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
Biomass CCS
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Need for Biomass CCS

- Deployment of current emissions reduction technologies may not be enough for climate stabilisation - future emission scenarios (IPCC 4th 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 Study with ECOFYS – assessment of global potential
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 govn to apply.
- Creates uncertainty, needs clarification
Carbon markets

- JI-ERUs

- Bilateral offset projects in co-operation with host govn – 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 CO2 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

- Emissions performance standard (EPS) for bioenergy plants ??
- Biomass CCS obligation / quota ??
Incentives vs Regulation?

- Policy, regulations, incentives developed generally without Biomass CCS in mind

- Policy makers need to decide........

- To decide – need to be
  - 1\textsuperscript{st} - aware
  - 2\textsuperscript{nd} - informed

- Following presentations contributing to this........
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