

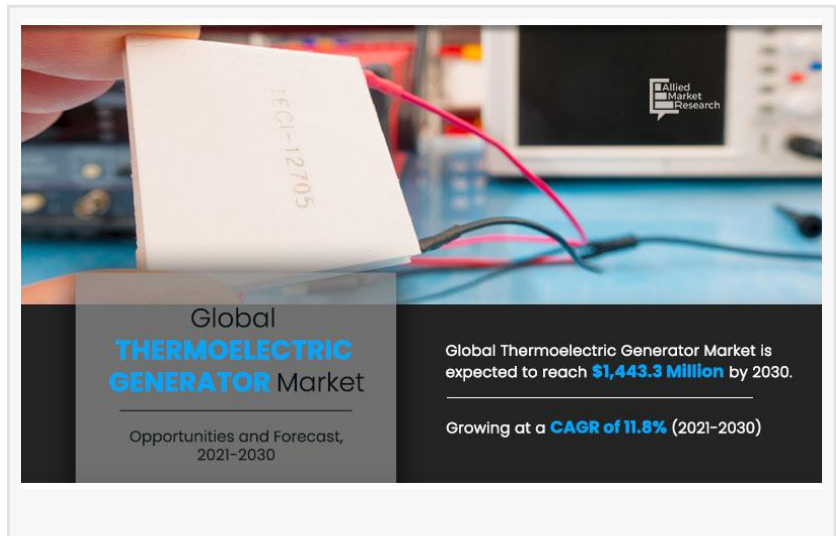
Thermoelectric Generator (TEG) Market Set for 11.8% CAGR Growth Through 2030

Thermoelectric Generator Market to Reach \$1.44 Billion by 2030, Driven by Rising Demand for Waste Heat Recovery

WILMINGTON, DE, UNITED STATES,
November 24, 2025 /

EINPresswire.com/ -- According to a new report by Allied Market Research, the global [thermoelectric generator \(TEG\) market](#) size was valued at \$472.5 million in 2020 and is projected to reach \$1,443.3 million by 2030, growing at a CAGR of 11.8% from 2021 to 2030.

This robust growth is fueled by the increasing adoption of waste-heat recovery technologies, rising energy demand across industries, and growing concerns over environmental sustainability.



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Thermoelectric generator market to grow from \$472.5M in 2020 to \$1.44B by 2030, driven by waste heat recovery, energy efficiency, and industrial demand.”

Allied Market Research

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By Region

North America: Led the market with 39% share in 2020, supported by strong investments in renewable and clean technologies.

Asia-Pacific: Poised for the fastest growth due to rapid

industrialization, clean energy adoption, and government support.

Europe and LAMEA also contribute significantly, particularly in automotive and aerospace applications.

□ Key Findings

Bismuth telluride was the largest material segment in 2020 with 66% market share.

[Waste heat recovery](#) accounted for 46% share and is projected to dominate growth.

Aerospace was the largest end-use industry with 26% share, while the industrial sector is set to grow fastest at 12.4% CAGR.

North America was the largest regional market, but Asia-Pacific is forecast to expand most rapidly.

□□ How Thermoelectric Generators Work

Thermoelectric generators (TEGs) convert temperature differences into electrical energy using two fundamental principles:

Seebeck Effect: Converts a temperature gradient across two materials into an electric current.

Peltier Effect: The reverse process, where an electric current creates a temperature difference.

To achieve efficient conversion, thermoelectric materials must combine high electrical conductivity with low thermal conductivity. This enables TEGs to directly convert waste heat into usable electricity without moving parts, making them highly reliable and environmentally friendly.

□ Expanding Applications Driving Growth

Historically used in niche applications, thermoelectric generators are now finding wider adoption in automotive, aerospace, industrial, and defense sectors. Their ability to recover and convert waste heat into electricity is particularly valuable in today's energy-conscious landscape.

Automotive industry: TEGs are increasingly used for waste-heat recovery to improve vehicle fuel efficiency.

Aerospace & defense: High reliability and durability make TEGs attractive for power generation in extreme environments.

Industrial sector: Growing use in [energy harvesting](#) and co-generation systems.

In addition to being chemical-free and environmentally safe, thermoelectric generators align with global initiatives to reduce emissions and tackle climate change.

Procure This Report (268 Pages PDF with Insights, Charts, Tables, and Figures):

□ Market Segmentation Insights

The thermoelectric generator market is segmented by material, application, end-use industry, and region.

By Material

Bismuth telluride: Dominated with over 66% share in 2020, expected to grow at the highest CAGR of 12.0%.

Lead telluride & others: Used in specific high-temperature applications.

By Application

Waste heat recovery: Accounted for 46% of the market in 2020 and projected to grow at 12.4% CAGR, making it the leading segment.

Energy harvesting, direct power generation, and co-generation also contribute to market expansion.

By End-Use Industry

Aerospace: Largest segment in 2020 with 26% share, due to demand for reliable power in critical missions.

Industrial sector: Expected to witness the fastest growth at 12.4% CAGR, driven by efficiency-focused manufacturing.

Other key industries include automotive, consumer electronics, and healthcare.

□ Key Market Players

The global thermoelectric generator industry is consolidated, with a few key players dominating market share. Leading companies include:

Gentherm, Inc.

Ferrotec Holdings Corporation

Yamaha Corporation

Thermo Electric Company, Inc.

Laird Thermal Systems

Komatsu Ltd.

Kyocera Corporation

Phononic Devices

Evident Thermoelectrics

II-VI Marlow, Inc.

These players focus on capacity expansion, R&D investments, and strategic collaborations to strengthen their market positions and cater to growing demand.

□ COVID-19 Impact

The COVID-19 pandemic temporarily disrupted the thermoelectric generator market.

Supply chain disruptions and labor shortages slowed production.

Automotive and aerospace industries witnessed a drop in demand due to halted operations.

Volatility in raw material prices also affected market growth.

However, as economies recover, industries are re-focusing on efficiency and sustainability, which is expected to accelerate TEG adoption in the post-pandemic era.

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□ Conclusion

The thermoelectric generator market is on a strong growth trajectory, projected to reach \$1.44 billion by 2030. With applications expanding across automotive, aerospace, industrial, and healthcare sectors, TEGs are emerging as a critical clean energy technology.

Driven by the dual need for energy efficiency and environmental sustainability, thermoelectric generators are expected to play a vital role in future power generation strategies. As industries prioritize waste-heat recovery and green innovation, the market will continue to witness accelerated adoption worldwide.

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Pawan Kumar, the CEO of Allied Market Research, is leading the organization toward providing high-quality data and insights. We are in professional corporate relations with various companies and this helps us in digging out market data that helps us generate accurate research data tables and confirms utmost accuracy in our market forecasting. Each and every data presented in the reports published by us is extracted through primary interviews with top officials from leading companies of domain concerned. Our secondary data procurement methodology includes deep online and offline research and discussion with knowledgeable professionals and analysts in the industry.

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