

# Stakeholder Comments Template

## Subject: Integration of Renewables Report

Submitted by (Name and phone number)	Company or Entity	Date Submitted
Ernest Hahn 213-217-7185	Metropolitan Water District of Southern California (MWD)	10/12/2007

CAISO seeks written stakeholder comments on its Draft Integration of Renewable Resources Report, which was posted on September 20, 2007 at <http://www.caiso.com/1c51/1c51c7946a480.html>.

Stakeholders should use this Template to submit written comments and or suggestions. In order to be considered, written comments must be submitted no later than Close of Business on Friday, October 5, 2007 to: [vjetmalani@caiso.com](mailto:vjetmalani@caiso.com).

The subject areas upon which CAISO seeks stakeholder input are:

1. Transmission Planning Issues associated with the integration of Renewables

The ISO's staff is to be commended for performing a much needed study that focuses on operating the grid beyond the first point of interconnection with large amounts of renewables. However, more operational impact studies are needed during the initial transmission planning stages, rather than just focusing on the transmission costs. The generator interconnection process should include operational assessments concurrently with impact studies performed for generator interconnections. In addition, any major network upgrades required to support the interconnection should be the subject of cost-benefit analysis, including operational impacts. As noted in the ISO's report, 20,000MW of wind and 20,000MW of solar are in the ISO interconnection queue. If only 20% of these renewables are developed, another 8,000MW of renewables will create more operational problems than just 4,000MW of wind at Tehachapi. In addition, the CAISO should include operational assessments in its other planning studies, such as those undertaken to facilitate remote resource interconnections or reduce reliance on old thermal generation. The CAISO Board, regulators, and market participants need to know the full cost of implementing proposed policies in order to fairly assign cost responsibilities.

2. Grid Operations Issues

Many conclusions are reached without sufficient identification of assumptions or support, e.g., "Needed integration services can be provided by – Hydro IF there is enough water - Existing thermal IF it is kept operating at certain levels - New thermal IF it has the right characteristics." <sup>1</sup> More details should be provided on the assumptions for quantity and location of existing thermal or hydro resources that are assumed to provide "integration services."

- Increased Ramping, Regulation & Load Following Requirements – The ISO should identify increased requirements on an average basis by regions and the amount that is assumed to be provided by existing resources. In addition, the ISO should identify the market participation in Ancillary Services pre-MRTU from existing resources. If the ISO is experiencing supply deficiencies today, it should explain how or why it believes it will

---

<sup>1</sup> See 9/26/2007 ISO presentation "Achieving California's 20% Renewable Portfolio Standard" at slide 7.

obtain the significant increases in integration services which will be required to accommodate significant increases in intermittent generation?

- Overgeneration – The ISO should identify whether LMP will provide different price signals at nodes where a large amount of wind is injected. Is the ISO proposing that LMP be negative during overgeneration conditions and will generators pay that negative LMP - if not, why not? Additionally, it is unclear how the ISO will curtail overgeneration if insufficient reductions are made in response to LMP. A pro-rata reduction among all supplies may exacerbate the problem of overgeneration or require more “integration services” by curtailing hydro and wind equally. For example, hydro resources with dependable water and synchronous units can help supply reactive support and ramping whereas wind units don't. In addition, existing hydro and QFs may be categorized as “Must Take” or needed for local reliability reason, and therefore would not be subject to over-generation curtailments. The ISO should examine the extent of such limitations in order to gain a better assessment of curtailment options.
- New resources –New wind generators will be required to meet LVRT standard of WECC. The ISO should also require type 3 or 4 for new wind turbines as part of an interconnection standard or require a non-conforming wind generator to pay the resulting increased integration costs.

### 3. Forecasting Issues

No comments

### 4. Implementation Issues

- Under Tariff Section 42.1.7, the ISO is required to rely to the maximum extent possible on market forces to ensure applicable Generation planning reserve criteria are satisfied. It's unclear whether the ISO is relying on market forces or dictating requirements to mitigate the integration issues with renewables. For example, the report proposes to change Resource Adequacy standards to require that new thermal units be quick-start and have better ramping characteristics. However, changing an RA standard is not using markets and will shift the cost burden to LSEs, not to those that cause the problem.
- The recommendation to “change ISO generator interconnection standards to require compliance of all intermittent resources with the interconnections rules established for the PIRP” needs to be reviewed. Under PIRP, the term “intermittent resources” includes wind, solar, and small-conduit hydro. If units choose not to be part of the PIRP and the PIRP rules are unique, the “one size fits all” approach does not appear appropriate. For example, hydro units may be synchronous machines that do not have reactive or ramping issues such as wind units. Perhaps the recommendation should be limited to wind and solar that create operational issues.

### 5. Other Issues

- Scope - clarify that the report only assessed the impact of certain wind development and future studies need to also incorporate solar along with more wind developments.
- Costs – The report does not address the cost impacts for the increased integration services. However, in the California Energy Markets weekly report, dated October 5, 2007, on pg. 9, an ISO operator is quoted as saying: “ Hundreds of millions of dollars is spent on regulation and where we're going – with increased amounts of intermittent renewables – the amount of regulation is going to increase. We're looking at billions in trying to make this happen”. If this statement is true, the issue of cost impacts and who will pay for it cannot be deferred. Either the MSC or another ISO group needs to perform a study on how increased regulation and ramping requirements due to increased intermittent renewables will affect the market. Cost causation principles should require that those who are responsible for increased costs without commensurate benefits should be responsible for bearing such costs.