

# **India Hydropower Market Assessment, By Type [Impoundment, Diversion, and Pumped Storage], By Size [Large Hydropower (Above 30 MW), Small Hydropower (100 kW to 10 MW), Micro Hydropower (up to 100 kW)], By Components [Electromechanical Equipment's, Electric Infrastructure, Civil Works], By Sector [Public and Private], By End-user [Residential, Commercial, Industrial], By Region, Opportunities, and Forecast, FY2017-2031F**

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## **Abstracts**

India has been experiencing significant advancements in its hydropower sector. In FY2023, the India hydropower market will witness net addition of 537.13 MW. This will increase to a net acquisition of 754.27 MW in FY2031, growing at a CAGR of 4.34%. Hydropower is a clean and renewable energy source, aligning with India's commitment to reducing carbon emissions and mitigating climate change.

Moreover, the country's growing population and expanding economy require a substantial and reliable energy supply, and hydropower can contribute to meeting this demand. Additionally, hydropower projects provide multiple benefits, such as irrigation, flood control, and water supply, making them attractive for India's water management needs. India's surging need for hydropower reflects the country's pursuit of sustainable and secure energy sources for its development and environmental goals.

The Sardar Sarovar Dam in Gujarat, located on the Narmada Dam, is a multipurpose hydropower project involving two power stations. The project will generate power for three states: Madhya Pradesh (57%), Maharashtra (27%), and Gujarat (16%). The

power will be distributed among these states, providing peaking power to the western grid. Additionally, micro-hydropower stations will be constructed along canals with accessible waterfalls. The project also aims to provide irrigation benefits to a vast area, as 75% of Gujarat's command area is prone to drought. With stable water supply, the region is expected to become drought-resistant soon. This hydropower project in India is fostering the growth of the hydropower market.

### Capacity Surges with New Projects and Upgrades

The capacity of hydropower plants in India has been steadily increasing due to the construction of new projects and the upgrading of existing ones. These projects capitalize on the country's abundant rivers and water bodies to harness electricity generation potential. They come in various sizes and capacities, ranging from small-scale plants to large-scale installations.

As per Ministry of New and Renewable Energy (MNRE), India currently has 13,000 MW of hydropower plants in various stages of construction, with an additional 8,000 MW in the planning stage. With a potential of 145,000 MW, India aims to achieve an installed capacity of 70,000 MW by 2030. The Ministry of New and Renewable Energy (MNRE) is committed to promoting hydropower growth and accelerating market growth through government initiatives to increase plant capacity. Hence, the rise in government initiatives for increasing the capacity of hydropower plants will expedite the market growth extensively.

### Access in Rural India for Equitable Electricity Distribution and Development

Hydropower access in rural areas of India has been a significant focus for the government to ensure equitable electricity distribution and promote rural development. Efforts have been made to extend hydropower infrastructure and services to rural communities, particularly those near water resources suitable for small-scale projects.

The Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) is a significant scheme launched in India to ensure continuous electricity access in rural areas. The Indian government pledged to electrify 18,452 villages that lacked electricity access within 1,000 days. Spearheaded by the Ministry of Power, this initiative is a prominent program aimed at bringing the benefits of electricity to rural households and fostering the overall growth and development of the country.

The DDUGJY scheme can transform rural India's lives by promoting hydropower usage

in remote areas. This fulfills India's commitment to uninterrupted electricity and contributes to the growth of the hydropower market. The scheme aligns with India's vision of sustainable development and inclusive growth, making it a cornerstone of rural electrification efforts.

## Government Regulations

The Indian government has implemented various regulations and policies to govern the hydropower market in the country. The government has formulated a hydropower policy framework that outlines guidelines and incentives for developing and promoting hydropower projects. This policy framework sets targets, provides financial incentives, and establishes project implementation, operation, and maintenance procedures.

The Hydro Power Development Policy was formulated to prevent a decrease in hydroelectric power share and harness India's substantial hydroelectric potential, especially in the North and Northeastern regions. Currently, hydroelectric stations contribute 25% to the total installed capacity, falling short of the ideal 40:60 hydro-thermal mix. The Central Electricity Authority (CEA) assesses the country's total hydroelectric potential at 84,044 MW. The policy also establishes a Power Development Fund through a cess on electricity consumption, with two-thirds allocated to state governments, the remaining one-third for hydropower projects in the Central Sector, and investment in transmission lines for inter-state mega hydropower projects' power evacuation. This policy is expected to aid market growth in the present and future significantly.

## Impact of COVID-19

The COVID-19 pandemic has significantly impacted the hydropower sector in India, causing disruptions in construction, financing challenges, decreased electricity demand, and operations and maintenance issues. The government has responded by implementing policy revisions and providing relief measures. Despite the challenges posed by the pandemic, the hydropower sector in India continues to be an essential sector of the country's energy mix. Efforts are being made to mitigate the impact and resume project activities while ensuring the safety of workers and adherence to health protocols. Moreover, the long-term potential of hydropower in meeting India's energy needs remains intact, and the sector is expected to recover and contribute to sustainable and clean energy generation in the post-pandemic era.

## Key Players Landscape and Outlook

The expanding hydropower market in India has led international companies to acknowledge the importance of preserving their market share and expanding globally by emphasizing quality and brand positioning. These companies are allocating increased resources to research and development, marketing, and expanding their distribution networks. Manufacturers are actively studying consumer behavior to understand their requirements and preferences, continuously introducing new products to meet evolving demands.

In April 2023, Tata Power has signed a medium-term contract with NTPC Vidyut Vyapar Nigam Ltd to acquire 200 MW of hydroelectric power. The agreement aims to meet peak demand requirements and expand Tata Power's green energy portfolio. NVVNL will provide hydroelectric power for five years, starting from May to September 2023.

In December 2022, Bharat Heavy Electricals Limited (BHEL) won contracts worth USD 390 million for electro-mechanical work for a hydroelectric project in Andhra Pradesh and pump-motor sets for lift-irrigation schemes in Telangana. With 72% and 44% of installed capacities, BHEL significantly contributed to the development of the hydro-power industry in Telangana and Andhra Pradesh. With over 500 hydroelectric sets, BHEL leads the hydro business sector, accounting for 45% of India's installed hydro power capacity.

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\*Companies mentioned above DO NOT hold any order as per market share and can be

changed as per information available during research work

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