



Projects Proposed for CSLF Recognition

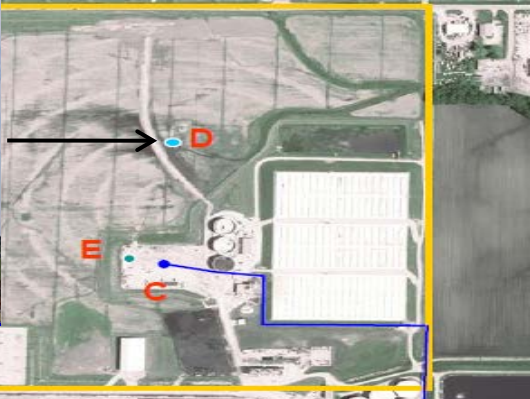
Trygve Riis
Technical Group Chair

Projects Proposed for CSLF Recognition



- Illinois Basin – Decatur Project (Nominators: United States and United Kingdom)
- Illinois Industrial Carbon Capture and Storage Project (Nominators: United States and France)
- Air Products CO₂ Capture from Hydrogen Facility Project (Nominators: United States, Netherlands, and United Kingdom)
- South West Hub Geosequestration Project (Nominators: Australia, United States, and Canada)
- CarbonNet Project (Nominators: Australia and United States)

Illinois Basin – Midwest Geological Sequestration Consortium (MSGC) Decatur Project



- A** Dehydration/compression facility location
- B** Pipeline route
- C** Injection well site
- D** Verification well site
- E** Geophone well



- *First large scale (1MMT) saline test on land*
- *1MMT from ethanol fermentation facility*
- *Dehydrated and compressed to 1500 PSI*
- *Injecting 1,000 tonnes per day since Nov 2011*
- *Over 270,000 tonnes injected to date as of Sept 30*
- *Geology*
 - *Storage Formation: Mount Simon Sandstone*
 - *Seal: 500ft of Eau Claire Shale*
- *Designed to meet UIC Class VI requirements*
- *Expect injection of 1 milion tonnes Nov 2014*



CO₂ Pipe to Injection Well



Compression Facility

Illinois Industrial Carbon Capture and Storage Project

- Decatur, IL
- CO₂ is a by-product (>99% purity) from production of fuel grade ethanol via anaerobic fermentation
- Up to 90% CO₂ capture; dehydration (via tri-ethylene glycol) and compression, ~900,000 Metric TPY CO₂
- Sequestration in Mt. Simon Sandstone saline reservoir (Start: July 2013)
- Total Project: \$208 Million ; DOE Share: \$141 Million (68%)



Key Dates

- Phase 2 Awarded: Jun 15, 2010
- FEED Complete: Apr 2011
- Construction started: May 2011
- Operation phase start: Jul 2013

Status

- NEPA completed
- Construction ~29% complete
- UIC Class VI permit submitted: 7/26/2011
- Received Illinois DNR permit for test well drilling – rig on site

Air Products CO₂ Capture from Hydrogen Facility Project



- Port Arthur, TX (Hydrogen plant at Valero Refinery)
- 90%+ CO₂ capture (Vacuum Swing Adsorption) from 2 steam-methane reformers (SMRs) yielding ~925,000 tonnes CO₂/year
- ~30 MWe cogeneration unit to supply makeup steam to SMRs and operate VSA and Compression Equipment
- CO₂ to Denbury pipeline for EOR in West Hastings oil field (Start: 2012)
- Total Project: \$431 Million; DOE Share: \$284 Million (66%)



Key Dates

- Phase 2 Awarded: Jun 15, 2010
- FEED Complete: Nov 2010
- Construction Start: Aug 2011
- Operation Start: Dec 2012

Status

- Commercial Agreements, including CO₂ off-take, completed.
- Permit By Rule (PBR) and Standard Air Permits Issued by TCEQ: May 2011
- Phase 2B authorized by NETL: 6/1/2011
- FONSI Issued: 7/8/2011
- Lateral pipeline permit issued by US Army Corp of Engineers: 8/17/2011
- Construction ~55% complete

South West Hub Geosequestration Project

Integrated industrial CO₂
geosequestration system

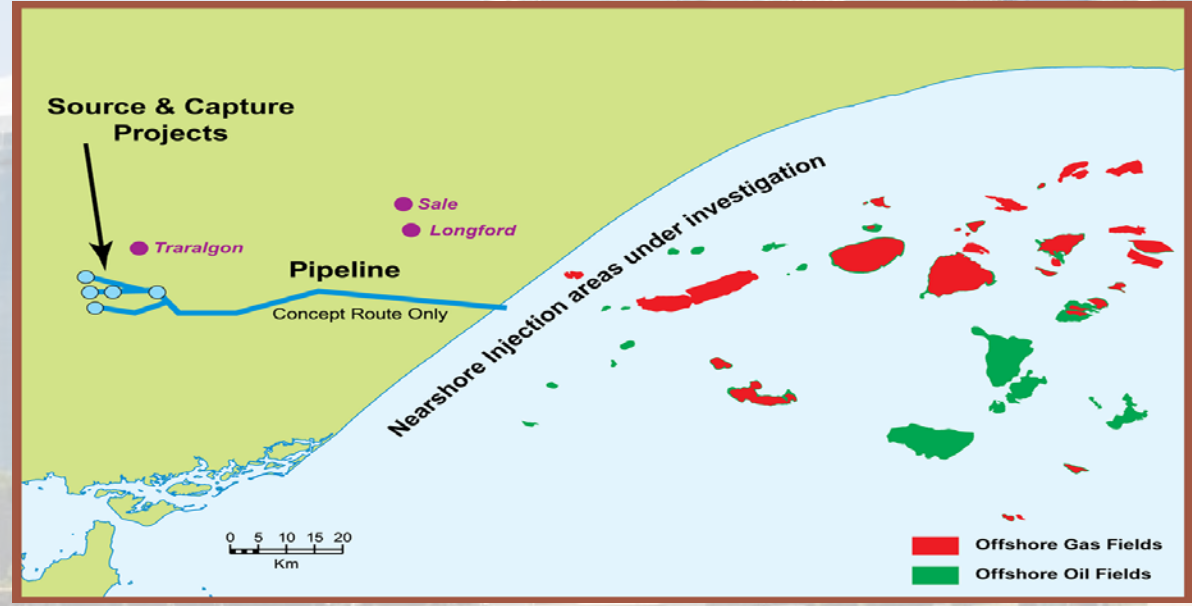
- Storage within an identified area
- Residue (red mud) sequestration 300,000 tpa (Alcoa)
- 2.4 mtpa Perdaman CO₂
- Potential for up to 7 mtpa for future power generation



CarbonNet Project



- The CarbonNet Project is investigating the potential for a large scale, multi-user carbon capture and storage (CCS) network in Victoria's Gippsland region



The CarbonNet Project



- The goal of the CarbonNet Project is to:
 - investigate and demonstrate safe CO₂ storage in the Gippsland Basin
 - accelerate the deployment of CCS infrastructure
 - attract private sector participation
 - and, in doing so, underpin the growth and development of commercial scale CCS