



Catalogue of Research Reports on Infrastructure Sectors

November 2021

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.

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EXECUTIVE SUMMARY

SECTION I: SECTOR ANALYSIS, OPPORTUNITIES AND OUTLOOK

1. SECTOR SIZE AND GROWTH

- Growth in Transmission Line Length (Interstate and Intra-state)
- Growth in Substation Capacity (Interstate and Intra-state)
- Trend in Substation Additions (Interstate and Intra-state)
- Trends in Network Reliability
- Growth in Interregional Transfer Capacity
- Capex and Investments

2. UPCOMING PROJECT PIPELINE

- Under construction projects
- Under bidding projects
- Proposed/Announced projects
- Market opportunities for: Project Developers; Investors; EPC Contractors; Equipment Providers

A detailed database of upcoming projects including line length, substation capacity, voltage, expected cost, expected completion, and current status will be provided in an excel sheet.

3. NETWORK GROWTH AND INVESTMENT OUTLOOK (Till 2025-26)

- Growth drivers; Projected Line Length; Projected Transformer Capacity; Projected Number of Substations; Expansion in Inter-regional Transfer Capacity; Investment Projections

4. TBCB EXPERIENCE AND OPPORTUNITIES

- Private Participation Trends (Interstate and Intrastate)
- Status of Projects Awarded through TBCB
- Projects Under Bidding
- Future Project Pipeline (Interstate and Intrastate)
- Issues and Concerns

5. TRANSMISSION INFRASTRUCTURE FOR RE

- Trends in RE Growth
- Expected Penetration of Renewables
- Green Energy Corridors
- Transmission Scheme for RE Zones
- Upcoming Projects for RE Evacuation (RTM, TBCB)
- Reactive Compensation – Targets and Deployment
- Issues in RE Integration

6. REGIONAL GRID INTERCONNECTIONS

- Current Cross-border Transmission Links
- Interconnections under Implementation
- Planned Transmission Links
- Issues and challenges

7. EQUIPMENT DEMAND PROJECTIONS (Till 2025-26)

- Emerging Technology Trends
- Projected Equipment Demand: Conductors; Towers; Insulators; Transformers; Switchgear; Reactors

SECTION II: KEY DEVELOPMENTS, POLICY AND REGULATORY LANDSCAPE

8. KEY RECENT DEVELOPMENTS

- Key Commissioned Projects
- Projects Awarded in last 12 months
- Recent M&A Deals
- Recent Financings and InVits
- Asset Monetisation Pipeline
- One Sun, One World, One Grid Initiative
- Cross Border Trading on Exchanges
- New Technology Initiatives (including BESS)

9. POLICY AND REGULATORY INITIATIVES

- Latest TBCB guidelines and SBDs; MoP notice on 33 kV network under transmission; MoP Paper on MBED; ISTS Charges and Losses Waiver for RE; Draft NEP 2021; MoP order on TBCB in intra-state projects; CTU and Powergrid division and demerger; Equipment testing order; CERC Procedure in Grant of connectivity to RE projects to ISTS; CERC Power Market Regulations 2021; CERC Sharing of ISTS Charges and Losses Regulations, 2020; Others (MoP Amendments in Charging Infra Guidelines, CEA transformer testing guidelines, etc.)

10. TRANSMISSION TARIFFS

- Interstate Transmission Tariffs
- Intra-state Transmission Tariffs (Long-term and STOA)
- SLDC Charges

SECTION III: STATE TRANSCO PERFORMANCE ANALYSIS

11. NETWORK SIZE AND OPERATIONAL PERFORMANCE

- Transmission Line Length; Substation Capacity; Number of substations; Transmission Losses; System Availability

12. FINANCIAL PERFORMANCE

- Revenues; Expenditure; O&M Costs; Net Profit/Loss; Capex

13. FUTURE TARGETS AND CAPEX PLANS

- Network Addition Plans: Transmission Line Length; Substation Capacity
- Planned Capex of Utilities

SECTION IV: KEY PLAYER PROFILES

14. CENTRAL SECTOR PLAYERS

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

15. STATE TRANSMISSION UTILITIES

- Gujarat Energy Transmission Corporation Limited; Maharashtra State Electricity Transmission Company Limited; Karnataka Power Transmission Corporation Limited; Rajasthan Rajya Vidyut Prasaran Nigam Limited; Madhya Pradesh Power Transmission Company Limited; Uttar Pradesh Power Transmission Corporation Limited; Tamil Nadu Transmission Corporation Limited; Transmission Corporation of Andhra Pradesh Limited; Transmission Corporation of Telangana Limited; Haryana Vidyut Prasaran Nigam Limited; Odisha Power Transmission Corporation Limited; West Bengal State Electricity Transmission Company Limited; Punjab State Transmission Corporation Limited; Chhattisgarh State Power Transmission Company Limited; Kerala State Electricity Board Limited; Bihar State Power Transmission Company Limited; Assam Electricity Grid Corporation Limited; Himachal Pradesh Power Transmission Corporation Limited; etc.

16. PRIVATE NETWORK DEVELOPERS AND OPERATORS

- Adani Transmission Limited; Sterlite Power Transmission Limited; Indigrd InVIT; CLP India; Sekura Energy; Essellnfraprojects; Essar Power Transmission; L&T Infrastructure Development Projects; Techno-Electric & Engineering Company; Others

Each key player profile will include data and information on:

- Growth in transmission network; Operational performance; Financial performance; Future plans; Contact details of 2-3 Key Personnel

The report will be available in a PDF format.

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<p>1. EXECUTIVE SUMMARY</p> <p>2. CHARGING INFRASTRUCTURE ECOSYSTEM</p> <ul style="list-style-type: none"> - Market Overview - Captive and Public Charging Landscape - Potential Growth Drivers - Emerging Business Models <ul style="list-style-type: none"> • Led by Urban Local Bodies/Public Transport Corporations • Public Private Partnerships • Anchored by Discoms • Facilitated by Transport Aggregators or Corporates • Owned by Charge Point Developers - Recent Tenders - Key Developments (Technology Tie-Ups, Investors JVs, etc.) - Key Barriers - Critical Enablers <p>3. POLICY AND REGULATORY REGIME</p> <ul style="list-style-type: none"> - Government Targets and Roadmap - Progress under FAME - Charging Station Guidelines - Fiscal and Non-Fiscal Incentives - State-wise Policies and Programmes - Evolving Standards Framework (CCS, CHAdeMO, Bharat) - Insights from Key Policy Makers and Municipal Bodies <p>4. TECHNOLOGY TRENDS</p> <ul style="list-style-type: none"> - Types of Chargers <ul style="list-style-type: none"> • Slow, Fast and Ultra-Fast • AC and DC Chargers - Comparison of Charger Types - Network Management Software - Ongoing Advancements <ul style="list-style-type: none"> • Interoperability and Roaming • Smart Charging • V2G Capabilities <p>5. COST AND TARIFFS</p> <ul style="list-style-type: none"> - Charging Tariff Guidelines - State Tariff Regulations - Cost Structure of Charging Stations - Viability Assessment <p>6. DISCOM-WISE PROGRAMS AND PLANS</p> <ul style="list-style-type: none"> - Discom-Level Initiatives - Discom/Regulator Determined Tariffs - Impact on Grid - Renewable Energy Integration - Emerging Opportunity for Discoms - Key Case Studies (Tata Power, BSES, BESCO, MSEDC, KSEB etc.) <ul style="list-style-type: none"> • Business Model • Technology • Network Management Platform • Initiatives to manage EV charging load and grid integration 	<p>7. PROJECTIONS AND OUTLOOK (till 2030)</p> <ul style="list-style-type: none"> - Power Demand Forecast - Charging Station Demand Forecast <ul style="list-style-type: none"> • Captive Charging • Public Charging - Future Outlook <p>8. CHARGING INFRASTRUCTURE DEVELOPERS</p> <p>This chapter will include detailed profiles based on primary inputs of 5-6 leading charging infrastructure developers providing the following information:</p> <ul style="list-style-type: none"> - Key Offerings - Size and Reach - Key Partnerships - Technology tie-ups - Operational Experience - Recent Developments - Future Plans <p>9. OTHER STAKEHOLDERS AND THEIR PLANS</p> <ul style="list-style-type: none"> - State Governments and Agencies - City Level Authorities - Public Sector Undertakings - Automobile Manufacturers - Corporate Establishments <p>The report will also have four quarterly updates providing information on:</p> <ul style="list-style-type: none"> - Charging Station Deployments - Key Tenders - Plans of Discoms and Other Stakeholders - Policy Updates <p><i>The report will be available in a PDF format.</i></p>
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1. EXECUTIVE SUMMARY

SECTION I: ANALYSIS, GROWTH DRIVERS AND OUTLOOK

2. POWER MARKET SNAPSHOT AND OVERVIEW

- GDP Growth Rates
- Power Generation and Consumption Trends
- Electricity Coverage
- Recent Developments
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- Issues and Challenges
- Future Outlook

3. POLICY AND REGULATORY FRAMEWORK

- Institutional Framework
- Key Power Sector Policies and Regulations
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- Impact on Power Demand-Supply and Projects
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- Electricity Tariff Trends
- Future Outlook

6. FINANCING AND INVESTMENT TRENDS

- Key Funding Sources and Requirements, Impact of Covid-19 on Financing Landscape, Recent Financing Trends, Potential for Private Participation, Focus on foreign participation, Key Recent Financings, Investment Requirements, Risks and Challenges, Project IRRs, Investment Outlook

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SECTION II: SEGMENT ANALYSIS, GROWTH TRENDS, UPCOMING PROJECTS AND OPPORTUNITIES

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- Way Forward

SECTION III: COUNTRY PROFILES

- Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka

Each country profile will cover:

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- Institutional Structure
- Power Generation and Consumption
- Electricity Coverage
- Existing Infrastructure (Generation, Transmission and Distribution)
- Power Sector Fuel-mix
- Fuel Consumption
- Operational & Financial Performance of T&D segment
- Power Trading
- Power Import
- Capacity Addition Plans and Targets

The report is available in a PDF format.

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- Difficulty in Accessing Low-Cost Finance
- The Way Forward

The report is available in a PDF format.

SUMMARY AND KEY INSIGHTS

1. MARKET SIZE AND EMERGING LANDSCAPE

- Current Status
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- ACME
- Biezel Green Energy
- Greenko
- Adani
- Mahindra and Mahindra
- Tata Motors

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- Early and Late Adopters
- Estimated Demand Analysis - Installed
- Estimated Demand Analysis - Upcoming
- Short, Medium, and Long Term Outlook
- Required Renewable Energy Capacity
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10. INDUSTRY INSIGHTS

- Akshay Bhardwaj, ACME Cleantech Solutions
- Dr R.K. Malhotra, Hydrogen Association of India
- Parveen Nanda, Greenko Group
- Bob Oesterreich, Chart Industries
- Anurag Pandey, Reliance Industries Limited

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4. IMPACT OF COVID-19 ON DISCOMS

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6. FUTURE OUTLOOK FOR NETWORK GROWTH (till 2025-26)

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14. OUTSTANDING DISCOM DUES

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16. IPDS

- Integrated Power Development Scheme (IPDS); Scheme Coverage; Infrastructure Additions; Snapshot of IPDS Outcomes; Sanctioned and Completed Projects; Sanctions and Disbursements; System Strengthening; IT Enablement Phase II Smart Metering; Smart Meter Installations; Update under R-APDRP; GIS; Digital Technology Initiatives

17. SMART METER NATIONAL PROGRAMME (SMNP)

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18. DEEN DAYAL UPADHYAYA GRAM JYOTI YOJANA (DDUGJY)

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21. EXPENDITURE ANALYSIS

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- Year-wise trends in O&M costs; Trends in utility-wise O&M costs; O&M costs break-up

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- State and Utility-wise Trends in Tariffs; Recent Developments Impacting Tariffs; Category-wise Tariff Trends (Agricultural, Domestic, Industrial HT & LT, Commercial); Tariff Revisions; Trends in Cross-subsidy Surcharges

24. POWER PURCHASE COSTS

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The report is available in a PDF format

KEY INSIGHTS AND THE ROAD AHEAD

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- 1. OVERVIEW AND KEY TRENDS**
 - v Growth in the Past Five Years; Key Consumer Segments; Notable Developments; Recent Authorisations (in the past 15 to 18 months); Government Initiatives in the Light of Covid-19; Union Budget 2021-22: Key Announcements and Expected Impact; Issues and Challenges; MWP Targets; Investment Requirements (Till 2025-26); Future Outlook
- 2. CNG NETWORK - SIZE AND GROWTH**
 - v Growth in the Last Five Years: By State; Operator; Trends in CNG Sales; CNG Network Added in New GAs; MWP Targets & Achievements under Rounds 9 & 10; New CNG stations to be added
- 3. PNG NETWORK - SIZE AND GROWTH**
 - v Growth in the Last Five Years: By State; Operator; Consumer Mix (Industrial, Commercial and Domestic); PNG Connections Added in New GAs; MWP Targets & Achievements under Rounds 9 and 10; New PNG Connections to be added
- 4. IMPACT OF COVID-19 ON OPERATIONS, NETWORK ADDITION AND CAPEX PLANS**
 - v Impact on Operations (CNG and PNG); Impact on Revenue (CNG and PNG); Impact on MWP Targets and Achievements; Impact on: Ongoing/Under Construction GAs; New GAs Awarded; New Bidding Round Announcements; Impact on: Revenue and Gas Sales; CNG and PNG Network Additions; Planned Capex; Invocation of Force Majeure; Impact on Supply Chain and Labour; Estimated Time and Cost Overruns; Revival Strategies and Relief Measures
- 5. RECENT REGULATORY DEVELOPMENTS**
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Emerging Economics, Evolving Regulatory Framework, Increasing Opportunities and Changing Risks

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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
- Leading States
- Key Growth Drivers
- Tariff Trends in Open Access through Solar and Wind
- Key Issues and Challenges

2. IMPACT OF AMENDMENTS IN ELECTRICITY ACT, 2003

- 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

7. STATE PROFILES

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
- IRR Projections
- 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.

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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

The report is available in a PDF format.

Segment Analysis, Trends and Outlook

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SECTION B: COUNTRY PROFILES

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:

- Economic Scenario and Demography
- Power Demand and Supply Scenario
- Resource-wise Renewable Energy Potential
- Segment-wise Size and Growth (Solar, Wind, Bioenergy, etc.)
- Key Growth Drivers
- Evolving Policy and Regulatory Scenario
- Recent Developments
- Segment-wise Cost and Tariff Trends
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- Nagpur (Spanco Nagpur Discom Limited)
- Agra (Torrent Power Limited)
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- Bhagalpur (SPML Infra Limited)
- Gaya (India Power Corporation Limited)
- Kendrapara Division I & II, Jagatsinghpur, Dhenkanal, Talcher and Angul (Enzen Global Solutions Private Limited)
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(January 2018)

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Each port profile will cover current infrastructure, traffic trends, financial performance (wherever available), key projects and upcoming opportunities.

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The report will be available in a PDF format.

Recent Progress, Upcoming Opportunities and Future Projections

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This section will cover operations, financial performance, recent developments, project portfolio, and future plans of key PSUs.

The report will be available in a PDF format.

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The detailed project pipeline will be provided in the dataset with parameters like length, cost, implementing agency, developer, contractor, current status, expected COD, etc.

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Market Trends, New Opportunities, Future Strategies and Outlook

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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.

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The report is available in a PDF format.

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2. IMPACT OF COVID-19 ON PROJECTS AND CONTRACTORS

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 - Impact on Contractors: Order Books, Capex Plans, Stressed Assets, Financial Performance, Contract Renegotiations and Dispute Resolution

3. PROJECT PIPELINE ANALYSIS

- Assessment of Project Pipeline: Short Term (2021-22), Medium Term, Long Term; Analysis by Sector; Analysis by Stage of Development; Analysis by Ownership; Analysis by Region; Analysis by Investment; Top Upcoming Projects in Terms of Construction Opportunity in 2021-22; Projects Awaiting Clearances/Land Acquisition/Financial Closure

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- Financing Scenario; Emerging Funding Sources; Working Capital Requirements; Current Stance of Investors and Lenders; Stressed Assets and M&A Opportunities; Financing Needs and Requirements; Key Risks and Challenges

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7. RAILWAYS

- Sector Snapshot; Overall Construction Progress; Key Trends; Major Players; New Initiatives to Fastrack Construction; Recent Project Awards and Completions; Expected Investments and Capacity Addition (New Lines, Stations, Doubling, Track Construction, etc.); Focus on DFCs: Future Corridors and Opportunities; Construction Opportunities in 2021-22; Issues and Challenges; Post-Covid Construction Outlook

8. AIRPORTS

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10. PORTS

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11. POWER

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12. WATER AND WASTE

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13. IRRIGATION

- Sector Snapshot; Overall Construction Progress; Key Trends; Major Players; New Initiatives to Fastrack Construction; Expected Investments and Capacity Addition; Construction Opportunities in 2021-22; Issues and Challenges; Post-Covid Construction Outlook

14. TUNNELS

- Sector Snapshot; Overall Construction Progress; Key Trends; Major Players; New Initiatives to Fastrack Construction; Expected Investments and Capacity Addition; Construction Opportunities in 2021-22; Issues and Challenges; Post-Covid Construction Outlook

15. HOUSING

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17. MATERIALS: CEMENT, STEEL, BITUMEN AND OTHERS*

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**Other Materials will include geosynthetics, aggregates, fly ash, coir geotextiles, and plastic waste*

The report will be available in a PDF format.

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- Impact on Contracting Market
- Impact on Supply chain
- New Investment Avenues being Explored
- Mitigation Strategies

3. PROPOSED REFORMS UNDER MMDR AMENDMENT ACT AND ITS IMPACT

- Proposed Amendments: Enhancing Private Participation; Defining Illegal Mining; Removing Distinction between Captive and Non-captive Mines; Moving Towards Auction Regime; Developing a National Mineral Index; Etc.
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- Impact on Coal Mining
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5. FUTURE OUTLOOK AND KEY PROJECTIONS (2025-26)

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- Top Upcoming Projects
- Pipeline Analysis: By Mineral; Stage; State; Ownership
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7. COMMERCIAL COAL MINING: EXPERIENCE AND OUTLOOK

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8. UPDATE ON MINERAL AUCTIONS

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10. IRON ORE

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11. LIGNITE

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12. LIMESTONE

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13. BAUXITE

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14. COPPER

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- NLC India Limited
- National Aluminium Company Limited
- Hindalco industries Limited
- KIOCL Limited
- NMDC Limited
- Vedanta Limited
- Steel Authority of India Limited
- Tata Steel Limited
- Hindustan Copper Limited
- Hindustan Zinc Limited

(Each mining player will cover operational performance, financial performance, project portfolio, and future plans and strategies)

The report is available in a PDF format.

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2. IMPACT OF COVID-19 ON PROJECTS, INVESTMENTS & CAPEX PLANS

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- Analysis by Region & State
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- Mega/Big Ticket Projects under Construction
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- Experience So Far
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- Construction Techniques and Methods
- Design & Engineering Practices
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- Size and Growth, Technology Trends and Advancements, Key Completed Projects, Key Ongoing Projects, Select Case Studies, Major Players, Recent Tenders/Contracts, Upcoming/Planned Projects

7. ROADS AND HIGHWAYS

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12. TBM TECHNOLOGY

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13. DRILL AND BLAST METHOD

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17. FOCUS ON MEP SYSTEMS & SMART TUNNELS

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18. NEW CONSTRUCTION MATERIALS

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SECTION IV: KEY PLAYERS

19. PROFILES OF KEY PLAYERS

- Abir Infrastructure Private Limited, Afcons Infrastructure Limited, Gammon Infrastructure Projects Limited, Hindustan Construction Company Limited, IRCON International Limited, ITD Cementation, J Kumar Infraprojects Limited, L&T Construction, Navayuga Engineering Company Limited, NCC Limited, Patel Engineering Limited, SEW Infrastructure Limited

(This section will cover operations, financial performance (wherever available), recent developments, project portfolio, strategies being adopted in light of Covid-19 and future plans of each company)

SECTION V: DATABASE OF KEY PROJECTS

The database is a compilation of upcoming projects (ongoing and planned) in the segment with details on project name, sector/segment, length, location, cost, implementing agency, current status, mode of implementation, etc.

The report is available in a PDF format.

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- Union Budget 2020-21
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- Viewpoint of Different Stakeholders

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- Current Market Size of Key Equipment
- Growth in the Past Five Years
- Equipment Productivity Levels
- Equipment Utilisation Levels
- Impact of COVID-19 on the Mining Equipment Market
- Recent Developments Impacting the Equipment Market
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- Key Growth Drivers
- Impact of Mineral Law Ordinance 2020
- Equipment Procurement Plans of Mining Companies
- Mining Project Pipeline
- Equipment Outlook and Projections (till 2024-25)

4. KEY CONSUMING SEGMENTS

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- Key Non-Coal Minerals (Metallic and Non-metallic): Segment Size and Growth; Equipment Application and Usage; Growth Drivers; Key Challenges; Projected Demand for Mining Equipment (till 2024-25)

5. MINING TECHNIQUES AND TECHNOLOGY TRENDS

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- Mine Planning and Design
- Emerging Technologies
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- Key Case Studies
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6. LEADING PLAYERS

- Action Construction Equipment Limited
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- 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
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7. DRILLING, EXCAVATION AND EXTRACTION EQUIPMENT

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- Key Equipment Manufacturers
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 - Type of Mineral (coal versus non-coal)

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10. CRUSHING, PULVERISING AND SCREENING EQUIPMENT

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- Major Players
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The report is available in a PDF format.

SECTION I: SECTOR ANALYSIS, OPPORTUNITIES AND OUTLOOK

1. WATER SECTOR OVERVIEW

- Size and Growth; Emerging Trends; Policy & Regulatory Developments; City-Level Initiatives; Technology Trends & Advancements; Trends in Water Supply Sources; Issues and Challenges

2. OUTLOOK AND KEY PROJECTIONS (Till 2026-27)

- Network Addition Projections; Investment Projections; Project Award and Completion Targets under Key Government Programmes; Opportunities for Private Participation; Material & Equipment Demand Projections; Future Outlook

3. PROJECT PIPELINE ANALYSIS

- Assessment of Project Pipeline; Analysis by Segment; Analysis by Stage of Development; Analysis by State; Top Upcoming Projects in Terms of Investment

The detailed project pipeline will be provided in the dataset with parameters like scope of work, capacity, cost, implementing agency, developer, contractor, current status, expected COD, etc.

4. INVESTMENT AND MARKET OPPORTUNITIES (Till 2026-27)

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6. GOVERNMENT PROGRAMMES: PROGRESS AND OPPORTUNITIES

- Jal Jeevan Mission; Atal Mission for Rejuvenation and Urban Transformation; Smart Cities Mission; Namami Gange Mission; Swachh Bharat Mission

For each of the programmes we will cover programme mission & scope, investment requirements, financing sources, current status, key completed projects, upcoming tenders, key investment destinations, targets and timelines, etc.

7. 24X7 WATER SUPPLY: EXPERIENCE, CHALLENGES AND OPPORTUNITIES

- Experience So Far; City-wise 24x7 Water Supply Projects; Pilot Projects & Case Studies; Key Completed & Ongoing Projects; Key Planned & Announced Projects; Major Players; Upcoming Contracts & Tenders; Segment Outlook

8. NETWORK OPERATION & MAINTENANCE

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11. THERMAL POWER SEGMENT: CURRENT DEMAND AND FUTURE PROJECTIONS

12. TEXTILE INDUSTRY: CURRENT DEMAND & FUTURE PROJECTIONS

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14. STEEL SECTOR: CURRENT DEMAND AND FUTURE PROJECTIONS

15. CEMENT SECTOR: CURRENT DEMAND AND FUTURE PROJECTIONS

16. OIL REFINERIES: CURRENT DEMAND AND FUTURE PROJECTIONS

17. TANNERIES: CURRENT DEMAND AND FUTURE PROJECTIONS

Each of the chapters 11 to 17 will cover the following:

- Current Water Consumption; Sources of Water Supply; Effluent Generation and Treatment; Net Water Consumption; Key Water Management Initiatives; Capacity Expansion Plans; Projected Water Demand (till 2026-27)

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19. FUTURE POTENTIAL AND UPCOMING CAPACITY

- Growth Drivers; Planned Capacity; Investment Requirements; Future Potential

SECTION V: WASTEWATER TREATMENT AND REUSE

20. SEGMENT SIZE AND GROWTH

- Current Size and Growth; Notable Trends & Developments; City-Level Initiatives & Best Practices; Regulations, Standards and Norms; New Advancements & Innovations; Treatment Technologies and Deployment; Major Players and Portfolios; Select Case Studies; Risks and Challenges; Outlook & Projections (till 2026-27)

21. UPCOMING CAPACITY AND FUTURE PLANS

- Growth Drivers; Upcoming Wastewater Treatment Capacity; Future Plans & Initiatives for Recycle & Reuse; Regulatory Outlook; Top Upcoming Projects; Investment Requirements

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 provides information on:

- Project Name/Scope; Project Cost; State; Project Award Date; Current Status; Detailed Status; Segment (Municipal, Industrial, Desalination, Wastewater Treatment, Recycle & Reuse); Mode of Implementation (PPP or EPC); Implementing Agency; Expected Capacity Addition; Expected Completion Date

The report will be available in a PDF format.

Capacity Growth, Developments, Opportunities and Projections

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- Notable Trends
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- Impact of Covid-19 on Projects & Investments
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- Project Awards and Completion (in the Past 15-18 months)
- Union Budget 2021-22: Key Announcements & Impact
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- Risks and Challenges
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2. ANALYSIS OF OPERATIONAL CAPACITY

- State-wise Distribution of STPs: Installed Treatment Capacity, Operational Treatment Capacity
- Technology-wise Distribution of STPs: Installed Treatment Capacity, Operational Treatment Capacity
- Inter-City Comparison of Treatment Capacity
- Key STPs Operationalised in the Past 15-18 months
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3. SEWAGE TREATMENT MARKET FORECASTS 2021-26

- Growth Drivers
- Sewage Generation Projections
- Projections for Upcoming Capacity
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4. PROJECT PIPELINE & MARKET OPPORTUNITIES

- Assessment of Project Pipeline: Short Term (2021-22), Medium Term, Long Term
- Analysis by Type: Treatment Facilities, Pumping Stations, Pipelines, Recycle and Reuse
- Analysis by Stage of Development
- Analysis by Ownership
- Analysis by Region
- Analysis of Investment
- Top Upcoming Projects in 2021-22
- Market Opportunities for: Contractors, Project Developers, Equipment Providers, Technology Providers

5. OPPORTUNITIES UNDER MEGA PROGRAMMES

- Jal Jeevan Mission
- Namami Gange Mission
- Atal Mission for Rejuvenation and Urban Transformation
- Smart Cities Mission
- Swachh Bharat Mission

For each of the programmes we will cover programme mission & scope, investment requirements, financing sources, current status, key completed projects, upcoming tenders, key investment destinations, targets and timelines, etc.

6. NEW REVENUE MODELS: HAM AND ONE-CITY ONE-OPERATOR

- Progress & Experience So Far; Capex Requirements; Scope for PSP; Revenue Model; Key Completed and Ongoing Projects; Upcoming Contracts and Tenders; Major Players and Portfolio; Investment Opportunities; Advantages and Constraints; Future Outlook

7. DECENTRALISED SEWAGE TREATMENT SYSTEMS

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8. MARKET FOR WASTEWATER RECYCLE AND REUSE

- Current Capacity; Standards and Norms for Reuse; Regulatory Developments; Relevant Technologies; Case Studies & Lessons Learnt; Issues and Challenges; Future Potential

9. TRENDS IN TREATMENT TECHNOLOGIES

- Types of Technology
- Key Features (Capital cost, land requirement, production cost, plant performance, quality of treatment, etc.)
- Current State of Deployment
- Technologies for Energy Generation from Sewage
- New Trends and Advancements
- Upcoming Opportunities
- Issues and Challenges

10. FOCUS ON O&M AND AUTOMATION

- Current Practices & Digital Solutions Deployed
- New O&M Models; Opex Requirements
- Instrumentation and Automation
- Case Studies and New Initiatives
- Potential for Nex-Gen Technologies; Issues and Challenges

11. EQUIPMENT TRENDS & PROJECTIONS

- Market Size and Recent Trends
- Major Players
- Emerging Equipment Requirements
- New Products and Innovations
- Issues and Challenges
- Future Demand Projections (2021-26)

SECTION II: ANALYSIS OF KEY CITIES: CURRENT INFRASTRUCTURE, UPCOMING CAPACITY AND INVESTMENTS

12. PROFILES OF KEY CITIES

- Ahmedabad; Bengaluru; Chandigarh; Chennai; Delhi; Ghaziabad; Gurugram; Hyderabad; Jaipur; Kochi; Kolhapur; Kolkata; Mumbai; Nagpur; Pune; Surat; Visakhapatnam; Udaipur; Others

Each city profile will include information on wastewater generation, current treatment capacity, sewerage network, policies & regulations, ongoing projects, government funding, active tenders, investment requirements, upcoming projects, etc

13. MAJOR PLAYERS: PROJECT PORTFOLIO, PERFORMANCE AND PLANS

- Areas of Business; Current Capacity; Recent Developments; Key Completed Projects; Key Ongoing Projects; Financial Performance; Future Plans

This chapter will cover profiles of 10-15 top project developers/EPC contractors in the sewerage sector

DATABASE OF KEY PROJECTS

- Completed
- Ongoing/Under Construction
- Under Tendering
- Planned/Proposed/Announced

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

The report will be available in a PDF format.

KEY INSIGHTS AND THE ROAD AHEAD

SECTION I: MARKET ANALYSIS, IMPACT OF COVID-19, UPCOMING CAPACITY AND FUTURE OUTLOOK

1. MARKET TRENDS AND DEVELOPMENTS

- Market Size and Growth
- Notable Trends: Municipal & Industrial
- Policy & Regulatory Developments
- Project Awards and Completion (in the Past 15-18 months)
- Technology Trends & Advancements
- Risks and Challenges
- Market Outlook

2. IMPACT OF COVID-19 IN 2021-22

- Impact on Pace of Construction
- Expected Impact on:
 - Ongoing/Under Construction Projects
 - Under Bidding Projects
 - New Project Announcements
- Impact on Input & Labour Supply
- Impact on Contractors
 - Order Books
 - Capex Plans
 - Financial Performance
- Impact on Government Funding
- Impact on Land Acquisition, Clearance and Financial Closure
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3. DESALINATION MARKET FORECAST 2021-26

- Growth Drivers
- Projections for Upcoming Capacity
 - Municipal
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- Investment Projections
- States with Highest Upcoming Capacity
- Post-Covid Outlook

4. PROJECT PIPELINE & MARKET OPPORTUNITIES

- Assessment of Project Pipeline
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- Analysis by Region
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5. ECONOMICS OF DESALINATION PLANTS

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- Desalination Plant Cost Structure
- Trends in Production Costs
- Trends in Land & Carbon Footprint

- Costs for Waste Brine/Solids Disposal
- Potential for Solar Desalination
- Energy Consumption & Cost Optimisation
- Returns & Project IRRs

6. TREATMENT TECHNOLOGIES

- Types of Technology: Membrane and Thermal
- Key Features (Capital cost, land requirement, production cost, plant performance, quality of treatment, etc.)
- Current State of Deployment
- New Trends & Advancements
- Emerging Technologies in Light of Covid
- Upcoming Opportunities
- Issues and Challenges

7. EQUIPMENT MARKET

- Market Size and Trends
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- Sourcing Options
- Emerging Equipment Requirements
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- Issues and Challenges
- Future Demand Projections (Till 2026)

SECTION II: LEADING STATES AND PLAYERS

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- Andhra Pradesh
- Gujarat
- Karnataka
- Kerala
- Maharashtra
- Odisha
- Tamil Nadu
- Telangana
- West Bengal

9. KEY STATE PROFILES: UPCOMING CAPACITY AND INVESTMENT

- Aquatech Systems Asia Private Limited
- Doshion Veolia Water Solutions
- Hitachi Zosen Corporation
- Hyflux Engineering (India)
- IDE Technologies
- ION Exchange
- National Institute of Ocean Technology
- Suez Water Technologies & Solutions
- Thermax
- VA Tech Wabag

SECTION III: DATABASE OF KEY PROJECTS

- Completed
- Ongoing/Under Construction
- Under Tendering
- Planned/Proposed/Announced

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

The report is available in a PDF format.

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2. IMPACT OF COVID-19 ON AFFORDABLE HOUSING

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- Mitigation Strategies by Developers
- Government Impetus: Initiatives to Revive Demand; Initiatives to Strengthen Supply; ARHCs under PMAY

3. KEY GOVERNMENT ANNOUNCEMENTS AND THEIR IMPACT

- Announcements in Union Budget 2021-22; Update on SWAMIH Investment Fund; Impact of Past Policy Developments - Infrastructure Status, GST, CLSS, RERA Act.; Other Key Incentives; Industry Expectations & Recommendations

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- Progress and Opportunities under Smart Cities
- Progress under Lighthouse Cities

5. DEMAND AND SUPPLY PROJECTIONS (till 2025-26)

- Housing Demand Projections; Housing Supply Projections; Land Requirement; Projections for Material and Equipment Requirements; Post Covid Sector Outlook

6. PROJECT PIPELINE AND MARKET OPPORTUNITIES

- By Ownership: Central Level; State Level; Private Sector Projects
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7. FINANCING AND INVESTMENT SCENARIO

- Current Financing Scenario
- Key Funding Sources: Bank Credit; Priority Sector Lending; Private Equity/Institutional Investors; Bond Market Transactions; National Housing Bank; Housing Finance Companies/ AHFCs; Multilateral Funding Agencies; Others (ECBs/FDI/CLSS, Co-Operative Housing Groups)
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- Progress under AHP PMAY (Urban)
- Incentives under State-Policies
- Key Challenges
- Industry Expectations
- Upcoming Opportunities

11. TOP CITIES FOR AFFORDABLE HOUSING

- Ahmedabad; Bengaluru; Chennai; Delhi NCR; Hyderabad; Kolkata; Mumbai; Pune; Others

Each city profile will include information on experience in affordable housing (completed and ongoing projects), demographic profile, state of existing infrastructure, upcoming investments, key players, opportunities etc.

12. KEY PLAYER PROFILES

- Arihant Superstructures; Design Build Serve; Mahindra Lifespaces; Panvelkar Group; Provident Housing; Shapoorji Pallonji; Sheltrex; Signature Global; SNG Group; Tata Housing; Others/New entrants

Each profile will include information on company operations, project portfolio - completed & ongoing, upcoming projects, financial performance and future plans

SECTION III: STATE-LEVEL SCHEMES, EXPERIENCE & OPPORTUNITIES

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- Current Housing Stock and its Condition; Demand-Supply Gap; Housing Shortage; Key Initiatives; Future Plans; Top Upcoming Projects

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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: EMERGING TRENDS, NEW INITIATIVES, IMPACT OF COVID-19 AND FUTURE PROJECTIONS

1. SECTOR SIZE AND GROWTH

- Sector Snapshot
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- Growth in Treatment Capacity
- Trends in Capacity Additions
- Current Wastewater Recycling Capacity
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- Issues and Challenges
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- Impact on Wastewater Generation
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- Impact on Project Execution
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- Emerging Technologies in Light of Covid-19
- Investment Projections (till 2026)
- Post-Covid Outlook

4. PROJECT PIPELINE & MARKET OPPORTUNITIES

- Assessment of Project Pipeline
 - Short Term (2021-22)
 - Medium Term
- Analysis by Type: Municipal & Industrial
- Analysis by Stage of Development
- Analysis by Ownership
- Analysis by Region
- Analysis by Investment
- Top Upcoming Projects
- Market Opportunities for
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 - Project Developers
 - Equipment Providers
 - Technology Providers
 - Consultants

5. MUNICIPAL WASTEWATER: TREATMENT CAPACITY & REUSE PRACTICES

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- Key Features
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- Upcoming Opportunities
- Issues and Challenges

8. EQUIPMENT MARKET

- Market Size and Trends
- Major Players
- Sourcing Options
- Emerging Equipment Requirements
- New Products and Innovations
- Issues and Challenges
- Future Demand Projections (2021-26)

SECTION II: KEY CITY PROFILES AND MAJOR PLAYERS

12. CITY-LEVEL INITIATIVES: UPCOMING CAPACITY AND INVESTMENTS

- Ahmedabad; Bengaluru; Chandigarh; Chennai; Delhi; Ghaziabad; Gurugram; Hyderabad; Kochi; Kolkata; Mumbai; Nagpur; Pune; Surat; Visakhapatnam; Udaipur

13. PROFILES OF MAJOR PLAYERS

- Hindustan Construction Company Limited
- Ion Exchange
- Larsen & Toubro Limited
- Ramky Infrastructure Limited
- SPML Infra Limited
- Suez India
- The Indian Hume Pipe Company Limited
- Thermax Limited
- Triveni Engineering
- UEM India Private Limited
- VA Tech Wabag
- Veolia India Private Limited
- Voltas Limited
- Vishvaraj Environment Private Limited
- WOG Technologies
- Siemens Water

SECTION III: DATABASE OF KEY PROJECTS

- Completed
- Ongoing/Under Construction
- Under Tendering
- Planned/Proposed/Announced

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

The report is available in a PDF format.

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- Project Pipeline by: Region; State; Stage of Development; Ownership; Completion Period	<i>The report will be available in a PDF format.</i>
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- 3. PROJECT PIPELINE**
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- 5. RECENT INITIATIVES TO FASTTRACK IMPLEMENTATION**
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- 6. FUTURE OUTLOOK AND MARKET OPPORTUNITIES**
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- 7. TOP 15 INVESTMENT DESTINATIONS**
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- 8. NEW & INNOVATIVE FUNDING STRATEGIES**
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- 9. POTENTIAL FOR PRIVATE SECTOR PARTICIPATION**
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- 11. FAST TRACK (13 CITIES) AND ROUND II CITIES (27 cities)**
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- 13. GREENFIELD SMART CITIES**
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- 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

Market Overview, Growth Drivers and Future Outlook

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- Microcell
- Metrocell

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 - Small Cell Solutions (Relevant/Appropriate)
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 - Small Cell Solutions (Relevant/Appropriate)
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6. MARKET SEGMENTATION BY END USERS

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- Deployment Plans and Investments
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- Opportunities for Infrastructure Providers
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- Airspan; AltioStar; Cisco; CommScope; Corning; Ericsson; Huawei; Ibus Networks; Parallel Wireless; Qualcomm; QuadGen Wireless; Samsung; Sercomm; Space World; STL; Mavenir; Nokia; NEC; VVDN; Z-Com; ZTE; Zyxel; etc.

(Key small cell solutions/offerings, key clients, key deals/partnerships/ collaborations, future plans, upcoming products, etc.)

The report is available in a PDF format.

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- National Broadband Mission
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- Birla Cable Limited
- CommScope
- Corning
- Finolex Cables Limited
- Himachal Futuristic Communications Limited
- HTL
- Paramount Communications Limited
- Polycab
- Reichle & De-Massari AG
- STL
- UM Cables Limited
- Uniflex Cables
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- West Coast Opticable

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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- Indus Towers-Bharti Infratel
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- Reliance Infratel
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- 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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An excel data base of foreign investments in infrastructure providing the following details:

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- Investment Type
- Investor Type
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12 monthly updates providing an excel sheet of deals during the month

The report is available in a PDF format.

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- Emerging Focus Areas: AtmaNirbhar Bharat and Focus on Indigenisation; Focus on Exports; Private Sector Participation; Role of MSMEs
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PART III: KEY PLAYERS - MANUFACTURING INITIATIVES AND FUTURE PLANS

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- Bharat Dynamics Limited; Bharat Electronics Limited; Bharat Earth Movers Limited; Garden Reach Shipbuilders and Engineers Limited; Goa Shipyard Limited; Hindustan Aeronautics Limited; Hindustan Shipyard Limited; Mazagon Dock Shipbuilders Limited; Mishra Dhatu Nigam Limited; Corporatisation of OFB

13. PRIVATE PLAYERS

- Airbus Group India; Ashok Leyland Defence Systems; Bharat Forge Limited; BAE Systems India; Boeing India; Larsen & Toubro (L&T); Dassault Aviation; Tata Advanced Systems Limited; Mahindra Defence Systems; Thales; Others (Domestic and Foreign)

MONTHLY UPDATES

The 11 monthly updates will cover:

- Key Policy Developments
- Project Awards and Announcements
- Update on Government Initiatives/Programmes
- Recent Deals and Collaborations
- MoUs and Bilateral Agreements
- DAC Approvals for Acquisition
- Upcoming Tenders/RFPs/RFIs
- R&D and Modernisation Initiatives

The report is available in a PDF format.

EXECUTIVE SUMMARY

SECTION I: AFRICAN MARKET OVERVIEW, IMPACT OF COVID-19, INVESTMENT OUTLOOK AND NEW OPPORTUNITIES

- 1. INFRASTRUCTURE SNAPSHOT**
 - Macroeconomic Scenario; Current Infrastructure Deficit; Competitive Landscape; Infrastructure Size and Growth; Sectoral Trends and Developments; Key Technology Trends; Recent Government Initiatives in Light of Covid-19; Sector wise Proposed Investment; Risks and Challenges; Outlook and Opportunities (Till 2026-27)
- 2. IMPACT OF COVID-19 ON PROJECTS, INVESTMENTS AND CAPEX PLANS**
 - Impact on Project Execution; Expected Time and Cost Overruns (Short Term and Medium Term); Impact on Investment and Funding; Impact of the Evolving Geopolitical Landscape; Policy Response and Mitigation Strategies; Impact on Capex Plans of Key Infrastructure Players
- 3. PROJECT PIPELINE: RE-ASSESSMENT OF OPPORTUNITIES IN LIGHT OF COVID-19**
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- 4. FUTURE OUTLOOK, PROJECTIONS AND MARKET OPPORTUNITIES (Till 2026-27)**
 - Growth and Demand Drivers; Expected Capacity Additions; Upcoming Investments; Key Projections (Medium and Long-term); Sector-wise Big-Ticket Opportunities; Top 10-15 Infrastructure Investment Destinations; Post Covid-19 Outlook; Market Opportunities
- 5. FUTURE POTENTIAL FOR PPPS**
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- 6. EPC MARKET: EXPERIENCE AND OPPORTUNITIES**
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 - Overall Trends in Infrastructure Spending; Impact of Covid-19 on Financing Landscape; Key Funding Sources; Investment Requirement and Projections; Key Risks and Challenges; Investment Outlook
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 - Size and Growth; FDI Analysis; Initiatives to Encourage Foreign Investment; Proposed Foreign Investments; Participation of Overseas Equipment Manufacturers and Service Providers

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- 9. CONVENTIONAL ELECTRICITY GENERATION**
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- 10. RENEWABLE ENERGY GENERATION**
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- 11. TRANSMISSION, DISTRIBUTION & SMART GRID INFRASTRUCTURE**
 - Size and Growth; Emerging Trends and Recent Developments; Impact of Covid-19; Smart Grid and Metering Initiatives; Technology Advancements; Key Completed Projects; New and Emerging Investment Avenues; Upcoming Projects; Proposed Investments & Capacity Addition Targets; Market Opportunities; Issues and Challenges; Sector Outlook
- 12. MINING**
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This section will cover detailed profiles of 35 key countries the region.

SECTION IV: DATABASE OF KEY PROJECTS

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

The report is available in a PDF format

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- Notable Sector Trends
- Key Government Programmes
- Funding Sources & Expenditure Trends
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- Industry Structure and Major Players
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- Irrigation Demand Outlook

3. IMPACT OF COVID-19 ON IRRIGATION SECTOR

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- Short-term and Long-Term Sector Outlook
 - Investment Requirements
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 - Storage System Providers
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7. UPDATE ON KEY GOVERNMENT PROGRAMMES

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- Accelerated Irrigation Benefits Programme
- Bharat Nirman Programme
- Participatory Irrigation Management

- Interlinking of Rivers (ILR) Programme
- Command Area Development and Water Management
- Atal Bhujal Yojana (ABHY) - National Groundwater Management Improvement Program
- Dam Rehabilitation and Improvement Programme
- National Aquifer Mapping Program (NAQUIM)

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.

8. IRRIGATION TECHNIQUES AND TECHNOLOGY

- Current Deployment & Practices
- Key Irrigation Techniques (Drip, Sprinkler, Center Pivot, Pot)
- Focus on Micro Irrigation
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- Sourcing Options
- Segment Outlook

SECTION II: STATE IRRIGATION PLANS AND INITIATIVES

10. PROFILES OF KEY STATES

This section will cover detailed profiles of states such as Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Uttarakhand, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal

Each profile will give information on the following:

- Agriculture Overview
- Water Availability and Sources
- Irrigation Potential
- Irrigation Schemes and Programmes
 - Key Completed Projects
 - Key Ongoing Projects
 - Key Upcoming Projects
- Recent Developments & Initiatives
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- Major Players
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SECTION III: DATABASE OF KEY PROJECTS

The database is a compilation of upcoming projects (ongoing and planned) in the sector 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. IMPACT OF COVID-19 ON PROJECTS, CONSTRUCTION AND INVESTMENTS

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5. INVESTMENT AND FINANCING TRENDS

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7. EPC MARKET: EXPERIENCE AND OPPORTUNITIES

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19. COUNTRY PROFILES

- Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, The Philippines, Singapore, Thailand, Timor-Leste, Vietnam

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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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

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