Catalogue of Research Reports on Infrastructure Sectors

July 2019
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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8. CURRENT PROJECTS AND PLANNED SOLAR CAPACITY IN THE C&I SEGMENT (This will have information including project size, location, developer, EPC provider, business model, project cost, etc.)  
9. KEY DEVELOPER PROFILES (This will have information about 8-10 developers’ current C&I project portfolio in both rooftop and ground-mounted segments, key consumers in the C&I space, key partnerships, future plans, etc.)

The report will be available in a PDF format.
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

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

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

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
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The franchises covered include:
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- Nagpur (Spanco Nagpur Discom Limited)
- Agra (Torrent Power Limited)
- Muzaffarpur (Essel Vidyut Vitaran (Muzaffarpur) Limited)
- Bhagalpur (SPML Infra Limited)
- Gaya (India Power Corporation Limited)
- Kendrapara Division I & II, Jagatsinghpur, Dhenkanal, Talcher and Angul (Enzen Global Solutions Private Limited)
- Khurda, Balugaon, Puri and Nayagarh (Feedback Electricity Distribution Company Limited)
- City Electrical Division (Cuttack), Athagarh and Salipur (Riverside Utilities Private Limited)
- Nimapara (Seaside Utilities Private Limited)
- Kota, Bharatpur and Bikaner (CESC Limited)
- Ajmer (Tata Power Company Limited)

The report is available in a PDF format.
# Competitive Bidding for Wind Projects (May 2018)

## Key Trends, Risks, Alternatives and Outlook

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The report is available in a PDF format.

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8 | India Infrastructure Research

www.indiainfrastructure.com
# Rooftop Solar in India 2019

No. of slides: 241   Price: Rs. 75,000 (USD 1,770)

## EXECUTIVE SUMMARY

- Impact on Grid
- State Discom's Approach
- Case Studies

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- Other Key BoS equipment

## KEY PLAYERS

- Azure Power
- Fourth Partner Energy
- CleanMax Solar
- Amplus Solar
- Cleantech Solar
- SunSource Energy
- ReNew Power
- Tata Power Solar

The report is available in a PDF format.
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
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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
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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
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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.

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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.

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The report will be available in a PDF format.
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)
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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.
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The report is available in a PDF format.
# Energy Market Analysis and Development; Changing Role in Energy Mix and Future Outlook

## Hydro Power Market in India 2019

(May 2019)

**Price:** Rs 75,000 (USD 1,770)

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Each country profile provides information on:
- Economic Scenario and Demography
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The report is available in a PDF format.

Price: Rs 100,000 (USD 2,360)
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The report is available in a PDF format.
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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.

The report is available in a PDF format.
# Freight Market in India (October 2017)

## Segment Overview, Outlook and Projections (till 2022-23)

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

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

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Each profile covers the industrial activity, infrastructure connectivity, warehousing clusters in the cities, growth drivers, warehousing space requirements, indicative warehouse rentals (wherever available), average land cost, expected investor returns, etc.

The report is available in a PDF format.
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Each profile provides an overview of the airport, traffic trends, financial performance, current capacity, expected timelines, key initiatives, recent contracts, expansion plans, etc.

The report is available in a PDF format.
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[Each profile covers the project background and scope (network length, number of stations, rolling stock, fare system, signalling and telecommunication, traction, etc.), the implementing agency, project cost, time and cost overruns, key consultants, key contractors, key milestones, sources of fund, recent contracts, upcoming tenders, current status, etc.]

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The report is available in a PDF format.

www.indiainfrastructure.com
# Affordable Housing in India 2019

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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.)

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

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Each profile covers: Scope; Project Cost; Source of Funding; Type of Project (Area-based or Pan-City); Contractor/Developer; Technology/Service Provider; Completion Date (wherever available); Key Challenges; Lessons Learnt

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The report also provides a comprehensive Excel-based database of ongoing and upcoming projects across the water supply, sewerage, waste, energy, mobility, roads, flyovers, safety and security, e-governance, health-care, capacity building and city gas distribution segments.

Each project provides information on: Scope; Current Status; Mode of Implementation; Implementing agency; Project Cost; Type of Project (Area-based or Pan-City); Contractor/Developer; Expected Date of Completion, etc.

The report is available in a PDF format.
Municipal Solid Waste in India 2017

Key Takeaways and The Road Ahead

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   - Namami Gange Programme; Swachh Bharat Mission; Smart Cities Mission; Atal Mission for Rejuvenation and Urban Transformation
   - For each of the programmes we will cover project scope, investment requirements, financing sources, current status, key completed projects, upcoming tenders, targets and timelines, etc.

6. **INTER-CITY COMPARISON: INFRASTRUCTURE GROWTH, PLANS AND PROJECTIONS**
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This chapter will feature detailed information and analysis of the MSW sector in 18-20 cities. These are Ahmedabad, Bengaluru, Bhopal, Bhubaneswar, Chennai, Cuttack, Delhi, Guwahati, Hyderabad, Indore, Jaipur, Kolkata, Mumbai, Nagpur, Pune, Pimpri-Chinchwad, Rajkot, Surat, Varanasi and Vadodara.

7. **PROFILES OF TOP 50 UPCOMING PROJECTS**
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8. **COSTS, REVENUES AND FINANCING**
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16. **EMERGING EQUIPMENT REQUIREMENTS**
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**SECTION IV: DATABASE OF KEY PROJECTS**

The database will be a compilation of upcoming solid waste management projects (ongoing and planned) in the sector with details on scope, location, cost, capacity, financing sources, implementing agency, contractor (wherever available), current status, expected date of completion, etc.

The report will be available in a PDF format.
SECTION I: MARKET ANALYSIS, OUTLOOK AND OPPORTUNITIES

1. SIZE AND GROWTH
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3. PROJECT PIPELINE AND ANALYSIS
   - Project Pipeline Analysis: By Region, State, Stage of Development (ongoing, approved, and planned); Ownership (PPP or EPC), Completion Period
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4. FUTURE OUTLOOK AND MARKET OPPORTUNITIES
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5. KEY GOVERNMENT PROGRAMMES: PROGRESS SO FAR, UPCOMING PROJECTS AND OPPORTUNITIES
   - Namami Gange Programme; Swachh Bharat Mission; Smart Cities Mission; Atal Mission for Rejuvenation and Urban Transformation
   - For each of the programmes we will cover project scope, investment requirements, financing sources, current status, key completed projects, upcoming tenders, targets and timelines, etc.

6. INTER-CITY COMPARISON: INFRASTRUCTURE GROWTH, PLANS AND PROJECTIONS
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SECTION IV: DATABASE OF KEY PROJECTS

The database will be a compilation of upcoming projects (ongoing and planned) in the sector including sewage treatment facilities (WWTPs), sewage pumping stations, sewage pipelines, recycle and reuse facilities, and effluent treatment plants, with data 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. The Price: Rs 60,000 (USD 1,416)
# Real Estate in India 2017

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The report is available in a PDF format.
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      - ISPs (TTSL, ACT, Hathaway, You Broadband, Tikona Infinet, D-VOIS Communications, Excitel Broadband, Alliance Broadband, Spectra, DEN, etc.)
      - Wi-Fi/IBS Providers (FireFly Networks, Ubico Networks, Intech Online, QuadGen Wireless, Microsense Networks, IBus Networks, etc)
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    - Vindhya Telelinks Limited
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*The report will be available in a PDF format.*
# Infrastructure Projects in Pipeline 2017-22

(October 2017)

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Each project provides information project scope, cost, capacity, location, implementing agency, ownership, EPC contractor/developer, equipment provider (wherever available), current status, date of commencement of construction/month of award (wherever available), and expected date of completion (wherever available).

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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

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The report will be available in a PDF format
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QUARTERLY UPDATES

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- Fidor Bank - The Bank as a Platform
- The Monetary Authority of Singapore(MAS) Initiative
- Other Cases in Open Banking
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- Opportunities and Prospects for Opening Banking in India

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The report is available in a PDF format.
Mergers and Acquisitions in Infrastructure and Real Estate 2017

(SEptember 2017) No. of slides: 281

Price: Rs 100,000 (USD 2,360)

SECTION I: MARKET ANALYSIS AND OUTLOOK

1. OVERVIEW ................................................................................................................................................
   - Macroeconomic Trends, Growth in M&A Activity, Overall M&A Trends, Big Ticket Deals, Sector-wise Analysis, Recent Policy and Regulatory Reforms, Valuations and Returns, Issues and Concerns, Outlook

2. DEAL ANALYSIS AND TRENDS ..............................................................................................................
   - Current Size, Growth Trends, Sectoral Analysis, Top Deals since 2014

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   - Current Scenario, Sector-wise Break-up of Stressed Assets, SDR and S4A Schemes, Recent Companies invoking SDR/S4A, Key Buyers Groups, Issues and Challenges, Projects/Seectors at Risk of Slipping into Stressed Territory

4. VALUATIONS TRENDS AND RETURNS ...............................................................................................
   - Current Valuation Scenario, Key Valuation Trends, Factors Impacting Valuations, Issues and Challenges, Historical Returns, Expected Returns, The Way Forward

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   - FDI Norms; Insolvency and Bankruptcy Code, 2016; Issues with Debt Restructuring Schemes; Impact of REITs/InvITs; General Anti Avoidance Rules (GAAR); Sector-specific Policy Changes; Other Recent Regulatory Changes

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

The report is available in a PDF format.
Opportunities in Indian Defence Market 2019  (January 2019)

Market Analysis, Potential for Offsets and Future Outlook

EXECUTIVE SUMMARY

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10. PROFILES OF PRIVATE PLAYERS
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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.
# ORDER FORM

**Name** (Block Letters) .................................................................

**Designation** ...........................................................................

**Company** ...............................................................................  

**Mailing Address** .................................................................

**Telephone** ...............................................................................  

**Fax** ...........................................................................................  

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<td>LNG Market in India (August 2018)</td>
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<td>Road Development in India (January 2019)</td>
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<td>Affordable Housing in India (September 2019)</td>
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<td>Smart Cities in India (April 2019)</td>
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<td>Infrastructure Projects in Pipeline (October 2017)</td>
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