

**Comments of the Natural Resources Defense Council (NRDC) on the  
Staff Workshop on Commercial-Scale  
Geologic Carbon Sequestration and Policies to  
Support California's AB 32 Goals of 2020**

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Submitted by:  
George Peridas

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## **I. Introduction**

We begin by stressing that there are cheaper, cleaner and preferable ways than Carbon Capture and Geologic Sequestration of carbon dioxide (CCS) to reduce the carbon footprint of electric power generation, such as increasing energy efficiency and renewable energy. These should maintain their appropriate and established place in the loading order, ahead of any type of fossil generation. We also believe that CCS is not necessary for California to meet its AB32 goals by 2020. However, CCS is ready to begin deployment today at commercial-scale plants in a safe and effective manner, and as such can contribute to 2020 goals.

NRDC believes that CCS holds considerable potential to reduce carbon dioxide (CO<sub>2</sub>) emissions worldwide, and that the technology also has applicability in California. The applications of CCS technology include coal-, natural gas- and biomass-fired power generation, as well as industrial facilities such as refineries, cement, steel, fertilizer and ethanol plants.

We believe that the main barriers for the construction of CCS plants are not technical, but policy-related, and economic instead<sup>1</sup> – a sentiment echoed by the Commission's AB1925 report of 2008 to the California legislature<sup>2</sup>. Without a price on carbon emissions or emission performance standards, investor interest in CCS worldwide has been limited outside niche applications. In addition, for California and the rest of the world to be able to pursue aggressive 2050 greenhouse gas emission reductions, the groundwork needs to be laid today.

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<sup>1</sup> For more details, please see NRDC's Congressional testimony on the issue, available at [http://energycommerce.house.gov/Press\\_111/20090423/testimony\\_hawkins.pdf](http://energycommerce.house.gov/Press_111/20090423/testimony_hawkins.pdf)

<sup>2</sup> The draft AB 1925 CEC Staff Report on Geologic Carbon Sequestration Strategies for California echoed our view: "While technical challenges remain, the primary barriers to progress with initial geologic sequestration projects in the state lie within the statutory and regulatory arena." (p. xi and 2)

California has been a pioneer in both respects with AB 32, SB 1368, and also recently with the Low Carbon Fuel Standard (LCFS) – all of which might lead to CCS application within the state or out-of-state compliance cases with California standards. Specific capture opportunities or feedstocks in combination with Enhanced Oil Recovery (EOR) and might render individual projects profitable. Also, to meet the SB1368 standard, some fossil-fired plants would have to sequester part of their emissions. Developers might decide to act as early movers in pursuing plants before the technology becomes widespread. There is a number of reasons therefore, why California should be engaging in the regulatory and policy aspects of CCS, some of which we outline below.

## II. Regulating CCS

CCS is an activity that is regulated and can already be permitted under existing state and federal rules. However, the status quo is not satisfactory for a number of reasons. We summarize the main reasons below, focusing on the geologic sequestration side, and not the transport or the capture sides that do not call for much additional regulatory work.

Underground CO<sub>2</sub> injection is currently regulated under the Underground Injection Control Program, under Safe Drinking Water Act authority. USEPA has stated that it will issue permits for early projects under existing injection classes (Class I non-hazardous or Class V experimental), and is currently in the process of a rulemaking to establish a new injection class (Class VI), specifically designed for geologic sequestration of CO<sub>2</sub> (GS). EPA estimates that the rule will be promulgated in late 2010-early 2011. A number of gaps remain, however, and several other states have addressed these or are in the process of doing so.

First, EPA's proposed rule does not cite authority to, nor does it have the stated objective of preventing releases of CO<sub>2</sub> to the atmosphere, but instead seeks only to protect underground sources of drinking water. This is a major shortcoming, which NRDC has urged EPA to address. In the context of federal or state law that entails sequestration as a compliance mechanism to emission reduction goals or emission performance standards, a proper regulatory framework for GS also needs to have adequate legal authority to prevent emissions to the atmosphere, however unlikely these might be for well-designed projects. California should seek to close this regulatory gap for use in AB32, SB1368 and LCFS<sup>3</sup> implementation, or that of other statutes.

Second, EPA's proposed rule does not deal with GS in hydrocarbon reservoirs, but only with deep saline formations. This is another major shortcoming, as a number of GS projects is likely to take place in conjunction with EOR. However, EOR today is regulated under the UIC Program's Class II (by the Division of Oil, Gas & Geothermal Resources in California). Although sufficient for oil recovery, this injection class is not

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<sup>3</sup> NRDC remains open to the possibility of CCS (e.g. at refineries) being used as a method to comply with the LCFS. However, the standard was not written with CCS technology in mind as a compliance mechanism, and the targets as well as compliance details would need to be reconsidered.

sufficient to certify the CO<sub>2</sub> as permanently sequestered. EOR and GS are not identical and have different objectives (maximizing oil recovery vs. maximizing CO<sub>2</sub> storage), despite sharing a lot of the same operational engineering. For EOR projects to qualify as valid GS projects under CO<sub>2</sub> reduction laws, therefore, a regulatory framework with appropriate site characterization, well construction and maintenance, monitoring, modeling and verification, and post-closure site care requirements is necessary, and the current EPA rule draft does not address these. California should not allow EOR to count as GS without additional requirements that verify the permanence of storage. The state should consider whether to intervene with USEPA to advocate for the resolution of this gap (and the authority gap mentioned in the previous paragraph) or whether it wishes to address these gaps within its boundaries and, if so, which agencies would be responsible.

Third, although some case law exists, it is not yet clear how subsurface pore space property rights will be handled. A commercial-scale GS project will likely result in a CO<sub>2</sub> plume with a “radius” on the order of a few miles, which spans multiple surface and mineral estates. These issues are inherently tied to state, and not federal, law. California should therefore consider whether to legislate that subsurface pore space property rights are indeed tied to the surface owner (as case law supports and as other states have already done), the relation (dominance) between the surface and the mineral estate, and mechanisms for acquiring the property rights necessary for a GS project. NRDC believes that pore space is a valuable resource in a carbon-constrained world, and that the owners of this resource should receive fair reward for its use. California should therefore consider mechanisms that would allow owners and developers to coalesce and transfer/lease the necessary subsurface pore space property rights for a GS project that are fair, transparent and equitable, and that justly reward the owners of these rights.

We also add that we do not believe that a post-closure indemnity regime (or the blanket transfer of long-term “liability”) is either appropriate or necessary for GS projects. While we acknowledge that a lack of familiarity with the subsurface, lack of commercial insurance products and other factors are deterring private operators from assuming such liabilities, we also point to related activities such as enhanced oil recovery, natural gas storage and acid gas injection that have flourished in the absence of such regimes, mainly because a strong economic driver caused developers to assume and manage the risks involved. The risks of CCS are similar according to the IPCC Special Report on CCS, and we caution against a radical legal solution to a problem that is fundamentally economic in nature. A blanket transfer of liability from the operator to the state post-closure could create a moral hazard and a public perception issue, and we are not in support of such a measure. We do, however, feel that an appropriate state of federal agency should carry out post-closure care duties at GS sites, and that this activity should be funded (collectively or individually) by operators.

## **II. WESTCARB activities**

We are grateful for WESTCARB’s activities and efforts by its devoted staff, and remain available to assist with outreach or other efforts that the Partnership may engage in.

Given limited time and resources, we urge WESTCARB to focus its efforts on projects that will lead to the prompt injection of CO<sub>2</sub>, and to prioritize the timely implementation of such demonstrations over a broader research agenda.

We also draw the Commission's attention to the seven Regional Partnerships' limited ability (due to budget and staff constraints) to advance CCS at the pace needed nationwide to make a meaningful dent in emissions. The states and/or the federal government will need to take concerted policy action if the technology is to deliver its potential.

### **III. Conclusion**

We are grateful for the opportunity to comment on this important issue. We look forward to working with the Commission to ensure that CCS is deployed safely and effectively, and that is adequately regulated. We thank the Commission for considering the potential of this important technology to lead to the reduction of greenhouse gas emissions from coal-, natural gas- and biomass-fired generation alike as well as industrial facilities, while respecting its appropriate and established place in the loading order.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "G. Peridas", with a horizontal line drawn underneath it.

George Peridas  
Scientist, Climate Center  
Natural Resources Defense Council  
111 Sutter St. 20<sup>th</sup> Floor  
San Francisco, CA 94104  
gperidas@nrdc.org