LCBA LOW CARBON BUSINESS ACTION MEXICO

This project is funded by the European Union

WASTE TO ENERGY

Definition

Waste-to-energy or energy-from-waste is the process of generating energy in the form of electricity and/or heat from the primary treatment of waste, or the processing of waste into a fuel source. Waste-to-energy is a form of energy recovery.

Technologies

- Biomass
- Biogas
- Biomethane
- Composting system
- Anaerobic Digestion

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Market overview

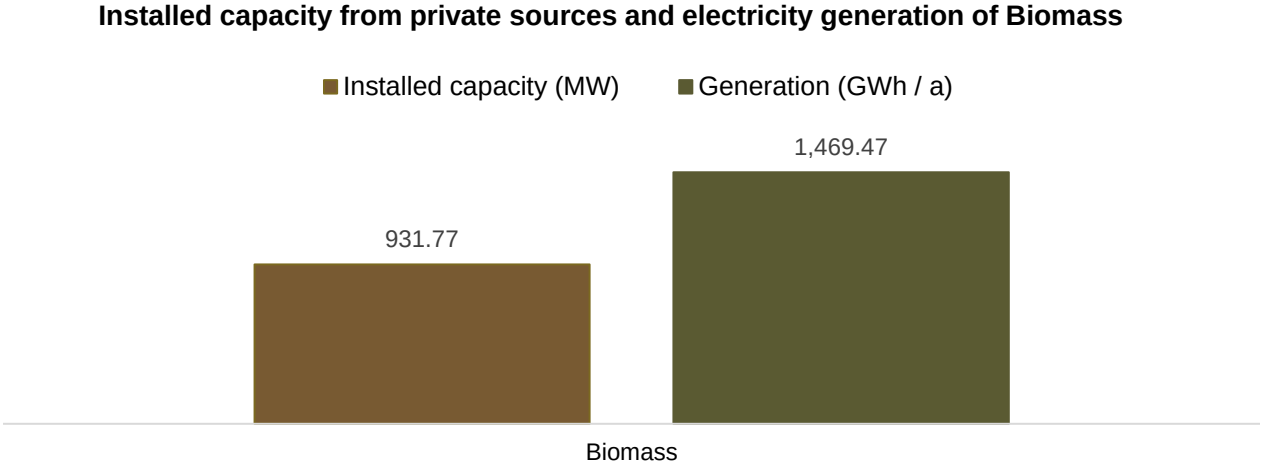
- Mexico's current administration (2018 – 2024) has set the priority to shift to a circular economy model, as part of the "National Vision towards Sustainable Management: Zero Waste", which encourages private sector investments in relevant technologies.
- Biomass is the waste to energy technology with most implemented projects in Mexico.

Key business opportunities for European companies

1	Common anaerobic digestion to generate biogas from the aggregate waste of companies in the Vallejo industrial zone of Mexico City to be converted into electricity and/or heat for the local industries. In Vallejo 146 T/Day of organic waste are generated daily between approx. 150 companies and >90% of this waste is generated from only 10 companies.
2	Management of a sanitary landfill in Aguascalientes, which has the capacity to handle 1,200 tons of waste per day. Also, the lack of capacity in dumpsites is giving rise to a need for waste to energy plants, as is the case of a landfill in the State of Guanajuato.
3	Supply of composting plants specialized in single-use plastics, following the law from January 2021 banning the use of these products.
4	Use of sargassum as an energy source. The sargassum that reaches the beaches of Mexico is a source of biomethane, the main component of natural gas. It is estimated that for one ton of sargassum, 80 to 100 cubic meters of biogas can be obtained.
5	The world's first nopal(cactus) biogas station to replace gasoline in the state of Michoacán. It offers nopal biogas at 12 pesos per cubic meter which is equivalent to a liter of gasoline but is 33% cheaper and does not emit pollutants. In Mexico, 812 tons of nopal are produced per year.

Sector highlight

The following graph shows the capacity of biomass in Mexico in 2018.



Source: Statista, Ministry of Energy, SEMARNAT

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Sector insights

The Law for the Promotion and Development of Bioenergetics (LPDB) establishes the regulatory framework for the promotion and development of bioenergetics, with the aim of achieving energy diversification in the country.

Drivers

- Mexico generates 44 million tons of urban waste annually, 90% of which ends up in open landfills.
- According to Allied Market Research, Mexico's green power market is expected to reach $3,422.9 million USD by 2027, growing at a CAGR of 12.3%. The biomass segment is expected to reach $67.7 million USD with an expected growth of 9.2% by 2027.
- Mexico considers the energy sector as one of the most important to reach its revised NDCs and reduce greenhouse gas emissions, as it still relies heavily on fossil fuels. Waste to energy is a sector that could help meeting these goals. The budget allocated by the government for research and development in the energy sector was $7.5 billion MXN (307.37M Euros) in 2020.

Barriers

- There are few examples of implemented waste to energy projects in Mexico and there is a complex environment for the participation of the private sector in the implementation and operation of large-scale projects (permit delays, lack of infrastructure, poor communication at the federal level, social issues).
- One emblematic WTE project to provide electricity for the Mexico City subway launched by the previous administration was canceled by the current administration.
- Inequality in the waste collection service:
  - 80 % coverage for areas with more than 10.000 inhabitants.
  - 23% to no coverage for less populated areas.

Case study

- A **company in the construction sector** seeks to invest in a biomass plant that uses and exploits algae as the main source of energy.
- A **gasoline producer and retailer company** plans to build 4 biorefineries that obtain fuel in a sustainable way from biomass. An investment of $ 720M USD is expected in the next 4 years. These biorefineries will produce gasoline from by-products of the oil refining process crude oil and natural gas.

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