

Copys Green Farm: Norfolk, United Kingdom

Producing Biogas For Heat and Electricity Production

The entire CHP was commissioned and operating within 24 hours and runs with 99% Uptime...

2010 Green Energy Farmer of the Year

The pretty Norfolk village of Wighton is the site of family-owned Copys Green Farm with 100 dairy cows and 500 acres of farmed land, the majority producing maize and fodder beet. Run by Dr Stephen Temple, who spent 23 years lecturing and doing research in Agricultural Engineering in Malawi before returning to Norfolk, Copys Green Farm's traditional English setting belies its progressive initiative.

Awarded 2010 Green Energy Farmer of the Year for his vision and commitment to green farming, Temple has successfully invested in one of the few Anaerobic Digestion systems (AD) in England: Cattle manure and silage from the dairy farm and whey from the cheese-making enterprise are fed into the facility, producing biogas that can be used for heat and electricity production.

With surplus energy sold to the grid, the by-product "digestate" used as a free fertiliser replacement and the much-reduced cost of disposing manure, silage and whey, going green has also turned out to make good business sense.

Application Challenge

Crucially, because of operational problems, the original AD's Combined Heat and Power system (CHP) at Copys Green was unable to achieve grid connection until June 2010.

According to Stephen Temple, this was a major setback as the return from the sale of electricity and the benefit of not having to buy in electricity is considerable. The installation cost for the system came to £750,000. Achieving stable operation was paramount to reaching his eight-year target for return on investment.

Starting again, Temple spent a good amount of time looking at as many different systems as possible, finally deciding to go with Austrian IET supplying a genset with DEIF's acclaimed gas control solution, DM 400 Bio. Temple chose DEIF because of the company's proven technology and its fast delivery time.

Copys Green Farm

Stephen Temple, the owner of Copys Green Farm, firmly believes in "leaving the land and the farm in a better state than you found it." Using carbon neutral fuel wherever possible, driving highly energy efficient cars, using low-energy bulbs throughout the farm and carefully monitoring farm vehicle fuel usage, Copys Green Farm has won a number of awards, including the Farmers Weekly Green Energy Farmer of the Year 2010.



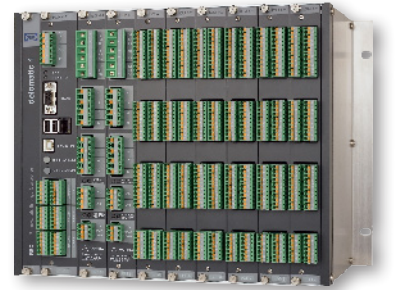
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Integrated Systems, DM 400 Bio

Data

- ✓ JF Temple & Son Ltd – Copys Green Farm, Norfolk
- ✓ Digester Tank 800 m³, residence time 40 to 50 days at 37 to 42°C
- ✓ Gas Holder capacity 350 m³, at low pressure 20 mbar
- ✓ Methane content of gas managed to a constant value between 50 to 55%
- ✓ Gas utilised in MAN 6 cylinder-powered CHP scheme of 170 kW_e and 200 kW_t
- ✓ Heats digester temperature, farm house, cheese-making processes, dairy wash water, warm drinking water for cows and crop drying

Product



Integrated Systems, DM 400 Bio

The DEIF Solution

In line with our standards, DEIF promised delivery in approximately eight weeks, faster than any other offers Dr Temple received. A delay of as little as two weeks would have meant a loss of exported electricity income of £7,500, plus the additional cost of the imported power consumed.

Having studied the particulars, DEIF delivered the proposed scheme at the end of January 2011. Because DEIF's DM 400 Bio is so simple to install, the entire CHP system was commissioned within a 24-hour period and operating satisfactorily almost immediately. Since then, there have been no major issues and the operational availability of the system is very high. With an uptime of 99%, the system achieves 85% of permissible electrical export capacity: generated electricity meets all on-site demands plus export to grid of 130 kW_e. Feed-in tariff earns approximately £500 per day.

Case Diagram

