

Southwest Regional Partnership on Carbon Sequestration

**Identifying the Most Promising Regional
Carbon Sequestration Deployment
Opportunities in the Southwestern U.S.**

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**Fourth Annual Conference on Carbon
Capture and Sequestration**



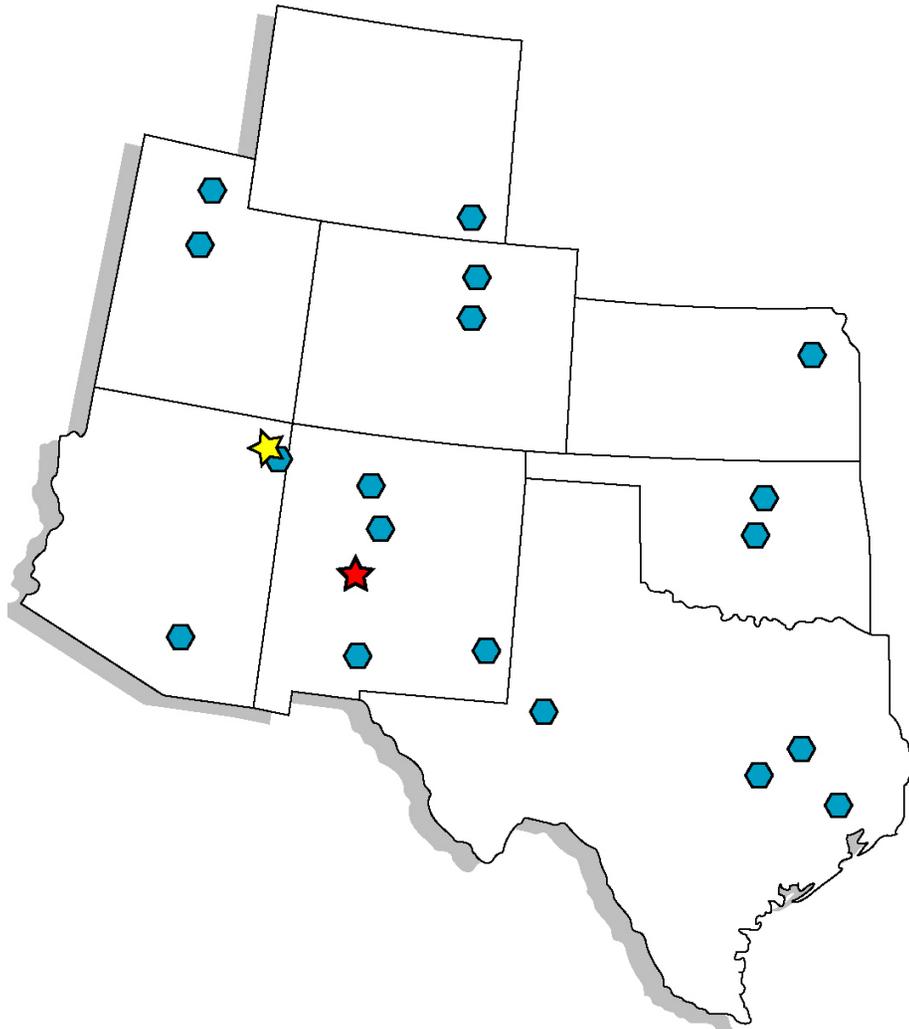
Brian McPherson
New Mexico Institute of Mining and Technology



Outline

- **Introduction & Partnership Composition**
- **Most Promising Phase II Options**
 - Geologic Sequestration - Paradox Basin, UT
 - Geologic Sequestration - Permian Basin, TX
 - Geologic Sequestration - San Juan Basin, NM
 - Terrestrial Sequestration - San Juan Basin, NM
 - Terrestrial Sequestration - regional-scale evaluation

Partners



In all partner states:

- major universities
- geologic survey
- other state agencies

Critical industry partners:

- five major utilities
- seven energy companies

as well as

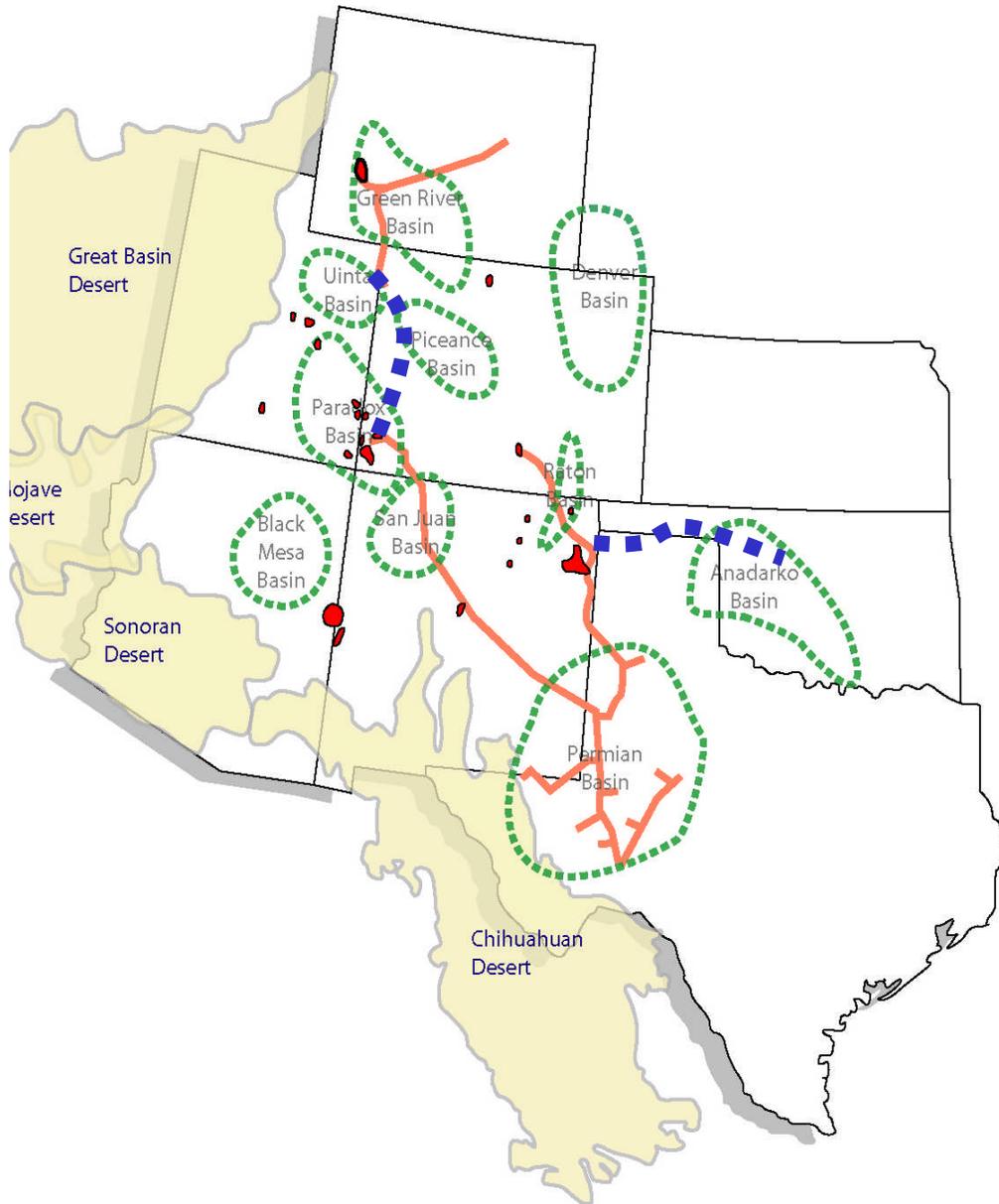
- Western Governors Association
- three federal agencies
- the Navajo Nation
- many other critical partners



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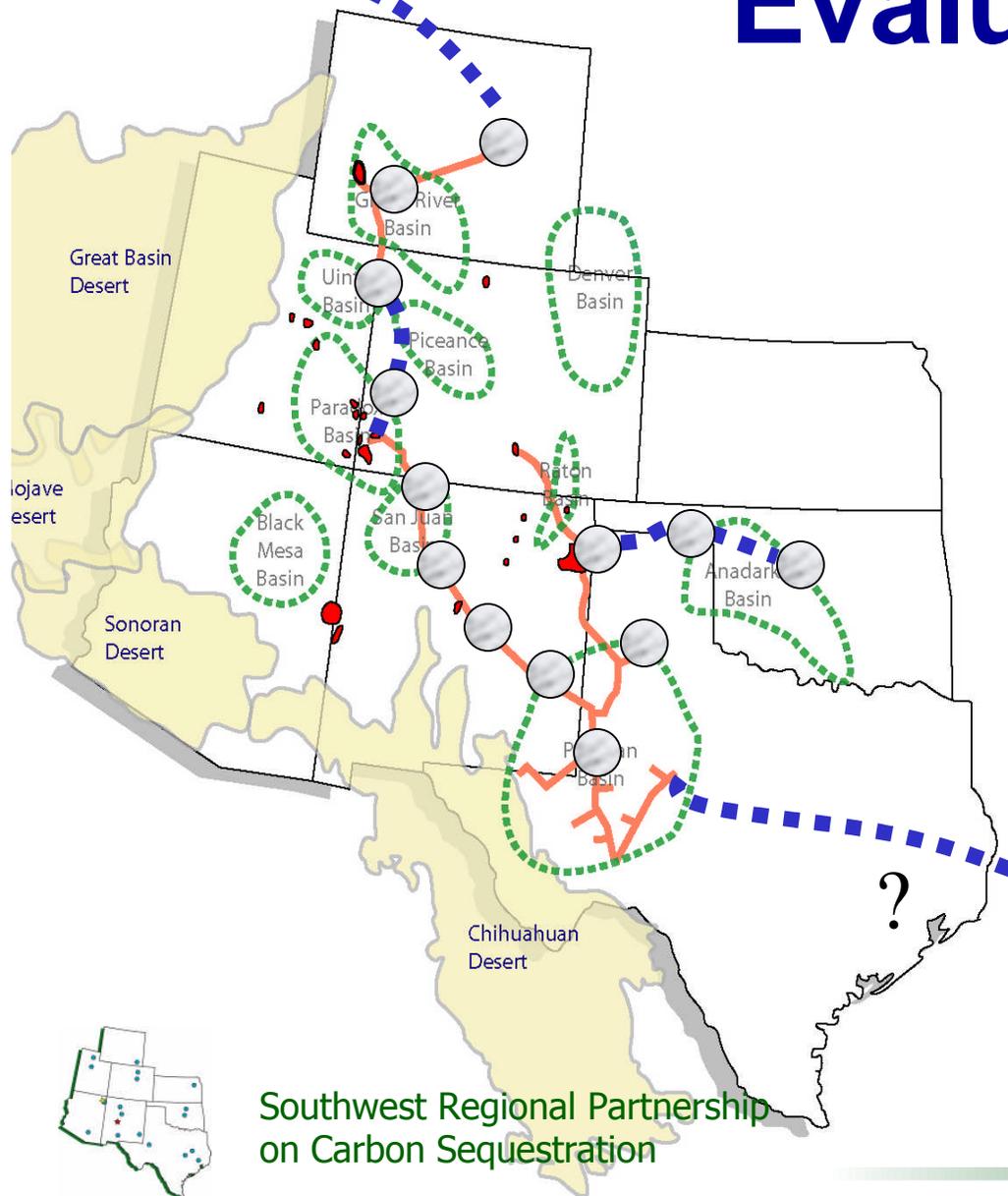


Phase I Results: Most Promising Options



Approach:
Results of the Phase I evaluation suggest that the most practical and convenient “first opportunities” for sequestration lie along existing CO₂ pipelines

Most Promising Options for Evaluation



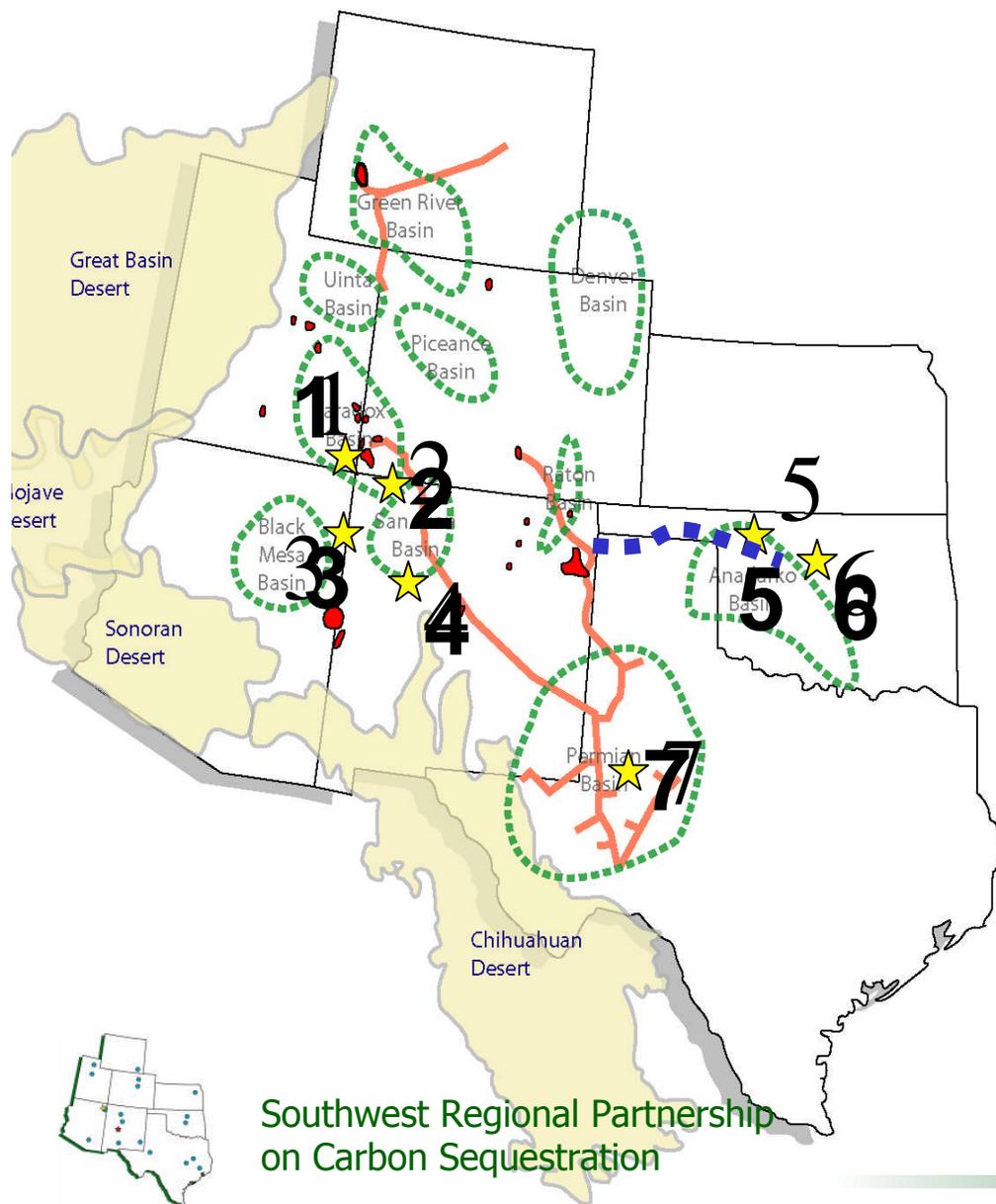
Approach:

“String of Pearls”

A possible short-term strategy of sequestration sites located along pipeline infrastructure.



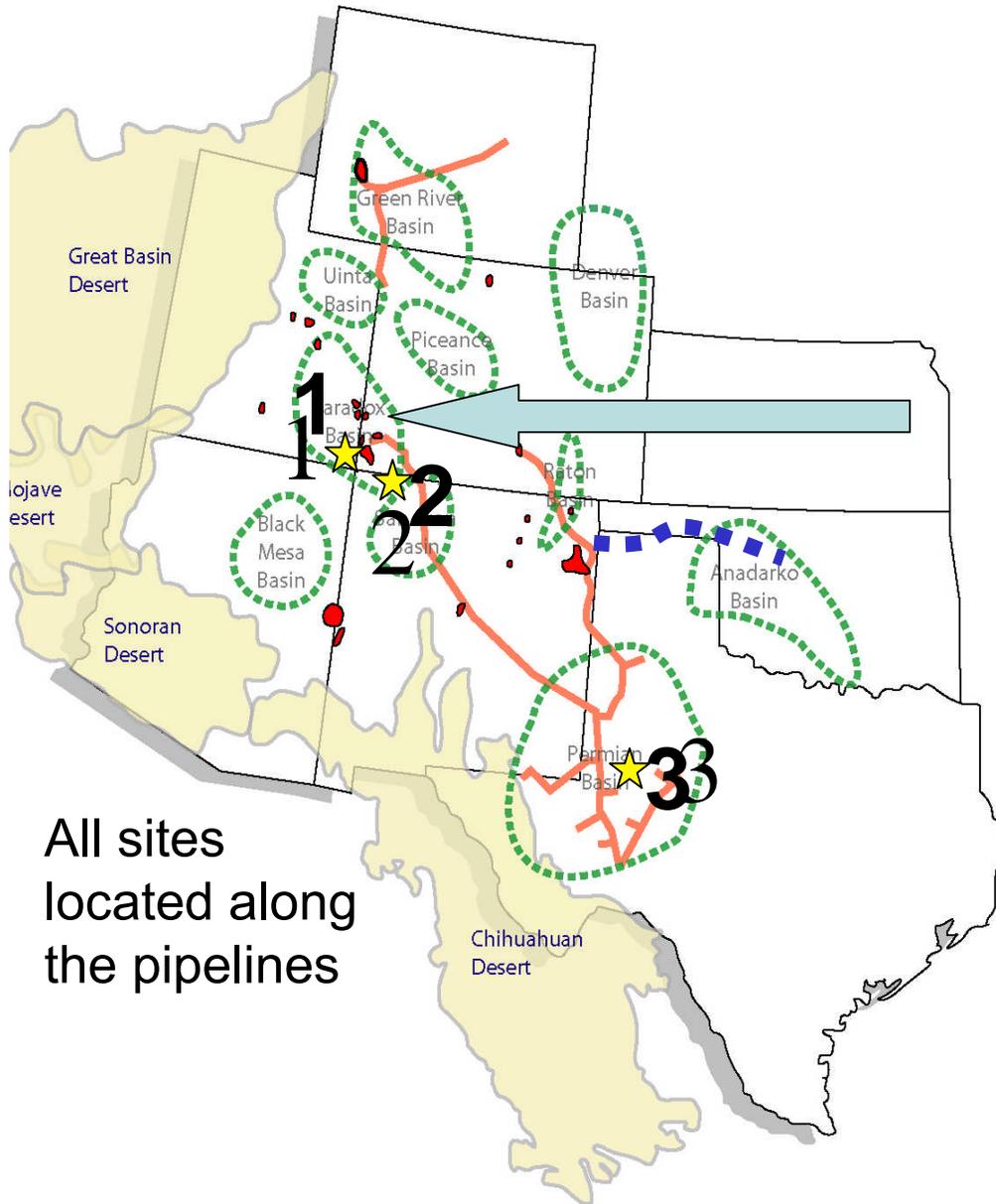
Phase I Results: Most Promising Options



- Seven sites made “short list” of top geologic opportunities
- evaluated and ranked using many criteria
- some criteria include
 - storage capacity
 - diversity of geologic attributes
 - CO₂ availability for testing purposes



Phase I Results: Most Promising Options

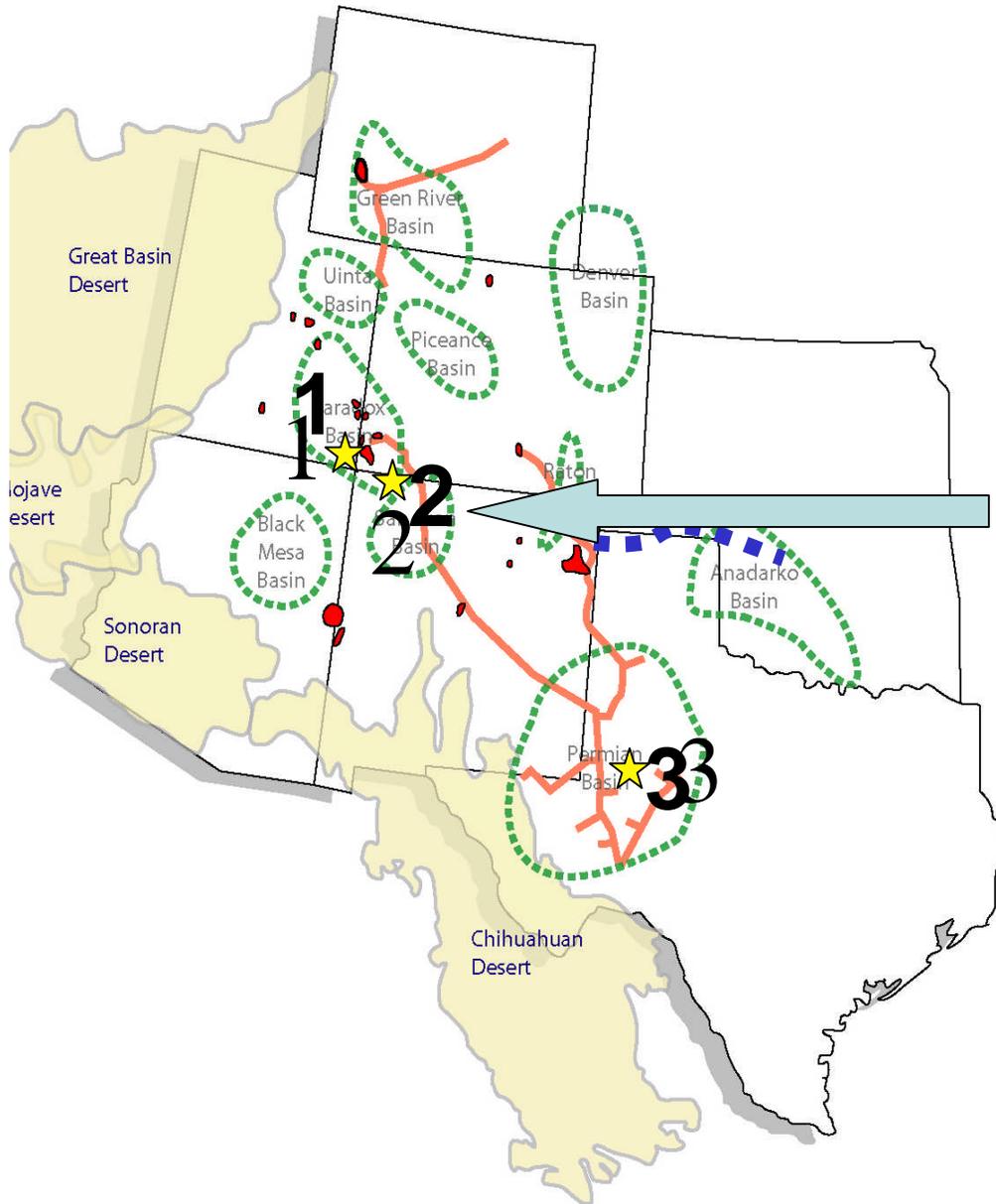


Three of these geologic options were selected as the most promising opportunities for field testing:

- combined EOR and deep saline sequestration testing, Paradox Basin, Utah

All sites located along the pipelines

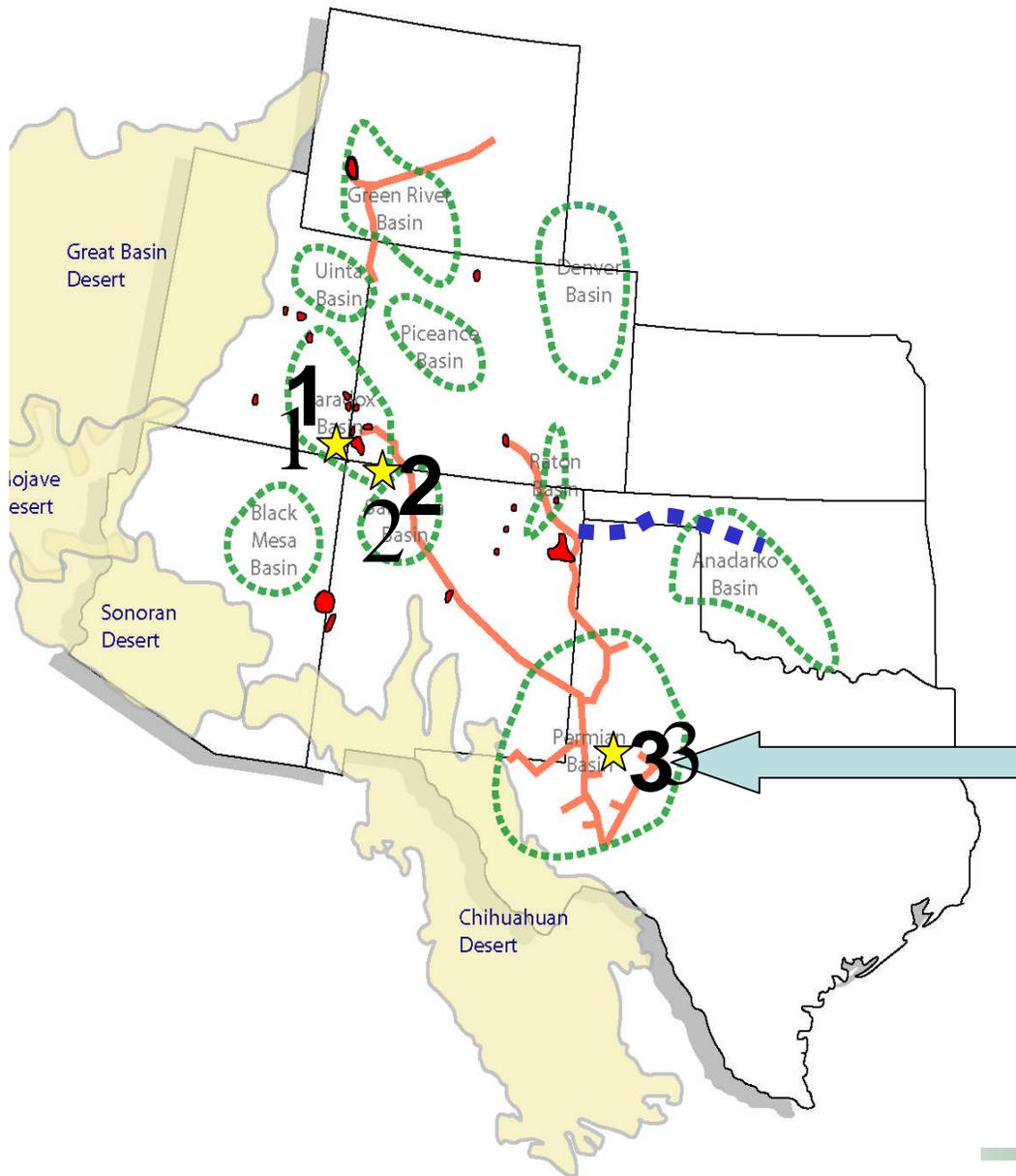
Phase I Results: Most Promising Options



Three of these geologic options were selected as the most promising opportunities for field testing :

- **combined ECBM and sequestration testing, San Juan Basin, NM**

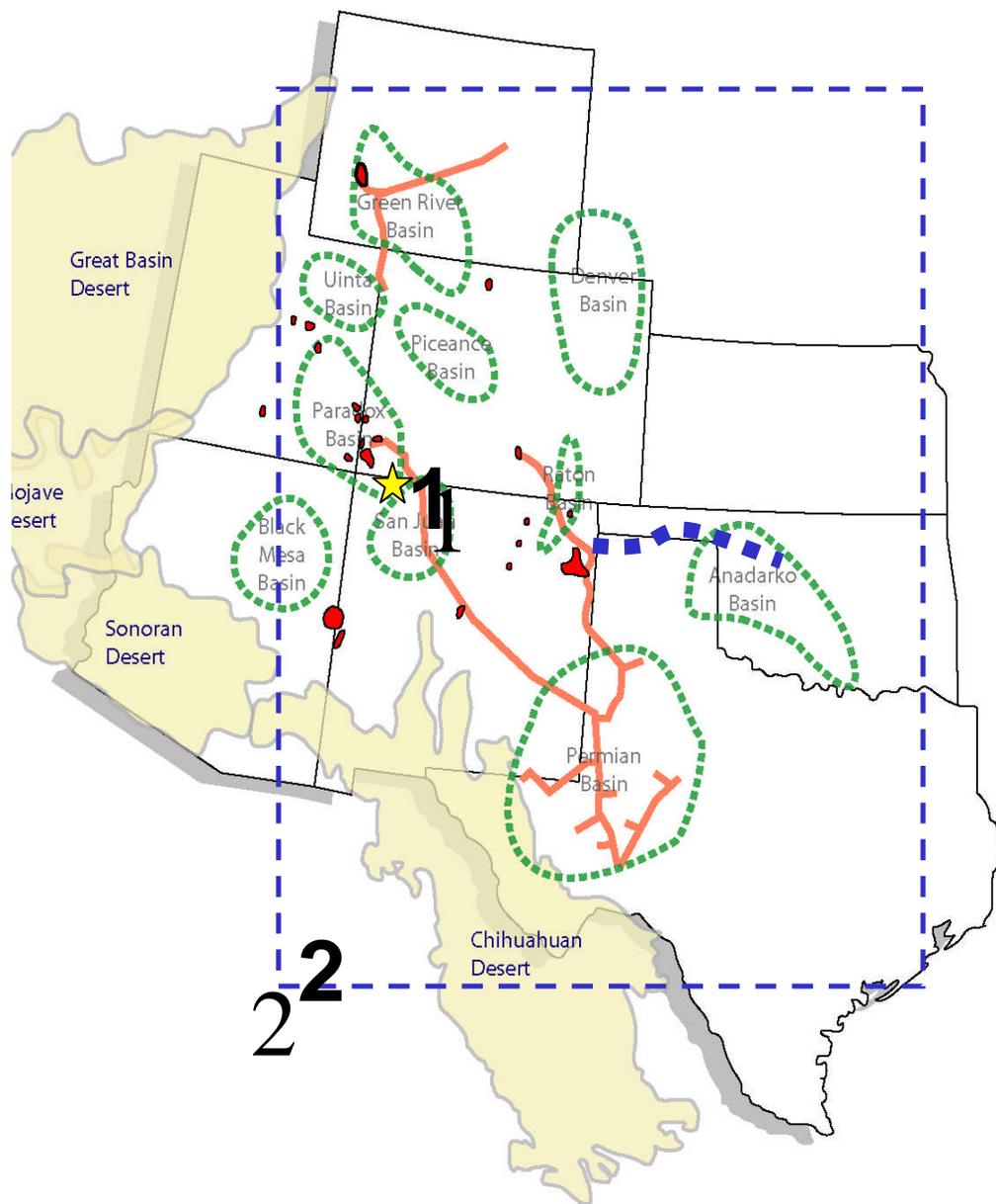
Phase I Results: Most Promising Options



Three of these geologic options were selected as the most promising opportunities for field testing:

- combined EOR and sequestration testing, Permian Basin, TX

Phase I Results: Most Promising Options

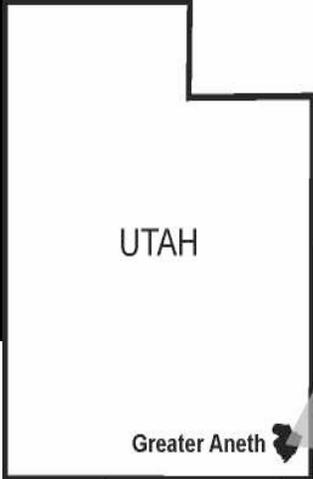
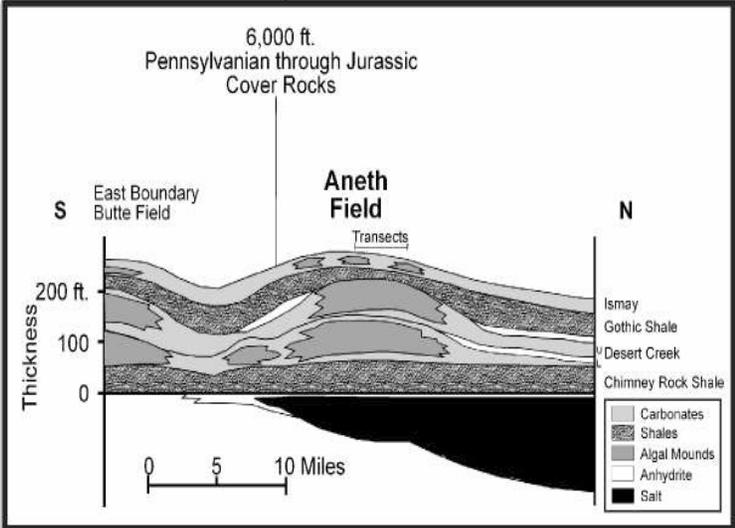


**Two Terrestrial Options
are Suggested for
Evaluation in Phase II:**

**(1) ~10 km scale terrestrial
pilot test in San Juan
Basin, NM**

**(2) ~100 km scale
terrestrial sequestration
analysis**

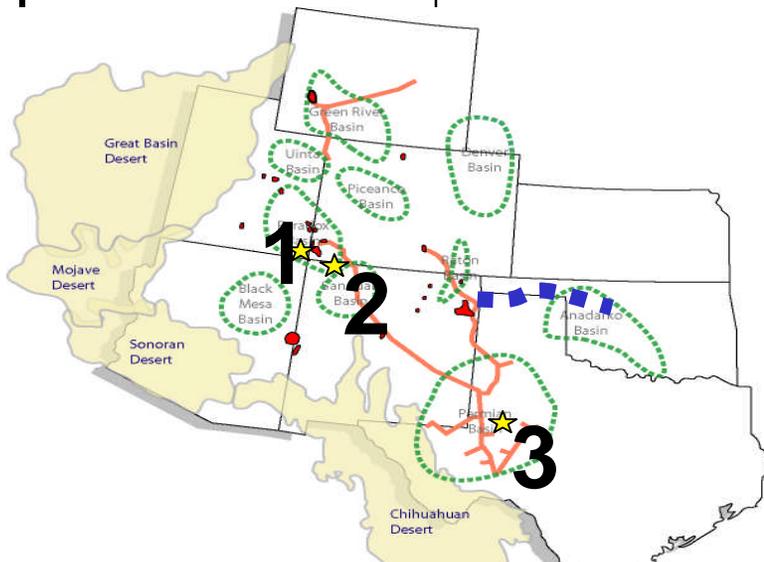
Combined EOR and deep saline sequestration testing, Paradox Basin, Utah:

Location	Type of Test	Some Key Points	Key Industry Partners
<p>Aneth Field, Paradox basin, near Bluff, UT</p>	<p>Deep Saline Aquifer and EOR with Sequestration</p>	<p>Many abandoned wells, preliminary MMV, clear anticlinal trap</p>	<ul style="list-style-type: none"> - Resolute Natural Resources Co. - Navajo Nation Oil and Gas Co.
<p>Greater Aneth</p> 			



Combined ECBM/sequestration and terrestrial sequestration testing, San Juan Basin, NM:

Location	Type of Test	Some Key Points	Key Industry Partners
<p>San Juan basin Coal Fairway, near Navajo City, NM</p>	<p>Combined ECBM testing and terrestrial sequestration evaluation</p>	<p>Geologic: ECBM, apparent great storage potential in region</p> <p>Terrestrial: Desalinate water from ECBM test and use for riparian restoration</p>	<p>- Burlington Resources</p> <p>- Kinder Morgan CO₂</p>



Combined EOR and sequestration testing, SACROC and Claytonville fields, Permian Basin, Texas

Location	Type of Test	Some Key Points	Key Industry Partners
<p>SACROC & Claytonville Fields, Permian basin, near Snyder, TX</p>	<p>Combined EOR with Sequestration</p>	<ul style="list-style-type: none"> - 30 year injection history at SACROC; - new site nearby with no CO2 injection; 	<ul style="list-style-type: none"> - Kinder Morgan CO₂ Company, L.P.
<ul style="list-style-type: none"> - apparent great storage potential in remainder of Horeshoe Atoll 			

Some Critical Goals

- efficacy of direct MMV approaches
- efficacy of indirect MMV approaches
- “adaptive” MMV program
- “adaptive” risk assessment framework
- reservoir/injectivity evolution for a variety of geological settings
- capacity estimates
- most important: public interaction and feedback



**Content in this presentation was developed by the Southwest
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southwestcarbonpartnership.org



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