Overview of IEA Greenhouse Gas Programme activities (2006 to 2011) and Future Plans

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60th WPFF Meeting

Rio de Janeiro, Brazil, July 2011

IEA Greenhouse Gas R&D Programme

- A collaborative research programme founded in 1991 as an IEA Implementing Agreement fully financed by its members

- Aim: Provide members with definitive information on the role that technology can play in reducing greenhouse gas emissions.

  Scope: All greenhouse gases, all fossil fuels and comparative assessments of technology options

  Focus: On CCS in recent years

- 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

Membership - July 2011

Membership Changes

- 5 Contracting Parties joined since 2006
  - Austria, India, OPEC, South Africa, Spain
- 10 Sponsors joined since 2006
  - CEZ Group, CIAB, ConocoPhillips, DoosanBabcock, ENEL, EnBW, , GCCSI, JGC, Schlumberger, ScottishPower
- 1 sponsor left – Statkraft
- New members invited
  - CEPAC/Brasil
  - Masdar (UAE)
- Approaches from new members
  - IIE (Mexico)

IEAGHG Activities

- Task 1: Evaluation of technology options
  - Based on a standard methodology to allow direct comparisons and are peer reviewed
- Task 2: Facilitating implementation
  - Provision of "evidence based information"
- Task 3: Facilitating international co-operation
  - Knowledge transfer from existing, laboratory, pilot and commercial scale CCS projects globally
- Task 4:To disseminate the results as widely as possible.

Summary of activities

- Task 1 -Technical evaluations
  - 65 technical reports and 15 technical reviews published on technology options
    - Focus on CCS
- Task 2 – Facilitating Implementation
  - Active engagement on technical issues with groups like:
    - IEA, CSLF, G8, GCCSI, EU, UNFCCC, IMO/OSPAR etc.,
  - Targeted studies on barriers to implementation
  - International Summer School on CCS

Summary of activities

- Task 3 – Facilitating International Co-operation
  - 9 international research networks operational
    - Storage – risk assessment, modelling, monitoring, well bore integrity, environmental impacts
    - Capture – post combustion, oxyfuel and Solid looping
    - 26 workshops held since 2007 (50-100 attendees)
    - 8 other technical workshops held
  - Oxyfuel and Post Combustion networks developed into conference series due to popularity
    - OCC-1 held in Cottbus, Germany 2009 (200 participants)
    - PCC-1 held in Abu Dhabi, May 2011 (125 delegates)
  - GHGT conference series
    - GHGT-10, Amsterdam, September 2010 was attended by 1670 delegates from 55 countries

Summary of Activities

- Task 4 – Dissemination
  - Quarterly newsletter – Greenhouse Issues
    - 4500 copies in 80 countries
  - New web site
    - www.ieaghg.info
      - Twitter feed
      - Wikipedia web page
  - Summary reports
    - 13 reports issued
  - Technical papers
    - 30 in conference proceedings
    - 8 in peer reviewed journals
  - International Journal of Greenhouse Gas Control established with Elsevier in 2007

Key Developments in last Phase

- Membership still growing
- Maintaining a topical forward thinking technical work programme
- International research networks flourishing
- Summer school series established and popular
- GHGT conferences established as principal international technical conference on CCS
- International GHG journal established
- Launch of new web site/image

Specific key achievements

- Technical work extensively cited in PHd theses, conference papers etc.
  - One paper currently most cited paper in the Journal Energy
- Cited in IEA reports
  - Prospects for CO_2 storage (2007), legal Aspects of storing CO_2 (2007), IEA CCS Road Map (2009), Energy Technology Perspectives (2010), IEA Legal and Regulatory Framework (2011)
- Others include:
  - MIT report on Future for Coal
  - G8 action plan

Specific Key Achievements

- Capture Ready report
  - Used by EU in drafting CCS Directive
  - Utilised by UK Government in Consultation process on implementation of CCS directive
- Workshop report on environmental impacts of post combustion capture
  - Used by Norwegian Government to frame its investigations on amine degradation products.
- USDOE invited IEAGHG to act organise on going technical review of multi million dollar Regional Partnerships programme.

Interactions with other IEA groups

- Other IA's
  - Clean Coal Centre
  - Electricity Co-ordination Group (Smart Grids)
  - Others: Bioenergy, Hydrogen & Wind
- CIAB is a member of IEAGHG
- Examples of IEA interactions
  - IEA NEET workshops in Brazil, China and Russia
  - IEA CCS workshops in Russia and Ukraine
  - IEA/MOST Workshop, China 2010
  - IEA Communication workshops
  - WPFF Meetings

IEA CCS Unit

- Clear technical/policy divide
- Building relationship
  - Regular ad hoc discussions/cross exchange
- Recent links
  - IEA Regulators network – on-going
  - IEA Capture cost report
    - Studies referenced and staff interactions
  - Costs network – 2nd meeting hosted by IEA in Paris
  - Policy messages from IEAGHG reports – Retrofits and Bio-CCS

Other International Bodies

- CSLF
  - IEAGHG member of Technical Group
    - Participated in Risk Management and HSE task forces
    - Chair of Academic Task Force
  - Exchange of study ideas
    - One study funded by IEAGHG
- EU ZEP
  - Members of Policy and Technical working groups
- EU Project Network
  - Strategic Advisory Group

Other International Bodies

- GCCSI
  - One member of staff seconded for period of time
  - GM is member of Technical Advisory Committee to GCCSI Board
  - Research Provider Agreement
    - Technical studies
      - Impurities work just released
    - Supporting our GHGT and research network activities
    - Started up Social Research Network jointly

Plans for Next 5 years

- Strategic plan for 2011 to 2016 agreed with members
- Balance of activity to be agreed with members at 40th ExCo
- Core of plan is to continue existing tasks with continued evolutionary refocusing of technical needs
  - Continue to focus on CCS
    - Key Issues:
      - **System Integration/Flexible Operation**
      - **CCS interactions with renewables – biomass/geothermal/solar**
      - **Focus on 2nd/3rd generation capture technologies**
      - **Review breakthrough technologies**
      - **Assess status of new technology developments, e.g biochar**
      - **Continue to address research needs in geological storage**

Thank you

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