Introduction

Enhanced Oil Recovery Institute Technical Advisory Board Meeting

By the Wyoming Enhanced Oil Recovery Institute (EORI)
EORI Focus

- Primary focus is the Tensleep and Minnelusa (60% of EORI resources)
- Assist small Wyoming operators (20% of EORI resources)
- Complete research (20% of EORI resources)
- New organization and culture allow for effective implementation of multi-disciplinary projects
- Strategic staffing will allow EORI to add new initiatives
Goal for Investment of EORI Funds

- Support Small Operators: 20%
- Minnelusa Work: 30%
- Tensleep Work: 30%
- Research: 20%

- Support Small Operators
- Minnelusa Work
- Tensleep Work
- Research
EORI Programs

• Feasibility Studies and Data Summaries (Glen)
• Reservoir characterization (Peigui)
• Laboratory work (Geoff)
• Reservoir Simulation (Shaochang)
• Conformance improvement (Reza)
• Economics (Ben and Glen)
EORI/Faculty Cooperation

- Low salinity waterflooding and sequential flooding (Morrow)
- Chemical Flooding (Alvarado/Thyne)
- Multi-phase flow (Piri/Barati)
- Reservoir characterization (Yin/Other)
- Economic evaluations (Owen/Murrell)
- Reservoir simulation (Wo/Other)
EORI Progress

• Define key technical roles
  – Assoc. Director – Glen Murrell
  – Chief Scientist – Shaochang Wo

• New projects reviewed prior to “kick-off”
  – Define project objectives
  – Develop staffing plan
  – Define work products
  – Define schedule

• Peer review – implemented periodically throughout all projects
Strategic Objectives - July 2010

- Successfully execute existing projects.
- Increase our technical staffs’ involvement in project development and execution.
- Build EOR’s engineering capabilities.
- Pursue the "best" opportunities to increase oil production in Wyoming.
- Develop and implement our vision, while working closely with the EOR commission and the TAB.
Strategic Objectives - July 2011

- Expand Minnelusa Consortium Work
- Initiate Tensleep Consortium
  - CO₂ EOR
  - Residual Oil Zones (ROZs)
  - Natural Fracturing
- Technically support Bighorn Basin Resource Management Plan (RMP)
- Initially focus engineering efforts on evaluation and improvement of conformance
Results for Wyoming

• Minnelusa Initiative – 4.0 million BO reserves booked. Approx. $40 million in ad valorem and severance taxes to counties and state.

• Grieve Field – anticipate approx. 10 to 19 million BO to be recovered using CO$_2$ EOR.

• Other reservoirs are being evaluated. Anticipated lead time for results from EORI investment is 3 to 5 years.
Partner Companies - Existing and Perspective Wyoming Operators

- Black Hills E&P
- CarbonEnergy
- DKRW
- Energy Expeditors
- JB Coal
- McClaren Resources
- Merit Energy
- Mountain West
- Osborne Heirs Ltd
- Refined Energy Holdings
- Underwood Oil & Gas
- Wold Enterprises
- Captain Energy Co
- Denbury Resources
- Elk Petroleum
- Encore Acquisitions
- Exco Resources
- Linc Energy
- Marathon Oil Co
- Nako Technology
- True Energy
- Windsor Energy
- Wyoming Oil & Gas Conservation Commission
Examples of New Companies Attracted to Wyoming

- **DKRW – Medicine Bow – coal to liquids**
  - CO₂ will be sold to Anadarko

- **Denbury Resources**
  - Purchase Encore ($4.5 billion)
  - Greencore Pipeline from Lost Cabin to Sage Creek in Montana 231-miles, 24” diameter ($0.8 billion+)
  - Purchase 65% of Grieve Field (Operator + $22 million)
  - Purchase Riley Ridge in two parts – approx. 6.1 TCF CO₂ ($0.4 billion)

- **Linc Energy – Underground Coal Gasification (UCG)**

- **CarbonEnergy - UCG**
Growth Areas

• Field demonstrations
  – Single well field tests
  – Petrophysics (core analysis, log analysis, other)
  – Chemical flooding pilots
  – Conformance improvement demonstrations
• Increase reservoir modeling capability from 1.5 to 4 projects per year
• Re-start workshops to complete technology transfer
• Assist with improvement of conformance and waterflood optimization
Input Requested from TAB

• Critique objectives defined for each project
• Provide feedback regarding technical approach, staffing, scheduling, and work products
• Value of EORI work based on defined objectives
• Recommend follow-on work
Energy Research Center Opening During Late 2012

- Approx. 32,000 square feet
- EORI offices
- EORI laboratory
- Labs and offices for industry partners
- State-of-the-Art AV laboratories
- Drilling simulator
- Student gathering areas
- Meeting and class rooms
Questions?

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