

Digesting MSW's problem: the GRREC case

Digiriendo el problema del RSU: el caso GRREC



Contact us

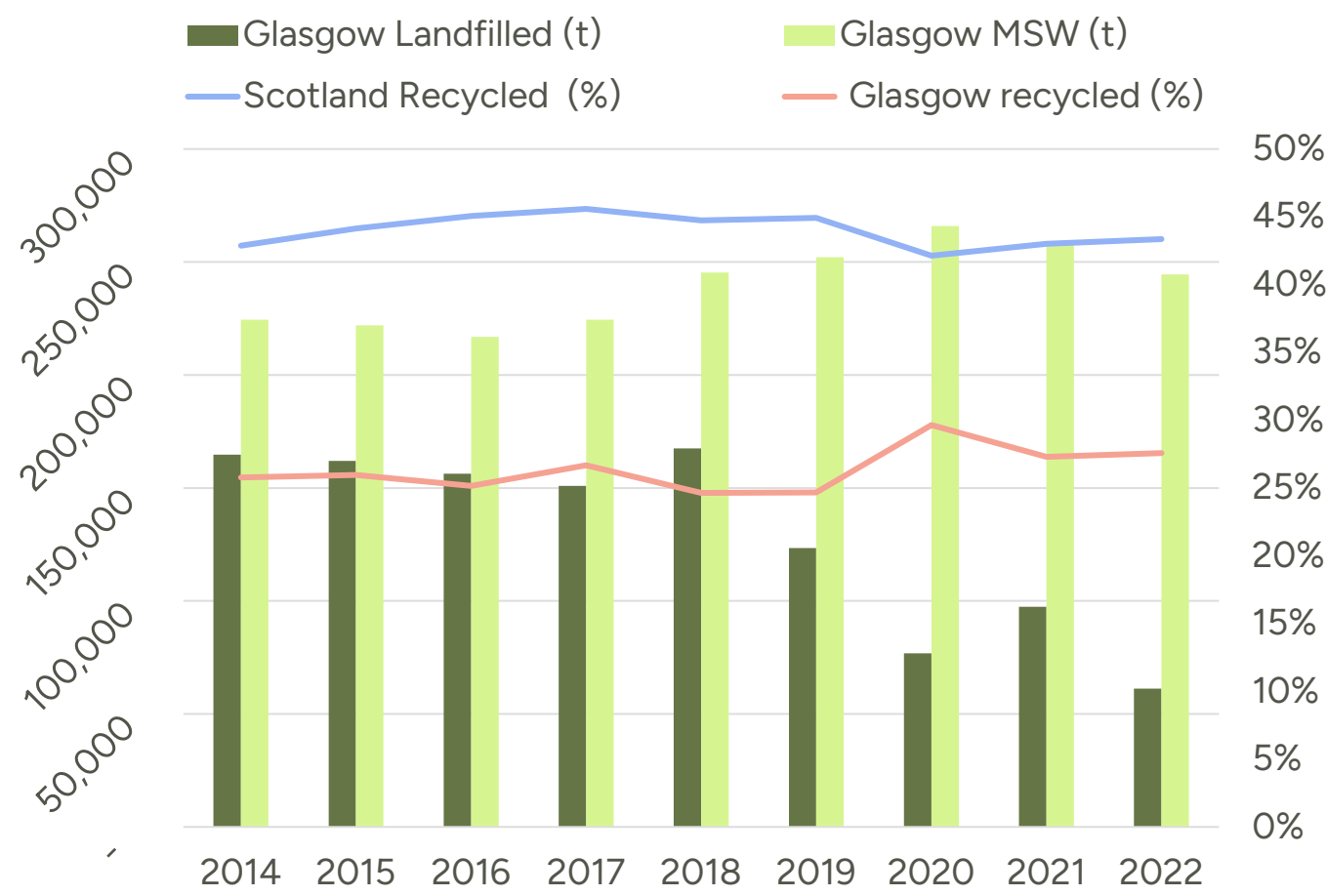
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GRREC's inception

Prior to GRREC 70% of the waste produced in Glasgow city was sent to landfill. Since GRREC became fully operational landfill has trended down to 25% in 2022.

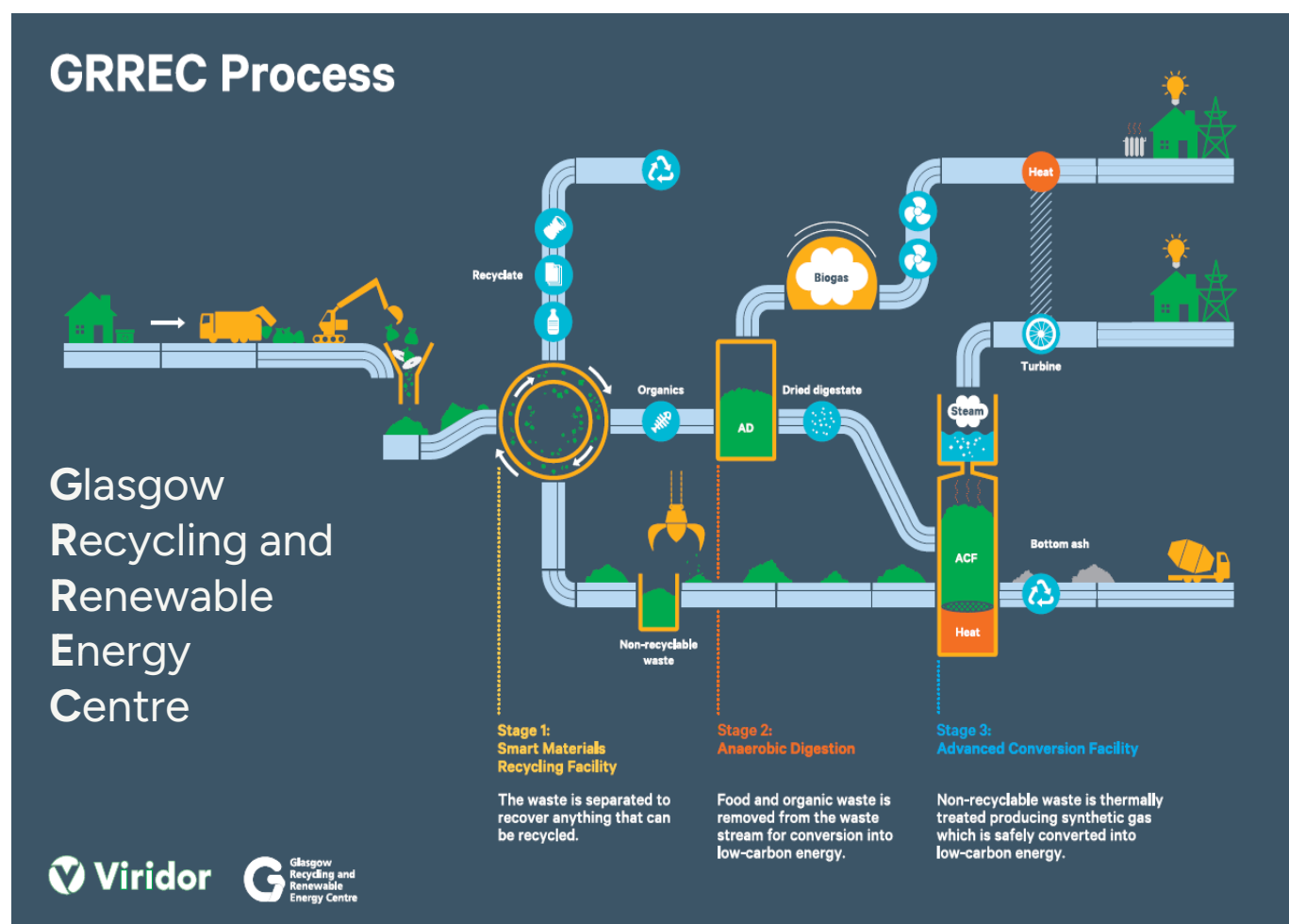
Circa 25-35% of the MSW diverted from landfill is organic waste, currently treated in the AD facility and providing renewable heat and electricity.

Smart Material Recycling Facility (SMRF), Anaerobic Digestion (AD), Gasification (ACF), Water Treatment (SBR) and Biofilters (OCU). A balance of technologies seeking a more environmentally friendly approach for waste treatment.



GRREC process

- 200,000t per year of residual waste
- Electricity to power 26,496 households
- Heat equivalent of 8,000 homes
- Saving 90,000t of CO2 per year



Source: (Glasgow Recycling and Renewable Energy Centre Fully Operational - Glasgow City Council)

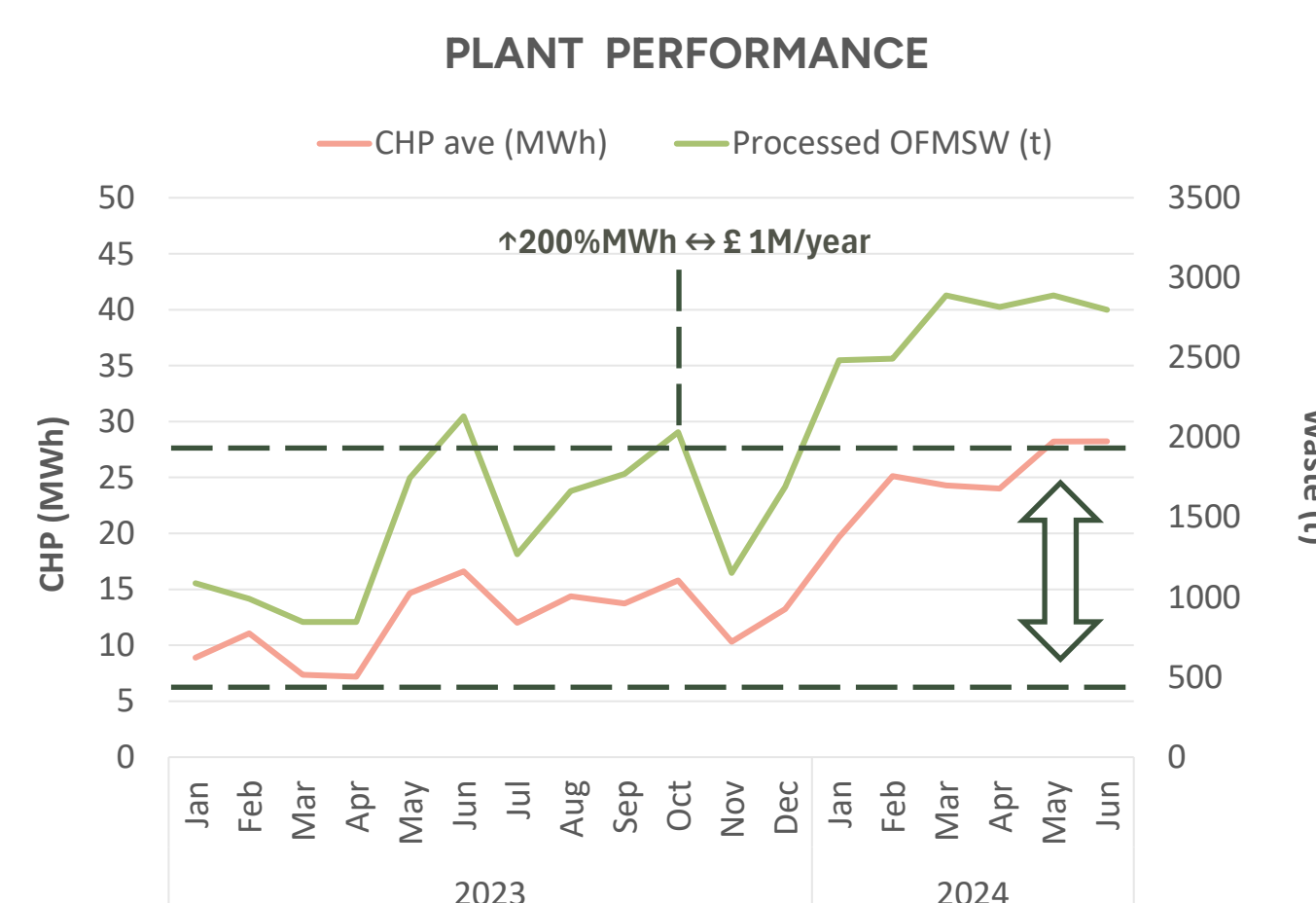
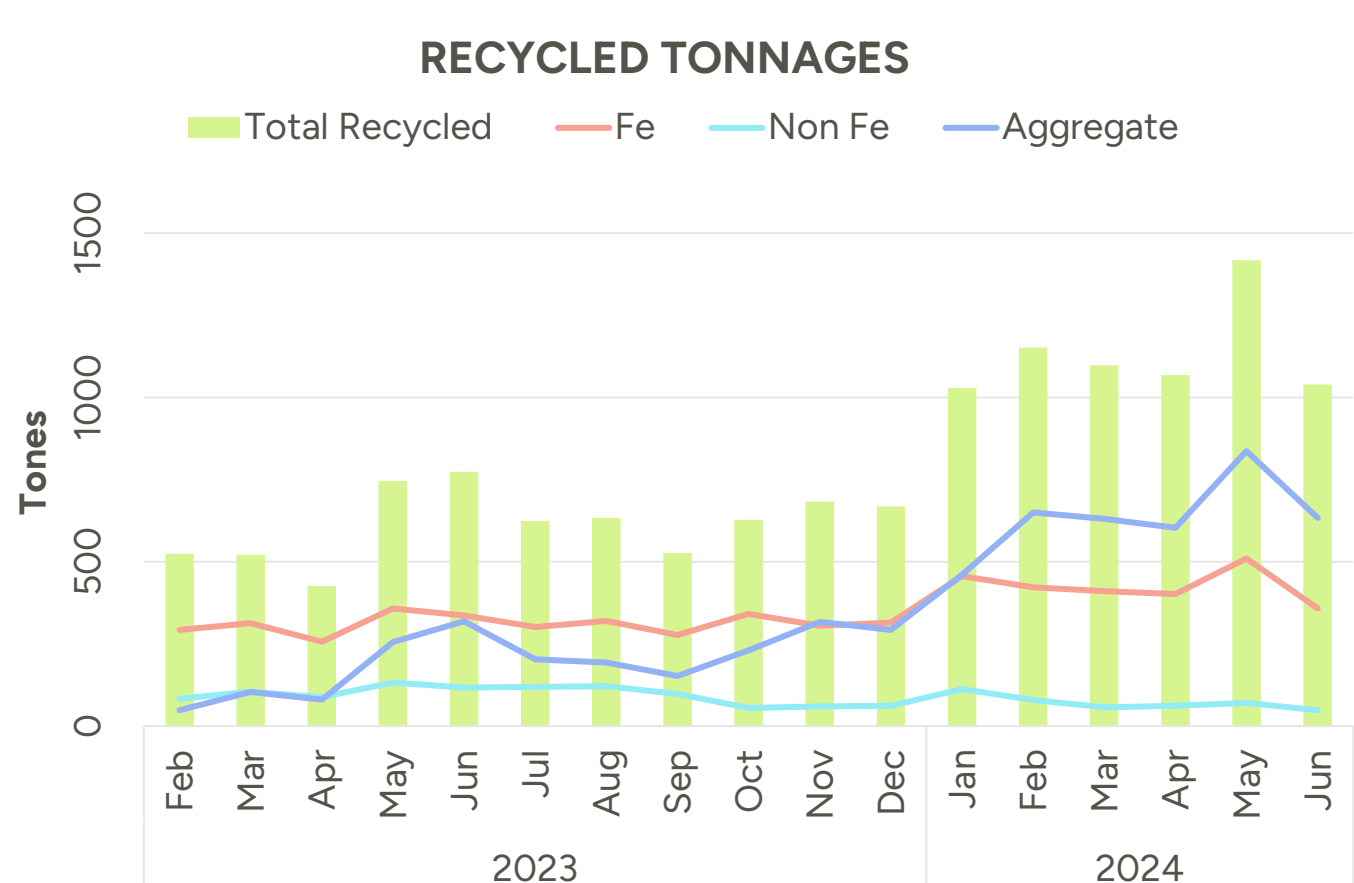
"The fines from Municipal Solid Waste (MSW) containing high levels of organic residue are decontaminated, removing plastic and grit producing a "soup" that can then be used to feed the biogas plant"

RESULTS

AD Plant performance

Over 18 months GRREC's AD plant has tripled the power output and OFMSW throughput. This has improved the recycling rates of aggregate and metals. It has reached a stability

period. It is time now to start the cycle again and reach the next level of performance.



SLR Approach

Understanding client needs

Enhancing performance - driving value creation

- Increase organic waste processed and maximise biogas generation
- Operational simplification and consistent plant performance. Establishment of reliable KPIs
- Maintaining and improving compliance
- Optimise maintenance CAPEX/OPEX and transition from reactive to pro-active plant maintenance

Understanding challenges

Data gathering – First step to success

- Scrutinise and rationalise existing information: P&IDs / PFDs / Mass Balances/Operational data/Laboratory analysis
- Define baseline performances vs client needs

Understanding the baseline

Operating principles – Understanding of site maintenance and operating philosophy

- Condition survey of equipment and performance evaluation
- Root Cause Analysis (RCA) of failures and downtime
- Find and quantify bottle necks

Delivering the best option

Clear short / medium term actions to enhance AD plant performance

A. Prioritisation and delivering tangible actions:

- Strategy for safe cleaning and return sludge buffer tank to service, critical for AD feed consistency
- Descaling of centrate lines and reinstatement of process water balance. Reduced usage of potable water to maximise hydraulic capacity of the system
- Reconditioning of Grit Removal System (GRS)
- Optimisation and setting up digestate dewatering system
- Creation of Power BI dashboards for maintenance, laboratory and operational performance displaying real time information

B. Training and assessing site teams & improve holistic process understanding

Achieving equilibrium

Client and local team journey towards excellence and celebrating success

- Moving from reactive to preventive maintenance.
- Improved sampling routines and increase staff knowledge
- Standardisation of information and KPIs
- Currently achieving consistency, allows to focus in potential future opportunities

