

Chapter 13

Municipal Urban Waste– to–Energy Business Model in Mexico: A Study of Three Companies

José G. Vargas-Hernández
University of Guadalajara, Mexico

ABSTRACT

The major objective of this research is to identify the main aspects presented in three companies of energy generation from biogas produced by landfills in three Mexican cities. Analyzing these companies, their way of operating and business environment, it is possible to detect the existence of business opportunities in this area. It is concluded that there is a great potential of wasted businesses that works through market mechanisms in strategic alliance with public entities as a more viable option for the reduction of investment risk and the viability of the projects. The use of high technologies, composition of city waste, and available infrastructure are key factors. The study of three companies in operation allows the identification of factors that can help in the implementation of more companies of energy generation based on urban solid waste in more areas of the country and elsewhere with successful and profitable results for both private capital and social interest.

INTRODUCTION

The world moves with energy; transport, companies and people demand energy at all times to carry out their common activities. Society consumes energy at accelerated rates, which mostly comes from fossil fuels, mainly hydrocarbons. The vertiginous consumption of hydrocarbons for decades has made society concerned about the underlying effects it causes. The environmental impact provoked by the combustion of hydrocarbons and their characteristic feature of being a nonrenewable resource gave a sound of alarm in diverse scientific, civic and political groups arising a great interest by the renewable energy sources. Solar, wind, geothermal and bioenergy are some of the main sources of renewable energy.

DOI: 10.4018/978-1-7998-0031-6.ch013

Municipal Urban Waste-to-Energy Business Model in Mexico

Mexico is a country with a large population and abundant natural resources. The use of renewable energy has had importance at different levels and a legal framework has been sought for the emergence of companies that are dedicated to the production of energy from renewables. Fortunately, the use of biomass to generate energy is promising enough to pay attention to the various uses that can be given to waste. It is said that each person produces one kilo of solid urban waste (municipal solid waste - MSW) a day. Three companies are already taking advantage of this business opportunity.

The major objective of this research is to identify the main aspects presented in three companies of energy generation from biogas produced by landfills in three cities of the country: “BENLESA” in Salinas Victoria, Nuevo León; “YLEM ENERGY LIMITED” in Aguascalientes, Aguascalientes; and “Biogas Juárez” in Ciudad Juárez, Chihuahua. Analyzing these companies, their way of operating and business environment, it is possible to detect the existence of business opportunities in this area. In this research, a qualitative methodology bases on the review of the existing literature, in different countries, as well as upon the histories of three companies from the perspectives proposed in Peng’s strategy tripod (Peng, 2012).

The study focuses the analysis on the potential of electric power generation plants from urban solid waste as a profitable business in the country. Identifying their strategies, it can be stipulated a serial of key factors for the opening and successful operability of this type of business in Mexico.

BACKGROUND OF THE PROBLEM

The supply of energy has been a problem that has preoccupied interest groups for decades, not only if it could satisfy the demand but also the harmful impact of its production and use on the environment through Greenhouse gases (GHG). The enormous level of consumption of hydrocarbons in the world has led to the change of paradigms to obtain the energy necessary for the operation of the economy. According to data from the World Bank (Banco Mundial, 2017), in 2014, 81% of the total energy consumed in the world came from hydrocarbons while alternative energy only had a share of around 10% globally.

In the broader definitions, alternative energies are all sources of energy no based on the combustion of the hydrocarbons and do not involve the burning of fossil fuels such as coal, gas and oil. In the most restrictive concept, and alternative energy would be equivalent to the concept of sources of renewable energy or green energy, such as wind, solar, geothermal, bioenergy and tidal. According to Masera Cerutti and others (2011), bioenergy, which is the energy obtained from biomass, represents 77% of the total renewable energy, estimating that by 2035 this type of energy source would represent 25% of the total energy required by the world.

According to Cerdá, Caparrós and Ovando (2008), renewable energy can be used for electricity generation, thermal use and biofuel production. Bioenergy is capable of being used for all three things, unlike wind and solar energy that cannot be converted into biofuel. Biomass, for its part, is a constituent part of living beings, can be divided according to its source (Monreal, 2008):

- Food source: it comes from grains or other crops, which is also used for human and animal consumption;
- Non-food source: it originates from manure, crop and forest, and food and municipal solid waste.

13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/municipal-urban-waste-to-energy-business-model-in-mexico/234629

Related Content

Performance Improvement Using GOA-Based Fuzzy-2D-PIDF Controller for AGC of Multi-Area Power System

Debasis Tripathy, Nalin Behari Dev Choudhury and Binod Kumar Sahu (2021). *International Journal of Social Ecology and Sustainable Development* (pp. 1-20).

www.irma-international.org/article/performance-improvement-using-go-a-based-fuzzy-2d-pidf-controller-for-agc-of-multi-area-power-system/275251

The Role of CSR Strategic Integration in the CSR Organizational Performance Link Context of Qatar

Anas Al Bakri, Shatha M. Obeidat, Dalia A. Farrag and Bader A. Al-Esmael (2022). *International Journal of Social Ecology and Sustainable Development* (pp. 1-10).

www.irma-international.org/article/the-role-of-csr-strategic-integration-in-the-csr-organizational-performance-link-context-of-qatar/287882

Impacts and Mitigation Strategies of Abiotic and Biotic Stresses in Olive Orchards in the Era of Climate Change

Rachid Azenzem, Tayeb Koussa, Mohamed Najib Alfeddy and Jalal Kassout (2024). *Water-Soil-Plant-Animal Nexus in the Era of Climate Change* (pp. 137-172).

www.irma-international.org/chapter/impacts-and-mitigation-strategies-of-abiotic-and-biotic-stresses-in-olive-orchards-in-the-era-of-climate-change/335285

Motivations to Adopt Green ICT: A Tale of Two Organizations

Snehasish Banerjee, Tan Yu Sing, Anisur Reza Chowdhury and Haris Anwar (2013). *International Journal of Green Computing* (pp. 1-11).

www.irma-international.org/article/motivations-to-adopt-green-ict/93594

Entrepreneurship Innovation

Ayansola Olatunji Ayandibu and Makhosazana Faith Vezi-Magigaba (2022). *Achieving Sustainability Using Creativity, Innovation, and Education: A Multidisciplinary Approach* (pp. 97-111).

www.irma-international.org/chapter/entrepreneurship-innovation/292260