

Now Available

HYDRO POWER IN INDIA 2017

Trends, Developments and Future Outlook

- ❖ Report (PDF)
- ❖ Data-set (Excel)

Hydro Power in India 2017

Table of Contents

SECTION I: MARKET OVERVIEW AND OUTLOOK

1. **Executive Summary**
2. **Size and Growth**
 - ❖ Hydro Power Potential
 - ❖ Growth in Installed Capacity
 - ❖ Hydro Capacity Addition Trend
 - ❖ Generation Trend
 - ❖ Trend in Hydro Thermal Mix
 - ❖ Pumped Storage Hydro Power Plants
 - ❖ Issues and Challenges
3. **Key Recent Developments**
 - ❖ Recent Capacity Additions
 - ❖ Recent Generation Performance
 - ❖ Recent Policy Developments
 - ❖ Recent M&A Deals and Financings
 - ❖ Environmental and Forest Clearances
 - ❖ Other Developments
4. **New Hydro Power Policy**
 - ❖ Proposed Features
 - ❖ Expected Fiscal Benefits
 - ❖ Expected Impact on the Sector
 - ❖ Issues and Concerns
5. **Other Policy and Regulatory Developments**
 - ❖ Cross-border Electricity Trade Guidelines
 - ❖ National Tariff Policy 2016: Provisions for Hydro Power
 - ❖ Government's Scheme for Basin-wise Review of Hydro Power Potential
 - ❖ Peaking and Load Balancing
6. **Cost and Tariffs**
 - ❖ Key Factors Impacting Costs
 - ❖ Project Cost Trends
 - ❖ Hydro Power Tariffs
 - ❖ Tariff Trends
 - ❖ Challenges and Outlook
7. **Financing**
 - ❖ Funding Options
 - ❖ Recent Financings
 - ❖ M&A Deals
 - ❖ Stressed Projects
 - ❖ Investment Requirements
 - ❖ Issues and Concerns

8. **Delayed and Stalled Projects**
 - ❖ Key Reasons for Project Delays
 - ❖ Analysis of Stalled Projects
 - ❖ Outlook for Stalled Projects
 - ❖ Impact on Capacity Addition
9. **Cross-border Initiatives**
 - ❖ Existing Power Ties with Nepal and Bhutan
 - ❖ New Guidelines for Cross-border Electricity Trade and Impact
 - ❖ Upcoming Projects in Bhutan
 - ❖ Upcoming Projects in Nepal
 - ❖ Existing and Proposed Transmission Interconnections
 - ❖ Issues and Challenges
10. **State Initiatives**
 - ❖ Overview
 - ❖ Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir, Sikkim and Uttarakhand
 - Potential vs Development
 - Institutional Framework
 - Key Policy Provisions
 - Installed Capacity
 - Upcoming Capacity
 - ❖ Issues and Concerns
11. **Future Outlook**
 - ❖ Projected Capacity Additions
 - ❖ Investment Requirements
 - ❖ Outlook on Costs and Tariffs
 - ❖ Impact on Renewables and Role in Balancing
 - ❖ Risks and Challenges
 - ❖ Market Opportunities

SECTION II: PLANT PERFORMANCE ANALYSIS

12. **Analysis of Existing Capacity**
 - ❖ By Project Size
 - ❖ By Ownership
 - ❖ By Player
 - ❖ By Type of Project
 - ❖ By Age of Project
 - ❖ By State
 - ❖ By Equipment-make
13. **Generation Performance Analysis**
 - ❖ Historical Trends
 - ❖ Best Performing Plants
 - ❖ Inter-plant Comparison

- ❖ Inter-state Comparison
- ❖ Inter-developer Comparison
- ❖ Operating Availability
- ❖ Trend in Outages

14. Renovation and Modernisation

- ❖ Age-profile of Existing Projects
- ❖ Completed R&M Projects in Twelfth Plan
- ❖ Projects Proposed for R&M
- ❖ R&M Contracts Awarded

SECTION III: UPCOMING PROJECT ANALYSIS

15. Pipeline of Upcoming Projects

- ❖ Projects Under Construction
- ❖ Projects Under Planning, Survey and Investigation
- ❖ Projects Allotted by States
- ❖ Stalled Projects

16. Analysis of Upcoming Capacity

- ❖ Upcoming Capacity Profile
- ❖ By Year of Commissioning
- ❖ By Ownership
- ❖ By Unit Size
- ❖ By Location
- ❖ By Equipment-make
- ❖ By Type
- ❖ By Status

17. Analysis of Delayed Projects

- ❖ Delayed Project Capacity
- ❖ Average Time Overruns
- ❖ Average Cost Overruns
- ❖ Reasons for Delays
- ❖ Mitigation Strategies

18. Key Projects Under Execution

- ❖ Project Background
- ❖ Progress so Far
- ❖ Key Issues Impacting the Projects
- ❖ Completion Schedule

19. Upcoming Project Profiles

- ❖ Capacity
- ❖ Location
- ❖ Number of Units
- ❖ Developer
- ❖ Expected Year of Commissioning

- ❖ Investments Proposed
- ❖ Key Contractors
- ❖ Construction Status

SECTION IV: DEVELOPER PROFILES

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

20. Central Public Sector Units

- ❖ NHPC Limited
- ❖ SJVN Limited
- ❖ THDC India Limited
- ❖ NTPC Limited
- ❖ NHDC Limited
- ❖ NEEPCO
- ❖ BBMB
- ❖ DVC

21. State-owned Gencos

- ❖ Karnataka Power Corporation Limited
- ❖ Maharashtra State Power Generation Company Limited
- ❖ Tamil Nadu Generation and Distribution Corporation
- ❖ Orissa Hydro Power Corporation Limited
- ❖ Kerala State Electricity Board
- ❖ Andhra Pradesh Power Generation Company Limited
- ❖ Telangana State Power Generation Company Limited
- ❖ Sardar Sarovar Narmada Nigam Limited
- ❖ Uttarakhand Jal Vidyut Nigam Limited
- ❖ Punjab State Power Corporation Limited
- ❖ Jammu and Kashmir State Power Development Corporation Limited
- ❖ Teesta Urja Limited

22. Independent Power Producers

- ❖ JSW Energy
- ❖ LNJ Bhilwara Group
- ❖ Jaiprakash Power Ventures
- ❖ Tata Power
- ❖ Greenko
- ❖ Sheha Kinetic
- ❖ Lanco Infratech
- ❖ GMR Energy
- ❖ GVK Power and Infrastructure
- ❖ Indo Arya Energy
- ❖ Gati Infrastructure
- ❖ Dans Energy

Hydro Power in India 2017

List of Tables and Figures

LIST OF TABLES

Sector-wise and Developer-wise Capacity Addition (2012-13 to 2017-18*)
Installed Pumped Storage Hydro Power Capacity in India
Upcoming Pumped Storage Projects 18
Sector-wise Hydro Capacity Addition (2016-17 and 2017-18)
Recent Hydro Projects Commissioned (2016-17 and 2017-18*)
Hydro Power Generation (2016-17 and 2017-18)
Award of Environmental Clearances to HEPs (2016 and 2017)
HEPs with Pending EC Status
HEPs with Pending FC Status
Basin-wise Review (as of June 2017)
Tariffs of Recently Commissioned HEPs
Stalled Projects (as of June 2017)
Recent Financing Deals in hydro power Sector in India
Recent Mergers and Acquisitions in hydro power Sector in India
Existing Power Ties with Nepal and Bhutan
Existing and Proposed Transmission Interconnections
Key Provisions under Arunachal Pradesh Hydro Power Policy, 2008
Installed Capacity and Generation of HEPs in Arunachal Pradesh
Upcoming HEPs in Arunachal Pradesh (As of July 2017)
Basin-wise Details of Hydro Potential and Allotted Projects in Arunachal Pradesh
Key Provisions under Himachal Pradesh Hydro Power Policy, 2006
Installed Capacity and Generation of Existing HEPs in Himachal Pradesh
Upcoming HEPs in Himachal Pradesh (As of July 2017)
Key Provisions under J&K State Hydroelectric Projects Development Policy, 2011
Installed Capacity and Generation of Existing HEPs in Jammu and Kashmir
Upcoming HEPs in Jammu and Kashmir (As of July 2017)
Key State Policy Provisions
Installed Capacity and Generation of Existing HEPs in Jammu and Kashmir
Upcoming HEPs in Sikkim (As of July 2017)
Institutional Structure and Key State Policy Provisions
Installed Capacity and Generation of Existing HEPs in Uttarakhand
Upcoming HEPs in Uttarakhand
Top 10 Players in the Hydro Segment
Key projects with exceptionally long commissioning periods
Supplier-wise installed capacity as of March 31, 2011
HEPs Achieving Higher Generation vis-à-vis Target

Top 10 HEPs in terms of Absolute Generation (2016-17)
Generation Performance -by Project Size
Developer-wise Hydro Power Generation 2015-16 and 2016-17 (MUs)
HEPs Region-wise Operational Availability (2014-15 and 2015-16)
NHPC's Plant Availability Factor (2016-17)
Key projects with exceptionally long commissioning periods
Hydro R&M schemes completed up to XII Plan
Hydro R&M schemes programmed for completion beyond 2017-22
Contracts award details for R&M projects under implementation
List of Projects under Construction
Ownership-wise projects under S&I
Top 15 projects under survey and investigation (in terms of capacity)
List of hydro projects concurred for likely benefits during 2018-22
Key Stalled Hydro Project as of June 2017
Equipment Supplier
Status of Key Upcoming Projects
Project Background
Progress so Far
Key Issues Impacting the Projects
Completion Schedule
Upcoming Project Profiles
Company Snapshot
Existing Power Stations
Key Financials (NA for Dans, Sneha Kinetic)
Total Installed Capacity of Existing Power Stations
Total Capacity of Hydro Projects under construction
Total Capacity of Hydro Projects under Joint Venture Projects Under Deposit
Planned Portfolio Diversification
Total capacity under construction
Planned Joint Ventures Capacity
Total Capacity of Hydro Projects under construction
Total Capacity of Proposed Hydro Projects
Other Projects under Survey & Investigation
Total capacity under construction
Planned Joint Ventures Capacity
Total capacity under construction
Total capacity of proposed Joint Ventures
Total capacity under construction
Total proposed projects
Existing Capacity
Existing Small Hydro Capacity
Total capacity under construction
Total capacity of Joint ventures under construction
Total planned Joint Ventures
Total Capacity of upcoming Hydro Project
Total hydro capacity under construction
Other projects under construction

Total Capacity of Small Hydro Projects Under Construction
Total capacity of existing Small hydro power Stations
Total Capacity of projects under development
Capacity of Power Stations under development
Small Hydro Projects under construction
Total capacity under construction
Total capacity of proposed projects
Total installed capacity of Small Hydro Power Stations
Total Capacity of Hydro Projects under NHPC
Total capacity
Hydro Projects under Subsidiaries
Total capacity of planned projects
Operational Small Hydro Projects
Project Under Construction
Sneha Kinetic
Projects being implemented
Total capacity under construction
Total capacity of proposed projects
Total capacity of proposed joint ventures

LIST OF CHARTS

Region-wise Hydro Power Potential
Basin-wise Hydro Power Potential
Region-wise Hydro Power Potential vs Development
Basin-wise Hydro Power Potential vs Development
Hydro Power Installed Capacity (2011-12 to 2017-18)
Sector-wise Break-up of Installed Capacity (July 2017)
Year-wise Hydro Power Capacity Addition (2007-08 to 2017-18)
Hydro Capacity Addition vis-à-vis Other Sources
Hydro Power Generation Trend (2012-13 to 2017-18)
Trend in Hydro-thermal Mix (2007-08 to 2017-18)
Key Issues and Challenges Hampering Hydro Power Sector
Hydro Power Generation April-July 2017 vs April-July 2016 (Sector - wise)
Monthly Hydro Generation (July 2015 to July 2017)
State-wise Update on Competitive Bidding
Hydro Power Potential
Average Cost per MW of Under-construction Hydro Power Projects (As of March 2017)
Year-wise Trend of Average Cost per MW of HEPs
Average Hydro Power Tariff Trend
Trend in Composite Tariff of HEPs under the purview of CERC (2013-14 to 2016-17)
Sensitivity Analysis - Impact of Various Factors on Tariffs
Sensitivity Analysis - Impact of Various Factors on Tariffs
Merchant Tariff Trends
Indicative Capital Cost of Hydro vs Other Conventional Sources

Stressed Projects	Factors Affecting Operational Availability of HEPS	Net Worth
Investment Requirement by Project Status	Operating Availability by Year of Commissioning (as of 2015-16)	Generation Performance (2015-16)
State-wise Investment Requirement	Planned Outages/Outages due to Preventive Maintenance	Year-wise generation of KPCL's Hydro Power Plants
Sector-wise Investment Requirement	Sector-wise Trend in Outages due to Planned Maintenance	PAF performance of Major Hydro Stations
Analysis of Stalled Projects	Average Non-Availability of Units due to Planned Outages - 2015-16 (by Age)	Source-wise Installed Capacity
Stalled Projects by State	Forced Outages	Installed Capacity
Stalled Projects by Sector	Major Causes of Forced Outages (2015-16)	EPS
Upcoming Hydro Power Capacity by Stage of Construction	Average Non-Availability of Units due to Forced Outages - 2015-16 (by Age)	Source-wise installed capacity
Upcoming Projects in Bhutan	Sector-wise Trend in Forced Outages (2012-13 to 2015-16)	Net Worth
Upcoming Projects in Nepal	Age-wise break-up of existing capacity	Annual PAF Achieved
Arunachal Pradesh Hydro Power Potential vs Development	Completed R&M Projects in Twelfth Plan	Total Generation
Institutional Structure	State-wise proposed R&M projects for completion during 2017-22	EPS
Himachal Pradesh Hydro Power Potential vs Development	State-wise share in projects under S&I	Source-wise installed capacity
Institutional Structure	Expected Completion of Hydro Projects	Generation by KSEB's Power Plants
Jammu and Kashmir Hydro Power Potential vs Development	Ownership-wise upcoming hydro capacity	Net Worth
Institutional Structure	Unit-size of upcoming capacity	Source-wise Installed Capacity
Sikkim Hydro Power Potential vs Development	State-wise Upcoming Capacity	Hydro-based Generation
Uttarakhand Hydro Power Potential vs Development	Share of Equipment Players in Upcoming Capacity	Source-wise installed capacity
Institutional Structure and Key State Policy Provisions	Delayed Capacity Share by State	Generation by TSGENCO's hydro-based plants
Year-wise Expected Capacity Addition from Under-construction Projects	Delayed Hydro Power Capacity by Time Overruns	States' share in Installed Hydro Capacity
Expected Capacity Development by Stage	Delayed Hydro Power Capacity by Cost Overruns	Total Generation
Investment Requirements	Year-wise Generation Trend	Debt Equity Ratio
Investment Hotspots	Plant Availability Factor	Generation by UJVNL's Hydro Plants
Cost and Tariff Trends	Net Worth	Net Worth
Upcoming Capacity	Source-wise Installed Capacity	Source-wise Installed Capacity
Projected Demand for Hydro Power Turbines	Generation by SVJN's hydro-based plants	Total Generation
Projected Demand for Hydro Power Generators	Net Worth	Year-wise Generation Trend
Capacity-wise Grouping of Hydro Plants	Generation by THDC's Hydro Plants	Segment-wise Installed Capacity (2015-16)
Top 10 hydro projects in India in terms of capacity	Capacity Addition	Total Generation
Change in hydro generation capacity's ownership pattern	Net Worth	Earning Per Share
Share of Major Players in the Installed Capacity	Company Project Portfolio	Source-wise Installed Capacity as of March 2017
Age-wise break-up of existing capacity	Commercial Capacity and Energy sent out	Generation by Tata Power's Hydro-based Plants
State-wise share in 0-20 year plants (23,823 MW)	Debt Equity Ratio	Net Worth
State-wise share in 20-40 year plants (13,083 MW)	Generation by NHDC's Power Plants	Sector-wise Installed Capacity
State-wise share in 40-60 year old plants (5,330 MW)	Plant Availability Factor	Fuel Diversification
State-wise share: Over 60 year-old plants (301 MW)	Sector-wise Generation	Net Worth
State-wise share in installed hydro capacity (As of May 2017)	Generation Target and Achievement Profile (2015-16)	Source-wise Installed Capacity
Suppliers' share as of March 2011	Hydro Based generation	Sector-wise Revenue from Operations
Imported equipment - Player-wise	Net Worth	PLF of existing thermal plants
Year-wise Trend of Hydro Power Generation 2006-07 to 2016-17 (Target vs Achievement)	Energy Allocation to State Power Utilities	Net Worth
Sector-wise Performance of HEPS (MUs)	Generation by BBMB's Power Plants	Fuel Diversification
Generation Performance - by Project Size	Revised Budget Estimate for the Year 2016-17	Net Worth (Rs billion)
	Source-wise Installed Capacity	Source-wise Installed Capacity
	Generation	Debt
		Net Worth

I would like to purchase the “Hydro Power in India 2017” report:

Format (PDF)	Price
Site Licence (Single Location)	Rs 60,000
GST (18%)	Rs 10,800
Total	<input type="checkbox"/> Rs 70,800
<hr/>	
Enterprise Licence (Multiple Locations)	Rs 90,000
GST (18%)	Rs 16,200
Total	<input type="checkbox"/> Rs 106,200

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

Signature

.....

Name (Block Letters) _____

Designation _____

Company _____

Mailing Address _____

Telephone _____ Mobile _____

Fax _____

E-mail _____

Wire transfer details:

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

Contact details:

Aayushi Lahoti
 Manager- Information Products
 India Infrastructure Publishing Pvt. Ltd.
 B-17, Qutab Institutional Area, New Delhi 110016, India
 Tel: +91-11-46038153, 41034600, 41034601; Fax: +91-11-26531196
 Mobile: +91-7838751085
 Email: a.lahoti@indiainfrastructure.com