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Tidal Power Generation Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

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Abstracts

The Global Tidal Power Generation Market was valued at USD 1.42 billion in 2024 and is estimated to grow at a CAGR of 7.6% to reach USD 2.76 billion by 2034.

The growing demand for dependable and predictable renewable energy sources is propelling the adoption of tidal power worldwide. Since tidal movements can be accurately forecasted, this energy source provides stable output, making it a strong complement to intermittent renewables such as wind and solar. Increasing global emphasis on cutting reliance on fossil fuels and achieving climate targets has positioned tidal energy as a viable long-term solution for power grid stability and sustainability. Tidal energy generation involves harnessing the kinetic and potential energy of ocean tides using turbines or barrages installed in coastal regions. It is a clean, renewable, and environmentally responsible form of power production that aligns with global sustainability objectives. Supportive government measures, including funding for research and development and policy incentives for renewable infrastructure, are accelerating technology adoption. Continued advancements in tidal systems designed to minimize marine ecosystem impacts and improve energy conversion efficiency are further strengthening the sector's appeal. Growing environmental awareness and focus on low-carbon energy transition continue to make tidal power a vital component of the renewable energy mix.

The tidal barrage segment held a 53.1% share in 2024 and is forecast to grow at a CAGR of 9.8% through 2034. The segment's dominance is driven by its capacity to deliver consistent and reliable energy through the natural movement of tides. Tidal barrages generate substantial amounts of electricity by exploiting large volumes of moving water, offering operational longevity often exceeding a century. Despite

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relatively high initial capital investment, their extended lifespan and low operating costs make them a cost-efficient and dependable renewable power solution. The durability and scalability of barrage systems continue to position them as a preferred choice in coastal renewable energy development projects.

The desalination application segment will grow at a CAGR of 8.7% by 2034. Its growth is supported by the steady and predictable energy supply tidal systems offer, making them particularly suitable for desalination processes that require uninterrupted power. Continuous and stable operation enables desalination facilities to sustain water production efficiently, reducing interruptions and operational costs. Coastal regions with strong tidal activity are increasingly integrating tidal power into water treatment and desalination operations, contributing to greater water security and environmental sustainability in the long term.

United States Tidal Power Generation Market held a 91.9% share and is projected to reach USD 342 million by 2034. The country benefits from extensive coastlines with powerful tidal currents, notably along the Pacific Northwest, New England, and Alaska, which provide ideal conditions for energy generation. Federal and state-level commitments toward carbon neutrality and renewable expansion are fueling investment in tidal technologies. These efforts are complemented by advancements that enhance energy efficiency and environmental performance, ensuring that tidal power aligns with the nation’s clean energy transition goals.

Key companies participating in the Global Tidal Power Generation Market include FreeFlow69, Orbital Marine Power Ltd, Leask Marine Ltd, MAKO Turbines Pty Ltd, Hydroquest SAS, Nova Innovation Ltd, Lockheed Martin Corporation, Inyanga Maritime Ltd, Minesto, Tocardo, Andritz Hydro Hammerfest, Sustainable Marine, Verdant Power, Oceanetics, Olympic Subsea ASA, HydroWing, First Marine Solutions, Tidal Technologies Limited, and Innosea. Leading players in the Tidal Power Generation Market are pursuing strategic initiatives to enhance their global footprint and technological edge. Companies are heavily investing in advanced turbine design, cost-efficient energy conversion systems, and modular deployment models to boost performance and scalability. Partnerships with governments and research institutions are being established to accelerate pilot projects and achieve commercialization readiness.A

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