

Anaerobic Digestion

not just biogas production

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Use of fire - the greatest
achievement of the human race

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Reduction of GHG's emission

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“.....the object of the project is to build sustainable non-food renewable bio-oil supply chains for providing CHP electricity....

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Anaerobic Digestion

In the absence of oxygen, anaerobic bacteria will ferment biodegradable matter into methane and carbon dioxide, a mixture called biogas. Approximately 90% of the energy from the degraded biomass is retained in the form of methane.

Biogas is formed **solely** through the activity of bacteria. In the environment the process occurs naturally in the bottom sediments of lakes and ponds, in swamps, peat bogs, and intestines of ruminants.

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Substrates for digestion

The wastes that can be treated by AD cover a wide spectrum.

The older uses of the technology were for the treatment of sewage sludge and agricultural manures.

More recent plants are using MSW, industrial solid wastes and industrial wastewaters.

The easiest way to get a definite, qualitatively and quantitatively correct, answer on suitability of any organic substrate is the BMP (Biological Methane Potential) test.

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Treatment benefits

Natural waste treatment process.

Requires less land than aerobic composting or landfilling.

Reduces disposed waste volume to be landfilled

Energy benefits

Net energy producing process

Generate high quality renewable fuel

Biogas proven in many applications

Environmental benefits

Significantly reduces carbon dioxide and methane emissions

Eliminates odors

Produces a sanitized compost and nutrient-rich fertilizer

Maximizes recycling benefits

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Biogas can be used in all applications designed for natural gas.

It is commonly burned in internal combustion engines to generate electricity.

Practical experience with small-scale engines with a rated capacity of less than 200-kW indicate an electrical conversion efficiency up to 25 percent.

Larger engines (up to 1.5-MW) have a much higher electrical conversion efficiency, 30-35 percent.

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When biogas is used to produce electricity, there is the added potential for heating water from the engine's exhaust and cooling systems. Combining hot water recovery with electricity generation can provide an overall conversion efficiency of 65-85 percent.

A promising application generation is the use of gas turbines in CHP configuration.

Biogas is also burned directly in space heaters or in boilers to produce hot water and steam for other industrial uses.

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The residues after the digestion process provide two useful products: a solid material that can easily be used as a compost and a liquid fraction that contains valuable nutrients.

The value of the solid material is as a compost that can be used on farm land or on gardens and flower beds to provide bulky organic matter to improve soil quality and fertility.



The liquid fraction contains about two thirds of the nutrients in the wastes and can be used as a fertiliser sprayed on to crops.

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*Your partner in Biogas Production and
Utilization*

We offer to our customers:

Biogas production project design based on your specific requirements

- characteristic of the digestion material
- quantities
- preferred construction type and process configuration
- intended use of biogas.

**Design, construction
and on site installation
of a biogas plant to
suit your needs.**

**Commissioning of the
facility and operators
training.**

**We will advise you on
alternative methods
for waste recycling,
biogas use and
organic fertiliser
production.**

**We specialise in
biogas production for
individual
households,
communities, farms
and small/medium
industries.**

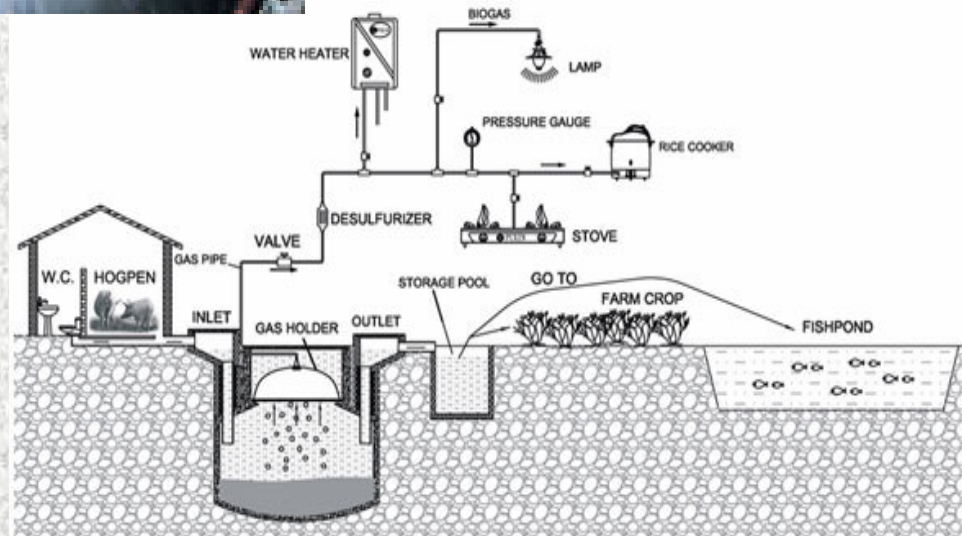
Current collaboration and consulting

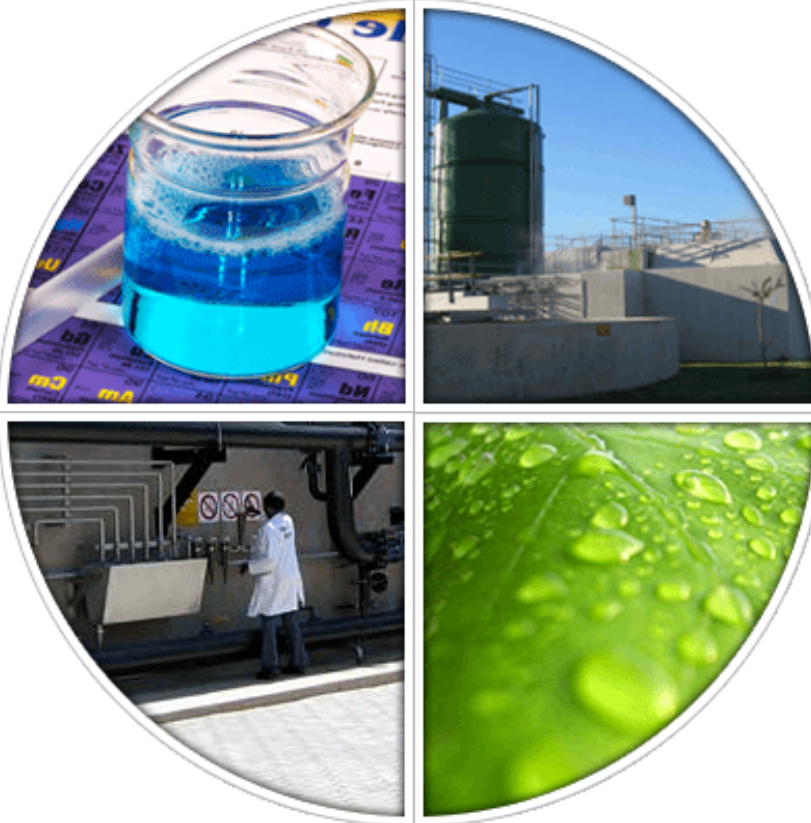
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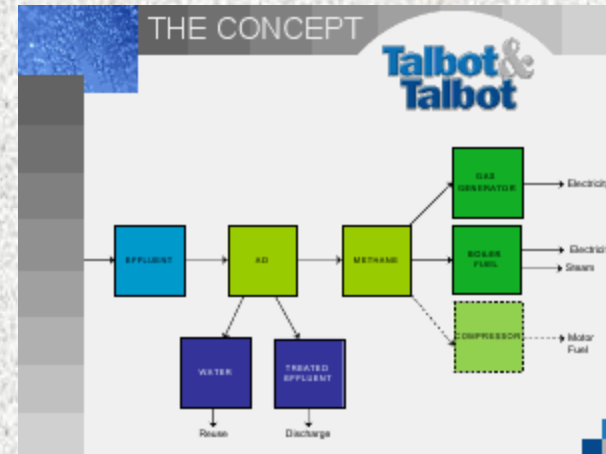
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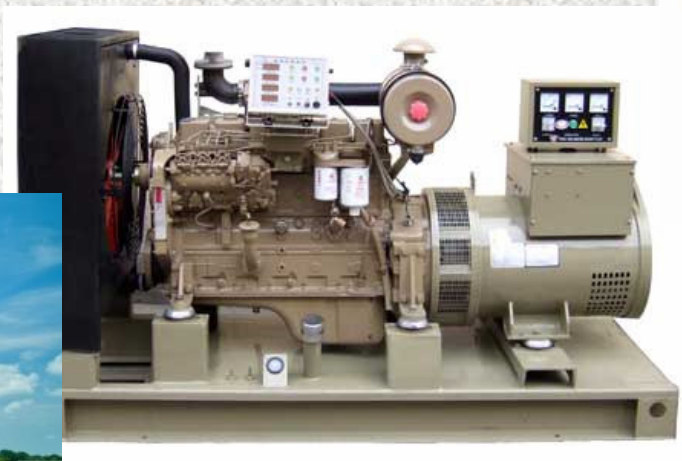
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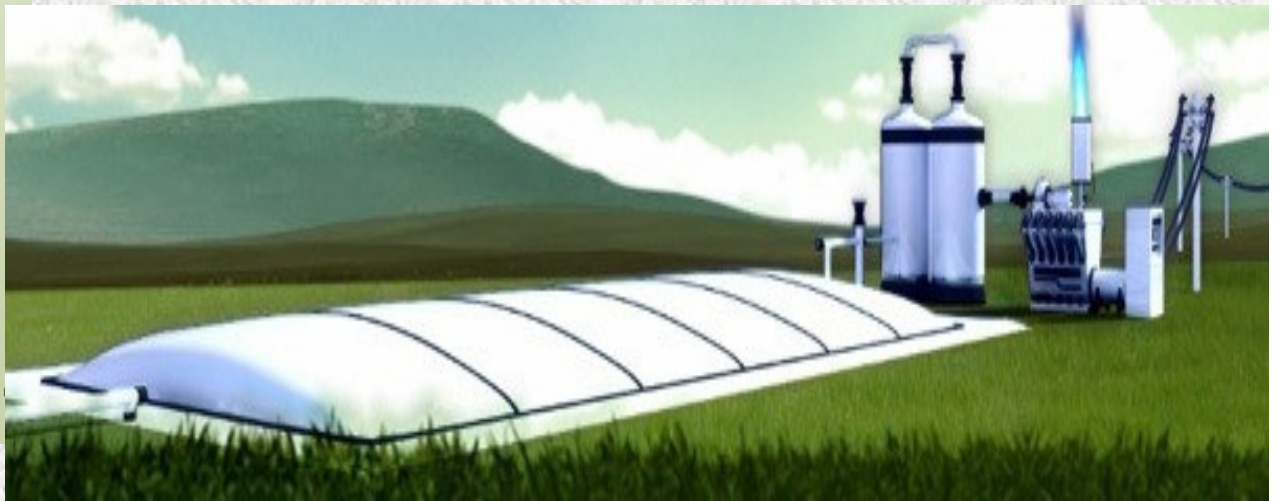
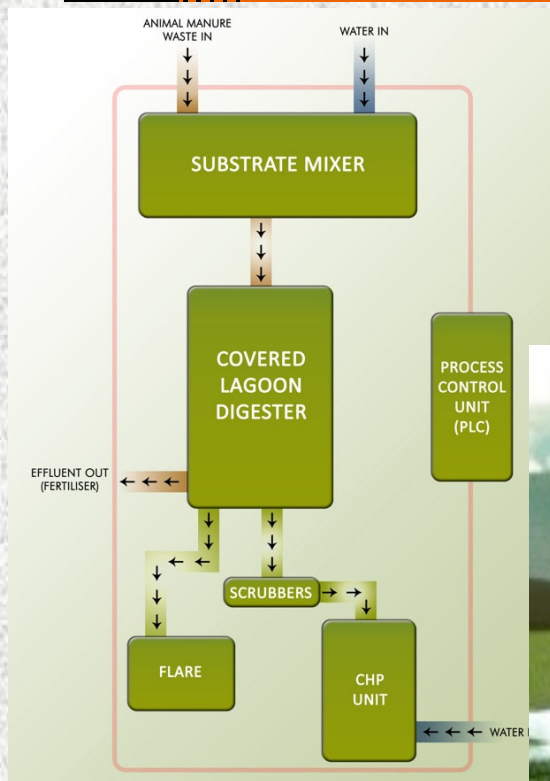
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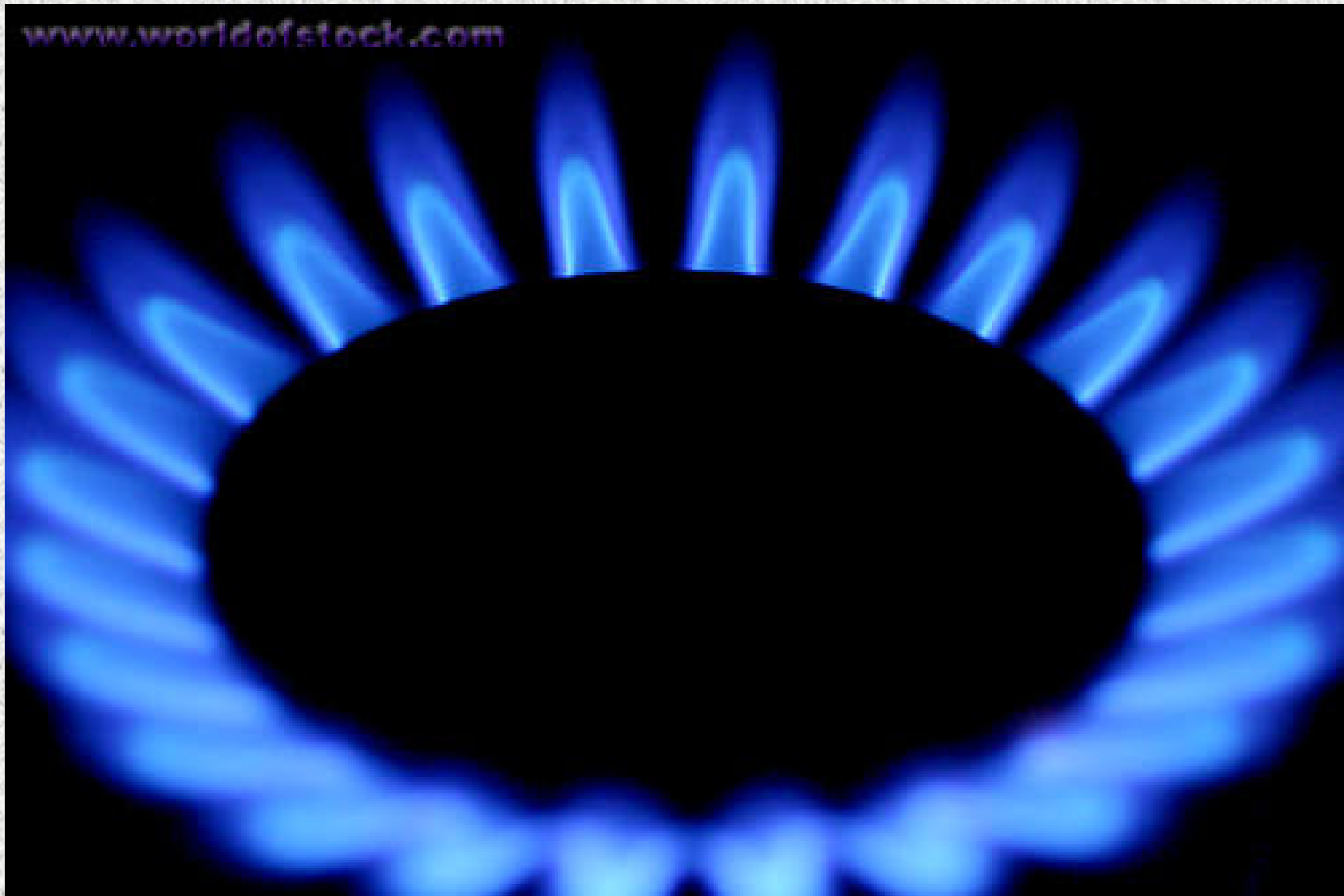
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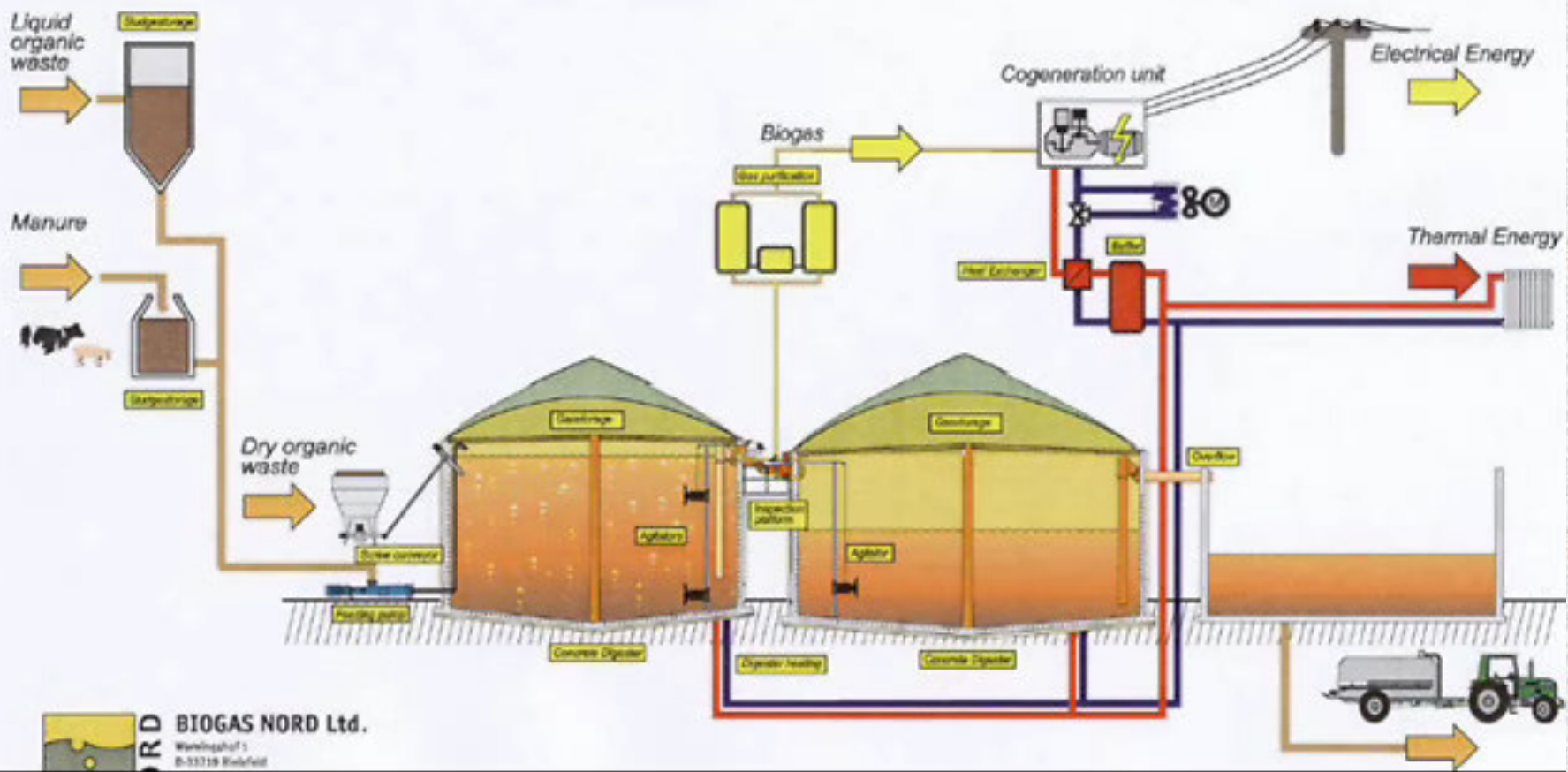
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Thank you





RD BIOGAS NORD Ltd.
 Warrington 1
 B-33718 Binsford