



CHP case study

Volac Renewable Energy Plant

The Site:

Volac is a modern dairy production facility based in West Wales and uses the latest membrane filtration, evaporation and spray-drying technologies

Volac's technologies provide high-performance whey protein isolates for the sports and active nutrition markets, lactose for use in a range of food applications and base powders for young animal milk formulas

The CHP plant supplies 65% of the site's energy demand

Location:

West Wales

Date Operational:

March 2016

CHP Installed Capacity:

2.993MWe

Investment Cost:

£38 million

Payback Period:

10 years

Project Objective:

Provide heat and power using biomass CHP with the least cost and reliance on fossil fuels in a major supplier of specialist dairy ingredients

The Need:

- To replace fossil fuels with renewable, sustainable energy for the factory processes
- To invest in making the plant sustainable, energy efficient and reduce the site's carbon footprint

Implemented Solution:

- The CHP system features two wood-fired thermal oil boilers (10MWth capacity each), which supply heat to an Organic Rankine Cycle (ORC) system to generate electricity and heat for use in the production process
- The ORC delivers 2.993MWe of electrical power, 13.4MWth hot water and thermal oil feed for higher temperature requirements
- All of the energy generated is used to drive the dairy factory manufacturing processes

The Benefits:

- 10-year payback period for the £38 million capital expenditure
- Site carbon emissions reduced by 60% compared to 2014 baseline
- Secure on-site power and thermal energy generation using locally sourced fuel

‘Our major investment of £38 million in the plant enables Volac to generate sustainable energy to meet the growing needs of our business at Felinfach. It has enabled us to reduce carbon emissions from our Felinfach operations and reduce the carbon footprint of our products. Through this investment, we have been able to employ an additional five staff from the local community.’

James Neville
Volac CEO

