Residues to Revenues (R2R)

Calibre Consulting is here to help you improve the operation performance and efficiency of your existing wastewater treatment plant assets to benefit your organisation, your customers and your bottom line.

Calibre Consulting offers specialist design and commissioning services for municipal biosolids digester capacity upgrades. We specialise in the digester upgrade with recuperative thickening (RT-digester) because this is the best available solution in terms of cost effectiveness, reliability and performance, use of available space and it increases the digester treatment capacity at least twofold. After an initial digester performance audit and confirmatory digester mixing efficiency evaluation prior to the design we provide you with certainty for the expected digester capacity improvement and the business case for the capacity upgrade. The RT technology is simple to operate, has a low power consumption and is compact. Digester capacity, digestion process efficiency, effluent quality, solids destruction and process robustness are improved. The upgrade costs (including digester mixing upgrades and a liquid trade waste reception) are less than a third of the construction costs for equivalent new digesters. There are now five municipal plants in New Zealand and Australia that use recuperative thickening to improve biosolids digester capacity and efficiency.

Co-digestion of trade waste is efficient in municipal biosolids digesters and provides additional revenue streams. The digester capacity upgrade for co-digestion of trade waste is our specialty. This upgrade typically pays for itself in less than four years through the net revenue from power sales and trade waste tipping fees. That means that after four years the upgrade of your assets has been fully paid for by the additional revenue that has been collected through its operation. Our detailed bioprocess knowledge and expertise in co-digestion of trade waste with high concentrations of fat, oil and grease (FOG) enables us to provide our clients with tripled trade waste co-digestion capacity, biogas output and tipping fee income. This has been proven at the Palmerston North treatment plant digesters in New Zealand (Innovate NZ Awards 2015, Silver Award of Excellence). We have the expertise and experience to survey the regional trade waste market, to evaluate the regional co-digestion feedstock availability and procurement risks and to assist you with technical support during negotiations of waste supply contracts. We provide you with certainty for the expected digester capacity improvement and the business case for the capacity upgrade for co-digestion of trade waste.

OUR SERVICES

- R2R system design
- Co-digestion feedstock survey and procurement
- Anaerobic digester performance audit and benchmarking
- Mixing and HRT tests
- Digester capacity upgrade process design
- Digester mixing system upgrade design
- Recuperative thickening plant design and commissioning
- Odour, air pollution control assessment, and design
- Commercial and environmental risk assessment
- Acting as Principal's representative
- Construction management and inspection
- M&E start-up and commissioning services
- Biological commissioning services
- Biological process operation support

Our Experience

SYDNEY FOOD WASTE DIGESTER FACILITY DESIGN, NSW, AUSTRALIA

The Calibre Consulting team and a subconsultant (BTA GmbH) were appointed to provide the concept design and commissioning services for this large pre-consumer food waste digestion facility.

The concept design allowed a technology optimisation to maximise biogas yield, gate fee income, energy recovery, nutrient recovery, greenhouse gas emission reduction and renewable electricity production at lowest construction costs.

This was the first plant where recuperative thickening was used to improve sludge digester capacity. The construction was completed in 2002.

TRADE WASTE DIGESTER FACILITY DESIGN, PALMERSTON NORTH, NEW ZEALAND

Calibre Consulting was appointed to provide the concept design, detailed design and commissioning services for the largest trade waste digester facility in New Zealand. The design allowed Palmerston North City Council to select a path forward that represented a logical technology optimization with respect to the strategic goals for trade waste procurement, maximum biogas yield, lowest construction costs, highest tipping fees, energy recovery, greenhouse gas emission reduction and renewable electricity production.

The construction was completed in 2011 by Palmerston North City Council and its local contractors and the plant was commissioned in 2012. A key distinction of the plant was the use of recuperative thickening to improve digester capacity and that the trade waste co-digestion tripled the biogas production of the plant.

MUNICIPAL DIGESTER CAPACITY UPGRADE, HAMILTON, NEW ZEALAND

Calibre Consulting was appointed by Hamilton City Council to provide the concept design, detailed design and commissioning services for the largest municipal RT-digester in New Zealand.

The design allowed Hamilton City Council to select a path forward that represented a logical technology optimisation with respect to the strategic goals for lowest construction costs, doubled treatment capacity (hydraulic), doubled solids treatment capacity and option to defer new digester construction by at least 10 years.

The construction was completed in September 2014 by Downer New Zealand and commissioning was completed in November 2014. A key distinction of the plant was the use of recuperative thickening to improve digester capacity.

MUNICIPAL DIGESTER CAPACITY UPGRADE ASSESSMENT, AUCKLAND, NEW ZEALAND

Calibre Consulting was appointed to provide a high level concept design and to assess digester capacity improvements through implementation of recuperative thickening at the largest municipal treatment plant in New Zealand (Watercare Services Ltd (WSL) Mangere, New Zealand ,165,000 kg TS biosolids/day).

The assessment allowed WSL to select a path forward that represented a logical technology optimisation with respect to the strategic goals for lowest construction costs, improved treatment capacity (hydraulic and solids), and the option to defer new digester construction.

The concept design will be tested in a pilot trial in 2017.

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