

HYDRO POWER MARKET IN INDIA 2019

Market Analysis and Developments; Changing Role in Energy Mix and Future Outlook

- ❖ Report (PDF)
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In light of the recent cabinet decisions related to the hydro power segments inclusion into the renewable energy sector, the report will provide detailed insights and analysis on the impact of these policy measures on the hydro power market. This will be based on inputs and interviews with various industry stakeholders. Moreover, in the past one year, the sector has seen positive developments with the Supreme Court allowing the construction of the stalled hydro power projects in Uttarakhand and Himachal Pradesh's initiative for waiver of free power. While it is true that hydro power has been losing ground to more competitive renewable energy sources of power generation, its role has become increasingly important for load balancing with greater inclusion of the variable renewable energy into the grid.

Owing to their fast-ramping capability and quick response time than thermal power stations, storage and pondage hydro power plants are expected to be gainfully utilised for regulation services to meet the system requirements.

Along with these, hydro power plays a key role in strengthening India's cross border ties with several transmission and power sharing interconnections already planned with Bangladesh, Bhutan and Nepal.

Given the changing power scenario in the country, in the coming years, the state of the hydro power segment is expected to improve with greater capacity additions, more availability of competitive finance, and fewer stalled projects.

1. **Executive Summary**
2. **Sector Size and Growth**
 - ❖ Hydro Power Potential and Development
 - Basin-wise
 - Region-wise
 - ❖ Installed Capacity Addition Trends
 - ❖ Capacity Growth vis-a-vis Other Sources
 - ❖ Sector and Utility-wise Additions
 - ❖ Major State Initiatives
 - ❖ Hydro Power Generation Trends
 - ❖ Share of Hydro in Electricity Mix
 - ❖ Key Barriers to Developments
3. **Cabinet Approval for Measures to Promote Hydro**
 - ❖ Key Measures Approved
 - ❖ Capacity Benefited
 - ❖ Declaration of Large Hydro as Renewables
 - ❖ Back Loading of Tariffs
 - ❖ Increased Debt Repayment Period
 - ❖ Tariff Escalation of 2 per cent
 - ❖ Hydro Purchase Obligations under non-solar RPOs
 - ❖ Funding of Enabling Infrastructure
 - ❖ Budgetary Support for Flood Moderation Costs
 - ❖ Expected Impact on Tariff Competitiveness
 - ❖ Expected Impact on Cost of Generation
 - ❖ Implications for New Hydro Projects
 - ❖ Anticipated Challenges
4. **Other Recent Developments**
 - ❖ Amendments to Himachal Pradesh Hydro Policy
 - ❖ CERC Order on Hydro as FRAS
 - ❖ CERC Tariff Regulations, 2019 to 2024
 - ❖ Update on Hydro Plants in Uttarakhand
 - ❖ Update on Basin-wise Hydro Potential Review
 - ❖ CERC Guidelines on Cross-border Trade of Electricity, 2019
 - ❖ Updates on Key Projects (Subansiri, Dibang, etc.)
 - ❖ Others
5. **Plant Performance Analysis**
 - ❖ By Project Size
 - ❖ By Player
 - ❖ By Equipment Make
 - ❖ Historical Trends in Generation
 - ❖ Target vs Actual Generation
 - ❖ Inter-plant Comparison
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 - ❖ Trends in Outages
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 - ❖ Current Stalled Capacity
 - ❖ Key Reasons for Slippages
 - ❖ Time and Cost Overruns
 - ❖ Mitigation Strategies and Policy Support Required
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 - ❖ Projects under Planning, Survey and Investigation
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9. Future Role of Hydro Power in Load Balancing and Ancillary Services

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- ❖ Improvements in Flexing of Hydro Power Plants
- ❖ Balancing Requirements for Renewable Integration
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- ❖ Key Challenges
- ❖ Solutions and the Way Forward

10. Focus on Pumped Hydro Storage Segment

- ❖ Existing Capacity
- ❖ Status of Under Construction Plants
- ❖ Cost Comparison with Other Storage Technologies
- ❖ Measures to Incentivise Pumped Storage
- ❖ Project Pipeline
- ❖ Global Best Practices
- ❖ Key Issues and Concerns

11. Status and Potential for Small Hydro Power

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- ❖ Policy Support
- ❖ State Initiatives
- ❖ Costs and Tariffs
- ❖ Key Issues and Challenges
- ❖ Future Outlook

12. Cross-border Initiatives

- ❖ Existing Power Ties
- ❖ Update on the Bhutan-Bangladesh-India-Nepal Power MoU
- ❖ Status of Upcoming Projects in Nepal
- ❖ Status of Upcoming Projects in Bhutan
- ❖ Existing and Proposed Transmission Interconnections

13. Financing and Stressed Assets

- ❖ Key Funding Sources
- ❖ Current Stance of Lenders/Investors
- ❖ Recent Financings/M&A Deals
- ❖ Current Status and Cost Overruns of Stressed Assets
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- ❖ Expected Haircuts by Banks
- ❖ Incentives to Improve Financial Viability
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- ❖ Investment Needs and Requirements
- ❖ Key Challenges

14. Costs, Tariffs and Viability

- ❖ Key Factors Impacting Costs
- ❖ Project Cost Trends
- ❖ Trends in Tariffs

- ❖ Return Analysis of Hydro Projects
- ❖ Proposed Changes in Tariff Norms
- ❖ Key Issues and Concerns

15. Profiles of Key Developers

- ❖ Central Sector
 - BBMB
 - NHPC
 - SJVNL
 - NHDC
 - THDC
 - NEEPCO
 - NTPC
 - DVC
- ❖ State Sector
 - Karnataka Power Corporation Limited
 - Maharashtra State Power Generation Corporation
 - Telangana State Power Generation Corporation
 - Tamil Nadu Generation and Distribution Corporation
 - Orissa Hydro Power Corporation
 - Kerala State Electricity Board
 - Andhra Pradesh Power Generation Corporation
 - Sardar Sarovar Narmada Nigam Limited
 - Uttarakhand Jal Vidyut Nigam Limited
 - Teesta Urja Limited
- ❖ Private Sector
 - Himachal Baspa Power Company Limited
 - Tata Power Company Limited
 - JP Power Ventures
 - AHPC
 - ADHPL (Malana Power Company Limited)
 - Gati Infrastructure
 - Everest Power Private Limited
 - Shiga Energy Private Limited
 - Dans Energy Private Limited
 - Sneha Kinetic Power Projects Limited

Database of Key Projects

The report will also provide a comprehensive excel-based dataset including the following (as of 2018-19):

- ❖ Plant-wise Installed capacity
- ❖ Plant-wise Status and Anticipated Date of Commissioning of Under Construction Projects
- ❖ Status of Stalled Projects
- ❖ Projects under Survey and Investigation
- ❖ Projects under Renovation and Modernisation
- ❖ Plant-wise Generation Performance

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