



Passing Geologic Storage Legislation: Perspectives, Problems, Opportunities and Challenges

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The Texas Carbon Capture & Storage Association



“Advancing America’s Energy Security with Clean Texas Technology”



Outline



- I. Why Should States be Involved with CCS?
- II. How are States involved with Passing CCS Legislation?
- III. What are States doing regarding CCS legislation?

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Why Should States be Involved?



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Reasons for State Involvement



“...Given the ownership issue and proposed long-term ‘care-taker’ role of the states, the states are likely to be best positioned to provide the necessary ‘cradle to grave’ regulatory oversight of geologic storage of CO₂”

*Storage of Carbon Dioxide in Geologic Structures: A Legal and Regulatory guide for States and Provinces, IOGCC
September 2007*

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Reasons for State Involvement



- States are currently principal regulators of EOR and natural gas storage
- Industry and states have 30+ years experience in the injection, transportation and processing of CO₂
- States are best positioned to enable sources to meet potential carbon compliance obligations

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States: Laboratories of Innovation



"It is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.")

Justice Louis D. Brandeis, U.S. Supreme Court (1916-1939) in
New State Ice Co. v. Liebmann, 52 S.Ct. 371, 378 (1932)

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State Jurisdiction



- Regulatory Oversight
- Property Rights
 - Acquisition of property rights to develop injection sites
 - Ownership of the stored CO₂
 - Ownership of the subsurface pore space
- Liability
 - Operational Liability (tort/negligence)
 - Long-term stewardship

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Passing CCS Legislation

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"Passing CCS Legislation: Perspectives, Problems, Opportunities and Challenges"

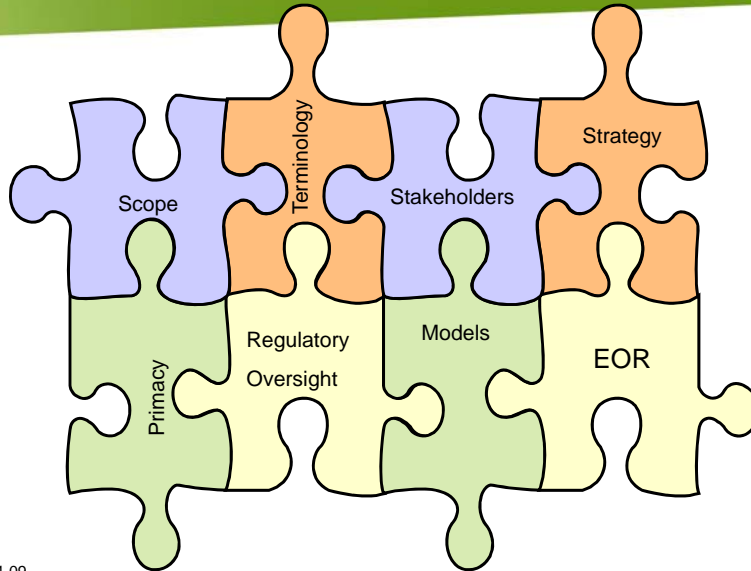


- To Be or Not To be
- Situs of Regulatory Authority
- Stakeholders/Interest Groups
- Models (Statutory Framework)
- Legislative Strategy
- "Posturing for Primacy"
- EOR Treatment
- Did you say "anthropogenic?"
- Other Issues

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"Passing CCS Legislation: Perspectives, Problems, Opportunities and Challenges"



"To Be or Not to Be" (the scope of legislation)

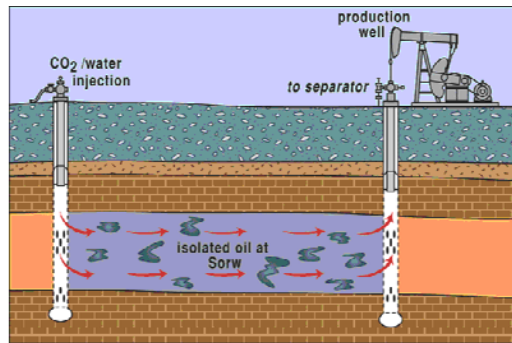


- Regulatory Framework
 - EOR + Incidental Storage
 - Storage in saline formations w/o production capability
 - Storage with Incidental production
- Regulatory Framework + Big Three
 - Long-term Stewardship
 - Acquisition of property Rights
 - Ownership of storage/pore space

Enhanced Oil Recovery



- Do no harm
 - Protect EOR business as usual
- Allow conversion
 - After operations
 - During operations
- Concurrent EOR & storage
 - Avoid creating artificial barriers



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Situs of Regulatory Authority



- State Oil & Gas Regulatory Agency
 - Benefits
 - More experience with subsurface issues
 - Environmental protection/conservation mandate
 - Different EPA standard of review
 - Economies of scale with one agency
 - Disadvantages
 - Less focused on enforcement
 - Not seen as an “environmental” agency
 - Different EPA standard of review

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Situs of Regulatory Authority



- State Oil & Gas Agency
 - Benefits
 - More experience with subsurface issues
 - Some environmental responsibilities
 - Economy of scale by keeping under one agency
 - Disadvantages
 - Not perceived as an “environmental” regulatory agency
 - Lack of familiarity with EPA rules ∴ raising questions of primacy

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Situs of Regulatory Authority



- Environmental Regulatory Agency
 - Benefits
 - Experienced environmental regulatory agency
 - Familiarity with hazardous waste disposal
 - Disadvantages
 - Could lead to split regulatory authority
 - Focus on regulation of carbon as hazardous waste
- Split Jurisdiction

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Stakeholder/Interest Groups



- Oil & Gas producers
- Electric Generating Utilities
- State Official's
- Environmental Groups
- Coalitions
- Land owners
- Trial lawyers



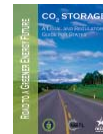
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Models for Statutory Framework



- IOGCC Work
 - *"CO2 Storage a Legal and Regulatory Framework"*
- Bills and Statutes from Other states
 - See matrix
- Existing Statutory Analogues
 - EOR/Oil & gas production
 - Natural gas storage
- EPA Proposed GS Rule



Environmental Protection Agency

40 CFR Parts 144 and 146
Federal Requirements Under the
Underground Injection Control (UIC)
Program for Carbon Dioxide (CO₂)
Geologic Sequestration (GS) Wells;
Proposed Rule

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Terminology



- **Sequester** – **1 a** : *to set apart ; segregate* **b** : seclude, withdraw;
2 a : to seize especially by a writ of sequestration **b** : to place (property) in custody especially in sequestration;
3 : *to hold (as a metallic ion) in solution usually by inclusion in an appropriate coordination complex.*
- **Store** - **1** : lay away, accumulate;
2 : furnish, supply; especially : to stock against a future time;
3 : *to place or leave in a location (as a warehouse, library, or computer memory) for preservation **or later use** or disposal*
4 : *to provide storage room for : hold.*

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What is “anthropogenic” CO₂?



- **Natural gas sweetening?**
“...carbon dioxide stripped, segregated, or divided from any other fluid stream”
Tex. Water Code § 27.002(19)(i)(a)
- **Captured from a stationary source?**
“Stationary Source - a fixed-site producer of pollution, mainly power plants and other facilities using industrial combustion processes”
www.epa.gov
- **Captured from an industrial source?**
“... any building, structure, facility, or installation which emits or may emit any air pollutant.”
Clean Air Act - 42 U.S.C. §7401 et seq. (1970)

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Legislative Strategy



- Position as Environmental Legislation
- Energy Security through increased domestic oil production
- New Source of State Revenue



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Posturing for Primacy



- Preemption concerns
 - Will federal GS rules pre-empt state rules
- How to maintain consistency w/ proposed rules
- “WOTF” – waiting on the feds before taking action (e.g. cap & trade, GHG reporting rules, GS rules)

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WOTF*



- Some States are Frozen, Waiting On The Federal Rules (e.g., cap & trade, EPA rules)
- Many of These and Other States are Moving only in a Renewable Energy Direction with Enormous Transmission Lines, other Infrastructure and Environmental Challenges Ahead

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Additional Considerations



- Incentives
 - Should financial incentives be bundled with regulatory framework legislation
- Prescriptive vs. Non-prescriptive
 - Narrow regulators options
 - Give regulators latitude on rules
- Composition of CO₂
 - Quality standards;
 - pipeline specifications, etc.



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State CCS Activity

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State Activity



- Feds vs. States

Federal Gov't	States
<ul style="list-style-type: none">• 2001 Voluntary Policy• Energy Policy and Conservation Act of 2005 & 2007• Lieberman/Warner• Dingell Boucher• Economic Stabilization Bill• EPA Proposed GS Rules	<ul style="list-style-type: none">• Washington• Wyoming• Kansas• Utah• North Dakota• Texas• Oklahoma• Ohio• IOGCC• WCI• Etc.

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State Trends



- Kind of CCS legislation includes: study bills, GHG registry, incentives, including CCS in clean energy portfolio standard
- My focus is legislation establishing the legal/regulatory framework for geologic sequestration
- State Trends Matrix
 - Importance of regulatory oversight
 - Acquisition of property rights
 - Ownership of the Subsurface Pore space (and CO₂)
 - Long-term Stewardship (addressed)
 - Treatment of enhanced oil recovery using CO₂

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State Trends



- Worth examining for some interesting finds
- Wyoming as the first to pass pore space legislation
- Kansas possibly adopting the earliest rules
- Washington boldly proposes to designate GS as Class V (potential conflict with EPA rules)

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STATE TRENDS – 2007/08 Adopted Legislation/Regulation



	AGENCY		EMINENT DOMAIN/ UNITIZATION	SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
WY HB 90 HB 89		<input checked="" type="checkbox"/> DEQ	Operator must demonstrate acquisition of all legal rights	<input checked="" type="checkbox"/> HB 89		Closure/Post Closure Working Group to address related issues	EXCEPTED Conversion to GS allowed upon cessation of O&G activity
OK	SB 1765 - Study Bill. Study to be completed by December 1, 2008???						
KS HB 2419/ Proposed Rules	<input checked="" type="checkbox"/> KCC life		Operator must certify that legal right to property has been secured	NA		Post-injection, closure period determined by KCC; if approved future remediation/monitoring performed by state	Defined term in statute includes EOR; rules do not address.

NA = Not addressed
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STATE TRENDS – 2007/08 Adopted Legislation/Regulation



	AGENCY		EMINENT DOMAIN/ UNITIZATION	SUBSURFACE OWNERSHIP	LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV				
UT SB 202	Multiple agency task force to recommend rules & oversight		NA	To be considered in rulemaking	To be considered in rulemaking	EXCEPTED Conversion recommended
WA Dept. of Ecology 5 years		<input checked="" type="checkbox"/> Class V	NA	NA	Designates Post-Closure period w/o addressing liability; does not define set period; financial assurance to cover remediation, plugging or abandonment	NA

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STATE TRENDS - 2009 Adopted Legislation/Regulation



	AGENCY		EMINENT DOMAIN/ UNITIZATION	(CO2 &) SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
WY HB 57				<input checked="" type="checkbox"/> "sort of"			
HB 58				(The injector is presumed to be the owner of injected materials including CO2)			
HB 80	<input checked="" type="checkbox"/> Makes owner-ship decision	<input checked="" type="checkbox"/> Makes environmental decision	YES "Corresponding Rights"				

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STATE TRENDS – 2009 Adopted Legislation/Regulation



	AGENCY		EMINENT DOMAIN/ UNITIZATION	(CO2 &) SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
ND SB2139				<input checked="" type="checkbox"/> Pore space can not be severed from surface estate			
SB 2095	<input checked="" type="checkbox"/>	In consultation with the State Dep. Of Health	YES	NA (Storage operator has title to and liability for CO2 injected into and stored in a storage reservoir.)		Transfer to the state 10 years after closure	EXCEPTED Conversion to GS allowed during operations*
LA HB 661	<input checked="" type="checkbox"/>		YES	NA (Injected carbon dioxide deemed the property of the party that owns such CO2)		Transfer to the state 10 years after closure	Allows conversion of an existing EOR operation into a storage facility...taking into consideration prior approvals regarding EOR operations.

NA = Not addressed

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STATE TRENDS – 2009 Adopted Legislation/Regulation



	AGENCY		EMINENT DOMAIN/ UNITIZATION	(CO2 &) SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
TX SB1387	<input checked="" type="checkbox"/>		Provides for multi-agency study to be completed by December 1, 2010	NA (Injected CO2 presumed to be the property of the injector)		Provides for agency study to be completed by December 1, 2010	EXCEPTED Injection wells may be permitted for multiple purposes and if authorized as or converted to CO2 storage wells then storage rules apply
MT SB 498	<input checked="" type="checkbox"/>		YES	<input checked="" type="checkbox"/> "sort of"		Transfer to the state possible 30 years after closure.	EXCEPTED Conversion allowed during operations
WV HB 2860		<input checked="" type="checkbox"/>	Working group study due July 2011	NA		Working Group study due July 2011	EXCEPTED Conversion allowed after cessation of operations

NA = Not addressed

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STATE TRENDS – 2007/08 Proposed Legislation/Regulation



	AGENCY		EMINENT DOMAIN/ UNITIZATION	(CO2 &) SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
IOGCC Draft Legislation	<input checked="" type="checkbox"/> Preferred	<input checked="" type="checkbox"/>	YES	White paper suggests surface estate		Transfer to State	EXCEPTED Conversion to GS allowed during operations
MT SB 66	<input checked="" type="checkbox"/> BER		NA	<input checked="" type="checkbox"/> Similar to WY		Insurance for Post Closure Period of 75 Years	Conversion to GS allowed during operations
NM Discussion Draft	<input checked="" type="checkbox"/> EMNRD		OGD may issue orders requiring unitization	<input checked="" type="checkbox"/>		NA	EXCEPTED Conversion to GS allowed during operations

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NA = Not addressed

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STATE TRENDS – 2009 Proposed Legislation/Regulation



	AGENCY		EMINENT DOMAIN/ UNITIZATION	(CO2 &) SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
MI SB 775		<input checked="" type="checkbox"/> DEQ	YES For Local Governments	NA (Title to Injected CO2 transferred to the State with all associated liabilities.)		Transfer to the state 10 years after closure	EXCEPTED Conversion to GS allowed during operations
NY A 8802		<input checked="" type="checkbox"/>	Yes	<input checked="" type="checkbox"/>		NA	
				Injected CO2 owned by the operator			

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NA = Not addressed

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STATE TRENDS – Proposed Legislation/Regulation



	AGENCY		EMINENT DOMAIN/ UNITIZATION	(CO2 &) SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
ND Proposed Rules Proposed 2009 Bill	Borrows IOGCC framework for Regulatory Agency		YES	NA		Transfer to State	NA
TX Proposed 2009 Bill	<input checked="" type="checkbox"/> Preferred	<input checked="" type="checkbox"/>	NA	NA		Early Mover limits	EXCEPTED Conversion to GS allowed during operation
OK - 2009 Discussion Draft	<input checked="" type="checkbox"/> DEQ	<input checked="" type="checkbox"/> OCC	OGD may issue orders requiring unitization	NA		NA	EXCEPTED Conversion to GS allowed during operations

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NA = Not addressed

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STATE TRENDS – Failed or Not Adopted - 2008



	AGENCY		EMINENT DOMAIN/ UNITIZATION	(CO2 &) SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
OK - 2008 SB 1765 (Introduced)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	YES	<input checked="" type="checkbox"/>		Transfer to State	EXCEPTED Conversion to GS allowed during operations
MT - 2008 HB 24 SB 218		<input checked="" type="checkbox"/> BER	YES (pipelines)	NA		NA	EXCEPTED Conversion to GS allowed during operations
MI SB 707		<input checked="" type="checkbox"/> DEQ	NA	NA		NA	Defined term includes EOR
CA AB 705	<input checked="" type="checkbox"/> DoC		NA	To be considered in rulemaking		To be considered in rulemaking	EXCEPTED Conversion not addressed

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NA = Not addressed

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STATE TRENDS – Failed or Not Adopted - 2009



	AGENCY		EMINENT DOMAIN/ UNITIZATION	(CO2 &) SUBSURFACE OWNERSHIP		LONG-TERM STEWARDSHIP & LIABILITY	ENHANCED OIL RECOVERY
	O&G	ENV		Surface Estate	Mineral Estate		
OK SB 610	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	YES	NA		NA	EXCEPTED Conversion to GS allowed during operations
NM Draft SB 208	<input checked="" type="checkbox"/>		YES	<input checked="" type="checkbox"/>		NA	EXCEPTED Conversion to GS allowed during operations
				(CO2 remains the property of the storage Operator)			

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NA = Not addressed

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Observations



- Inspired by IOGCC work
 - 2005 CCS: A Regulatory Framework for States
 - 2007 CO₂ Storage: A Legal and Regulatory Guide
- States are anxious to enter this arena
 - Evidenced by EPA letter to states
 - Desire to protect EOR
 - Obtain primary enforcement responsibility (“primacy”)
 - Influence EPA rulemaking
- No mandates
 - Creates permitting, site selection infrastructure
 - Provides some regulatory certainty for developers/operators
 - Facilitates financing




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Observations Cont'd



- EOR is a driver: Nearly all of the states that use CO₂ flooding have considered GS legislation
- Where states have chosen to address or to attempt to address subsurface ownership, the ownership has been vested in surface estate
- Long-term stewardship: Louisiana, North Dakota, Montana 
- States are split on regulatory oversight

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Predictions



- More State legislation -
 - 2010-11 when studies are complete
 - EPA rules finalized
 - (Possible) GHG limits imposed
- Strong O&G States will work to have authority reside in the O&G regulatory agency
- We will see state permits issued before EPA rules finalized



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Challenges and Opportunities



- Industrial product/Commodity vs. waste/pollutant
- Subsurface Ownership
- Liability Issues Unresolved
- Need for Regulatory Frameworks (State-by-State)
- Public Perception and Acceptance
- CO2 Demand and Market development without Required Reductions
- Need for Large-scale commercial demonstration projects

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Next Steps



- Educate, Influence & Inform
- Mobilize citizens and policymakers
- Unified Voice
- Policy Development and Advocacy Forums
 - North American Carbon Capture & Storage Association
 - Texas Carbon Capture & Storage Association

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Questions?



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PERMIAN BASIN oil report

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SUNDAY
March 22, 2009

SandRidge, Oxy break ground on Century gas processing plant

By Mella McEwen
Oil Editor

Anounced last summer, the \$1.6 billion Century Plant planned for Pecos County by SandRidge Energy and Occidental Petroleum has moved closer to existence with a recent groundbreaking ceremony.

Under the agreement, Oxy will spend \$1.6 billion to build and operate the new plant and a 160-mile pipeline from the plant through McCamey to Denver City. SandRidge will drill, produce and deliver high-CO₂ gas to the plant, which Oxy will treat under a 30-year agreement. SandRidge will retain all the methane gas and Oxy will keep all CO₂ for use in

enhanced oil recovery projects in the Permian Basin.

It will be completed in three phases and fully operational by 2011.

Speaking at the groundbreaking ceremony, Bill Albrecht, president of Oxy Oil & Gas USA, told the crowd that the project "marks a great partnership between SandRidge and Oxy. It's also a bellwether for our industry, as we dedicate ourselves to increasing domestic oil supplies while also protecting the environment."

He estimated that the new plant will provide Oxy with a major new source of CO₂ for its enhanced oil recovery projects, allowing the company to increase Permian Basin production by at least 50,000 barrels a day within the next five years.

The second prong of the project, said Kevin White, SandRidge's senior vice president, business development, is that the plant will take "what we decree is waste gas," remove the CO₂ and leaving SandRidge with methane gas to market. The new plant will also let it produce more from its Pinon (Overthrust) field, he said, noting that production was ham-

pered by restrictions on plant capacity to produce sour gas.

The third prong of the deal, he said, is that the new plant will benefit the environment by preventing CO₂ — considered a leading greenhouse gas responsible for global warming — from being emitted into the atmosphere.

The current decline in natural gas prices and energy demand has not impacted plans for Century, White said. "It is a big plant and will take awhile to build. We also have a partner in Oxy that has a longer view of the natural gas market and doesn't have a knee-jerk reaction to prices."

Still, White acknowledged that the partners are being cautious moving forward with the project.

"Oil and gas prices are cyclical," he reminded. "Just when we think they'll never go down, they will go down. Just when we think there is no up cycle, it goes up. We have a 30-year agreement with Oxy. Neither company thinks this price level will last 30 years."

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