

# RESOURCE RECOVERY SOLUTIONS (RRS)

## Derbyshire | UK

### MBT BIOSTABILIZATION PLANT WITH PRODUCTION OF ALTERNATIVE FUEL



THE PROJECT IS PART OF **ONE OF THE LARGEST RECENT PROJECT FINANCE DEALS IN THE WASTE SECTOR IN THE UNITED KINGDOM**, THE ENTSORGA SYSTEM ALLOWS TRANSFORMING MUNICIPAL SOLID WASTE IN A **HIGH QUALITY HIGH BIOGENIC VALUE ALTERNATIVE FUEL** USED BY A COLOCATED DOWNSTREAM GASIFICATION UNIT.

THE PROJECT IS **THE FIRST COMMERCIAL SCALE PLANT** THAT INTEGRATES A **MECHANICAL AND BIOLOGICAL TREATMENT** WITH THE USE OF THE **HIGH BIOGENIC ALTERNATIVE FUEL** PRODUCED IN AN ADVANCED GASIFICATION TO POWER UNIT.

#### PLANT DATA

Company	Resource Recovery Solutions (RRS), JV between Interserve plc e Renewi plc.
Capacity	190.000 tpa of MSW
Treated waste	Residual MSW after source separation
Final Output	Solid recovered fuel
Start up	January 2017
Plant	Biostabilization Mechanical Biological Treatment with SRF production
Population Served	630.000



## THE COMPANY

RRS is a consortium of companies including **Interserve Construction Limited and Renewi plc** (formerly **Shanks Group plc**), both leaders in their respective areas of expertise. Listed on the London stock exchange, Interserve is one of the largest construction service providers. Renewi is one of the most successful European companies in environmental services.

## THE PROJECT

**Interserve** awarded EntSORGA a contract for the supply of Engineering Procurement Construction services of a **biological mechanical treatment plant (MBT)** in Derbyshire, UK. The plant is located in an industrial area not far from residential areas. The process configuration and technical solutions adopted have been specifically designed to **maximize the mitigation of possible impact on the surroundings (especially odors)**.

## THE SOLUTION

EntSORGA has supplied the patented **Bee™ system** for advanced biological and mechanical treatment of **urban municipal solid waste**. The plant, with a nameplate capacity of **190'000 t / yr** of MSW, **allows for up to 98% of landfill diversion**.

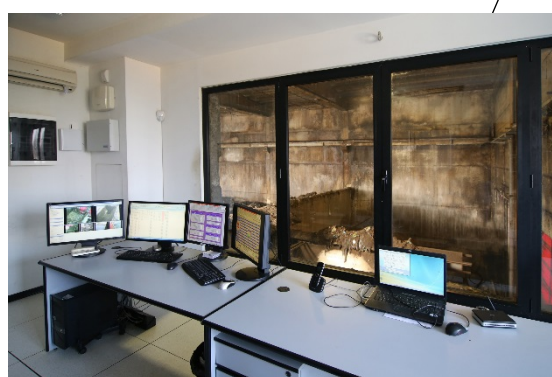
## THE PROCESS

Residual Municipal Solid Waste undergoes a **biological treatment process** that **accelerates its natural degradation** and uses the heat developed to dry the waste itself. Subsequently the bio dried feedstock is **mechanically refined (1)** to separate any recyclable fractions and select the components with the **highest energy content (plastics, paper, textile fibers, etc.)** from which alternative fuel is produced. An **automatic ventilation system (2)** extracts exhausted air from inside the building (which is kept under slight negative pressure) and conveys it inside the **biofilter (3)** to purify air from odors and other pollutants.

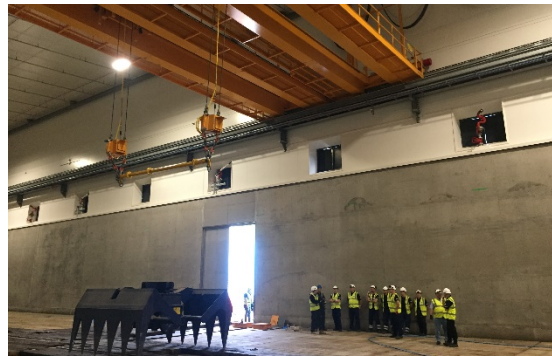
(1) **MECHANICAL SCREENER** TO SEPARATE DIFFERENT COMPONENTS



(2) **24/7 AUTOMATIC VENTILATION SYSTEM**



(3) **BIOFILTER** FOR ODOR ABATEMENT



(4) **BRIDGE CRANE SPIDER™** FOR HIGH EFFICIENCY MATERIAL HANDLING

## TECHNOLOGIES USED

The plant uses the following EntSORGA proprietary technologies: **Bee™**, **Bridgecrane™**, **Biofilter**.

## THE FINAL PRODUCT

The final result is a **bio-dried product, Solid Secondary Fuel**, suitable for being processed in a downstream gasification unit. The strength of the EntSORGA solution lies in the **efficient biodrying process**, which unlike other processes harnesses the heat naturally generated by the degradation process before mechanical refinement and shredding.



Years of commercial operations as well scientific literature have shown that **the humidity within the waste heavily compromises the final quality of the alternative fuel** and keeps its calorific value low reducing substantially the overall efficiency of the recovery systems.

The alternative fuel produced by the EntSORGA solutions is a **renewable fuel with a high calorific value, high biogenic content** and is suitable for **replacing fossil fuels by large industrial users such as cement and lime producers and power plants**. Thanks to the high biogenic content the EntSORGA's alternative fuel provides the maximum benefit in terms of greenhouse gas emissions and carbon credits.

## STRENGTHS

- **environmental compliance:** no odors, dust, or leachate are released in the surroundings. All operations take place in **closed areas** operated under **slight negative pressure** to prevent any odor emission
- **reduced operation and labor costs**, thanks to the **complete plant automation** that allows reducing manpower needs and need for operators in the waste processing areas
- **maximum safety and minimum health impact for operators**, which are not exposed to the harsh conditions and potential hazards of the processing areas
- **low energy consumption** thanks to the use of high efficiency and energy recovery equipment [**bridge crane (4)**]