

RENEWABLE Energy Services



From **CONCEPT** to **REALITY**

We have a specialist team who can offer a range of services to help get your renewable energy project from concept to reality.

Anaerobic Digestion for Biogas Model Costing

Alder Drove Farm is a 300 acre dairy unit milking 200 cows on medium soil with above average rainfall. The farmer, Mr Thane, is exasperated by the low margin still generated by his latest milk contract, so is looking at alternative enterprises.

Inspired by the more generous Feed In Tariffs (FITs) for smaller on-farm Anaerobic Digestion (AD) Mr Thane is considering selling his herd and growing maize and grass to feed an AD plant producing biogas.

The gas would fuel a power unit generating electricity for the grid, with surplus heat from the generator providing hot water and heating as required by the houses near the farmyard.

Mr Thane also plans to use the muck from some continental crossed heifers retained for suckler production on 75 acres not directly supplying the digester.

Before approaching his bank about finance, Mr Thane decides to carry out an investigation into the financial and regulatory feasibility of such a project and instructs LAURENCE GOULD to do this on his behalf.

The attitude of the local council appears to be positive towards renewable energy, so it seems planning permission would not be too difficult. The facility may also be exempt from Environmental Permitting because no waste is being imported, and the digestate storage capacity and net rated thermal input should fall below regulatory thresholds.

The financial analysis is summarised in the table overleaf:

Summary of financial analysis:	Year 1	Year 20
Electrical capacity @ 90% efficiency	137kW e	
Annual output (incl 24MW internal load)	1,216,000kWh	
Generation income starting at 14p/kWh	£170,240	£298,520
Electricity saving starting at 10p/kWh	£1,200	£3,030
Export income starting at 5p/kWh	£58,985	£103,430
Heat saved for the farm houses	£4,000	£10,110
Fertiliser value of the digestate	£22,905	£33,370
Total income	£257,330	£448,460
Value of grass & maize silage feedstock	£116,100	£203,580
Labour, maintenance and overheads	£47,950	£84,080
Total expenses	£164,050	£287,660
Net return excl tax and finance	£93,280	£160,800
Capital cost incl connection and fees	£822,000	
Net return over capital cost	11%	
Payback - capital over net return:	9 years	
- incl 6% finance and 5 yearly overhaul:		12 years

LAURENCE GOULD have been delivering business consultancy to rural enterprises for over 50 years. We are recognised as being one of the few consultancies that are truly independent and are well placed to give objective and impartial advice about the viability of AD projects.

For a free initial discussion of your options please contact one of the offices below:

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Images courtesy of Biogas Hochreiter (front top) and Adgen Energy (above)