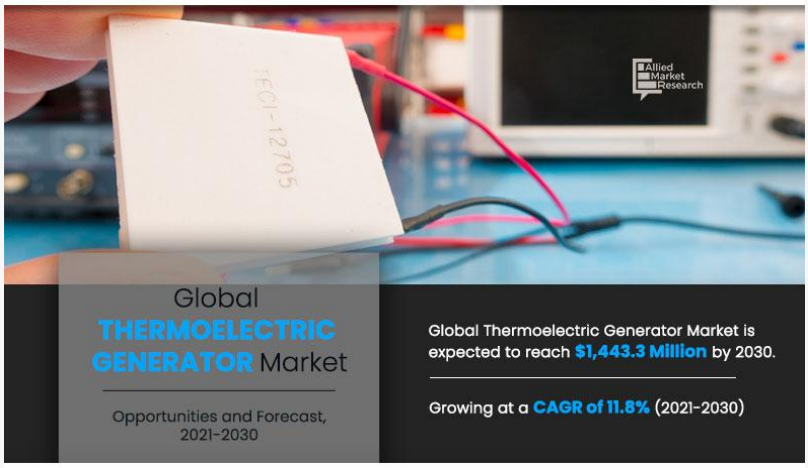
Thermoelectric Generator Market to Increase at 11.8% CAGR, Reaching $1443.3 Million by 2030



WILMINGTON, DE , UNITED STATES, July 3, 2024 /EINPresswire.com/ -- The global thermoelectric generators market size was valued at $472.5 million in 2020, and is projected to reach $1443.3 million by 2030, growing at a CAGR of 11.8% from 2021 to 2030.

Temperature differences are converted into electrical energy by thermoelectric generators. The seebeck effect and the Peltier effect are two key physical phenomena involved in this process. The seebeck effect describes the conversion of temperature differential into electric current at the interface of two materials, whereas the Peltier effect is the opposite of the seebeck effect. Thermoelectric materials turn temperature differences into electric voltage to create electricity directly from heat. To be acceptable for the thermoelectric conversion process, these materials must have both high electrical conductivity and low heat conductivity.

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Thermoelectric generators and thermoelectric materials that were previously utilized primarily in niche applications are now gaining high popularity with the introduction of wider automotive applications and the efforts to exploit waste-heat-recovery technologies. Thermoelectric generators are not only highly reliable and durable but they are also environmental-friendly, as they do not include chemical products. These factors are collectively contributed toward the global thermoelectric generators market growth. Moreover, surge in demand for energy across various end-user industries such as automobile, aerospace, and defense and rise in concerns about environmental and emissions issues, particularly global warming, have propelled the demand for thermoelectric generators.

The global thermoelectric generators market is segmented on the basis of material, application,

end-use industry, and region. Based on the material, the global thermoelectric generators market is segmented into bismuth telluride, lead telluride and others. The bismuth telluride segment accounted for the largest share in 2020 and projected to witness growth at the highest CAGR of 12.0%.

Key Market Segments

By Material

Bismuth Telluride
Lead Telluride
Others
By Application

Waste Heat Recovery
Energy Harvesting
Direct Power Generation
Co-generation
By End-use Industry

Automotive
Aerospace
Industrial
Consumer
Healthcare
By Region

North America
U.S.
Canada
Mexico
Europe
Germany
France
Spain
Italy
UK
Rest of Europe
Asia-Pacific
China
Japan
India
South Korea

Australia
Rest of Asia-Pacific
LAMEA
Brazil
South Africa
Saudi Arabia
Rest of LAMEA

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Based on the application, the global thermoelectric generators market is segmented into waste heat recovery, energy harvesting, direct power generation and co-generation. The waste heat recovery segment accounted for the largest share in 2020 and projected to witness growth at the highest CAGR of 12.4%.

End-use Industry of thermoelectric generators includes automotive, aerospace, industrial, consumer and healthcare. The aerospace segment accounted for the largest share of the thermoelectric generators market in 2020, while Industrial segment is projected to witness growth at the highest CAGR of 12.4%.

Region wise, the thermoelectric generator market is studied across North America, Europe, Asia-Pacific, and LAMEA. North America accounted for the largest share of the market in 2020, while Asia-Pacific was the fastest growing region.

The global thermoelectric generators industry is consolidated in nature with a few players, such as Gentherm, Inc., Ferrotec Holdings Corporation, Yamaha Corp., Thermo Electric Company, Inc., Laird Thermal Systems, Komatsu Ltd., Kyocera Corporation, Phononic Devices, Evident Thermoelectrics, and II-VI Marlow, Inc., which hold significant share of the market. These players have been adopting various strategies to gain higher share or to retain leading positions in the market.

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On the basis of material, the bismuth telluride segment emerged as the global leader by acquiring more than 66% of the market share in 2020, and is anticipated to continue this trend during the forecast period.
On the basis of application, the waste heat recovery segment emerged as the global leader by acquiring more than 46% of the market share in 2020, and is anticipated to continue this trend during the forecast period.
On the basis of end-use industry, the Aerospace segment emerged as the global leader by acquiring more than 26% of the market share in 2020, and is anticipated to continue this trend during the forecast period.

On the basis of region, North America is the major consumer of thermoelectric generators among other regions. It accounted for around 39% of the global market share in 2020.

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