



# Biomass and CCS Regulation and Economic Incentives

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# IEA Greenhouse Gas R&D Programme



- A collaborative research programme founded in 1991 as an IEA Implementing Agreement financed by its members
- Aim: Provide members with definitive information on the role that technology can play in reducing greenhouse gas emissions.
- Producing information that is:
  - Objective, trustworthy, independent
  - Policy relevant but NOT policy prescriptive
  - Reviewed by external Expert Reviewers
  - Subject to review of policy implications by Members
- Activities: Studies and reports (>120); International Research Networks : Wells, Risk, Monitoring, Modelling, Oxy, Capture, Social Research; Communications (GHGT conferences, IJGGC, etc); facilitating and focussing R&D and demonstration activities eg Weyburn; peer reviews.
- Collaborate with IEA, GCCSI, CSLF, ZEP, IPAC, CO2GEONET, UNFCCC

ALSTOM

B&W  
power generation group

BG GROUP



CEZ GROUP



CIAB

VATTENFALL



ConocoPhillips



TOTAL



ieaghg



Enel  
L'ENERGIA CHE TI ASCOLTA.



Statoil



e.on

Schlumberger



EPRI

RWE  
The energy to lead

REPSOL YPF

JGC

GLOBAL CCS INSTITUTE

ExxonMobil



# **Biomass CCS Regulation and Economic Incentives**

# Need for Biomass CCS



- Deployment of current emissions reduction technologies may not be enough for climate stabilisation - future emission scenarios (IPCC 4<sup>th</sup> AR) may require negative emissions
- Only one technology option large-scale and near-market – biomass and CCS
- Highlighted in GHGT9 conclusions, and starting to be recognised, but no assessment of realistic potential, issues, limitations etc.
- Implications uncertain, possibly large, not reflected in climate policy (Rhodes & Keith 2008) – due to lack of information
- IEA CCS Roadmap
- IEAGHG Report ‘Techno-economic evaluation of biomass with post-combustion capture’, IEAGHG 2009/9, Foster Wheeler Italiana
- IEAGHG Study with ECOFYS – ‘Global potential for biomass and CCS’

# How to stimulate Biomass CCS



- R&D funding
- Awareness and information to stakeholders and decision makers
- Demonstration funding
  
- Deployment.....Incentives vs Regulation??

# Carbon markets



- EU ETS – EUAs
- JI – ERUs
- CDM – CERs
- IPCC GHG Guidelines - AAUs

# Carbon markets



- EU ETS Directive 2009
- Art 10a – free allocation can be given to biomass CCS, but not to any electricity production
- Industrial operations OK? use of benchmarks
- Annex 1.1 – 100% biomass combustion not covered by Directive
- Article 24a – EUAs can be given to activities reducing GHGs outside ETS, given not in respect of emissions. Needs host gov to apply.
- Creates uncertainty, needs clarification

# Carbon markets



- JI-ERUs
- Bilateral offset projects in co-operation with host gov'n – allocates from AAUs and converts AAUs to ERUs for project – can work for biomass CCS
- Domestic offsets??

# Carbon markets



- CDM – CERs
- CERs allocated for emissions reductions below baseline – can work for biomass CCS, BUT CCS not yet recognised for CDM.
- Copenhagen CMP5 – invites new methodologies for net reduction technologies
- Sustainable development

# Carbon markets



- IPCC GHG Guidelines (2006)
- CCS Chapter 5.3 – “Negative emissions may arise.....if CO<sub>2</sub> generated by biomass combustion is captured. This is a correct procedure and negative emissions should be reported as such.”
- However in practice – limitations, uncertainty, lack of being tested

# Regulation



- Biomass CCS obligation / quota / Feed-in tariffs ??
- Emissions performance standard (EPS) for bioenergy plants ??

# Incentives vs Regulation?



- Policy, regulations, incentives developed generally without Biomass CCS in mind
- For policy makers to consider biomass CCS, need to be:
  - 1<sup>st</sup> - aware
  - 2<sup>nd</sup> - informed
- Following speakers contributing to this.....



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