NRG Energy, Inc.
211 Carnegie Center
Princeton, NJ 08540

**Comments on the Interconnections Standards Review Initiative**

**NRG Energy, Inc**
**April 7, 2010**

The NRG Companies ("NRG") welcome the opportunity to provide comments on the CAISO's April 1, 2010 stakeholder initiative on revised interconnection standards (the "Initiative"). NRG understands that the goal of integrating sufficient renewable generation to meet California's goal of procuring 33 % of its power from renewable resources while maintaining reliability is challenging, and that some transition period is warranted.

**NRG Concerns:**

NRG's stakeholder comments focus on several points designed to ensure a smooth transition to the revised standards:

1. **Any new proposed requirements should account for specific technical and operating limitations associated with renewable resources currently in development.**

The ISO should clarify that any new technical requirements it adopts will be tailored to the technical capabilities of existing units and existing reliability rules.

*A.* *Power factor requirements should accommodate small projects and those with long generator-tie lines.*

NRG supports the proposal to apply power factor requirements on a comparable basis to all renewable resources. This represents a significant, but overall positive, shift from the current ISO policy of requiring only that only those wind projects with a demonstrated need for power factor equipment are required to meet the LGIA requirements applicable to conventional generation. Because most renewable projects can already meet the ISO's 0.95 leading to 0.95 lagging power factor requirements, this is a reasonable accommodation.

However, the ISO must consider the impacts of any new power factor requirement on projects with long generator tie lines. It is axiomatic that utility-scale renewable projects in California tend to be located far from the existing transmission grid, and where the ISO elects to measure the facility's reactive power production can

create a significant economic burden on a project. To mitigate this burden, the ISO should make three clarifications to the power factor requirements proposed in its Initiative:

1. Renewable projects interconnecting within 2 years of FERC approval should be permitted to measure reactive power requirements *either* at the generator terminals *or* at the Point of Interconnection.

2. The ISO should specifically permit projects to meet their reactive power obligations by installing reactive power control equipment wherever it is most cost effective (*i.e.*, at the Point of Interconnection or elsewhere on the grid), and should be allowed to coordinate with other projects to share such costs.

Additionally, power factor requirements should be constant over the active power range, rather than requiring the reactive power range measured at full load to be available at all load levels. Such a requirement is necessary to ensure that an inverter-based project is not deemed non-compliant when an inverter bank is offline or otherwise unavailable.

Finally, the ISO should clarify that the ISO will not impose additional power factor requirements on asynchronous generators of less than 20 MW without a specific showing that such equipment is needed. An Order No. 661-A style partial exemption for small generators adequately balances economic realities with the need of the ISO to ensure reliability.

*B.* *Voltage ride-through requirements should reflect existing plant capabilities.*

Many PV inverter technologies can already accommodate a 10% over-voltage capability. The CAISO should recognize this industry standard in its Initiative and should avoid imposing a more stringent standard would require the industry to develop an entirely new suite of technologies. Such a change would delay many existing solar development projects, while increasing costs.

On the low side, most PV inverter technologies are not capable of meeting low voltage ride-through requirements. While NERC is currently considering such requirements as part of its PRC-024-1 standards drafting team, it is premature for the ISO to adopt a California-specific standard – particularly when the technology for meeting that standard is not in common usage and may not exist.

At a minimum, the CAISO should propose that no additional ride-through requirements will apply to projects for at least two years after such a proposal was accepted by FERC.

*C. The ISO should avoid duplicating or contradicting NERC and WECC requirements.*

The ISO should clarify that it will not propose any new requirements that conflict with either existing NERC/WECC requirements, or that would likely conflict with NERC/WECC requirements currently under development. Any such proposal would expose project developers to an unacceptable level of regulatory uncertainty.

Instead, the ISO should defer to the NERC/WECC process. Such standards do not necessarily take years to develop. NERC has the ability to address emergency requests for new standards in as few as 30 days, and WECC has also demonstrated an ability to move quickly to establish new requirements, when necessary to preserve system reliability. If the ISO believes that system reliability is under threat, it should avail itself of the existing mandatory reliability structure.

At a minimum, if the ISO decides to proceed with imposing new interconnection requirements, it should file a petition with FERC seeking clarification that a project complying with any new standard will be deemed to have met any corresponding standard developed by NERC/WECC.

*D. The ISO should provide a "Safe Harbor" for project modifications designed to enhance reliability.*

The ISO should categorically state that any project seeking a modification of its project design to meet the heightened standards proposed by the ISO will not be penalized for such changes. Providing a "safe harbor" to any generating facility currently going through the interconnection study process to make such changes is good policy and will encourage facilities to implement low-cost changes on an expedited basis.

The ISO should provide for projects to switch technologies, modify switchyard equipment, or otherwise modify the electrical configuration of their facilities without penalty. This includes clarifying that such changes will not be deemed a material modification, as defined under the OATT, or otherwise subject a project developer to additional study costs, risk of losing their queue position, security deposit, or other adverse affects.

**2. ISO should ensure renewable generators are not subjected to "trapped" compliance costs.**

In order to be financeable, projects must have cost certainty. However, the evolving nature of the ISO's proposal denies projects the very certainty they require to secure financing. In order to avoid this Catch-22, it is critical that the ISO clarify that it waive any new requirement for projects currently in the interconnection queue that demonstrate that compliance with the Initiative would impose additional costs for which they have no method of cost recovery.

Imposing new costs on projects currently moving through the study process at this late stage would create a significant burden, particularly developers that are relying on fixed-price power purchase agreements ("PPAs") and or who have no means of passing through the additional compliance costs. Such a waiver process is an appropriate means of ensuring that California moves forward on its 33% renewables goal, while still ensuring a reliable transmission system.

**3. Market-based solutions (including new ancillary services products) should be expedited and implemented prior to any "Power Management" proposals.**

The ISO's Initiative proposed several new operating restrictions on renewable resources that go far beyond addressing local reliability needs. These include ramp rate restrictions, mitigation of local congestion and over-generation concerns, changes to distribution-level interconnections, requiring governor response, etc. Several of these proposed changes should be addressed in the context of the energy markets – not imposed through a stakeholder process nominally considering interconnection requirements designed to improve reliability. The ISO should clarify that it will not consider such fundamental market reforms in this forum.

In fact, the lack of any discussion to market-based solutions to the problems identified is a serious deficiency in the Initiative. The ISO should clearly identify: (1) any prospective increases in ancillary service procurement necessary to accommodate 33% renewable penetration; (2) any new ancillary services products necessary to support renewables; and (3) other market solutions that would alleviate the reliability concerns raised in the Initiative. Further, the ISO should develop a plan for allocating any additional ancillary services costs caused by increased renewable penetration. The ISO should then fast-track any such market solution on a time line comparable to its proposals here.

Finally, future iterations of the Initiative must consider the costs of compliance. It may be that the ISO can procure the reliability products it needs in a less expensive manner than imposing new facility-by-facility requirements. The costs of such grid improvements or alternative technologies necessary to procure those reliability services could be passed through to any renewable generating facility electing to this "alternative compliance program". In short – while maintaining reliability is critical, there is no reason why it should not be accomplished on a least-cost basis.

**4. The ISO should address potential timing issues associated with submitting non-conforming agreements to FERC and establish an expedited process for seeking FERC approval for any non-confirming LGIA agreements.**

The ISO has suggested that it intends to begin incorporating new requirements into LGIAs currently under negotiation *prior* to any FERC filing. NRG has several concerns with this strategy. NRG is concerned that, absent prior FERC buy-in, the

Initiative could create significant delays for renewable developers looking to finalize LGIAs before the end of the year.

*First*, it is inappropriate for the ISO to incorporate substantive changes to the standard LGIA as part of the so-called "negotiation" process on an *ad hoc* basis. Such a plan would invite disputes and will likely lead to assertions that some developers are receiving unduly preferential treatment.

*Second*, entering into a non-conforming LGIA with each project developer currently in the interconnection queue would require the filing of numerous unexecuted LGIAs at FERC. In each, the ISO would be required to demonstrate that its proposal is consistent with or superior to the existing *pro forma* LGIA. Because there is no guarantee that FERC would accept such filings, an *ad hoc* strategy could lead to significant delays and jeopardize federal stimulus incentives, PPA terms, etc.

To eliminate any ambiguity and avoid delays, the ISO should either submit a waiver request to FERC in a manner comparable to the queue reform process undertaken by the ISO over the last several years, or file to incorporate these new terms into the *pro forma* LGIA on an expedited basis.

Submitted by:

Philippe Auclair
Director, Asset Management – West
NRG Energy Inc.