

**California Carbon Capture and Storage  
Review Panel**

**TECHNICAL ADVISORY COMMITTEE  
REPORT**

**Options for Permitting Carbon Capture  
and Sequestration Projects in California**

AUGUST 17, 2010

# CALIFORNIA CARBON CAPTURE AND STORAGE REVIEW PANEL

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***Other white papers for the panel will include***

Monitoring, Verification, and Reporting Overview

Review of Saline Formation Storage Potential in California

Long-Term Stewardship and Long-Term Liability in the Sequestration of CO<sub>2</sub>

Enhanced Oil Recovery as Carbon Dioxide Sequestration

Carbon Dioxide Pipelines

Approaches to Pore Space Rights

Sequestration Risk History

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## **Overview**

This paper summarizes and evaluates options for establishing a regulatory framework for geologic carbon capture and storage (CCS) projects in California. It examines existing regulatory models, including one-stop or single-agency versus multiple-agency permitting and the use of Memoranda of Understanding, and briefly discusses the pros and cons of each of these approaches. Discussion of long-term stewardship, legal liability, property ownership, public outreach and the treatment of CCS under state climate change legislation (Assembly Bill 32) or under a state or federal cap-and-trade will be discussed in other white papers.

## **Current Permitting Process in California**

The permitting process for industrial development projects in California involves a multitude of federal, state, regional and local agencies, each with its unique authorities and regulatory requirements. Often, the agencies act independent of one another, and permitting timeframes are not closely coordinated. Typically, the first state agency to act on a permit application by a developer becomes the lead agency for the environmental document required under the California Environmental Quality Act (CEQA). The lead agency under CEQA coordinates its review of an Environmental Impact Report or Negative Declaration with the other responsible permitting agencies.

The current regulatory framework allows a project developer to approach different agencies at different times to initiate permit applications and to begin to address the environmental documentation requirements of CEQA. The timing of when a permit application is filed, and which permitting agency is the first to act on a permit, is the responsibility of the project developer. See Table 1 in the Appendix of this paper which summarizes the roles and responsibilities of California's permitting agencies.

## **Regulatory Gaps**

Gaps currently exist in how California regulations will apply to geologic CCS projects, and especially CCS project that do not involve Enhanced Oil Recovery (EOR). These gaps will either be addressed by the US EPA in its proposed rulemaking on CCS, by the establishment of Memorandum of Understanding among agencies, or by an application from a designated state regulatory agency to obtain "primacy" over CCS injection wells. Also, no state agency has the explicit authority to regulate CO<sub>2</sub> pipelines, and Monitoring, Measurement and Verification (MMV) requirements for geologic carbon sequestration have yet to be established. These last two topics are being addressed in separate white papers.

## **One-Stop Permitting for Power Plants with CCS**

The California Energy Commission serves as the lead agency for the permitting of power plants which are retrofitted with CCS technology and also serves as the lead agency under the California Environmental Quality Act (CEQA). The Energy Commission's 12-month, one-stop

state permitting process is a certified regulatory program under the California Environmental Quality Act (CEQA).<sup>1</sup>

The Energy Commission's license and certification process subsumes the requirements of state, local, or regional agencies otherwise required before a new plant is constructed, while federal permits are issued within the timeframe of the Energy Commission's licensing process. However, there have been cases where federal and state permitting timelines have not been closely matched. The Energy Commission coordinates its review of the facility with other permitting agencies to ensure consistency between their requirements and its own conditions of certification.<sup>2</sup>

Prior to 1975, utilities were required to go through a multi-agency process to obtain permits from numerous federal, state and local agencies before constructing new power plants. The Legislature established the California Energy Commission in 1975 and mandated a comprehensive, single-agency state permitting process for new power plants. The Legislature gave the Energy Commission the statutory authority to license thermal power plants of 50 megawatts or greater along with the transmission lines, fuel supply lines, and related facilities to serve them.

Until very recently, CCS was not a significant factor in the Energy Commission's siting process. In the case of a power plant project that involves carbon capture, the Energy Commission considers the environmental impacts of the entire facility and incorporates permit conditions to ensure that the CO<sub>2</sub> injection process is conducted in an environmentally safe manner. Under current law and regulations, these conditions of certification incorporate the regulatory requirements of other federal, state, regional and local agencies into a single permitting process.<sup>3</sup> In most cases, applicable federal permits for activities associated with the power plants would still need to be obtained, since federal authority can pre-empt state authority.

At this point in the regulatory process, DOGGR has said that it does not have the authority to regulate permanent carbon sequestration even if it's tied to oil and gas operations, such as Enhanced Oil Recovery (EOR). In a March 1, 2010, letter from Bridgett Luther, the Director of the Department of Conservation, to Dan Pellisier, Deputy Cabinet Secretary for Resources in the California Governor's Office, the department which oversees DOGGR, concluded: "...DOGGR

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<sup>1</sup> Authority for power plant licensing by the Energy Commission is found in Public Resources Code Section 25000 et seq.

<sup>2</sup> PRC Section 25500 specifically provides: "In accordance with the provisions of this division, the Commission shall have the exclusive power to certify all sites and related facilities in the state, whether a new site and related facility or a change or addition to an existing facility. The issuance of a certificate by the commission shall be in lieu of any permit, certificate, or similar document required by any state, local or regional agency, or federal agency to the extent permitted by federal law, for such use of the site and related facilities, and shall supersede any applicable statute, ordinance, or regulation of any state, local, or regional agency, or federal agency to the extent permitted by federal law."

<sup>3</sup> For further information, see [http://www.energy.ca.gov/public\\_adviser/power\\_plant\\_siting\\_faq.html](http://www.energy.ca.gov/public_adviser/power_plant_siting_faq.html)

currently has neither the statutory authority nor the technical staff on hand to regulate pure CCS projects...”

For CCS projects not associated with thermal power plants, the Division of Oil, Gas and Geothermal Resources does not have the authority to regulate non-EOR CCS projects, and does not have the staff resources necessary to assume the role of permitting such projects. For example, CCS projects involving saline formations are not currently within the purview of DOGGR, unless they are associated with oil, gas or geothermal operations.

Under current law and regulation, DOGGR regulates the drilling and operation of wells that are classified as Class II wells under authority delegated from the U. S. Environmental Protection Agency (EPA). In this capacity, it sets requirements for any subsurface injection of fluids for enhanced recovery of oil or natural gas, or for fluids which are brought to the surface in connection with conventional oil or natural gas production. <sup>4</sup>

## **Primacy for Permitting Pure CCS Projects**

The US EPA is the lead agency for the Underground Injection Control (UIC) program and the lead agency for environmental documentation required under the National Environmental Policy Act (NEPA). DOGGR has the authority delegated by EPA for Class II EOR projects, while US EPA issues permits for Class V wells (CO<sub>2</sub> injection). Through its proposed rulemaking, the US EPA is currently in the process of determining who will ultimately be the lead agency for permitting pure CCS projects. The US EPA is establishing regulations for CCS projects, under its existing authority for the UIC Program, including a new, proposed class of injection wells, Class VI, for geologic sequestration projects.<sup>5</sup>

One option is for a California agency to submit a request that the US EPA grant “primacy” to a designated state regulatory agency for the permitting of Class VI wells, in addition to Class II wells. Under current authority, DOGGR has primacy for regulating only Class II wells (oil and gas) which was granted under the Safe Water Drinking Act. Whether or not DOGGR is eligible to apply for “primacy” for Class VI wells will depend on the terms and requirements of the EPA rulemaking. Much attention is being focused on how the EPA will decide to treat CCS joined to EOR. <sup>6</sup> Will it be covered by the existing Class II well permit? Or will it be covered by the new proposed Class VI permit?

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<sup>4</sup> See Section 40: Code of Federal Regulations 144.6.

<sup>5</sup> See 40 CFR, Parts 144 and 146: Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration (GS) Wells; Proposed Rule.

<sup>6</sup> From 40 CFR, Parts 144 and 146: Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO<sub>2</sub>) Geologic Sequestration (GS) Wells; Proposed Rule:

“The requirements in today’s proposal, if finalized, would not specifically apply to Class II injection wells or Class V experimental technology wells. Class VI requirements would only apply to injection wells specifically permitted for the purpose of GS. Injection of CO<sub>2</sub> for the purposes of enhanced oil and gas recovery (EOR/EGR), as long as any production is occurring, will continue to be permitted under the Class II Program. EPA seeks comment on the merits of this approach since owners or operators of some

To request primacy for Class VI wells (CCS) would require the EPA to determine under what authorities (e.g. Clean Air Act, Clean Water Act, or federal energy or climate change legislation) such primacy would be granted. For these reasons, this option will, therefore, require further examination by the California CCS Review Panel.

DOGGR, because of its long-standing involvement in regulating oil and gas resources, may be in the best position to regulate the injection of carbon dioxide into subsurface resources through a process intended to stimulate additional oil production. However, DOGGR will likely need additional statutory authority, federal delegation of “primacy” for regulating Class VI wells, and additional staff resources to perform this function.

Other states, such as the State of Montana, have independently enacted laws that govern how carbon sequestration will be regulated and that could serve as a model for a California regulatory program. For example, Senate Bill 498 (Chapter 474, Statutes of 2009) authorizes the state oil and gas regulation to issue permits for the injection of carbon dioxide and assesses fees for administering a carbon sequestration program. As part of its program, the Board of Oil and Gas Conservation solicits comments from the Department of Environmental Quality prior to issuing an injection permit. It also contains certain provisions that allow the transfer of liability for post-injection sequestration to the State of Montana.

Current attempts to develop state-based legislation in California, such as Assembly Bill 705, as proposed on April 17, 2007, have not been successful.<sup>7</sup>

## **Case Study #1: Hydrogen Energy California**

The Hydrogen Energy California (HECA) project is the first proposed power plant project using carbon capture and storage (CCS) technology to be submitted for Energy Commission for licensing. HECA will use CCS on a power plant fueled by petroleum coke, a waste product of oil refining, to produce a lower-carbon emission source of electricity. The process to be used at HECA converts petroleum coke, along with locally delivered coal and coal imported from out of state, into hydrogen, a clean-burning gas, and CO<sub>2</sub>. CO<sub>2</sub> from the facility will be transported via pipeline to the Elk Hills oil field, where it will be injected into the oil reservoir and used to stimulate EOR.

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Class II EOR/EGR wells may wish to use wells for the purposes of production and GS prior to the field being completed depleted.”

<sup>7</sup> AB 705 would have required DOGGR to adopt standards and regulations for geologic carbon sequestration projects. The bill further proposed to require DOGGR to enter into a Memorandum of Understanding with the U. S. Environmental Protection Agency (US EPA) to develop standards and clarify the respective authorities of DOGGR and US EPA under the Underground Injection Control (UIC) Program.

As part of the Energy Commission licensing proceeding, DOGRR is regulating the EOR aspects of the proposed project, while the Energy Commission plans to fold into its license, any requirements that DOGGR would normally attach to a permit for oil and gas wells. The issue of where DOGGR's permitting authority for EOR-related CCS projects starts and ends will likely be addressed in the Energy Commission's final decision on the proposed project.<sup>8</sup>

## **Case Study #2: C6 Pilot Project in Solano County**

C6 Resources, LLC was awarded a grant from the U. S. Department of Energy under the American Recovery and Reinvestment Act to examine the potential of commercial CCS for an industrial source of CO<sub>2</sub> in the Montezuma Hills of Solano County. The setting is a rural area where surrounding lands are used for agriculture, grazing, open space and wind energy production.

A geologic CO<sub>2</sub> storage pilot is planned, with sequestration into deep sandstone formations containing saline formation fluids. The pilot test involves drilling injection and monitoring wells 10,000-12,000 feet deep and injecting up to 6,000 metric tons of CO<sub>2</sub> into the saline formation. CO<sub>2</sub> will be purchased from a local supplier and trucked to the pilot test site.

Permitting the project initially involves obtaining an experimental UIC permit from US EPA, Region 9, and a conditional land use permit from Solano County. Experimental UIC permits for injection wells falls under a subset of Class V wells. Within the permitting requirements, EPA relies on DOGGR standards for drilling procedures.

The US EPA first needed to make a determination regarding the need for an Environmental Impact Statement under NEPA, while Solano County, the local lead agency, needed to make the determination on whether an Environmental Impact Report (EIR) is needed to satisfy CEQA.

### **Multi-Agency Permitting**

The permitting process for industrial development projects in California involves a multitude of federal, state, regional and local agencies, each with its unique authorities and regulatory requirements. The current regulatory framework allows a project developer to approach different agencies at different times to initiate permit applications and to begin to address the requirements of CEQA. The timing of when a permit application is filed, and which permitting agency is the first to act on a permit, is the responsibility of the project developer.

The California Permit Streamlining Act of 1977 was enacted as a way of addressing a complicated and often uncoordinated permit process. This Act added a series of timelines and deadlines to expedite government permitting of industrial development projects. In other words, it enacted a calendar of events by which a permit applicant could expect prompt review of a development project.

Under the Act, if a public agency does not approve or deny a project within the statutory time limit, the project is deemed approved. The Act establishes that the lead agency must approve or deny a project within 6 months of certifying an Environmental Impact Report (EIR), or within 3

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<sup>8</sup> March 25, 2010: California Energy Commission; Energy Staff's Issues Statement; Docket No. 08-AFC-8.

months of adopting a Negative Declaration. Other agencies, who are not the lead agency, must act within 6 months from the time a permit application is filed.

In California, the permitting process is coordinated with the environmental review process required by CEQA. A lead state agency, typically the first agency to act on a given project, determines whether a project is exempt from CEQA or whether it must require a negative declaration, mitigated negative declaration, or an EIR. It is the responsibility of the lead agency to involve other permitting agencies so that a coordinated environmental review results.<sup>9</sup>

However, multi-agency permitting, if it is not conducted on parallel timeframes or closely coordinated by the lead agency, can be time-consuming and costly for developers, including CCS project developers. If public opposition to a given project surfaces during the permit or environmental review process, the project can be further delayed. Furthermore, court challenges of a permit decision made by a permitting agency can add considerable time to the development process. Lastly, permitting agencies can reject applications from developers as incomplete, which increases the time frame for completing the process, or they can deny a permitting application within the required timeframes.

As a result, the permitting timeframes established in the 1977 Permitting Act are not always strictly adhered to by permitting agencies, and are difficult to enforce.

## **Use of Memoranda of Understanding**

Coordination among regulatory agencies can be further improved through Memoranda of Understanding, especially where there is overlap or the potential for duplication of regulatory requirements. In California, MOUs have been established for the permitting of geothermal energy projects on federal lands, the joint review of Solar Thermal Power Plants, and the review of wave energy projects by the Federal Energy Regulatory Commission and California agencies. Similar MOUs for the permitting of CCS projects in California would be helpful in clarifying regulatory jurisdiction and in improving interagency coordination.<sup>10</sup> An MOU can also serve to designate the lead agency. However, the use of an MOU cannot cure inherent statutory conflicts in existing laws and regulations, and would need to be evaluated further on a case-by-case basis.

## **Case Study #3: MOU between DOGGR and the State Water Board**

In California, the Division of Oil and Gas and Geothermal Resources regulates the drilling and operation of wells associated with oil and gas production and geothermal resources. As part of its responsibilities for the permitting of oil, natural gas and geothermal drilling, DOGGR approves any subsurface injection or disposal of waste fluids in connection with oil or natural gas production, including Class II wells, under its delegated authority from the U. S.

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<sup>9</sup> See [www.ceres.ca.gov/ceqa/guidelines/intro.html](http://www.ceres.ca.gov/ceqa/guidelines/intro.html)

<sup>10</sup> June 2, 2010: Presentation by Jerry R. Fish, Stoel Rivers, LLP, before the CCS Review Panel.

Environmental Protection Agency. See California Code of Regulations, Title 14, Division 2; Chapter 4.

There are currently no specific requirements for CO<sub>2</sub> injection, which is not like cyclic steam or gas storage. Please note that gas storage is only for natural gas. Section 3007 of the Public Resources Code defines gas as: "Gas" means any natural hydrocarbon gas coming from the earth." This section would likely exclude the storage of any anthropogenic CO<sub>2</sub> under DOGGR laws and regulations.<sup>11</sup>

The State Water Board is responsible for regulating any discharge that may affect surface and groundwater in California. The Board is also responsible for water rights and establishes state requirements on water quality control. Nine semi-autonomous regional water boards are responsible for the day-to-day implementation of the Porter-Cologne Act and the Clean Water Act in California. In the case of CCS projects, the Regional Boards would be involved in the permitting of carbon dioxide injection projects affecting surface or groundwater and would propose appropriate mitigation measures.<sup>12</sup>

The DOGGR and the State Water Board entered into an MOU for permitting Class II wells for EOR in 1991. DOGGR has the lead role in regulating Class II injection wells for EOR, since the agency requested and was given "primacy" by the US EPA under the federal UIC program. To avoid duplication of effort and increase coordination, the Regional Water Control Boards consult with DOGGR and regulate surface discharges, but do not issue a permit for Class II injection wells for EOR projects.

Similar MOU's relating to the permitting of non-EOR CCS projects may be helpful and could involve the Energy Commission, CPUC, DOGGR, Water Boards, Air Quality Management Districts, and local agencies, such as cities and counties.<sup>13</sup> This approach needs to be further explored.

## **Challenges and Recommendations in Defining a Regulatory Framework for Geologic CCS Projects**

Any legal or regulatory framework that is established for permitting CCS projects should be clear and transparent, providing needed guidance to project developers on specific regulatory requirements. In addition, such a framework should balance the need for regulatory certainty with the need to protect public health and safety and the environment. Such a framework should aim to:

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<sup>11</sup> E-mail communication between Susan J. Brown, Senior Policy Analyst, California Energy Commission, and Rob Habel, Chief Deputy, Division of Oil and Gas and Geothermal Resources; April 29, 2010 .

<sup>12</sup> E-mail communication between Susan J. Brown and Lisa Babcock, Senior Engineer, State Water Resources Control Board on May 10, 2010.

<sup>13</sup> Presentation by Jerry R. Fish of Stoel Rivers, LLP to the California Carbon Capture and Sequestration Review Panel on June 2, 2010,

- Maintain consistency in state permitting requirements for all types of geologic CCS projects
- Clarify the respective roles and boundaries of each of the agencies while reducing regulatory uncertainty
- Define and prescribe specific Measurement, Monitoring and Verification (MMV) requirements that are appropriate, clear, and effective and that govern the long-term performance of the reservoir
- Define specific regulatory requirements that provide guidance for early, first-of-its kind geologic CCS projects, until a permanent statutory or regulatory framework is established.
- Quantify and verify the greenhouse gas (GHG) reductions possible through permanent storage of CO<sub>2</sub> using advanced and emerging CCS technologies.<sup>14</sup>
- Address facility decommissioning issues in the permitting and regulatory process.

A September 2007 Report by the Interstate Oil and Gas Compact Commission (IOGCC) made a series of specific recommendations for establishing Model General Rules and Regulations which provide a useful starting point for new California laws or regulations. More specifically, the IOGCC recommended rules which:

- Define carbon dioxide as “anthropogenically sourced CO<sub>2</sub> which is produced as a byproduct of combustion in the industrial process” and not geologically occurring CO<sub>2</sub>.
- Recommend that a single state regulatory agency be identified with full authority to regulate CCS projects, which involve oil and gas development and deep saline formations, and issue a permit to operate a CO<sub>2</sub> storage facility.
- Recognize that the designated state regulatory agency have the authority to require an operator to submit any data necessary to evaluate a proposed CO<sub>2</sub> storage project.
- Specify model procedures and standards for permitting and operating CCS projects.
- Identify as an issue what happens when an oil and gas EOR project operating under oil and gas leases converts to a CO<sub>2</sub> storage project for purposes of regulation.

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<sup>14</sup> Presentation by Elizabeth Burton, Lawrence Livermore Laboratory, before the CCS Review Panel on April 22, 2010.

- Identify the need for a comprehensive monitoring and verification process for the sub-surface reservoir operation that provides for early detection of any leakage or any releases of CO<sub>2</sub>, and prescribes mitigation measures to protect public health and safety.<sup>15</sup>

In addition, guidance on how to establish a model permitting process for CCS projects can be found in proposed California State legislation, Assembly Bill 705, as proposed in 2007, which was discussed above.

## **Pros and Cons of Option #1: Single Agency Permitting**

### **Pros:**

- Consolidates the project review, with the potential for time and cost savings for project developers
- Clarifies the lead permitting agency, eliminating the current regulatory uncertainty faced by first-of-its kind CCS technology projects.
- Possible without changes in law or regulation for geologic CCS projects associated with Enhanced Oil Recovery (EOR).
- Would allow state regulation of CCS development under authority delegated by US EPA.
- Such delegation would allow states to craft more streamlined permitting processes and to require stricter environmental requirements than federal requirements.
- Having a single agency would also simply reimbursement of fees associated with permitting CCS projects.

### **Cons:**

- Identifying a single agency, such as DOGGR, as the lead agency for all CCS development projects will require new legislation and additional staff resources.
- Vesting additional regulatory responsibility with the DOGGR will involve new regulations, which could take up to 2 years to enact.
- Obtaining “primacy” beyond Class II wells to Class VI wells under delegated authority from US EPA may initially be time-consuming.

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<sup>15</sup> A Report by the Interstate Oil and Gas Compact Commission Task Force entitled “Storage of Carbon Dioxide in Geologic Structures: A Legal and Regulatory Guide for States and Provinces” dated September 25, 2007.

## **Pros and Cons of Option #2: Multiple Agency Permitting**

### **Pros:**

- Does not require statutory or regulatory changes to maintain the current permitting process within existing regulatory authorities.
- Could allow parallel, complimentary permitting by a multitude of federal, state, regional and local agencies, if permitting time frames are closely aligned and coordinated.
- Could allow agencies to coordinate the preparation of joint environmental documents.

### **Cons:**

- Fails to provide regulatory certainty for early, first-of-its kind CCS development projects.
- Duplicative permitting may be cumbersome and could be confusing for project developers.

## **Pros and Cons of Option #3: Use of Memoranda of Understanding**

### **Pros:**

- Improves coordination among multiple agencies, without the need for new legislation or regulations
- Clarifies the respective roles of each of the agencies while reducing regulatory uncertainty
- Maintains current permitting processes under existing regulatory authorities.

### **Cons:**

- May not be binding, if involved agencies lack the needed statutory authority to permit all forms of CCS development projects.

**Appendix: Table 1**  
**Summary of California Permitting Agencies and Authorities**  
**Carbon Capture and Storage Projects**

<u>Agency</u>	<u>Permit Required</u>	<u>Regulatory Authority</u>
County or City	Conditional Use Permit Building Permits	Various Local Ordinances affecting land use
Regional Water Control Boards	Waste Discharge Requirements (in compliance with water quality control plans)  NPDES Permits	California State Constitution, Article X, Chapter 2.  California Water Code, Sections 13263 and 13260  CA Code of Regulations, Title 23, Division 3, and Title 27 (Solid Waste)  Federal Water Pollution Control Act 33 U.S.C. sections 1342 and 1370. Section 1342(b)(1)(D) specifically authorizes states with NPDES authority "to issue permits which . . . control the disposal of pollutants into wells." **Note, however, that the definition of "pollutant" in section 1362(6) excludes "water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well," so long as the "state determines that such injection or disposal will not result in the degradation of ground or surface water resources."

		<p>Code of Federal Regulations, Title 40, sections 122.21, 122.28, 123.25, 123.28</p> <p>California Water Code, Sections 13377 and 13376</p>
California Energy Commission	<p>License for thermal power plants sized at 50 megawatts or greater</p> <p>Compliance with greenhouse gas emission performance standards for base load power plant purchase contracts (municipal utilities only).</p> <p>Current EPS is 1,100 pounds of CO2 per megawatt-hour.</p>	<p>Public Resources Code section 25519 and section 21000 et seq.</p> <p>Senate Bill 1368 (Chapter 598, Statutes of 2006)</p> <p>Section 2904 of Chapter 11, GHG Performance Standard, Article 1, sets annual average CO2 emissions standard.</p>
California Public Utilities Commission	<p>Approval of utility rate recovery for investor-owned utility projects; approves or denies ratepayer funding for CCS activities by utilities.</p> <p>Certificate of Public Convenience and Necessity authorizes a utility to spend ratepayer funds.</p> <p>Compliance with greenhouse gas emission performance standards for base load power plant purchase contracts (investor-owned utilities).</p> <p>Approval of pipelines that offer “transportation services” to the public and qualify as “common carrier utility.”</p> <p>Sets safety requirements for</p>	<p>Public Utilities Code Sections 1001-1005</p> <p>Section 2904 of Chapter 11, GHG Performance Standard, Article 1, sets annual average CO2 emissions standard.</p> <p>Public Utilities Code Sections 211, 212, 216, 227 and 228.</p> <p>CPUC General Order 112-E</p>

	<p>certain intrastate natural gas pipelines.</p> <p>Lead agency for CEQA for power plants under 50 MW if built by a regulated utility.</p>	<p>adopts Federal standards from 49 CFR Sections 191, 192 and 199, including reporting requirements.</p>
California Air Resources Board	<p>Approve plans to reduce greenhouse gas (GHG) emissions by large industrial sources, such as power plants, refineries, and cement plants.</p> <p>Lead regulatory agency for enforcing compliance with California's GHG reduction goals.</p>	<p>Assembly Bill 32, the Global Warming Solutions Act of 2006 (Nunez, Statutes of 2006) sets an economy wide cap on California GHG emissions at 1990 levels by 2020.</p> <p>Governor's Executive Orders establishing long-term greenhouse gas reduction goals and the Low Carbon Fuel Standard (LCFS)</p> <p>Various regulations that govern the Low Carbon Fuel Standard, mandatory reporting requirements, and a California Cap and Trade program</p>
Local air districts	Authority to Construct and Permit to Operate	Various regulations adopted by the district governing boards
State Water Resources Control Board	Approval of water rights	Division 7 of the California Water Code (Section 13000 et sequitur)

<p>Division of Oil, Gas and Geothermal Resources</p>	<p>Permits for the drilling and operation of wells associated with oil and gas production and geothermal drilling.</p> <p>Permits for Enhanced Oil Recovery</p> <p>Delegated authority from US EPA for Class II wells within the Underground Injection Control (UIC) program.</p>	<p>California Code of Regulations, Title 14, Division 2, Chapter 4.</p> <p>Public Resources Code Section 3106</p> <p>CA Code of Regulations 1724.6 through 1724.10</p> <p>No specific requirements for CO2 injection. Only for natural gas storage.</p> <p>Federal Safe Drinking Water Act.</p> <p>Section 40: Code of Federal Regulations 144.6</p>
<p>State Fire Marshal</p>	<p>Regulates intrastate hazardous liquid pipelines, and establishes reporting requirements.</p> <p>No specific authority for regulating the safety of CO2 pipelines.</p>	<p>Elder California Pipeline Safety Act of 1981; California Government Code Section 51010 et sequitur.</p>