EVERGREEN ENERGY CORPORATION Pty Ltd.

ACN 095 292 685

Waste and Resource Efficiency Enquiry
Productivity Commission
6th February 2006

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(under construction)

Dear Sir/Madam,

Evergreen Energy Corporation Pty Ltd has exclusive rights for the Australian license for the KOMPOGAS Process; the process was developed by W. Schmid of Glattbrugg, Switzerland in the 1980's. The technology is centered on anaerobic decomposition of biogenous, green waste and the collection of the biogas generated during the process.

Biogenous waste is fed into a horizontal fermenter, constructed of either steel or concrete. In this anaerobic (oxygen-free) environment, microorganisms transform the organic substance present in the biogenous material to biogas and compost. The thermophilic process takes place at temperatures of around 60 degrees Celsius over a 15to 20 day period. During this period, undesirable germs and weed seeds are reliably eliminated.

One tonne of biogenous waste produces approximately 120 cubic metres of biogas (50-60% methane), which equates to about 70 litres of petrol.

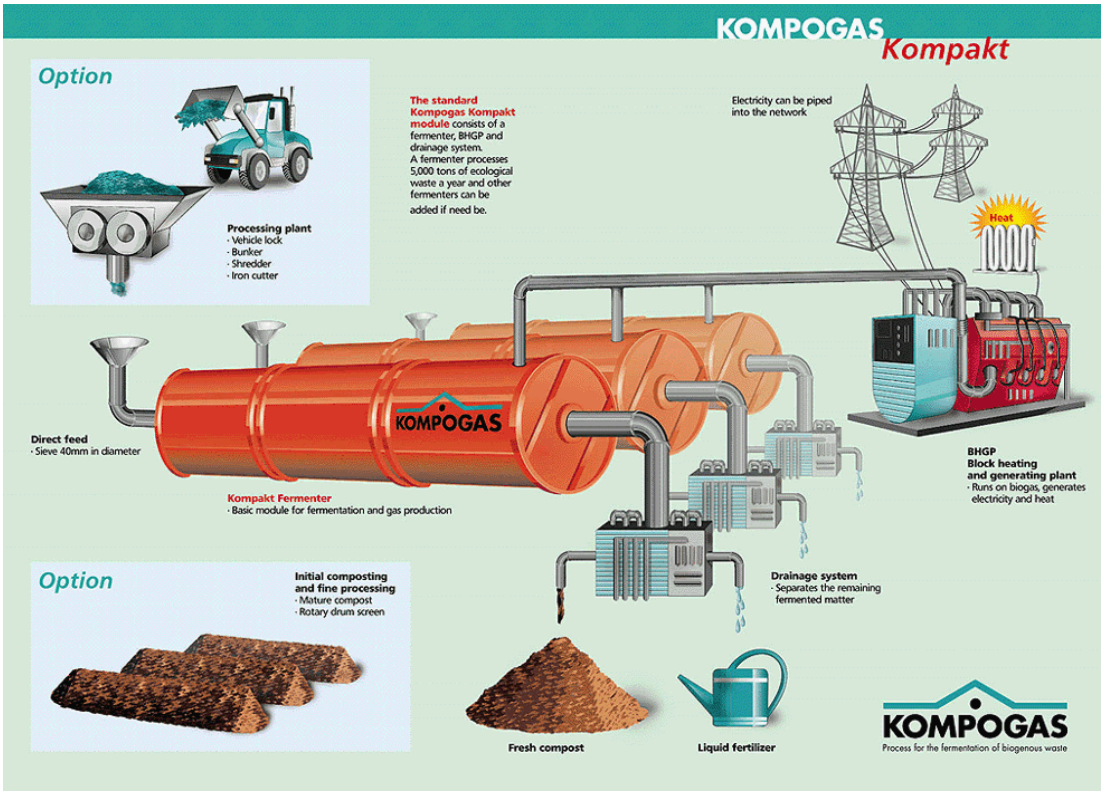
Biogas produced during waste decomposition is transformed into electrical and thermal energy. The electrical energy is produced by processing the methane in a standard gas powered generator. The generator produces a surplus of electrical and thermal energy after providing for the KOMPOGAS Plant's own needs.

The biogas can be upgraded and made available into a reticulated natural gas network or supplied as compressed natural gas (CNG) for use in suitable vehicles. Methane is used across Europe as an environmentally acceptable fuel for all standards of vehicles.

The KOMPOGAS process is **"C02 – neutral"** in that carbon dioxide produced during biogas generation has previously been absorbed from the atmosphere by plants and fruits during the process of photosynthesis. There is no net addition of carbon dioxide to the atmosphere.

KOMPOGAS plants are modular and range in size from 10,000 tonnes per year to greater than 100,000 tons per annum. KOMPOGAS plants utilize bio-filters to minimize odor emissions to the surrounding environment.

There are approximately 30 KOMPOGAS plants operating across Europe, Japan and the Caribbean and 15 new plants currently planned or in construction.



Overview of KOMPOGAS Process.

KOMPOGAS Plant in Passau - Germany

ISSUES BEING INVESTIGATED BY THE COMMISSION;

1. WHAT ARE THE ECONOMIC, ENVIRONMENTAL AND SOCIAL COSTS AND BENEFITS OF WASTE AND WASTE-RELATED ACTIVITIES?

A number of submissions have been made to the commission about the economic and social benefits that might be obtained by a reduction in the volume of waste going to landfill, they will not be repeated herein.

Utilizing biogenous waste in a KOMPOGAS facility can significantly reduce landfill volumes and convert otherwise non-reusable organic material into high quality soil conditioners and liquid fertilizer, which if applied to crops can significantly reduce the amounts of chemical fertilizers needed to maintain agricultural productivity.

1. Advantages of KOMPOGAS over landfill;
    a. Reduces moisture and bacterial action in landfill.
    b. Could process in excess of 30% of material currently going to landfill, reducing landfill volumes.
    c. Complete capture of methane produced, landfill biogas collection systems do not achieve this.
    d. Compost and liquid fertilizer can be incorporated back into the soil, reducing the depletion of soils. This effectively "completes" the ecological cycle.
    e. Removal of biogenous waste from landfill reduces organic leachates and moisture entering the groundwater system.

Windrow composing is utilized in a number of areas as a means of reducing organic material going to landfill. The KOMPOGAS process has a number of advantages over this system.

2. Advantages of KOMPOGAS over windrow composting;
    a. Complete capture of methane produced.
    b. Low Odor.
    c. Smaller footprint.
    d. KOMPOGAS produces higher quality compost.
    e. Composting is conducted at higher temperatures under stricter controls, breaking down the organic material more completely, and reducing the risk of harmful bacteria and weed seeds surviving the process.
    f. Increased temperatures and closed circuit nature allow processing of putrescible material that would not be decomposed effectively or hygienically in the windrow composting process.
    g. Produces and excess of electrical power, heat and biogas.

3. Advantages of KOMPOGAS over Incineration of biogenous waste.
    a. Produces recyclable products (compost and liquid fertilizer)
    b. More acceptable to the community in general.

2. WHAT ARE THE MARKET FAILURES (INCLUDING EXTERNALITIES) ASSOCIATED WITH THE GENERATION AND DISPOSAL OF WASTE?

- More renewable Energy Credits would encourage the production of electricity from biogas and its use in industry, rather than the disposal of biogenous waste in landfill.
- "Symbiotic" use of the technology with suitable industries (such as those that produce significant amounts of biogenous waste) could be further encouraged through faster capital write downs of the plants.

5. WHAT STRATEGIES SHOULD BE ADOPTED BY GOVERNMENT AND INDUSTRY TO IMPROVE ECONOMIC, ENVIRONMENTAL AND SOCIAL OUTCOMES IN REGARD TO WASTE AND ITS MANAGEMENT?

- Economic encouragement for curbside waste separation and collection, the cost of which is mostly borne at the local government level.
- Education and awareness about the importance of effective waste separation and consequent decreasing contamination of waste streams, hence increasing the cost efficiency of reuse strategies. The quality of the end product (compost) and hence its marketability is also increased.

Alan Martin
Managing Director
Evergreen Energy Corporation Pty Ltd

KOMPOGAS Hydroponic Greenhouse – waste water from KOMPOGAS plant used as liquid fertilizer. Note no soil or other fertilizer used.

Evergreen Energy Site Visit to KOMPOGAS plant in Switzerland
Cylinder in background is the Anaerobic Digester.