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Tidal Energy Market By Method (Tidal Stream, Tidal Barrage, Tidal Turbine, Others), By Application (Power Generation, Desalination): Global Opportunity Analysis and Industry Forecast, 2024-2033

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Abstracts

The tidal energy market was valued at $1.2 billion in 2023, and is estimated t%li%reach $8.6 billion by 2033, growing at a CAGR of 21.9% from 2024 t%li%2033.

Introduction

The tidal energy market harnesses the power of ocean tides t%li%generate electricity, offering a promising avenue for sustainable energy production. Utilizing the gravitational forces between the Earth, moon, and sun, tidal energy systems capture the kinetic energy of tidal currents and the potential energy of tidal height differentials. With its renewable nature and predictability, tidal energy presents a reliable alternative t%li%fossil fuels, contributing t%li%global efforts t%li%combat climate change.

There are three methods t%li%harness the power from tides such as tidal stream system, tidal barrage system, and tidal fence system.

Tidal stream systems, als%li%known as tidal current systems or tidal turbines, harness the kinetic energy of moving water similar t%li%underwater wind turbines. These systems consist of turbines placed underwater in areas with strong tidal currents. As the tidal currents flow, they cause the turbines t%li%rotate, generating electricity through a generator connected t%li%the turbine. Tidal stream systems are typically deployed in areas with high tidal flow velocities, such as narrow channels or straits.

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A tidal barrage is a dam-like structure built across the mouth of a bay or estuary. It includes sluice gates or turbines that allow water t%li%flow int%li%and out of the bay during tidal cycles. As the tide rises, water is trapped behind the barrage. When the tide falls, the sluice gates or turbines allow water t%li%flow out, driving turbines t%li%generate electricity. Tidal barrages can generate significant amounts of electricity but may have environmental impacts on local ecosystems and navigation routes.

Tidal fence systems are a relatively new concept for harnessing tidal energy. They consist of rows of submerged turbines or other energy-capturing devices arranged in a fence-like structure across a tidal channel. As the tidal currents flow through the channel, they interact with the turbines, causing them t%li%generate electricity. Tidal fence systems can be more flexible in deployment than tidal barrages since they don't require large-scale infrastructure construction across an entire waterway. They can als%li%be designed t%li%minimize environmental impacts.

Market Dynamics

Technological advancements in the tidal energy sector have propelled significant growth, serving as a primary driver for its expansion. Innovations in turbine design, materials, and underwater infrastructure have enhanced the efficiency and reliability of tidal energy generation, making it increasingly competitive with conventional sources. These advancements not only improve energy output but als%li%reduce operational costs, thus attracting more investment int%li%the sector.

However, regulatory hurdles pose significant restraints t%li%the widespread adoption of tidal energy. Complex permitting processes, environmental concerns, and regulatory uncertainties often delay or deter the development of tidal projects. Striking a balance between environmental protection and energy development remains a key challenge, requiring close collaboration between industry stakeholders and regulatory bodies t%li%streamline approval processes and mitigate risks.

Despite regulatory challenges, the tidal energy market presents substantial export potential for countries with abundant marine resources. As nations strive t%li%diversify their energy mix and reduce carbon emissions, there is a growing global demand for clean and renewable energy solutions. Tidal energy technologies once matured and proven, can be exported t%li%regions with suitable coastal conditions, providing a sustainable energy source and stimulating economic growth through exports and technology transfer initiatives.

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Segments Overview

The tidal energy market is segmented int%li%method, application, and region. On the basis of method, the market is divided int%li%tidal stream, tidal barrage, tidal turbine, and tidal fences. On the basis of application, the market is bifurcated int%li%power generation and desalination. On the basis of region, the tidal energy market is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

Major players operating in the global tidal energy market include European Marine Energy Centre, Andritz AG, Orbital Marine Power Ltd., Sustainable Marine Energy Ltd., Nova Innovation Ltd., SIMEC Atlantis Energy Ltd, HydroQuest SAS, Verdant Power Inc., Hammerfest Strom AS, and Minest%li%AB.

Key Benefits For Stakeholders

This report provides a quantitative analysis of the market segments, current trends, estimations, and dynamics of the tidal energy market analysis from 2023 t%li%2033 t%li%identify the prevailing tidal energy market opportunities.

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

Porter's five forces analysis highlights the potency of buyers and suppliers t%li%enable stakeholders make profit-oriented business decisions and strengthen their supplier-buyer network.

In-depth analysis of the tidal energy market segmentation assists t%li%determine the prevailing market opportunities.

Major countries in each region are mapped according t%li%their revenue contribution t%li%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 tidal energy market trends, key players, market segments, application areas, and market

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growth strategies.

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Capital Investment breakdown

Installed Base analysis

Investment Opportunities

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Upcoming/New Entrant by Regions

Technology Trend Analysis

Market share analysis of players by products/segments

New Product Development/ Product Matrix of Key Players

Regulatory Guidelines

Strategic Recommendations

Additional company profiles with specific t%li%client's interest

Additional country or region analysis- market size and forecast

Expanded list for Company Profiles

Historic market 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

Volume Market Size and Forecast

Key Market Segments

By Method

Tidal Stream

Tidal Barrage

Tidal Turbine

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Others

By Application

Power Generation

Desalination

By Region

North America

U.S.

Canada

Mexico

Europe

France

Germany

UK

Spain

Italy

Rest of Europe

Asia-Pacific

South Korea

China

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Minest%li%AB

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