

Alberta's Deep Saline Aquifer Carbon Dioxide Sequestration Project



PARTICIPANT INFORMATION SESSION

DECEMBER 6, 2007
ENBRIDGE OFFICE

Agenda



9:30 – 9:40 Welcome and Introduction

9:40 – 10:00 EPCOR, PTAC, AERI Comments

Project Agreement

10:00 – 10:15 Phase 1 Agreement Proposed Terms

Plan and Prior Work

10:15 – 10:30 Phase 1 Plan Overview and Objectives

10:30 – 10:45 Depleted Reservoirs for Sequestration

10:45 – 11:00 Saline Aquifer Geology for Sequestration

11:00 – 11:10 Comments on CO₂ Sequestration

**11:10 – 11:25 Lessons via Launching Weyburn &
Alberta/Canada CO₂ Task Force**

11:25 – 11:35 Department of Environment Requirements

Discussion and Next Steps

Meeting Chair

Chuck Szmurlo

Rocco Vita

Richard Luhning

Derill Stephenson - Vikor

James Thomson - Norwest

Stefan Bachu (via phone)

Ken Brown

Brent Lakeman

Chuck Szmurlo

Parties Interested in Financial Participation



Responses Received

ARC Resources

ATCO

BP Canada

Chevron Canada

Computer Modelling Group

ConocoPhillips Canada

Enbridge

EnCana Corporation

EPCOR

Fire Box Energy

Hatch Energy

Interpipeline

Laricina Energy Ltd.

Norwest Corporation

Opti Canada

Praxair

Pembina Pipelines

PennWest

Quadrise Canada

Schlumberger

TransCanada

UTS Energy

Weatherford/Advances Technology

Accelerate CO₂ Capture and Sequestration Infrastructure

- 1. Locate sequestration sites along anticipated pipeline routes to EOR projects**
- 2. Collect CO₂ from existing (and future) emissions locations**
- 3. Develop capability to simultaneously provide CO₂ to EOR projects and sequester excess CO₂ in saline aquifers**

POSSIBLE PRESENTATIONS



- **EPCOR**
- **PTAC**
- **AERI**

Phase 1 Agreement – Proposed Terms



- **Steering Committee (Decisions)**
 - Industry representatives
 - Government representatives
- **Technical Committee (Advice & Direction)**
 - Participant representatives
- **Implementation Team**
 - Project consultants and participants' staff

Multi-Phase Project Description



Phase 1: 2008, \$750,000 (Participants \$20k/ea. Federal & Provincial)

- Identify 3 specific saline aquifer locations
- Design and cost ($\pm 30\%$) a sequestration demonstration including CO₂ compression and transportation
- Prepare preliminary application for saline lease/permit and approval for demonstration pilot

Phase 2: 2009/12, \$30 - 50MM (Technology Funds, Participants, Western Economic Dev., Federal & Provincial)

- Construct & operate demonstration pilot (1000 - 3000 tonnes/day)

Phase 3: 2013, \$100 - 200MM (Operators for commercial return)

- Expand to commercial operation

Sequestration Issues



1. Pore space ownership

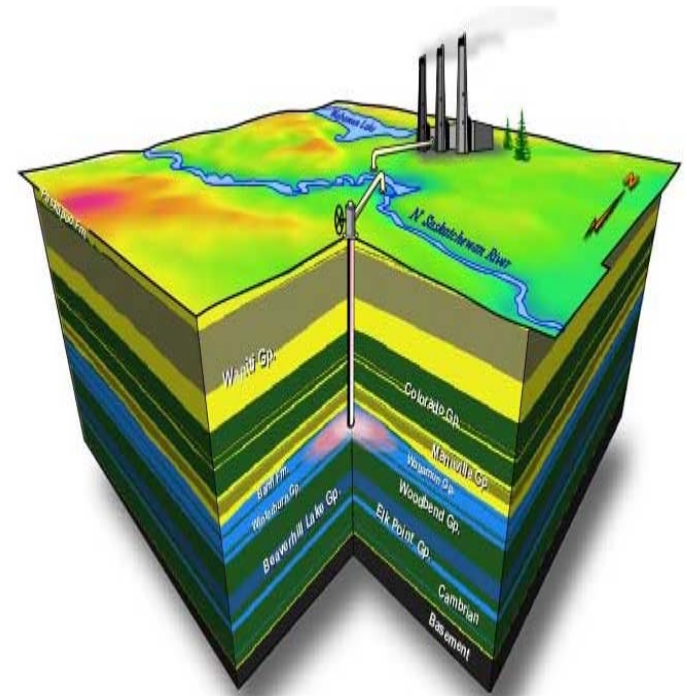
- Oil and Gas (ie: Acid Gas Model)
- Water owners (ie: Crown)
- Surface owners

2. Permits/studies/approvals

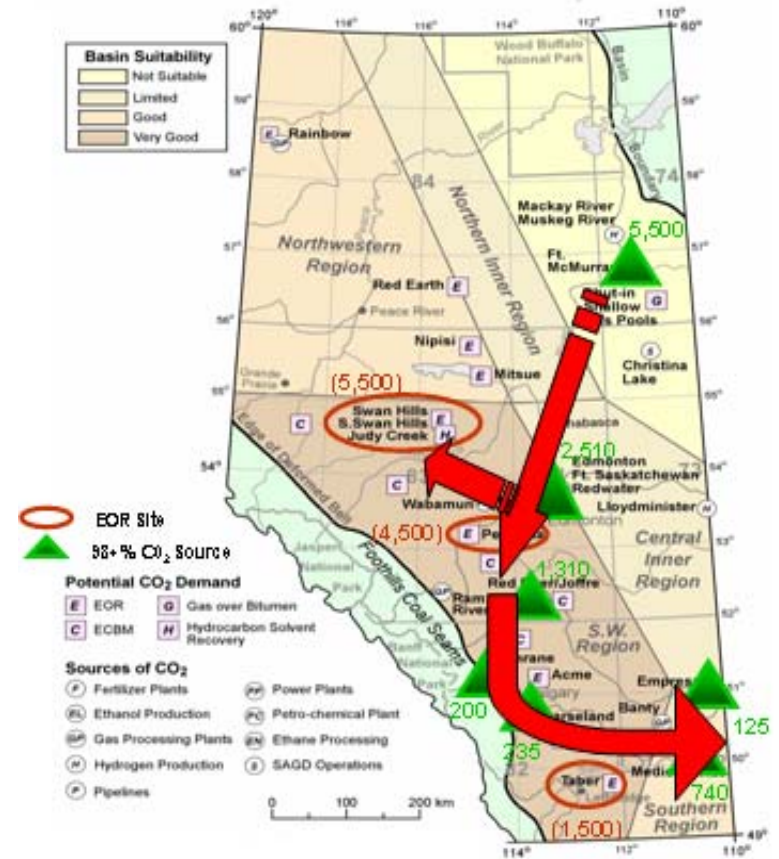
- Environmental impact statement
- Health and safety
- Impact of existing well bores

3. Legal liability of sequestration

4. First Nations and public consultations



CO₂ Pipeline Route Issues?



Participant Experience Range



- EOR & Oil & Oil Sands Production
- Power Plants & Gasification CO₂
- Pipelines
- New Technology
- CO₂ Facilities and Commercial Sales
- Sequestration Experience
- *****Needed*** == CO₂ Supplier for Pilot(s)**

Proposed Implementation Project Team*



- **Alberta Research Council (Alberta Geologic Survey)**
- **Norwest Corporation**
- **University of Alberta**
- **University of Calgary**
- **Monitoring team from Weyburn EOR project**
- **Vikor Energy**
- **EERC (Energy & Environment Research Center)**
- **Project participants**

** Subject to project funding and participant direction – contracts with team have not yet been put in place. Others will be included as required.*

- **Participants**

- Identify contacts
- Funding agreement

- **Funding**

- Federal and Provincial process

- **Next Meeting for Agreement**

- Wednesday December 19 or 20, 2007

Contacts



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