



# Green Gas Grids Project

## Working Group 4: Country Models

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# GREEN GAS GRIDS

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## Goal of Working Group 4: Country Models

- To Produce a Tool Kit (XL Spreadsheet Model) that allows each country to estimate the amount of biogas that they can produce in the period to 2030
- The Tool Kit will then allocate the biogas to CHP or Biomethane
- The Tool Kit will provide the ability to change the split between CHP and Biomethane to take into account the renewable incentives in place
- 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 be able to feedback into National Renewable Action Plans for each country and any other processes or consultations on a country basis
- Netherlands - Renewable Action Plan says 700 million Nm<sup>3</sup> of biomethane (say 100 projects, each 7 million Nm<sup>3</sup> = 1300 m<sup>3</sup>/hr biogas flow-rate)

## Biomethane Market: Key Barriers

- There are 3 fundamental requirements for a biomethane market:
- **Is it legal to inject biomethane?**
- Technical barriers such as Oxygen specification or in France biomethane from sewage biogas not allowed
- **Is there a financial support mechanism for biomethane injection?**
- If there is no support then projects cannot happen
- E.g. Northern Ireland supports CHP but not biomethane
- **Do the gas grid owners support biomethane?**
- Even if it is lawful, if the grid owner does not want to allow it then it will not take place
  
- The following countries have overcome these barriers and form the EU biomethane Injection Club:
- Germany, Austria, Switzerland, Sweden, Netherlands, Finland, France, UK, Denmark

## Biomethane Market: Growth Potential

Once in the Biomethane Injection Club, the growth in the market depends on the following:

No	Factor	Score Max	Max Score	Score 0	UK score
1	Biomass resource	Large resource	20	Limited resource	10
2	Energy crops	Allowed with no limits	20	Not allowed	10
3	Legal requirement for GHG saving compared to natural gas	30% reduction	20	60% reduction	5
4	Financial incentive for biomethane compared to CHP	Biomethane better than CHP	20	CHP better	10
5	Efficiency rules for CHP	Yes, eg >50% heat use	20	None apply	0
6	Use of biomethane direct as vehicle fuel	Not promoted	20	Promoted	10
7	Biomethane supply chain developed	Active market	20	Limited suppliers	10
8	Gas grid capacity	Exists	20	Limited	10
9	Extent of gas grid	Grid to 90%	20	Limited grid	18
10	Gas quality	No issues	20	Issues remain	10
11	Grid operator attitude	Supportive	20	Negative	15
12	Role of biomethane recognised by Govt, targets etc	Targets exist	20	Limited	10
13	Decarbonisation of elec grid	Successful	20	Limited success	10
14	Size of AD/biogas industry	Large	20	Small	5
15	Customer demand for biomethane/Green Gas Register	Exists and market interest	20	Limited interest and no Register	15
Total			300		148

**0 – 100** Poor market for biomethane

**100 – 200** Potential market

**200 – 300** Attractive market

## UK Case Study: A New Biomethane Industry (1)

- Premium for biomethane of around 8 Euros per kWh started on 1 Dec 2011
- 2 pilot projects:
- Water wash (sewage works)
- Cryogenic upgrading (food waste )

### What are the issues that are holding up the market?

#### SHORT TERM

- Oxygen specification (currently 0.2%)
- Ownership of injection plant (gas quality odorant etc.)
- Gas grid capacity
- Standards to measure calorific value
- Above delaying projects, increasing capital costs
- PROCESS UNDERWAY TO RESOLVE THESE ISSUES BY END MAR 2012

#### MEDIUM TERM

- UK Govt suggesting 60% reduction in CO<sub>2</sub> compared to natural gas - difficult
- UK Govt does NOT like use of land to grow crops for energy

## UK Case Study: A New Biomethane Industry (2)

- Consultants for UK Govt have indicated target for Renewable Heat by 2020 is that the Renewable Heat Incentive should deliver 7 TWh of biomethane by 2020 to form part of the 73TWh of renewable heat required to meet the UK target of 12% of all heat
- We have modelled possible build up to 7 TWh and beyond
- It is hard to predict what the actual growth will be when we have not had the first commercial project though there are 3 projects underway in 2012 and an estimated 8 - 10 for 2014
- These projects proposing to use the UK's Green Gas Certificate Scheme
- [www.greengas.org.uk](http://www.greengas.org.uk)

## Conclusions & Next Steps

1. Receive feedback on methodology and key growth matrix
2. Each member to estimate their 'score' today and identify the key issues that need to be overcome to move to a much higher score in 2015
3. Develop spreadsheet model/toolkit



## Partners of Green Gas Grids

