

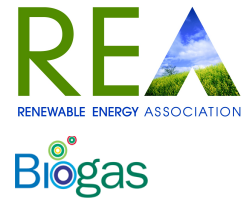
UK Biogas Operating & Engineering Course

The Dolphin Hotel, London Rd, St Ives, Cambs, PE27 5EP, UK
 January 25 - 29, 2016

Monday, 25 January 2016	
Part 1: Practical Digester Biology – Optimisation of Biogas Production	
08.30 - 09.00	Registration
09.00 - 09.30	<p>Welcome to the seminar <i>Dr. Kiara ZENNARO, REA, London, UK</i> <i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH, Kirchberg/Jagst, Germany</i></p> <p>Lecturers and attendees introduce themselves</p>
09.30 - 10.30	<p>Overview of the Biogas industry in Europe and UK and its future development <i>Dr. Kiara ZENNARO, REA, London, UK</i> <i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH, Kirchberg/Jagst, Germany</i></p>
10.30 - 11.00	Coffee break
11.00 - 12.30	<p>Fundamentals of biological process</p> <ul style="list-style-type: none"> • The anaerobic digestion process • Environmental parameters • Engineering parameters <p><i>Birgit PFEIFER, Bioreact GmbH, Troisdorf, Germany</i></p>
12.30 - 13.30	Lunch break
13.30 - 15.00	<p>Choosing the right substrate and combining it for the optimal digestion input</p> <ul style="list-style-type: none"> • Substrate selection criteria • Calculation of the gas yield according to energy content • Substrate quality and level of contamination • Off farm material from communal and industrial origin <p><i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH, Kirchberg/Jagst, Germany</i></p>
15.00 - 15.30	Coffee break
15.30 – 17.00	<p>Insitu process control and trouble shooting - Process monitoring and practical plant operation</p> <ul style="list-style-type: none"> • Testing parameters during operation • Practical devices for plant monitoring • Record keeping <p><i>Birgit PFEIFER, Bioreact GmbH, Troisdorf, Germany</i></p>
17.00 - 17.15	<p>Discussion End of the day</p>

19.00 Optional:

Dinner at local restaurant



Tuesday, 26 January 2016

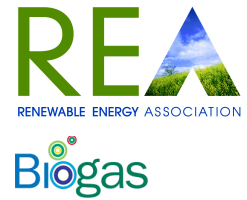
Part 1: Practical Digester Biology – Optimisation of Biogas Production

9.00 - 10.30	<p>Measurement for process optimisation, stabilisation and enhancement of the biogas process</p> <ul style="list-style-type: none"> • Gas analysis related to the metabolic pathway • Application area for gas analysis devices • Application of further measured variables, controlling and supervisory control <p><i>Torsten HAUG, Union Instruments GmbH, Germany</i></p>
10.30 - 10.45	Coffee break
10.45 - 12.15	<p>Interactive group session - Necessary laboratory tests & practical interpretation of operating modes using examples from practise</p> <ul style="list-style-type: none"> • Testing parameters during operation • Practical devices for plant monitoring • <i>Record keeping</i> <p><i>Birgit PFEIFER, Bioreact GmbH, Troisdorf, Germany</i></p>
12.15 - 13.15	Lunch
13.15 - 17.00	<p>Departure to a ½ - day field trip to the new Holbeach AD Plant owned by Tamar Energy. Using Xergi technology, Spalding, Lincolnshire</p> <p><i>Dr. Kiara ZENNARO, REA, London, UK</i></p>
~ 18.00	Arrival back at the dolphin

Wednesday, 27 January 2016

Part 1: Practical Digester Biology – Optimisation of Biogas Production

09.00 - 10.30	<p>Practical experiences & lessons from operating a biowaste and food waste plant</p> <ul style="list-style-type: none"> • Biology and technologies with food waste and industrial/communal biowaste • Getting rid of contraries • Sinking and swimming layers • Dealing with small unwanted particles <p><i>Bernhard NATTERER, Finsterwalder Umwelttechnik GmbH, Bernau, Germany</i></p>
10.30 – 11.00	Coffee break
11.00 - 12.30	<p>Process parameters</p> <ul style="list-style-type: none"> • Inhibitors in anaerobic processes • Additives (Trace elements, enzymes, sulphur binder, buffer) • Process control • Desulphurisation methods of the raw biogas <p><i>Dr. Harald LINDORFER, Schaumann BioEnergy Consult GmbH, Pinneberg, Germany</i></p>
12.30- 13.30	Lunch
13.30 - 15.00	<p>Introduction to Operator training, monitoring, commissioning & maintenance</p> <ul style="list-style-type: none"> • Daily monitoring • Minor repairs – safety during repairs • General maintenance <p><i>Jamie GASCOIGNE, Marches Biogas Ltd., Ludlow, UK</i></p>
15.00 - 15.30	Coffee break



15.30 - 17.00	Practical exercises on process engineering and substrate selection <i>Dr. Kiara ZENNARO, REA, London, UK</i> <i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH, Kirchberg/Jagst, Germany</i>
17.00 - 17.30	Discussion of the remaining questions End of Part 1; Hand out of certificates

Thursday, 28 January 2016

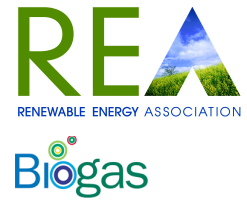
Part 2: Practical Engineering – Optimization in Gas Utilisation

09.00 - 10.30	Awareness on accidents and safety experiences with 8000 biogas projects in Germany <i>Torsten FISCHER, Krieg&Fischer Ingenieure, Göttingen, Germany</i>
10.30 – 11.00	Coffee break
11.00 – 12.00	Financial Incentives – RHI and Feed in Tariffs <i>Dr. Kiara ZENNARO, REA, London, UK</i>
12.00- 13.00	Lunch
13.00 – 14.30	Biomethane injection – connecting to the gas grid connection <ul style="list-style-type: none"> • Description of gas network in the UK and how it works • Basics of upgrading technologies • A – Z of how to secure a gas grid connection • Gas quality - complying with GSMRs • Sustainability issues <i>Robert MC KEON, CNG Services Ltd., Solihull, UK</i>
14.30 - 15.00	Coffee break
15.00 - 16.30	Biogas upgrading and different pathways of biogas utilisation <ul style="list-style-type: none"> • Comparison of upgrading technology • Biomethane injection • Green gas certificates <i>Ciaran BURNS, REA Biofertiliser, London, UK</i> <i>Robert MC KEON, CNG Services Ltd., Solihull, UK</i>
16.30 - 16.45	Discussion End of the day

Friday, 29 January 2016

Part 2: Practical Engineering – Optimization in Gas Utilisation

09.00 – 10.30	Health and Safety features of biogas plants and equipment - Inventory of accidents in the UK - Safety Equipemt for Biogas Systems <i>Dr. Kiara ZENNARO, REA, London, UK</i> <i>Guy BRETHERTON, Elmac Technologies, Flintshire, UK</i>
10.30 - 10.45	Coffee break



10.45 - 12.00	Practical guidance for electrical grid connections <ul style="list-style-type: none">• Distributed generation• Rural Electricity Grid• Application & connection process• Commissioning process <i>Bob WEAVER – REA retained Grid Expert and PoweCon (UK) Ltd</i>
12.00 – 13.15	Digestate standard and digestate utilisation <i>Dr. Kiara ZENNARO, REA, London, UK</i> <i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH, Kirchberg/Jagst, Germany</i>
13.15 - 14.15	Lunch
14.15 - 15.30	Managing Digestate to Land for Agricultural Benefit <i>Bryan LEWENS – Fertiliser Manager, Holsworthy Biogas Plant, Devon, UK</i> <i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH, Kirchberg/Jagst, Germany</i>
15.30 – 16.00	Discussion of the remaining questions; Hand out of Certificates; End of the Seminar

Programme is subject to change