

Use of biogas has not reached full potential

Hilde Herman, of EES Africa, says renewable energy - in the form of biogas generated from anaerobic digestion - has not nearly reached its full potential in South Africa.



EES Africa is an ISO 9001:2008 certified company providing management, engineering and auditing services to a range of industries throughout Africa. It has been instrumental in the implementation of the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) projects in South Africa to date.

“South Africa is not using its biogas potential as it should,” Herman contends. “Industries which can benefit from biogas include large industrial organisations, the agricultural industry, wastewater treatment, solid waste disposal facilities, and smaller communities - especially those situated in rural areas.”

Advantages of biogas

The advantages biogas offer include the potential to generate electricity, cooking, lighting and heating alternatives for rural communities, job creation, as well as being environmentally friendly and improving environmental conditions.

“There are many reasons for the staggered growth of biogas generation in South Africa. Producing biogas is not as simple as conventional methods,” Herman says. “It requires constant managing and feeding. Up until recent years, electricity in South Africa was relatively cheap causing no need to look for another source of fuel. Finding the technology locally to build

such a digester is also not an easy task. However, the advantages of biogas make it worth pursuing.”

Biogas is generated by means of anaerobic digestion, the natural collection of processes whereby complex, insoluble organic molecules are broken down into simpler substances in the absence of oxygen.

Biogas consists of mostly methane and carbon dioxide. The biogas composition is linked to the composition of waste used and can therefore vary. The methane in the biogas can be used in many applications.

Direct combustion

“One such application is in direct combustion systems such as boilers, turbines and fuel cells. Electricity may be produced from the gas turbines and fuel cells. Biogas can be used in internal combustion engines resulting in transportation or cogeneration of electricity. The produced biogas may also be sold as a natural gas.”

In 2009, the United Nations Environment Programme (UNEP) reported that 25 million households use biogas as fuel and small and medium industries are increasingly making use of biogas. Countries such as Germany, Great Britain, Sweden, Denmark, India and China have all realised its power.

Biogas might not have been an ideal solution for South Africa in the past. However, Herman concludes that when considering its advantages and its successes in other countries, and the need for alternative energy sources in South Africa, there is certainly tremendous reason for biogas to be added to the list of energy sources.

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