ENTSORGA GROUP

Solutions for transforming waste into valuable resources.

Technologies, automation and predictive management.

March 2025

Table of contents

1 **Entsorga Group**

2 How we work

3 A success case: MBT Biostabilization: Belvedere - Peccioli (Italy).

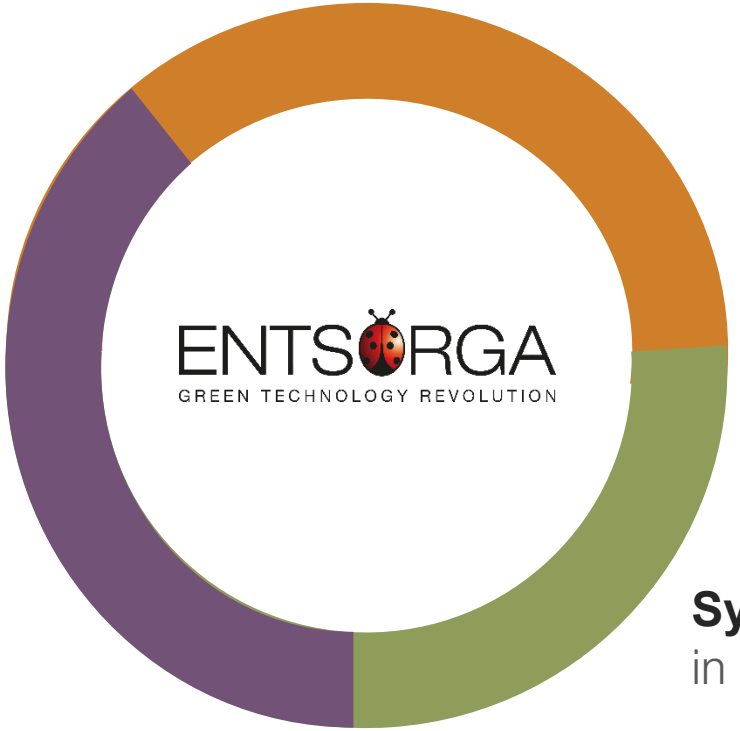
4 Key References

ENTSORGA
GREEN TECHNOLOGY REVOLUTION

Entsorga: a solution provider to mitigate human impact on the environment

Entsorga is a **technology provider** as well as an **EPC company** operating mainly in 3 key areas:

Anaerobic Digestion
(Reactors with WET or SEMI-DRY technology)



Mechanical Biological Treatment
(Reactors and Biocells + Mechanical treatments)

Systems for SRF management
in cement plants

Control Systems (Plant Process Support and O&M)

A Track Record of International Reach

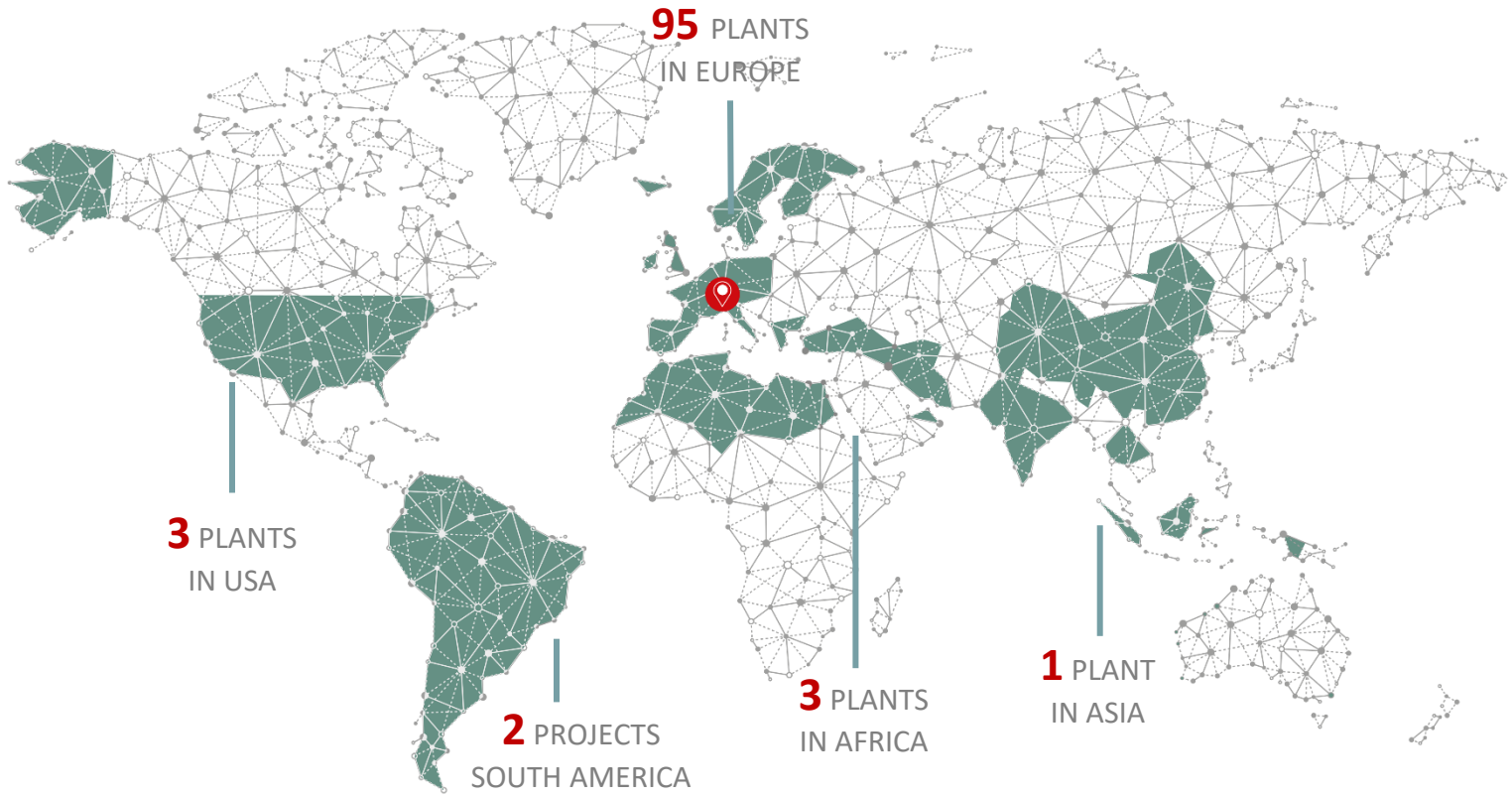
Entsorga's plants around the world

>100
Project Credentials in 4 Continents

A track record of projects followed in almost all world regions:
Europe (EU & Extra-EU)
Americas – Africa - Asia

RNG production plants
Compost production plants
SRF production plants
SRF feeding systems
Landfill bio stabilization
Cellulosic bio-ethanol

5 PLANTS
under management and supervision



ENTSORGA
GREEN TECHNOLOGY REVOLUTION

Entsorga numbers

25+ YEARS
YEARS OF OPERATION

14 TECHNOLOGIES
11 PATENTS
+ 2 UNDER EVALUATION

6 REGISTERED
TRADEMARKS

2,5 MLN TONS OF WASTE
TURNED INTO RENEWABLE RESOURCES AND ENERGY EACH YEAR

OVER 2 MILLION TONS OF CO_2EQ
SAVED THANKS TO ENTSORGA TECHNOLOGIES

70% OF STAFF
WITH UNIVERSITY DEGREES

96%

PERMANENT CONTRACTS

INNOVATIVE SME
AROUND **€500,000**
INVESTED ANNUALLY IN
R&D

ENTSORGA
GREEN TECHNOLOGY REVOLUTION

Entsorga's solutions

A full set of proven and bankable technologies, for individual plant sections or complete turnkey plants.

	Emissions		Reactors							Mechanical Treatment				SW
	$GeCo_2$™	Biofiltro™	Bee™	Coccinelle™	Turtle Q-Ring™	Bat Q-Ring™	Q-Ring™	Scrabble™	Cow™	Spider™	Prometheus™	Pelican™	Falcon™	Eagle™
COMPOSTING		■	■	■	■	■	■	■		■				■
BIOSTABILIZATION		■	■	■	■	■	■	■		■				■
BIODRYING FOR SRF		■	■	■	■	■	■	■			■		■	■
ANAEROBIC DIGESTION		■	■	■	■	■	■	■	■	■	■			■
PLASTIC SELECTIONEAND RECOVERY											■		■	■
AF TO CEMENT KILNS										■	■	■	■	■
OPERATION & MAINTANANCE SVC.														■

Table of contents

1 Entsorga Group

2 How we work

3 A success case: MBT Biostabilization: Belvedere - Peccioli (Italy).

4 Key References

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GREEN TECHNOLOGY REVOLUTION

How we work

From feasibility studies to remote monitoring. A partner for every need.

FEASIBILITY STUDY

PERMITTING SERVICE

ENGENEERING

PROCUREMENT AND COSTRUCTION

COMMISIONING

OPERATION AND MAINTAINANCE

We provide both ***complete plants with proprietary technologies*** and ***standalone plant sections***

The Digital approach.

Plant Process Support and O&M for investment de-risking

In order to be able to have **a data base of measurements** to understand the evolution of a process and of the works, Entsorga decided to move towards **plant automation** and **digital** with the **EAGLE platform.**

Eagle platform makes day by day **plant operations much easier** and makes it possible to **prevent the downtimes** which may jeopardize the plant economics.

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GREEN TECHNOLOGY REVOLUTION

Plants always under control.

The Eagle platform is applicable to plants built with Entsorga or third-party technologies.

Entsorga's EAGLE allows to simplify a number of o task:

- **Performance Cockpit** (the plant on fingertips)
- **Process control service** and periodical **reporting**
- **Remote assistance** to the plant
- **Scheduled maintenance**
- **Spare-parts tracking**
- The plant can be remotely operated from Entsorga **Control Room**

The algorithm is continuously improved and by using **Artificial Intelligence** is starting to be able to prevent process and maintenance issues.

Table of contents

1 Entsorga Group

2 How we work

3 A success case: MBT Biostabilization: Belvedere - Peccioli (Italy).

4 Key References

ENTSORGA
GREEN TECHNOLOGY REVOLUTION

MBT Biostabilization: Belvedere - Peccioli (Italy).

Capacity: 90,000 tpa of Unsorted Municipal Solid Waste
Treated Waste: Unsorted Municipal Solid Waste
Final Output: 60,000 t/y with respirometric index (RI) <1000
Start-up Year: from 2015
Population Served: ~ 300.000 inhabitants
Staff: 6
Location (Country): Belvedere - Peccioli - ITA

Belvedere S.p.A.
innovazione · progetti · sviluppo

Entsorga Technologies:

TURTLE Q-RING™
Bio-tunnels with breathable perspiring roof

EAGLE™
Plant control and management systems

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GREEN TECHNOLOGY REVOLUTION

Reliable technologies and high plant automation. The strengths

- **Low environmental impact: no odors, dust, or leachate** are released in the surroundings. The biological treatment phase takes place in an enclosed area and thanks to **the semi-permeable membrane**, the odorigenic molecules generated in the treatment phase are effectively abated.
- **reduced operation and labor costs,** thanks to the **high plant automation**
- **maximum safety** and **minimum health impact for operators,** which are not exposed to the foul air, dust and potential polluants
- **low energy consumption** thanks to the **control system** which optimizes air flow rates within the process

BIOCELLS FOR ENCLOSED PROCESSING OF MSW

24/7 **AUTOMATIC DRIVEN** CONTROL SYSTEM

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Table of contents

1 Entsorga Group

2 How we work

3 A success case: MBT Biostabilization: Belvedere - Peccioli (Italy)

4 Key References

ENTSORGA
GREEN TECHNOLOGY REVOLUTION

Composting and Anaerobic Digestion: Santhià (VC, Italy).

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GREEN TECHNOLOGY REVOLUTION

PLANT KEY FEATURES

Capacity: Composting: 50.000 t/y Anaerobic Digestion 1° phase 50.000 t/y 2° phase 40.000 t/y

Treated Waste: Source Separated Organic Waste

Final Output:
- High Quality Compost – 13.400 T/y (up to)
- Biogas – 8,4M m³/y or 5,01M m³/y of Biomethane to be put in the national grid
- SRF – 8.000 T/y (up to)

Start-up Year: 2009 for Composting and 2020 for Anaerobic Digestion Phase 1 and 2023 for Anaerobic Digestion Phase 2

Population Served: ~ 930.000 inhabitants

Staff: 9

Location (Country): Santhià - ITA

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Product / Technologies Deployed

- **BEE™** Fully automated plant with high capacity single reactor
- **BIOFILTER** Odor cleaning
- **EAGLE™** Software system cloud
- **PROMETHEUS™** SRF refining system
- **TURTLE Q-RING™** Bio-tunnels with breathable perspiring roof
- **SPIDER™** Fully automated cranes
- **SWALLOW™** Pre treatment
- **COW™** Anaerobic digestion wet and semi dry
- **SCRABBLE ™** Bio-tunnels in concrete with biofilters
- **BAT Q-RING™** Mobile plants with breathable cover

MBT Biostabilization

PLANT KEY FEATURES

Capacity: 85.000 tpa of Unsorted Municipal Solid Waste

Treated Waste: Unsorted Municipal Solid Waste

Final Output: 35.000 tpa of Compost Like Output (CLO) sent to landfill

Start-up Year: 2018

Population Served: ~ 200.000 inhabitants

Staff: 6

Location (Country): Galda de Jos - Alba Julia - Romania

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Product / Technologies Deployed

TURTLE Q-RING™
Bio-tunnels with breathable perspiring roof

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GREEN TECHNOLOGY REVOLUTION

MBT Biostabilization

PLANT KEY FEATURES

Capacity: 160,000 t/y of mixed Municipal Solid Waste

Treated Waste: Unsorted Municipal Solid Waste

Final Output: Compost Like Output (CLO) sent to landfill

Start-up Year: 2022

Location (Country): Gijon, Asturie - Spain

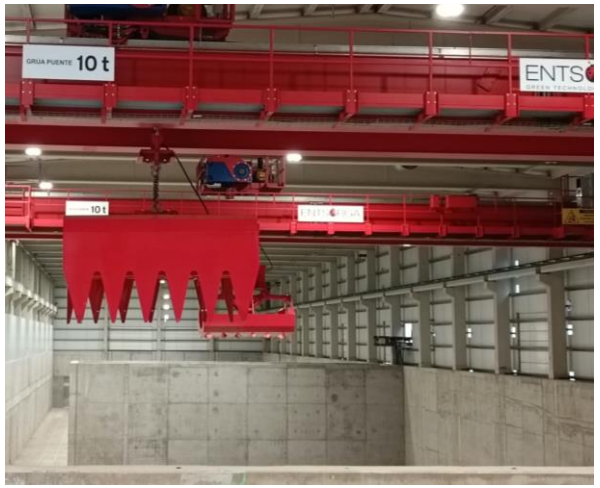
COGERSA

Product / Technologies Deployed

BEE™
Fully automated plant with high capacity single reactor

BIOFILTER
Odor cleaning

SPIDER™
Fully automated cranes



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MBT Biostabilization

PLANT KEY FEATURES

Capacity: 112,000 tpa of MSW

Treated Waste: Unsorted Municipal Solid Waste

Final Output: 44,000 tpa of compost like output

Start-up Year: 2017

Population Served: ~ 330.000 inhabitants

Staff: 6

Location (Country): Maramures - Romania

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Product / Technologies Deployed

TURTLE Q-RING™
Bio-tunnels with breathable perspiring roof

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MBT Biostabilization

PLANT KEY FEATURES

Capacity: 20,000 t/y of MSW

Treated Waste: Unsorted Municipal Solid Waste

Final Output: 14,500 t/y

Start-up Year: 2014

Population Served: ~ 10.000 inhabitants

Location (Country): Inowroclaw, Poland

PGKiM Sp. z o.o. INOWROCŁAW

Product / Technologies Deployed

BIOFILTER
Odor cleaning

SCRABBLE ™
Bio-tunnels in concrete with biofilters

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MBT Biostabilization and SRF Production

PLANT KEY FEATURES

Capacity: 80.000 T/y

Treated Waste: Unsorted Municipal Solid Waste

Final Output:
- SRF – 28.000 T/y
- Stabilized Residual for Landfilling – 16.800 T/y
- Metals – 660 T/y

Start-up Year: 2013

Population Served: ~ 400.000 inhabitants

Staff: 16

Location (Country): Wiltshire - UK

Hills

Product / Technologies Deployed

- **BEE™** Fully automated plant with high capacity single reactor
- **BIOFILTER** Odor cleaning
- **EAGLE™** Software sysstem cloud
- **PROMETHEUS™** SRF refining system
- **SPIDER™** Fully automated cranes
- **SWALLOW™** Pre treatment

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GREEN TECHNOLOGY REVOLUTION

MBT Biostabilization and SRF Production

PLANT KEY FEATURES

Capacity: 300.000 T/y

Treated Waste: Municipal Solid Waste

Final Output: SRF – 135.000 T/y

Start-up Year: 2009

Population Served: ~ 1.000.000 inhabitants

Staff: 25

Location (Country): Chieti - ITA

DECO

Product / Technologies Deployed

- **BEE™** — Fully automated plant with high capacity single reactor
- **BIOFILTER** — Odor cleaning
- **PROMETHEUS™** — SRF refining system
- **SPIDER™** — Fully automated cranes

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Composting and Anaerobic Digestion: Le Cortine (SI, Italy).

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GREEN TECHNOLOGY REVOLUTION

KEY FEATURES

Capacity: 31,000 tons/year FORSU + 10,000 of wood waste

Treated Waste: Organic fraction from separate collection

Final Output:
- **High quality compost for agriculture:** up to 12,000 t/y
- **Biogas** from which is obtained up to **2,500,000 m³/y** of **Biomethane** to be fed into the grid

Start-up Year: **Composting:** from 2009
Anaerobic digestion: from 2024

Location (Country): Asciano (SI) - ITA

sienambiente

Product / Technologies Deployed

- SPIDER™ Fully automated cranes
- SWALLOW™ Pre treatment
- COW™ Anaerobic digestion
- EAGLE™ Software system cloud

PRE-TREATMENT AREA

ANAEROBIC DIGESTER

UPGRADING SYSTEM

Anaerobic Digestion: Biala Podlaska - Poland

PLANT KEY FEATURES

Capacity: 20.000 T/y + 10.000 T/y

Treated Waste: Municipal Solid Waste + Source Separated Organic Waste

Final Output:
- Heat and Power (from CHP)
- Compost and/or CLO (Compost-Like-Output)
- Alternative Fuel (SRF or RDF)

Start-up Year : 2014

Population Served: ~ 100.000 (equivalent) inhabitants

Staff: n.a.

Location (Country): Biala Podlaska - POL

Mostostal WARSZAWA

Product / Technologies Deployed

BIOFILTER
Odor cleaning

SCRABBLE ™
Bio-tunnels in concrete with biofilters

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GREEN TECHNOLOGY REVOLUTION

Anaerobic Digestion Wet: Pinerolo - Italy

PLANT KEY FEATURES

Capacity: 90.000 t/y (total yearly processing capacity of organic waste)

Treated Waste: Source Separated Organic Waste

Final Output: Biogas to steam and power: 10.241.500 Nm3/y (in 2015)

Start-up Year : 2002-03

Population Served: Up to 800,000 (total waste shed served) inhabitants

Staff: n.a.

Location (Country): Pinerolo - Italy

acea PINEROLESE
L'INNOVAZIONE È IL NOSTRO TERRITORIO

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GREEN TECHNOLOGY REVOLUTION

THANK YOU!

For more case studies and information about plants and equipment visit
www.entsorga.com

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