

CASE STUDY D - PROJECT FLINT

Driving Revenue Through Feedstock Optimisation

| 58% + Biomethane Yield | £385,495 Saved | - 28% Feedstock Reduction | 2-3% + CH₄ content | - 34% H₂S |

OVERVIEW

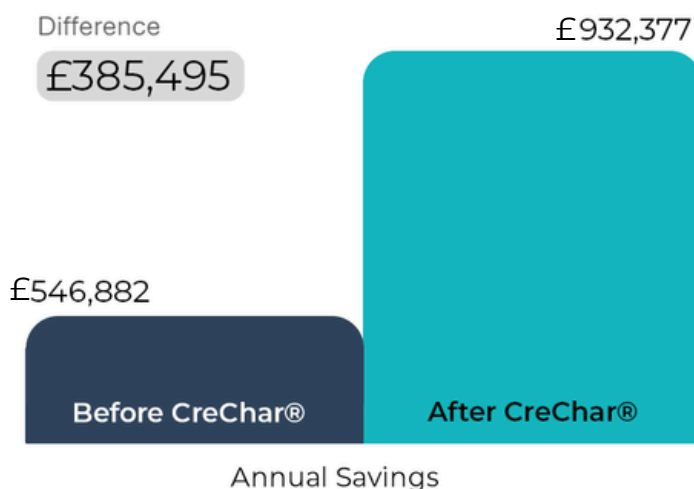
The site operates a 1.1 MWe biogas facility (7,000 m³ total digester volume) with CHP units. Constrained by electrical output, the goal was to reduce unit feed/or input costs and maximise feedstock value over gas volume.

Low-cost distillery by-products were commercially attractive, but high protein content caused biological instability via elevated ammonia.

CreChar® improved process stability, enabling increased utilisation of these lower-cost feedstocks while enhancing overall digestion efficiency. This resulted in improved gas quality, reduced operating costs, and increased plant profitability.

KEY OUTCOMES

- Feedstock volume reduction of 28%
- Methane content increase of 2-3%
- Overall Biomethane yield (m³/t fw) + 58%
- Hydrogen sulphide (H₂S) reduced by 34%
- Total annual savings driven by:
 - Feedstock optimisation and cost reduction
 - Lower digestate disposal volumes
 - Reduced chemical additives and maintenance
 - Improved energy value per unit of gas



ROI ASSUMPTIONS

- Feedstock cost: down from £10 to £8/tonne (Fw)
- Digestate disposal: £10/tonne
- Energy revenue (FIT + RHI): £180/MWh
- Days per year: 365
- Reduced requirement for chemical additives

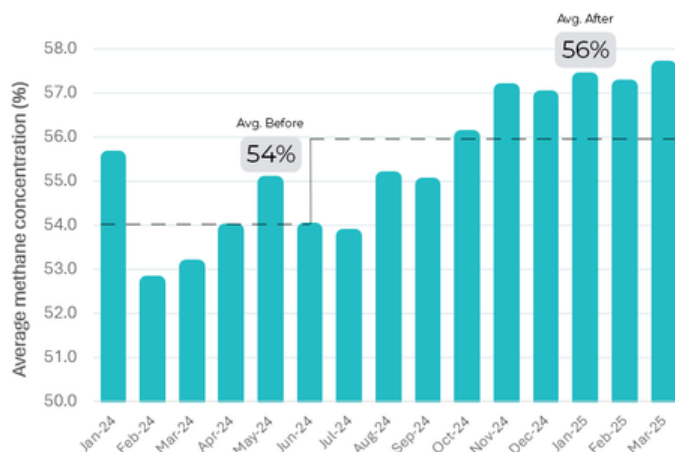
NOT INCLUDED IN CALCULATIONS:

- CO₂ sequestration benefits
- Carbon reporting/sustainability credits
- Heat recovery value from CHP

METHANE CONCENTRATION

Average methane concentration increased from 54% to 57%. This improvement reflects an enhanced microbial conversion efficiency which resulted in higher calorific value gas.

- Avg. pre-trial = 54%
- Avg. during trial = 56-57%
- Increase of 2-3%



BIOMETHANE YIELD

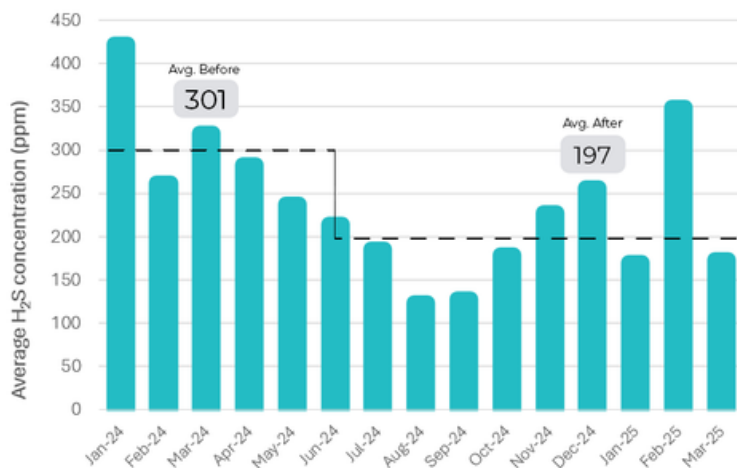
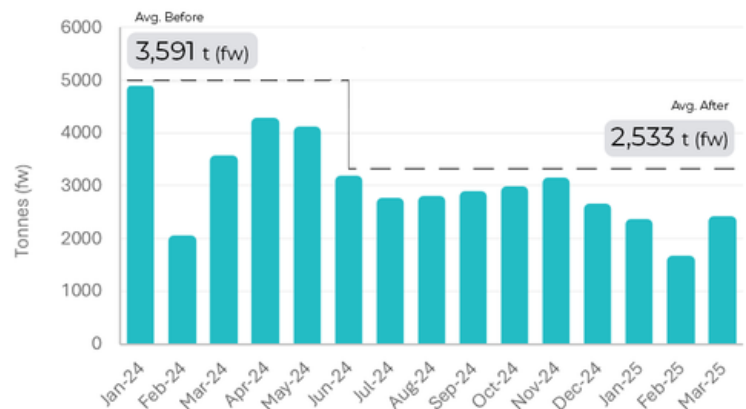
Average biomethane yield increased from 47 to 75 m³/t (fresh weight), representing a 58% uplift and an additional 28 m³ per tonne of feedstock.

- Avg. biomethane yield pre-trial = 47 m³/t
- Avg. biomethane yield during trial = 75 m³/t
- Increase of 58%

FEEDSTOCK EFFICIENCY

This improvement in substrate conversion efficiency enabled a 28% reduction in feedstock input while maintaining overall gas production, resulting in lower feedstock costs.

- 28% reduction in feedstock input



H₂S CONCENTRATION

The H₂S concentration decreased by 34% (301 → 197 ppm), lowering the requirement for iron-based chemical additives. This enabled the use of more challenging, lower-cost feedstocks - improving plant performance while unlocking additional revenue opportunities, including gate fees.

- Avg. H₂S concentration pre-trial = 301 ppm
- Avg. H₂S concentration during trial = 197 ppm
- Reduction of 34%

OUR APPROACH

We run large-scale trials for at least 6 months to capture true operational patterns and deliver reliable, proven results - using a structured process to maximise outputs and gather key performance data, with minimal operator input and full expert support.

Our team assesses operations and data throughout, filling gaps where needed.

CreChar® is supplied in 20 kg digestible bags and added daily with no disruption.

CRECHAR® TRIALS

To find out how CreChar® can support your Anaerobic Digestion plant please reach out to us at:

+44 1316 517 940

marco.lizzul@carbogenics.com

lidia.krzynowek@carbogenics.com

www.carbogenics.com

