

To: The California Carbon Capture and Storage Review Panel, the California Energy Commission, the California Air Resources Board, the California Public Utilities Commission, the California Department of Conservation, and the California State Water Resources Control Board

From: The Sierra Club California Energy-Climate Committee

Date: April 19, 2010

Sierra Club California, through its Energy-Climate Committee, appreciates this opportunity to contribute recommendations for the development of state policies for carbon capture and storage (CCS), and to provide guidance for the development of state legislation and regulation pertaining to CCS. In 2008, our state committee joined with the national Sierra Club to author comments for the US EPA regarding its "Proposed Federal Regulations for the Geologic Sequestration of Carbon Dioxide" under the Safe Drinking Water Act. Since then, members of our committee have attended a WESTCARB conference, and have been influential in guiding stakeholder meetings convened around the proposed Hydrogen Energy California (HECA) project using CCS with Integrated Gasification Combined Cycle (IGCC) in Kern County near the Elk Hills oil fields.

For the purposes of this introductory meeting, we will contribute brief comments relating to the stated goals set before this panel and numerous state agencies:

- 1) Establish a framework that clearly sets forth the authorities and roles of various state agencies;
- 2) Facilitate and streamline permitting processes;
- 3) Support the development of favorable business cases for adoption of the technology at a commercial scale; and
- 4) Serve the public interest in assuring climate change mitigation goals are met while protecting the environment and human health and safety.

Authorities and Roles of Agencies, Permitting Processes, Commercial Adoption

In order to optimize the implementation of CCS in the US and CA, it is necessary to construct a regulatory framework that is progressive in vision, responsive to new data, representative of all stakeholders, substantive in expertise, and ethical in decision making. Since regulation of CCS is an emergent process, and especially since reservoirs for geologically sequestered carbon dioxide (CO₂) can traverse private and public boundaries, there are abundant regulatory and legal issues that must be resolved regarding state/federal primacy, rulemaking purviews, monitoring responsibilities, and legal liabilities.

In our 2008 comments to the EPA, we recommended the establishment of a CCS Advisory Board for each of the EPA's ten regional offices (according to guidelines under 40 CFR § 25.7), in order to optimally administer a "Tailored Requirements Approach" that would apply national standards adaptive to a variety of regional differences in

geological formations, natural resources, weather patterns, industrial operations, and applicable state laws. We further recommended that each Advisory Board be comprised of balanced representatives from groups of major stakeholders, such as: municipal and state government officials, EOR/EGR companies, CCS project managers, electric utility companies, public and municipal water providers, environmental groups, community members, research scientists, geologists, and public policy consultants. This administrative structure would facilitate the protection of states' divergent local needs while maintaining an umbrella of national standards for the regulation of complex methodologies.

The panel being convened today is indicative of California's effort to establish such an advisory board with representative stakeholders. However, *we would like to encourage the panel to enlarge its membership to include at least one representative from the California Groundwater Association, at least one municipal water provider, at least one private citizen (possibly a resident of Kern County), and a second member from a California environmental non-profit organization.*

Due to economic, technical, and experiential reasons, the first commercial-scale projects involving geosequestration and/or IGCC will be at EOR/EGR sites. Once these types of reservoirs are depleted and filled with CO₂, the second choice for geosequestration will likely be saline aquifers. Before injecting CO₂ into saline aquifers, there should be ample opportunity for groundwater professionals and municipal water providers to participate in crafting recommendations and regulations. Additionally, the CCS Advisory Panel should be more representative of important sectors of the population that are best positioned to advocate for the health and safety of humans and the environment – environmental NGOs and communities in the vicinity of CCS projects.

Environment, Human Health, Safety

A 2008 Congressional Research Report, "Community Acceptance of Carbon Capture and Sequestration Infrastructure: Siting Challenges" cites public opposition as an important consideration in the successful formulation of national CCS policy in general, and local resistance as a key concern in the appropriate siting of geosequestration projects in particular. The Report warns:

Community opposition could complicate and delay each element of CCS implementation, potentially adding years to a national CCS deployment. Alternatively, community concerns could lead to a national patchwork of CCS projects constructed only in publicly acceptable geographies (or on public lands), creating inter-regional disparities and failing to meet congressional objectives
(http://assets.opencrs.com/rpts/RL34601_20080729.pdf at CRS-28).

As a general rule, community concerns regarding CCS will fall into three categories: *health and safety, economic, and environmental*. In 2007, two studies involving residents of California's Central Valley expressed the following concerns about proposed

geosequestration projects in their areas: a risk of carbon dioxide release and/or an increase in seismic activity [*health and safety*]; the lowering of property values and/or the raising of cost-of-living [*economic*]; the disruptive construction of a pipeline infrastructure for transporting the CO₂ to the proposed site and/or a negative change to the character of the community [*environmental*] (see “Community” at CRS-16).

Due to the Central Valley’s identification as a region with economically disadvantaged populations, dangerously poor air quality, and degraded wildlife habitats, this area has become the focus of numerous governmental and nonprofit interventions, including ongoing EPA sanctions for violations of the Clean Air Act. Typically, when new industrial developments seek to become established in the region, they will be opposed unless they can be shown to carry greater benefits than costs to local communities. Because all three categories (health and safety, economic, and environmental) are interdependent, the ability to ameliorate or solve any specific grievance becomes more difficult.

Every study by industry and business consultants has concluded that CO₂ storage is most economically feasible when sited as close to the source of emissions as possible. Whether CO₂ is defined as an industrial commodity or a hazardous waste product, it is not appropriate to store these materials in residential population centers. It is most likely that GS sites will be proposed in communities, as in California’s Central Valley, that have histories of economic disadvantage, of environmental degradation from industrial developments, and of chronic health issues among the general populace, especially children. *Therefore, for the Sierra Club, it is of utmost importance that California mandate protocols for addressing environmental justice issues which will almost certainly be involved with a large percentage of GS permit applications.*

While it is unrealistic to expect that every contentious rationale raised by local residents can be overcome through trust-building strategies instituted by governments and businesses, it is well-recognized that a substantial number of legitimate grievances can be allayed ‘up-front’ with the structuring of participatory permitting processes. In cases where residents can be convinced that benefits to their community will outweigh anticipated costs, that the risks are clearly articulated and will be competently managed, sufficient community acceptance can be garnered in order to proceed. *Establishing procedural mechanisms for public citizens to constructively interact with the developers of proposed geosequestration sites can provide opportunities for addressing concerns before they become intractable disputes.*

Hydrogen Energy representatives have recently adopted procedures to ensure the involvement of essential stakeholders in its decision making processes for the Kern county CCS/IGCC project, especially in relation to identifying community-appropriate mitigation strategies. These procedures provide a valuable model for public participation in CCS policy and implementation, and should be incorporated into this panel’s recommendations. *Specifically, HECA is working with local residents and stakeholders to offset all criteria air pollutants and GHG emissions -- from the plant footprint and all attendant transportation and supply infrastructure -- with local mitigations tailored to*

community needs; and to offset all loss of farmland and endangered species habitat with commensurate set-asides and/or compensation.

Thank you for this opportunity to comment on California's anticipated promulgation of CCS policy frameworks, legislation, and regulations; and we look forward to participating in this process as it moves forward.

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