United States Waste to Energy Market Assessment, By Waste Type [Municipal Waste, Agriculture Waste, Others], By Technology [Direct Combustion, Mechanical and Thermal, Thermo-Chemical, Biomechanical], By Region, Opportunities and Forecast, 2018-2032F

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Report description:

United States waste-to-energy market is projected to witness a CAGR of 5.91% during the forecast period 2025-2032, growing from USD 6.25 billion in 2024 to USD 9.89 billion in 2032. The market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years.

Waste to energy (WTE) conversion is crucial for the United States as it addresses the growing challenge of mitigating municipal solid wastes (MSWs) in the country. Through the utilization of WTE technologies, reliance on landfills could be significantly reduced with the production of renewable energy. In order to eradicate greenhouse gases and achieve a better health environment, these waste to energy technologies act as a viable solution for the United States. The technologies are able to satisfy the principles of sustainability, improve the efficacy of waste management, and enhance the economic growth of the country.

For example, in December 2023, Tecno Energy Group LLC announced that 85 of every 100 pounds of municipal solid waste in the United States could be burned to generate electricity. Waste to energy plants burn 2,000 pounds of trash into clean energy, thereby reducing the waste volume by about 87%. The mass-burning system is the country's most commonly used waste to energy technology, which involves directly burning unprocessed MSW in a huge incinerator mounted with a boiler and generator. This process converts waste into useful energy with minimal reliance on landfill use.

Construction of New Renewable Energy Facilities for Landfill Waste Recycling Amplifies the Market

The establishment of new renewable energy facilities for recycling waste from landfills in the United States is necessary as the country faces waste management problems and environmental issues. Here, waste to energy technology plays a pivotal role in converting non-recyclable wastes into renewable energy, thereby reducing landfill volume and emission of greenhouse gases. Through the capture of methane from landfills, these facilities offer alternative sources of renewable energy while simultaneously

reducing toxic emissions.

For instance, in November 2024, Lincoln, Nebraska, signed a contract with Sparq Renewables to construct a biogas facility that will recycle landfill wastes like methane by converting them into renewable natural gas (RNG) in the country. The USD 50 million facility, located at the Bluff Road Landfill, is part of a 15-year agreement with two five-year renewal options. The project is expected to generate more than USD 96 million in revenue over 20 years. It will help reduce greenhouse gas emissions and improve local air quality, thereby supporting Lincoln's Climate Action Plan.

Rise in Investment for Cost-Effective Waste to Energy Solutions is Proliferating Market Growth

There is always a growing need for cost-efficient waste to energy solutions in the United States, as the country has increasing energy requirements and also has limited space available for landfills. Additionally, the country's strict environmental regulation is pushing for advancement in green technologies, and therefore, government investments in renewable generation are always on the rise, which, in turn, is driving the market growth.

For instance, in April 2024, the United States Energy Department disclosed its plans to fund USD 17.5 million of cost-effective waste-to-energy solutions to be employed in local communities. Funding may boost economically viable WTE technologies which allow the transformation of municipal solid waste into renewable energy. This will mitigate the problems associated with waste management while reducing reliance on landfills. Additionally, the goal of funding involves the restoration of clean energy from waste and environmental sustainability for the betterment of local communities, thereby advancing the growth of the overall American economy.

Gaining Popularity of Pyrolysis Technology Implementation is Amplifying the Market Growth

The demand for pyrolysis technology in the United States is growing rapidly, primarily due to the huge demand for WTE solutions. The technology effectively converts large volumes of waste materials, such as plastics, into valuable fuels while significantly reducing greenhouse gas emissions. Pyrolysis is recognized as a sustainable approach to address the escalating waste crisis in the country, offering an eco-friendly method for energy recovery. It becomes apparent that as environmental consciousness grows, pyrolysis becomes a potential alternative form that encourages the sustainable management of waste and the creation of renewable energy in the country.

For example, in September 2023, the U.S. Department of Energy announced that the Center for the Chemical Upcycling of Waste Plastics (CUWP) has developed a new recycling method for plastic wastes by converting them into renewable energy using pyrolysis technology. This process not only revolutionizes plastic recycling but also reduces greenhouse gas emissions generated from the traditional production of industrial chemicals by about 60%, thereby contributing to the country's environmental sustainability goals.

Northeast United States Emerged as the Market Leader

The Northeastern region of the United States dominates the WTE market primarily because of its high population density and rapid urbanization. Most of the WTE facilities are located in this region, which is important for managing the significant amounts of waste generated. Mass-burn systems are mainly found in the region, especially in cities like New York, Connecticut, etc. The systems allow for efficient energy recovery from municipal solid and dairy wastes. These focus units within the highly congested zone of population emphasize an important aspect of WTEs, i.e., their role within sustainability-oriented waste management, with their contribution to energy production within urban areas.

For instance, in June 2024, the government of the United States introduced a renewable energy plant at the Lent Hill Dairy Farm, Steuben County, New York. The new plant will generate clean energy by utilizing wastes like cow manure and dumped foods from nearby cheese and yogurt-making plants. The manure and food waste will be anaerobically digested to produce biogas, which will then be converted to electricity in a highly efficient generator located at the Lent Hill farm and fed into the New York State Electricity & Gas (NYSEG) grid. The facility will recycle over 35,000 gallons of food waste and approximately 90,000 gallons of manure daily to produce approximately eight million kilowatt hours of renewable electricity yearly. The electricity will be used by the Chobani yogurt company and Winsor Acres, a dairy farm, which have partnered to take off-take renewable energy via NYSEG.

Future Market Scenario (2025 - 2032F)

- Favourable government policies and incentives aimed at reducing greenhouse gas (GHG) emissions and promoting renewable energy, which will drive WTE adoption in the United States.
- The United States shift towards a circular economy will promote the integration of WTE systems as part of broader sustainability

efforts in waste management. This, in turn, will lead to ample opportunities for a market expedition in the future.
-In the United States, awareness of incineration and biomethanation technologies is rising due to their potential to address waste management challenges and generate renewable energy which drives the waste to energy market in the country.
-As environmental concerns grow, the technologies are increasingly recognized in the country for their ability to reduce landfill dependency, thereby promoting sustainability and driving the adoption rate in the country years.
-The American government supports the technologies for waste to energy solutions that could effectively convert municipal solid waste into valuable energy resources, which can lead to a huge possibility of market growth in the future.
Key Players Landscape and Outlook
The leading market players operating in the United States are constantly competing with each other to gain a considerable edge in the market. The firms based in the United States are making serious investments in the research and development of waste-to-energy-based technologies, which contribute to increased operational efficiency and reduce the cost of electricity. In addition to this, these players have formed multiple collaborations that augment the effectiveness of electricity distribution across the country.
In September 2023, VLS Environmental Solutions, LLC unveiled its waste-to-energy facility at Quartzite, Arizona. The facility will deliver local, sustainable solutions for waste management services. Moreover, to meet client demand for waste-to-energy processing solutions, the Quartzsite facility is fully equipped to handle industrial, and non-hazardous waste, serving diverse industries such as organic and inorganic chemical manufacturing, oil and gas, etc.

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*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work.

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