

# Greenhouse Gas Emission Impacts of Power Plants

Docket No. 08-GHG OII-1 and 09-IEP-1P



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To Whom it May Concern:

Visage Energy appreciates the opportunity to provide comments to the *Committee Workshop on the Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California*. More specifically, Visage would like to comment on a particular section of the recently-released MRW & Associates Consultant Report: Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California. Visage Energy agrees that given the Natural Gas related scope of the MRW & Associates Consultant Report that coal fired generation and renewable generation should not have been included in the report. However, Visage Energy would like to challenge the statement "*the carbon sequestration technologies that would place [coal fired plants] in the state's loading order of preferred resources have yet to be developed for large-scale generation report.*" This statement fails to acknowledge the fact that there currently are a number of large commercial scale projects in operation and in different stages of development (See Figure 5.1 of the IPCC report). To the contrary, the necessary technologies have already been developed and are being deployed on a number of large scale generating plants. More specifically, best available capture technologies have been successfully deployed in application of gas production and synthetic gas production.

A number of commercial CCS project are currently capturing and sequestering CO<sub>2</sub>. For example, CCS in deep saline aquifers has been implemented full scale at the Sleipner gas field in Norway which injects 1MT CO<sub>2</sub> per year since 1996. As opposed to paying the expensive Norwegian carbon tax, the operators found that it was more cost beneficial to separate and re-inject the CO<sub>2</sub>. Other projects include Weyburn, the Frio project in Texas, and the West Pearl EOR Project in southwestern New Mexico.

Successful deployment of CCS technologies hinges not only on the economics of the process but also on the ability to create a regulatory environment that encourages investment in technologies and rewards early adopters of the technologies. NETL is developing a technology portfolio of next generation commercial-scale carbon capture, storage, and mitigation technologies through

the Carbon Sequestration Program. More succinctly, the stated goal is to validate the potential of the technologies under development to meet the Carbon Sequestration Program Capture focus area goals, which are: capture at least 90% of the carbon dioxide from the effluent gas of a power generation plant and with less than a 10% -20% increase in the cost of electricity.

Visage Energy supports the Air Resources Board's Scoping Plan that called for additional research and development in CCS technologies in an effort to decrease the cost of the next generation of technologies making CCS a more cost effective option. However, it too has failed to acknowledge the existence of currently available technologies for gasification and combustion applications.

Visage Energy would assert that the technology development is not a major impediment to the wide scale deployment of CCS in California. As George Peridas from the National Resource Defense Council stated, *"without a price on carbon investor interest in CCS worldwide has been limited to outside niche applications."* In order to manage GHG emissions, California, along with its neighboring western states, will need to create an atmosphere that attracts capital and promotes a coordinated initial deployment and subsequent aggressive cost reduction for a range of new CCS technologies in California. However with limited financial incentives for power generators to deploy CCS, the sequestration technologies have been minimally integrated into a viable CCS solution. As was stated in the *Joint Report Geologic Carbon Sequestration Strategies for California: Report to the Legislature* from the California Energy Commission and the California Department of Conservation, *"CO<sub>2</sub> capture cost and efficiencies will likely improve with increasing scale of operations over time and from lessons learned with current CO<sub>2</sub> capture technologies."*

Given SB 1368's prohibition of long-term contracts from coal-fired generation without the deployment of carbon capture and sequestration technologies, Visage Energy does agree that coal fired generation will be limited. However, Visage Energy disagrees that no new coal-fired plants would be developed in compliance with SB 1368. Specifically, the report refers to the Hydrogen Energy California (HECA) project *"as a clean coal" project that intends to gasify petroleum coke or a blend of coal and petroleum coke was submitted to the Energy Commission in July 2008 but this project and the technology it will use is currently in an early phase of being studied by the project proponent."* The proposed technology for the HECA project is integrated gasification combined cycle (IGCC) with carbon capture and sequestration. While coal gasification and gas processing are established technologies, the integration of these two technologies on a commercial scale is a newer process justifying an initial feasibility study. However, as was presented in the application to the Energy Commission in July 2008, the plant is scheduled to be commercially operable by September 2015 and will provide an efficient and

environmentally sound low-carbon power generating facility to assist in meeting future electrical power requirements.

Specifically, a typical pulverized coal plant emits approximately 2,460 pounds of carbon dioxide per MWh, a combined cycle natural gas plant approximately 960 pounds per MWh, and an IGCC without carbon capture and sequestration approximately 2,180 pounds per MWh. In contrast, the HECA project aims to capture at least 90 percent of the carbon emitting only approximately 221 pounds per MWh.<sup>1</sup> Thus, it is clear that significant GHG reductions could be accounted for with the HECA project while providing approximately 250 MW of new, baseload low-carbon generating capacity.

In conclusion, Visage Energy feels that the MRW & Associates Consultant Report does provide a solid framework for Evaluating GHG Impacts of Natural Gas-Fired Power Plants in California. However, Visage Energy feels that CCS as a viable carbon mitigation tool has been overlooked and the status of the technology was inaccurately characterized. Visage Energy appreciates the opportunity to participate in the IEPR process. If you have any questions or need additional information about these written comments, please contact us at 310-216-6887.

Sincerely,

/s/Daryl-Lynn Roberts  
Daryl-Lynn Roberts

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<sup>1</sup> Application of Southern California Edison Company (U 338-E) for Authorization to Incur and Recover Costs Necessary to Determine Feasibility of a Clean Hydrogen Power Generation Plant, A0705020