Carbon Sequestration R&D

Annual Regional Carbon Sequestration Partnership

Review Meeting

Dec 13, 2007

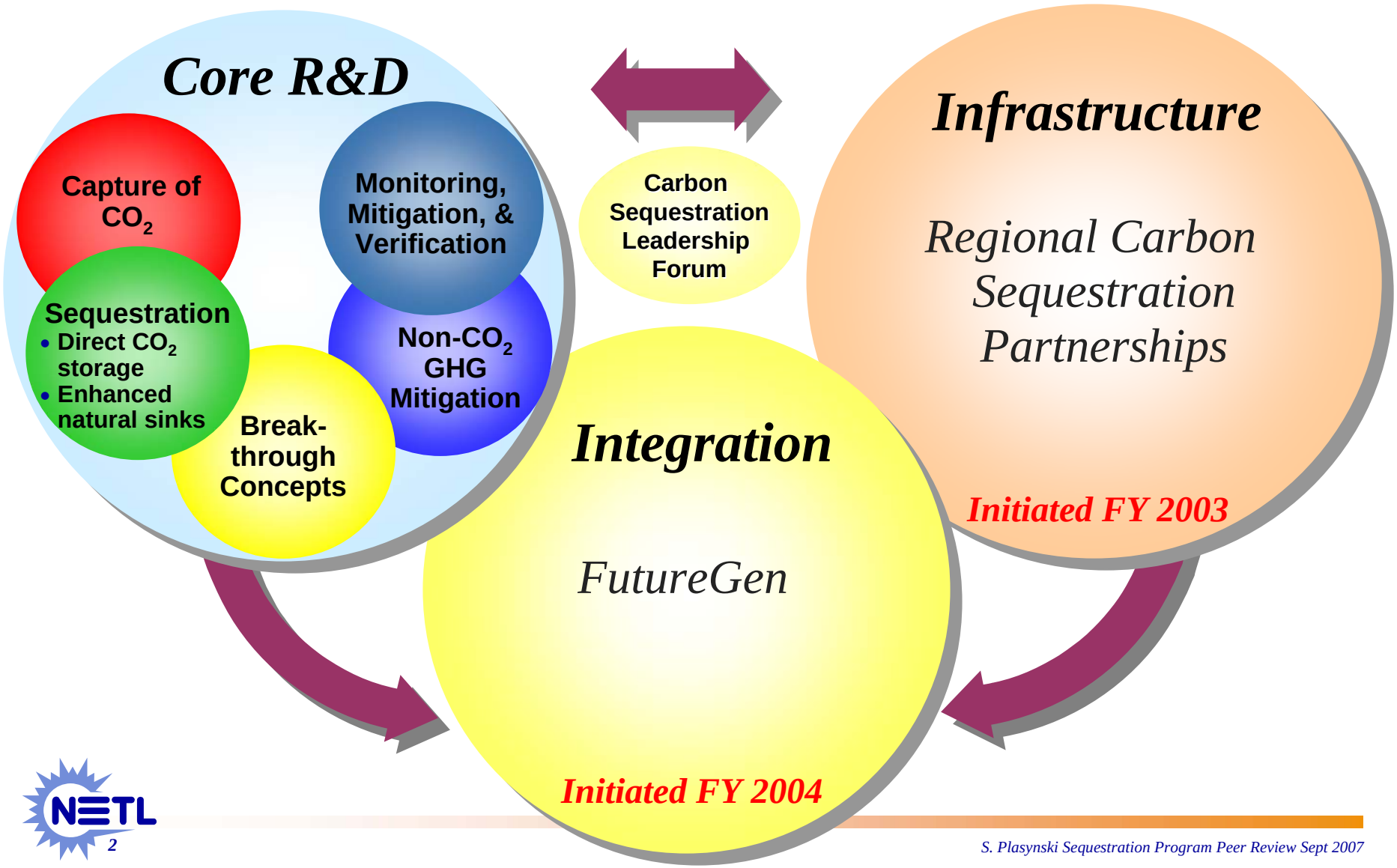
Sean Plasynski, PhD

Sequestration Technology Manager

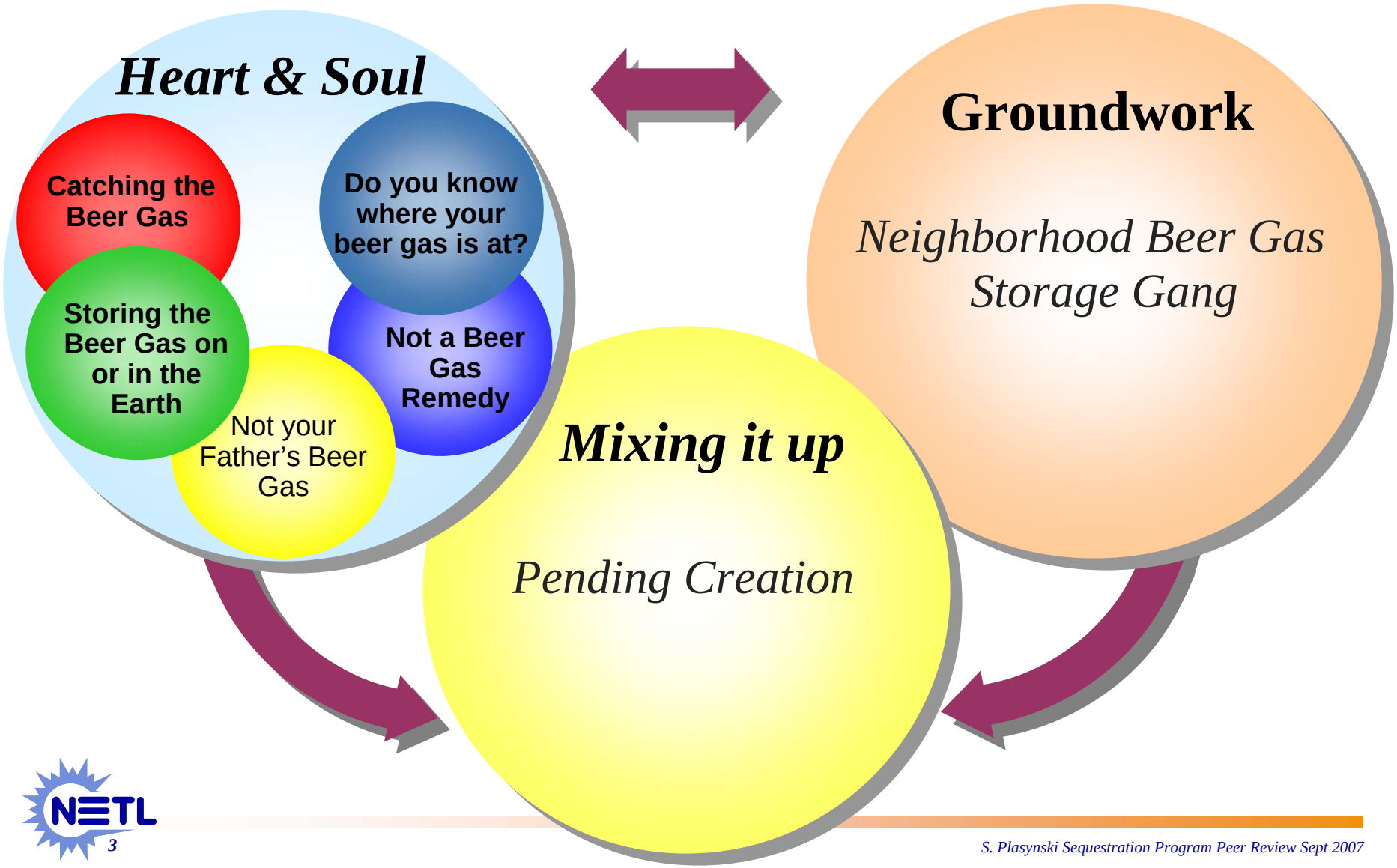
National Energy Technology Laboratory

Office of Fossil Energy

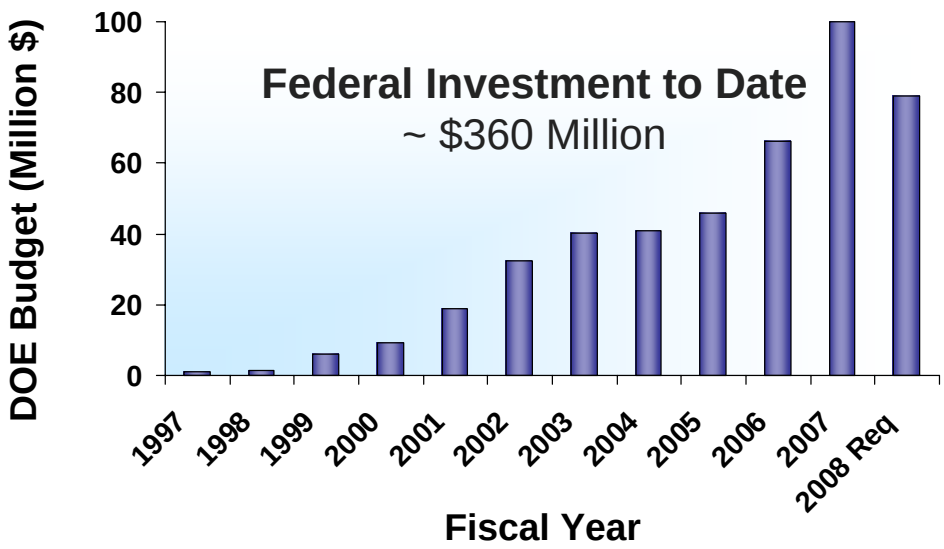
Sequestration Program Structure



Carbon Capture & Safe Storage Line-up



Sequestration Program Statistics FY2007/08



President Req $79MM

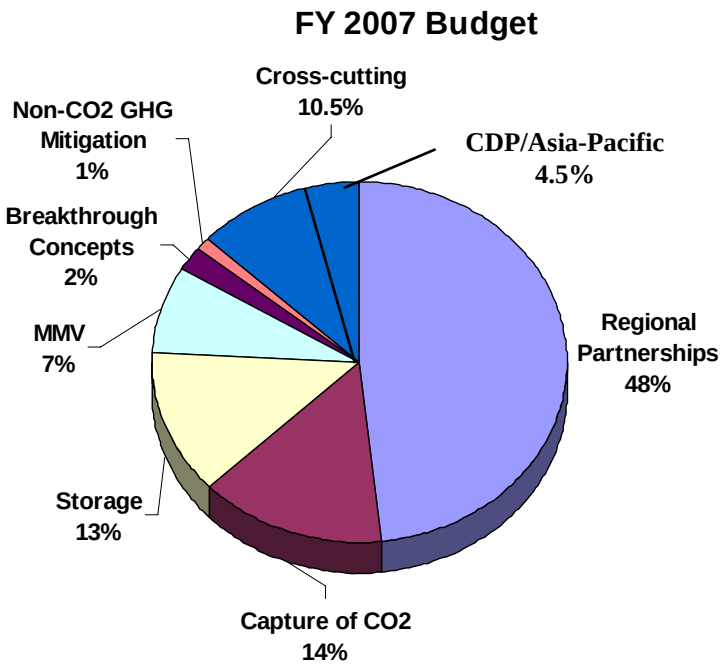
- **House/Senate ~$132 MM**
- **FY08 currently 2nd CR**
- **3rd CR thru next week?**
- **Final Budget ?**

Diverse research portfolio

~ 70 Active R&D Projects

Strong industry support

~ 39% cost share on projects



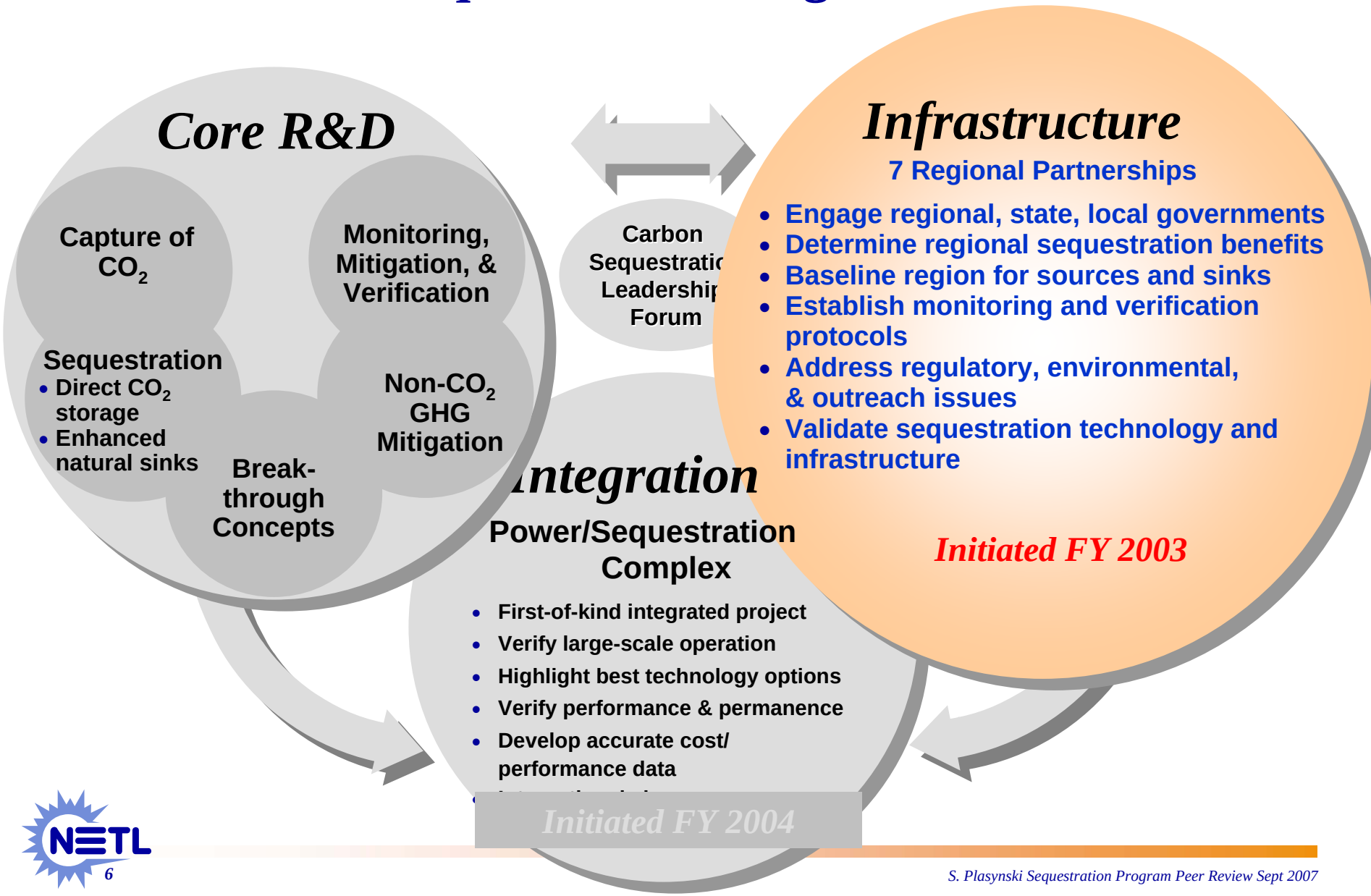
Program Documentation

Atlas published web (March) & print (May)

- **Updated Web-site**
  - Added FAQ Information Portal
  - Revamped Reference Shelf
- **2006 Roadmap won APEX Award**

2007 APEX® AWARDS FOR PUBLICATION EXCELLENCE

Carbon Sequestration Program Structure



Regional Carbon Sequestration Partnerships

Characterization Phase

- 24 months (2003-2005)
- $16M DOE funds

Validation Phase

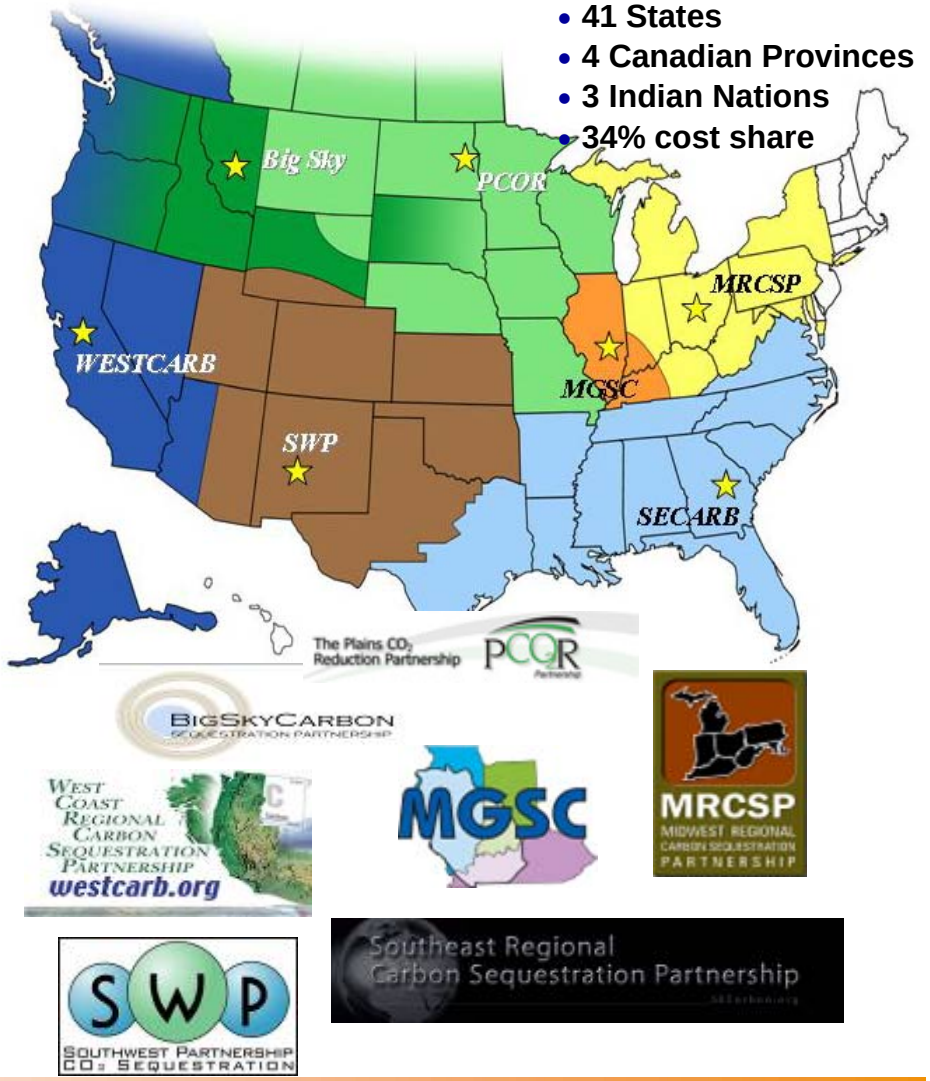
- 4 years (2005 - 2009)
- 7 Partnerships (41 states)
- 25 Geologic field validation tests
- $112M DOE funds

Deployment Phase

- 10 years (2008-2017)
  - FY07 Initiated
- Several large injection tests in different geology

Representing:

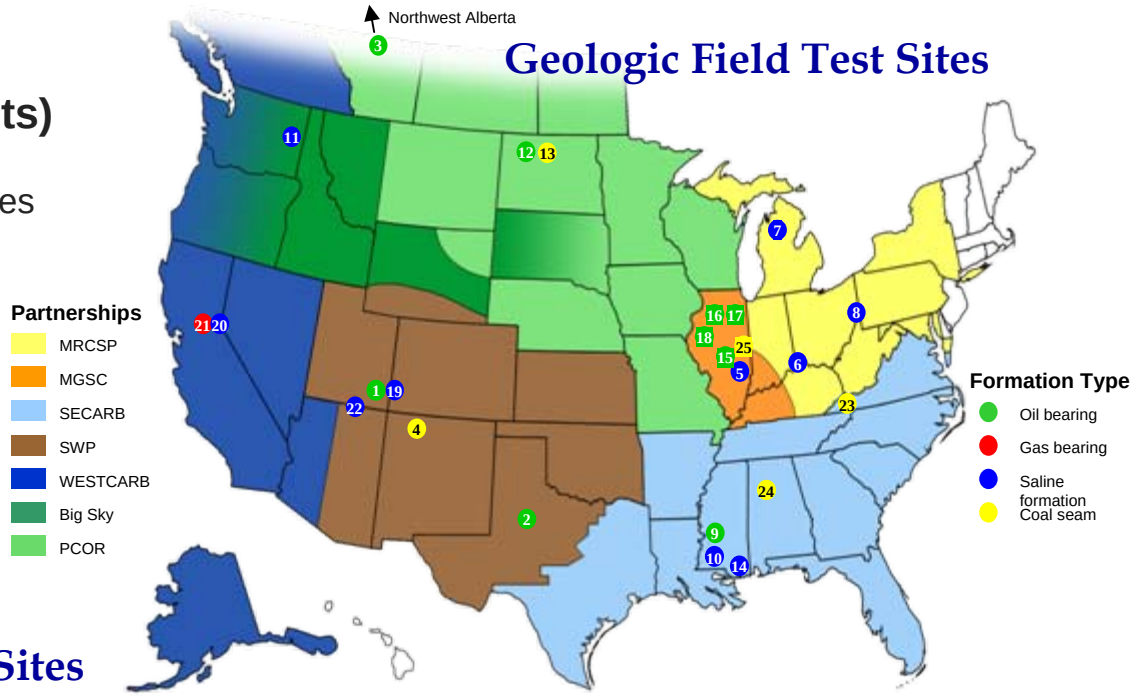
- **>350 Organizations**
- **41 States**
- **4 Canadian Provinces**
- **3 Indian Nations**
- **34% cost share**

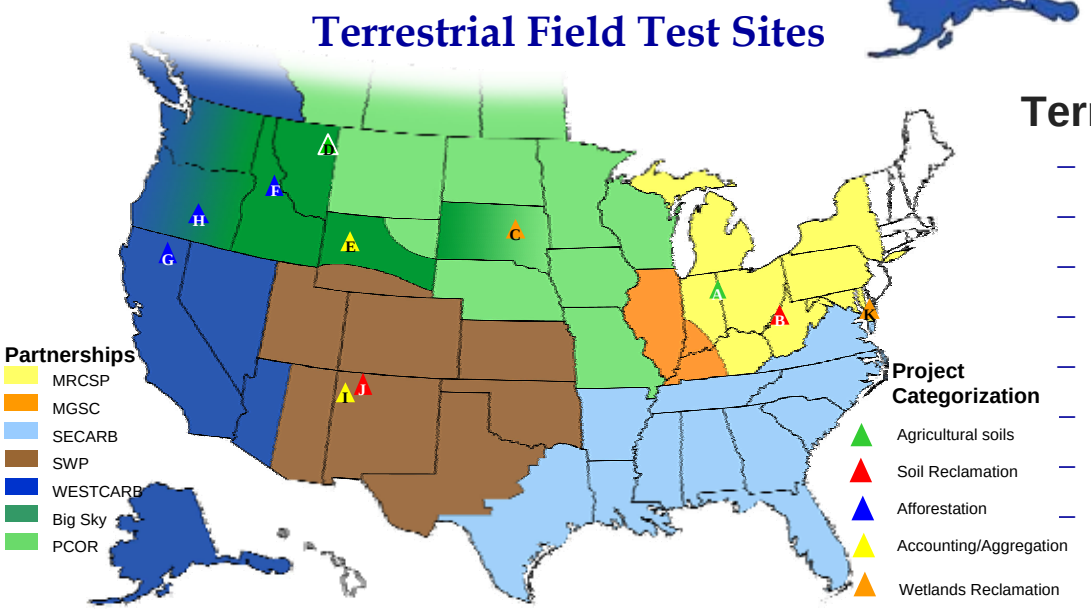


Validation Phase Field Tests

Geologic Tests (25 injection tests)

- Injections 750-525,000 Tons CO2
- Validating geologic formation capacities
- Validating injectivity
- Monitoring mitigation and verification technologies (reservoir modeling)
- Permitting requirements
- Public outreach and perception
- Testing formation seals
- Investigating well bore construction methods



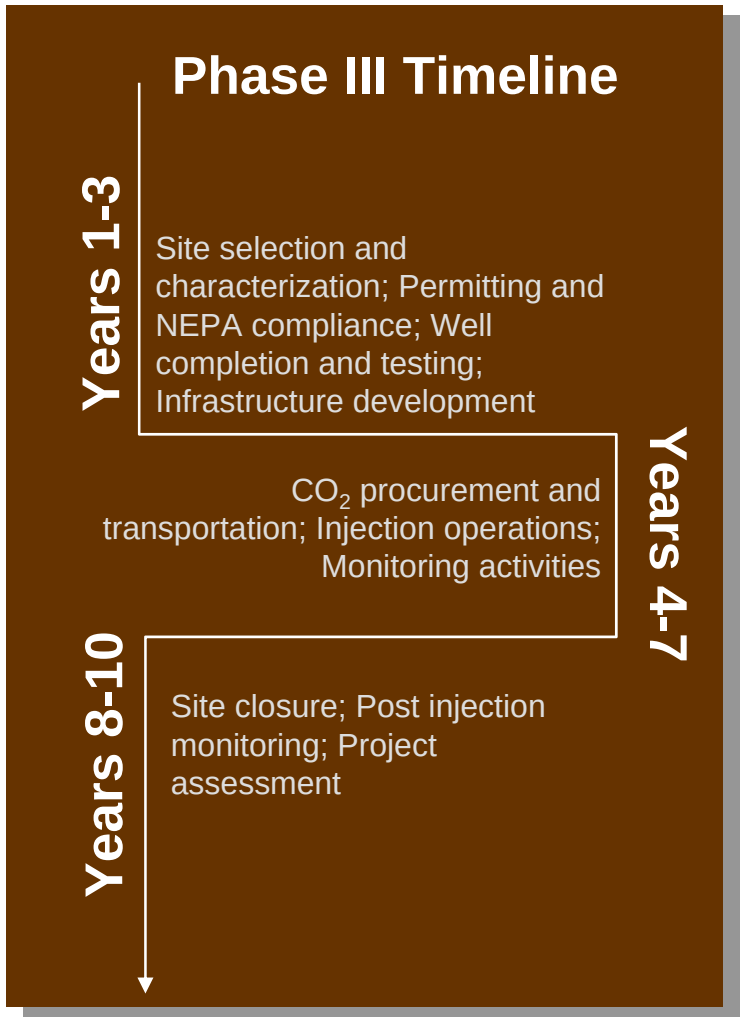


Terrestrial Tests (11 field tests)

- Tree-plantings
- No-till farming
- Wetlands restoration
- Land management: grasslands, grazing lands
- Fire management
- Forest preservation
- Monitoring, mitigation, and verification technologies
- Accounting protocols for trading markets (CCX)

Deployment Phase
Scaling Up Towards Commercialization

- **FY 2008-2017 (10 years)**
- **Several Large Volume Sequestration tests in North America**
- **Injection rates up to 1,000,000 tons per year for several years**
- **Scale up is required to provide insight into several operational and technical issues in different formations**



Benefits of the RCSP Initiative

- **Better understanding of regional opportunities**
  - Match sources and sinks
  - Define scenarios for implementation
- **Test and refine geologic models**
- **Measure fate of CO_2 and compare technologies**
- **Best management practices to address site selection, well design, operations, monitoring, and closeout**
- **Engagement of regional stakeholders**
  - Implement public outreach and education

Additional Information

National Energy Technology Laboratory

Site Map GO>

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  - Coal & Power Systems
  - Carbon Sequestration
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    - CO_2 Storage
    - Monitoring, Mitigation, Verification
    - Non-CO_2 Greenhouse Gases
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Home > Technologies > *Carbon Sequestration*

Technologies
Carbon Sequestration

NETL manages a portfolio of laboratory and field R&D focused on technologies with great potential for reducing greenhouse gas emissions and controlling global climate change. Most efforts focus on capturing carbon dioxide from large stationary sources such as power plants, and sequestering it using geologic, terrestrial ecosystem, or oceanic approaches. Control of fugitive methane emissions is also addressed.

Carbon sequestration work directly implements the President's Global Climate Change Initiative, as well as several National Energy Policy goals targeting the development of new technologies. It also supports the goals of the Framework Convention on Climate Change and other international collaborations to reduce greenhouse gas intensity and greenhouse gas emissions.

The programmatic timeline is to demonstrate a portfolio of safe, cost effective greenhouse gas capture, storage, and mitigation technologies at the commercial scale by 2012, leading to substantial deployment and market penetration beyond 2012. These greenhouse gas mitigation technologies will help slow greenhouse

NEWS & FEATURES // All >

- Carbon Sequestration Technology Roadmap [PDF-4542KB]
- Carbon Sequestration Program Outreach Plan [PDF-1438MB]
- DOE-Advances Commercialization of Climate Change Technology
- Regional Carbon Sequestration Partnerships Program Adds Canadian Provinces

EVENTS CALENDAR // All >

- The 2006 EIC Climate Change Technology Conference - Engineering Challenges and Solutions in the 21st Century

PUBLICATIONS & PROJECTS // All >

- Carbon Sequestration Reference Shelf
- Carbon Sequestration Project Portfolio [PDF-

http://www.netl.doe.gov/technologies/carbon_seq/index.html