

Energy Recovery Technologies Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Technology (Waste Heat Recovery Units, Organic Rankine Cycle Systems, Regenerative Braking Systems, Energy Recovery Ventilation Systems, Pressure Energy Recovery Devices, Thermoelectric Generators, Flywheel Energy Storage), By Energy Source (Waste Heat, Mechanical Motion, Exhaust Gases, Pressure Differentials, Renewable Thermal Sources), By End-User (Manufacturing and Heavy Industry, Utilities and Independent Power Producers, Transportation and Logistics, Construction and Real Estate, Chemical and Petrochemical, Food and Beverage Processing), By Region & Competition, 2020-2030F

<https://marketpublishers.com/r/E3A1CA6E4F97EN.html>

Date: August 2025

Pages: 185

Price: US\$ 4,500.00 (Single User License)

ID: E3A1CA6E4F97EN

Abstracts

Market Overview

The Global Energy Recovery Technologies Market was valued at USD 35.86 billion in 2024 and is expected to reach USD 49.19 billion by 2030 with a CAGR of 5.25% during the forecast period.

The Energy Recovery Technologies Market refers to the industry focused on systems

and solutions that capture and reuse waste energy from various processes—such as industrial manufacturing, power generation, and transportation—to improve overall energy efficiency and reduce environmental impact. These technologies include heat exchangers, waste heat recovery boilers, regenerative thermal oxidizers, and pressure energy recovery systems, which are increasingly being integrated into manufacturing plants, commercial buildings, and power facilities to recover thermal, mechanical, or electrical energy that would otherwise be lost.

The market is poised for robust growth due to escalating energy costs, rising industrialization, and strict environmental regulations mandating reductions in greenhouse gas emissions and improved energy performance. Industries across sectors, including chemicals, oil and gas, cement, steel, and automotive, are turning to energy recovery systems to cut operating costs and enhance sustainability. Governments and international organizations are also incentivizing the adoption of such technologies through grants, tax benefits, and regulatory frameworks, which further propels market expansion.

Key Market Drivers

Rising Global Demand for Energy Efficiency

The Energy Recovery Technologies Market is experiencing significant growth due to the increasing global demand for energy efficiency across industries. As energy costs continue to rise and organizations face mounting pressure to reduce operational expenses, energy recovery technologies offer a compelling solution by capturing and reusing energy that would otherwise be wasted. These technologies, such as heat exchangers, pressure exchangers, and regenerative braking systems, enable industries like manufacturing, oil and gas, and wastewater treatment to optimize energy consumption, thereby lowering costs and enhancing operational sustainability.

Governments worldwide are implementing stringent energy efficiency standards, further incentivizing businesses to adopt these technologies to comply with regulations and avoid penalties. The push for energy-efficient solutions is particularly pronounced in energy-intensive sectors, where even marginal improvements in energy utilization can yield substantial cost savings. Additionally, the integration of advanced materials and smart technologies, such as IoT-enabled monitoring systems, enhances the performance of energy recovery systems, making them more attractive to industries aiming to modernize their infrastructure.

The global emphasis on reducing energy waste aligns with broader sustainability goals, positioning energy recovery technologies as a critical component of modern industrial strategies. This driver is further amplified by the growing adoption of renewable energy sources, which often require efficient energy management systems to maximize output and minimize losses, thereby boosting the Energy Recovery Technologies Market.

In 2023, the International Energy Agency (IEA) reported that global energy demand rose by 1.8%, with industrial sectors accounting for 32% of total energy consumption. Energy recovery technologies could reduce industrial energy use by up to 15%, saving approximately 4.8 quadrillion BTUs annually, equivalent to the energy output of 48 million tons of coal, highlighting their potential to address rising energy demands efficiently.

Key Market Challenges

High Capital Investment and Uncertain Return on Investment

One of the most significant challenges confronting the Energy Recovery Technologies Market is the substantial initial capital expenditure required for the deployment of these systems. Energy recovery solutions such as waste heat recovery units, regenerative thermal oxidizers, and pressure energy recovery systems involve sophisticated engineering, advanced materials, and highly specialized installation procedures. As a result, the cost of procuring, integrating, and commissioning these technologies can be prohibitively high, particularly for small and medium-sized enterprises. While the long-term economic benefits of reduced energy consumption and operational cost savings are clear, the payback period often extends over several years. In sectors with high financial volatility or low-profit margins, this extended return on investment timeline can deter organizations from committing to such capital-intensive solutions.

Additionally, the perceived financial risk is compounded by uncertainty in energy prices, as fluctuating fuel or electricity costs can influence the effectiveness of energy recovery systems. If energy prices fall, the relative financial advantage of recovering energy diminishes, reducing the attractiveness of these technologies. Moreover, companies operating in rapidly evolving industries may find it difficult to justify large investments in fixed energy recovery infrastructure due to the potential need for reconfiguration or relocation of production processes in the near future. Regulatory incentives or government subsidies can partially mitigate the financial burden, but these policies are not consistent across regions and are often subject to political or economic shifts. The lack of standardization in return on investment models also adds to the complexity,

making it difficult for decision-makers to accurately assess the value proposition of energy recovery technologies. Hence, the high upfront costs, combined with uncertain financial outcomes, act as a critical barrier to the broader adoption of energy recovery solutions, particularly in price-sensitive or resource-constrained market environments.

Key Market Trends

Integration of Digital Technologies for Real-Time Monitoring and Optimization

A prominent trend shaping the Energy Recovery Technologies Market is the integration of digital technologies such as artificial intelligence, machine learning, predictive analytics, and the Industrial Internet of Things. These advanced solutions are enabling industries to enhance the performance and efficiency of energy recovery systems through real-time data monitoring, automated control, and predictive maintenance. By embedding sensors and smart control systems into energy recovery units, businesses can collect operational data on temperature, pressure, flow rates, and energy losses. This data is then analyzed to identify inefficiencies, detect anomalies, and forecast system failures before they occur, thereby improving reliability and reducing unplanned downtime.

Moreover, digital platforms are facilitating remote diagnostics and cloud-based analytics, allowing organizations to monitor multiple facilities from a centralized location. This capability is particularly beneficial for multinational enterprises and energy-intensive industries that operate across dispersed geographical regions. The integration of automation and digital control also supports dynamic energy balancing, enabling energy recovery systems to adjust in real time based on production load, energy availability, and consumption patterns. This adaptability enhances the return on investment and helps industries comply with increasingly stringent energy efficiency regulations.

Key Market Players

Schneider Electric SE

General Electric Company

Siemens Energy AG

Mitsubishi Heavy Industries, Ltd.

ABB Ltd.

Alfa Laval AB

Exergy International Srl

Ormat Technologies Inc.

Echogen Power Systems Inc.

D?rr AG

Report Scope:

In this report, the Global Energy Recovery Technologies Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Energy Recovery Technologies Market, By Technology:

Waste Heat Recovery Units

Organic Rankine Cycle Systems

Regenerative Braking Systems

Energy Recovery Ventilation Systems

Pressure Energy Recovery Devices

Thermoelectric Generators

Flywheel Energy Storage

Energy Recovery Technologies Market, By Energy Source:

Waste Heat

Mechanical Motion

Exhaust Gases

Pressure Differentials

Renewable Thermal Sources

Energy Recovery Technologies Market, By End-User:

Manufacturing and Heavy Industry

Utilities and Independent Power Producer

Transportation and Logistics

Construction and Real Estate

Chemical and Petrochemical

Food and Beverage Processing

Energy Recovery Technologies Market, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

South America

Brazil

Argentina

Colombia

Asia-Pacific

China

India

Japan

South Korea

Australia

Middle East & Africa

Saudi Arabia

UAE

South Africa

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Energy Recovery Technologies Market.

Available Customizations:

Global Energy Recovery Technologies Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

Contents

1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, and Trends

4. VOICE OF CUSTOMER

5. GLOBAL ENERGY RECOVERY TECHNOLOGIES MARKET OUTLOOK

- 5.1. Market Size & Forecast
 - 5.1.1. By Value
- 5.2. Market Share & Forecast
 - 5.2.1. By Technology (Waste Heat Recovery Units, Organic Rankine Cycle Systems, Regenerative Braking Systems, Energy Recovery Ventilation Systems, Pressure Energy Recovery Devices, Thermoelectric Generators, Flywheel Energy Storage)
 - 5.2.2. By Energy Source (Waste Heat, Mechanical Motion, Exhaust Gases, Pressure

Differentials, Renewable Thermal Sources)

5.2.3. By End-User (Manufacturing and Heavy Industry, Utilities and Independent Power Producers, Transportation and Logistics, Construction and Real Estate, Chemical and Petrochemical, Food and Beverage Processing)

5.2.4. By Region (North America, Europe, South America, Middle East & Africa, Asia Pacific)

5.3. By Company (2024)

5.4. Market Map

6. NORTH AMERICA ENERGY RECOVERY TECHNOLOGIES MARKET OUTLOOK

6.1. Market Size & Forecast

6.1.1. By Value

6.2. Market Share & Forecast

6.2.1. By Technology

6.2.2. By Energy Source

6.2.3. By End-User

6.2.4. By Country

6.3. North America: Country Analysis

6.3.1. United States Energy Recovery Technologies Market Outlook

6.3.1.1. Market Size & Forecast

6.3.1.1.1. By Value

6.3.1.2. Market Share & Forecast

6.3.1.2.1. By Technology

6.3.1.2.2. By Energy Source

6.3.1.2.3. By End-User

6.3.2. Canada Energy Recovery Technologies Market Outlook

6.3.2.1. Market Size & Forecast

6.3.2.1.1. By Value

6.3.2.2. Market Share & Forecast

6.3.2.2.1. By Technology

6.3.2.2.2. By Energy Source

6.3.2.2.3. By End-User

6.3.3. Mexico Energy Recovery Technologies Market Outlook

6.3.3.1. Market Size & Forecast

6.3.3.1.1. By Value

6.3.3.2. Market Share & Forecast

6.3.3.2.1. By Technology

6.3.3.2.2. By Energy Source

6.3.3.2.3. By End-User

7. EUROPE ENERGY RECOVERY TECHNOLOGIES MARKET OUTLOOK

7.1. Market Size & Forecast

7.1.1. By Value

7.2. Market Share & Forecast

7.2.1. By Technology

7.2.2. By Energy Source

7.2.3. By End-User

7.2.4. By Country

7.3. Europe: Country Analysis

7.3.1. Germany Energy Recovery Technologies Market Outlook

7.3.1.1. Market Size & Forecast

7.3.1.1.1. By Value

7.3.1.2. Market Share & Forecast

7.3.1.2.1. By Technology

7.3.1.2.2. By Energy Source

7.3.1.2.3. By End-User

7.3.2. France Energy Recovery Technologies Market Outlook

7.3.2.1. Market Size & Forecast

7.3.2.1.1. By Value

7.3.2.2. Market Share & Forecast

7.3.2.2.1. By Technology

7.3.2.2.2. By Energy Source

7.3.2.2.3. By End-User

7.3.3. United Kingdom Energy Recovery Technologies Market Outlook

7.3.3.1. Market Size & Forecast

7.3.3.1.1. By Value

7.3.3.2. Market Share & Forecast

7.3.3.2.1. By Technology

7.3.3.2.2. By Energy Source

7.3.3.2.3. By End-User

7.3.4. Italy Energy Recovery Technologies Market Outlook

7.3.4.1. Market Size & Forecast

7.3.4.1.1. By Value

7.3.4.2. Market Share & Forecast

7.3.4.2.1. By Technology

7.3.4.2.2. By Energy Source

- 7.3.4.2.3. By End-User
- 7.3.5. Spain Energy Recovery Technologies Market Outlook
 - 7.3.5.1. Market Size & Forecast
 - 7.3.5.1.1. By Value
 - 7.3.5.2. Market Share & Forecast
 - 7.3.5.2.1. By Technology
 - 7.3.5.2.2. By Energy Source
 - 7.3.5.2.3. By End-User

8. ASIA PACIFIC ENERGY RECOVERY TECHNOLOGIES MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value
- 8.2. Market Share & Forecast
 - 8.2.1. By Technology
 - 8.2.2. By Energy Source
 - 8.2.3. By End-User
 - 8.2.4. By Country
- 8.3. Asia Pacific: Country Analysis
 - 8.3.1. China Energy Recovery Technologies Market Outlook
 - 8.3.1.1. Market Size & Forecast
 - 8.3.1.1.1. By Value
 - 8.3.1.2. Market Share & Forecast
 - 8.3.1.2.1. By Technology
 - 8.3.1.2.2. By Energy Source
 - 8.3.1.2.3. By End-User
 - 8.3.2. India Energy Recovery Technologies Market Outlook
 - 8.3.2.1. Market Size & Forecast
 - 8.3.2.1.1. By Value
 - 8.3.2.2. Market Share & Forecast
 - 8.3.2.2.1. By Technology
 - 8.3.2.2.2. By Energy Source
 - 8.3.2.2.3. By End-User
 - 8.3.3. Japan Energy Recovery Technologies Market Outlook
 - 8.3.3.1. Market Size & Forecast
 - 8.3.3.1.1. By Value
 - 8.3.3.2. Market Share & Forecast
 - 8.3.3.2.1. By Technology
 - 8.3.3.2.2. By Energy Source

- 8.3.3.2.3. By End-User
- 8.3.4. South Korea Energy Recovery Technologies Market Outlook
 - 8.3.4.1. Market Size & Forecast
 - 8.3.4.1.1. By Value
 - 8.3.4.2. Market Share & Forecast
 - 8.3.4.2.1. By Technology
 - 8.3.4.2.2. By Energy Source
 - 8.3.4.2.3. By End-User
- 8.3.5. Australia Energy Recovery Technologies Market Outlook
 - 8.3.5.1. Market Size & Forecast
 - 8.3.5.1.1. By Value
 - 8.3.5.2. Market Share & Forecast
 - 8.3.5.2.1. By Technology
 - 8.3.5.2.2. By Energy Source
 - 8.3.5.2.3. By End-User

9. MIDDLE EAST & AFRICA ENERGY RECOVERY TECHNOLOGIES MARKET OUTLOOK

- 9.1. Market Size & Forecast
 - 9.1.1. By Value
- 9.2. Market Share & Forecast
 - 9.2.1. By Technology
 - 9.2.2. By Energy Source
 - 9.2.3. By End-User
 - 9.2.4. By Country
- 9.3. Middle East & Africa: Country Analysis
 - 9.3.1. Saudi Arabia Energy Recovery Technologies Market Outlook
 - 9.3.1.1. Market Size & Forecast
 - 9.3.1.1.1. By Value
 - 9.3.1.2. Market Share & Forecast
 - 9.3.1.2.1. By Technology
 - 9.3.1.2.2. By Energy Source
 - 9.3.1.2.3. By End-User
 - 9.3.2. UAE Energy Recovery Technologies Market Outlook
 - 9.3.2.1. Market Size & Forecast
 - 9.3.2.1.1. By Value
 - 9.3.2.2. Market Share & Forecast
 - 9.3.2.2.1. By Technology

- 9.3.2.2.2. By Energy Source
- 9.3.2.2.3. By End-User
- 9.3.3. South Africa Energy Recovery Technologies Market Outlook
 - 9.3.3.1. Market Size & Forecast
 - 9.3.3.1.1. By Value
 - 9.3.3.2. Market Share & Forecast
 - 9.3.3.2.1. By Technology
 - 9.3.3.2.2. By Energy Source
 - 9.3.3.2.3. By End-User

10. SOUTH AMERICA ENERGY RECOVERY TECHNOLOGIES MARKET OUTLOOK

- 10.1. Market Size & Forecast
 - 10.1.1. By Value
- 10.2. Market Share & Forecast
 - 10.2.1. By Technology
 - 10.2.2. By Energy Source
 - 10.2.3. By End-User
 - 10.2.4. By Country
- 10.3. South America: Country Analysis
 - 10.3.1. Brazil Energy Recovery Technologies Market Outlook
 - 10.3.1.1. Market Size & Forecast
 - 10.3.1.1.1. By Value
 - 10.3.1.2. Market Share & Forecast
 - 10.3.1.2.1. By Technology
 - 10.3.1.2.2. By Energy Source
 - 10.3.1.2.3. By End-User
 - 10.3.2. Colombia Energy Recovery Technologies Market Outlook
 - 10.3.2.1. Market Size & Forecast
 - 10.3.2.1.1. By Value
 - 10.3.2.2. Market Share & Forecast
 - 10.3.2.2.1. By Technology
 - 10.3.2.2.2. By Energy Source
 - 10.3.2.2.3. By End-User
 - 10.3.3. Argentina Energy Recovery Technologies Market Outlook
 - 10.3.3.1. Market Size & Forecast
 - 10.3.3.1.1. By Value
 - 10.3.3.2. Market Share & Forecast
 - 10.3.3.2.1. By Technology

10.3.3.2.2. By Energy Source

10.3.3.2.3. By End-User

11. MARKET DYNAMICS

11.1. Drivers

11.2. Challenges

12. MARKET TRENDS AND DEVELOPMENTS

12.1. Merger & Acquisition (If Any)

12.2. Product Launches (If Any)

12.3. Recent Developments

13. COMPANY PROFILES

13.1. Schneider Electric SE

13.1.1. Business Overview

13.1.2. Key Revenue and Financials

13.1.3. Recent Developments

13.1.4. Key Personnel

13.1.5. Key Product/Services Offered

13.2. General Electric Company

13.3. Siemens Energy AG

13.4. Mitsubishi Heavy Industries, Ltd.

13.5. ABB Ltd.

13.6. Alfa Laval AB

13.7. Exergy International Srl

13.8. Ormat Technologies Inc.

13.9. Echogen Power Systems Inc.

13.10. D?rr AG

14. STRATEGIC RECOMMENDATIONS

15. ABOUT US & DISCLAIMER

I would like to order

Product name: Energy Recovery Technologies Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Technology (Waste Heat Recovery Units, Organic Rankine Cycle Systems, Regenerative Braking Systems, Energy Recovery Ventilation Systems, Pressure Energy Recovery Devices, Thermoelectric Generators, Flywheel Energy Storage), By Energy Source (Waste Heat, Mechanical Motion, Exhaust Gases, Pressure Differentials, Renewable Thermal Sources), By End-User (Manufacturing and Heavy Industry, Utilities and Independent Power Producers, Transportation and Logistics, Construction and Real Estate, Chemical and Petrochemical, Food and Beverage Processing), By Region & Competition, 2020-2030F

Product link: <https://marketpublishers.com/r/E3A1CA6E4F97EN.html>

Price: US\$ 4,500.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/E3A1CA6E4F97EN.html>