Carbon Capture & Sequestration

How it works

High Density, Compressed CO₂ Stream Transported
- Sequestration Process
  - Geological Storage
  - Water Storage
  - Mineral Storage
  - Industrial Uses
- CO₂ Safely Stored or Reused
- CO₂ Emissions Captured

Why CCS

• High Efficiency (80-95% captured)
• No major energy infrastructure changes because CCS allows for use of fossil fuels without having high GHG emissions
• 60% of CO₂ emissions are large stationary emissions sources (suitable for CCS)
• CCS is an integral part of any realistic low-cost scenario for the future
• Captured CO₂ can be used for enhanced oil recovery (EOR) and other industrial processes

Sequestration

• Geological Storage
  - Deep Saline Formations
  - Un-minable coal seams
  - Oil and Gas Reservoirs
• Ocean Storage
  - Lake Type
  - Sinking plume
  - Rising plume

• Mineral Storage
  - MgO → MgCO₃
  - CaO → CaCO₃
  - EOR, Beverages, Welding, Urea etc.
• Industrial Uses
  - Lake Type
  - Sinking plume
  - Rising plume

Costs

• Significantly more power needed for plant with CCS
• Large uncertainty in upfront capital costs
• No infrastructure set up for transportation and storage of CO₂
• USD 30-50 million will be needed to launch 20 full-scale CCS

The Future

• Without CCS the capital investment to create a similar low carbon future would be increased by 40%
• Costs are significantly decreased when built into a new IGCC/GTCC plant
• Policy is required to support the development of CCS
• IPCC predicts 9-12% by 2020 and 21-45% by 2050 of CO₂ emissions
• IEA predicts 17% by 2020
• Plenty of Storage opportunities
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