

California Energy Commission

Dockets Office, MS-4

1516 Ninth St.

Sacramento, CA 95814-5512

June 29, 2009

09-IEP-1P

DOCKET

08-GHGOII-1

DATE June 29 2009

RECD. June 29 2009

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

Subject: Committee Workshop on the Framework for Evaluating Greenhouse Gas Implications of natural Gas-Fired Plants in California

Dear Commissioners, Byron and Boyd,

Since I was not able to attend the subject Committee Workshop, I am submitting, for your consideration, my comments in writing;

1. I commend the authors for producing a very balanced and informative report on a topic that is highly emotional and politically charged.
2. Consistent with the scope of the report, the authors conclude that the dispatchability limitations of the renewable power (primarily wind and, to a smaller extent, solar) will require gas-fired power plants to provide
 - General energy support
 - Intermittent generation support,
 - Grid operations support,
 - Local capacity support, and
 - Emergency support

I agree with this critical conclusion. This is "plain physics". The conclusion implies that we will need a fleet of gas-fired generators across the state as insurance to the non-dispatchable renewable resources being developed in the state. These gas-fired plants will be operating at lower capacity factors, and, therefore, the operating cost of these plants will be prohibitive. Additionally, because of operational uncertainties, the cost of power from these plants will likely be highly vulnerable to the price fluctuations of the natural gas spot markets. The authors have not addressed the cost premium of such insurance (I am assuming that the cost impact was not in the scope of their studies) policy.

3. Based on my concern articulated in the paragraph 2 above, the California grid system will become extremely inefficient by the middle of next decade when utilities will have a large amount of non-dispatchable renewable power under contract. At the current plan, we will have a large amount of stranded (or, unproductive) renewable megawatt at the time of high load and a substantial amount stranded (non-producing or stand-by) fossil-based megawatt at the time of low load. I urge the CEC to resolve the dispatchability limitation of the wind

and solar resources by promoting other dispatchable renewable power such as biomass and utility level energy storage facilities;

- a. In the area of biomass and bio fuel, the private sector has been allocating substantial amount of money for R&D. I am very encouraged by the progress accomplished to date by the researchers at the University of California, Berkeley and the University of Illinois, Urbana-Champaign. While most of the research is focused towards biofuels, they will result in development of substitute fuel for natural gas.
- b. With regard to energy storage, the authors of the subject report have made a qualitative assessment on the potential of hydro pumped storage facilities in the state. While I agree with their general assessments on the limitations of such facilities, we should not forego the opportunities to develop between 1,000 and 2,000 MW of hydro pump storage resources from the existing hydro facilities. Knowledgeable utility personnel suggest that we should evaluate some existing facilities in the Feather, Mokelumne, Stanislaus, Kings and other river systems. Such development will not only allow greater utilization of the non-dispatchable renewable resources like wind and solar but also make the portfolio mix more diverse while lowering the GHG emission. As I have discussed at other CEC workshops, the CEC staff should actively evaluate and promote development of pump storage facilities in the state.

Thank you for allowing me to submit my comments.

Shan Bhattacharya PE

Principal Consultant



TRC Companies, Inc.

55 2nd Street, Suite 575

San Francisco, Ca. 94105

415-644-3002 (Direct)

510-385-2912 (Cell)

sbhattacharya@trcsolutions.com