



# Catalogue of Research Reports on Infrastructure Sectors

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# ABOUT US

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**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.

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**1. MARKET OVERVIEW, KEY TRENDS AND RECENT DEVELOPMENTS . . .**

There is a rising popularity among developers, especially renewable energy players, to go for third-party direct sale agreements. States of Karnataka, Tamil Nadu, Andhra Pradesh and Telangana in the southern region of India and Rajasthan, Punjab and Haryana in the northern region of the country are fast catching up with open access transactions. But there are significant challenges in the growth of this segment, especially those pertaining to discoms' resistance to let go of their high-end consumers.

- Size and Growth of Open Access-based Power Projects
- Renewable Energy-based Open Access Projects: Year-wise Trends, Source-wise Share
- Participation of Open Access Consumers in the REC Market: Volume Trends, Price Trends
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- Key Issues and Challenges

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- Amendments Pertaining to Open Access for Renewables
- Likely Impact on Growth of Open Access-based PPAs
- Unaddressed Issues
- Industry Experts' Opinions and Recommendations

**3. EXISTING OPEN ACCESS POLICY AND REGULATORY SCENARIO . . . . .**

The policy and regulatory framework in this space is currently highly dispersed and varied across states, and is not even stable over the years. There is always a risk of open access charges changing year on year, making it a risky proposition to invest in.

- Overview of Open Access Charges and Losses: For Solar Projects, For Wind Projects
- Model Regulations for Intra-state Open Access and Group Captive
- State-wise Orders of Open Access/Group Captive
- State-wise Implementation Status Overview
- State-wise Power Demand and Supply Overview
- RPO Trajectory for Open Access Consumers
- Key Issues and Challenges

**4. INDUSTRY STRUCTURE AND BUSINESS MODELS . . . . .**

The industry structure in the renewable open access segment has been emerging gradually with more number of players entering into this space. Project developers and investors are currently cautious of investing significantly in this segment, but the trend is now changing.

- Power sale options: Bilateral, Collective, REC
- Industry Structure
- Key Players and Capacities: Solar Segment, Wind Segment
- Risks and Concerns

**5. TERMS OF THIRD-PARTY POWER SALE CONTRACTS . . . . .**

It is important for both the buyers and sellers to clarify and list out their expectations and accordingly draw up the commercial power sale contract as per the applicable regulatory framework in the respective state.

- Time Period
- Extension Provision
- Tariff and Escalations

- Provision for Changes in Regulatory Charges
- Penalties
- Legal Terms

**6. ROLE OF ENERGY BANKING, F&S AND DEVIATION SETTLEMENT MECHANISM . . . . .**

Energy banking will play a key role in the success of solar and wind power-based open access projects. Banking is presently allowed by SERCs upon the levy of a banking charge, which differs in magnitude across states.

Rules around energy banking are specified in different types of documents in various states. Additionally, various attributes of the energy banking framework also differ across states.

- State-wise Energy Banking Mechanism for Open Access Projects: Banking Charge, Banking Period, Buy-back Rate, Restrictions on Time of Injection, Withdrawal of the Banked Energy, Other Attributes (seasonality constraints, buy-back rates, accounting for RPO, etc.)
- State-wise Emerging Energy Banking Framework
- State-wise Forecasting and Scheduling
- Deviation Settlement Charges

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This chapter will include profiles of Andhra Pradesh, Karnataka, Tamil Nadu, Maharashtra, Gujarat, Rajasthan, Madhya Pradesh, Telangana, Uttar Pradesh, Chhattisgarh, Haryana, Delhi, Punjab, etc.

- Open Access Charges and Exemptions for Solar and Wind Power: Transmission Losses, Distribution Losses, Wheeling Charges, Cross Subsidy Surcharge, Additional Surcharge, Reactive Energy Charges, Standby Charges, Banking of Surplus Solar Power, Scheduling of Power, Energy Metering
- Key Players and Capacities: Overall Solar, Solar Open Access, Overall Wind, Wind Open Access
- Landed Cost and Return Analysis
- Process and Approvals for Open Access Projects
- Key Industrial and Corporate Clusters: Existing, Upcoming

**8. PROJECTED OPEN ACCESS MARKET . . . . .**

Over 2 GW of green power is being sold to big corporates through direct agreements and the trend is northbound as more and more corporates and industries are joining in the race. The business case for renewable energy based open access is getting stronger with the decreasing cost of green power and increasing cost of thermal power.

- Short-term (2019-23) and Long-term (2024-28) Projections
- Renewable-based Open Access Capacity Projections
- Open Access Projected Tariff and Pricing Trends
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- Future Growth Drivers
- Expected Market Restraints

**EXPERT OPINION . . . . .**

The report will feature 5-8 interviews of senior representatives at regulatory commissions, large open access consumers and key open access project developers, and experienced industry consultants

*The report is available in a PDF format.*

### EXECUTIVE SUMMARY

With the growing demand for power in urban areas and industries, underground cable systems are becoming an increasingly indispensable part of power transmission and distribution systems. With improved technologies and increased reliability, the cost differential between underground cables and overhead power lines is narrowing and utilities are acknowledging the benefits associated with underground cabling. This report will attempt to take a look at the key trends in the deployment of underground cables so far; analyse the plans and proposal of T&D utilities; examine new and evolving technology improvements and solutions being offered by the industry; as well as assess the key issues and challenges.

### 1. T&D INDUSTRY OVERVIEW

The T&D industry has been growing steadily with investments being made in system strengthening and capacity additions. This chapter gives an overview of the T&D industry and will focus on:

- Growth and Size of Existing T&D Networks
- Recent T&D Network Additions
- Projected T&D Network Additions
- Projected Capex (till 2022-23)
- Future Outlook
- Issues and Challenges

### 2. MARKET SIZE AND GROWTH FOR UNDERGROUND CABLES

Most of India's T&D network continues to be strung overhead across the country; however, concerns about reliability and quality of supply are making utilities gradually replace their networks with underground lines. This chapter gives an overview on the new and emerging utility requirements in the underground cabling segment and will cover the following:

- Experience so far in T&D Networks
- Emerging Utility Requirements
  - Transmission
  - Distribution
- Major Projects Commissioned
  - Transmission
  - Distribution
- Major Projects Awarded/Under Construction
  - Transmission
  - Distribution
- Key Recent Tenders
- Issues and Challenges

### 3. RECENT TRENDS AND ADVANCES

Well-designed and well-installed underground cable systems are expected to have a service life of 30-40 years. Utility providers, transmission companies and cable manufacturers are hence, looking for new technologies and solutions to respond to new grid challenges. This chapter looks at the new and promising technologies, designs and solutions for underground cable networks.

- Design, Laying and Construction Processes
- Product and Technology Trends
- Market Trends and Developments (JVs/Acquisitions/Partnership Deals)
- Pricing and Cost Trends

### 4. OPPORTUNITIES UNDER KEY CENTRAL/STATE GOVERNMENT PROGRAMMES

Underground cables are an important part of several central government initiatives for improving T&D networks under IPDS. This chapter provides the details of plans and targets of works proposed to be taken up under various schemes.

- Snapshot of Key Government Programmes (IPDS, Green Energy Corridors, State Government Initiatives, etc.)
- Physical Targets for UG Cabling Works
- Funding Availability for UG Cabling Projects
- Issues and Concerns

### 5. OPPORTUNITIES UNDER SMART CITIES MISSION

The Smart Cities Mission offers significant opportunities for underground cabling in key cities. Some cities such as Indore, Belagavi, Dharamshala, Lucknow, Kanpur and Tirupati are implementing projects for setting up underground cabling network for utilities such as electric wires, water pipelines, stormwater drains, sewers and telecommunication cables. This chapter provides the details of plans and targets of works proposed to be taken up under various schemes.

- Snapshot of the Mission
- Physical Targets for UG Cabling Works
- Projects Completed so Far in Key Cities
- Projects Under Construction/ Awarded
- Proposed Projects
- Issues and concerns

### 6. OUTLOOK AND PROJECTIONS (till 2022)

This chapter will give a snapshot of the investments and physical targets proposed for underground cabling networks by transcos and discoms. The information presented in this chapter is based on both primary and secondary information collected from transcos and discoms.

- Growth Drivers for UG Cabling
- Expected Demand for UG Cables
- Plans and Targets of Utilities by Segment
  - Transmission
  - Distribution
- Budgeted Capital Expenditures on UG Cabling
- Future Outlook

### 7. LEADING PLAYERS

This chapter primarily focuses on the profiles of key vendors and technology providers for underground cabling. Each profile covers the following information:

- Brief Company Overview
- Key Product Offerings
- Existing Manufacturing Capacity
- Financial Performance
- Future Plans

*The report is available in a PDF format.*

## Changing Landscape, Growing Role of Digitisation and New Opportunities

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**1. EXECUTIVE SUMMARY**

Solar plants are built to last 20-25 years. After the engineering procurement and construction period is completed, developers need to ensure that the operations and maintenance (O&M) activities are seamless for sustained energy generation over the project lifetime. The report will highlight the emerging opportunities in this space and the growing role of new technologies like automation and artificial intelligence.

**2. MARKET OVERVIEW**

In the initial years of solar power development in India, O&M was often coupled with EPC and performed by the same vendors, but of late, solar O&M has emerged as a separate market with its own landscape, trends and dynamics. This chapter will cover the following areas:

- ❖ Current size of the solar O&M market
- ❖ Market size by segment
  - Utility-scale, Rooftop, Canal-top & floating solar
- ❖ Key growth trends and drivers
- ❖ O&M Evolution - Reactive to Predictive Analysis
  - Applications in solar O&M, Cost and time savings
- ❖ Emerging Role of Energy Storage
- ❖ Key issues and concerns

**3. COST TRENDS**

The cost of O&M services has been declining over the past few years and the downward trend is expected to continue. The cost composition itself is changing due to greater automation and use of advanced tools. This chapter will cover the following areas:

- ❖ Solar O&M cost trajectory (2012-18)
- ❖ Cost breakup analysis
  - Vehicles and logistics, Equipment and tools, Overheads, Personnel/Manpower, Digital, Others
- ❖ Cost projections (2019-24)
  - Business model evolution, Key cost considerations, Impact of scale, Impact of energy storage, Future cost estimates

**4. EMERGING O&M BUSINESS MODELS**

Globally, there has been a rise of third party solar O&M service providers. As more sophisticated and structured approach emerges in the solar O&M market, third party providers are able to deliver more value to solar investors and owners. This chapter will cover the following areas:

- ❖ Capex-based
- ❖ Profit-sharing
- ❖ Fixed cost
- ❖ O&M extensions
- ❖ Others

**5. TERMS OF O&M CONTRACTS**

It is important for both developers and O&M service providers to clarify and list out their expectations and accordingly draw up a long-term contract. An effective contract will result in higher plant efficiencies. This chapter will cover the following areas:

- ❖ Time periods
- ❖ Product warranties
- ❖ Performance guarantees/SLAs
- ❖ Penalties
- ❖ Ownership
- ❖ Legal terms

**6. GRID MANAGEMENT BY O&M PLAYERS**

As the government becomes stricter in its implementation of forecasting, scheduling and deviation settlement mechanism regulations, grid management will become a key component of O&M players. Integration of energy storage on to existing plants will lead to a greater O&M play. This chapter will cover the following areas:

- ❖ Forecasting and scheduling
- ❖ Deviation settlement management
- ❖ Integration of energy storage into existing plants
- ❖ Cost implications
- ❖ Experience so far

**7. O&M COMPANY PROFILES**

A large number of O&M focused players are coming up, some as hive-offs from existing EPC companies and others as independent specialists. This chapter will have 5-8 profiles of key O&M players in India covering the following:

- ❖ Project portfolio
- ❖ Service offerings
- ❖ Technology tie-ups
- ❖ On-ground experience
- ❖ In-pipeline capacity
- ❖ Etc.

**8. DIGITALISATION AND AUTOMATION AT PLANT LEVEL**

Digitalisation and automation will play a key role in providing efficient O&M services, thereby changing the current O&M cost composition, which is currently dominated by manpower expenses. New technologies are being adopted for improving asset lifecycle management, predictive maintenance, remote sensing and control, cloud computing, and use of drones for visual imaging. A number of companies have also already started using robotics for cleaning modules. This chapter will cover the following areas:

- ❖ Emerging role, applications and use case for the following
  - Manpower and material management, Automated monitoring and big data analytics, Robotics, drones and wearables
- ❖ Growing role of artificial intelligence
  - Machine learning applications, AI field assistants and predictive analytics, Existing use cases
- ❖ Key technology providers
- ❖ Industry Perspective  
(Views of key personnel from the solar O&M industry and technology providers on the growing role of AI, robotics and data analytics)

**9. KEY CHALLENGES, BEST PRACTICES AND CASE STUDIES**

The lack of attention given to O&M practices is one of the primary challenges that the segment is facing. If the plant is not maintained properly, developers can lose up to 15 per cent of the returns. This chapter will cover the following areas:

- ❖ O&M challenges matrix
- ❖ Best practices (Globally and in India)
- ❖ Case studies (This will cover successes and failures of various technologies, business models and strategies adopted by O&M players)

**10. PROJECTED O&M MARKET SIZE (FROM 2019-20 TO 2024-25)**

The total addressable market for solar PV O&M is expected to reach 30 GW in 2018-19. It is likely to more than triple by 2022 to exceed 100 GW. In fact, going forward, as the installed base gets larger, O&M revenue may even exceed the development and construction revenue. This chapter will cover the following areas:

- ❖ Impact factors
- ❖ Emerging O&M industry structure
- ❖ Short-term projections
- ❖ Medium-term projections
- ❖ Long-term projections

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## Key Trends, Risks, Alternatives and Outlook

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- State Sector Players: Karnataka Power Corporation Limited; Maharashtra State Power Generation Corporation; Telangana State Power Generation Corporation; Tamil Nadu Generation and Distribution Corporation; Odisha Hydro Power Corporation; Kerala State Electricity Board; Andhra Pradesh Power Generation Corporation; Sardar Sarovar Narmada Nigam Limited; Uttarakhand Jal Vidyut Nigam Limited; Teesta Urja Limited
- Private Sector: JSW Energy; Tata Power Company Limited; JP Power Ventures; AHPC
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This section has 30 chapters pertaining to the renewable energy scenario and outlook for 30 African countries. These includes Algeria, Angola, Botswana, Cameroon, Democratic Republic of the Congo, Egypt, Ethiopia, Ghana, Guinea, Kenya, Libya, Madagascar, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia and Zimbabwe.

Each country profile provides information on:

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(January 2018)

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*Each profile provides an overview of the airport, traffic projections, ownership structure, expected capacity, future timelines, recent contracts; expansion, etc.*

*The report is available in a PDF format*



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*Each profile covers the project scope (network length, alignment details, number of stations, rolling stock, fare system, signaling and telecommunications, traction, etc.), ownership details, implementing agency, cost estimates, key consultants, key contractors, key milestones, funding pattern, actual/expected ridership, recent contracts, upcoming tenders, and the detailed current status.*

*The report is available in a PDF format.*

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The report is available in a PDF format.

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

## Sector Analysis, Project Pipeline, Emerging Opportunities and Outlook

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The report is available in a PDF format.

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*Each profile will cover information on throughput, current capacity & capacity utilisation, key facilities, draught levels, dwell time, equipment availability and planned expansion.*

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*Each profile will cover information on company operations, existing infrastructure, network covered, financial performance, future plans, etc.*

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*The report is available in a PDF format.*

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- Technology Providers
- Equipment Suppliers
- Etc.

**8. RISKS AND CHALLENGES**

- Policy, Fiscal and Regulatory Issues
- Contractual Issues
- Inadequate Survey and Investigation
- Environmental Concerns
- Financing Issues
- Absence of Dredger Building and Repair Facilities
- Manpower Issues

*(This chapter includes views/perspective of key dredging companies and technology/equipment providers on the key issues and challenges affecting the implementation of dredging projects)*

**9. DREDGER MARKET**

- Current Size
- Import of Dredgers
- Market Trends
- Advancements and New innovations
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**10. OTHER EQUIPMENT REQUIREMENTS**

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- Trends in Equipment Usage
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- Future Outlook

**12. PROFILES OF MAJOR PLAYERS**

- Company Overview
- Fleet Size
- Project Portfolio (Completed and Ongoing Projects)
- Upcoming Projects
- Financial Performance
- Future Plans

**DATABASE OF DREDGING PROJECTS**

A comprehensive database of key dredging projects with information on quantity dredged, contractor, location, contract value, type of dredged deployed, etc. The database would include projects being undertaken at the major ports, non-major ports, national waterways, oil and gas fields, rivers, beaches, etc. It would also cover the ongoing and upcoming projects under the central government programmes.

*The report is available in a PDF format.*

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- 2. IMPACT OF COVID-19 ON LOGISTICS: SHORT, MEDIUM & LONG-TERM**
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- 3. DRAFT NATIONAL LOGISTICS POLICY : EXPECTED IMPACT AND INDUSTRY EXPECTATIONS**
  - Key Objectives; Focus Areas; Industry Response and Expectations; Expected Timelines
- 4. FREIGHT TRAFFIC ANALYSIS & PROJECTIONS IN LIGHT OF COVID-19**
  - By Mode; By Region; By Origin and Destination; By Type of Containerised Commodity; Capacity/Network Addition; Freight Rates
- 5. RE-ASSESSMENT OF THE MARKET OUTLOOK : NEW REQUIREMENTS & OPPORTUNITIES**
  - Policy and Regulatory Outlook Post Covid-19; Investment Projections and Outlook; Emerging Growth Areas and Requirements; Key Upcoming Projects: A Realistic Assessment; Impact and Timelines of Upcoming Infrastructure (DFC, DMIC, NWS, Jal Marg Vikas Project, etc.); Big-ticket Opportunities to Look Out For: 2020 and Beyond
- 6. PRIVATE PLAYERS' PLANS, PERFORMANCE AND STRATEGIES**
  - Snapshot of Operations; Financial Performance; Returns & Profitability; Initiatives Undertaken During Covid-19; Technology Initiatives; Planned Capex; Future Strategies

*This chapter will also feature insight and opinion from 10-15 top industry players.*
- 7. INVESTMENT SCENARIO AND OUTLOOK**
  - Trends in Investment; Key Recent Deals and Transactions; Key Successful Exits; Historical and Expected Rates of Returns; Upcoming Opportunities for Investors; Risks in Light of Covid-19; Investment Projections
- 8. TECHNOLOGY AND AUTOMATION REQUIREMENTS POST COVID-19**
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- 10. ROADS**
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- 11. PORTS, COASTAL SHIPPING AND IWT**
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  - 16. COLD STORAGES, COLD CHAIN AND REEFER CONTAINERS**
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These chapters will cover Size and Growth; Government Schemes and Initiatives; Key Trends and Developments; Market Structure and Key Players; Impact of Covid-19 on Demand and Rentals; Growth Drivers; Key Issues and Challenges; Key Projections; and Outlook and Opportunities

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*The report is available in a PDF format.*

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*The report is available in a PDF format.*

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*The report is available in a PDF format.*

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**SECTION IV: DATABASE OF KEY PROJECTS**

A comprehensive database of key tunneling projects across the metro, railway, roads and highways, water supply and sewage, irrigation and oil and gas sectors. Each project will provide information on tunnel length, no. of tunnels, location, implementing agency, project cost, contractor, current status, tunneling method, expected date of completion, etc. Each profile will cover information on company operations, existing fleet, geographical coverage, financial performance, future plans, etc.

The report is available in a PDF format.

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*Each project provides information on the scope of work, location, capacity, implementing agency, developer/contractor, current status, expected date of completion, etc.*

*The report is available in a PDF format.*

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**6. KEY GOVERNMENT PROGRAMMES: CURRENT STATUS, UPCOMING PROJECTS AND OPPORTUNITIES**

- Jal Jeevan Mission; Smart Cities Mission; Atal Mission For Rejuvenation and Urban Transformation; Namami Gange Mission

*For each of the programmes project scope, investment requirements, financing sources, current status, key completed and ongoing projects, upcoming tenders, targets and completion timelines, etc, will be covered.*

**7. TARIFFS AND COSTS STRUCTURE**

- Tariff Structure; Water Charges & Fees; Production Costs & O&M Expenses; Recent Tariff Reforms; Issues and Challenges

**8. FINANCING AND INVESTMENT TRENDS**

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**10. METERING PRACTICES: CURRENT DEPLOYMENT AND FUTURE OUTLOOK**

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**11. NRW REDUCTION STRATEGIES & REVENUE MANAGEMENT SYSTEMS**

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**13. TARIFFS AND COST STRUCTURE**

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**14. POWER SECTOR: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

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**15. TEXTILE SECTOR: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

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**17. STEEL SECTOR: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

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**18. OIL REFINERIES: DEMAND ANALYSIS AND FUTURE PROJECTIONS**

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**20. FUTURE POTENTIAL AND UPCOMING CAPACITY**

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**23. FUTURE REQUIREMENTS AND POTENTIAL**

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**SECTION VI: DATABASE OF KEY PROJECTS**

*A comprehensive excel-based database of ongoing and upcoming projects in the municipal water supply, industrial water supply, desalination and wastewater treatment segments.*

Each project will provide information on:

- Scope; Project Cost; Current Status; Segment (Municipal, Industrial, Desalination, Wastewater Treatment); Mode of Implementation (PPP or EPC); Contractor/Developer; Equipment Supplier (wherever available); Funding Sources (wherever available); Expected Capacity Addition; Expected Completion Date

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

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- 2. IMPACT OF COVID-19 AND OTHER RECENT DEVELOPMENTS**
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- 3. PROJECT PIPELINE AND ANALYSIS**
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  - Project Pipeline Analysis: By Region; State; Ownership/Mode of Implementation; Completion Period
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  - Analysis of Upcoming Projects
  - Top 50 Upcoming Projects
- 4. FUTURE OUTLOOK AND MARKET OPPORTUNITIES**
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  - Outlook and Projections (till 2024-25)
- 5. UPDATE ON KEY GOVERNMENT PROGRAMMES**
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- 6. INTER-CITY COMPARISON: ANALYSIS OF KEY CITIES**
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- 7. FINANCING EXPERIENCE AND PPP POTENTIAL**
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  - Capex and Opex Requirements
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#### 10. LEADING PLAYERS: PROJECT PORTFOLIO AND FUTURE PLANS

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- Project Portfolio: Key Completed Projects; Key Ongoing Projects
- Financial Performance
- Industry Concerns and Expectations
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#### SECTION II: KEY FOCUS SEGMENTS: ANALYSIS AND OUTLOOK

#### 11. DECENTRALISED SEWAGE TREATMENT

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#### 12. RECYCLE AND REUSE INITIATIVES

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- Comparison of Key Technologies: Cost Comparison; Performance Comparison
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#### 16. O&M AND ASSET MANAGEMENT

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#### SECTION IV: DATABASE OF KEY PROJECTS

The database will be a compilation of operational sewage treatment plants (STPs) along with details on the capacity, implementing agency and technology (wherever available). It will also provide a detailed list of ongoing and planned projects in the sector including sewage treatment facilities, sewage pumping stations, sewage pipelines, recycle and reuse facilities, and effluent treatment plants with details on scope, location, cost, capacity, funding sources, implementing agency, contractor (wherever available), current status, expected date of completion, etc.

The report is available in a PDF format.

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- 2. KEY GOVERNMENT ANNOUNCEMENTS AND EXPECTED IMPACT** ...
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- 3. POLICY AND REGULATORY DEVELOPMENTS** .....
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- 4. HOUSING DEMAND AND SUPPLY INDICATORS** .....
  - Households versus Housing Stock, Affordable Housing Demand and Supply, Demand and Supply Gap: Overall, Urban, State-wise, Rural, Houses by Habitable Conditions, Housing Congestion
- 5. FUTURE OUTLOOK AND KEY PROJECTIONS** .....
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- 6. PROJECT PIPELINE AND MARKET OPPORTUNITIES** .....
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- 7. TOP CITIES FOR AFFORDABLE HOUSING** .....
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- 8. FINANCING AND INVESTMENT SCENARIO** .....
  - The Investment Experience
  - Funding Sources
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- 9. PROJECT ECONOMICS: COSTS, MARGINS, RETURNS AND RISK ANALYSIS** .....
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- 11. PROGRESS REPORT: HOUSING FOR ALL BY 2022** .....
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  - Pradhan Mantri Awas Yojana - Gramin: Scope and Objectives, Progress So Far - Physical and Financial, Completed and Ongoing Projects, Targets and Timeline, Investment Requirements
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- 12. PROGRESS AND OPPORTUNITIES UNDER THE SMART CITIES MISSION** .....
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*(Each profile will include information on company operations, project portfolio-completed and ongoing, upcoming projects, financial performance and future plans)*

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- 17. INTER-STATE COMPARISON** .....
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- 18. KEY STATE PROFILES** .....
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*(Each state profile will give an overview of the housing scenario, role of key agencies and housing boards, state policy on affordable housing, new initiatives and incentives, and ongoing and upcoming housing schemes/projects.)*

*The report is available in a PDF format.*



**KEY TAKEAWAYS AND THE ROAD AHEAD** .....

**SECTION I: OVERVIEW, OUTLOOK AND OPPORTUNITIES**

**1. MARKET SIZE, TRENDS AND DEVELOPMENTS** .....

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- Institutional Framework
- Recent Policy and Regulatory Developments
- Project Completions
- Recent Contract Awards
- Projects Approved/Announced
- Notable Trends
- Government Initiatives
- Risks and Challenges
- Future Outlook and Projections (till 2025-26)

**2. COVID-19 IMPACT ASSESSMENT: PROJECTS, INVESTMENTS AND OPPORTUNITIES** .....

- Impact of COVID-19 on: Project Delivery and Implementation; Labour and Raw Material Availability; Input Cost
- Focus on Biomedical Waste Management
- Investment Landscape and Outlook
- City-level Initiatives & Mitigation Measures
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**3. REALISTIC ASSESSMENT OF PROJECT PIPELINE** .....

- Project Pipeline by: Region; State; Stage of Development; Ownership; Completion Period
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**4. OUTLOOK, PROJECTIONS AND MARKET OPPORTUNITIES** .....

- Growth Drivers
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**5. KEY GOVERNMENT PROGRAMMES: PROGRESS SO FAR AND UPCOMING OPPORTUNITIES** .....

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**6. INTER-CITY COMPARISON: ANALYSIS OF KEY CITIES** .....

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**7. FINANCING EXPERIENCE AND PPP POTENTIAL** .....

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**8. COST ECONOMICS, TARIFFS AND RETURNS** .....

- Tariffs and User Charges; Cost Economics; Capex and Opex Requirements; Market for Residues; Returns and Revenue Potential; New Reforms and Initiatives; Issues and Concerns

**9. LEADING PLAYERS: PROJECT PORTFOLIO AND FUTURE PLANS** .....

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**12. TREATMENT AND PROCESSING** .....

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**13. DISPOSAL, RECYCLE AND REUSE PRACTICES** .....

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**SECTION IV: DATABASE OF KEY PROJECTS**

*The database will provide a detailed list of completed, ongoing and announced/planned/proposed projects in the sector including door-to-door collection and transportation projects, treatment and processing facilities, WtE plants, biomedical waste treatment facility, landfill development and disposal facilities with details on scope, location, cost, capacity, funding sources, implementing agency, contractor (wherever available), current status, expected date of completion, etc.*

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

## Trends, New Initiatives, Outlook and Opportunities

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- Smart Cities Mission; Notable Trends; Recent Developments; Budget 2020-21: Key Announcements & Likely Impact; Technology Trends & Advancements; Startups & MoUs; Issues and Challenges; Smart Cities Mission 2.0; Future Outlook

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**3. PROJECT PIPELINE**

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**4. IMPACT OF COVID-19**

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**5. RECENT INITIATIVES TO FASTTRACK IMPLEMENTATION**

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**7. TOP 15 INVESTMENT DESTINATIONS**

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**11. FAST TRACK (13 CITIES) AND ROUND II CITIES (27 cities)**

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**12. ROUND III (30 CITIES) AND ROUND IV CITIES (10 cities)**

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Projects; Technology & Smart Initiatives; Key Upcoming Projects; Recent Tenders; Issues & Mitigation Measures

**13. GREENFIELD SMART CITIES**

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**16. SMART ENERGY AND SMART GRIDS**

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**17. SMART WATER AND WASTE**

- Key Thrust Areas; Technology Solutions; Current State of Infrastructure; Noteworthy Initiatives/Projects; Select Case Studies & Technologies Deployed; Issues & Challenges; Key Learnings; Key Completed Projects; Key Upcoming Projects; Recent Tenders; Segment Outlook

**18. AFFORDABLE HOUSING & INTELLIGENT BUILDINGS**

- Key Thrust Areas; Technology Solutions; Current State of Infrastructure; Noteworthy Initiatives/Projects; Select Case Studies & Technologies Deployed; Issues & Challenges; Key Learnings; Key Completed Projects; Key Upcoming Projects; Recent Tenders; Segment Outlook

**19. SMART GOVERNANCE & COMMUNICATION**

- Key Thrust Areas; Technology Solutions; Current State of Infrastructure in Smart Cities; Select Case Studies & Technologies Deployed; Key Learnings; Issues & Challenges; Upcoming Contracts & Tenders; Segment Outlook (till 2025-26)

**20. SAFETY & SECURITY**

- Key Thrust Areas; Technology Solutions; Current State of Infrastructure in Smart Cities; Noteworthy Initiatives/ Projects; Select Case Studies and Technologies Deployed; Key Learnings; Issues and Challenges; Upcoming Contracts and Tenders; Segment Outlook (till 2025-26)

**21. NEW FOCUS AREA**

- Healthcare; Public Amenities; City Gas Distribution; Roads & Flyovers; Others; Key Completed Projects; Key Upcoming Projects; Recent Tenders; Segment Outlook

**SECTION IV: DATABASE OF KEY PROJECTS**

The report will also provide a comprehensive Excel-based database of ongoing and upcoming projects across the water supply, sewerage, waste, energy, mobility, buildings, roads, safety and security, e-governance, parking, and healthcare segments.

Each project will provide information on:

- Scope; Project Cost; Type of Project (Area-based or Pan-City) ; Mode of Implementation ; Implementing Agency; Contractor/ Developer/Technology Vendor (wherever available); Current Status; Expected Date of Completion Etc.

The report is available in a PDF format

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*(Each player profile will give an overview of the company's operations, focus areas, current production capacity, manufacturing facilities, key projects and tenders, financial performance, capex and expansion plans)*

*The report is available in a PDF format*

## Growth Drivers, Emerging Business Models and Future Outlook

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*(Each segment will cover market size, growth drivers, current and planned partnerships and contracts, and market opportunity)*

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- Reliance Infratel
- Tower Vision
- Others (GTL Infrastructure, RailTel, PowerGrid, etc.)

*(Each player profile will give an overview of the company's operations, tower footprint and portfolio, focus areas, key projects, key clients, financial performance, capex and expansion plans)*

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

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**OPINION AND INSIGHTS**

- Niraj Didwania, Head, Corporate Development and Investor Relations, Healthcare Global Enterprises
- Nitin Nag, Regional Director (South), Cloudnine Group of Hospitals
- Dr. Nitiraj Gandhi, Senior Manager, Business Advisory Services, EY
- Dr. Kirti Chadha, Senior Vice President - GRL Operations and Medical Affairs, Metropolis Healthcare
- Dr. Manjiri Bakre, CEO and Founder, OncoStem Diagnostics
- Nitin Sisodia, Founder and CEO, Sohumi Innovation Lab
- Arun Agarwal, Founder, Janitri Innovations

*The report is available in a PDF format.*

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Each of the sectors covers:

- Size and Growth, Emerging Trends and Recent Developments, Proposed Investments, Upcoming Projects, Market Opportunities, Issues and Challenges, Future Outlook

*The report is available in a PDF format.*

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- Atal Bhujal Yojana (ABHY) - National Groundwater Management Improvement Program
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For each of the programmes we will cover project scope, investment requirements, financing sources, current status, key completed and ongoing projects, upcoming tenders, targets and completion timelines, etc.

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Each profile will give information on the following:

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The report is available in a PDF format

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*Each country profile will cover the current economic scenario, current state of infrastructure, sector-wise size and growth, trends in budgetary allocations, mitigation strategies and relief measures to deal with the impact of Covid-19, expected capacity additions, proposed investments, and a snapshot of key completed and upcoming projects.*

### SECTION IV: DATABASE OF KEY PROJECTS

*The database will have information on project scope, cost, capacity, location, implementing agency, ownership, EPC contractor/developer, equipment provider, current status, date of commencement of construction/month of award, and expected date of completion*

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*Each profile gives an overview of the company's operations, key contracts, recent collaborations, joint ventures, and future plans and strategies.*

*The report is available in a PDF format.*

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