



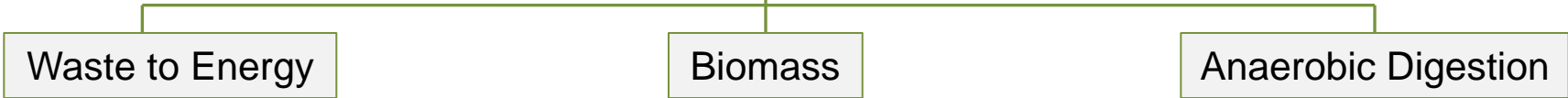
Biogas Action Plan Stakeholder Group Thursday 23 Jan 2014

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Bioenergy



Promotion and Development of Bio energy Sector
STRATEGY

Existing Clients

New Clients

New and existing Market Research

Where are the opportunities for growth?

Frost & Sullivan Report on Bio energy Markets in Europe – this will provide background info for any future scoping exercise

Two Year Strategy



Bio energy Sector – Background information

- Broad & varied sector covering a range of technologies at different stages of development.
- **Biomass electricity**- main growth area. Feedstock's are wood chip, waste wood, agricultural wastes, manure & sewage sludge, energy crops.
 - Thermal processes –direct combustion and/or gasification
 - Anaerobic digestion (AD)
- **Electricity from Waste Combustion**. Feedstock's are household & municipal solid waste, commercial and industrial waste. The energy is recovered from the off-gases produced by combustion
- **Bio energy boilers**- burning of fuels including wood, energy crops, agricultural wastes and wood waste from industrial processes.

Technologies contd.

- **Energy from Waste- heat**
- **Biomass District Heating**
- **Biogas injection into the gas grid**

Policy environment-market drivers

- **Climate Change Act 2008:** reduce greenhouse gas emissions by 34% by 2020 and by 80% by 2050 against 1990 levels.
- **EU's Renewable Energy Directive:** UK 15% of energy consumption from renewables by 2020. NI target is 40% renewable electricity and 10% heat
- **EU's Revised Waste Framework Directive:** ranks waste management options in order of environmental preference. Recovery of energy from waste ranks highly
- **UK Government's Review of Waste Policies in England in 2011:** renewable energy from waste through combustion could almost treble from current 1.2TWh to 3.1TWh -3.6TWh by 2020

- **Joint Government & industry Anaerobic Digestion Strategy & Action Plan 2011:** estimate of UK potential 3TWh to 5TWh for heat & electricity by 2020.
- **UK Bio energy Strategy April 2012-** sets 4 principles for bio energy policy:
 - Genuine carbon reductions based on full lifecycle carbon assessments
 - Cost effective contribution to CO2 emission reduction
 - Overall economic benefit (to combat impact on sectors competing for feedstock's)
 - Impact on other industry sectors

Government incentives

- **Renewable Heat Incentive:** support for owners of domestic & non-domestic properties to switch from conventional to renewable heating solutions (NI currently non-domestic properties only)
- **Renewable Obligation Certificates (ROCs):** slight decline for waste related energy generation but broadly continued support for biomass

A growing sector

- Bio energy's contribution to total electricity generated will increase from 3% to 5%-11% by 2020.
- Bio energy's contribution to total heating to increase from 1% to 6% by 2020, boosted by the Renewable Heat Incentive

Key success factors for growth to continue

- Sustainable and secure supply of feedstock
- Sustainable projects- full lifecycle carbon impact
- Availability of funding- government incentives may be withdrawn over next 5 years.
- UK supply chain needs to expand to cover equipment through to support industries in commissioning and maintenance
- Cost of technology needs to be reduced / new technology introduced
- Access to grid and achieving consents

R&D for next generation technologies

- Competitions run through TSB, SBRI, DECC and ETI eg:
- TSB/SBRI Sustainable Utilisation of poultry litter
- SBRI/DECC Wetlands biomass to bio energy
- DECC participation in European ERA-NET Plus BESTF scheme

NI capability

- Own IP protected biomass, CHP and AD technologies for domestic & commercial scale applications up to 5 MW eg Edina, Alternative Heat, CTS Projects, Glantek Network.
- Component manufacturing & services in construction, O&M & decommissioning
 - Components include:
 - metal & composite fabrications including housings, platforms, ladders
 - Walking floor feeder systems
 - High precision welded pipe work
 - Precision engineered components
 - Refractory lining & repair

- **Electrical & Electronics**

- Electrical control systems
- Electrical wiring/high voltage switchgear/grid connection

- **Maintenance & monitoring**

- Maintenance of compressed air systems, feed pump, steam generation, distribution & condensation plant, steam turbine, fire protection & detection systems, flue fans, ductwork, gas/oil burn fuel train, HVAC systems, hydraulics, structure steel chimney maintenance

Invest NI Support for the Sector

(In conjunction with Partners, EEN, Questor & DARD)

- Technical supply chain capability assessments
- Technical capability development visit programme – Biomass Mission to Northern Germany & Denmark, support to participate in World Waste To Energy City Summit, London, Agritechnica visit
- Promotion of capability – European Bio energy Exhibition & Conference 2012 and 2013
- Marketing Strategy Development via EDS

Companies visiting Ebec Stoneleigh Park, Coventry, 09 & 10 October 2013

- **A1 Power**
- **Coolsky / Apricus**
- **Edina Manufacturing**
- **McGreevy Engineering**
- **Terrawatt UK Ltd**
- **Facilities & Energy Management**
- **CREST**
- **R&S Biomass**
- **Tyrone Fabrication**

Ebec Stand Visuals



CLIENT: INVEST NORTHERN IRELAND
VENUE: EBEC 2012
STAND C58, STONLEIGH, WARWICKSHIRE
DATE: 10 - 11 OCTOBER, 2012



Implementation of Strategy

Northern Ireland....*a region of Bioenergy Excellence*

Promotional Materials (Highlighting Company Capability):

- Case Studies
- Launch of DVD
<http://www.youtube.com/watch?v=eE9AvyCqGLU&list=PL5FB09C3678C2116D&index=1>
- Development of Supply Chain Register

Trade Activities:

- EBEC, Coventry – October 2013
- Agritechnica, Germany – October 2013
- AD Europe, Dublin – February 2014

Implementation of Strategy

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Technology Transfer Visit, Sweden – May/June 2014

Purpose:

- Look at emerging technologies
- Enriching biogas
- Biomethane



Injection into Grid or Road Transport



Upgraded Biomethane / Methanol



Possible Marine Application?