

Implementing WtE plant in an integrated waste management system in Gipuzkoa (Autonomous region located in the north of Spain)

Gipuzkoa's Environmental Complex





Introduction

GHK is the public company in charge of MSW management in Gipuzkoa (an autonomous community located in the north of Spain, 720 000 inhabitants).

We manage:

- 140.000 tn/year of **refuse** (container and door to door collection)
- 50.000 tn/year of selectively collected **organic bio waste** (container and door to door collection)
- 25.000 tn/year of selectively collected **packaging** (container and door to door collection)
- Paper/carboard and glass are collected separately and managed by dedicated channels for these flows.

Closure of the last landfill in 2016, due to an inefficient management of the political party governing of that moment, placed Gipuzkoa in an urgent situation having nowhere to send 140,000 t/year of waste

• Urgently had to contract landfills far from us at a high economic and environmental cost and design asap new treatment facilities









In deciding what type of infrastructure to design, different aspects were taken into account:

• <u>Currently no incentives for energy sales</u>: Until 2013 they were direct premiums for renewable energies but since then the regulations changed and it is no longer granted to all facilities. The current real situation is that only wind and photovoltaics are receiving subsidies so **the waste thermal processes sell the electricity to the normal electric pool.**

However..

European and National Waste Regulations are clear in their objectives .:

- **Recycling rate** of 50% by 2020 and up to 65% in 2035
- Mandatory a progressive reduction of *landfilling* of waste, up to a landfill ban (maximum 10%) by 2035.
- Need to follow waste hierarchisation + people totally against landfilling



Phase 1: Mechanical treatment + biodrying + WtE plant



Private –Public Partnership (35 year): Engineering and construction April 2017 – December 2020. Now, under operation





Process: recovery of recycable items by means of mechanical treatment (magnet, foucault, optical, separators,...)

Mechanical treatment

- Elimination of bulky items
- Segregation at source really good at Gipuzkoa but they are still present some recyclable material in the income to the Plant.

RECYCABLE % IN THE INPUT WASTE

PET	1,77
HDPE	0,82
PLASTIC MIX	5,64
FILM	1,5
BRICKS	1,03
FERROUS	2,43
ALUMINIUM	0,48
PAPER/CARDBOARD	8,83

Recovery of about 7-9% of the total inlet to the plant

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Biodrying

- Evaporation by fermentation
- Volume reduction (minimum weight loss of 25%)
- Increase the LHV up to 2850Kcal/kg





Waste-to-Energy plant (2 x 12.5 t/h lines = 200,000 t/year)

- Waste combustion by means of an air-cooled grate furnace
- High efficiency of the water steam cycle (R1:0,85)
- Dry treatment of combustion gases in two stages
- Minimum Waste Generation

Phase 2: Bottom ash maturation plant + organic waste biomethanation



Private – Public Partnership (20 years):

Engineering and construction September 2018– October 2019. Since then, under operation











Since 2019 we have already reached the overall European targets

With the implementation of the new facilities, all our municipal waste is recovered:





Other additional plants:





Thank you for your attention!

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