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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Implement the
Commission's Procurement Incentive Framework
and to Examine the Integration of Greenhouse
Gas Emissions Standards into Procurement
Policies

Rulemaking 06-04-009
(Filed April 13, 2006)

**PETITION OF THE NATURAL RESOURCES DEFENSE COUNCIL (NRDC), THE
ENVIRONMENTAL DEFENSE FUND (EDF), GREEN POWER INSTITUTE (GPI),
UNION OF CONCERNED SCIENTISTS (UCS), AND THE UTILITY REFORM
NETWORK (TURN) FOR MODIFICATION OF DECISION 07-01-039, "INTERIM
OPINION ON PHASE 1 ISSUES: GREENHOUSE GAS EMISSIONS PERFORMANCE
STANDARD"**

November 30, 2009

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1. INTRODUCTION AND SUMMARY

The Natural Resources Defense Council (NRDC), the Environmental Defense Fund (EDF), Green Power Institute (GPI), Union of Concerned Scientists (UCS), and The Utility Reform Network (TURN) respectfully submit this Petition for Modification, in accordance with Rules 1.9, 1.10, and 16.4, of the California Public Utilities Commission's (CPUC or Commission) Rules of Practice and Procedure, on Decision 07-01-039, "Interim Opinion On Phase 1 Issues: Greenhouse Gas Emissions Performance Standard" ("Decision"), dated January 25, 2007.

We commend President Peevey and the Commission for their continuing leadership on addressing global warming. Commission policies to pursue all cost-effective energy efficiency and conservation first in order to minimize increases in electricity and natural gas demand at lowest cost, and to maximize renewable energy and clean and efficient distributed generation in recognition that new clean generation is both desirable and necessary, are essential elements of meeting the State's energy goals, reducing global warming pollution, and protecting consumers against price spikes associated with carbon-intensive generation. The implementing rules for the SB1368 greenhouse gas (GHG) emissions performance standard (EPS), adopted by the Commission also safeguard California consumers against the significant financial and reliability risks of high GHG-emitting energy sources. At the same time, the EPS is an important

environmental backstop against new, highly-emitting facilities and will greatly assist California in reaching its AB32 goals. Set at just above the emission level of a modern combined cycle natural gas plant (NGCC), the EPS is technology and fuel neutral, leaving the choice of plant and fuel up to the operator.

One way to meet the EPS when using coal or petroleum coke (both of which are highly carbon-intensive) as feedstocks for baseload generation is through the use of carbon capture and geologic sequestration (CCS) technology. While CCS technology could be an important tool to address global warming, our organizations continue to support California's established loading order and believe that all cost-effective energy efficiency and renewable energy can and should be pursued in California before CCS. The need for deep and rapid emission cuts, however, means that CCS could very well play an important role in the energy mix, enabling very low greenhouse gas emission baseload generation, which together with the needed increased renewable generation is important to displace old, less efficient and higher-emitting fossil fuel based power plants.

CCS technology is available today, as demonstrated by several proposed projects around the country, including California and other western states. Numerous projects nationally and internationally have proven component technologies of CCS, most in isolation and some in an integrated manner. However, to ensure that full-scale integrated projects are operated safely and effectively, these plants and the accompanying geologic sequestration sites will have to be chosen, operated and regulated appropriately. While a number of other statutes and regulations will apply to these operations, such as the Underground Injection Control Program and the California Environmental Quality Act (CEQA), the implementing rules for SB1368 can, and must, play an important role in ensuring the safety and effectiveness of CCS if it is used to meet the EPS. These rules must be written in a way that ensures the integrity of the EPS for plants that deploy CCS as a means of compliance in a manner that prevents any GHG releases into the atmosphere.

With these two objectives in mind, we propose a minor but important modification to the Decision and the EPS rules. This modification, together with the means of enforcement referenced therein, would ensure that adequate subsurface monitoring of the injected carbon dioxide (CO₂) is performed alongside robust verification and reporting, thus ensuring true compliance with the EPS.

2. JUSTIFICATION OF “LATE SUBMISSION”

Rule 16.4(d) of the CPUC Rules of Practice and Procedure requires that if more than one year has elapsed after the effective date of the decision proposed to be modified, the petition must also explain why the petition could not have been presented within one year of that date. While the effective date of Decision 07-01-039 is January 25, 2007, two compelling reasons justify the “late submission” of this Petition for Modification.

A. Evolving federal and state regulatory framework for underground injection of CO₂

Little was known in 2007 when D.07-01-039 was adopted about how the federal and state regulatory framework for CCS – and underground injection in particular – would evolve. Although a number of developments have shaped this regulatory arena since the adoption of D.07-01-039, these developments leave gaps that the Commission should fill. We therefore recommend that the Commission grant this proposed modification to D.07-01-039 and the EPS rules to help ensure compliance with SB 1368 and the long-term integrity of the EPS as originally intended.

Underground injection of CO₂ is regulated under EPA’s Underground Injection Control (UIC) Program as authorized under the Safe Drinking Water Act (SDWA). This program is administered by the EPA Regions or States that have obtained “primacy” to implement the regulations. The UIC program currently features five injection well classes (one of which is a prohibition). Of these, Class II has been used for the injection of CO₂ and the concurrent production of oil from subsurface reservoirs, in a process known as enhanced oil recovery (EOR). EPA has also stated that it will issue permits for early geologic sequestration (GS) projects under the Class V experimental technology designation, and the Agency issued a final Guidance “for States and EPA Regions to consider when permitting pilot projects designed to evaluate the technical issues associated with carbon dioxide (CO₂) injection as Class V experimental technology wells” in March, 2007 (after the date of the Decision).¹

Although this EPA Guidance provided some interim information to regulators and stakeholders on how to use existing well classes to permit GS projects, it was clear that these

¹ “Using the Class V Experimental Technology Well Classification for Pilot Geologic Sequestration Projects – UIC Program Guidance (UICPG #83)”, Mar01, 2007.

regulations were never written with GS and CCS in mind. For that reason, and following repeated calls by stakeholders from industry and the environmental community, EPA announced plans to develop regulations for geologic sequestration in October 2007² and issued a Notice of Proposed Rulemaking (NPR) in July 2008 for GS wells³ along with a Proposed Rule for public comment at that time (the comment period for which ended in late December 2008). EPA's stated timetable for promulgation of this rule is late 2010 to early 2011. Therefore, it was only in mid-2008 that any kind of clarity as to what a regulatory framework for GS might, or might not, contain, surfaced in public (a full year and a half after the Decision).

With the publication of the Proposed Rule by EPA, two very important factors became apparent, signifying that further action by California is needed to ensure the integrity of the EPS:

- First, the rule as proposed would not regulate GS in hydrocarbon (oil & gas) reservoirs, and instead would concentrate on saline formations and address hydrocarbon reservoirs only in the event that production has entirely ceased; and
- Second, the Proposed Rule defines and regulates GS solely for the purposes of protecting underground sources of drinking water (USDWs) under SDWA, and does not address airside leakage concerns, as the Clean Air Act (CAA) would – the authority of which EPA has failed to cite in the Proposed Rule. If CCS is to comply with air emission standards such as the EPS, regulatory measures aimed specifically at preventing atmospheric emissions are also needed.

Both of these factors have profound implications for GS and for the sound implementation of the EPS under SB1368. First, business-as-usual EOR (regulated under UIC Class II) as performed today and GS are not the same. The former injects CO₂ for the purposes of maximizing oil production, whereas the latter seeks to sequester CO₂ permanently in the subsurface in a measurable and verifiable way. While EOR operations are could result in sequestration, operators in most states currently have no regulatory obligation or means to verify,

² See EPA press release “EPA To Develop Regulations for Geologic Sequestration of Carbon Dioxide”, 10/11/2007: <http://yosemite.epa.gov/opa/admpress.nsf/eebfaebc1afd883d85257355005afd19/84bd1ef19c00eb7a85257371006b6a21!OpenDocument>

³ Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO₂) Geologic Sequestration (GS) Wells, 73 Fed. Reg. 43492 (July 28, 2008).

measure, and certify its permanence. Second, since the primary, if not only, objective of GS is to reduce emissions of CO₂ to the *atmosphere*, the need for an appropriate regulatory framework to ensure secure sequestration is evident – and the current Proposed Rule with its sole focus on groundwater does not meet this standard. Finally, if GS is to gain further acceptability, regulatory measures aimed at preventing atmospheric emissions are also needed in addition to safeguards for USDWs, even though a rigorous approach to the latter should serve to reduce the risk of CO₂ leakage to the atmosphere.

Based on the lack of focus on airside emissions from GS projects and the exclusion of GS in hydrocarbon reservoirs in the Proposed Rule, we are concerned about the integrity of the EPS in relation to projects that might attempt to use GS or EOR as a means of compliance. Our concern is further compounded by the fact that EPA’s Notice of Data Availability⁴ of August 2009 (in relation to the proposed UIC rule), contained no indication that either of these issues would be addressed or rectified in the final rule. Although it is possible that EPA and other agencies will address these gaps in the future, it is uncertain as to when, or to what extent, this will happen. Additionally, these gaps are not being addressed at any other agency in California nor in the legislature in Sacramento. It therefore becomes increasingly important for the Commission to safeguard the integrity of the EPS against some of these gaps through its own rules, which is the objective of our petition.

Based on the facts above, it is clear that the Decision clearly predates the timeline over which the national regulatory picture has evolved, making it impossible for these issues to have been foreseen at the time of the Decision, or even within a year of the Decision. This should be taken into account in the Commission’s consideration of the proposed safeguards of the EPS in relation to CCS projects, and should serve as a justification for the “late” submission of this petition for modification.

B. Projects proposed since the Decision

In addition to a changing regulatory landscape at the national level, at the time of the Decision, CCS was not at the center of the commonly discussed compliance options. Since that time, it has become evident that project proposals relying on the technology are proceeding faster

⁴ “Federal Requirements Under the Underground Injection Control (UIC) Program for Carbon Dioxide (CO₂) Geologic Sequestration (GS) Wells; Notice of Data Availability and Request for Comment”, 74 Fed. Reg. 44802, August 31, 2009.

than had been anticipated, with a number of projects in the planning or permitting phase both in California and outside the state (including Utah and Wyoming). Some projects external to California are looking to sell power into the state. These proposals could not have been foreseen at the time of the Decision, and we consider these as new conditions that justify the “late” submission of this petition. Moreover, given that proposals are emerging faster than anticipated, it becomes increasingly important for the Commission to ensure that any projects that might move forward are sound, that GS is permanent, and that the EPS is not compromised through subpar operations.

3. PROPOSED MODIFICATIONS

In order to safeguard the EPS as described above, we propose the following additions (in underline) to D.07-01-039:

- **Decision on p. 94:**

“As part of this filing, the LSE shall provide documentation demonstrating that the CO₂ capture, transportation and geological formation injection project has a reasonable and economically and technically feasible plan that will result in a permanent sequestration of CO₂ once the injection project is operational. The plan must include sufficient ongoing monitoring and reporting activities, which are enforceable under Federal and/or State law, to determine the subsurface extent and behavior of the injected CO₂, verify the permanence of sequestration, and account for any releases from the subsurface. This may mean that [...]”

- **Decision on p. 175:**

“As part of this filing, the LSE shall provide documentation demonstrating that the geological formation injection project has a reasonable and technically feasible plan that will result in a permanent sequestration of CO₂ once the project is operational. The plan must include sufficient ongoing monitoring and reporting activities, which are enforceable under Federal and/or State law, to determine the subsurface extent and behavior of the injected CO₂, verify the permanence of sequestration, and account for any releases from the subsurface.”

- **Conclusion of Law 47 on p. 272-273:**

“In order to ensure that the purposes of SB 1368 are served, the LSE should be required to:

- (1) *provide documentation that the project has a reasonable and economically and technically feasible plan that will result in the permanent sequestration of CO₂ once the injection project is operational. The plan must include sufficient ongoing monitoring and reporting activities, which are enforceable under Federal and/or State law, to determine the subsurface extent and behavior of the injected CO₂, verify the permanence of sequestration, and account for any releases from the subsurface;*
- (2) *present projections of net emissions over the life of the powerplant; and*
- (3) *provide documentation that the CO₂ injection project complies with applicable laws and regulations.”*

- **Ordering Paragraph 3(c)ii on p. 279:**

“As part of this filing, PG&E, SCE and SDG&E shall provide documentation demonstrating that the CO₂ capture, transportation and geological formation injection project has a reasonable and economically and technically feasible plan that will result in the permanent sequestration of CO₂ once the project is operational, and that the CO₂ injection project complies with applicable laws and regulations. The plan must include sufficient ongoing monitoring and reporting activities, which are enforceable under Federal and/or State law, to determine the subsurface extent and behavior of the injected CO₂, verify the permanence of sequestration, and account for any releases from the subsurface. This showing shall include any emissions-related provisions that may be required through contract and/or permit conditions.”

- **Ordering Paragraph 6 on p. 281:**

“As part of this filing, the LSE shall provide documentation demonstrating that the CO₂ capture, transportation and geological formation injection project has a reasonable and economically and technically feasible plan that will result in permanent sequestration of CO₂ once the injection project is operational and that the CO₂ injection project complies with applicable laws and regulations. The plan must include sufficient ongoing monitoring and reporting activities, which are enforceable under Federal and/or State law, to determine the subsurface extent and behavior of the injected CO₂, verify the permanence of sequestration, and account for any releases from the subsurface. The LSE shall also [...]”

- **Attachment 7 (“Adopted Interim EPS Rules”) on p. 5:**

“(2) The CO₂ capture, transportation and geological formation injection project has a reasonable and economically and technically feasible plan that will result in a permanent sequestration of CO₂ once the injection project is operational. The plan must include sufficient ongoing monitoring and reporting activities, which are enforceable under Federal and/or State law, to determine the subsurface

extent and behavior of the injected CO₂, verify the permanence of sequestration, and account for any releases from the subsurface.”

We consider these additions to be straightforward and entirely consistent with the SB 1368 legislation. Nonetheless, we believe they add an important layer of certainty regarding the quality of GS projects by specifically requiring that ongoing and enforceable monitoring and reporting activities be included in the plan. The proposed language does not interfere with the Commission’s ability to certify compliance with the EPS prior to the commencement of operations, nor does it take away from operators’ flexibility to implement this plan and the proposed added elements with any particular regulator or in any particular manner. We believe that these modifications will safeguard the EPS from projects that employ questionable GS techniques or operations, and do not entail sufficient tools to verify the permanence of the sequestration.

In applying the proposed modifications, it is our expectation that project developers will be subject to an evaluation by the Commission of their proposed monitoring, verification and reporting plan prior to certification of compliance with the EPS. Further, evaluations of the monitoring, verification and reporting framework would be performed during the life of a CCS project by the agency (or agencies) enforcing the plan to determine sequestration effectiveness and identify needed changes, if any, in the proposed monitoring, verification and reporting system.

4. CONCLUSION

We appreciate the opportunity to submit this Petition for Modification for Decision 07-01-039. We urge the Commission to modify the Decision as recommended above in order to safeguard the integrity of the EPS, protect consumers from the significant financial and reliability risks of high GHG-emitting energy sources, and ensure that low carbon generation facilitated through CCS retains the appropriate environmental effectiveness.

Dated: November 30, 2009.

Respectfully submitted,



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Also on behalf of:

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Laura Wisland, Clean Energy Analyst, Union of Concerned Scientists
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CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the **“Petition of the Natural Resources Defense Council (NRDC), the Environmental Defense Fund (EDF), Green Power Institute (GPI), Union of Concerned Scientists (UCS), and The Utility Reform Network (TURN) for Modification of Decision D0701039, ‘Interim Opinion On Phase 1 Issues: Greenhouse Gas Emissions Performance Standard’ ”** in the matter of **R.06-04-009** to all known parties of record in this proceeding by delivering a copy via email or by mailing a copy properly addressed with first class postage prepaid.

Executed on November 30, 2009, at San Francisco, California.



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