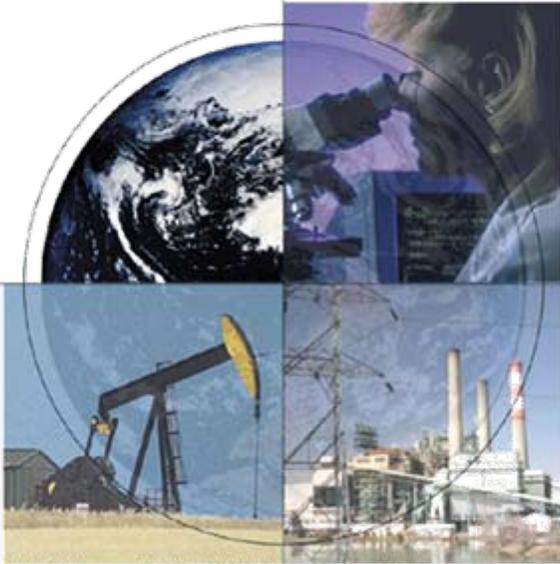


Regional Carbon Sequestration Partnerships



2006 Annual Review Meeting

4 October 2006

Sean Plasynski

National Energy Technology Laboratory



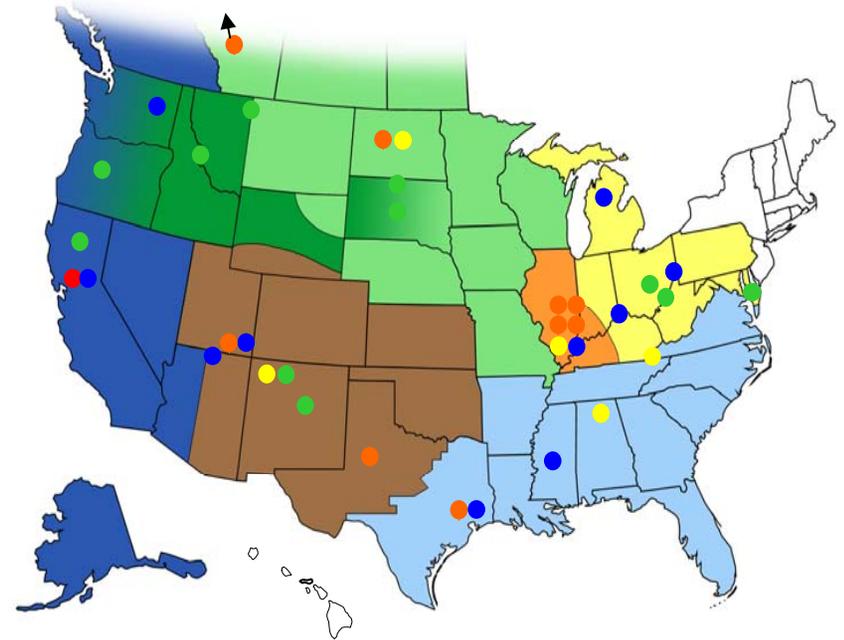
Office of Fossil Energy



Regional Carbon Sequestration Partnerships

Deployment Phase – Scaling Up

- **FY 2007-2016 (10 years)**
- **Injection rates up to 1,000,000 tons per year for several years**
- **Stress the infrastructure of each region to maximize CO₂ injected**
- **Scale up is required to provide insight into several operational and technical issues in different formations**



Target Formations

- **Saline formations are primary target**
- **Oil, gas, and coal are secondary**
 - Must be regionally significant
- **Representative of the regions geology**
 - Capacity and availability must be high
- **Competent seals are a must**
- **Structure must be conducive to trapping**



Source and Transportation of CO₂

- **Potential Sources**
 - Natural sources
 - High purity industrial vents
 - Advanced capture plant
- **Transportation**
 - Pipeline
 - Truck and Rail (cost prohibitive)



Deployment Phase

Stages

Years 1-3 { **Site selection and characterization**
Permitting and NEPA compliance
Well completion and testing
Infrastructure development

Years 4-7 { **CO₂ procurement and transportation**
Injection operations
Monitoring activities

Years 8-10 { **Site closure**
Post injection monitoring
Project assessment



Stage 1

Site Development

- Detailed site characterization
- Develop numerical simulations for reservoir, geochemical, and geomechanical predictions
- Develop operation, monitoring, risk mitigation and site closure plans
- Exploratory, injection, and monitoring wells
 - physical, mechanical, and chemical data
 - integrity testing
- NEPA and permitting compliance
 - Dependent upon initial review
 - Between 3 and 24 months
- Build capture/purification and transport facilities
- Conduct baseline monitoring



Stage 2

Injection and Monitoring

- Conduct injection operations and monitoring
- Mechanical integrity testing of well
- CO₂ Monitoring and testing
 - Distribution of CO₂ in formation
 - Fate of CO₂ in formation
 - Effects on formation and caprock
 - Indicators of leakage
 - Seal integrity, overlying formation(s), surface and near surface monitoring
- Resolve simulations and monitoring results



Stage 3

Closure and Post Injection Monitoring

- **Close or transfer ownership of well**
- **Continue monitoring activities to determine the fate of the injected CO₂**
- **Resolve simulations and monitoring results**
- **Regional assessment and action plan**



Estimated Procurement Schedule

- **December 2006 – RFP Released**
- **April 2007 – Applications Due**
- **May 2007 – Review Completed**
- **May 2007 – Pre-negotiation presentations**
- **May – December 2007 – Negotiation and Award**



Questions ?

