

Bio-CCS on the European and International arena

Bellona CCS-forum 15. november 2011, Oslo

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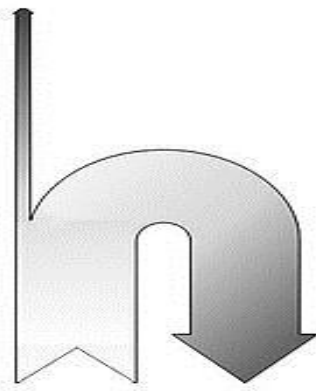
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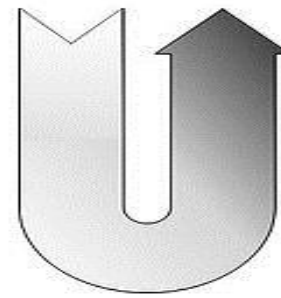
fossil fuels



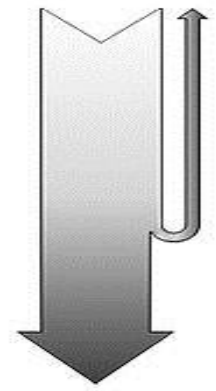
fossil fuels
with CCS



wind, solar,
geothermal,
nuclear, hydro



bio-energy



bio-energy
with CCS

"We are putting ourselves in a scenario where we will have to develop more powerful technologies to capture emissions out of the atmosphere"

- UNFCCC Executive Secretary Christiana Figueres
in Bonn, June 2011

Growing international recognition of the need for large-scale negative CO₂ emissions:

- **UNFCCC** (Brought up e.g. during climate talks in Bonn summer 2011)
- **UNIDO** (Major part of the 2050 Industrial CCS roadmap)
- **IPCC** (Pointed to in 4th Assessment report, confirmed part of 5th report)
- **IEA** (The BLUE Map Scenario calls for more than 2 Gt negative CO₂ emissions/year by 2050; Industry-CCS Roadmap with UNIDO, Bioenergy 2050 Roadmap underway)
- **IEA GHG**
- **Research/academic community**
- **Industry**
- **Policy makers?**

**Policy makers;
European Commission
DG RTD; DG ENER**



**EBTP/ZEP
Joint Taskforce
on Bio-CCS**



The EBTP/ZEP Joint Taskforce on Bio-CCS

- Consisting of 19 organisations from **industry, research and civil society**
- Currently drafting a **Strategic Research Agenda (SRA)** to be presented to its mother platforms and ultimately to the European Commission
- The centrepiece of this SRA will be the **deployment strategy**, including recommendations to policy makers on a European and EU Member State level on possible incentives for negative CO₂ emissions in general and Bio-CCS in particular
- Organising **annual scientific workshops**

2nd Intl. Bio-CCS workshop in Cardiff, Wales, 25th & 26th October 2011



The 2nd day in Cardiff was entirely dedicated to the Deployment Strategy and incentivising negative CO₂

- The **2006 IPCC GHG guidelines** for country reporting **already acknowledges negative emissions** arising from Bio-CCS, both in chapter 2 (Combustion) and 5 (CCS) of volume 2 on Energy. However, these guidelines are not yet adopted
- **EU ETS: Art. 10a** opens for free allocation to biomass with CCS. This is not valid for electricity production, only for industrial application of CCS where biomass is utilised. **Art. 24a** moreover opens for Member State unilateral application of ETS to «additional activities», but this has yet to be clarified/tried
- **CDM:** CERs can be allocated for **emissions below baseline**, when CCS is enabled under CDM
- **Stick** rather than **carrot** – e.g. emission reductions for fuels?

How to avoid «perverse» incentives?

- **Biomass sustainability** and **supply** are major concerns and limiting factors for Bio-CCS deployment
- Where should the limited sustainable biomass best be utilised; what are the low-hanging fruits for negative CO₂ emissions?
- Will incentivising co-firing biomass with coal and CCS lead to a massive price increase for biomass feedstock?
- How to ensure that incentives are not influencing existing R&D on emission reductions from biomass production and conversion in a negative way?