# IEA Bioenergy Task 37

# UK Country Report

**Oliver Harwood**

(pp Clare Lukehurst UK National Team Leader)

**November 2010**

# Numbers of biogas plants

(as far as it is known)

| Location | Built | Planned |
|---|---|---|
| **Farm** (slurry and co-digestion with maize, etc & food waste) | 40 | 20 |
| **Industrial** (breweries, vegetable packers, ice cream, etc) | 18 | ? |
| **Landfill gas** (claiming ROCs) | 345 | ? |
| **Waste Water Treatment** (claiming ROCs) | 151 | ? |
| **Municipal Waste** (MBT) | 3 | 3 |

Compiled from data provided by plant owners and industry

# Number of plants claiming ROCs

| | |
|---|---|
| **Landfill gas plants** | **345** |
| **Sewage gas plants** | **151** |
| **AD plants** | **13** |
| **“fuelled” plants** | **31*** |

**Compiled from Office of Gas and Electricity Markets (Ofgem) online report.**

***Note: Ofgem does not distinguish between AD and biomass generation: the above number is a best guess based on industry information and the Ofgem report**

# Energy generated from biogas

## Thousand tonnes of oil equivalent (2009)

| | |
|---|---|
| **Landfill gas** | **1638** |
| **Sewage gas** | **277** |
| **No data for AD** | |

**Source: BERR ( 2010) Digest of Energy Statistics**
**NB No data yet recorded for energy from AD**

# Energy produced under ROCs (including those transferred from the Non Fossil Fuel Obligation)

7.5 Electricity generated from renewable sources –Renewables Obligation basis

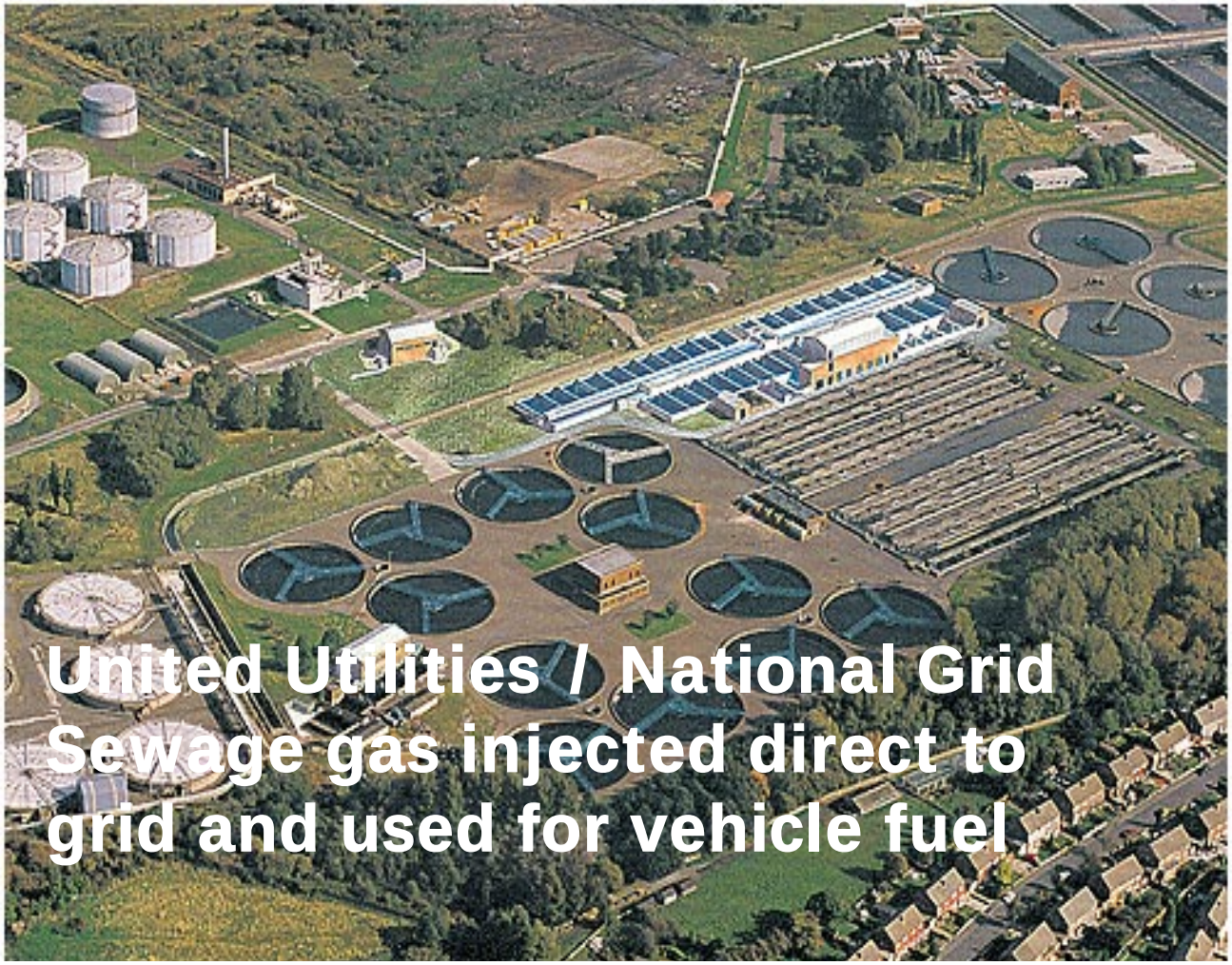
GWh

| | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| Landfill gas | 4,290 | 4,424 | 4,677 | 4,757 | 4,952 |
| Sewage sludge digestion | 466r | 447r | 502r | 547r | 638 |
| Animal Biomass | 468 | 434 | 555 | 587 | 620 |
| Plant Biomass | 382 | 363 | 409 | 568 | 1,109 |

Note: Animal and Plant Biomass generation includes combustion and AD

**Compiled from DECC Energy Statistics (2010)**
**Animal includes the use of farm waste digestion, poultry litter combustion and meat and bone combustion. Plant includes the use of straw and energy crops. AD is not separately accounted.**

## ETF AD Programme



# ETF AD Programme

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# Where are we now?


## Facts & Figures

- **Operational capacity:**
  - Commercial – 534,200 tonnes
  - Farm – 136,156 tonnes
  - Food and drink manufacture – 382,000 tonnes
- **In build:**
  - Commercial – 518,500 tonnes
  - Farm – 216,000 tonnes
  - Food and drink manufacture – 3 million tonnes (high liquid content)
- **With Planning:**
  - Commercial – 1,469,125 tonnes
  - Farm – 247,100 tonnes

**http://biogas-info.co.uk/maps/index2.htm#**

## Other plants

Plants which DO NOT process ABP’s

- Attached directly to food manufacturing sites
- Currently process about 400,000 tonnes per annum
- Majority of these plants do not produce digestate
- Further 400,000 tonnes in build

# Expected growth – what we know

- There are currently over 50 plants with planning consent or seeking planning consent, totalling over 2 million tonnes of capacity including proposed farm plants of around 100,000 tpa
- No guarantees that any of these will be built.

# Number of AD plants built under the Feed In Tariff (since April 2010)

**FIT Installations Statistical Report**

Total FIT installations of AD technology between 01/04/2010 and 29/10/2010

All Geographical Locations Selected

**Installed Capacity (MW)** 0.000

**Total Installations** 0.000

**Compiled from Office of Gas and Electricity Markets online report**

# Biogas upgrading Plants

- **2008 Gasrec 500 t/pa from landfill gas for vehicle fuel –** pilot schemes with local authorities and surplus exported to Norway

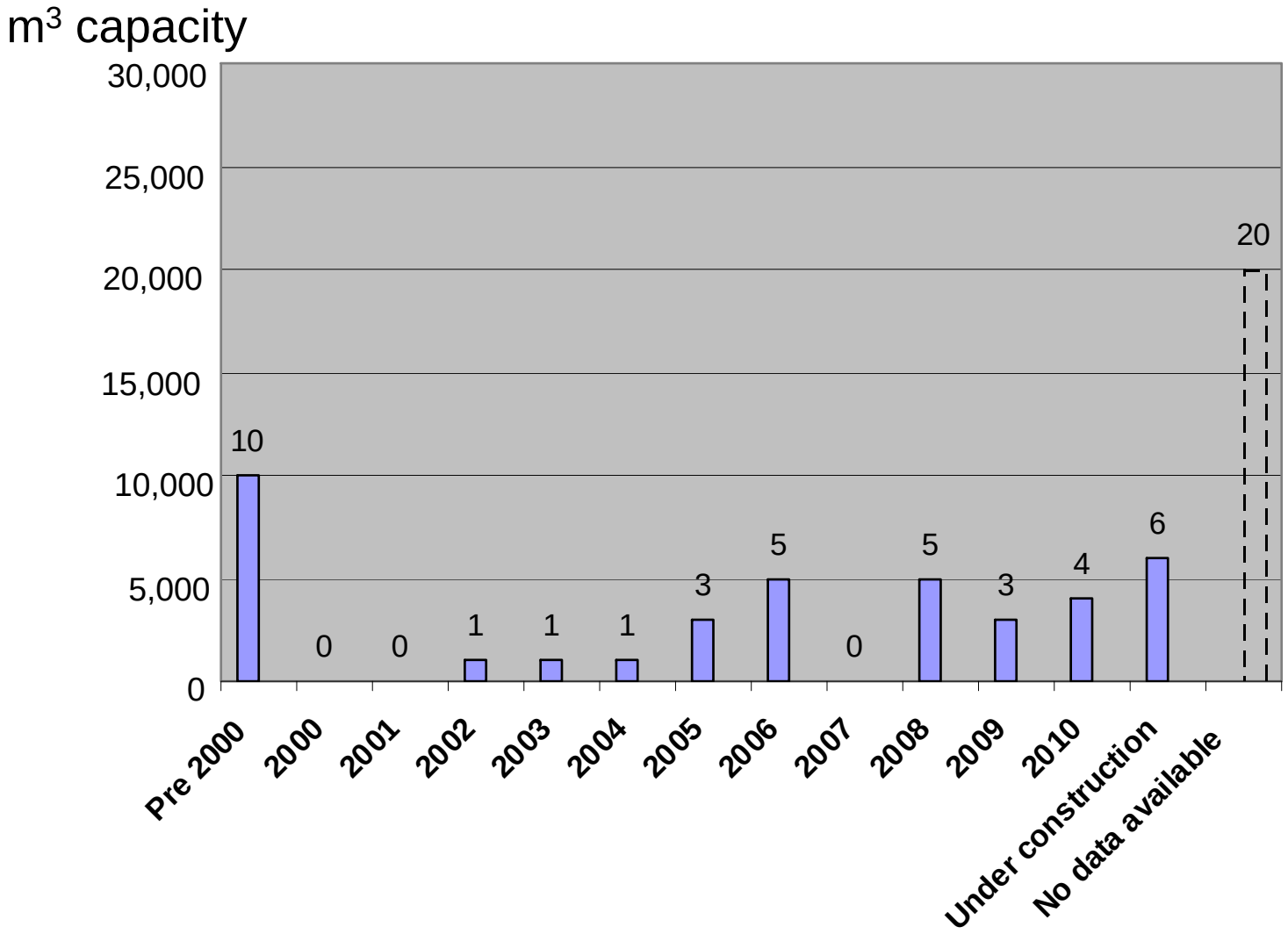
- **2009 Adnam's Brewery (Suffolk)** biogas produced from brewery waste and restaurant food -approx. 100$m^3$ /hr for grid injection and electricity production

- **2010 (under development) Government Demonstration Project with United Utilities and National Grid, Davyhulme** (Manchester 250 $m^3$ /hr) for vehicle fuel and grid injection.

- **2010 British Gas and Centrica confirmed plans for 5 plants - first of which is Didcot -** to upgrade sewage gas for grid injection

- **October 2010 Didcot STW -** a joint venture between Thames Water, British Gas and Scotia Gas Networks supplies first bio-methane to the UK gas grid.

# Installation of current operating capacity




Farm based plants only (data provided by farmers and companies)

# Economic supports –market mechanisms

- **Renewable Obligation Certificates** (ROCs) (currently paying 4.8p/kWhr x 2 for AD)
- **Northern Ireland ROCs** proposed increase to 4 x ROCs for plants in NI from 2011 (tbc)
- **Feed –in -Tariffs** for electricity/CHP as from April 2010 (11.5p/kWh <500kW, 9p/kWh >500kW–5 MW)
- **Renewable Heat Incentive** (from June 2011)- details tbc for both CHP and grid injection
- **Renewable Transport Fuel Obligation** Certificates (currently worth 11.15p/litre)

# Economic supports -Capital grants

- **Waste Resources Action Programme** (WRAP) Organics Capital Grant Scheme (now closed but supporting current construction)
- **Bioenergy Capital Grant Scheme** (now closed)
- **Rural Development Programme for England (RDPE)** (difficulties with State Aid not resolved)
- **AD implementation plan 2010**
  - £10 million programme of demonstration sites across England
  - New research unit to test out the latest technology

  (now closed but supporting current construction)
- **Northern Ireland – DARD biomass capital grant scheme** to include AD – soon
- **Wales Assembly Government** £29m funding to local authorities for AD to displace landfill (from 2009)

# AD Implementation Plan published March 2010

## England

- **The Coalition Government is committed to introduce measures to promote "a huge increase in energy from waste through anaerobic digestion".** This work is being carried forward
- **Defra and DECC are working together on an AD Action Plan.** This will set out steps to promote the increase in energy from waste through anaerobic digestion, for consultation with interest groups and industry in November 2010. This work will lay the foundation for a detailed action plan, to be published in spring 2011.

## Scottish support strategy

- Scottish Government working on a support strategy to identify joint objectives and encourage take up of AD

## Wales

- Food Waste Implementation programme to reduce landfill: AD a preferred technology

# Improving understanding: national projects (1)

- **The AD Development Centre**

  (www.uk-cpi.com/3_pages/focus/susproc/ small scale research plant for hire)

- **15 reports including due for publication 2010**

  - Project AC0409 Implementation of anaerobic digestion in England and Wales balancing optimal outputs with minimal environmental impacts

  - Potential for farm scale AD

  - Review of AD technology

- **European experience with small scale AD**

  Project WR1119 to summarize experiences and lessons from the use of small scale (0.15MW to 0.40 MW) and on-farm AD systems.

# Improving understanding: national projects (2)

- New farm scale trials on use of digestate (WRAP) starting soon
- Building markets through programme to deliver confidence in digestate – working with retailers and farmers (WRAP)
- RELU Project – Energy production on farms through Anaerobic Digestion www.ad4rd.soton.ac.uk/
- Wales Centre of Excellence for AD www.walesadcentre.org.uk/ (Glamorgan University)
- John Walsh from Bangor University: PHD thesis laboratory and field scale testing of digestate on crops.
- Other work at Imperial college by Professor David D Stuckey http://www3.imperial.ac.uk/people/d.stuckey

# Information Portal on AD

Defra in conjunction with Department of Energy and Climate Change (DECC) launched England's Official Information Portal on Anaerobic Digestion in 2009. The site acts as a gateway to AD information available on one website.

www.biogas-info.co.uk

It is being administered by the National Non Food Crops Centre (NNFCC), which is working to improve and extend the range to the whole of the UK

# Sharing global experience

- **Methane to Markets Partnership-** 30 countries members including Russia, China, USA and India
- **IEA Bioenergy Task 37**
- **UK-China Sustainable Agriculture Innovation Network**

(NB all Defra funded work is under review)

# Biofertiliser Certification Scheme

## www.biofertiliser.org.uk

eveloped and administered by Renewable Energy Assurance Ltd (REAL) wholly owned by the Renewable Energy Association

wo certifying bodies :

- Organic Farmers and Growers
- Scottish Farm Quality Certification

Consultancy support available from WRAP and ZWS for producers who wish to become certificated

eries of logos provided for the quality marque

"BIOFERTILISER"

Source: Renewable Energy Association

# Digestate regulations for farmers

armers who use manure, apply according to Code of Good Agricultural practice and NVZ regulation with no AD face no permitting requirement

xemption from waste regulations for AD only if **own** farm manure and crops for **own** farm use applied for agricultural benefit in accordance with COGAP etc

ny other case requires full waste permit and transfer approval unless

D plant registered and compliant with “Biofertiliser Certification Scheme” (compliant with PAS 110 in

# Spreading digestate

nless exempt or treated to become biofertiliser all digestate is a waste.

roducers must only transport with waste carrier licenses

ust only be spread subject to site licenses which are limited to 50ha blocks . Must comply with the conditions of the permit.

nvironment Agency and Scottish Executive Protection Agency fees.

# Organisations supporting the UK membership of IEA Task 37

**Sponsors*:***

***Agri-food and Biosciences Institute (Northern Ireland), Biogen (UK) Ltd,***

***Biogas Nord UK Ltd, BiogenGreenfinch Ltd, Bioplex Technologies Ltd,***

***Chesterfield Biogas Ltd, CNG Services Ltd, Country Land and Business Association, GWE Biogas, Hardstaff Group, J.H. Walter Sustainable Resource Management, Masstock Smart Farming, Methanogen UK Ltd, National Grid , Natural England, NETZSCH Pumps Ltd, Omex Environmental Services Ltd, Peter Jones OBE,***

***Organic Power Ltd, Royal Institution of Chartered Surveyors, Renewables East, Summerleaze Ltd, Sustraco Ltd, The Anderson Centre, University of Southampton,***

***UTS Biogas Ltd, Veolia Environmental Services Ltd, Xebec Adsorption UK Ltd,***

***Xergi UK Ltd***

**and**

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