

# **Decentralized Composting & Organic Waste-to-Energy Market Forecasts to 2034 – Global Analysis By System Type (Community Composting Systems, On-Site Commercial Composters, Micro Anaerobic Digestion Systems, Containerized Biogas Units, Other System Types), By Waste Type, By Technology, By Application, By End User and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Decentralized Composting & Organic Waste-to-Energy Market is accounted for \$14.8 billion in 2026 and is expected to reach \$32.4 billion by 2034 growing at a CAGR of 10.3% during the forecast period. Decentralized Composting & Organic Waste-to-Energy refers to localized systems that process organic waste, such as food scraps and agricultural residues, into compost, biogas, or other energy products. Instead of transporting waste to large centralized facilities, these systems operate at community, municipal, or institutional levels. Technologies include small-scale anaerobic digesters, composting units, and bioenergy converters. These solutions reduce landfill waste, lower transportation emissions, and produce valuable outputs such as renewable energy and soil-enriching compost. Decentralized waste management supports circular economy principles while improving sustainability and resilience in urban and rural waste systems.

### **Market Dynamics:**

#### **Driver:**

Increasing organic waste management regulations

Governments across many countries are introducing policies that limit landfill disposal of organic waste. These regulations encourage the adoption of sustainable waste treatment solutions such as composting and waste-to-energy systems. Decentralized systems allow waste to be processed close to the point of generation, reducing transportation costs and emissions. Municipalities, businesses, and institutions are increasingly adopting these solutions to comply with environmental regulations. As waste management policies become stricter, demand for decentralized composting and waste-to-energy systems continues to grow.

**Restraint:**

High initial setup and infrastructure costs

Installing composting units, anaerobic digesters, and related processing equipment requires significant capital investment. Facilities also require proper space, maintenance systems, and trained personnel for efficient operation. Smaller businesses and municipalities may face financial challenges in implementing such systems. Additionally, integrating waste collection and processing infrastructure can further increase operational costs. These financial barriers can slow the adoption of decentralized waste treatment technologies.

**Opportunity:**

Integration with smart waste management systems

Smart sensors and digital platforms can monitor waste levels, composting conditions, and system performance in real time. This helps optimize waste collection schedules and improve composting efficiency. Data-driven waste management solutions also allow municipalities and organizations to track environmental impact and operational performance. Smart systems can reduce operational costs and improve the reliability of decentralized waste treatment facilities. As cities adopt smart infrastructure solutions, demand for integrated waste management technologies is expected to increase.

**Threat:**

Operational inefficiencies in small-scale systems

Improper waste segregation or inconsistent feedstock quality can reduce processing efficiency. Small decentralized systems may also face challenges in maintaining optimal

environmental conditions for composting or digestion. Limited technical expertise and inadequate system monitoring can lead to operational issues. In some cases, poor management may result in odor problems or reduced energy output. These challenges can affect system performance and slow wider adoption.

### **Covid-19 Impact:**

The COVID-19 pandemic had a mixed impact on the decentralized composting and organic waste-to-energy market. During the early stages of the pandemic, disruptions in waste collection and recycling programs occurred in several regions. Lockdowns also affected the operation of many waste processing facilities. However, the pandemic increased awareness about sustainable waste management and local resource recovery systems. Many municipalities began exploring decentralized waste solutions to improve waste handling resilience.

The food waste segment is expected to be the largest during the forecast period

The food waste segment is expected to account for the largest market share during the forecast period as food waste represents a significant portion of global organic waste. Restaurants, households, supermarkets, and food processing industries generate large volumes of food waste daily. Decentralized composting systems can efficiently process this waste and convert it into valuable compost or biogas. Managing food waste at the local level reduces landfill pressure and transportation requirements. Governments are also implementing policies that encourage food waste recycling and composting.

The hospitality industry segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the hospitality industry segment is predicted to witness the highest growth rate due to increasing sustainability initiatives within hotels, restaurants, and catering services. The hospitality sector generates significant amounts of organic waste, particularly food waste. Many hospitality businesses are adopting decentralized composting solutions to reduce waste disposal costs and meet environmental goals. Waste-to-energy systems can also help generate renewable energy from organic waste produced on-site. Additionally, sustainability-focused branding is encouraging hospitality businesses to invest in eco-friendly waste management practices.

### **Region with largest share:**

During the forecast period, the North America region is expected to hold the largest market share owing to strong environmental regulations and advanced waste management infrastructure. The region has been actively implementing policies to reduce landfill waste and promote organic waste recycling. Many cities and municipalities are adopting decentralized composting systems as part of sustainable waste management strategies. The presence of established waste management companies and technology providers also supports market growth. Additionally, strong environmental awareness among consumers and businesses encourages the adoption of sustainable waste solutions.

### **Region with highest CAGR:**

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR driven by rapid urbanization and increasing waste generation. Many countries in the region are facing growing challenges related to waste management and landfill capacity. Governments are investing in modern waste treatment infrastructure and sustainable resource recovery technologies. Countries such as China, India, Japan, and South Korea are promoting organic waste recycling and composting initiatives. Additionally, increasing environmental awareness and smart city development projects support the adoption of decentralized waste management systems.

### **Key players in the market**

Some of the key players in Decentralized Composting & Organic Waste-to-Energy Market include Danfoss A/S, Sharc Energy Systems, Viega GmbH, Huber SE, Alfa Laval AB, Kelvion Holding GmbH, Xylem Inc., Veolia Environnement S.A., Suez S.A., ENGIE S.A., Johnson Controls, Schneider Electric, ABB Ltd., Siemens AG, Bosch Thermotechnology, Armstrong Fluid Technology, NIBE Group and Stiebel Eltron.

### **Key Developments:**

In September 2025, Viega officially opened a new 20,400 square-meter production facility and training center in Mantua, Ohio, representing an investment of \$178 million. The facility aims to strengthen the company's presence in North America by shortening supply chains and is pursuing LEED Gold certification as part of the company's sustainability strategy.

In April 2023, SHARC Energy partnered with Subterra Renewables to co-develop up to \$200 million in thermal energy projects across North America using Subterra's Energy-

as-a-Service model. SHARC Energy will receive business development fees of 2.5% to 5.0% on qualified projects and 35% of net cash flows from developments for five years.

#### System Types Covered:

Community Composting Systems

On-Site Commercial Composters

Micro Anaerobic Digestion Systems

Containerized Biogas Units

Other System Types

#### Waste Types Covered:

Food Waste

Agricultural Residues

Animal Manure

Municipal Organic Waste

Green Waste

Other Waste Types

#### Technologies Covered:

Anaerobic Digestion

Biogas Generation Systems

Bioelectrochemical Systems

Organic Waste Gasification

Other Technologies

Applications Covered:

Municipal Waste Management

Agricultural Soil Enrichment

Renewable Energy Generation

Urban Waste Recycling Programs

Campus & Institutional Waste Management

Other Applications

End Users Covered:

Hospitality Industry

Food Processing Companies

Universities & Campuses

Industrial Facilities

Other End Users

Regions Covered:

North America

United States

Canada

Mexico

## Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

## Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of Africa

**What our report offers:**

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

**Free Customization Offerings:**

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

### Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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