

Sustainability  
Review of a  
Biomethane  
Trade



William Mezzullo  
21 Feb 2012

- A UK leader in the development and operation of energy crop AD plants
- Founded in 2008
- First planning permission 12/2009
- First plant (1.4MW) fully operational
- Second plant (1.5MW) has been operational since April 2012
- 3<sup>rd</sup> and 4<sup>th</sup> plants have obtained planning permission



## Spring Farm

- Plant operating (1.4MW)
- 20+ local farmers
  - Crop opportunity for poor land
  - Break for vegetable production
  - HLS grass and Norwich Airport lawn!
  - Perennials and high performance grass



## Reepham Road

- Heat user next door (Abattoir)
- 1.56 MW
- Started generating on the 2<sup>nd</sup> of April 2012
- More local farmers!



## Overview

What is the Green Gas Grids Project?

EU Sustainability Criteria for Bioenergy

DECC Biomass Sustainability Criteria

Implications on the biomethane industry




## IEE Green Gas Grids Project

- 3 year EU funded project to boost the European biomethane market
- Led by German Energy Agency
- Working on 4 key areas:
  - Sustainability (WG 1)
    - Technical Standards (WG 2)
    - Trade (WG 3)
    - Policy Targets (WG 4)


## Working Group 4 (Policy Targets)

### Goal of Working Group 4 – Country Models

- Led by John Baldwin
  - Create a National Tool Kit for EU countries for policy makers to determine the total biogas potential
  - Each country/agency will be able to use the tool kit/model to develop a range for biomethane potential by 2020 and 2030
  - This will enable feedback into National Renewable Action Plan
- 

## Working Group 4 Outputs

### Identifying Barriers to Entry

- 3 fundamental requirements for biomethane injection
  - **Is it legal:** Technical barriers such as O<sub>2</sub>, France biomethane from sewage waste not allowed
  - **Is there finance:** Italy, Northern Ireland etc. still have no support for biomethane
  - **Support from Grid Owner:** Lack of motivation from Grid Owner could make it challenging
- 



## Working Group 1 Sustainability

### What and Why?

- EU Sustainability Criteria for all biomass for heat, cooling, electricity, injection
- Mandate under the EU Renewable Energy Directive
- Criteria must ensure all biomass to energy:
  - Have a net saving in GHG emissions compared to fossil fuels of 35%
  - Feedstocks used do not use land with high biodiversity value (or high carbon stock)
  - GHG savings target to rise to 50% by 2017 and 60% by 2018



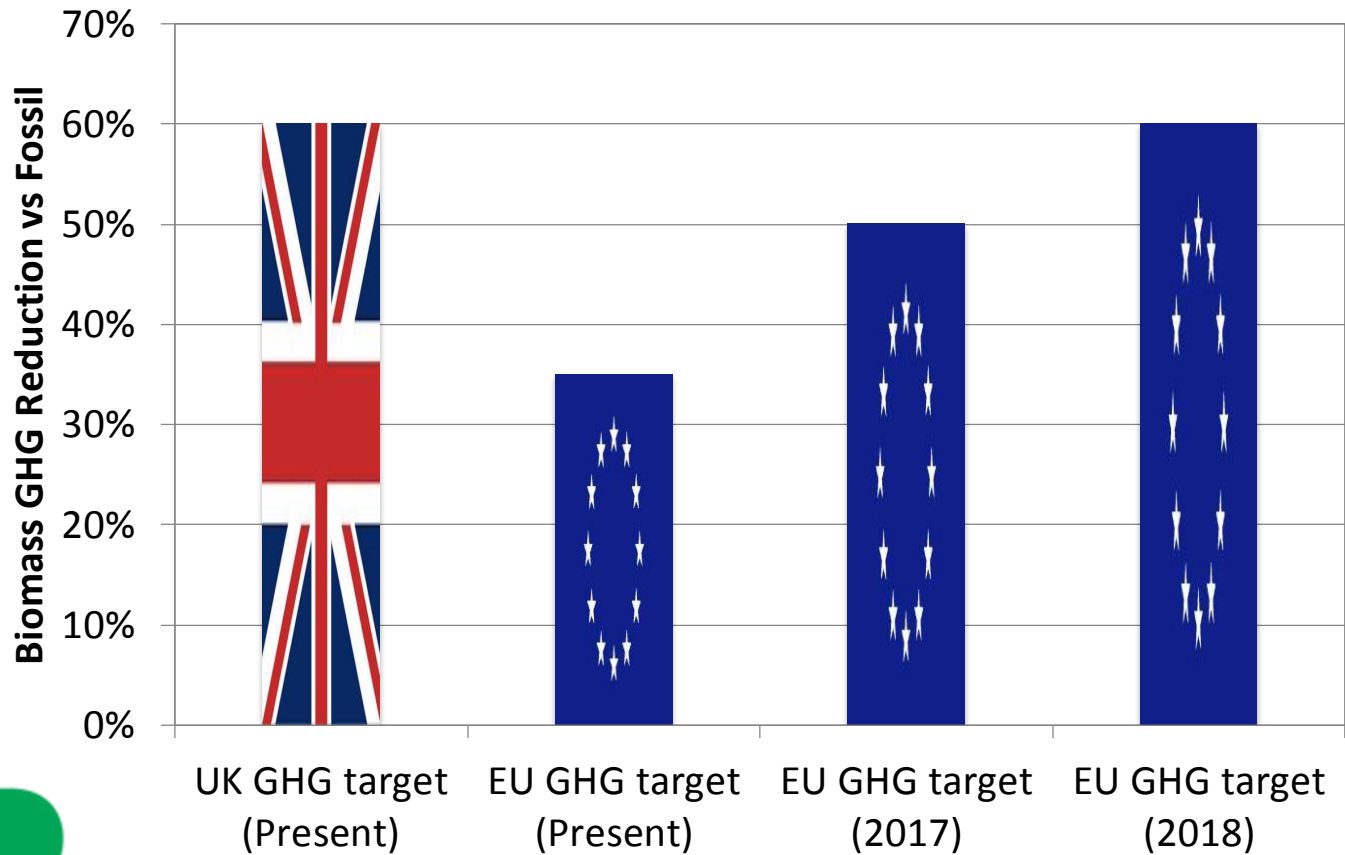


## Sustainability Criteria for Electricity

### Biogas to Electricity

- Must meet the criteria if claiming ROC subsidies
- Lifecycle GHG emissions must be monitored, audited and reported:
  - Feedstock production (waste = 0 GHG emissions)
- 60% GHG reduction target
- Not applicable to FIT

## Sustainability Criteria for Electricity

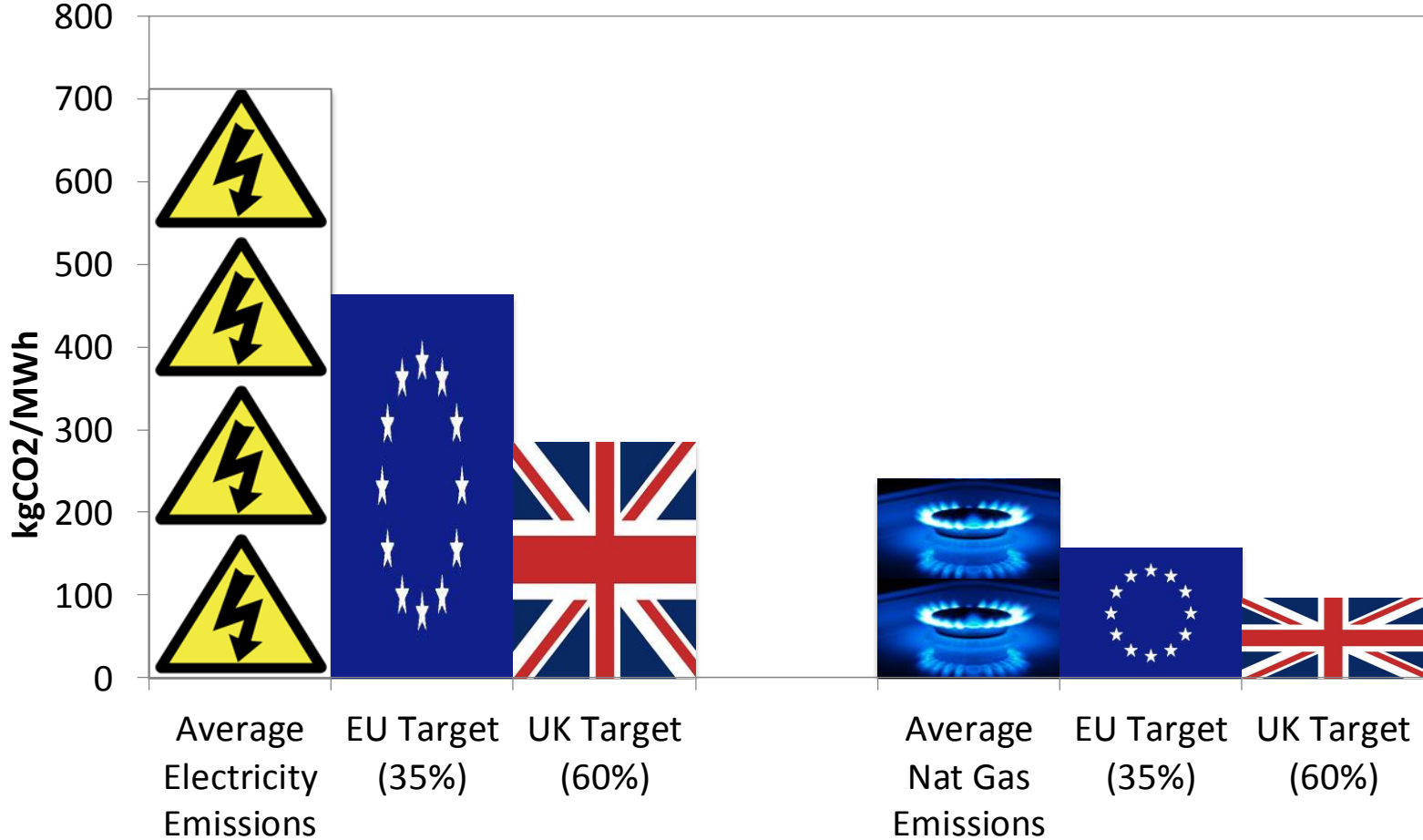


## Sustainability Criteria for biomethane

### Biomethane

- To be introduced in April 2013
- RHI funding will be dependent on successful adherence to Sustainability Criteria
- Will be consulted on by DECC (October 2012)
- No information available however...
  - Probable 60% GHG reduction compared to fossil fuel equivalent  
(Natural Gas Comparator?)

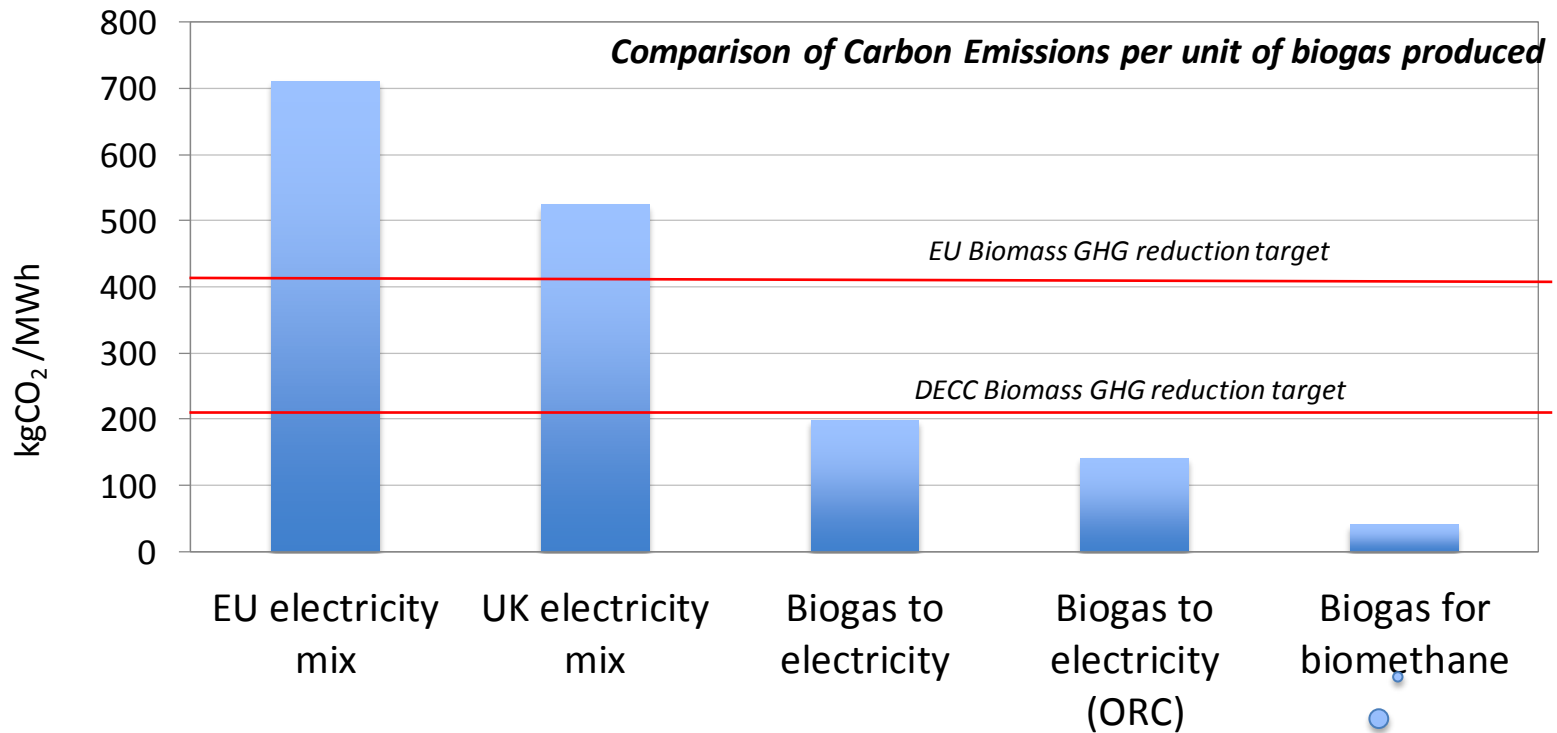
GREEN  
GAS  
GRIDS



**Electricity**

**Biomethane**

## GHG reduction of biogas plants



Hopefully!

## GHG emissions of biomethane plant



Feedstock Production

50%



Biomethane Upgrade

30%



Transport

5-10%

10-15%



Site Operation




## Areas of high GHG emission risk

### Methane slip from off gas

- Off-gas methane concentration (also known as methane slip)
- No limit in the UK – however this is limited in Germany to 0.2%

### Open Digestate Stores

- Fugitive emissions from residual methane potential
  - No requirement for this in the UK
- 



## Summary

- Raising Sustainability profile in biogas industry
- Pressure from Europe to ensure all biomass subsidies are linked to sustainability
- Biomethane offers excellent GHG reductions
- Concerns of what GHG reduction benchmark will be used
- Optimisation of plant carbon footprint becoming financially imperative (reducing methane slip, efficient feedstock production etc.)



William Mezzullo  
[william.mezzullo@futurebiogas.com](mailto:william.mezzullo@futurebiogas.com)

Thank you