

# Ninth Annual Conference on Carbon Capture & Sequestration

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## *Sequestration Regulatory Issues*

### **State Regulation of Geologic Sequestration: 2010 Update**

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# Why does state policy on GS matter?

- States control many of the activities crucial to GS deployment
- State regulators have valuable experience with local geology
- States are setting precedents



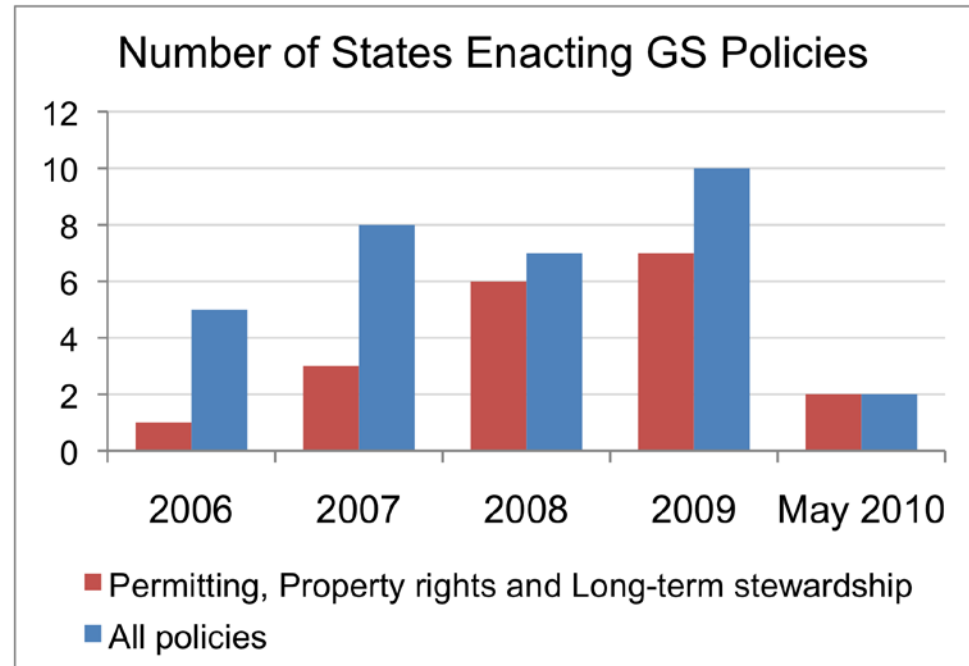
But...

- GS sites may span states
- Inconsistent rules could be problematic
- States so far unwilling to tackle certain problems

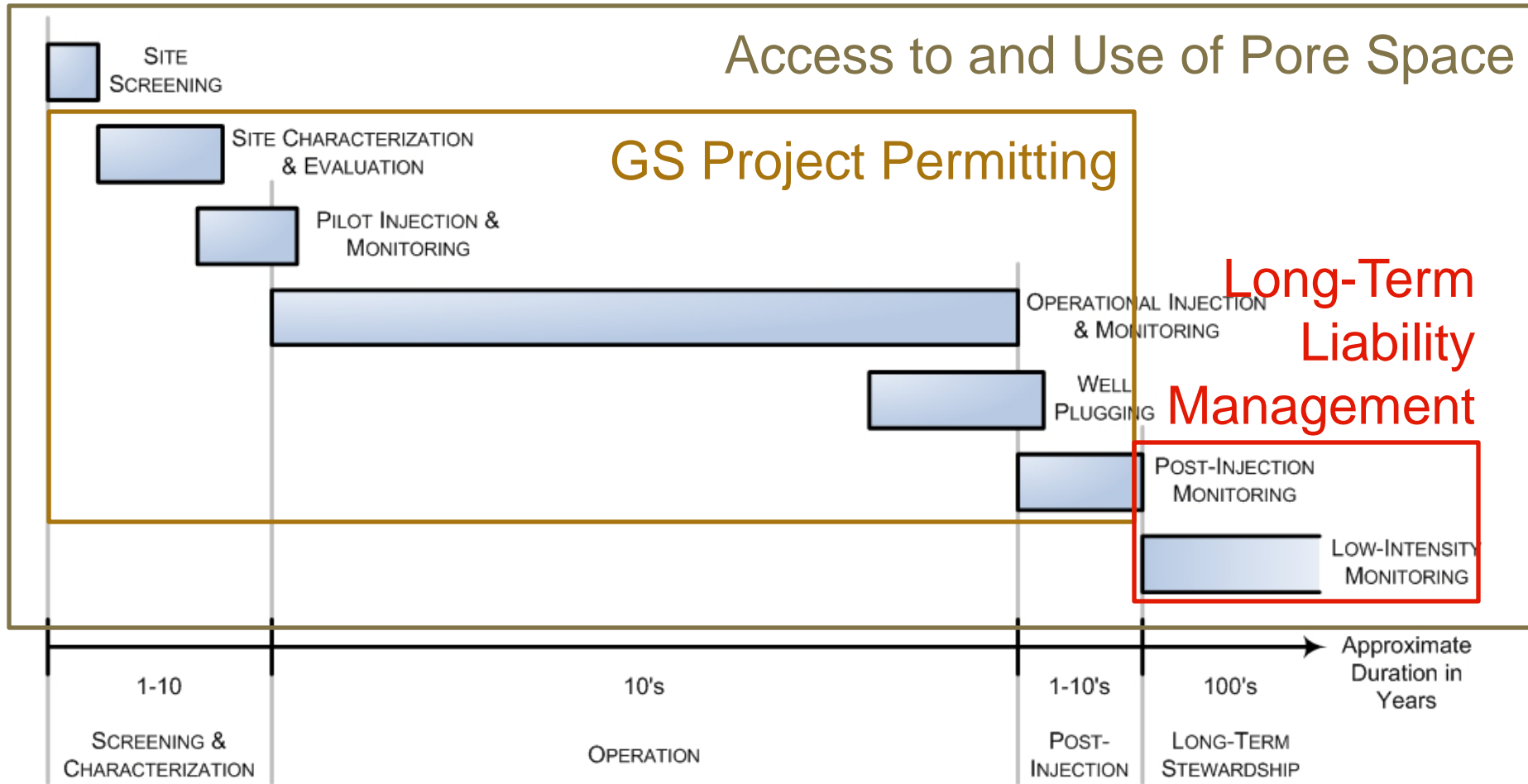
# GS policy activity slowed in 2010

## Types of GS Policies

- Permitting
- Property Rights
  - Access to pore space
  - CO2 ownership
  - Mineral Rights Primacy
- Long-term Stewardship
  - Liability
  - Funding
- Studies
- Incentives

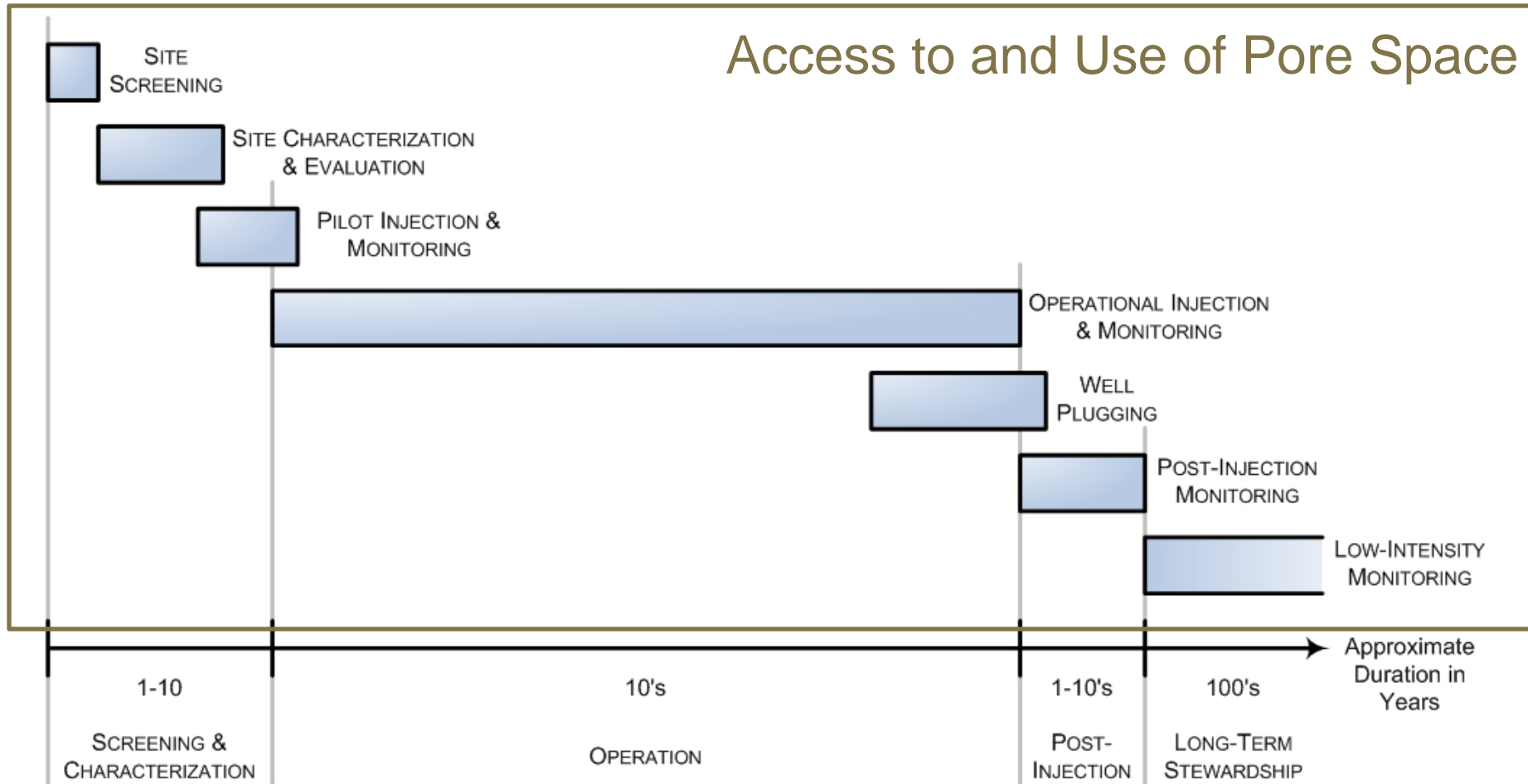


# Policy in three areas is key for geologic sequestration projects





# State actions on access to pore space



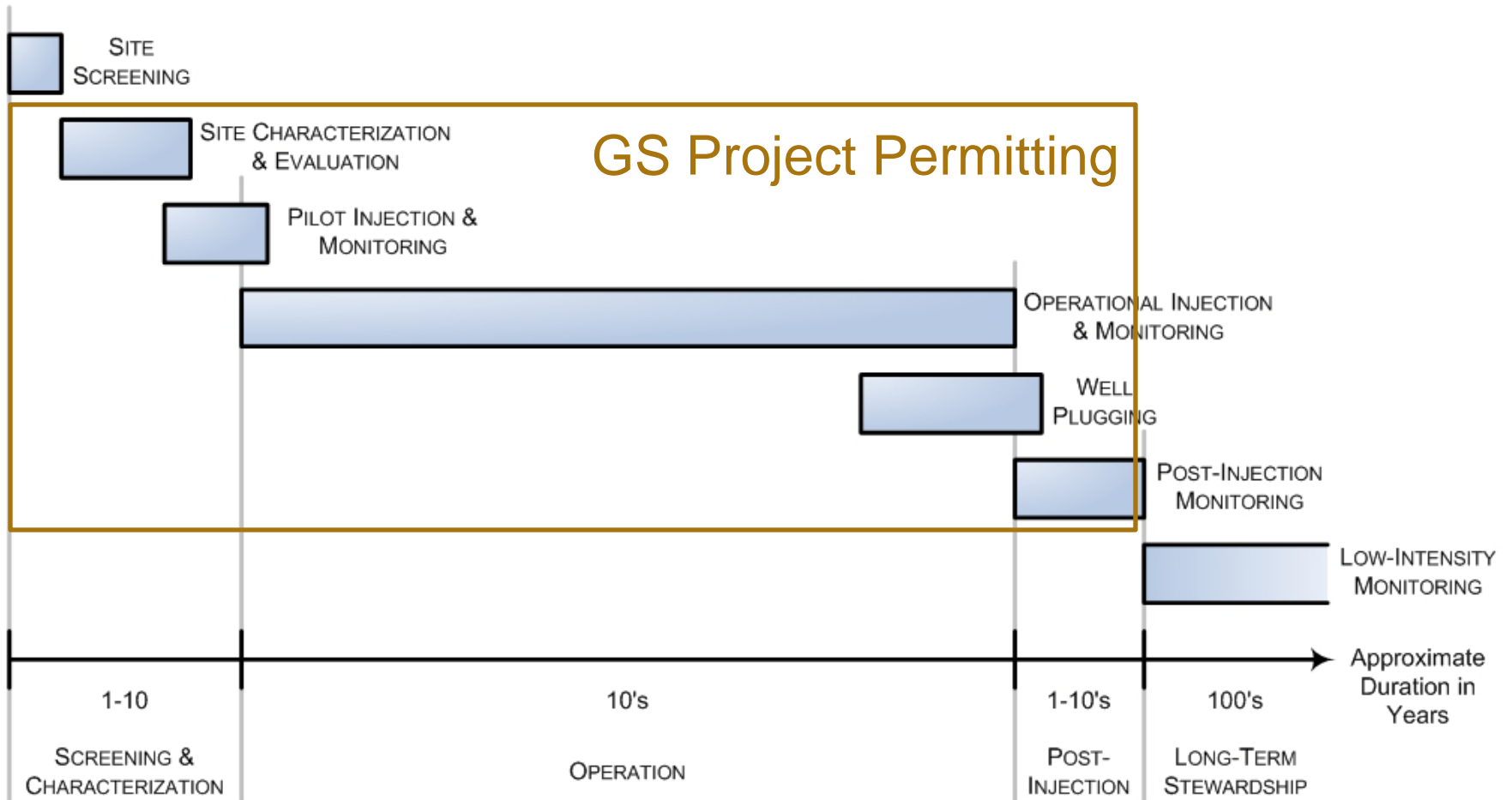


# Access to pore space

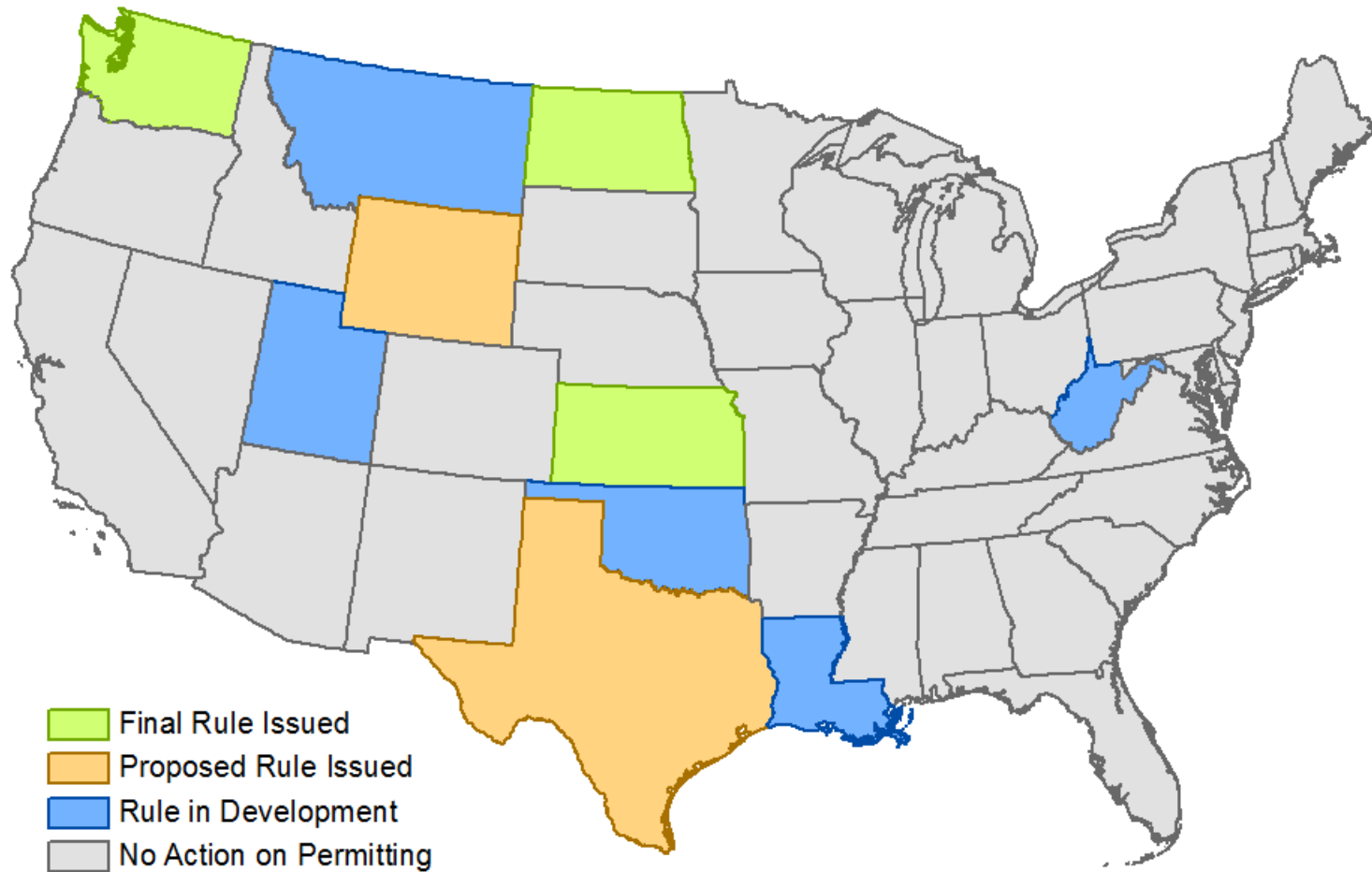
State	Pore Space Ownership	Unitization	Eminent Domain
Louisiana HB 661 (2009)			GS projects can get a certificate of public convenience and necessity.
Montana SB 498 (2009)	Surface owner – may be severed	If 60 % agree	
North Dakota SB 2139 (2009) SB 2095	Surface owner – may <b>not</b> be severed	If 60% agree	
Oklahoma SB 610 (2009)			“Nothing in this act grants the right of eminent domain for any purpose.”
Wyoming HB 89 (2009) HB 80 (2009)	Surface owner – may be severed	If 80 % agree	



# State Actions on GS Project Permitting



# Ten states have taken action on permitting



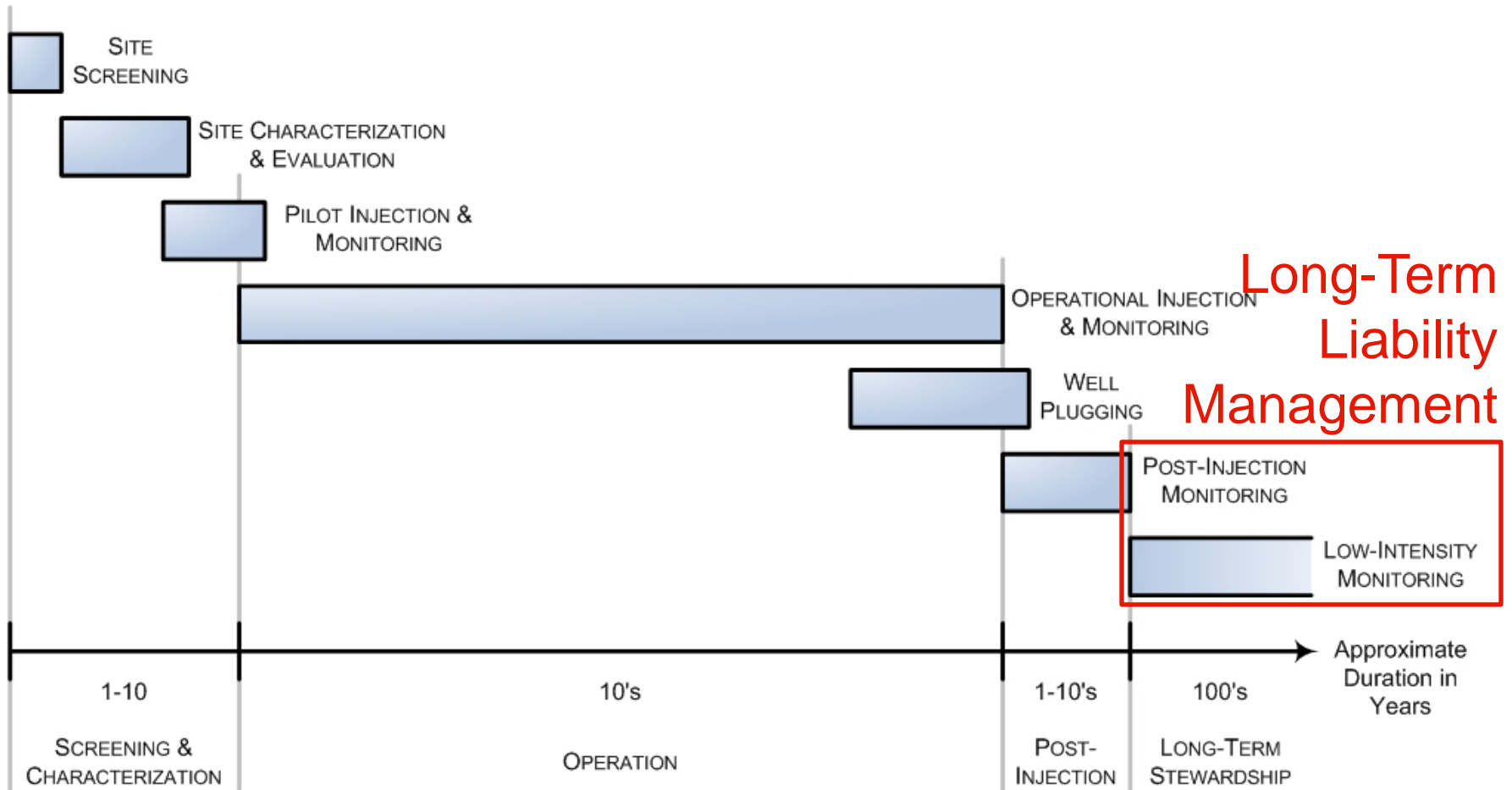
# States are delegating permitting responsibility to different agencies

Oil & Gas	<ul style="list-style-type: none"><li>• Kansas</li><li>• Louisiana</li><li>• North Dakota</li><li>• Texas – offshore sites</li></ul>
Environmental	<ul style="list-style-type: none"><li>• Washington</li><li>• West Virginia</li><li>• Wyoming</li></ul>
Oil & Gas with input from Environmental	<ul style="list-style-type: none"><li>• Montana</li><li>• Texas – onshore sites</li></ul>
Environmental with input from Oil & Gas	<ul style="list-style-type: none"><li>• Utah</li></ul>
Jurisdiction split between Oil & Gas and Environmental based on type of storage formation	<ul style="list-style-type: none"><li>• Oklahoma</li></ul>

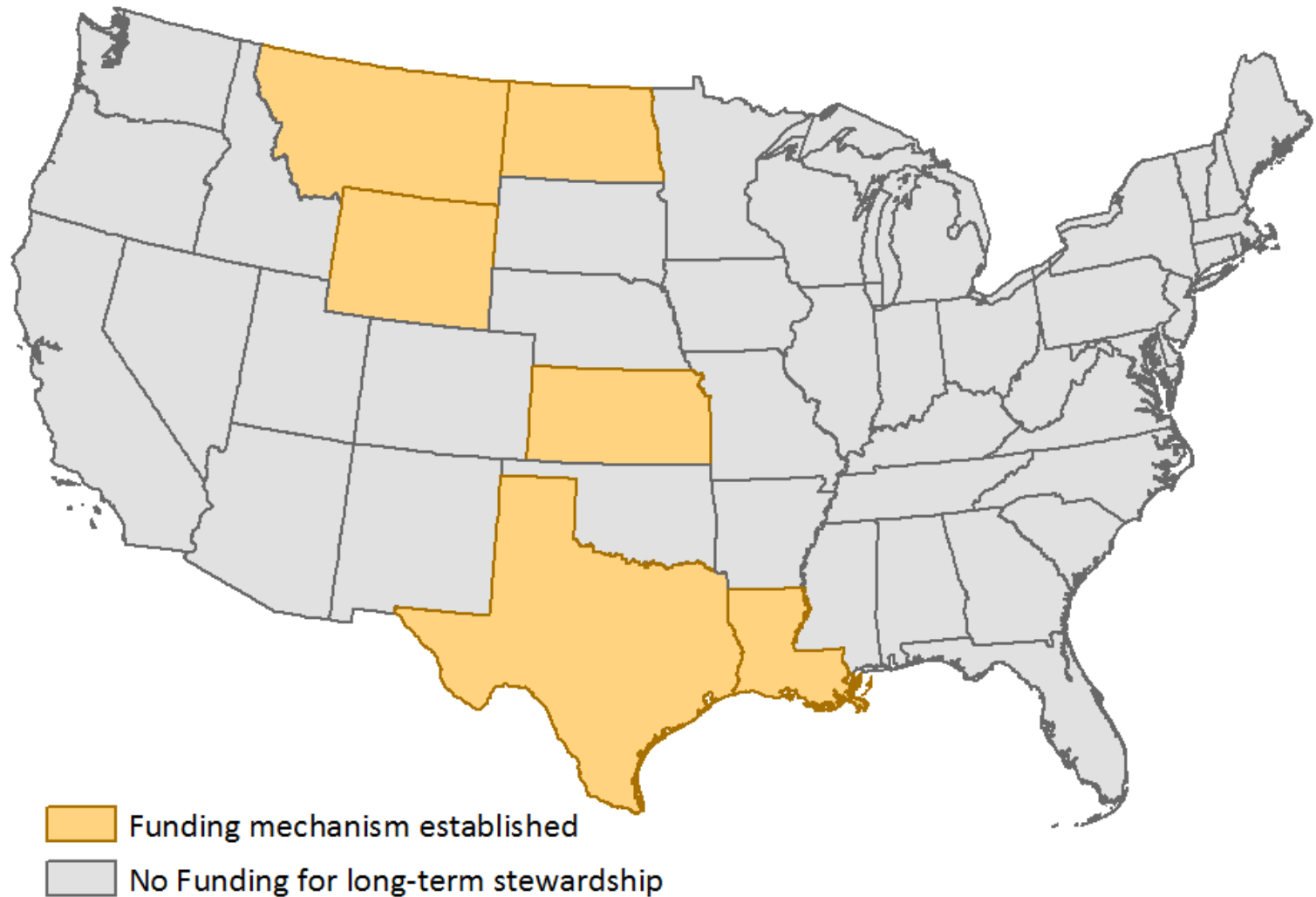
# GS permitting regulations take two forms

State	Status	Agency	Form of regulation
Kansas KAR 82-3-1100 to 1120	Final Adopted Feb. 2010	Corporation Commission	Freestanding permit for CO <sub>2</sub> storage facility
North Dakota 43-02-04.1	Final Adopted Nov. 2009	Industrial Commission	Freestanding permit for CO <sub>2</sub> storage project
Washington WAC 173-218-115	Final Adopted July 2008	Dept. of Ecology	State implementation of UIC class VI rules
Wyoming Water Quality Rules and Regs. Chap. 24	Draft	Dept. of Environmental Quality	State implementation of UIC class VI rules

# State actions on long-term liability



# Six states have addressed long-term liability



# Three broad classes of long-term liabilities

Type of Liability	Definition	Examples
Site management	Obligation to pay for post-closure site management	<ul style="list-style-type: none"><li>• Monitoring, verification, accounting and reporting</li><li>• Remediation if needed</li></ul>
Tort Liability	Obligation to pay compensatory damages arising from harm or injury during long-term stewardship	<ul style="list-style-type: none"><li>• Impacts to USDW</li><li>• Damage to mineral resources</li></ul>
Climate Liability	Obligation to submit allowances or to take other actions to compensate for leakage under a greenhouse gas emission reduction program.	<ul style="list-style-type: none"><li>• Leakage of CO<sub>2</sub> to the atmosphere</li></ul>

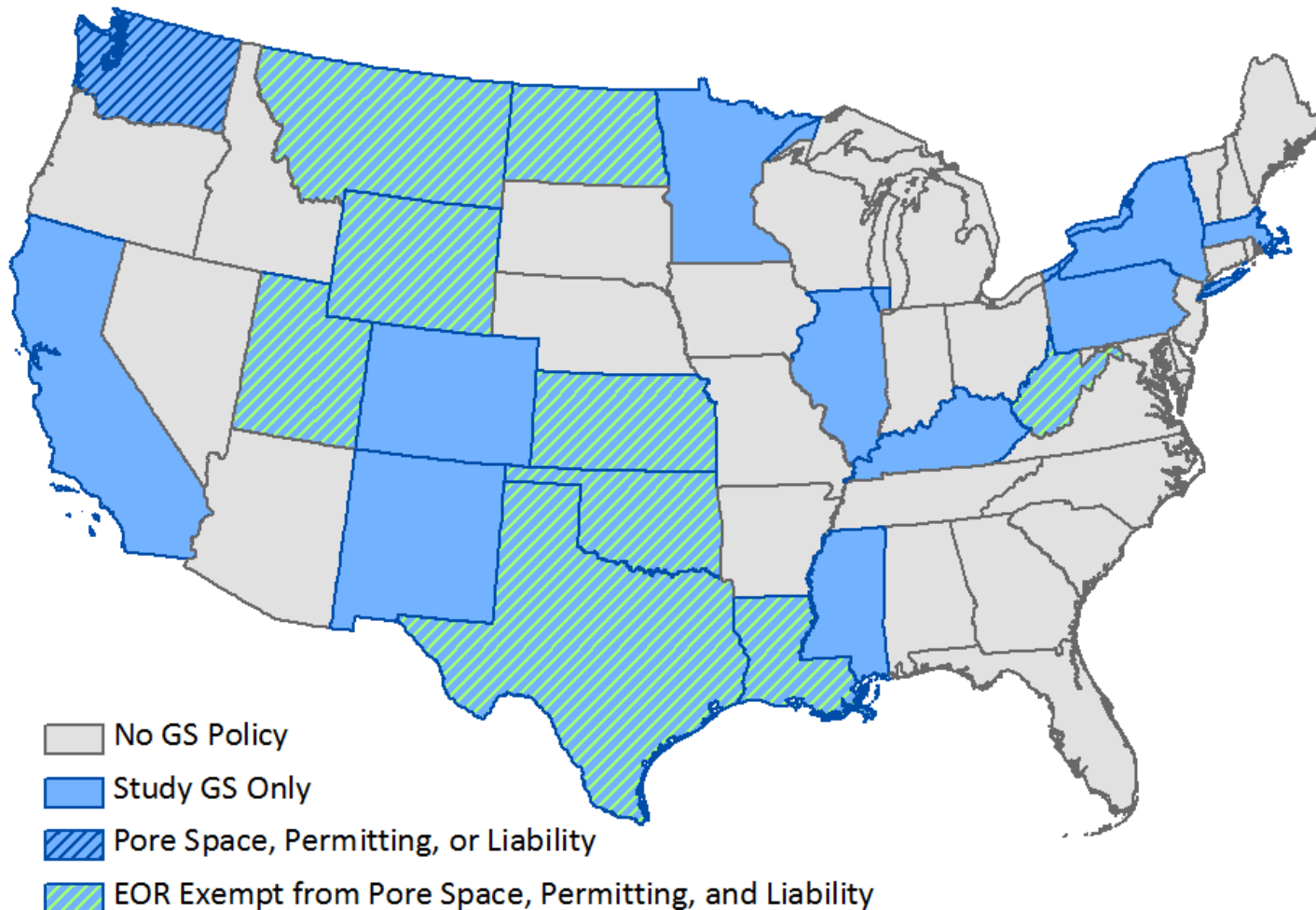
# Approved uses for state long-term GS funds

State	Long-term Site Management			Tort Liability	Climate Liability
	Monitor	Remediate: Limited*	Remediate: Full		
Montana SB 498 (2009)	✓		✓	✓	✓
North Dakota SB 2095 (2009)	✓		✓	✓	✓
Kansas HB 2419 (2007)	✓		✓		
Louisiana HB 661 (2009)	✓	✓			
Texas - SB 1387 (2009)	✓	✓			
Wyoming HB 17 (2010)	✓				

\* State's responsibility for remediation limited to fixing mechanical leaks



# State GS policy protects EOR business as usual



State	Bill	EOR exempt	Conversion	Credits for EOR
Kansas	HB 2419 (2007)	✓		
Louisiana	HB 661 (2009) HB 1117 (2008)	✓		
Montana	SB 498 (2009)	✓	✓	
North Dakota	SB 2095 (2009) SB 2034 (2009)	✓	✓	✓
Oklahoma	SB 610 (2009)	✓		
Texas	SB 1387 (2009)	✓	✓	
Utah	SB 202 (2008)	✓		
West Virginia	HB 2860 (2009)	✓		✓
Wyoming	HB 90 (2009)	✓	✓	



## Summary of current state GS policy

- Access to Pore Space
  - Generally linked to surface owner
- Permitting
  - Freestanding or through UIC?
- Long-term Liability
  - Varying approaches. Most states accepting long-term site management, but not tort or climate liability
- Treatment of EOR
  - Protecting business as usual

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  - The University of Minnesota



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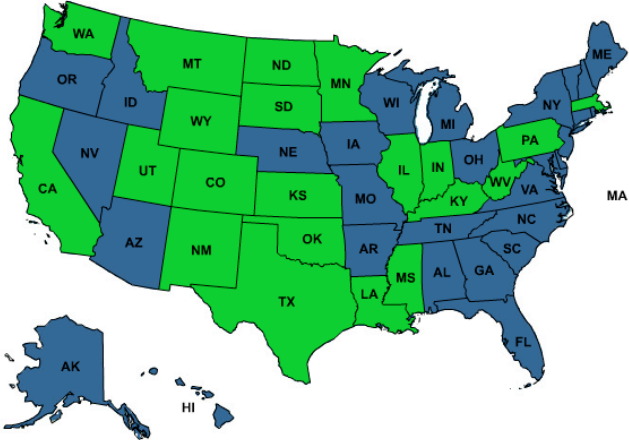
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# Searchable Database of State GS Policies at [www.ccsreg.org](http://www.ccsreg.org)

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## State CCS Policy

Click on a state to see details of enacted legislation on CCS



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**Contact Us**

For Questions, comments, and inquiries, please contact the State Policy on CCS Database by e-mail at [spoccs@umn.edu](mailto:spoccs@umn.edu)

Please let us know about CCS policy developments in your state!

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# Statutory language on long-term liabilities

State	State takes over....	Operator released from....
Montana SB 498 (2009)	All rights and interests in and all responsibilities associated with the geologic storage reservoir and the stored carbon dioxide	All regulatory requirements and liability associated with the geologic storage reservoir and the stored carbon dioxide
Louisiana HB 661 (2009)	Long-term monitoring of the site, including remediation of any well leakage	All (regulatory) duties and all liability associated with or related to that storage facility which arises after the issuance of the certificate of completion
Kansas HB 2419 (2007)	Any future remediation or monitoring activities	Nothing
Wyoming HB 17 (2010)	Long-term measurement, monitoring and verification of geologic sequestration sites	Nothing

\* State's responsibility for remediation limited to fixing mechanical leaks

# Criteria for site closure vary from state to state

State	Requirements for closure	Consequences of closure
Kansas	<ul style="list-style-type: none"> <li>• CO<sub>2</sub> plume is stabilized, contained, and not a threat to public health, safety and usable water</li> <li>• CO<sub>2</sub> reservoir pressure is stable</li> </ul>	<ul style="list-style-type: none"> <li>• CO<sub>2</sub> storage facility permit is revoked</li> <li>• Monitoring and remediation paid for by state trust fund</li> </ul>
North Dakota	<ul style="list-style-type: none"> <li>• Show position and characteristics of injected CO<sub>2</sub></li> <li>• Reservoir is reasonably expected to retain mechanical integrity</li> </ul>	<ul style="list-style-type: none"> <li>• Bond is released</li> <li>• Monitoring and remediation become responsibility of designated state or federal agency</li> </ul>
Washington	<ul style="list-style-type: none"> <li>• Little or no risk of future env. impacts and high confidence in effectiveness of the containment system</li> </ul>	<ul style="list-style-type: none"> <li>• Funds remaining in financial assurance account are released</li> </ul>
Wyoming	<ul style="list-style-type: none"> <li>• &gt;10 years after injection stops</li> <li>• 3 years of monitoring data showing plume has stabilized</li> <li>• CO<sub>2</sub> will not present a risk to human health, safety or the environment</li> </ul>	<ul style="list-style-type: none"> <li>• All financial assurance instruments released</li> <li>• Monitoring and remediation paid for by state trust fund</li> </ul>



# Financial assurance mechanisms to ensure projects are properly closed are included

State	Financial Assurance requirements
Kansas	<ul style="list-style-type: none"><li>• Demonstration of financial responsibility to ensure proper operation and closure of the CO<sub>2</sub> storage facility, as approved by the Director.</li></ul>
North Dakota	<ul style="list-style-type: none"><li>• Performance bond covering surface facility in an amount established by the Commission.</li><li>• Performance bonds for each CO<sub>2</sub> injection and observation well in amount established by the Commission.</li></ul>
Washington	<ul style="list-style-type: none"><li>• Operator shall establish a closure and post-closure account to cover all closure and post-closure expenses.</li></ul>
Wyoming	<ul style="list-style-type: none"><li>• Public Liability Insurance policy (or self insurance) for GS operations.</li><li>• Bond or other financial assurance to cover cost of meeting permit requirements, including monitoring, remediation and site closure.</li></ul>

# Strategic purpose of GS legislation varies

## Economic development

*Carbon dioxide is a valuable commodity to the citizens of the state, particularly for its value in enhancing the recovery of oil and gas and for its use in other industrial and commercial processes and applications.*

- Oklahoma S.B. 610 (2009)

## GHG Emissions Reduction

*The geologic storage of carbon dioxide will benefit the citizens of the state and the state's environment by reducing greenhouse gas emissions.*

- Louisiana H.B. 661 (2009)

	Economic Development	GHG Emissions Reduction
Louisiana	●	●
Montana	●	
North Dakota	●	●
Oklahoma	●	
Washington	●	●
West Virginia	●	
Wyoming	●	