

Future Biogas to distribute the new Economizer biogas technology in the UK

Future Biogas and Biogas Systems have signed an exclusive UK distribution deal for the Economizer, a new biogas technology that could allow AD plants to save in the region of half a million pounds a year.

The Economizer is a front-end process system that can be added to a biogas plant to unlock the full digestible potential of materials with high levels of lignin, in particular straw.

This can cut down feedstock costs and means biogas plants can both be less affected by fluctuations in crop prices and less reliant on purpose grown crops.

The process effectively cooks the feedstock under pressure and processes materials, such as wheat/rape straw and pig muck, making them ready for digestion whilst using economically-viable amounts of electricity and high-grade heat.

There is a significant reduction in retention time of the material and the technology has the potential to revolutionise the way biogas is made.

“This could have a major impact on how biogas plants are built in the future and falls in line with the current Renewable Heat Incentive (RHI) consultation. This technology ticks a lot of the right boxes for us,” Philipp Lukas, managing director and founder of Future Biogas said.

Hermann Dauser, from Economizer manufacturer Biogas Systems, added: “In Future Biogas we have found the perfect partner to launch our technology into the UK. Their reputation and scale mean not only are they going to be our largest customer but they will also give the rest of the market the confidence to adopt our technology.”

The largest Economizer can produce 2.5 tonnes of digestible material an hour, which – if using a wheat straw input – will generate in the region of 420m³ of biogas an hour.

The system will need to be fed circa 7,500 tonnes of straw to produce enough biogas to run a 1MW combined heat and power (CHP) unit.

The first Economizer has been running successfully since 2014 and



The Economizer in Parndorf, Austria, beside an AD plant

has been supporting a 500 kWe plant in Parndorf, fed on a 50/50 mix of whole crop maize and a range of straws.

Future Biogas will be the first company to take delivery and install the Economizers in the UK on a number of their operational plants by the end of 2016.

Benefits of straw

When considering the benefits of using straw, it is important to understand the current cost of feeding a crop fed biogas plant.

A biogas plant in the UK currently pays in the region of £32 (€40.3) a tonne for maize over the weighbridge.

However, there are hidden costs that biogas plants need to factor in, such as clamping (including plastic sheeting), moving the feedstock into the hopper, and unavoidable losses in the clamp, and ultimately a tonne of maize can actually cost the plant closer to £40.

A plant needs around 20,000 tonnes of maize to run a 1MW CHP, resulting in a cost of £800,000 per annum.

However, by using 7,500 tonnes of wheat straw at £30 a tonne, the cost would only be £225,000 which is a considerable annual saving.

There are additional benefits, including no need for clamps, monthly deliveries of straw which reduces the need for working capital, and the ability to source cheaper straws over time (such as finding low grade side and top bales from straw stacks).

Unlike conventional combusters, the Economizer is not a fussy eater as water can be added to the straw at the front end, eliminating the need to input high-grade straws that a biomass power station relies upon.

In addition, the sustainability criteria also needs to be taken into account, as the UK supply chain comes under growing scrutiny for how much CO₂ is released during the production of crop feedstock.

There is now a requirement for AD operators claiming the RHI to report if the feedstock used is sustainable to Office of Gas and Electricity Markets.

If the plant fails to meet the sustainability criteria, it will not be eligible for the RHI and may lose the tariff payment.

Using crop residues or waste will mean the plant is contributing less CO₂ in sourcing its feedstock and more likely to meet the sustainability criteria.

Eligible feedstock for AD plants in the UK are also due to change, with the recent Department of Energy & Climate Change (DECC) consultation on the RHI tariff discussing two possible outcomes.

These options include either a complete phase out of energy crop feedstock qualifying for tariffs on new plants or limiting the use of energy crops to 50% of total inputs.

Either way, a technology that allows farm-sourced straw residues to be utilised in digesters effectively will lead to a fair amount of traction in the UK market place. ●