

# Hydropower Turbines Market By Type (Reaction Turbine, Impulse Turbine), By Application (Power Generation, Power Storage, Marine, Aeronautics, Others): Global Opportunity Analysis and Industry Forecast, 2024-2033

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## Abstracts

The global hydropower turbines market was valued at \$3.2 billion in 2023 and is projected to reach \$5.2 billion by 2033, growing at a CAGR of 4.9% from 2024 to 2033.

### Introduction

A hydropower turbine is a mechanical device designed to convert the kinetic energy of flowing or falling water into mechanical energy, which is then used to generate electricity. In the hydropower turbine market, there are two main types of hydropower turbines such as reaction turbines and impulse turbines. Reaction turbines operate under pressure and are submerged in water, while impulse turbines operate by the force of water's momentum and typically operate above the water's surface. These turbines are utilized across various applications including power generation, power storage, marine, and aeronautics. They play a crucial role in harnessing the power of water to produce renewable energy, contributing to sustainable electricity generation and reducing dependence on fossil fuels.

### Market Dynamics

Government incentives and policies promoting hydroelectric power play a crucial role in

driving the growth of the hydropower turbine market. These incentives often include financial subsidies, tax credits, and regulatory support aimed at encouraging investment in hydroelectric projects. By providing favorable conditions for developers and investors, governments can stimulate the expansion of hydropower generation capacity, thereby increasing the demand for hydropower turbines.

In addition, rise in investments in infrastructure for hydroelectric power generation contribute significantly to the growth of the hydropower turbine market. These investments include various aspects such as the construction of dams, reservoirs, and associated infrastructure necessary for hydropower generation. As governments and private entities allocate funds towards the development and modernization of hydroelectric facilities, there is a corresponding increase in demand for hydropower turbines to equip these projects with efficient and reliable turbine systems.

The hydropower turbine market faces significant restraint due to the limited availability of suitable sites for new hydroelectric installations. This challenge arises from various factors, including geographic constraints such as terrain and water availability, which determine the feasibility of hydropower projects. In addition, environmental concerns surrounding potential hydroelectric sites, coupled with competition for resources and regulatory complexities, further restrict the availability of suitable locations. These factors collectively hinder the expansion of the hydropower turbine market by prolonging project timelines, increasing costs, and discouraging investment in new hydroelectric installations. As a result, addressing the issue of site availability is crucial for unlocking the full potential of hydroelectric power generation and fostering market growth.

The integration of energy storage solutions with hydroelectric facilities offers a significant opportunity for the hydropower turbine market. This integration allows for the storage of excess energy generated during low-demand or high-production periods, balancing the grid and ensuring a reliable energy supply. This enhances the value proposition of hydropower turbine systems by increasing flexibility and reliability. By incorporating energy storage solutions such as pumped-storage hydroelectricity or battery systems, hydropower facilities can optimize operations and provide a more stable power supply to the grid. In addition, energy storage integration enhances the economic viability of hydropower projects by allowing operators to capture more value from their generation capacity. Furthermore, it contributes to the overall sustainability of the energy system by enabling better utilization of renewable energy resources and reducing the need for fossil fuel backup generation.

## Segments Overview

The hydropower turbine market is segmented into type, application, and region. On the basis of type, the market is bifurcated into reaction turbines and impulse turbines. On the basis of application, the market is segmented into power generation, power storage, marine, and aeronautics. Region-wise, the hydropower turbine market is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

## Hydropower Outlook and Forecasts for Various Countries

China continues to lead in hydropower capacity additions, with a significant portion of global growth attributed to its projects. However, due to diminishing suitable sites and environmental constraints, capacity upgrades are expected to slow down in the coming years. Nevertheless, hydropower remains a crucial part of China's renewable energy plans, and efforts are being made to optimize existing infrastructure and explore new opportunities for sustainable hydropower development.

India is actively developing several large hydropower projects, with significant capacity expected to come online in the near future. Hydropower plays a pivotal role in India's commitment to reaching 500 GW of non-fossil electricity capacity by 2030. Despite challenges such as environmental concerns and regulatory hurdles, India's hydropower sector is expected for growth and is likely to contribute substantially to the country's clean energy transition.

Europe has made notable progress in advancing hydropower, particularly in the deployment of pumped storage capacity. Countries such as Switzerland and Portugal are investing in projects aimed at facilitating the integration of solar PV and wind power into the grid. Despite facing challenges such as environmental regulations and site availability, Europe is actively exploring opportunities to maximize the potential of hydropower as a flexible and reliable energy source.

In the U.S., recent legislative measures, such as the Inflation Reduction Act, have increased support for hydropower technologies through tax credits. This signifies a commitment to promoting the growth of hydropower capacity and enhancing its contribution to the clean energy transition. While challenges such as droughts and regulatory complexities persist, the U.S. remains focused on leveraging hydropower's potential to ensure energy security and reduce carbon emissions.

## Competitive Analysis

The major players operating in the hydropower turbine market include Siemens AG, General Electric CO., ANDRITZ AG, Cornell Pump CO., Gilbert Gikes & Gordon Ltd., Toshiba Energy, Harbin Electric Machinery, WWS Wasserkraft GmbH, Canyon Industries Inc., and Kirloskar Brothers Ltd.

### Key Benefits For Stakeholders

This report provides a quantitative analysis of the market segments, current trends, estimations, and dynamics of the hydropower turbines market analysis from 2023 to 2033 to identify the prevailing hydropower turbines market opportunities.

The market research is offered along with information related to key drivers, restraints, and opportunities.

Porter's five forces analysis highlights the potency of buyers and suppliers to enable stakeholders make profit-oriented business decisions and strengthen their supplier-buyer network.

In-depth analysis of the hydropower turbines market segmentation assists to determine the prevailing market opportunities.

Major countries in each region are mapped according to their revenue contribution to the global market.

Market player positioning facilitates benchmarking and provides a clear understanding of the present position of the market players.

The report includes the analysis of the regional as well as global hydropower turbines market trends, key players, market segments, application areas, and market growth strategies.

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End user preferences and pain points

Investment Opportunities

Product Life Cycles

Upcoming/New Entrant by Regions

Technology Trend Analysis

Consumer Preference and Product Specifications

Market share analysis of players by products/segments

New Product Development/ Product Matrix of Key Players

Regulatory Guidelines

Additional company profiles with specific client's interest

Additional country or region analysis- market size and forecast

Historic market data

Import Export Analysis/Data

Key player details (including location, contact details, supplier/vendor network etc. in excel format)

Market share analysis of players at global/region/country level

SWOT Analysis

Volume Market Size and Forecast

Key Market Segments

By Type

Reaction Turbine

Impulse Turbine

By Application

Power Generation

Power Storage

Marine

Aeronautics

Others

## By Region

North America

U.S.

Canada

Mexico

Europe

Germany

UK

Spain

Italy

France

Rest of Europe

Asia-Pacific

China

Japan

India

South Korea

Australia

Rest of Asia-Pacific

LAMEA

Brazil

Saudi Arabia

South Africa

Rest of LAMEA

Key Market Players

Siemens AG

General Electric

Andritz AG

Cornell Pump Co.

Gilbert Gikes & Gordon Ltd.

Toshiba Corporation

Harbin Electric Machinery

WWS Wasserkraft GmbH

Canyon Industries Inc.

Kirloskar Brothers Limited.





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