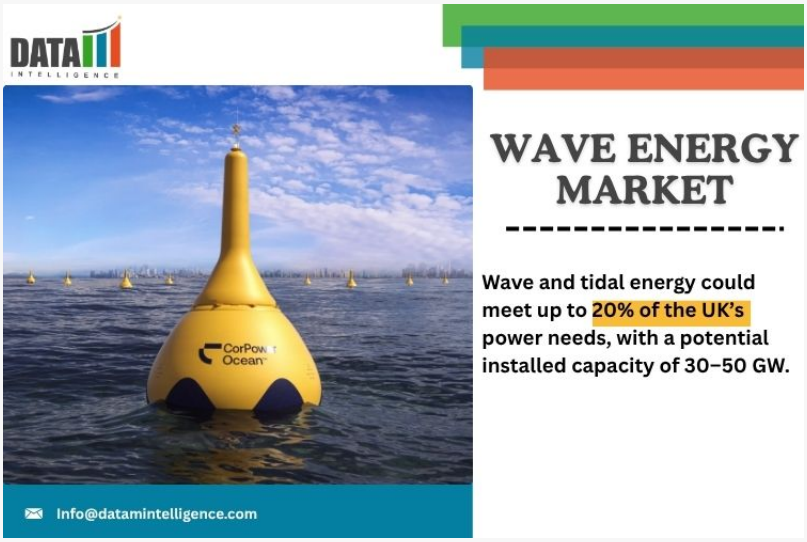
Wave Energy Market Sector Expansion 2025 | Top Companies - Wave Power, Carnegie Clean Energy, SINN Power

The wave energy market is growing due to rising demand for clean power, coastal tech innovation, and sustainability goals.



wave energy market size

AUSTIN, TX, UNITED STATES, July 31, 2025 /EINPresswire.com/ -- Wave Energy Market Overview:

The wave energy market size harnesses the power of ocean surface waves to generate clean, renewable electricity. As a promising segment of marine-based energy, wave energy offers high predictability and minimal environmental impact, making it a key contributor to the global transition toward sustainable power.

Market Size and Growth:

> In the U.S., growing focus on decarbonization and coastal infrastructure upgrades is accelerating wave energy investments, with the market projected to expand steadily through 2031."
>
> *DataM Intelligence 4Market Research LLP*

The global wave energy market size is gaining significant momentum as nations seek alternative renewable power sources to meet growing energy demands while minimizing environmental impact during the forecast period (2024–2031). As a promising segment of wave renewable energy, this market harnesses the kinetic and potential energy from ocean surface waves and abundant and largely untapped power sources.

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Seaturns Makes Waves: Full-Scale Offshore Energy Trial Set for 2025

Seaturns to deploy a full-scale wave energy device at the SEM-REV offshore test site in France by summer 2025.

Follows successful 1:4 scale sea trials conducted from Oct 2023 to Feb 2025 at IFREMER's test site.

The 18-month trial will validate technical performance, certification, and environmental impact.

Part of the SEAWEC industrialization program, with commercialization targeted from 2026 onward.

Market Drivers and Opportunities:

The main reason wave energy is growing is because more people want steady, clean power that doesn't harm the planet or create carbon pollution. Governments and energy firms are increasingly investing in harnessing wave energy as part of broader climate action and net-zero goals. Advancements in marine technology and underwater systems are accelerating commercialization efforts across different types of ocean energy systems.

Opportunities are particularly strong in integrating wave energy companies with existing offshore infrastructure such as wind farms and oil rigs, enhancing operational synergies and reducing costs. Furthermore, public and private R&D initiatives are exploring links between energy and electromagnetic spectrum, studying how electromagnetic energy waves interact with marine devices for more efficient power conversion.

Technological Advancements in Wave Energy:

Next-Generation Wave Converters: Development of point absorbers, oscillating water columns, and attenuators with higher energy efficiency and durability in harsh marine environments.

Smart Sensors and IoT Integration: Real-time monitoring using IoT and AI to track wave patterns, device performance, and maintenance needs, improving system uptime.

Subsea Energy Storage Systems: Integration of underwater batteries and flywheel systems for stabilizing power supply and enhancing grid compatibility.

Advanced Materials and Coatings: Use of corrosion-resistant composites and self-healing materials to extend the lifespan of wave energy devices and reduce maintenance cost

Geographical Growth:

Europe leads the wave energy sector, particularly the UK, Portugal, and Scotland, due to strong policy backing and a robust marine engineering ecosystem.

In North America, places like Oregon and California are leading the way by trying out wave energy projects along their coasts.
Asia-Pacific, with its vast coastline and high energy demand, is becoming a hotbed for innovation in em energy systems especially in Japan and Australia.

Key Players:

Sea-based

Eco Wave Power

Carnegie Clean Energy

SINN Power

CorPower

Ocean Power Technology

Mocean Energy

AW-Energy

Carnegie Clean Energy

Mocean Energy

These companies are working on building affordable, long-lasting systems and improving how ocean waves are turned into power, while tackling problems like rust and uneven energy flow

Market Segments:

By Technology: (Oscillating Water Column, Oscillating Bodies, Overtopping Converters, Others)

By Location: (Onshore, Nearshore, Offshore)

By End-User: (Power Generation, Desalination, Others)

By Region: (North America, Latin America, Europe, Asia Pacific, Middle East, and Africa)

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Applications:

Grid-Connected Power Supply: Generation of renewable electricity for coastal communities and national grids, reducing reliance on fossil fuels.

Desalination Plants: Powering seawater desalination systems in remote or arid regions where freshwater is scarce.

Offshore Oil & Gas Platforms: Supplying clean energy to offshore rigs, reducing emissions and operational costs.

Marine Navigation and Surveillance: Powering autonomous buoys, underwater sensors, and communication systems for ocean monitoring and maritime security.

Recent Developments – United States:

June 2025: The U.S. Department of Energy announced funding for a new wave energy pilot project off the coast of Oregon, integrating real-time monitoring of energy in a sound wave and structural vibrations to optimize performance.

September 2024: A U.S.-based startup deployed a grid-connected wave energy converter that uses electromagnetic energy waves to improve the efficiency of subsea transmission systems.

Recent Developments – Japan:

April 2025: A consortium of Japanese firms launched a hybrid wave and wind energy farm off Okinawa, leveraging insights on energy and wave mechanics for improved offshore system reliability.

November 2024: Japan’s National Institute of Maritime Science initiated a research program to study em energy transfer in submerged converters, with a focus on maximizing energy output from shallow coastal waters.

Conclusion:

The global wave energy market is steadily transitioning from research to commercial deployment, signaling a new era in the renewable energy landscape. With support from technology advancements, government funding, and growing awareness about wave energy's benefits, the sector is poised for exponential growth. As the world explores innovative solutions to combat climate change, wave renewable energy stands out as a vital force in the clean energy

transition.

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