

PZERO INFORMATION

June 2007



Anaerobic digester (ADG) plant producing biogas from animal waste

Biogas

100% renewable low-carbon fuel

By Richard Bennett

Biogas is a methane rich gas created from decomposing organic matter. It naturally occurs where organic waste breaks down; in sewage farms, waste disposal sites (landfill tips), in breweries and from animal waste. All too often, this greenhouse gas which is 21 times more potent than carbon dioxide (CO₂) escapes unchecked into the atmosphere or is flared off for safety.

However, there is a better alternative as biogas can be captured, stored, and used by fuel cells to create low-carbon electricity and heat. Reprocessing human, animal and other organic waste on a large scale creates significant quantities of biogas, a 100% renewable low-carbon fuel, and

reduces the impact of waste on our natural environment.

Water treatment plants, rubbish tips and agricultural farms can capture the waste and with a special anaerobic digester (ADG) plant, rapidly decompose the waste and produce biogas.

Fuel cell technology has rapidly evolved and special molten carbonate fuel cells (MCFC) phosphoric acid fuel cells (PAFC) have been developed to efficiently convert biogas into low-carbon electricity and heat.

This low-carbon electricity can be utilised on site, distributed to neighbouring customers on a micro-grid or sold to the national grid. Fuel cells are energy and cost efficient with up to 90%

of the input fuel converted into useable heat and electricity.

When you consider that 30% of carbon emissions are a result of farming and another 30% from electricity production; renewable biogas offers an effective solution to cut emissions and deliver secure power supplies its users. Anaerobic digesters and fuel cells are set to become an important component of our electricity generation infrastructure.

Biogas and low-carbon electricity and heat can be produced at:

- water treatment plants
- breweries
- farms
- waste disposal sites

A free biogas assessment is available for EU companies.