California Wind Energy Association

September 1, 2006

Dora Yen-Nakafuji
Energy Research & Development Division
California Energy Commission
1516 9th St., MS 43
Sacramento, CA 95814-5512

Re: IAP Comments

Dear Dora,

These comments are submitted pursuant to the June 27, 2006, Notice of Staff Workshop -- Intermittency Analysis Project: 2006 Renewable Baseline and 2010 RPS Scenario Results -- and the August 22 email notice from the Commission's Nancy Hassman, which extended the deadline for comment. The workshop was held August 15, 2006.

The balance of our comments is in the form of questions, the purpose of which is to enable CalWEA and other parties to better understand the work that has been done to date, and potentially to affect what is done during the balance of the effort. It may make sense to discuss these questions on the next IAP conference call.

1. The written presentations provide the numerical and statistical results so far, but include little description of the qualitative conclusions. Can you provide a written summary of the conclusions that the study group presently draws from its detailed analysis? In particular, what are the conclusions with regard to the selected periods and "search for extremes"? What probabilities does the study assign to these extremes? What frequency of occurrence?

2. For any "problems" identified so far by the study team, please describe the nature of the problem and any potential solutions (e.g., increased transmission, increased ramping capability, etc.).

3. Does the study group view the 1-hour, 1-sigma wind-and-solar impact for 2010 of 48 MW as being significant? In general, has the study already identified impacts it considers to be significant?

4. Based on the current model results of intermittency impact on the system, how much and where does quick-response or other type of generation or load-response need to be added to maintain system reliability?

5. Does the study group have a decision rule for concluding whether the assumed resources in 2010 are able to manage intermittency impacts? Is it possible to identify a "break point" in terms of the statistics reported in the slides?

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6. At the workshop, it was stated that the power flow modeling assumed reactive power (VAR) consumption for wind projects, which is inconsistent with FERC and WECC standards for new turbines. With the correct assumptions, is there a VAR support problem?

7. If it is not confidential, can you provide the 2010 data set being used in the production cost modeling? If confidential, please post to WECC.

8. Does the study account separately for existing renewables and the renewables that are added to reach 20% in 2010? Is it possible to measure the incremental impact of the 20% goal? The results that compare load to "load minus wind minus solar" do not appear to account for the impacts of existing intermittent resources. If not, is it correct to say that the incremental impact in 2010, relative to business-as-usual, in terms of the 1-hour 3-sigma result (p. 74 of the GE slides) is 99 MW (i.e., 144 MW 2010 impact less 45 MW as the 2006 impact)? While the overall results will not change, it may be important to understand what portion of the impact is attributable to the additional intermittent resources.

9. Does AWS TrueWind assign a deterministic generation profile for each wind location? If not, for a given wind location and hour, please describe the statistics (mean & variance) of individual project output vs. combined project outputs. The 'spatial pattern' presented on page 13 of the GE part 2 presentation is interesting, but does not appear to address this question directly. For example, what is the forecast error for individual wind production vs. aggregate wind production across given hours?

10. Many of the basic assumptions in the model are not evident. We would appreciate having a list of all of them, but in particular:

    a. What are the assumptions for new non-renewable 2010 resources (what plants are being added – size, type of fuel, type of generator)?
    b. What reserve margin does the model assume in 2010?
    c. What capacity factor is assumed for new and existing wind projects?
    d. What ramp-up rate system limits are assumed, if any?

We appreciate your consideration of these comments, and will look forward to the responses.

Sincerely,

Nancy Rader
Executive Director