Carbon Capture and Storage in South Africa: Mandate and Progress

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Off-Shore CO₂ Storage Workshop
Austin, April, 2016
WHY - CO2 Emission Mitigation

SA reliant on Fossil Fuels

Primary Energy ~90%
Coal ~72%

*Digest of Southern African Energy Statistics, 2009, Department of Energy*
Only Three Types of Energy
Clean Fossil Fuels as a Transition Technology

TRANSITION
Clean Fossil Fuels Technologies
Carbon Capture & Storage

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Mandate

- CCS is part of the Long Term Mitigation Scenarios
  Department of Environmental Affairs

- CCS is one of South Africa’s eight Near-term Priority Flagship Programmes of the *National Climate Change Response White Paper*, October, 2011

- Cabinet endorsed the South African CCS Road Map during May, 2013

- CCS is included in the National Development Plan 2030
South African CCS Institutional Capacity

• Department of Energy
  Policy and Regulatory Regimes

• Department of Environmental Affairs
  Implementation of the *National Climate Change Response White Paper*

• Inter-Departmental Task Team for Carbon Capture and Storage

• South African Centre for Carbon Capture and Storage
  Technical development of Carbon Capture & Storage in South Africa

• Other Institutions;
  • *University Witwatersrand*
  • *University Pretoria*
  • *University Western Cape*
  • *Council for GeoScience – Repository for geological information*
South African CCS Road Map

2004: CCS Potential
Done / Yes

2010: Carbon Dioxide Storage Atlas
Launched by Minister Oct 2010

2017: Pilot CO2 Storage Project
Current Phase Underway – 10,000’s t/yr

2020: Integrated Demonstration Plant
Planned 100,000’s tonnes/year

2025: Commercial Operation
Planned millions tonnes/year
Sources of Carbon Dioxide Emissions

Need for a Capture Pilot Plant being accessed.

SOURCE: CSIR/DME
Pilot CO₂ Storage Project

- Demonstrate safe and secure CO₂ storage in South African conditions [“Proof of Concept”]
- Increase the South African human and technical capacity
- Raise awareness of the potential importance of CCS
- Platform for government to develop a South African CCS legal and regulatory environment

FOCUS ON ZULULAND ON-SHORE BASIN
Stakeholder Engagement

- National Government
  (DMR, DBE, SALGA, DWA, GCIS & DAFF);
- Provincial Government
  (DMR, RMDEC, DEDTEA, DWA & COGTA);
- Local Government
  (SALGA, SRVLM, NMBM, CDM & UMDM);
- Environmental NGOs
  (Greenpeace, Earthlife, Groundworks, WESSA);
- Organised Labour
  (NUM, AgriSA);
- National House Traditional Leaders  [Parliament]
- Amakhozi  [Local Chiefs]
Contingency: No Pilot Site in Zululand

No Zululand Site

Alternative Sites
  - Karoo
  - Algoa
  - Off-Shore x3

Business Case

CSLF Off-Shore Study

REVIEW

FORWARD

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South African Centre for Carbon Capture & Storage

South Africa
General

- Regulatory:
  - CCS regulations under development
  - Current regulations sufficient for exploratory phase

- Transport:
  - Techno-Economic Study indicated that pipeline transport costs were not a major factor

- Economics:
  - Levels of prospective Carbon Tax insufficient to “pay” for CCS
  - Additional “incentives” required

- Capacity Building:
  - Bursary scheme
  - International co-operation
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