

MHG Systems Ltd and Mzymes Ltd head to Western and Southern Africa with a new concept, carbon trading in sight. Optimal treatment allows even up to 70% more gas or electricity.

The optimum use of bio-based raw materials can provide an increase of 30–70% to the production of gas or electricity in biogas plants. MHG Systems Ltd and Mzymes Ltd have created a new export product from the optimal use of biomaterials together with the University of Eastern Finland. This full-service concept has aroused interest in the bioenergy sector and will be launched with a biogas project in Western Africa and a pellet production project in Southern Africa. A project in Poland will concentrate on the optimisation of ethanol production.

- We have plans for a possible biodiesel project that would be carried out in conjunction with carbon trading in Zambia, told managing director Seppo Huurinainen of MHG Systems Ltd and managing director Jari Rouvinen of Mzymes Ltd while commenting on the future prospects of the new concept in their speech that dealt with Koli Forum bioenergy innovations.

The concept combines Finnish and international bioenergy know-how into a unified export product. The mutual know-how of the Finnish MHG Systems Ltd and Mzymes Ltd forms the basis of the Biomaterial Opti-Use concept. It makes it possible to utilise the available biomaterials and optimise them for the most suitable use and most profitable bioenergy production.

In practice, the biomaterial optimisation is done with the MHG's enterprise resource programming service (ERP) and Mzymes' enzymatic mechanical treatment technology (EMT). MHG's ERP service is used to collect data of the available bio-based raw materials and waste and then optimise their transport and use. In addition, the service includes the possibility of analysing economic sustainability in different production environments.

Mzymes Ltd carries out the pre-testing of the available bio-based raw materials in a laboratory environment and then performs the pilot tests using the EMT technology in order to find out the optimal raw material compound and enzyme treatment.



Biomaterials Opti-Use enhances biogas production by 25-75%. Image: Green Energy Consortium Baltic Biogas.

Carbon trading in Zambia

The concept will start with a biogas project in Western Africa and a pellet production project in Southern Africa. A project in Poland will concentrate on the optimisation of ethanol production. In addition, a biodiesel project to be carried out in conjunction with carbon trading in Zambia is a future prospect.

The enzyme pre-treatment ensures that especially wood-based raw materials and waste from cultivated land, both of which contain high amounts of lignin, can be utilised more efficiently for example in biogas production. During extensive pilot testing, it has been possible to increase gas production by 25–75% depending on the raw material. At the same time, gas production has been able to initiate approximately 30% earlier. In practice, EMT treatment can increase the production of gas or electricity in a biogas plant by 30–70%.

The EMT pre-treatment of the Biomaterial Opti-Use concept can be delivered as a mobile container solution built precisely for the customer's needs.

An essential part of the overall concept consists of the bioenergy solution system suppliers who are integrated with the bio-based raw materials and their real-time qualities via MHG's ERP service.

New company to BioPower Park in Varkaus

MHG Systems Ltd and Mzymes Ltd plan to establish a joint venture around the concept in the near future. The joint venture will most likely be located in Varkaus and more precisely in BioPower Park which will be built into the town according to current plans. The issue is being negotiated with development company Navitas and Vision Hunters.

The concept has already aroused great international interest. MHG Systems Ltd has signed a preliminary contract with the African Biofuel and Renewable Energy Company (ABREC) concerning the testing and delivering of the concept for the bioenergy projects funded by ABREC. ABREC is funded by African states and runs several projects related to utilising bioenergy in different parts of Africa. The first test sites are located in Burkina Faso (biogas) and Ivory Coast (pellets).

Training and research complement the concept

Vast research and training cooperation is also a part of the contract. The related service package is still being negotiated between METLA (the Finnish Forest Research Institute), University of Eastern Finland, universities of applied sciences and international cooperation parties. The objective is to assemble a Finnish-led export product for

bioenergy training and research. Local companies and parties will have a central part in utilising the concept.

The Biomaterial Opti-Use concept was announced at the Koli Forum on 15 September 2011. The Forum's second main theme deals with sustainable utilisation of bioenergy and is also supported by the Biomaterial Opti-Use concept. The concept starts with the ecological and economic sustainability of the local community and operating environment. In practice this means, for example, that a company's waste problem can be solved with biogas production where electricity is produced for the use of the company and community.

More information

For more information about this press release:

Seppo Huurinainen MHG Systems Oy
seppo.huurinainen@mhgsystems.com

Tel: +358 44 581 4950

Jari Rouvinen MZYMES Oy

jari.rouvinen@mzymes.fi

Tel: +358 400 331 566

MHG Systems Ltd

MHG Systems Ltd provides specific ICT, map, and field work management services for the development of new economically sustainable bioenergy businesses through the use and optimisation of the various kinds of feedstock and resources available. The company's services bring significant cost savings and environmental benefits to all operators in the value chain.

MHG ERP combines mobile communications, the Internet, real-time maps, satellite-based location information, RFID, CO₂, and moisture monitoring of biomasses into one business-enhancing service, and enables the use of new and empowering operational models, accurate cost monitoring and real-time enterprise resource planning of biomasses and delivery chains.

Contact information

MHG Systems Ltd
Mikpoli, Patteristonkatu 2
FIN-50100 Mikkeli
Tel: +358 (0)10 400 6280
Fax: +358 (0)10 400 6289
Email: info@mhgsystems.com
Internet: <http://www.mhgsystems.com/>

MZYMES Oy

MHG Systems Oy Ltd
Mikpoli, Patteristonkatu 2
FI-50100 Mikkeli, Finland
Tel. +358 (0)10 400 6280
Fax. +358 (0)10 400 6289
info@mhgsystems.com
www.mhgsystems.com
Business ID: 1962609-7

MZYMES is a Finnish industrial and environmental biotechnology company developing innovative technologies for industries. Technologies are based on the utilization of microbes and enzymes in the process development. Main technologies are FungiTube treatment for contaminated soils and EMT (enzymatic-mechanical technology) for pre-treatment of biomasses.

EMT is a efficient technology for the pre-treatment of lignocellulosic biofuel raw materials. The main benefits of EMT for biofuels are increased biofuel yield, speed up the production process and the utilization of new raw materials.

Application areas of EMT for Biofuels are:

Biological biofuel processes (biomethane, bioethanol, biobutanol)

Processing of biomasses (biodiesel, pyrolysis, solid biofuels)

Contact information

MZYMES Oy
Länsikatu 15
80110 Joensuu
Tel: +358 400 331 566
Fax: +358 13 2637 111
Internet: <http://www.mzymes.fi>

MZYMES Oy (R&D Unit, MLab)
Hiukkavaara H2
90670 Oulu
Tel: +358 44 755 3210
Fax: +358 8 343 272