



Commercial Assessment of Anaerobic Digestion Technology

The main emphasis of this work by Juniper for Renewables East was to provide technical and commercial information to potential project developers about available AD technologies and the companies supplying such processes, in order to facilitate the sourcing and procurement of equipment for resource recovery as renewable energy in the East of England. It focussed on the AD technology providers able to supply their process to convert biomass residues to biogas and thence heat and electricity.

The **Short Form Report** (26 pages) is a summary of the technology background, associated challenges and relevant market drivers with a brief description of methodology applied for the full report.

The **Full Report** (174 pages) identifies commercially relevant AD processes suitable for the feed stream specified by Renewables East. In an initial screening process Juniper identified **107** potential technology providers. These 107 companies were subject to further investigation in order to gather information about the individual processes either via public domain sources or through direct discussion with the suppliers.

The 107 companies were screened against further criteria, which resulted in **21** technology providers being identified as potentially suitable companies that could provide demonstrated AD technology for applications in the East of England. These 21 providers were contacted via e-mail to obtain up-to-date technical and commercial data on their process and company. The information submitted by the companies was evaluated against a number of parameters in order to help identify the suppliers having capabilities that best matched RE's current requirements. A detailed profile of each of the 21 companies contacted is provided. Of those companies reviewed, **16** suppliers appeared to have systems that could match the type of project parameters that RE had indicated to be of most interest.

The full report also identifies the technology providers who have project experience with biogas upgrading to produce pipeline quality fuel gas and alternative vehicle fuel. As these are relatively new applications using AD, there are detailed case-studies of each included which feature ground-breaking European projects.

The full report finally includes a specification enquiry based on the characteristics of an existing project in the East of England. This enquiry was sent to a subset of the companies that had been identified as suitable for consideration for projects. The specification assumed a feedstock of 30,000 tpa of food waste and 10,000 tpa animal slurry

Commercial Assessment of Gasification (Advanced Conversion Technology)

Juniper were commissioned by Renewables East to undertake an assessment of Advanced Conversion Technologies (ACT)¹, such as pyrolysis and gasification, for the conversion of biomass, typically chipped / pelleted wood and waste wood, to electrical power and/or heat.

The **Short Form Report** (23 pages) is a summary of the technology concepts, associated challenges and the relevant market drivers for the biomass sector, with a brief description of methodology applied for the study.

The **Full Report** (140 pages) provides technical and commercial information to potential project developers about available technologies and the companies supplying such processes, in order to facilitate the sourcing and procurement of equipment for renewable power production in the East of England.

Juniper adopted a two staged approach for this study; an initial screening process of potentially applicable technologies followed by a more detailed investigation of the processes selected during the first stage. As part of this assessment the work identified commercially relevant ACT processes suitable for biomass, focussing on those which could be considered for processing waste wood.

Initially **107** technology providers were identified and from these, **23** were selected and contacted via email in order to gather up-to-date technical and commercial information about the individual processes. Based on the information provided, **15** of the 23 technology providers were identified for consideration and further investigation.

In a second phase the project it was agreed that Juniper would prepare a generic specification for a gasifier designed to produce a particular power output from a wood chip fuel. This would provide the selected companies with the opportunity to provide more focussed technical and commercial data that would allow a fair and meaningful comparison of the different companies. It was expected that only companies that were interested in tendering in the East of England would be prepared to respond to the specification.

From these 15 companies 13 were requested to respond to the specification and propose a plant to produce 1 MW of electrical power from a wood fuel input.

The Short Form Reports are freely available in the public domain in pdf format,

See: www.renewableeast.org.uk

For the Full Reports including the techno-commercial assessment, please contact:

Richard Parker, Development Director - Bioenergy
richardparker@renewableeast.org.uk

¹ Advanced Conversion Technologies are defined in the UK Renewable Energy legislation and include pyrolysis, gasification and anaerobic digestion