



Business and Human Right Resource Center

Weekly update – Invitation to respond

Veolia - Mexico Thermo-valorization

Executive Summary

The Mexico City (CDMX) Thermo-Valorization Project consists in designing, building and operating a plant that will be able to transform waste into energy – through thermo-valorization processes. The energy produced will be used to power Mexico Metro.

Veolia and its partners have been awarded this project in April 2017 after a public request for proposals. Thermo-valorization enables to avoid landfilling and to make another use of what has been thrown away. Thus it helps to protect soils and natural areas and to avoid the extraction and use of new resources to produce energy (gas, oil, etc.).

Veolia benefits from a more than 30-year experience in thermo-valorization, especially in Europe. It operates state-of-the-art technologies and manages 63 “waste to energy” facilities all around the world. As for any of its WTE contracts, Veolia will implement the highest standards to Mexico thermo-valorization plant and will comply with the most stringent regulations – local as well as European ones.

Waste to energy is a favorable process for the environment because it generates low emissions of CO₂. By the way, as Veolia is committed to guaranteeing a safe and healthy environment for the neighboring residents, the thermo-valorization plant will be equipped with state-of-the-art filtering devices meant to minimize all possible emissions into the atmosphere.

1. What is the Mexico City (CDMX) Thermo-valorization Project?

On April 19th, 2017, Veolia (the leading company worldwide in the use of water, waste and energy, has been favorably rewarded with regards the public request for the construction, operation and maintenance of the Thermo-valorization Plant of urban solid waste. It will be situated at the Bordo Poniente 's federal area of Xochiaca. The duration of the contract with regards the services provided will be of 30 years. This installation will be the first of its kind in the country and in Latin America.

Today, Mexico City generates 13.000 daily tons of urban solid waste. That is the equivalent of covering the base of the Zócalo (formally known as Constitution Square) with a one-meter-thick coat of waste. Of this amount, only one third is reused throughout different processes. The rest is deposited in landfills in the states of Mexico and Morelos, which adds the cost of transport and management.

The last landfill that was operational in Mexico City was Prados de la Montaña (Santa Fe, Álvaro Obregón). It was closed down in 1997. The last two landfills that were operated by CDMX and that were located in the State of Mexico were in Santa Catarina and Bordo Poniente stage IV, closed in 2001 and 2011 respectively.



The CDMX has limited surface space in its territory, with ample extensions of Conservation soil and protected natural areas.

Veolia Mexico, along with other international companies, will construct and operate the Thermo-valorization Plant. It will use the best technologies available in the world. This project represents an alternative in the effective treatment of waste and will comply with the environmental regulation. This way, not only in the very country it will be operated in but everywhere in general, it will improve the established norms by applying additional security measures (Mexican and European legislation) under the highest standards and best applicable practices in this kind of installations.

2. Veolia´s references in Thermo-valorization

Veolia operates at a global level a total of 63 “Waste to energy” plants that are equipped with different technologies for the valorization of waste. France was the first country in which the company implemented this type of solutions, at the beginning of the 1990´s. Today, the United Kingdom and Spain have thermo-valorization plants with 3.000 daily tons of capacity.

In 2016, Veolia processed more than 45 million tons of residuals. This contributed to reduce its greenhouse gas emissions, the majority of which is generated in big cities.

What is thermo-valorization?

Thermo-valorization decomposes inorganic waste by using heat. It is a favorable process for the environment, as it generates low emissions of CO₂. This benefits people´s health directly. Not to mention, the vapor that comes from the decomposition is used to generate electricity, and the remaining solid waste can be used in the construction industry.

Veolia explains that, in the installation it will design, build and operate in this area, the waste will be treated through a process of thermo-valorization that is different to incineration. Thermo-valorization is a process of continuous supplying, with controlled combustion, low emission levels and the ability to recover energy.

3. Environmental benefits of the project

The main advantages of the Thermo-valorization Plant of Urban Solid waste in Mexico city are:

- To use the waste to generate energy through technology that is favorable to the environment. In this case, it will supply the underground train systems in Mexico City.
- To efficiently use the budget destined to the disposal of the waste, with technologies that contribute to reducing emissions of CO₂. This means that it will have a positive impact on the environment and the health of the city´s population.
- Each ton of waste equates to a ton of CO₂. The positive impact that the Plant will have in comparison to today´s situation will equal the planting of 28 million trees (EPA, Nationwide Economic Benefits of Waste to Energy Sector PhD Eileen Brettler, ERC Directory).



- More than half of the combustible material that is burnt in a Plant is renewable biomass (fundamentally organic material), and the CO₂ liberated in the combustion process has a neutral nature with regards greenhouse gasses.
- To provide autonomous cities with an easier management of its waste.
- To give waste a value and convert it into a new resource by reintroducing it into the productive cycle.
- To generate a percentage that is very low in waste and which can be reused as construction material.
- To avoid the contamination of water and soil that is generated by rubbish dumps that do not conform to the adequate construction and operation legislations.

The countries that have the highest environmental standards also have the highest ratios with regards to recycling/composting and energetic thermo-valorization of waste.

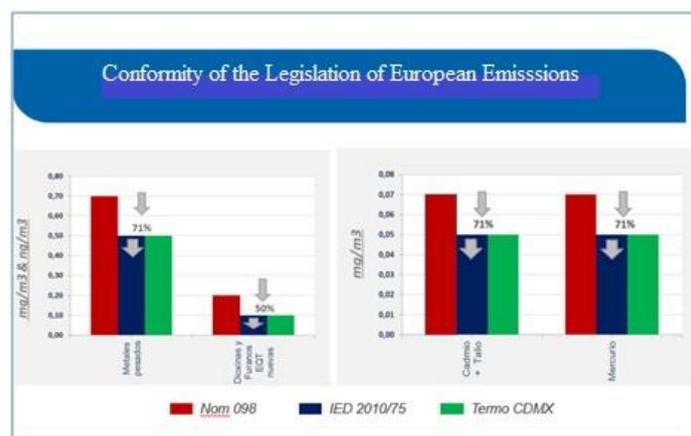
Therefore, countries like Japan, Germany, Austria, Denmark, the Netherlands, Sweden and Switzerland are those who thermal-valorize the most. They are, therefore, those who deposit fewer waste in landfills.

For example Japan, who is a model country in the valorization and recycling of waste, presents the highest quantity of incinerators and the highest life expectancy rate worldwide. It has over 1.350 thermo-valorization Plants.

There are over 480 thermo-valorization Plants in Europe, and many of them are in the center of the capital cities, bringing in more than 50 million tons of waste per year.

4. Polluting emissions and health risks:

Thermo-valorization technology is widely used throughout Europe, in the countries that have a strict and mature legislation with regards contamination. The project in Mexico City will follow the same rules as the 480 thermo-valorization Plants that can be found throughout Europe.





These Plants manage residuals in a clean and safe way.

The thermo-valorization Plants (Waste to Energy) are equipped with state-of-the-art filtering devices. Their objective is to minimize all possible emissions into the atmosphere and they are therefore strictly controlled.

While the dioxins exist naturally around a variety of combustion processes, including but not limited to: steel mills, energy plants, cement ovens, diesel-powered vehicles, buses, chimneys, fires, barbeques, jet engines, forest fires... the emissions from thermo-valorization plants represent only a small fraction of the total share.

The processes for the treatment of dry combustion gasses are designed to eliminate all the particles of dust. The vast majority of acid gas contaminants are neutralized with calcium hydroxide and organic contaminants (PCDD/F). Mercury and other heavy metals are eliminated with adsorption over activated carbon/lignite coke. The combustion gasses are made to come into contact with the additives in a reactor, in order to get the best performance and a minimum of additive consumption. Inside the same reactor, parts of the solids of the fabric filters are recirculated.

Numerous studies conducted by scientists and international organizations have analyzed the impact of this technology:

- a. A study conducted by the Institute of Preventative Medicine of Lisbon University found that the incineration of waste " did not have any effects on blood levels nor showed any dioxins present in the person in residents close to the plants".

<http://www.sciencedirect.com/science/article/pii/S0045653506016158>

- b. The Cancerology committee in the United Kingdom found that "any potential cancer-related risk due to the proximity of the thermo-valorization plans of municipal solid wastes were too low and probably not even measurable with the most advances epidemiological techniques".

<http://www.iacoc.org.uk/statements/Municipalsolidwasteincineratorscoc00s1march2000.htm>

- c. The Scientific Advisory Board of the Federal Medical Association of Germany investigated the possible health risks caused by the thermo-valorization plants' emissions. Among their findings, "the evaluation undertaken shows that the currently active plants conform with the established legislation, causing marginal risks to health and can therefore be classified as significantly low health risks with regards population living in close proximity of these plants". Source: German Medical Journal 90, 1/2 edition, January 11th 1993, pages 45-53, Publishing for the studies on health and the environment.

Even though in 1990 one third of all dioxin emissions in Germany were due to thermo-valorization plans, the very next decade, in 2000, the percentage dropped to below 1%.



- d. The plants' emissions of all contaminants today fall well below the established limit Values 17^o BImSchV. The institute of Energy and Heidelberg's Environmental Energy Research (IFEU) investigated the statistics of "real" emissions and found that less than half of all the incineration plants in Germany have between a 0,01 and a [...] ng TU per cubic meter of air the dioxin can use to escape.

<http://www.sciencedirect.com/science/article/pii/S1352231015300753>

Conclusions:

- It is imperative to grant management autonomy to Mexico City in its full use of the solid urban waste.
- The use of landfills is not the only option for a city such as Mexico City.
- Alternative, modern, environmental-friendly and tested technologies must be used.
- The use of new technologies, like thermo-valorization and biodigestion will bring, among other benefits, the generation of clean and sustainable electricity. This could be used to supply the STC-Underground and the Waterway system of Mexico City.
- Thermo-valorization is a technology used in numerous countries worldwide since the 1990's without it being scientifically proven to be dangerous to the health of the surrounding population. On the contrary, many university studies and those conducted by European regulating entities show that, by applying the latest technologies and respecting the adequate rules of operation, there are no apparent effects of these plants on the population's health.
- The gases that are emitted into the atmosphere through the combustion of residues are treated in various stages to avoid the emission of dioxins. Veolia's operation guarantees that this installation will operate in complete conformity to the Mexican and European legislation, for which it has been designed.
- Regarding the environments' wellbeing, thermo-valorization has a carbon footprint lower to traditional rubbish dumps. It generates renewable energy and eliminates sources of contamination of soil and water.

Tackling those great environmental challenges, **Veolia** group is the global leader in optimized resource management. With over 163 000 employees worldwide, the Group designs and provides water, waste and energy management solutions that contribute to the sustainable development of communities and industries. Through its three complementary business activities, Veolia helps to develop access to resources, preserve available resources, and to replenish them.

In 2016, the Veolia group supplied 100 million people with drinking water and 61 million people with wastewater service, produced 54 million megawatt hours of energy and converted 30 million metric tons of waste into new materials and energy.