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- PIM Newsletter June / July 2017

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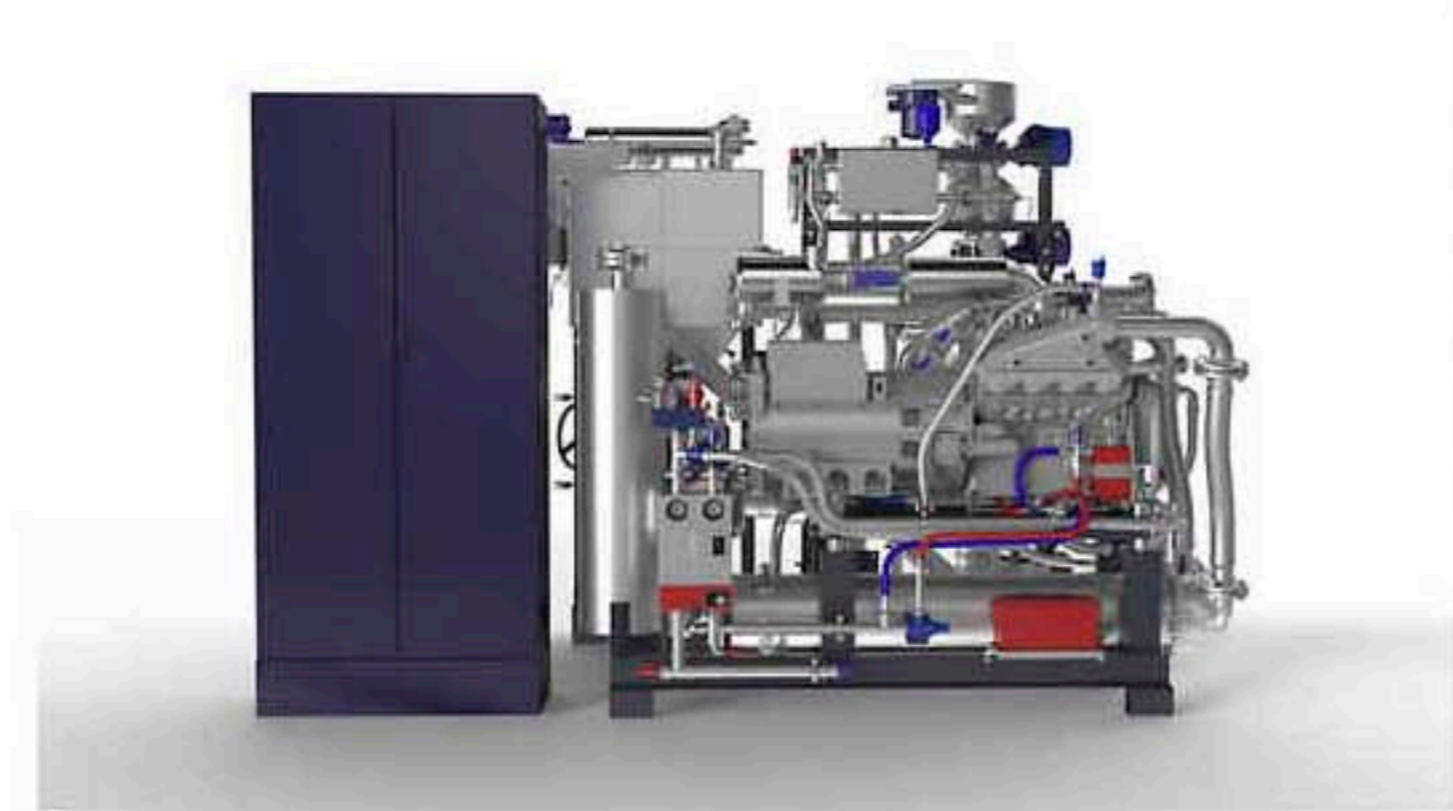
Greenyard Group secures ENTRADE biomass energy for cleaner electricity, heating and cooling

- 32 new units to provide 1.8 MW of electricity and 3.8 MW thermal energy
- Biomass to reduce the food giant's annual CO₂ by estimated 10,000 tons
- Wooden pellets from vegetable boxes transformed into biomass fuel
- Pilot installation targeting the global frozen food market.

Leading frozen vegetable company Greenyard Frozen will receive new ENTRADE biomass energy units that will provide clean electricity, heating and cooling for two UK sites.

Thirty-two new biomass units will replace old gas boilers and electric heating units at Greenyard Frozen's operations at Kings Lynn and Boston, achieving overall CO₂ emission reductions of approximately 10,000 tons per year.

The 32 modular plants will be fueled by wooden pellets, converted from discarded vegetable boxes, using ENTRADE's high-temperature cogeneration carbon-conversion process.



Four of the E4 power plant units will be situated in two stacked 40-foot-containers and work in accordance with the combined cooling, heat and power (CCHP) principle. In this process solid biomass, such as wood waste pressed into pellet form, is thermally converted at high temperature. The generated syngas is used as fuel in a gas engine that powers a generator, with minimal particle emissions and ash as a byproduct.

The total capacity of the units will be approximately 1.8 MW electric and 3.8 MW thermal energy. Each unit has an overall capacity of 55 kW electric and 120 kW thermal. For cooling generated heat is converted directly by silica gel adsorption chillers that transfer excess heat into cold water provided to the vegetable blanching process. Therefore chilled water is ensured onsite, replacing the old energy-intensive compression refrigeration machines.

ENTRADE power plants can run on a variety of woody biomass. The company is developing its technology to be fueled by a range of other materials, including nutshells, plastic waste and discarded tires. Greenyard Frozen's set-up will include a pellet line installed onsite that processes fuel pellets from wooden vegetable boxes currently used by Greenyard in large quantities and normally discarded at the end of their life.

UK-based renewables project developer Mistral Renewable Energy will install the units in coming weeks, while Los Angeles-based company arensis financed the project and will handle ongoing operation.

With annual sales revenues of almost €4.25 billion, the Belgian Greenyard Group is considered one of the world's market leaders in fresh and prepared fruits and vegetables. The company's production of frozen food is handled by the Greenyard Frozen division, formerly Pinguin, which operates the large Boston and Kings Lynn production sites in eastern England.

Greenyard Frozen UK Director Nigel Terry said:

"Together with quality and efficiency, sustainability does not only form the backbone of Greenyard, it also provides the foundation for the growth of our company. For this reason, the company relies on electricity from renewable sources for the energy-intensive processing of vegetables into frozen foods – wherever this is feasible."

ENTRADE CEO Julien Uhlig said:

"Industrial scale food processing has global market potential and by using power, heating and cooling from the E4s, that will drastically reduce operational costs and Greenyard's carbon footprint. The close collaboration with Greenyard is a significant milestone for us."

Mistral Renewable Energy Ltd CEO Paul Gibbon said:

"The ENTRADE power plants are pre-assembled in a container and each unit is installed in less than a day. Due to their baseload capability, they are ideal to combine with other renewable energy systems with a guarantee of a high-quality, reliable power supply."

About ENTRADE (www.entrade.co)

ENTRADE

THE CLEAN ENERGY COMPANY

Since 2009, ENTRADE AG has become one of the fastest growing cleantech companies in the world, converting bio-waste into clean electricity, heating and cooling using its container-based power systems. ENTRADE has developed two modular bio-waste CHP models: a 25kW and a 50kW version. Highly reliable operations with little maintenance and the use of various biomass feedstocks have been the focus of development. Since early 2016 ENTRADE has shipped more than 200 units to 15 different countries. Power plants are manufactured in Crimmitschau, Saxony and an assembly line established in Knowsley Industrial Park, near Liverpool. Since 2016, ENTRADE has received more than USD\$35 million investment from LA-based decentralized power provider arensis (www.arensis.com). arensis offers highly efficient micro-grid power solutions to commercial and governmental customers in the US, UK, Indonesia, India, Philippines and Japan. It provides a fully managed virtual power plant system, which is cloud-based and can integrate local energy load management functions

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