Who is the French Solid Waste Partnership?

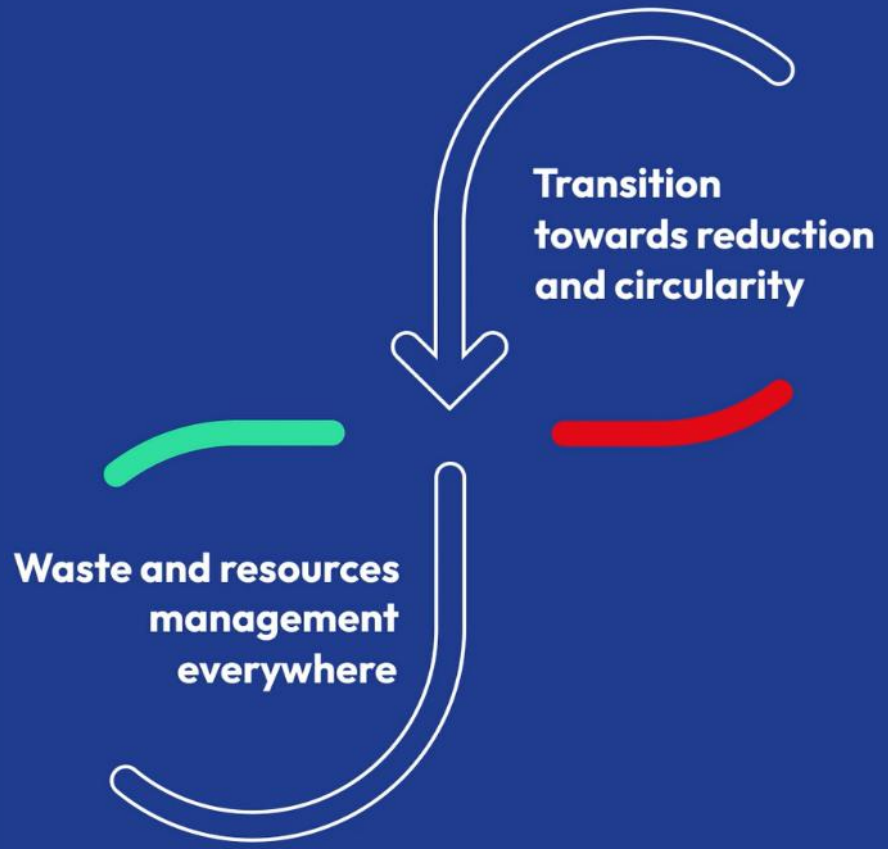
OUR MISSION



Coordinate and amplify

The voice of french waste stakeholders on the international stage

OUR VISION



MULTI-STAKEHOLDERS



The waste sector's climate impacts are under-estimated and under-exploited.

- **3 to 5% of total GHG** emissions come from the sector*
- A potential of **15 to 25% reduction** using a Lifecycle Approach*

* Lenkiewicz, L. et al. (2024). *Global Waste Management Outlook 2024: Beyond an age of waste. Turning rubbish into a resource*. UNEP and ISWA. Available at: doi.org/10.59117/20.500.11822/44939

The Business-as-Usual (BaU) scenario is unmanageable.

We need to act now!
Prioritising mitigation of methane from organic waste.

- **+50%** of waste volumes by 2050 (comp. to 2022)*
- **20%** of anthropogenic methane emissions come from the sector**

* Cook, E. et al. (2026). *What a Waste 3.0. Global Snapshot of Solid Waste Management towards Circularity until 2050*. World Bank Group. Available at: https://www.worldbank.org/en/publication/what-a-waste
** CCAC & UNEP (2021). *Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions.* United Nations Environment Programme, Nairobi. Available at: https://www.ccacoalition.org/sites/default/files/resources//2021_Global-Methane_Assessment_full_0.pdf.

METHANE MITIGATION – THE FASTEST LEVER

CH_4 is **~80 times more potent** than CO_2 over 20 years.
(27 times over 100y)

* Lenkiewicz, L. et al. (2024). Global Waste Management Outlook 2024: Beyond an age of waste. Turning rubbish into a resource. UNEP and ISWA. Available at: doi.org/10.59117/20.500.11822/44939

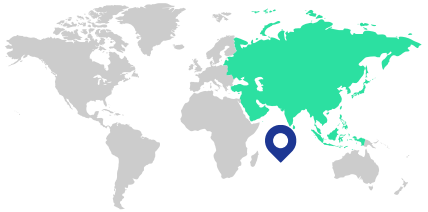
METHANE MITIGATION – THE FASTEST LEVER
4 priority actions

1. **Prevent Food Loss and Waste (FLW).**
2. Phase out open burning and uncontrolled landfills.
3. Capture methane from engineered landfills.
4. Build circular low-methane systems.

FLW accounts for **8 to 10% of global GHG** emissions.*

* Forbes, H. et al. (2024). Food Waste Index Report 2024: Think East Save. Tracking Progress to Halve Global Food Waste. UNEP. Available at: https://wedocs.unep.org/bitstreams/5c6e505d-e1d3-4731-b5b8-4ecb9693a056/download

CIRCULAR – Promoting Circular Food Systems



Sri Lanka, Colombo and Galle Distrits

A 16M€ program to reduce food and packaging waste

WASTE & CIRCULAR ECONOMY

REDUCTION OF SINGLE-USE PLASTICS

3M€ project by Expertise France:

- Raising awareness and changing behaviors across the single-use plastic value chain.
- Technical assistance to:
  - Sector businesses to transition towards circular models.
  - Financial institutions to understand and evaluate circular businesses.



EXPERTISE FRANCE
GROUPE AFD

BENEFIT

- More sustainable production, distribution and consumption of single-use plastics for food loss prevention.

CO-BENEFIT

- Build resilience to food crises and climate change.
- Reduce food loss and associated methane emissions.
- Improve livelihoods.

- https://www.expertisefrance.fr/en/projects/circular-project-sri-lanka

Partenariat français des déchets PFD
FSWP French solid waste partnership

METHANE MITIGATION – THE FASTEST LEVER
4 priority actions

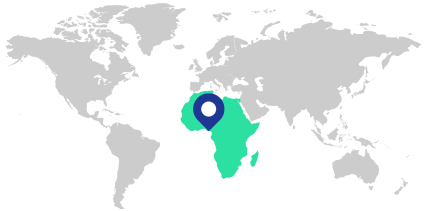
1. Prevent Food Loss and Waste (FLW).
2. **Phase out open burning and uncontrolled landfills.**
3. Capture methane from engineered landfills.
4. Build circular low-methane systems.

100 kg of food waste in an uncontrolled landfills emit **~190 kg CO_2e***

* Expert calculation by FSWP. Can be made available on request.

Partenariat français des déchets PFD
FSWP French solid waste partnership

GEDEC Project in Togo



Local authorities' capacity for solid waste and sanitation management

TOGO

WASTE & SDGs

HOLISTIC WASTE MANAGEMENT

Solid waste management and fecal sludge management locally tailored systems in 5 municipalities:

- Co-defining each local strategy with the community.
- Data consolidation.
- Building local autonomy of municipal teams.
- Implementation, monitoring and evaluation.



BENEFIT

- Improve drainage.
- Reduced pollution in the river.

CO-BENEFIT

- 750,000 people with an improved quality of life.
- Improved hygiene.

GRET

IAWODO

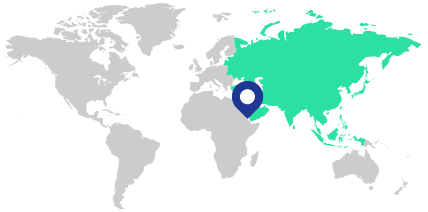
EXPERTISE FRANCE
GROUPE AFD

ENTREPRENEURS du Monde

Partenariat français des déchets PFD
FSWP French solid waste partnership

- Gedec

From Open Dump to Green Park



The Saida Landfill Rehabilitation

LEBANON – Saida

WASTE & SDGs

CLOSING DUMPSITE

A 3-hectare coastal dumpsite rehabilitated.



Waste was extracted and transferred to a secure, monitored landfill with a comprehensive waterproofing system, now transformed and reused as a public park.

- Wastes were studied & characterized.
- Leachates were collected, transferred and treated.
- Biogas was collected and treated.
- 700,000 tons of waste treated and secured.

BENEFIT

- Prevention of methane emissions.
- Treatment of 15,000 m³/y of leachate.
- Protecting health and the environment.

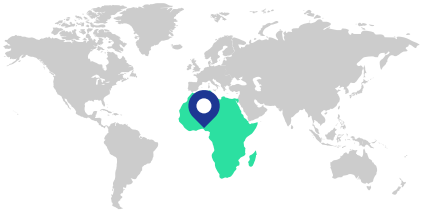
CO-BENEFIT

- Creation of a landscaped public park.
- Improved quality of life for 83,000 nearby residents and fishermen.
- No more toxic fumes or groundwater pollution.
- No more plastic or pollution into the sea.

- From Shame to Fame: Saida trash mountain to green park! - UNDP Lebanon, YouTube

Landfill Closure & Rehabilitation

Seizing the opportunity for decarbonation, depollution and regeneration



IVORY COAST – Akouedo



WASTE & POLLUTION

LANDFILL CLOSURE

90 hectares of landfill in Abidjan suburbs closed after 53 years of operation.

- Remodeling the landfill surface and slopes;
- Development of a watertight covering;
- Collection of water, leachate, and biogas;
- Treatment of leachate;
- Energy recovery from the biogas.

BENEFIT

- Air quality improvement.
- 6 hectares of green spaces with sport and education infrastructures.
- 80 000m3 of treated leachate/y
- 2 MWh produced energy (electrical and thermal)

CO-BENEFIT

- Avoided GHG emissions: 76 000 tons/y of CO2e.
- Soil, lagoon and biodiversity protection.
- Reduced odors nuisance and improved neighborhood's quality of life.
- Appropriation of the area around the site by the local population.
- Tourism development.

VEOLIA

PFO AFRICA

- Biogaz de décharge: quand la pollution devient solution

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METHANE MITIGATION – THE FASTEST LEVER
4 priority actions

1. Prevent Food Loss and Waste (FLW).
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3. **Capture methane from engineered landfills.**
4. Build circular low-methane systems.

Managing **100 kg of food waste** in a state-of the art landfill versus uncontrolled, **reduces** GHG by **~150 kg CO_2e***

* Expert calculation by FSWP. Can be made available on request.

Upgrading uncontrolled landfills to State-of the art landfills reduces waste sector emissions.

190 / 86 / 43 $kgCO_2e$* reduced
in a landfill with
0% / 50% / 75% **gas capture**
(for 100 kg of food waste)

* Expert calculation by FSWP. Can be made available on request.

High-efficiency Landfill Gas Capture





FRANCE – Brittany

WASTE & CLIMATE CHANGE

LANDFILL GAS CAPTURE / MONITORING OF GHG EMISSIONS

Monitoring and optimised management of engineered landfills

Improved management leads to > 90 % capture efficiency thanks to monitoring of fugitive emissions: mapping higher emission potential areas, field measurements using flow chambers, and back-modelling of emissions.

- Eg. Engineered landfill in Brittany **Previous (2020)** / **New (2023)** monitoring:
  - Constant biogas production: 1.7 m^3 CH_4
  - CH_4 leaks: 230 t / 74 t
  - Capture rate: 83% / 94%



BENEFIT

- Maximises landfill gas capture to reduce fugitive methane emissions.
- Promotes best practices in site management.

CO-BENEFIT

- Increases the energy recovery from captured ladfill gas.
- Local renewable energy production as a substitute for fossil fuels.

Séché

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- https://astee-tsm.fr/articles/tsm-4-3/

METHANE MITIGATION – THE FASTEST LEVER
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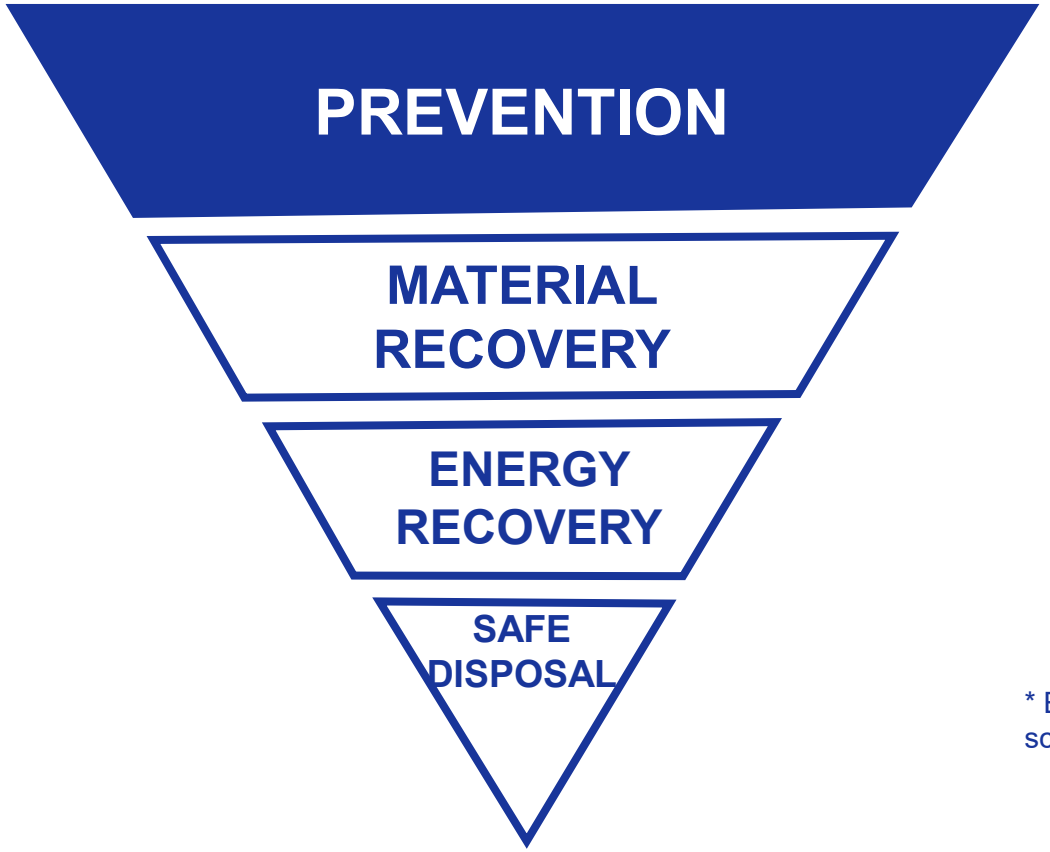
Recovered biomethane usage **avoids** **56 tCO2eq/TJ*** by replacing fossil energy

* 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2 (Energy), Chapter 1 (Introduction), Table 1.4 “Default CO_2 emission factors for combustion”. Page 1.24

METHANE MITIGATION – THE FASTEST LEVER

Build Circular Waste Management Systems

to replace mismanaged landfills



100 kg of food waste prevented

Emitted
0 $kgCO_2e$

Reduced Emissions*
~190 $kgCO_2e$

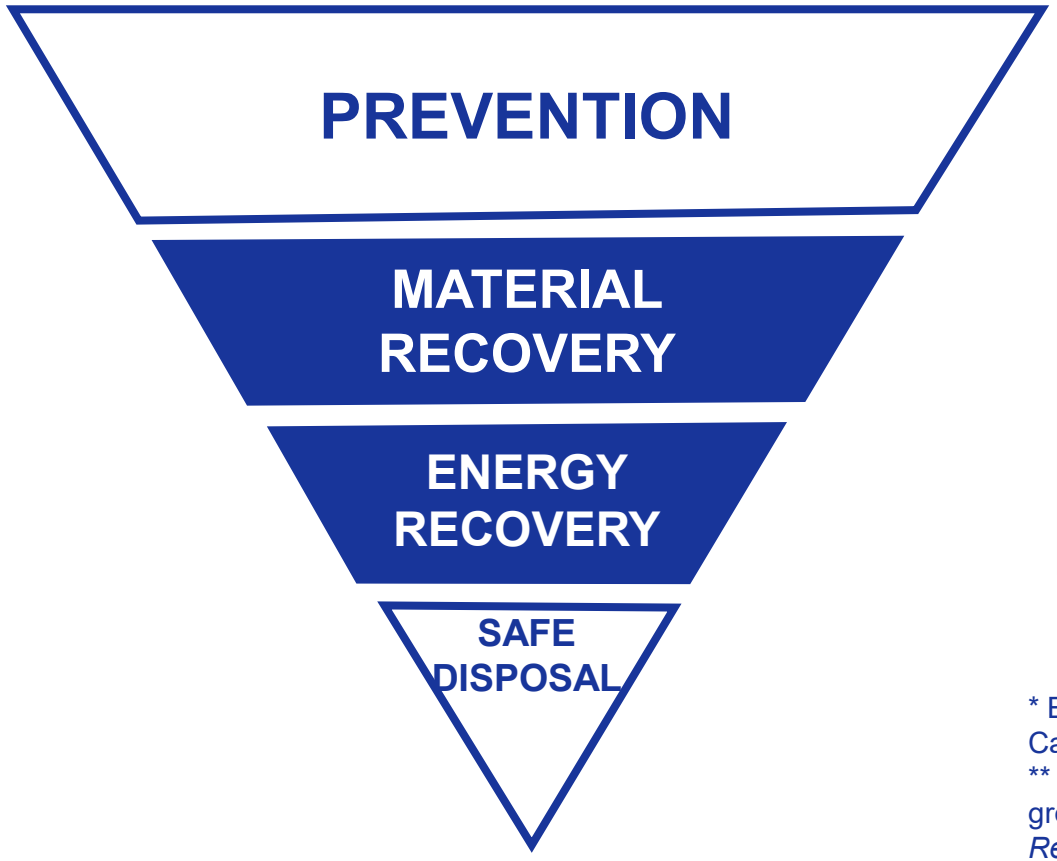
Avoided > 200 $kgCO_2e$, as FLW represents **8 to 10% of global GHG** emissions

* Expert calculation by FSWP using uncontrolled landfills as the baseline scenario. Calculation can be made available on request.

METHANE MITIGATION – THE FASTEST LEVER

Build Circular Waste Management Systems

to replace mismanaged landfills



100 kg of food waste collected separately and…

Composted	Digested
Emitted* : ~10 $kgCO_2e$	
Reduced* : ~180 $kgCO_2e$	
Avoided*	
Energy : 0 $kgCO_2e$	~17 $kgCO_2e$
Soil amendment**: 0.4 - 8 $kgCO_2e$	

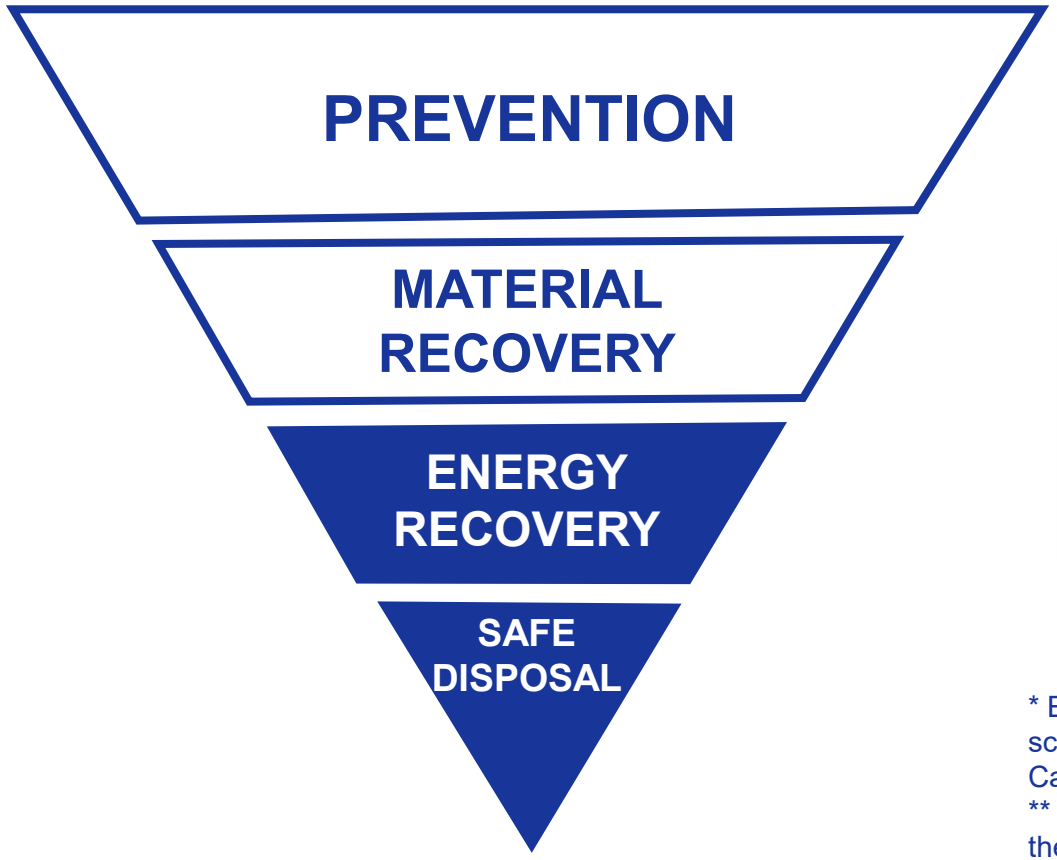
* Expert calculation by FSWP using uncontrolled landfills as the baseline scenario. Calculation can be made available on request.

** Boldrin, A. et al. (2009). Composting and compost utilization: accounting of greenhouse gases and global warming contributions. *Waste Management & Research.* Vol. 27(8). Available at: https://doi.org/10.1177/0734242X09345275

METHANE MITIGATION – THE FASTEST LEVER

Build Circular Waste Management Systems

to replace mismanaged landfills



100 kg **collected as mixed waste containing 27% of food waste and safely treated in a…**

Waste to Energy facility,	**State-of-the-art Engineered Landfill,**
Emitted* ~40 $kgCO_2e$	**Emitted*** ~35 $kgCO_2e$
Reduced* ~105 $kgCO_2e$	**Reduced*** ~110 $kgCO_2e$
Avoided** 28 /107 $kgCO_2e$	**Avoided*** 34 $kgCO_2e$

* Expert calculation by FSWP using uncontrolled landfills as the baseline scenario. 370kg of waste include 100kg of food waste (French average data). Calculation can be made available on request.

** Range assuming the French (white) or Turkish (yellow) electricity mix; and the IPCC2006 natural gas emission factor for the recovered biomethane.

Organic Waste Recovery

Supporting local authorities to sort, collect and treat domestic food waste



FRANCE – Greater Paris

WASTE & CLIMATE CHANGE

WASTE TO RESOURCES

Mandatory source separation of organic waste as of January 2024:

- Collection schemes : on-site composting, door-to-door collection, voluntary deposit.
- Targeting 100 kt/year of biowaste collected in the service area.
- Construction of a methanizer on the river port of Gennevilliers by 2026 to produce biomethane and organic fertilizers.



BENEFIT

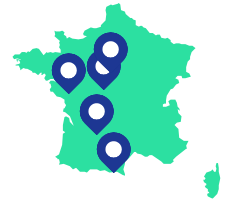
- Biogas production.
- Organic fertilizer use, to avoid GHG emissions from chemical fertilizer production.

CO-BENEFIT

- Citizens' awareness on reducing food waste and recovering the value of waste.

- Plan Biodéchets : améliorer le tri et la valorisation des déchets alimentaires - Syctom (syctom-paris.fr)

Food Waste Recovery Centers



FRANCE

Deconditioning of organic waste before anaerobic digestion

WASTE & CLIMATE CHANGE

FROM WASTE TO RESOURCES

Industrial sites for mass collection and deconditioning of food organic waste—i.e., separating organic matter from packaging:

- 80,000 tons/y received at Veolia's six industrial sites in France: organic waste from supermarkets, catering services, and households.
- Around 30 partnered anaerobic digestion plants recover the "soup" of food waste to produce green energy and digestate used to enrich agricultural land.



BENEFIT

- Diverting organic waste away from landfilling.
- Production of green energy via organic digestion.
- Soil enrichment through the return of organic matter (digestate) to the soil.

CO-BENEFIT

- Reduction of GHG emissions.

- Example of the Bio-pôle in the Paris region

Partenariat français des déchets PFD FSWP French solid waste partnership

WAGABOX®: Hybrid Biomethane Production

Combined recovery of biogas from an engineered landfill and an anaerobic digester



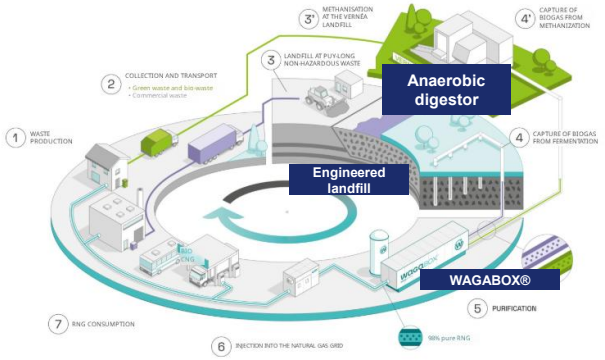
FRANCE – Clermont-Ferrand

WASTE & CLIMATE CHANGE

ENERGY RECOVERY / PPT

VALTOM and Waga Energy are jointly operating Europe's first hybrid WAGABOX® unit:

- On-site recovery of landfill gas and the Vernéa anaerobic digester.
- Biomethane production fed to the gas grid.
- A replicable model: 8 public-private partnerships in France, including the one with VALTOM.



BENEFIT

- Biomethane **100% renewable.**
- **15 GWh/year reinjected** (equivalent to the consumption of **~2,000 households).**
- **3,600 tCO_2e/year avoided** (replacing natural fossil gas).

CO-BENEFIT

- Creation of **4 new jobs:**
  - A **public-private partnership model** that can be replicated, in which Waga Energy works with landfill sites operated by local authorities.
  - Scaling up: **8 public-private partnerships** in France to deliver a total production of **189 GWh/year and 43,000 tCO_2e/year avoided.**
  - Energy sovereignty.

- Unique WAGABOX installation inauguration - VALTOM, public authority in charge of waste treatment and valorisation in Puy-de-Dôme and Northern Haute-Loire

Let’s work together to mobilise and take action towards a circular economy that increases wellbeing, protects health and the environment, reduces fossil dependencies and strengthens economic resilience.



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