> </ul> <p><b>12. SMART HOUSING</b></p> <ul style="list-style-type: none"> <li>- Introduction, Key Performance Indicators, Convergence with Central Scheme, Overall Project Pipeline, PPP Opportunities, Short-term and Long-term Opportunities, Investment Requirement, Key Drivers and Challenges</li> </ul> <p><b>13. SMART WATER SUPPLY AND SEWERAGE</b></p> <ul style="list-style-type: none"> <li>- Introduction, Key Performance Indicators, Recent ICT Initiatives, Integration with Other Schemes, Project Pipeline: Area-based and Pan-City Development, City-wise Spread, Project Timeline, Upcoming Projects and Opportunities till 2017-18, Future Projects and Opportunities till 2021-22, PPP Opportunities, Investment Requirement, Key Drivers and Challenges</li> </ul> <p><b>14. SMART WASTE MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>- An Overview, Key Performance Indicators, Recent ICT Initiatives and Plans, Integration with Other Schemes, Project Pipeline: Overall Pipeline, City-wise Spread, Area-based Development, Pan-City Solutions, Upcoming Projects and Opportunities till 2017-18, Future Projects and Opportunities till 2021-22, PPP Opportunities</li> </ul> <p><b>15. SMART SAFETY AND SECURITY</b></p> <ul style="list-style-type: none"> <li>- Introduction, Ecosystem for Surveillance System, Overall Project Pipeline: City-wise Spread, Pan-city Solutions versus Area-based Development, Project Timelines, Upcoming Projects and Opportunities till 2018, Upcoming Projects and Opportunities Beyond 2018, Investment Requirement, Growth Drivers and Challenges</li> </ul> <p><b>16. SMART GOVERNANCE</b></p> <ul style="list-style-type: none"> <li>- Evolution of e-Governance</li> <li>- Summary of Smart Governance Projects</li> <li>- Convergence with Other Schemes: e-Kranti and Digital India, From National e-Governance Plan (NGeP) to e-Kranti, Convergence with Digital India</li> <li>- Recent Initiatives and Plans</li> <li>- Administrative Efficiency</li> <li>- ULB-wise Spend on IT</li> <li>- Project Pipeline: Overall Analysis, Pan-city Solution versus Area-based, Development</li> <li>- Short-term and Long-term Opportunities</li> <li>- City- and Category-wise Opportunities</li> <li>- Investment Requirement</li> <li>- Growth Drivers and Challenges</li> </ul> <p><b>17. OTHER FOCUS AREAS</b></p> <ul style="list-style-type: none"> <li>- Education, Healthcare, Mixed-use Land Development, Public Amenities, Rain-water Harvesting, Others</li> </ul>
--	---



The report is available in a PDF format.

**Table of Contents**

**SECTION I: SECTOR ANALYSIS AND OUTLOOK**

- 1. OVERVIEW** .....
  - Current State of Industrial Water Supply
  - Key Sector Trends
  - Key Recent Developments
  - Future Outlook
  - Issues and Challenges
  - The Way Forward
  
- 2. WATER SUPPLY AND DEMAND** .....
  - Total Freshwater Resource Availability
  - Principal Sources of Water Supply
  - New Water Supply Sources
  - Water Demand Across Sectors (Domestic, Industrial and Agriculture)
  - Water Demand Outlook
  - Demand Supply Balance
  
- 3. POLICY AND REGULATORY FRAMEWORK** .....
  - Industrial Water Consumption Norms and Standards
  - Effluent Generation Norms and Standards
  - Experience in Compliance to Norms and Standards
  - National Water Policy, 2012
  - Role of Central and Regional Pollution Control Boards
  - Key Issues
  
- 4. SEGMENT SIZE AND GROWTH** .....
  - Industrial Water Requirement - by Industry
  - Consumption Growth - by Industry
  - Effluent Generation and Treatment
  - Recent Trends and Developments
  - Key Growth Drivers
  - Future Outlook and Projections (Till 2020)
  - Key Issues
  
- 5. TARIFFS AND COSTS** .....
  - Current Tariff Structure
  - State-wise Tariff for Industrial Sector
  - Trends and Recent Revision in Water Charges
  - Proposed Model Cost Structure
  - Water as an Input Cost - by Industry
  - Issues and Challenges
  
- 6. TREATMENT TECHNOLOGY MARKET** .....
  - Treatment Technologies
  - Market Size and Growth - by Value and by Volume
  - Major Drivers
  - Key Players
  - Outlook and Opportunities

**SECTION II: KEY INDUSTRIAL CONSUMERS**

- 7. THERMAL POWER PLANTS** .....
  - Specific Water Consumption
  - Current Water Requirement
  - Projected Water Requirement
  - Cost of Water
  - Best Practices in Water Management
  - Key Issues
  
- 8. TEXTILES** .....
  - Specific Water Consumption
  - Current Water Requirement
  - Projected Water Requirement
  - Cost of Water

- Best Practices in Water Management
- Key Issues

**9. PAPER AND PULP** .....

- Specific Water Consumption
- Current Water Requirement
- Projected Water Requirement
- Cost of Water
- Best Practices in Water Management
- Key Issues

**10. OIL REFINERIES** .....

- Specific Water Consumption
- Current Water Requirement
- Projected Water Requirement
- Cost of Water
- Best Practices in Water Management
- Key Issues

**11. STEEL** .....

- Specific Water Consumption
- Current Water Requirement
- Projected Water Requirement
- Cost of Water
- Best Practices in Water Management
- Key Issues

**12. OTHERS (FERTILISERS AND CHEMICALS, CEMENT, ETC.)** .....

- Specific Water Consumption
- Current Water Requirement
- Projected Water Requirement
- Cost of Water
- Best Practices in Water Management
- Key Issues

**SECTION III: NEW WATER SOURCES**

**13. RECYCLE AND REUSE** .....

- Experience so Far
- Current Practices
- Recycle and Reuse Potential
- Key Enablers
- Issues and Challenges

**14. DESALINATION** .....

- Size and Growth
- Major Drivers
- Technology and Economics
- Key Projects
- Key Players
- Issues and Challenges
- Segment Outlook

**SECTION IV: PROJECT PROFILES**

**15. PROJECT PROFILES (UNDER IMPLEMENTATION AND UPCOMING)**

Each project profile/case history contains information on project scope, contractor, technology provider, capacity, capex, cost per unit, current status, project timelines, etc.



The report is available in a PDF format.



Table of Contents

<p><b>1. OVERVIEW</b></p> <ul style="list-style-type: none"> <li>- Current State of Municipal Water Supply</li> <li>- Key Sector Trends</li> <li>- Recent Developments</li> <li>- Investment Requirements</li> <li>- Future Outlook and Opportunities</li> <li>- Issues and Challenges</li> <li>- The Way Forward</li> </ul> <p><b>2. WATER SUPPLY AND DEMAND</b></p> <ul style="list-style-type: none"> <li>- Total Freshwater Resource Availability</li> <li>- Principal Sources of Water Supply</li> <li>- New Water Supply Sources</li> <li>- Water Demand Across Sectors (Domestic, Industrial and Agriculture)</li> <li>- Water Demand Outlook</li> <li>- Demand Supply Balance</li> </ul> <p><b>3. POLICY AND INSTITUTIONAL FRAMEWORK</b></p> <ul style="list-style-type: none"> <li>- Institutional Structure</li> <li>- Current Norms and Standards</li> <li>- Experience in Compliance to Existing Norms</li> <li>- National Water Policy, 2012</li> <li>- State Level Policies</li> <li>- Key Issues</li> </ul> <p><b>4. MUNICIPAL SEGMENT SIZE AND GROWTH</b></p> <ul style="list-style-type: none"> <li>- Current Piped Water Supply Network</li> <li>- Growth Trends</li> <li>- Current Consumption</li> <li>- Consumption Growth (by City-size)</li> <li>- Geographic Analysis</li> <li>- Sewage Generation and Treatment</li> </ul> <p><b>5. PRICING AND TARIFF STRUCTURE</b></p> <ul style="list-style-type: none"> <li>- Current Tariff Structure</li> <li>- City-wise tariffs</li> <li>- Tariff Trends and Recent Reforms</li> <li>- Proposed Model Tariff Structure</li> <li>- Cost of Water Supply in ULBs</li> <li>- Issues and Challenges</li> </ul> <p><b>6. IMPACT ASSESSMENT OF THE JNNURM</b></p> <ul style="list-style-type: none"> <li>- Reform Goals and Achievements</li> <li>- Project Funding under the JNNURM</li> <li>- Impact on Water Supply and Wastewater Management</li> <li>- Key Learnings</li> </ul> <p><b>7. NEW GOVERNMENT PROGRAMMES AND INITIATIVES</b></p> <ul style="list-style-type: none"> <li>- New Government Strategies on Water Supply and Wastewater Management</li> <li>- Focus on Urban Renewal             <ul style="list-style-type: none"> <li>• 100 Smart Cities</li> <li>• Rejuvenation of Heritage Cities</li> <li>• Urban Renewal of 500 Habitations</li> </ul> </li> <li>- Budgetary Support</li> <li>- Focus on Alternate Water Resources</li> </ul> <p><b>8. FINANCING EXPERIENCE</b></p> <ul style="list-style-type: none"> <li>- Financing Requirements</li> <li>- Key Funding Sources</li> <li>- Financing Trends</li> <li>- ULB Finances</li> <li>- Risks and Challenges</li> </ul>	<p><b>9. PPP EXPERIENCE AND POTENTIAL</b></p> <ul style="list-style-type: none"> <li>- Formats and Models</li> <li>- PPP Enablers</li> <li>- Experience so Far (Completed and Under Implementation Projects)</li> <li>- Case Studies-PPP Projects</li> <li>- Key Learnings</li> <li>- Risks and Challenges</li> </ul> <p><b>10. 24X7 WATER SUPPLY</b></p> <ul style="list-style-type: none"> <li>- Experience so Far</li> <li>- Case Studies- 24x7 Pilot Projects</li> <li>- Key Learnings</li> <li>- Planned Projects</li> </ul> <p><b>11. METERING WATER SERVICES</b></p> <ul style="list-style-type: none"> <li>- Current Scenario</li> <li>- Recent Metering Initiatives</li> <li>- Impact of Metering Water Services (Case Studies of Select ULBs)</li> <li>- Market Opportunities</li> <li>- Issues and Challenges</li> </ul> <p><b>12. NON REVENUE WATER (NRW)</b></p> <ul style="list-style-type: none"> <li>- Focus on NRW Reduction</li> <li>- Current Levels of NRW</li> <li>- Key Factors behind NRW</li> <li>- Recent NRW Reduction Initiatives</li> <li>- Issues and Challenges</li> </ul> <p><b>13. SEGMENT OUTLOOK AND OPPORTUNITIES (2015-2020)</b></p> <ul style="list-style-type: none"> <li>- Key Growth Drivers</li> <li>- Expected Water Demand in Cities</li> <li>- Investment Requirements and Projections</li> <li>- Project Pipeline (Under Implementation and Planned)</li> <li>- Emerging Opportunities</li> </ul> <p><b>14. PROFILES OF WATER UTILITIES</b></p> <p><i>(These profiles provide information on existing water network and infrastructure, sewage network and treatment capacities, performance across different service level benchmarks, recent projects, financial performance, etc.)</i></p> <ul style="list-style-type: none"> <li>- Ahmedabad Municipal Corporation</li> <li>- Bangalore Water Supply and Sewerage Board</li> <li>- Chennai Metropolitan Water Supply and Sewerage Board</li> <li>- Delhi Jal Board</li> <li>- Hyderabad Metropolitan Water Supply and Sewerage Board</li> <li>- Jaipur Municipal Corporation</li> <li>- Kolkata Municipal Corporation</li> <li>- Municipal Corporation of Greater Mumbai</li> <li>- Pune Municipal Corporation</li> <li>- Surat Municipal Corporation</li> <li>- Etc.</li> </ul> <p><b>15. KEY PROJECT PROFILES</b></p> <p><i>(These profiles contain information on implementing agency, project scope, nature of contract, project cost, key players, status, expected date of completion, etc.)</i></p> <ul style="list-style-type: none"> <li>- Under Implementation</li> <li>- Upcoming (bidding/preliminary stage)</li> </ul>
--	--



The report is available in a PDF format.

## Table of Contents

<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION I: MARKET OVERVIEW</b></p> <p><b>2. SIZE AND GROWTH</b> .....</p> <ul style="list-style-type: none"> <li>- Sector Snapshot, MSW Generation and Growth, State-wise Analysis, City-wise Analysis, Key Sector Trends, Waste Recovery and Recycle, Issues and Challenges</li> </ul> <p><b>3. RECENT INITIATIVES AND KEY DEVELOPMENTS (past 15-18 months)</b></p> <ul style="list-style-type: none"> <li>- City-level Initiatives, Key Projects, Policy and Regulatory Developments, Other Developments</li> </ul> <p><b>4. INTER-CITY COMPARISON: KEY CITIES</b> .....</p> <ul style="list-style-type: none"> <li>- Solid Waste Generation</li> <li>- Status of Solid Waste Management Across Key Cities</li> <li>- Current Waste Management Practices</li> <li>- Collection and Transportation</li> <li>- Treatment and Disposal</li> <li>- Status of Open Defecation</li> <li>- Upcoming Facilities</li> <li>- Performance under Swachh Survekshan 2016</li> <li>- Status of Swachhata Mobile Application</li> </ul> <p><b>5. ECONOMICS AND FINANCING</b> .....</p> <ul style="list-style-type: none"> <li>- Experience So Far, Key Financing Sources, Recent Trends, Economics of MSW Projects, Revenue Sources and Cost Recovery, Investment Requirements (till 2022-23), Issues and Challenges</li> </ul> <p><b>SECTION II: PROJECTS, OUTLOOK AND OPPORTUNITIES</b></p> <p><b>6. PROJECT PIPELINE AND ANALYSIS</b> .....</p> <ul style="list-style-type: none"> <li>- Summary of Key Projects in Pipeline</li> <li>- Project Pipeline by Stage of Development, State, City, Completion Period</li> <li>- Expected Capacity Addition</li> </ul> <p><b>7. PPP PROJECTS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Formats and Models, Experience So Far, Revenue Streams, PPP Project Portfolio, Key Completed Projects, Key Ongoing Projects, Project Pipeline &amp; Outlook, Issues Impacting PPPs, Key Lessons Learnt</li> </ul> <p><b>8. OUTLOOK AND OPPORTUNITIES</b> .....</p> <ul style="list-style-type: none"> <li>- Key Growth Drivers, Investment Projections, Market Opportunities, Sector Outlook</li> </ul> <p><b>SECTION III: REVIEW OF GOVERNMENT PROGRAMMES</b></p> <p><b>9. SWACHH BHARAT MISSION</b> .....</p> <ul style="list-style-type: none"> <li>- Mission, Scope and Outlay, Allocations, Disbursements, Allocations and Disbursements, Progress So Far: Toilets, SWM, Overall, The Way Forward</li> </ul> <p><b>10. ATAL MISSION FOR REJUVENATION AND URBAN TRANSFORMATION (AMRUT)</b> .....</p> <ul style="list-style-type: none"> <li>- Mission and Scope</li> <li>- AMRUT Components</li> <li>- Cities Covered under AMRUT</li> <li>- Reforms Milestones and Timelines</li> </ul>	<ul style="list-style-type: none"> <li>- Funding Pattern</li> <li>- Update on Projects</li> <li>- Update on Sewerage/Septage Management and Drainage Projects</li> <li>- Allocations and Disbursements</li> <li>- The Way Forward</li> </ul> <p><b>11. SMART CITIES MISSION</b> .....</p> <ul style="list-style-type: none"> <li>- Mission and Scope, Selection Process of Mission Cities, Mission Cities, Investment Requirements under the Smart Cities Mission, Project Funding, Convergence with Other Schemes, City-wise Analysis of Sewerage/Drainage Projects, Progress So Far, The Way Forward</li> </ul> <p><b>SECTION IV: MSW TREATMENT AND ANALYSIS</b></p> <p><b>12. COLLECTION AND TRANSPORTATION</b> .....</p> <ul style="list-style-type: none"> <li>- Current Practices</li> <li>- Level of Waste Collection</li> <li>- Vehicles and Equipments</li> <li>- Deployment of Advanced Technology</li> <li>- Collection and Transportation under Swachh Bharat Mission (SBM)</li> <li>- Expenditure Requirements</li> <li>- Issues and Concerns</li> </ul> <p><b>13. TREATMENT AND DISPOSAL</b> .....</p> <ul style="list-style-type: none"> <li>- Current Practices</li> <li>- Status - Waste Processing</li> <li>- Relevant Technologies</li> <li>- Scientific Disposal</li> <li>- Integrated MSW Management</li> <li>- Regional/Cluster Development: Overview, Case Study</li> <li>- 3Rs (Reduce, Recycle and Reuse)</li> <li>- Issues and Challenges</li> </ul> <p><b>14. WASTE TO ENERGY</b> .....</p> <ul style="list-style-type: none"> <li>- Experience So Far: Capacity Addition, Regulatory Framework</li> <li>- Cluster-based Approach</li> <li>- Existing Capacity</li> <li>- Policies and Incentives</li> <li>- Relevant Technologies: Technology Options, SWOT Analysis</li> <li>- Potential for Energy Generation</li> <li>- Key Projects: Operational, Under Construction, Under Tendering</li> <li>- Issues and Challenges</li> </ul> <p><b>SECTION V: KEY PLAYERS</b></p> <p><b>15. PROFILES OF LEADING PRIVATE PLAYERS</b> .....</p> <ul style="list-style-type: none"> <li>- A2Z Infrastructure Limited</li> <li>- BVG India Limited</li> <li>- Eco Wise</li> <li>- Hanjer Biotech Energies Private Limited</li> <li>- Hydroair Tectonics (PCD) Limited</li> <li>- IL&amp;FS Environmental Infrastructure and Services Limited</li> <li>- JINDAL ITF Limited</li> <li>- Ramky Enviro Engineers Limited</li> <li>- SMPL Infra Limited</li> <li>- UPL Environmental Engineers Limited</li> </ul>
--	---



The report is available in a PDF format.

## Table of Contents

<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION I: MARKET OVERVIEW</b></p> <p><b>2. SEWAGE MARKET SIZE AND GROWTH</b> .....</p> <ul style="list-style-type: none"> <li>- Sewerage Sector Snapshot</li> <li>- Sewage Generation</li> <li>- Growth in Treatment Capacity</li> <li>- Generation-Treatment Gap</li> <li>- City-wise Generation and Treatment Capacity</li> <li>- Key Sector Trends</li> <li>- Current Tariff Structure</li> <li>- Issues and Challenges</li> </ul> <p><b>3. RECENT INITIATIVES AND KEY DEVELOPMENTS (past 15-18 months)</b></p> <ul style="list-style-type: none"> <li>- Key Focus Areas, City-level Initiatives, Tariff Revisions, Key Projects (Completed &amp; Awarded), Policy &amp; Regulatory Developments, Others</li> </ul> <p><b>4. INTER-CITY COMPARISON: KEY CITIES</b> .....</p> <ul style="list-style-type: none"> <li>- City-wise Analysis of Sewage Treatment Capacity</li> <li>- Technology-wise Analysis</li> <li>- Profiles of Key Cities: List of Cities Covered, Sewage Generation and Treatment Capacity, Comparative Analysis, ULB Profiles</li> </ul> <p><b>5. FINANCING</b> .....</p> <ul style="list-style-type: none"> <li>- Experience So far</li> <li>- Budgetary Sources and Finance Commission Grants</li> <li>- Centrally-sponsored Programmes</li> <li>- Grants/Allocations from State Governments</li> <li>- Funds from Multilateral Agencies</li> <li>- Loans from Financial Institutions</li> <li>- Revenue Sources of Urban Local Bodies</li> <li>- Recent Trends</li> <li>- Investment Requirements (till 2022-23)</li> <li>- Risks and Challenges</li> <li>- The Way Forward</li> </ul> <p><b>SECTION II: PROJECTS, OUTLOOK AND OPPORTUNITIES</b></p> <p><b>6. PROJECT PIPELINE AND ANALYSIS</b> .....</p> <ul style="list-style-type: none"> <li>- Summary of Key Projects in Pipeline</li> <li>- Project Pipeline by Stage of Development, State, City, Completion Period</li> <li>- Expected Capacity Addition</li> </ul> <p><b>7. PPP PROJECTS AND OUTLOOK</b> .....</p> <ul style="list-style-type: none"> <li>- Formats and Models, Experience So Far, Revenue Streams, PPP Project Portfolio, Key Completed Projects, Key Ongoing Projects, Project Pipeline and Outlook, Issues Impacting PPPs, Key Learnings, The Way Forward</li> </ul> <p><b>8. OUTLOOK AND OPPORTUNITIES</b> .....</p> <ul style="list-style-type: none"> <li>- Key Growth Drivers, Investment Projections, Emerging Opportunities, Sector Outlook</li> </ul> <p><b>SECTION III: REVIEW OF GOVERNMENT PROGRAMMES</b></p> <p><b>9. NAMAMI GANGE PROGRAMME</b> .....</p> <ul style="list-style-type: none"> <li>- Mission and Vision</li> <li>- Scope and Funding Pattern</li> <li>- Allocations and Disbursements</li> <li>- State-wise Disbursements</li> <li>- Status of Projects: STPs, Sewerage Network, Ghats and Crematoria</li> <li>- Key Ongoing Projects</li> <li>- Recently Awarded Projects</li> <li>- Key Projects Under Bidding Stage</li> </ul>	<ul style="list-style-type: none"> <li>- Key Announced Projects</li> <li>- Capacity Addition</li> <li>- Issues and the Way Forward</li> </ul> <p><b>10. ATAL MISSION FOR REJUVENATION AND URBAN TRANSFORMATION (AMRUT)</b></p> <ul style="list-style-type: none"> <li>- Mission and Scope, Funding Pattern, Allocations and Disbursements, Update on Projects, AMRUT's Goals and Achievements, The Way Forward</li> </ul> <p><b>11. SMART CITIES MISSION</b> .....</p> <ul style="list-style-type: none"> <li>- Mission and Scope</li> <li>- Selection Process of Mission Cities</li> <li>- Mission Cities</li> <li>- Investment Requirements under the Smart Cities Mission</li> <li>- Project Funding</li> <li>- Convergence with Other Schemes</li> <li>- City-wise Analysis of Sewerage/Drainage Projects</li> <li>- Progress So Far</li> <li>- The Way Forward</li> </ul> <p><b>SECTION IV: SEWAGE TREATMENT AND ANALYSIS</b></p> <p><b>12. TREATMENT TECHNOLOGIES</b> .....</p> <ul style="list-style-type: none"> <li>- Conventional Technologies: Key Features, Key STPs</li> <li>- Advanced Technologies: Key Features, Key STPs</li> <li>- Current Capacity: Treatment Technology-wise, State-wise</li> <li>- Case Studies: STP in Keshopur, Delhi; STP in Okhla, Delhi; FSTP in Devanahalli, Karnataka</li> <li>- Emerging Technologies</li> </ul> <p><b>13. ENERGY FROM SEWAGE</b> .....</p> <ul style="list-style-type: none"> <li>- Existing Capacity</li> <li>- Relevant Technologies</li> <li>- Analysis - Select Cities: Chennai, Surat, Delhi</li> <li>- Potential for Energy Generation</li> <li>- Upcoming Projects</li> <li>- Issues and Challenges</li> </ul> <p><b>14. RECYCLE AND REUSE</b> .....</p> <ul style="list-style-type: none"> <li>- Applications of Recycled Wastewater</li> <li>- Standards for Reuse</li> <li>- Current Practices/Recent Initiatives</li> <li>- Recycle and Reuse Potential</li> <li>- Select Case Studies: Surat, Nagpur, Delhi, Bengaluru</li> <li>- Issues and Challenges, The Way Forward</li> </ul> <p><b>SECTION V: KEY PLAYERS</b></p> <p><b>15. PROFILES OF LEADING PRIVATE PLAYERS</b> .....</p> <ul style="list-style-type: none"> <li>- Degremont Limited</li> <li>- Enviro Control Associates (India) Private Limited</li> <li>- Larsen &amp; Toubro Limited</li> <li>- NCC Limited</li> <li>- Ramky Infrastructure Limited</li> <li>- Simplex Infrastructures Limited</li> <li>- SPML Infra Limited</li> <li>- Triveni Engineering &amp; Industries Limited</li> <li>- UEM India</li> <li>- VA Tech Wabag Limited</li> <li>- Veolia Water India Private Limited</li> <li>- Vishvaraj Infrastructure Limited</li> </ul>
---	--



The report is available in a PDF format.

## Segment Analysis, Outlook and Opportunities

## Table of Contents

## SECTION I: MARKET OVERVIEW AND ANALYSIS

- 1. OVERVIEW**
  - Current Supply
  - Supply by Segments
  - Key Growth Drivers
  - Policy Support
  - Expected Demand and Investments
  - Issues and Challenges
  - Future Outlook
- 2. POLICY AND REGULATORY FRAMEWORK**
  - Key Agencies and their Role
  - Real Estate (Regulation and Development) Act, 2016
  - Benami Transactions (Prohibition) Amendment Act, 2016
  - Shops and Establishments Act
  - FDI Norms
  - Fiscal Incentives for Developers
  - Fiscal Incentives for Buyers
- 3. UNION BUDGET 2017**
  - Infrastructure Status and Impact
  - Impact on Supply
  - Allocation to Various Schemes: Pradhan Mantri Awas Yojana, AMRUT and Smart Cities, Loan refinancing through National Housing Board
  - Tax Reliefs
  - Overall Impact on Sector
- 4. IMPACT OF GST**
  - Scope and Timelines
  - Progress So Far
  - Likely Impact (on contractors, equipment providers, and material suppliers)
- 5. IMPACT OF DEMONETISATION**
  - Long-term and Short-term Impact: Impact on Real Estate Prices, Impact on Primary and Secondary Sales, Impact on the Type of Transactions (transition to smaller floor plates and units, investments in serviced apartment projects, etc.)
  - The Way Forward
- 6. RECENT GOVERNMENT INITIATIVES**
  - Online Registration, Online Revenue System, Transparency Initiatives, Others
- 7. PRIVATE EQUITY FINANCING AND TRANSACTIONS**
  - Current Size, Recent Trends, Recent Transactions, Investment Experience (by type and asset class), Expected Rates of Return
- 8. FOCUS ON REITS AND INVITS**
  - Key Elements, Structure and Models, Experience So Far, Regulatory Trends, Potential Yield Curve, Issues and Challenges
- 9. OTHER FINANCING TRENDS**
  - Trends in Debt Financing
  - Trends in FDI Inflow and ECBs
  - Recent Mergers and Acquisitions
- 10. MARKET OPPORTUNITIES AND OUTLOOK**
  - Projected Supply, New Avenues
  - Market Opportunities for: Contractors (Housing, Commercial, Retail and SEZ), Equipment Providers (Housing, Commercial, Retail and SEZ), Material Suppliers (Housing, Commercial, Retail and SEZ)

## SECTION II: SEGMENT ANALYSIS AND OUTLOOK

- 11. HOUSING REAL ESTATE**
  - Current Scenario
  - Key Market Indicators
  - Key Drivers
  - Notable Trends
  - Key Developers
  - Investment Projections
  - Key Upcoming Projects
  - Segment Outlook
- 12. COMMERCIAL REAL ESTATE**
  - Current Scenario
  - Key Market Indicators
  - Key Drivers
  - Notable Trends
  - Key Developers
  - Investment Projections
  - Key Upcoming Projects
  - Segment Outlook
- 13. RETAIL REAL ESTATE**
  - Current Scenario
  - Key Market Indicators
  - Key Drivers
  - Notable Trends
  - Key Developers
  - Investment Projections
  - Key Upcoming Projects
  - Segment Outlook
- 14. SPECIAL ECONOMIC ZONES**
  - Current Scenario
  - Key Market Indicators
  - Key Drivers
  - Notable Trends
  - Key Developers
  - Investment Projections
  - Key Upcoming Projects
  - Segment Outlook

## SECTION III: BIG EIGHT CITIES

- 15. PROFILES OF BIG EIGHT CITIES**
  - Mumbai, Bengaluru, National Capital Region, Pune, Hyderabad, Chennai, Kolkata, Ahmedabad

Each profile covers the following information:

- Current Supply and Asset Type
- Trends in Market Indicators
- Upcoming Supply
- Location Strategy
- Investment Scenario
- Future Outlook



The report is available in a PDF format.

Table of Contents

SECTION I: INTRODUCTION AND SUMMARY

- 1. SURVEY DESIGN AND METHODOLOGY .....
- 2. ENTERPRISE MOBILITY: KEY FINDINGS, TRENDS, OUTLOOK AND PROJECTIONS .....

  - Enterprise Resource Planning
  - Customer Relationship Management
  - Supply Chain Management
  - Inventory Management
  - Business Intelligence
  - Field Force Management
  - Sales Force Automation

- 3. MOBILE HANDSETS AND WORKFORCE: KEY FINDINGS AND TRENDS

  - Mobile Workforce
  - Mobile Provision
  - Smartphone Penetration
  - Expenditure on Handsets and Services

SECTION II: SURVEY FINDINGS - ENTERPRISE APPLICATIONS AND MOBILITY

- 4. ENTERPRISE RESOURCE PLANNING

  - Level of Adoption
    - Already Deployed
    - Considering Deployment within 12 months
  - Current Status of Mobilisation
    - Already Mobilised
    - Planning to Mobilise within One Year
    - Planning to Mobilise within Two Years
  - Industry-wise Analysis

- 5. FIELD FORCE MANAGEMENT .....

  - Being Used
  - Being Considered for Deployment in the Next Year
  - Analysis by Industry

- 6. SALES FORCE AUTOMATION .....

  - Being Used
  - Being Considered for Deployment in the Next Year
  - Analysis by Industry

- 7. CUSTOMER RELATIONSHIP MANAGEMENT .....

  - Level of Adoption
    - Already Deployed
    - Considering Deployment within 12 months
  - Current Status of Mobilisation
    - Already Mobilised
    - Planning to Mobilise within One Year
    - Planning to Mobilise within Two Years
  - Industry-wise Analysis

- 8. SUPPLY CHAIN MANAGEMENT .....

  - Level of Adoption
    - Already Deployed
    - Considering Deployment within 12 months
  - Current Status of Mobilisation
    - Already Mobilised
    - Planning to Mobilise within One Year
    - Planning to Mobilise within Two Years
  - Industry-wise Analysis

- 9. INVENTORY MANAGEMENT .....

  - Level of Adoption
    - Already Deployed
    - Considering Deployment within 12 months
  - Current Status of Mobilisation
    - Already Mobilised
    - Planning to Mobilise within One Year
    - Planning to Mobilise within Two Years
  - Industry-wise Analysis

- 10. BUSINESS INTELLIGENCE .....

  - Level of Adoption
    - Already Deployed
    - Considering Deployment within 12 months
  - Current Status of Mobilisation
    - Already Mobilised
    - Planning to Mobilise within One Year
    - Planning to Mobilise within Two Years
  - Industry-wise Analysis

SECTION III: SURVEY FINDINGS – MOBILE HANDSETS AND WORK-FORCE

- 11. MOBILE WORKFORCE

  - Proportion of Workforce Classified as Mobile
  - Industry-wise Analysis

- 12. MOBILE PROVISION .....

  - Provision of Mobile Handsets
  - Nature of Provision
    - Company-owned Company-paid (COCP)
    - Individual-owned Individual-paid (IOIP)
    - Individual-owned Company-paid (IOCP)
  - Industry-wise Analysis

- 13. SMARTPHONE PENETRATION .....

  - By Device Type (Standard mobile handset, BlackBerry, iOS-based, Android-based)
  - Industry-wise Analysis

- 14. EXPENDITURE ON HANDSETS AND SERVICES .....

  - Price Paid for Handsets Offered by the Company
  - Average Monthly Expenditure on Service
  - Industry-wise Analysis

*(In Sections II and III, industry-wise analysis includes Banking, Financial Services and Institutions, Education, FMCG, Government and Utilities, IT and ITES, Logistics and Transportation, Manufacturing, Media and Entertainment, Retail, Travel and Hospitality)*



The report is available in a PDF format.

(September 2016)

## Table of Contents

## 1. EXECUTIVE SUMMARY .....

## SECTION A: KEY SECTOR TRENDS

## 2. TELECOM SECTOR OVERVIEW .....

- Size and Growth, Data Usage Pattern, Policy and Regulatory Scenario, Market Structure, Recent Trends and Developments, Emerging Opportunities under Digital India, Emerging Trends and Future Outlook

## 3. INFRASTRUCTURE RELATED POLICY AND REGULATORY SCENARIO .

- Policy and Regulatory Framework
- Local Levies and Regulations
- Infrastructure Sharing Policies
- Key Features of Draft RoW Policy
- Digital India-Government Initiatives and Opportunities for the Industry
- State Initiatives under Digital India
- Other Initiatives
- Policy and Regulatory Outlook

## SECTION B: TELECOM MARKET OVERVIEW

## 4. TELECOM TOWER INFRASTRUCTURE .....

- Emergence of the Indian Telecom Tower Industry, Size and Growth, Key Growth Drivers, Market Share of Key Players, M&A and Consolidation, Emerging Business Models, Key Issues and Challenges, Future Outlook

## 5. TOWER INFRASTRUCTURE SHARING .....

- Current Status, Policy and Regulatory Scenario, Tower Sharing Models, Growth in Tenancies, Economics of Sharing, Issues and Challenges, Future Drivers and Outlook

## 6. ACTIVE INFRASTRUCTURE SHARING .....

- Overview, Key Developments in Active Infrastructure Sharing, Promise and Potential, Experience and Economics, Key Issues and Challenges, Outlook

## 7. IMPACT OF 3G AND 4G .....

- Introduction, Mobile Data Consumption and Device Penetration, Opportunities for Tower Industry, Emerging Solution: Data Offloading, Energy Management, Issues and Future Outlook

## 8. ENERGY MANAGEMENT .....

- Introduction, Break-up of Power Consumption in Telecom Network, Energy Cost Structure at Telecom Tower Site, Evolving Energy Cost Structure, State-wise Grid Tariffs, Key Trends, Business Models, Energy Efficiency, Alternative Sources of Energy, Emerging Trends and Solutions, Key Issues and Challenges, Energy Cost Outlook, Summing Up and Future Outlook

## 9. EMERGING TECHNOLOGIES AND SOLUTIONS .....

- Introduction, Evolving Tower Designs, Evolving Materials, Emerging Technological Solutions, Challenges and Solutions, Future Outlook

## 10. KEY PLAYER PROFILES .....

- ATC India, Bharti Infratel, Bharat Sanchar Nigam Limited, GTL Infrastructure, Indus Towers, Ascend Telecom

## 11. OUTLOOK AND PROJECTIONS .....

- Factors Affecting Tower Industry Growth, Outlook for Mobile Data and Smartphone Subscriptions, Tower Demand Projections, BTS and Tenancy Demand Outlook, Other Emerging Trends, Opportunities and Threats

## SECTION C: OPTIC FIBRE CABLE MARKET

## 12. OFC INFRASTRUCTURE IN INDIA .....

- Current Status
- Key Growth Drivers
- Emerging Business Models
- Key Issues and Solutions
- Emerging Opportunity-FTTH
- Future Outlook

## 13. FOCUS ON BHARATNET (NATIONAL OPTICAL FIBRE NETWORK) . . .

- Role and Key Features of BharatNet
- Timelines for Project Implementation
- Break-up of Work Allocation
- Current Status of Project Implementation
- Estimated Cost and Sanctions
- State-wise Progress
- Tenders Awarded and in Pipeline
- Implementation Experience
- Role of Private Players
- Key Issues and Challenges
- The Way Forward

## 14. OFC INFRASTRUCTURE SHARING .....

- Current Scenario, Recent Developments, Cost Economics, Key Issues and the Way Forward

## 15. MOBILE BROADBAND MARKET .....

- Size and Growth, Key Players, Key Trends, Emerging Technology Mix, Growth Drivers, Future Outlook

## 16. FIXED BROADBAND MARKET .....

- Current Status, Size and Growth, Key Players, Key Trends, Emerging Technology Mix, Current OFC Network and Future Requirements, Growth Drivers and Future Outlook

## 17. SMART CITIES .....

- Key Features of Smart Cities Programme
- Telecom Requirements for Smart Cities
- Key Challenges
- Key Solutions
- Smart Cities Investment Areas
- Opportunities for Various Stakeholders

## 18. OTHER SEGMENTS .....

- Power, Oil and Gas, Defence, Railways

## 19. KEY PLAYER PROFILES

- Bharti Airtel, Bombay Gas, Bharat Sanchar Nigam Limited, GalITel, Idea Cellular, Power Grid, RailTel, Reliance Communications

## 20. EMERGING TECHNOLOGIES AND SOLUTIONS .....

- Aerial Fibre Network, 100G/400G Networks, Deployment of 100G Networks, Polymers and Specialty Material, Data Centre Optics

## 21. OUTLOOK AND PROJECTIONS .....

- Emerging OFC Applications, Future Plans of Key Players, Future Growth Drivers, Demand Projections for Fibre in the Backhaul



The report is available in a PDF format.



Trends, Development, Outlook and Projections

Table of Contents

**SECTION I: CURRENT FINANCING AND INVESTMENT SCENARIO**

**1. SUMMARY** .....

**2. OVERVIEW** .....

- Infrastructure Investment Requirements
- Current Investment Appetite
- Recent Trends in Funding Sources
- Issues and Challenges & Outlook

**3. POLICY INITIATIVES AND EXPECTED IMPACT** .....

- Strategic Debt Restructuring
- Changes in FDI Norms
- 5/25 Refinancing Scheme
- Regulatory Changes in Bond Issuance
- RBI Measures to Contain Policy Rates
- Other Key Policy Changes
- Likely Impact on Financing
- Proposed Policies

**4. RECENT TRENDS AND DEVELOPMENTS (past 15 months)** .....

- Investment Realised across Sectors
- Key Financial Closures
- Trends in Stressed Assets
- Debt Restructuring
- Sale of Operational Assets
- Emerging Financial Models

**5. CDRS AND DEBT RESTRUCTURING** .....

- Growth in CDR Numbers
- Sector-wise Break-up of Stressed Assets
- RBI's SDR Scheme
- Recent Companies Invoking SDR
- Expected Impact of the Scheme
- Key Challenges in Implementation

**6. MERGERS AND ACQUISITIONS** .....

- Key Drivers, Recent Transactions, Key Acquiring Players, Sector-wise Potential, Outlook

**7. INVESTMENT PROJECTIONS AND SECTOR REQUIREMENTS (till 2020)** .....

- Drivers of Growth, Infrastructure Project Pipeline, Investment Projections, Opportunities for Debt and Equity Players, Constraining Factors & Expectations from New Government Schemes/Initiatives

*Sectors covered: Roads, Power, Ports, Airports, Railways, Urban Transport & Water and Sanitation*

**8. EMERGING FUNDING SOURCES** .....

- Insurance and Pension Funds: Experience so Far, Key Risks and Challenges & Measures Required to Enable Greater Participation
- Infrastructure Debt Funds: Existing Debt Funds and their Performance, Policy Measures to Promote IDFs, New Fund Announcements & Key Constraints
- INVeTS: Experience so Far, Terms and Structures & Key Risks
- Asia Infrastructure Investment Bank
- National Infrastructure Investment Fund

**SECTION II: FOCUS ON DEBT SOURCES**

**9. COMMERCIAL BANK LENDING** .....

- Size and Growth
- Current Stance of Lenders
- Recent Terms and Structures
- Stressed Assets and Restructuring
- Key Risks

**10. ECBS** .....

- Size and Growth
- Cost Comparison vis-à-vis Domestic Loans
- Recent Terms and Structures
- Key Risks

**11. BOND MARKET** .....

- Size and Growth
- Regulations and Terms
- Experience so Far
- Focus on Green and Masala Bonds
- Challenges in Developing the Market
- Measures Required to Deepen the Bond Market

**12. NBFCs** .....

- Size and Growth
- Current Financing Appetite
- Recent Terms and Structures
- Key Risks

**13. PUBLIC FINANCING INSTITUTIONS** .....

- Size and Growth
- Current Financing Appetite
- Recent Terms and Structures
- Key Risks

**14. INTERNATIONAL FUNDING AGENCIES** .....

- Role of International Funding Agencies
- Size and Growth
- Recent Terms and Structures
- Key Risks

**SECTION III: FOCUS ON EQUITY SOURCES**

**15. PE TRENDS** .....

- Current Stance of PE Investors
- Trends in the Recent Past
- New Opportunities for PE Investors
- Key Players
- Risk Perception
- Returns Expectations
- Key Concerns

**16. INITIAL PUBLIC OFFERINGS** .....

- Current Environment for Infrastructure IPOs
- Size and Growth
- Sector-wise Analysis
- Historical and Expected Returns
- Follow-on Public Offers
- Future Outlook

**17. QUALIFIED INSTITUTIONAL PLACEMENTS** .....

- Current Environment for QIPs, Size and Growth, Sector-wise Analysis & Future Outlook

**SECTION IV: RECENT FINANCINGS**

**18. KEY FINANCIAL CLOSURES** .....

- Project Developer, Project Cost, Concession Period, Mode of Implementation, VGF/Grants, Debt Equity Ratio, Equity Contribution, Key Lenders, Average Cost of Financing & Tenure of Financing



The report is available in a PDF format.

**Table of Contents**

**SECTION I: OVERVIEW**

**1. EXECUTIVE SUMMARY** .....

**2. INFRASTRUCTURE PROJECT PIPELINE** .....

- Key Trends
- Recent Developments
- Announced/Under Planning Projects
- Awarded Projects
- Under Construction Projects
- Outlook and Projections (By 2019-20)

**3. PROJECT PIPELINE ANALYSIS** .....

- By Sector
- By Ownership
- By State
- By Promoter
- By Contractor

**SECTION II: PIPELINE ANALYSIS BY SECTOR**

**4. ROADS AND BRIDGES** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**5. PORTS** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**6. URBAN TRANSPORT** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**7. RAILWAYS** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**8. AIRPORTS** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**9. POWER** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**10. OIL AND GAS** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**11. RENEWABLE ENERGY** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**12. COAL** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**13. WATER SUPPLY AND SANITATION** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)

**14. WASTE MANAGEMENT** .....

- Key Trends
- Recent Developments
- Overall Project Pipeline (no. of projects, investment size and capacity)
- Pipeline by Project Stage  
Announced/Under Planning Projects, Awarded Projects, Under Construction Projects, Projects Completed in 2014, Outlook and Projections (by 2019-20)



*The report is available in a PDF format.*

## Table of Contents

### SECTION I: OVERVIEW

#### 1. COUNTRY OVERVIEW

- Key Macroeconomic Indicators
- Recent Policy Changes and Policy Framework
- Infrastructure Size and Growth
- Current Infrastructure Deficit
- Myanmar's SWOT Analysis

#### 2. INVESTMENT POLICY FRAMEWORK

- Brief Historical Overview
- Current Policy Framework
- New Foreign Investment Law
- Myanmar Investment Commission
- Investment Rules and Impact on Infrastructure
- Taxation Regime and Other Key Investment Related Policies
- Investment Treaties and Agreements
- Key Constraints

#### 3. FOREIGN INVESTMENT IN MYANMAR'S INFRASTRUCTURE

- Experience So Far
- Key Trends
- Top FDI Contributing Countries
- Key Players

#### 4. FINANCING OPTIONS AND TRENDS

- Funding Sources
- Commercial Bank Lending
- Multilateral and Bilateral Funding
- PPP Experience
- Emerging Sources of Finance
- Key Risks and Challenges

#### 5. MARKET AND INVESTMENT OPPORTUNITIES

- Key Growth Drivers
- Infrastructure Needs and Requirements
- Infrastructure Investment Projections
- Market Opportunities and Investment Outlook

### SECTION II: SECTOR-WISE ANALYSIS

#### 6. ROADS AND BRIDGES

- Size and Growth - Roads and Bridges
- Key Agencies
- Policy Framework, Pricing and Tariffs
- Key Sector Trends
- Market Structure and Key Players
- Investment Projections
- Project Pipeline and Market Opportunities

#### 7. AIRPORTS

- Size and Growth
- Key Agencies and Policy Framework
- Pricing and Tariffs
- Market Structure and Key Players
- Investment Projections
- Project Pipeline - Under Implementation and Planning

#### 8. PORTS

- Size and Growth
- Key Agencies
- Policy and Legal Framework
- Key Sector Reforms, Pricing and Tariffs
- Market Structure and Key Players
- Investment Requirement
- Project Pipeline and Market Opportunities

#### 9. POWER

- Size and Growth
- Power Sector Performance
- Key Agencies
- Policy Framework, Key Sector Reforms, Pricing and Tariffs
- Market Structure and Key Players
- Future Potential and Projections
- Project Pipeline and Market Opportunities

#### 10. OIL AND GAS

- Size and Growth
- Existing Infrastructure
- Recent Bidding Rounds
- Key Agencies
- Policy Framework, Pricing and Tariffs
- Market Structure and Key Players
- Investment Plans of Key Companies
- Project Pipeline and Market Opportunities

#### 11. TELECOM

- Size and Growth
- Key Agencies
- Policy Framework and Key Sector Reforms
- Pricing and Tariffs
- Market Structure and Key Players
- Myanmar's Tower Industry
- Investment Plans
- Market Opportunities - Market Liberalisation, Data Drive and Tower Industry

#### 12. WATER AND SANITATION

- Size and Growth
- Water Supply and Sanitation in Yangon
- Key Agencies
- Policy Framework - Pre 2000 and Post 2000
- Pricing and Tariffs
- Market Structure and Key Players
- Investment Projections
- Market Opportunities and Project Pipeline

#### 13. RAILWAYS

- Size and Growth
- Policy Framework
- Pricing and Tariffs
- Key Sector Trends
- Market Structure
- Investment Projections
- Market Opportunities and Project Pipeline

#### 14. SEZs/INDUSTRIAL ZONES

- Size and Growth
- SEZs in Myanmar - Location, Key Facts and Current Status
- DaweiSEZ Timeline
- Thilawa SEZ Timeline
- KyaukpyuSEZ Timeline
- Policy Framework
- New Investment Rules for Thilawa SEZ
- Key Agencies
- Market Structure and Key Players
- Market Opportunities and Project Pipeline



The report is available in a PDF format.

## Table of Contents

### 1. EXECUTIVE SUMMARY .....

#### SECTION I: MACRO ANALYSIS

### 2. OVERVIEW .....

- Macroeconomic and Trade Scenario
- Infrastructure Growth in the Past Five Years
- Recent Key Policies and Reforms
- Expected Capacity Addition in the Infrastructure Sector
- Infrastructure Investment Requirements
- Key Issues and Challenges
- Outlook and Opportunities

### 3. INVESTMENTS, OPPORTUNITIES AND OUTLOOK (till 2023-24) .....

- Growth Drivers
- Upcoming Projects and Investments: By Country, Sector, Stage (ongoing, bidding, preliminary/planning), Mode of Implementation
- Market Opportunities: Developers, Construction Contractors, Consultants, Equipment and Technology Providers, Etc.
- Future Outlook

### 4. INTER-COUNTRY COMPARISON .....

- Country-wise Economic Scenario
- Current Infrastructure
- Growth in the Past Five Years
- Expected Capacity Addition
- Proposed Investments
- Summary of Project Pipeline

### 5. FINANCING OF AFRICAN INFRASTRUCTURE .....

- Funding Sources
- Multilateral and Bilateral Funding
- Bank Lending (commercial and regional development banks)
- Role of Private Equity Funds
- Emerging Sources of Finance (sovereign wealth funds, infrastructure bonds, pension funds, etc.)
- Investment Requirement
- Key Risks and Challenges

### 6. PRIVATE SECTOR PARTICIPATION .....

- Experience so Far
- Completed Projects
- Sector-wise Analysis
- Country-wise Analysis
- Analysis of Upcoming Projects: By Sector, Stage, Country
- Issues and Challenges
- The Way Forward

### 7. FOREIGN DIRECT INVESTMENT TRENDS .....

- Size and Growth
- FDI Analysis: By Source, Destination, Sector
- Initiatives to Encourage Foreign Investment
- Proposed Foreign Investments
- Participation of Overseas Equipment Manufacturers and Service Providers

#### SECTION II: SECTOR-WISE ANALYSIS (TRENDS, INVESTMENT AND MARKET OPPORTUNITIES)

### 8. ELECTRICITY .....

### 9. RENEWABLES .....

### 10. OIL AND GAS .....

### 11. ROADS .....

### 12. RAIL .....

### 13. URBAN TRANSPORT .....

### 14. SEAPORTS .....

### 15. AIRPORT/AIR TRANSPORT

### 16. ICT .....

### 17. WATER AND SANITATION .....

*(Each chapter includes information on size and growth, policy and institutional framework, key trends, proposed investments, planned capacity addition, upcoming projects, market opportunities, key issues and challenges, sector outlook)*

#### SECTION III: COUNTRY PROFILES

### 18. PROFILES OF KEY COUNTRIES (36 countries selected on the basis of GDP)

Algeria, Angola, Benin, Botswana, Burkina Faso, Cameroon, Chad, Congo, Congo DR, Côte d'Ivoire, Egypt, Equatorial Guinea, Ethiopia, Gabon, Ghana, Kenya, Libya, Madagascar, Malawi, Mali, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, South Sudan, Sudan, Tanzania, Tunisia, Uganda, Zambia and Zimbabwe

Each country profile covers the following:

- Economic growth in the past five years
- Indicators of infrastructure growth
- Budgetary allocation in the infrastructure sector
- Expected capacity additions in the infrastructure sector
- Expected investments
- Key upcoming projects



The report is available in a PDF format.

Table of Contents

SECTION I: REGIONAL INFRASTRUCTURE OVERVIEW

**1. OVERVIEW** .....

- Introduction
- Economic Growth in the Region
- Infrastructure Growth in the Last Five Years
- Trade and Openness
- Current Infrastructure Deficit
- Expected Demand from Key Infrastructure Sectors
- Infrastructure Investment Projections and Outlook
- Key Regional Infrastructure Programmes
- Recent Policies and Reforms
- Focus on Sustainable Infrastructure
- Issues and Challenges

**2. POLICY AND REGULATORY FRAMEWORK** .....

- Introduction
- Key Acts/Regulations Governing Infrastructure Sectors
- Existing Institutional Framework
- Regulatory and Institutional Reforms Across Sectors
- Fiscal and Taxation Regime
- Next Steps and the Way Forward

**3. FINANCING OF SOUTHEAST ASIAN INFRASTRUCTURE** .....

- Introduction
- Overall Financing Requirement
- Financing Sources
- Government Funding
- Non-government Funding
- Rising Share of Sovereign Wealth Funds
- Increasing Potential for Mergers and Acquisitions
- Role of Public-private Partnerships
- Innovative Funding Sources
- Financing Risks
- The Way Forward

**4. PPP EXPERIENCE AND OPPORTUNITIES** .....

- Introduction
- Policy and Institutional Framework
- Experience So Far
- Sector-wise Analysis
- Proposed Investments
- Case Studies
- Project Pipeline
- Risks and Challenges
- The Way Forward for PPP

**5. FOCUS ON REGIONAL/CROSS-BORDER INFRASTRUCTURE** .....

- Introduction
- Investments So Far
- Key Programmes/Initiatives
- Key Ongoing Projects
- Case Studies
- Initiatives to Attract Cross-border Investments
- Investment Requirement and Projected Investments
- Constraints to Cross-border Infrastructure

**6. FOREIGN INVESTMENTS IN SOUTHEAST ASIAN INFRASTRUCTURE** ..

- Introduction
- Foreign Direct Investment
- Participation from Top FDI Contributors
- Proposed Investments
- Initiatives to Encourage Foreign Investment
- Participation of Overseas Equipment Manufacturers and Service Providers

**SECTION II: SECTOR ANALYSIS**

**7. ELECTRICITY** .....

**8. OIL AND GAS** .....

**9. ROADS** .....

**10. RAILWAYS** .....

**11. SEAPORTS** .....

**12. AIRPORT/AIR TRANSPORT** .....

**13. URBAN TRANSPORT (METRO, LIGHT RAIL AND BUS RAPID TRANSIT SYSTEM)** .....

**14. ICT** .....

**15. WATER & SANITATION** .....

*(Each chapter includes information on existing infrastructure, growth in the last few years, policy framework, institutional structure, proposed investments, financing arrangements for the sector, key sector trends, project pipeline, key sector challenges, investment and market opportunities)*

SECTION III: COUNTRY ANALYSIS

**16. INTER-COUNTRY COMPARISON** .....

- Introduction
- Country-wise Economic Scenario
- Current Infrastructure
- Growth in the Last Five Years
- Expected Capacity Additions
- Proposed Investments
- Summary of Project Pipeline

**17. COUNTRY PROFILES** .....

- Indonesia
- Thailand
- Malaysia
- Singapore
- Philippines
- Vietnam
- Myanmar
- Brunei Darussalam
- Cambodia
- Lao People's Democratic Republic (PDR)

**18. APPENDIX** .....



The report is available in a PDF format.

## Table of Contents

## SECTION I: SECTOR OVERVIEW AND OUTLOOK

- 1. EXECUTIVE SUMMARY** .....
- 2. SIZE AND GROWTH** .....
- Allocation and Spending: Budget Allocation and Estimates, Service-wise Budget Allocation, Actual Spending, Actual Expenditure and Spending; Revenue and Capital Budget; Procurement Trends, Production Trends; Industry Structure and Key Players; Growth Drivers; Existing Infrastructure Gaps, Issues and Challenges, Sector Outlook
- 3. RECENT DEVELOPMENTS** .....
- Key Policy Developments, Recent Contracts Awarded, RFI and RFPs Issued, New Industrial Licenses Awarded, Partnerships, Collaboration and Tie-ups, Agreements and MoUs, R&D Initiatives, Other Key Developments
- 4. DEFENCE PROCUREMENT PROCEDURE 2016** .....
- History of Defence Procurement Procedure (DPP), Evolution of DPP, Introduction of DPP 2016, Key Elements and Details
  - Strategic Partnership Model: Evolution, Criteria and Challenges
  - Comparison of DPPs, Likely Impact of DPP 2016, Issues and Challenges
- 5. BUSINESS ENVIRONMENT** .....
- Essentials of Defence Industry Eco-system, Ease of Doing Business in India, Industrial Licences, Foreign Direct Investments, Tax Environment, Government Initiatives and Incentives, Independent Regulator for Private Sector SP
- 6. KEY AGENCIES, ROLES AND STRUCTURES** .....
- Institutional Set-up; Role of MoD, DRDO, Other Government Agencies
- 7. PRIVATE SECTOR PARTICIPATION** .....
- Role and Scope of Private Sector; Experience So Far; Focus on JVs and Collaborations; Recently Awarded Contracts; Opportunities for Private Players; MSMEs in Defence: Overview, Key Challenges, Key Opportunities; Expectations from Government; Issues and Challenges; The Way Forward
- 8. DEFENCE EXPORT AND IMPORT** .....
- Current Scenario; Government Initiatives; Export and Import Trends: Year-wise Value, Category-wise Value, Key Categories; Partner Countries; Country-wise Key Products/Equipment - Exports, Imports; The Way Forward
- 9. DEFENCE OFFSETS** .....
- Evolution of Defence Offsets, Experience So Far, Key Contracts - By Partner Country and Segment, Key Characteristics and Amendments to Offset Policy, Offset Policy and DPP 2016?, Issues and Challenges, Key Contracts and Orders, Sector Outlook
- 10. OUTLOOK AND OPPORTUNITIES** .....
- Budget Projections, Ongoing Acquisitions, Future Acquisitions, Overall Opportunity, Upcoming Projects and Programmes, Opportunities in Key Segments, Next Steps

## SECTION II: SEGMENT ANALYSIS AND MARKET OPPORTUNITIES

- 11. DEFENCE VEHICLES** .....
- Types of Defence Vehicles; Trends in Expenditure; Key Contracts Awarded; Industry Structure and Key Players: Key Public and Private Players, Heavy/Construction Vehicle Providers; Collaborations and Tie-ups; R&D Initiatives; Make in India and Focus on Indigenisation; Modernisation Plans: Future Infantry Combat Vehicle, Future Ready Combat Vehicle (FRCV); Upcoming

Contracts and Orders; Market Opportunities; Segment Outlook

- 12. ARMS AND AMMUNITION** .....
- Current Status; Trends in Capital Expenditure, Key Contracts Awarded; Industry Structure and Players: Target, Production and Supplies by OFB, Key Domestic Players; Collaborations and Tie-ups; R&D Initiatives; Make in India and Indigenisation; Modernisation Plans; Upcoming Contracts and Orders; Market Opportunities; Segment Outlook
- 13. AEROSPACE** .....
- Current Status: Overview, The Number Game; Trends in Expenditure; Key Contracts Awarded; Upcoming Opportunities in Big-ticket Projects; Industry Structure and Players: Key Domestic Players, Key International Players; Collaborations and Tie-ups; R&D Initiatives; Make in India Initiative; Modernisation - Key Ongoing Upgrades; Indigenisation: Current Scenario, IAF's Indigenisation Requirements; Upcoming Contracts and Orders; Market Opportunities; Segment Outlook
- 14. ELECTRONICS AND COMMUNICATION SYSTEMS** .....
- Current Status: Defence Electronics Overview and Eco-system, Market Size and Expenditure Trends, Communication Systems
  - Key Contracts Awarded, Industry Structure and Key Players, Collaborations and Tie-ups, Foreign Investment Proposals by, Indian Companies, R&D Initiatives, Indigenisation and Modernisation Plans, Recent Policy Initiatives, Upcoming Contracts and Orders, Market Opportunities, Segment Outlook
- 15. SHIPBUILDING** .....
- Current Status, Trends in Expenditure and Fund Utilisation, Existing Fleet, Key Contracts Awarded, Collaborations and Tie-ups, R&D Initiatives, Indigenisation and Make in India Initiative: Overview, Modernisation Plans
  - Key Players, Upcoming Contracts and Orders, Market Opportunities and Projections, Segment Outlook

## SECTION III: KEY PLAYERS

- 16. DEFENCE PUBLIC SECTOR UNDERTAKINGS (DPSUS)** .....
- Overview, Share of DPSUs in Defence Procurement, Indirect Imports; Outsourcing and Vendor Development, Key Collaborations, R&D Initiatives; Profiles of DPSUs: Bharat Dynamics Ltd., Bharat Electronics Ltd., Bharat Earth Movers Ltd., Garden Reach Shipbuilders and Engineers Ltd., Goa Shipyard Ltd., Hindustan Aeronautics Ltd., Hindustan Shipyard Ltd., Mazagon Dock Shipbuilders Ltd., Mishra Dhatu Nigam Ltd., Cochin Shipyard Ltd. (a PSU under the Ministry of Shipping)
- 17. ORDNANCE FACTORIES** .....
- Current Scenario, Product Range and Clusters, Financial Performance, Budget Expenditure, Supplies to Defence Forces
  - Key Operational Indicators: Cost of Production, Inventory, Exports
  - Outsourcing and Vendor Development, Collaborations and R&D Initiatives, Indigenisation and Modernisation Efforts, Key Issues and Challenges, The Way Forward
- 18. PRIVATE PLAYERS**
- Overview, Airbus Group India, Ashok Leyland Defence Systems, Bharat Forge Limited, BAE Systems India, Boeing India, Larsen & Toubro, Mahindra Defence Systems, Punj Lloyd Industries Limited, Reliance Defence Limited, Tata Group, Dassault Aviation, Other Players (Domestic and Foreign)



The report is available in a PDF format.



## Table of Contents

<p><b>1. EXECUTIVE SUMMARY</b> .....</p> <p><b>SECTION I: MARKET ANALYSIS AND OUTLOOK</b></p> <p><b>2. SECTOR OVERVIEW</b> .....</p> <ul style="list-style-type: none"> <li>- Current Status of Healthcare, Infrastructure Gaps, Market Size and Growth, Access to Healthcare, Industry Structure, Spending and Expenditure: Spending in India, Global Comparison, Investment Requirement, Role of Private Sector, Recent Trends and Developments, Issues and Concerns, Sector Outlook</li> </ul> <p><b>3. SIZE AND GROWTH</b> .....</p> <ul style="list-style-type: none"> <li>- Hospital Beds: Overall Size, Bed Density, State-wise Analysis</li> <li>- Workforce: A snapshot, Growth in Workforce (2008-14), Doctor-patient Ratio</li> <li>- Hospitals, Clinics, and Blood Banks: Market Size, Infrastructure by City-type</li> <li>- Pharmacies - Market Size</li> <li>- Diagnostics/Pathology Centres - Market Size</li> </ul> <p><b>4. POLICY AND REGULATORY FRAMEWORK</b> .....</p> <ul style="list-style-type: none"> <li>- Institutional Framework, Legislative Framework and Key Regulations, Existing Policy Framework, National Health Policy, 2015: Policy Features, Priority Areas, Critique, Other Important Policies, Recent Initiatives, Permissions and Licenses Requirement, Incentives to Healthcare Sector</li> </ul> <p><b>5. OUTLOOK, OPPORTUNITIES AND PROJECTIONS (TILL 2021-22 AND BEYOND)</b></p> <ul style="list-style-type: none"> <li>- Growth Drivers</li> <li>- Market Size Projections: Healthcare Market Size Projections, Future Requirement for Hospital Beds</li> <li>- Investment Projections</li> <li>- Project Pipeline: Hospitals (by ownership, state, status), Diagnostics</li> <li>- Opportunities for Key Segments: Hospitals and Clinics, Diagnostics/Pathology Centres, Health Insurance, Pharmacies</li> <li>- Opportunities in New Areas of Growth</li> </ul> <p><b>SECTION II: FOCUS ON PUBLIC HEALTHCARE</b></p> <p><b>6. MARKET SIZE AND ANALYSIS</b> .....</p> <ul style="list-style-type: none"> <li>- Sources of Expenditure</li> <li>- Government Spending: Actual and Estimate Expenditure, Public Spending Components, Funding under Five-Year Plans</li> <li>- Current Infrastructure</li> <li>- Rural Infrastructure: Current Scenario, State-wise Service Infrastructure, Hospitals and Beds</li> <li>- Urban Infrastructure: Current Scenario, State-wise Urban Infrastructure</li> <li>- Recent Developments and Plans</li> <li>- Key Players</li> <li>- Issues and Challenges</li> <li>- Segment Outlook</li> </ul> <p><b>7. KEY GOVERNMENT PROGRAMMES</b> .....</p> <ul style="list-style-type: none"> <li>- National Health Mission (NHM): An Introduction, Implementation Framework, Fund Allocation and Utilisation, State-wise Analysis</li> <li>- National Urban Health Mission (NUHM): An Introduction, Fund Allocation and Release, State-wise Analysis</li> <li>- National Rural Health Mission (NRHM): Targets and Achievements, Fund Allocation and Release, State Expenditure</li> <li>- Pradhan Mantri Swasthya Suraksha Yojana (PMSSY): Phase-wise Plans and Status, Investment and Funding</li> <li>- Rashtriya Swasthya Bima Yojana (RSBY): An Introduction, Scheme Details and Features, Achievements in 2015-16</li> <li>- Other Government Programmes</li> </ul>	<p><b>SECTION III: FOCUS ON PRIVATE HEALTHCARE</b></p> <p><b>8. MARKET SIZE AND ANALYSIS</b> .....</p> <ul style="list-style-type: none"> <li>- Private Spending and Market Size, Growth in the Last Few Years, Current Infrastructure, Rural and Urban Market, Recent Trends, Key Players, Issues and Challenges, Segment Outlook</li> </ul> <p><b>9. INVESTMENT AND FINANCING</b> .....</p> <ul style="list-style-type: none"> <li>- Investment Needs and Requirements</li> <li>- Private Equity: Historic Trends, Scenario in 2015, Trends in Hospitals and Diagnostics, Trends in PE Exits, Recent PE Deals</li> <li>- Trends in Mergers and Acquisitions</li> <li>- FDI in Healthcare</li> <li>- Payback Period and Returns</li> <li>- Investment Outlook</li> </ul> <p><b>10. PPP POTENTIAL AND WAY FORWARD</b> .....</p> <ul style="list-style-type: none"> <li>- Introduction, Current PPP Models, Funding for PPP, Experience So Far: Overall, State-level, Key PPP Projects, Key Thrust Areas for PPP, Key Enablers and Constraints, Selected Case Studies, Outlook and the Way Forward</li> </ul> <p><b>SECTION IV: OPPORTUNITIES IN EMERGING AREAS</b></p> <p><b>11. HEALTH INSURANCE MARKET</b> .....</p> <ul style="list-style-type: none"> <li>- Insurance Market in India</li> <li>- Evolution of Health Insurance</li> <li>- Health Insurance in India: Penetration of Health Insurance, Health Insurance Premium Trends, State-wise Analysis</li> <li>- Market Composition: Private, Public &amp; Standalone Health Insurance</li> <li>- Deficiencies in Rural and Urban Market</li> <li>- Recent Developments</li> <li>- Key Players</li> <li>- Issues and Challenges</li> <li>- Segment Outlook</li> </ul> <p><b>12. OTHER EMERGING AREAS</b> .....</p> <ul style="list-style-type: none"> <li>- The Need for a Change</li> <li>- M-Health: Key Growth Drivers, Cost-benefit Analysis, Case Studies</li> <li>- Medical Tourism: Market Size, Growth Drivers, Role of Government, State Initiatives, Role of Private Sector</li> <li>- Establishment of Hospitals in Foreign Countries</li> <li>- Tele-medicine: Market Size, Case Studies, Key Challenges</li> <li>- IT in Healthcare: Key IT Solutions, Healthcare Reporting Systems and Trends, Case Studies</li> <li>- Outlook and the Way Forward</li> </ul> <p><b>SECTION V: KEY PLAYER PROFILES</b></p> <p><b>13. PROFILES OF KEY PRIVATE PLAYERS</b> .....</p> <ul style="list-style-type: none"> <li>- Apollo Hospitals Enterprise Limited, Care Hospitals Group, Columbia Asia Hospitals Private Limited, Cygnus Medicare Private Limited, Fortis Healthcare Limited, Global Hospitals Private Limited, Healthcare Global Enterprises Limited, Kamineni Hospitals, Kovai Medical Center and Hospital Limited, Krishna Institute of Medical Sciences Limited, Madras Institute of Orthopaedics and Traumatology, Manipal Health Enterprises Private Limited, Max Healthcare Institute Limited, Medanta - The Medicity, Metro Group of Hospitals, Narayana Hrudayalaya Limited, Sterling Hospitals, Wockhardt Hospitals</li> </ul>
--	---



The report is available in a PDF format.

**Segment Analysis, Outlook and Opportunities**

**Table of Contents**

**SECTION I: MARKET ANALYSIS AND OUTLOOK**

- 1. SECTOR OVERVIEW**
  - Banking Sector Snapshot
  - Banking Profile and Features
  - Banking Industry Structure-Commercial Banking
  - Banking Industry Structure-Co-Operative Banking
  - Overall Size and Growth: Total Assets and Liabilities, Bank Deposits, Loans and Advances, Profitability
  - Composition of Credit Exposure-by Sector and Bank Type
  - Legal Framework
  - Types of Banking Channels
  - Current Infrastructure
  - Channel Network Growth
  - Key Trends
  - Recent Developments
  - Issues and Concerns
  - Sector Outlook
  - The New 4-tier Banking Structure
- 2. SIZE AND GROWTH**
  - Growth in Banking Infrastructure in India
  - Current Network: Bank Branches, ATMs, POS Terminals
  - Network by Bank Type
  - Infrastructure Penetration and Density
  - Geographical Analysis: Bank Infrastructure, ATM Infrastructure
- 3. RECENT DEVELOPMENTS**
  - Recent Developments in Physical and Digital Infrastructure, Payments Instruments
  - Technological Developments
  - Recent Policies and Guidelines on Banking Infrastructure
  - New Bank Licences and Other Key Developments
- 4. POLICY AND REGULATORY FRAMEWORK**
  - Existing Legislative Framework- Key Acts and Regulations
  - Existing Legislative Framework-Basel III Regulations
  - Regulatory Bodies and Functions of RBI
  - Lending Regulations-Priority Sector Targets
  - Interest Rate Regulations
  - Regulatory Reforms-Recent Initiatives
  - Future Expectations
  - Issues and Challenges
- 5. OUTLOOK, OPPORTUNITIES AND PROJECTIONS**
  - Key Growth Drivers for the Indian Banking Sector
  - Outlook for Credit Demand and Retail Credit
  - Outlook for Banking Infrastructure: Branches, ATMs, POS Terminals, Mobile Banking, Internet Banking
- 6. OPPORTUNITIES FOR TECHNOLOGY SOLUTIONS PROVIDERS**
  - Technology in Banking-Techfin versus Fintech
  - Global Fintech Market-Current Size and Growth Drivers
  - Indian Fintech Market
  - Indian Fintech Ecosystem-Key Segments and Players
  - Indian Fintech Market-Maximum Traction
  - Fintech in Payments Processing-Global and Indian Scenario
  - Fintech in Security and Biometrics
  - Key Emerging Themes in Fintech
  - Techfin-Core Banking Solutions
  - Techfin-Payments and Small Finance Banks
  - Regulatory Supervision of Banks IT Initiatives
  - Recent Regulatory Initiatives
  - Outlook for the Indian Fintech Market

**SECTION II: PHYSICAL INFRASTRUCTURE**

- 7. BANK BRANCHES**
  - Growth in Commercial Bank Branches, Bank-wise Growth in Branches, Key Trends in Year-on-Year Growth, Geographical Analysis-Region-wise Trends, Geographical Analysis-Rural-Urban Trends, Trends in Deposits & Advances, Emerging Trends in Branch Banking, Cost and Economics: Regional Variations, Rural- Urban Variations, Average Size of Deposits & Credits, Outlook & Projections
- 8. ATM INFRASTRUCTURE**
  - Evolution of ATMs in India, Size and Growth, ATM Installations-Public Sector Banks, ATM Installations-Private and Foreign Banks, Key Players, Geographical Analysis, Key Policy and Regulatory Initiatives, Key Trends and Developments, Growth in Debit Cards, Cost and Economics, Technology Advancements-Cards and Network Channels, Key Issues and Challenges, Outlook and Projections, The Way Forward for ATMs
- 9. POS TERMINALS**
  - POS Terminals-Key Functions and Participants, Size and Growth, Card Usage at POS, Bank-wise POS Terminals, Technology Used-Hardware and Software Solutions, Technology Used-Switching Systems, Recent Policy and Regulatory Developments, Cost and Economics, Key Issues and Challenges, Outlook and Projections

**SECTION III: DIGITAL INFRASTRUCTURE**

- 10. PAYMENTS AND SETTLEMENTS**
  - Payments Systems-Overview, Regulatory Framework-Payment and Settlement Systems (PSS) Act, 2007, Payments Systems in India, Key Stages in the Evolution of Payment Systems, Growth in Non-Cash Payments Systems in India, Paper Clearing, CCIL-Operated Systems, Pre-Paid Payment Instruments, Real-Time Gross Settlement System, Debit and Credit Cards, Retail Electronic Clearing, Share of Different Payments Systems in Overall Transactions, Key Trends, Recent Initiatives, New Payment Platforms and Channels, The Way Forward
- 11. MOBILE BANKING**
  - Growth of Mobile Subscriber Base in India, Mobile Banking-Models and Penetration, Evolution of Mobile Banking in India, Size and Growth, Bank-wise Transactions, Bank Group-wise Transactions and Geographical Spread, Mobile Banking Channels: SMS and Mobile Apps, USSD and PPI, Mobile Banking Initiatives of Major Banks, Key Trends and Developments: UPI, Mobile Wallets, Host Card Emulation, Key Regulations, Key Issues & Challenges, Outlook
- 12. INTERNET BANKING**
  - Growth of Internet Subscriber Base in India, Internet Banking in India, Size and Growth, Internet Banking Initiatives of Major Banks, RBI Guidelines on Internet Banking, Key Issues and Challenges

**SECTION IV: KEY PLAYER PROFILES**

- 13. PROFILES OF KEY BANKS**
  - Public Sector Banks: State Bank of India, Bank of Baroda, Bank of India, Punjab National Bank, Canara Bank
  - Private Banks: ICICI Bank, HDFC Bank, Axis Bank, YES Bank, IndusInd Bank, Kotak Mahindra Bank
  - Foreign Banks: Citibank, HSBC, Standard Chartered Bank



The report is available in a PDF format.

## SECTION I: INVESTMENT OVERVIEW AND OUTLOOK

### EXECUTIVE SUMMARY

- 1. INVESTMENT EXPERIENCE** .....
  - By Sector - Equity Financing, By Source - Equity Financing, Investment Trends, Historical Rates of Return, Key Successful Exits, Debt Financing, Key Risks in Equity Investments
- 2. INVESTMENT OPPORTUNITIES** .....
  - Growth Drivers; Investment Requirements and Projections; Investment Outlook; Investment Opportunities - by Sector, Source
- 3. NEW SOURCES OF INVESTMENT** .....
  - Current Scenario, Insurance Funds, Pension Funds, Sovereign Wealth Funds, National Investment and Infrastructure Fund, Outlook
- 4. EMERGING FINANCING INSTRUMENTS** .....
  - Infrastructure Debt Funds, Infrastructure Investment Trusts (InvITs), Bond Financing, Outlook

## SECTION II: ANALYSIS BY SOURCE/TYPE

- 5. PROJECT EQUITY** .....
  - Size and Growth, Key Factors Impacting Investment Activity, Investment Experience: Shift in Strategy, Key Exits, Sector-wise Analysis, Key Players, Key Deals and Transactions since 2015-16, Key Investment Areas, Investment Outlook, Expected Rates of Returns
- 6. PRIVATE EQUITY IN UNLISTED FIRMS** .....
  - Size and Growth, Investment Experience, Returns from Past PEUC Investments, Successful Investments, Disappointing Exits, Sector-wise Analysis, Key Players, Recent Deals and Transactions, Outlook and Expected Returns
- 7. PRIVATE INVESTMENT IN PUBLIC EQUITY (PIPE)** .....
  - Size and Growth, Investment Experience, Historical Returns, Successes and Failures, Sector-wise Analysis, Key Players, Recent Deals and Transactions, Outlook and Expected Returns
- 8. INITIAL PUBLIC OFFERINGS** .....
  - Size and Growth, Investment Landscape, Historical Returns, Successes and Failures, Sector-wise Analysis, Recent Issuances, Follow-on Public Offers, Outlook and Expected Returns
- 9. QUALIFIED INSTITUTIONAL PLACEMENTS** .....
  - Size and Growth, Current Environment, Experience from Past QIPs, Sector-wise Analysis, Recent Issuances, Outlook

## SECTION III: ANALYSIS BY SECTOR

- 10. CONVENTIONAL POWER** .....
  - Size and Growth; Recent Trends; Investment Experience; Historical Rates of Return; Successes and Failures; Recent Deals; Investment Requirement; Project Pipeline; Investment Opportunities; Outlook: Generation, Transmission, Distribution; The Way Forward and Expected Returns
- 11. RENEWABLES** .....
  - Size and Growth, Recent Trends, Recent Policy Announcements, Investment Experience, Key Exits and Past Returns, Key Recent Deals, Project Pipeline (by capacity addition), Project Pipeline (by investment requirement), Investment Opportunities, Sector Outlook, Expected Returns

- 12. ROADS** .....
  - Size and Growth, Recent Trends, Investment Experience, Historical Rates of Returns, Successes and Failures, Key Recent Deals and Transactions, Project Pipeline, Investment Requirement (till 2020-21), Investment Opportunities, Expected Rates of Returns, Sector Outlook
- 13. PORTS** .....
  - Size and Growth - Traffic, Capacity; Recent Trends; Investment Experience; Key Exits and Past Returns; Past Deals; Sagarmala Programme; Project Pipeline (by capacity addition, investment requirement); Investment Opportunities; Sector Outlook
- 14. AIRPORTS** .....
  - Current Market Size, Growth in Recent Years, Key Trends, Investment Experience, Successes and Failures, Key Deals and Transactions, Project Pipeline (by capacity addition), Investment Requirement (by investment requirement), Investment Opportunities, Sector Outlook, The Way Forward and Expected Returns
- 15. WATER SUPPLY AND SANITATION** .....
  - Size and Growth, Recent Trends, Investment Experience and Historical Returns, Project Pipeline (by capacity addition, investment requirement), Investment Opportunities, Trend in Deal Activity, Sector Outlook and Expected Returns
- 16. URBAN TRANSPORT** .....
  - Size and Growth, Recent Trends, Investment Experience, Historical Rates of Returns, Recent Financings, Project Pipeline (by capacity addition, investment requirement), Investment Opportunities, Expected Rates of Returns, Sector Outlook
- 17. RAILWAYS** .....
  - Size and Growth, Key Trends, Investment Experience, Historical Rates of Returns, Successes and Failures, Key Recent Deals/Transactions, Investment Requirement, Investment Opportunities, Project Pipeline, Update on DFC, Upcoming Projects, Recently Approved Projects, Sector Outlook
- 18. TELECOM** .....
  - Size and Growth - Subscriber Base, Towers, Mobile Subscriptions; Recent Developments; Investment Experience; Key Exits and Past Returns; Key Successes and Failures; Recent Deals; Investment Requirement; Investment Opportunities; Sector Outlook
- 19. LOGISTICS** .....
  - Size and Growth, Recent Trends, GST - A Game Changer, Investment Experience, Historical Rates of Returns, Key Successful Exits, Key Recent Deals and Transactions, Investment Requirement, Opportunities Areas for PE Investors, Sector Outlook - Transport Segment, Sector Outlook - Storage/Warehousing Segment, Sector Outlook - Emerging Sub-segments, Expected Returns and The Way Forward, Summary
- 20. ENGINEERING, PROCUREMENT AND CONSTRUCTION** .....
  - Size and Growth, Recent Developments, Investment Experience, Historical Rates of Returns, Successes and Failures, Past Exits, Key PE Deals, Investment Requirement, Investment Opportunities, Sector Outlook



The report is available in a PDF format.

**Table of Contents**

**SECTION I: SECTOR OVERVIEW AND ANALYSIS**

- 1. OVERVIEW**
  - Current size
  - Irrigation Potential
  - Type of potential (minor irrigation, major and medium irrigation, micro irrigation)
  - Source of Irrigation
  - Plan-wise Development
  - Targets Vs Achievements
  - Growth Drivers
  - Investment Projections
  - Issues and Challenges
- 2. WATER DEMAND, AVAILABILITY AND STORAGE**
  - Demand for Irrigation
  - Availability of Water (ground water and surface water)
  - Storage Capacity of Reservoirs
  - Storage Position of Important Reservoirs
  - Projected Water Demand
- 3. FINANCING AND INVESTMENTS**
  - Funding Sources, Budget and Allocation, Expenditure Trends, Investment Requirement, Risks and Challenges
- 4. PROJECT PIPELINE AND ANALYSIS**
  - Overall Project Pipeline
  - Analysis by Type, State, Stage of Development
- 5. OUTLOOK AND OPPORTUNITIES**
  - Growth Drivers, Investment Projections, Market Opportunities, Sector Outlook

**SECTION II: POLICIES, REGULATIONS AND PROGRAMMES**

- 6. POLICY AND REGULATORY FRAMEWORK**
  - Key Agencies and their Role
  - Evolution of Regulations in India
  - Current Policy Framework
  - State-level Policies and Regulations
  - Recent Developments
  - Issues and Shortcomings
- 7. PRADHAN MANTRI KRISHI SINCHAYEE YOJANA**
  - Physical Progress, Expenditure So Far, Financial Progress, State-wise Irrigation Potential, Issues and Constraints
- 8. OTHER KEY GOVERNMENT PROGRAMMES**
  - Accelerated Irrigation Benefit Programme, Bharat Nirman Programme, National Groundwater Management Improvement Program, Command Area Development and Water Management, Participatory Irrigation Management, Others
- 9. FOCUS ON MICRO IRRIGATION**
  - Size and Growth, Drip and Sprinkler Irrigation, Financing Mechanism, Key Government Initiatives, Key Projects, Key Players, State-wise Potential, Issues and Challenges

**SECTION III: CONSTRUCTION OUTLOOK AND OPPORTUNITIES**

- 10. CONTRACTING SIZE AND OPPORTUNITIES**
  - Sector Size and Growth
  - Type of Contracts
  - Expected Investments

- Upcoming Projects
- Opportunities for Contractors
- Issues and Challenges
- Outlook and Projections (till 2021-22)

**11. FOCUS ON TUNNEL CONSTRUCTION**

- Size and Growth
- Construction Cost
- Key Trends
- Key Completed Projects
- Key Ongoing Projects
- Contractors and Equipment Providers
- Opportunities for TBM Suppliers
- Outlook and Projections (till 2021-22)

**12. KEY CONTRACTORS**

- Market Structure, Leading Contractors, Recent Contracts

**13. EQUIPMENT MARKET**

- Size and Growth
- Types of Equipment
- Sourcing Options
- Key Players
- New Innovations and Products
- Demand Projections (till 2022-23)

**SECTION IV: PUMPS OUTLOOK AND PROJECTIONS**

**14. ELECTRIC PUMPS**

- Size and Growth
- Type of Pumps
- Key Manufacturers
- Market Projections
- Issues and Concerns
- Segment Outlook

**15. SOLAR PUMPS**

- Current Status
- Cost-benefit Analysis
- Financing Models
- Key Manufacturers
- Solar Pumping Programme for Irrigation and Drinking Water
- State Government Initiatives
- Market Projections
- Issues and Concerns
- Segment Outlook

**SECTION V: PROJECT DATABASE**

*This section includes the key completed and upcoming irrigation projects with details on implementing agency, project cost, capacity, state, contractor, etc.*

**SECTION VI: STATE PROFILES**

**16. PROFILES OF KEY STATES**

- Andhra Pradesh (including Telangana), Bihar, Chhattisgarh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Uttar Pradesh, West Bengal, Others

*Each state profile covers basic statistics (irrigation potential, surface water, ground water availability etc.), key agencies involved, recently completed projects, ongoing projects, future projects, new initiatives and key achievements.*



*The report is available in a PDF format.*

Segment Analysis and Outlook; Opportunities and Projections

Table of Contents

SECTION I: MARKET ANALYSIS AND OUTLOOK

- 1. BANKING SECTOR OVERVIEW .....
  - Current Infrastructure, Size and Growth, Industry Structure, Key Regulations, Key Trends and Developments, Issues and Concerns, Sector Outlook and Opportunities
- 2. BANKING TECHNOLOGY MARKET OVERVIEW .....
  - Technology Spend by Indian Banks, Technology Penetration, Techfin versus Fintech, Technological Advancements, Major Technology Providers, Key Issues and Challenges
- 3. RECENT POLICY AND OTHER DEVELOPMENTS IMPACTING TECHNOLOGY MARKET .....
  - Digital India Programme, Demonitisation, RBI Regulations, Recent Joint Ventures with Technology Players, Others
- 4. OUTLOOK AND OPPORTUNITIES (till 2022-23) .....
  - Growth Drivers for Technology Adoption, Market Outlook
  - Future Projections
  - Opportunity Areas for Technology Solutions Providers: Physical Infrastructure, Digital Banking, Payment Systems, Security and Surveillance Systems, Enterprise Solutions, Etc.

SECTION II: TECHNOLOGY APPLICATION AREAS

- 5. ATM AND POS INFRASTRUCTURE .....
  - Market Size and Growth
  - Current Technology Adoption and Penetration: Hardware and Software Solutions, Switching Systems, Cards, Network Channels, Etc.
  - Key Policies and Guidelines, Initiatives by Major Banks, Recent Technology Advancements, Growth Drivers, Key Issues and Challenges, Segment Outlook and Projections (till 2022-23), Future Prospects for Technology Usage
- 6. MOBILE BANKING .....
  - Market Size and Growth
  - Mobile Banking Channels: SMS, Mobile Apps, Unstructured Supplementary Service Data (USSD), PPI, Etc.
  - Current Technology Adoption and Penetration
  - Key Policies and Guidelines
  - Recent Mobile Banking Initiatives by Major Banks
  - Recent Technology Advancements
  - Growth Drivers
  - Key Issues and Challenges
  - Segment Outlook and Projections (till 2022-23)
  - Future Prospects for Technology Usage
- 7. INTERNET BANKING .....
  - Market Size and Growth, Current Technology Adoption and Penetration, Key Policies and Guidelines, Internet Banking Initiatives by Major Banks, Recent Technology Advancements, Growth Drivers, Key Issues and Challenges, Segment Outlook and Projections (till 2022-23), Future Prospects for Technology Usage
- 8. PAYMENTS AND CLEARING SYSTEMS .....
  - Market Size and Growth
  - Electronic Payment Systems: RTGS, ECS, IMPS, NACH, NEFT, Pre-paid Instrument Systems, Etc.
  - Current Technology Adoption and Penetration
  - New Payment Models: Unified Payments Interface, Bharat Interface for Money (BHIM), Bharat Bill Payment System (BBPS), Crypto Currency, Peer-to-Peer Lending, Etc.

- Payment Banks and Small Finance Banks
- Key Policies and Guidelines
- Recent Payment and Clearing-related Initiatives by Major Banks
- Recent Technology Advancements
- Growth Drivers
- Key Issues and Challenges
- Segment Outlook and Projections (till 2022-23)
- Future Prospects for Technology Usage
- 9. RISK MANAGEMENT AND SECURITY SYSTEMS .....
  - Types - Biometrics, Voice-based Identity, BYOD, etc.; Current Technology Adoption and Penetration; Initiatives by Major Banks; Key Policies and Guidelines; Recent Initiatives by Major Banks; Recent Technology Advancements; Growth Drivers; Key Issues and Challenges; Future Prospects for Technology Usage
- 10. BANKING SOFTWARE SYSTEMS .....
  - Application Areas: Core Banking Solutions, Back Office Solutions, Front Office Solutions; Current Technology Adoption and Penetration; Initiatives by Major Banks; Key Policies and Guidelines; Recent Initiatives by Major Banks; Recent Technology Advancements; Growth Drivers; Key Issues and Challenges; Segment Outlook and Projections (till 2022-23); Future Prospects for Technology Usage

SECTION III: NEW AND EMERGING TECHNOLOGIES

- 11. CLOUD COMPUTING .....
  - Technology Overview: Existing Models (software as service, infrastructure as service, platform as service); Major Application Areas: B2B, B2C, BYOD; Initiatives of Major Banks in India; Key Technology Providers; Future Prospects; Key Issues and Challenges; Outlook and Projections (till 2022-23)
- 12. ENTERPRISE APPLICATIONS .....
  - Technology Overview: Major Application Areas: Business Intelligence (Data Analytics), Customer Relationship Management (CRM), Database Management; Initiatives by Major Banks; Key Technology Providers; Future Prospects; Key Issues and Challenges; Outlook and Projections (till 2022-23)
- 13. DISTRIBUTED LEDGER/BLOCKCHAIN TECHNOLOGY .....
  - Technology Overview
  - Major Application Areas: Payments and Remittances, Trade Finance, Markets and Securities Trading, Digital Identity
  - Initiatives of Major Banks in India
  - Key Technology Providers
  - Future Prospects
  - Key Issues and Challenges
  - Outlook and Projections (till 2022-23)
- 14. ROBOTICS AND ARTIFICIAL INTELLIGENCE .....
  - Technology Overview
  - Major Application Areas: Teller and Payments; Capital Markets Advisory; Risk Management, AML and Fraud Detection
  - Initiatives by Major Banks
  - Key Technology Providers
  - Future Prospects
  - Key Issues and Challenges
  - Outlook and Projections (till 2022-23)



The report will be available in a PDF format.



(August 2017) (Draft ToC)

## Table of Contents

## SECTION I: MARKET ANALYSIS AND OUTLOOK

1. EXECUTIVE SUMMARY .....
2. OVERVIEW .....

  - Macroeconomic Trends, Growth in M&A activity, Key Recent Trends, Big Ticket Deals, Sector-wise Analysis, Recent Policy and Regulatory Reforms, Valuations and Returns, Issues and Concerns, Growth Drivers, Market Outlook

3. DEAL ANALYSIS AND TRENDS (2014-2017) .....

  - Current Size; Growth Trends; Analysis: By Volume, Value, Type, Deal Size, Sector, Transaction (Merger/Equity Stake/Asset Sale), Type of Buyers (Peer companies/PE firms/ARCs/Pension and SWFs); Top Deals since 2014-15

4. STRESSED ASSETS .....

  - Current Scenario, Sector-wise Break-up of Stressed Assets, SDR and S4A Schemes, Recent Companies invoking SDR/S4A, Buyer Split for Stressed Assets, Issues and Challenges, Projects at Risk of Slipping into Stressed Territory

5. VALUATIONS TRENDS AND RETURNS .....

  - Current Valuations, Key Trends, Factors Impacting Valuations, Issues and Challenges, Historical and Expected Returns, The Way Forward

6. FOCUS ON BUYER/INVESTORS GROUPS .....

  - Deal Analysis by Buyer Groups: PE Firms, Corporates, Asset Reconstruction Companies, Pension and SWFs
  - Most Active Investors (past two years)
  - Investment Strategies
  - Exit Strategies
  - New PE Funds Launched Since 2016 (Infrastructure and Real Estate Focussed)

7. IMPACT OF KEY POLICY AND REGULATORY CHANGES .....

  - FDI Norms, Bankruptcy and Insolvency Code 2016, SDR and S4A schemes, Impact of REITs/InvITS, General Anti-Avoidance Rules (GAAR), Sector-specific Policy Changes, Other Changes in Government Regulations (Takeover Code, Delisting Guidelines, Companies Act, Competition Law, Accounting, etc.)

8. FUTURE OUTLOOK .....

  - Growth Drivers, Outlook for M&A Activity across Sectors, Outlook on Valuations, Expected Split of Buyer Groups, Preferred Exit Strategies, Factors that could inhibit M&As

## SECTION II: DEAL TYPE ANALYSIS

9. MERGERS .....

  - Size and Growth, Investment Experience, Focus on Joint Ventures, Sectoral Trends, Valuations and Returns, Key Recent Deals, Outlook and Opportunities

10. ACQUISITION (by other Developers/Corporates) .....

  - Size and Growth, Investment Experience, Sectoral Trends, Valuation and Returns, Key Recent Deals, Outlook and Opportunities

11. ACQUISITION (by Financial Investors - PE Firms, Pension Funds, Sovereign Wealth Funds, etc.) .....

  - Size and Growth, Investment Experience, Sectoral Trends, Valuation and Returns, Key Recent Deals, Outlook and Opportunities

12. STRESSED ASSET SALES .....

  - Size and Growth, Investment Experience, Sectoral Trends, Valuation and Returns, Analysis by Buyers (Corporates/PE firms/ARCs/Pension and SWFs), Key Recent Deals, Outlook and Opportunities

## SECTION III: SECTORAL ANALYSIS

13. ROADS .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

14. PORTS .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

15. CONVENTIONAL POWER .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

16. RENEWABLES .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

17. TELECOMMUNICATIONS .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

18. OIL AND GAS .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

19. URBAN INFRASTRUCTURE .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

20. LOGISTICS .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

21. CEMENT AND STEEL .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

22. REAL ESTATE .....

  - Sector Size and Growth, M&A Landscape and Activity, Key Policy Changes, Analysis of Deals\*, Outlook and Opportunities

*\*Analysis of deals will include information: By Volume, Value, Type (Domestic vs. Transnational deals), Deal Size, Transaction (Merger/Equity Stake/Asset Sale), Type of Buyers (Corporates/PE firms/ARCs/Pension and SWFs)*

## SECTION IV: LIST OF M&amp;A DEALS

23. DATA SET .....

*The data set will include a complete list of M&A deals in the infrastructure and real estate space for the Indian market for the period 2014 to 2017. The parameters covered will include the deal value, type of deal, sector, target company, investor/buyer groups, date of investment, exit details (wherever applicable) etc.*



*The report will be available in a PDF format.*



## Weekly Newsletters

India Infrastructure Publishing brings out weekly newsletters that cover the latest developments in infrastructure sectors such as power, oil & gas, infrastructure finance, ports & shipping, roads & bridges, urban water & sanitation, telecom and aviation.

These newsletters are sent every Monday morning via e-mail or fax to provide subscribers with accurate, reliable, up-to-date and comprehensive information on the key developments in these sectors during the previous week.

This service is indispensable for anyone involved with the infrastructure sectors: **developers/operators of infrastructure projects (public or private sector), regulators, policymakers, financiers, bankers, consultants, legal specialists, equity analysts, contractors, equipment manufacturers, service providers, etc.**

The newsletters offered and their primary focus areas are:

### Power News

*Power News* covers the latest developments in the Indian power sector across all key segments – generation, transmission and distribution. The focus areas of this newsletter are government policy, project updates, legal and regulatory developments, contracts and orders, corporate news, financings and reform/restructuring developments.

### Oil & Gas News

*Oil & Gas News* covers the latest developments in the Indian oil and gas sector in the upstream, midstream and downstream segments. The focus areas of this newsletter are developments in policy, exploration and production, downstream, LNG, transportation and finance. It covers news related to investments, contracts and orders, legal and regulatory affairs and corporate developments.

### Telecom News

*Telecom News* covers the latest developments in the Indian telecom sector across all segments – fixed, wireless, broadband, long distance, satellite-based services, etc. The focus areas of this newsletter are government policy, legal and regulatory developments, contracts and orders, corporate news, sales promotion news, and new product/service introductions.

### Ports & Shipping News

*Ports & Shipping News* covers the latest developments in the Indian ports and shipping sector. The focus areas of this newsletter are policy, deals, investments, contracts, plans, financings, projects, tariffs and other regulatory developments. It covers news related to major and minor ports, Indian and foreign shipping lines as well as related segments and sectors like rail connections, containers, etc.

### Roads & Bridges News

*Roads & Bridges News* covers the latest developments in the Indian roads and bridges sector. Its scope includes national, state and key local projects. The focus areas of this newsletter are project updates, government plans and initiatives, contracts and orders, corporate news, financings, concessions and other agreements.

### Infrastructure Finance News

*Infrastructure Finance News* covers the latest developments in the area of infrastructure finance. The focus areas of this newsletter are policy, equity moves, debt/bond issues, mergers and acquisitions, loans and credit, credit ratings, primary and public issues, joint ventures/agreements and financial results. The sectors covered include power, telecom, oil & gas, ports & shipping, roads & bridges, aviation, railways, urban infrastructure, water and housing. The lending institutions covered include financial institutions, nationalised banks, private banks, foreign banks, multilateral institutions and bilateral funding agencies.

### Aviation News

*Aviation News* covers the latest developments in the Indian aviation sector. It covers both the airline and airport segments. The primary focus areas of this newsletter are infrastructure development, policy, investment, contracts and orders, privatisation and modernisation initiatives, promotional offers, financing and key statistics.

### Urban Water & Sanitation News

*Urban Water and Sanitation News* covers policies, regulations, projects, finance, service providers, sanitation, and international news in the urban water development and sanitation sector. The newsletter will include a brief write-up on trends, project developments, key concepts, city profiles, relevant data, etc.

*Annual subscription rate per newsletter is Rs 21,000. (Package rates available for subscription to more than one newsletter.)*

# ORDER FORM

Name (Block Letters) .....  
 Designation .....  
 Company .....  
 Mailing Address .....  
 Telephone ..... Mobile .....  
 Fax .....  
 E-mail .....

Reports (PDF)	Price (INR)#	Price (USD)	<input checked="" type="checkbox"/>
<b>ENERGY</b>			
T&D Equipment Market in India 2017 (July 2017)	75,000	1,530	<input type="checkbox"/>
CGD Market in India (July 2017)	60,000	1,230	<input type="checkbox"/>
Industrial and Commercial Grid Power Market in India 2017 (April 2017)	40,000	830	<input type="checkbox"/>
Oil in India (December 2016)	60,000	1,230	<input type="checkbox"/>
Power Distribution in India (December 2016)	75,000	1,530	<input type="checkbox"/>
Electricity Market in India (April 2016)	75,000	1,530	<input type="checkbox"/>
Power Equipment Market in India (April 2016)	75,000	1,530	<input type="checkbox"/>
Power Transmission in India 2017 (February 2017)	75,000	1,530	<input type="checkbox"/>
Distribution Network Growth and Capital Expenditure (September 2015)	50,000	1,030	<input type="checkbox"/>
Discom Financing, Power Purchase Costs and Tariffs (September 2015)	50,000	1,030	<input type="checkbox"/>
Captive Power in India 2017 (April 2017)	60,000	1,230	<input type="checkbox"/>
Coal in India 2015 (November 2015)	60,000	1,230	<input type="checkbox"/>
Coal-based Power Generation in India 2017 (February 2017)	60,000	1,230	<input type="checkbox"/>
Hydro Power in India 2017 (September 2017)**	50,000	1,030	<input type="checkbox"/>
Gas in India 2016 (September 2016)	60,000	1,230	<input type="checkbox"/>
Bio-mass Power in India (October 2013)	45,000	930	<input type="checkbox"/>
Solar Power in India 2017 (May 2017)	60,000	1,230	<input type="checkbox"/>
Wind Power in India 2017 (July 2017)	60,000	1,230	<input type="checkbox"/>
Captive Coal Mining 2013 (April 2013)	40,000	830	<input type="checkbox"/>
Cost of Power for Industrial Users: Electricity, Fuel, Equipment (December 2013)	45,000	930	<input type="checkbox"/>
Solar Plant Performance in India 2016 (December 2016)	60,000	1,230	<input type="checkbox"/>
Solar Project Performance in India (January 2014)	45,000	930	<input type="checkbox"/>
Renewable Energy Finance in India (January 2014)	45,000	930	<input type="checkbox"/>
<b>TRANSPORTATION</b>			
Railways in India 2017 (January 2017)	75,000	1,530	<input type="checkbox"/>
Ports in India 2017 (March 2017)	75,000	1,530	<input type="checkbox"/>
Dredging in India 2016 (December 2016)	60,000	1,230	<input type="checkbox"/>
Freight Market in India 2017 (October 2017)**	60,000	1,230	<input type="checkbox"/>
Storage Infrastructure in India 2017 (October 2017)**	60,000	1,230	<input type="checkbox"/>
Airports in India 2017 (May 2017)	75,000	1,530	<input type="checkbox"/>
Road Development in India 2017 (March 2017)	100,000	2,030	<input type="checkbox"/>
Urban Rail in India 2017 (July 2017)	60,000	1,230	<input type="checkbox"/>
Urban Bus Transport in India 2014-15 (December 2014)	50,000	1,030	<input type="checkbox"/>
Container Market in India 2017 (June 2017)	60,000	1,230	<input type="checkbox"/>
<b>CONSTRUCTION &amp; MINING</b>			
Construction in India 2017 (March 2017)	75,000	1,530	<input type="checkbox"/>
Construction Materials Market 2016 (July 2016)	60,000	1,230	<input type="checkbox"/>
Mining in India 2017 (August 2017)	60,000	1,230	<input type="checkbox"/>
Bridges, Flyovers and Elevated MRTS Structures (September 2016)	80,000	1,630	<input type="checkbox"/>
Tunnelling in India 2017 (August 2017)	100,000	2,030	<input type="checkbox"/>
Mining Equipment Market (November 2016)	75,000	1,530	<input type="checkbox"/>
<b>URBAN INFRASTRUCTURE</b>			
Affordable Housing in India 2016 (June 2016)	60,000	1,230	<input type="checkbox"/>
Smart Cities in India 2016 (August 2016)	75,000	1,530	<input type="checkbox"/>
Industrial Water Sector 2015 (May 2015)	50,000	1,030	<input type="checkbox"/>
Municipal Water Sector 2015 (May 2015)	50,000	1,030	<input type="checkbox"/>
Municipal Solid Waste in India 2017 (April 2017)	50,000	1,030	<input type="checkbox"/>
Sewage Treatment Market in India 2017 (April 2017)	50,000	1,030	<input type="checkbox"/>
Real Estate in India 2017 (May 2017)	60,000	1,230	<input type="checkbox"/>
<b>TELECOM</b>			
Enterprise Mobility in India (May 2015)	100,000	2,030	<input type="checkbox"/>
Telecom Tower and Fibre Infrastructure 2016 (September 2016)	80,000	1,630	<input type="checkbox"/>
<b>MULTI-SECTOR</b>			
Infrastructure Finance and Investment (March 2016)	75,000	1,530	<input type="checkbox"/>
Infrastructure Projects in Pipeline 2015 (March 2015)	60,000	1,230	<input type="checkbox"/>
Investment and Market Opportunities in Myanmar's Infrastructure (August 2015)	100,000	2,030	<input type="checkbox"/>
Investment and Market Opportunities in African Infrastructure (July 2017)	100,000	2,030	<input type="checkbox"/>
Investment and Market Opportunities in Southeast Asian Infrastructure (October 2014)	100,000	2,030	<input type="checkbox"/>
Indian Defence Industry (November 2017)	80,000	1,630	<input type="checkbox"/>
Healthcare Infrastructure and Market in India (September 2016)	75,000	1,530	<input type="checkbox"/>
Banking Infrastructure in India (October 2016)	60,000	1,230	<input type="checkbox"/>
Investment Experience and Opportunities in Infrastructure (February 2017)	75,000	1,530	<input type="checkbox"/>
Irrigation Market in India (April 2017)	50,000	1,030	<input type="checkbox"/>
Banking Technology in India 2017 (August 2017)	80,000	1,630	<input type="checkbox"/>
Mergers and Acquisitions in Infrastructure and Real Estate 2017 (August 2017)**	100,000	2,030	<input type="checkbox"/>

Total

INR

USD

# 18 per cent GST is applicable

\*\* Early bird discount of 20 per cent for orders placed before or on August 10, 2017

Please check  the reports you would like to order.

# ORDER FORM

## Newsletters

- |                         |                          |                                 |                          |
|-------------------------|--------------------------|---------------------------------|--------------------------|
| ❖ Oil & Gas News        | <input type="checkbox"/> | ❖ Telecom News                  | <input type="checkbox"/> |
| ❖ Ports & Shipping News | <input type="checkbox"/> | ❖ Infrastructure Finance News   | <input type="checkbox"/> |
| ❖ Power News            | <input type="checkbox"/> | ❖ Aviation News                 | <input type="checkbox"/> |
| ❖ Roads & Bridges News  | <input type="checkbox"/> | ❖ Urban Water & Sanitation News | <input type="checkbox"/> |

Annual Package	Price (INR)#	Price (USD)	<input checked="" type="checkbox"/>
Any 1	21,000	450	<input type="checkbox"/>
Any 2	40,000	850	<input type="checkbox"/>
Any 3	57,000	1,200	<input type="checkbox"/>
Any 4	74,000	1,550	<input type="checkbox"/>
Any 5	88,000	1,850	<input type="checkbox"/>
Any 6	1,02,000	2,150	<input type="checkbox"/>
Any 7	1,15,000	2,400	<input type="checkbox"/>
All 8	1,28,000	2,650	<input type="checkbox"/>

Please check  the newsletters you would like to subscribe to.  
# 18 per cent GST is applicable

Total (Reports + Newsletters)

INR

USD

I am enclosing Rs. \_\_\_\_\_, vide cheque/demand draft no. \_\_\_\_\_ drawn on

\_\_\_\_\_ dated \_\_\_\_\_ in favour of "India Infrastructure Publishing Pvt. Ltd."

Signature

## Payment Options

### Wire transfer details

Beneficiary : India Infrastructure Publishing Pvt. Ltd.  
Bank Name : The Hongkong and Shanghai Banking Corporation Ltd  
Address : R-47, Greater Kailash-1, New Delhi-110048  
Account No. : 094179587002  
Swift Code : HSBCINBB  
IFSC Code : HSBC0110006

## Contact Details

### India Infrastructure Publishing Pvt. Ltd.

B-17, Outab Institutional Area,  
New Delhi – 110016, India  
Tel: 91-11-41034600, 41034601  
Fax: 91-11-26531196  
Email: reports@indiainfrastructure.com

To buy online please visit [www.indiainfrastructure.com](http://www.indiainfrastructure.com)

# CUSTOM RESEARCH

---

**India Infrastructure Research** now offers custom research solutions.

Our core research team comprises over 30 highly qualified full-time professionals with masters or higher degrees in various fields such as economics, engineering and business. Our extended team includes a network of senior industry experts who support the core team on an as-needed basis. The team is headed by a senior professional with two decades of industry experience with international and national organisations.

We have an in-house archive of sector information and data on projects and companies spanning the last decade and a half. Our extensive knowledge and information base relating to the infrastructure sectors ensures greater insight, faster delivery time and competitive cost.

We accept assignments that do not conflict with our obligations as a publisher of industry magazines or involve competitive intelligence.

For more information on how **India Infrastructure Research** can provide customised solutions for your research needs, please contact:

**Atika Wadhwa**

Director

B-17, Qutab Institutional Area

New Delhi 110016

Phone: 91-11-46560419 (D), 91-11-4103 4600/01 (B)

Fax: 91-11-2653 1196

Email: [atika.wadhwa@indiainfrastructure.com](mailto:atika.wadhwa@indiainfrastructure.com)



