Interstate Oil and Gas Compact Commission

IOGCC
CO_2 SEQUESTRATION
TASK FORCE

Building the Infrastructure for Carbon Sequestration

Regional Carbon Sequestration Partnership

U.S. Department of Energy
Office of Fossil Energy
National Energy Technology Laboratory

IOGCC Geological CO_2 Sequestration Task Force

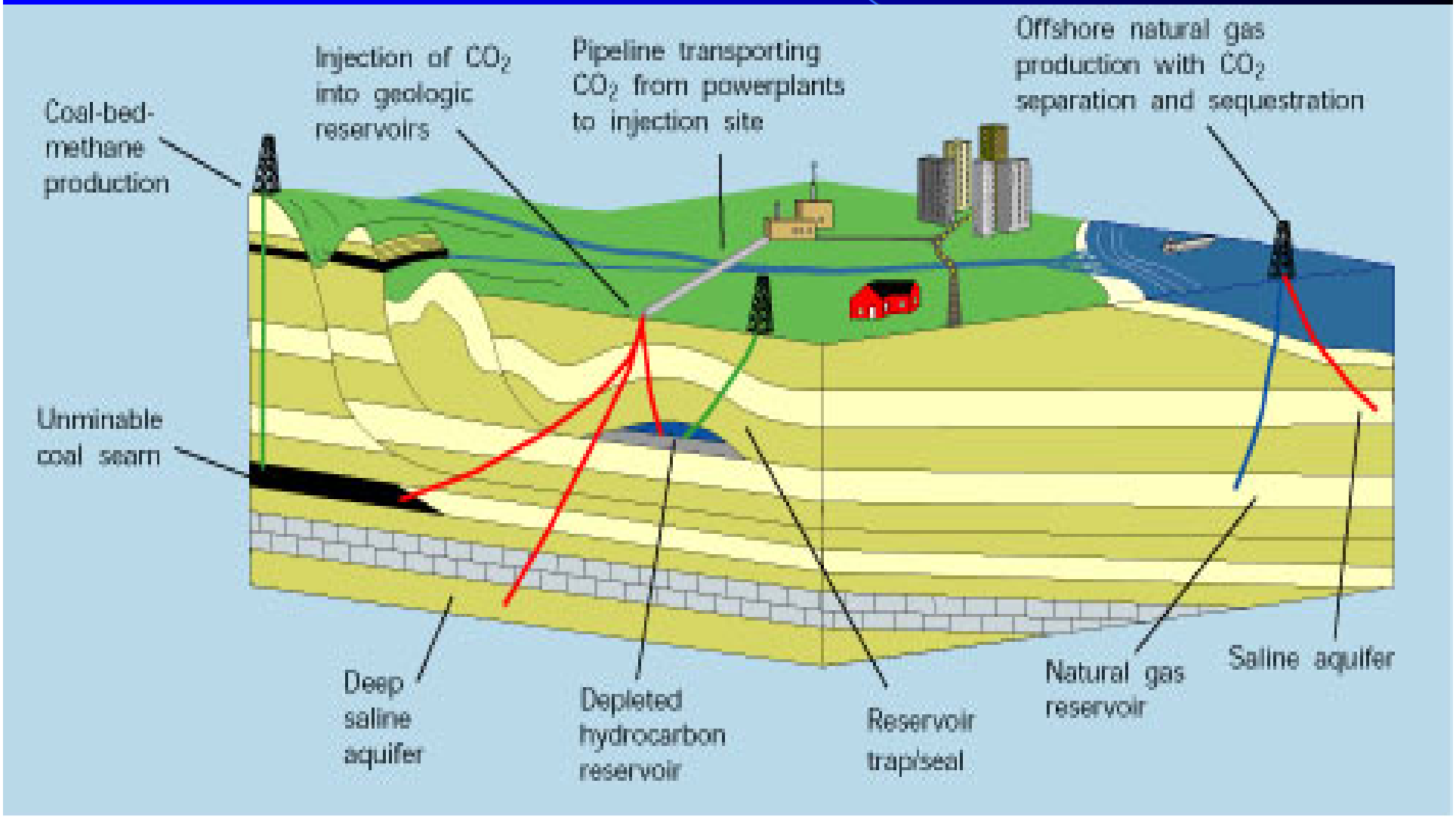
- **Task Force created by IOGCC Resolution in December 2002.**
- **Funded by USDOE/NETL through one of the regional partnerships.**
- **Task Force comprised of representatives from IOGCC member states, State oil and gas agencies, the USDOE, the Association of State Geologists and all of the regional partnerships.**

IOGCC Geological CO_2 Sequestration Task Force Objectives

1. **Examination of the technical, policy & regulatory issues related to safe & effective storage of CO_2 in the subsurface:**
   - oil and natural gas fields, coal beds and saline aquifers, whether for enhanced hydrocarbon recovery or permanent storage; and

2. **Production of a Final Report containing:**
   - an assessment of the current regulatory framework likely applicable to geologic CO_2 sequestrations, and
   - recommended regulatory guidelines and guidance documents. The final report should lay the groundwork for a state-regulated, but nationally consistent, system for the geologic sequestration of CO_2.

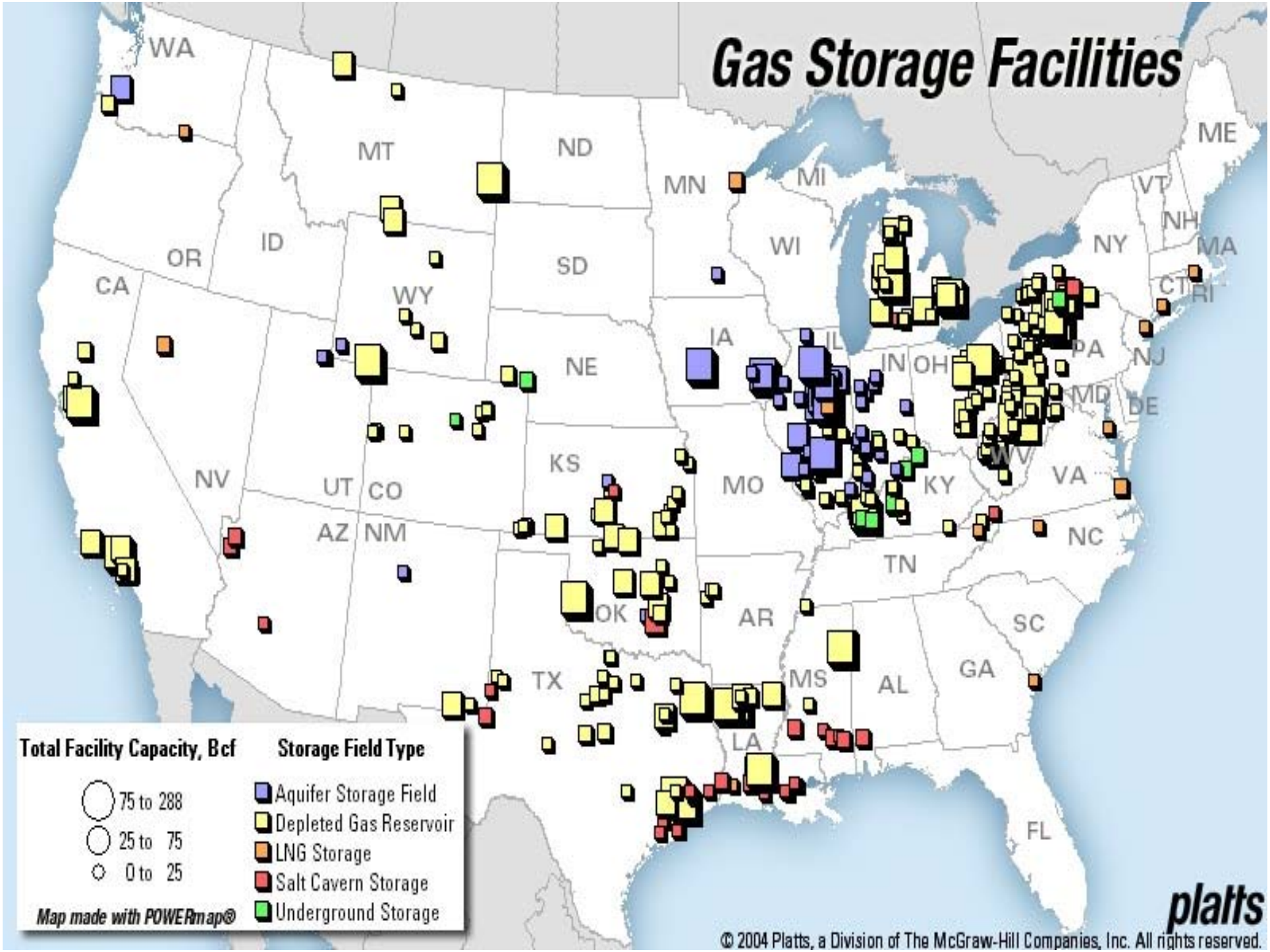
IOGCC Task Force Report Focused on Geologic Options for Storage of CO_2



CCGS ANALOGS

- CO_2 Enhanced Oil Recovery (EOR) Projects.
- Naturally occurring CO_2 contained in geologic reservoirs.
- Underground storage of natural gas.
- Injection of acid gas (H_2S).

CO2 Projects & Sources
LaBarge
McElmo Dome
5
Sheep Mtn.
Bravo Dome
Enid
Ridgeway
2
Koch
Jackson Dome
Valverde Basin
45
7
59 Projects
Natural Sources
Industrial Sources
Pipelines
Proposed Pipelines
Fields


Gas Storage Facilities
WA
OR
CA
ID
NV
MT
WY
UT
CO
AZ
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MI
IN
OH
KY
TN
MS
AL
GA
FL
SC
NC
VA
WV
PA
NY
VT
NH
ME
MA
CT
RI
NJ
MD
DE
Total Facility Capacity, Bcf
75 to 288
25 to 75
0 to 25
Storage Field Type
Aquifer Storage Field
Depleted Gas Reservoir
LNG Storage
Salt Cavern Storage
Underground Storage
Map made with POWERmap®
platts
© 2004 Platts, a Division of The McGraw-Hill Companies, Inc. All rights reserved.

Primary Geologic Storage Options

- Depleted oil and gas fields
- Deep saline aquifers
- Salt cavern storage
- Coal bed storage

CO_2 EOR and Natural Gas Storage Primary Analogs for CCGS

- Over 30 year history of safe operations.
- Successful regulatory frameworks.
- Well established materials and equipment standards.
- CO_2 EOR and Natural Gas Storage Projects are positioned as commercial drivers for building of initial CCGS infrastructure (pipelines, wells, processing facilities).

Final Report
Regulatory Overview

- Capture Stage
- Transport Stage
- Injection Stage
- Storage Stage

Capture Stage

- CO_2 for CCGS is defined as direct emission streams with a purity in excess of 95% or processed emission streams with commercial value.
- CO_2 is not currently defined in existing federal air regulations as a pollutant. While pollutants such as NO_2, SO_2 and other contaminants should remain regulated for public health, CO_2 should not be classified as a pollutant and be viewed as a commodity for regulatory purposes.
- Existing state and federal regulations dealing with facility permitting, operating and emission standards can be easily modified to address CO_2 capture technologies.

Transport Stage

- Existing Federal and State transport regulations easily adaptable to address CO_2 transport.
- Large body of experience in CO_2 pipeline construction and operation, including well established materials standards and regulatory frameworks, will necessitate limited need for additional state regulations.
- Eminent domain primarily a state issue, state statutes will require review to determine extension of eminent domain powers to CO_2 pipelines.

Injection Stage

- Existing regulations for CO_2 EOR and underground natural gas storage provide the necessary analogs for establishment of regulatory frameworks for CO_2 injection operations.

- Adapt and modify established permitting procedures and standards for site characterization for purposes of CCGS including establishment of monitoring measurement and verification protocols. Results of DOE sponsored partnerships research efforts will assist states in this area.

Post Injection Storage

- Consider the potential need for legislation to clarify and address the unknown issues which may arise in the ownership of storage rights (reservoir pore space) and payment for use of those storage rights.
- Research the chemical transformations that are likely to take place in the reservoirs over long periods of time which may impact reservoir integrity in CO_2 storage timeframes.
- Establish procedures for long-term reservoir management and monitoring. A new framework will need to be established to address the long-term monitoring and verification of emplaced CO_2 to confirm that injected volumes remain in place.
- Protection for nonperformance of responsible parties will require innovative solutions beyond current analogs: surety bonds, insurance funds, government trust funds, Public, Private or Semi-Private Partnerships.

Next Steps for Task Force

- Final draft has been completed and under review by stake holders.
- Presentation at IOGCC Annual Meeting in Oklahoma City in October 2004 and DOE partnership meeting in Pittsburg, November 2004.
- Production of Final Published Report by January 2005.
- Final regulatory recommendations requiring further in depth study will be assigned to various IOGCC Technical Committees.