

Energy Harvesting System Market by Technology (Light, Vibration, Radio Frequency (RF), Thermal), Component (Transducers (Photovoltaic, Piezoelectric, Electromagnetic, RF, Thermoelectric), PMICs, Secondary Batteries) - Global Forecast to 2028

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Report description:

The energy harvesting system market is projected to grow from USD 0.6 billion in 2023 and is projected to reach USD 0.9 billion by 2028; it is expected to grow at a CAGR of 10.0% from 2023 to 2028.

Surging implementation of IoT devices in automation and energy harvesting systems for building and home automation, and growing demand for safe, power-efficient, and durable systems that require minimum or no maintenance are the factors expected to fuel the growth of the energy harvesting system market.

"Vibration energy harvesting segment of the energy harvesting system market to witness high growth during the forecast period."

By technology, the energy harvesting system market has been segmented into light energy harvesting, vibration energy harvesting, radio frequency (RF) energy harvesting, and thermal energy harvesting. The vibration energy harvesting segment is expected to grow at the high CAGR during the forecast period. Ongoing research and development efforts in the field of vibration energy harvesting contribute to its growth. Researchers are exploring new materials, optimized designs, and advanced techniques to enhance the efficiency, durability, and scalability of vibration energy harvesting technologies. For instance, in December 2022, researchers from Osaka Metropolitan University (Japan) developed a two-centimeter energy harvester that uses piezoelectric vibration energy generated by walking to power small wearable devices like smartphones and smartwatches. The harvester, equipped with a U-shaped metal component called a dynamic magnifier, allows for 90 times more power conversion from impulsive vibrations during the human walking motion. This breakthrough technology offers the potential for self-charging wearable devices and contributes to the advancement of energy-efficient electronic devices.

"Building & home automation application segment to witness high growth for energy harvesting system market during the

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forecast period."

Building & home automation segment to grow at high CAGR during the forecast period. Building & home automation technologies offer wireless, smart, and intelligent control over home electronics. Smart home technology connects home appliances, lighting systems, HVAC devices, and security systems with a gateway that can be remotely controlled through cloud services. Traditional wireless network systems are installed with batteries that need timely replacements. The recurring cost associated with traditional batteries can be reduced by installing devices powered by energy harvesting systems. Building automation products such as wall switches, sensors, and relay receivers can be easily interconnected without complexity. Energy harvesting in building automation systems are used for occupancy sensors, humidity sensors, window positioning systems, temperature sensors, climate control systems, radiator control systems, and other lighting control systems. Therefore, rising emphasis on energy-efficient buildings and smart homes to drive the market growth over the forecast period.

"North America to hold a major market share of the energy harvesting system market during the forecast period" North America is expected to hold a major market share for energy harvesting system market during the forecast period. The energy harvesting system market in North America has experienced significant growth in recent years and is expected to continue expanding in the years ahead. One of the key market drivers in this region is the increasing focus on renewable energy sources and sustainable practices. North American countries are actively investing in energy harvesting technologies to reduce their dependence on fossil fuels and mitigate the environmental impact of energy generation. Additionally, government initiatives and favorable policies promoting clean energy adoption are driving market growth. The demand for energy harvesting systems is also fueled by the rising need for reliable and efficient power sources in remote and off-grid applications. Moreover, the growing awareness among industries and consumers about the benefits of energy harvesting, such as cost savings and reduced carbon emissions, is further propelling the market in North America.

Extensive primary interviews were conducted with key industry experts in the energy harvesting system market space to determine and verify the market size for various segments and subsegments gathered through secondary research. The break-up of primary participants for the report has been shown below:

The break-up of the profile of primary participants in the Energy Harvesting System market:

- By Company Type: Tier 1 - 30%, Tier 2 - 10%, and Tier 3 - 60%
- By Designation: C Level - 20%, Director Level - 20%, Others-50%
- By Region: North America - 30%, Europe - 40%, Asia Pacific - 20%, ROW- 10%

The report profiles key players in the energy harvesting system market with their respective market ranking analysis. Prominent players profiled in this report are STMicroelectronics (Switzerland), Microchip Technology Inc. (US), Texas Instruments Incorporated (US), Analog Devices, Inc. (US), Infineon Technologies AG (Germany), Qorvo, Inc. (US), Honeywell International Inc. (US), ABB (Switzerland), Renesas Electronics Corporation (Japan), and EnOcean GmbH (Germany).

Apart from this, Powercast Corporation (US), Nexperia (Netherlands), CeramTec GmbH (Germany), Bionic Power Inc. (Canada), Kinergizer (Netherlands), Physik Instrumente (PI) GmbH & Co. KG (Germany), CTS Corporation (US), and Trameto Limited (UK) are among a few emerging companies in the energy harvesting system market.

Research Coverage: This research report categorizes the energy harvesting system market on the basis of technology, component, end-use system, application, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the energy harvesting system market and forecasts the same till 2028. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the energy harvesting system ecosystem.

Key Benefits of Buying the Report The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall energy harvesting system market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and to plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

-□Analysis of key drivers (Rising environmental concerns, Miniaturization and flexibility requirements, Integration of IoT devices in energy harvesting systems for building and home automation, Favorable government initiatives, Growing preference for wireless sensor networks equipped with energy harvesting systems), restraints (Geographic and environmental constraints, Limitations of

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remotely installed networking modules), opportunities (Emergence of smart cities, Adoption of sensors in wearable electronics, Use of human energy harvesting for implantable biomedical devices, Ocean energy harvesting) and challenges (Limitations associated with integrating energy harvesting systems into existing infrastructure, Standardization of communications protocols, Damages caused to energy harvesting devices by surrounding environments) influencing the growth of the energy harvesting system market.

-□Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the energy harvesting system market.

-□Market Development: Comprehensive information about lucrative markets - the report analysis the energy harvesting system market across varied regions

-□Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the energy harvesting system market

-□Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players like STMicroelectronics (Switzerland), Microchip Technology Inc. (US), Texas Instruments Incorporated (US), Analog Devices, Inc. (US), Infineon Technologies AG (Germany), among others in the energy harvesting system market.

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