NRG Energy, Inc. FRACMOO2 Working Group Comments – September 1, 2015

Submitted By	Company	Date Submitted
Brian Theaker	NRG Energy, Inc. ("NRG")	September 1, 2015

The following are NRG's comments following the August 18, 2015 Flexible Resource Adequacy Criteria and Must-offer Obligation 2 Working Group meeting.

Curtailing non-Resource Adequacy ("RA") renewable resources before curtailing RA renewable resources. The CAISO has not yet justified its position that RA renewable resources should be afforded a higher level of protection against curtailment than non-RA renewable resources. The CAISO asserts that it "relies on" RA resources to reliably operate the system and should only curtail these resources if necessary (slide 32 of the August 18, 2015 presentation). If the renewable resource is not required to operate at a particular level to maintain local area reliability, the energy that resource provides to serve demand within the CAISO Balancing Authority Area ("BAA") is no different than any other generic energy used to serve system demand within the CAISO BAA. Given that a core part of the CAISO's mission is to provide non-discriminatory access to the transmission system under the CAISO's operational control, the CAISO has not yet made a compelling case as to why it should be allowed to curtail non-RA energy first instead of curtailing all energy supplies not essential to local area reliability in a *pro rata* fashion.

Negative prices. NRG appreciates the information on February 2015 negative prices the CAISO provided on slide 12 of the August 18 presentation. However, such information lacks context and is incomplete. To help market participants understand the causes and implications of negative prices, the CAISO should also provide information on:

- Demand
- The output from inflexible resources, namely: renewable resources, run-of-river hydro, Pmin energy, etc.
- Levels of energy required to maintain local area reliability
- The level of self-scheduling, both from internal resources and intertie resources
- The amount and sources of unscheduled real-time energy

Over-generation. NRG concurs with the CAISO that over-generation:

- **Is a reliability problem, not just an economic problem.** Operating the dispatchable fleet at its manual minimum load may leave plenty of "headroom" from those units, but units often do not respond quickly from their minimum load levels. This lack of effective response exposes the system in the event of a large contingency if the gas fleet is pinned to its minimum load levels and there is no other response headroom available in the rest of the fleet.

- **Is going to get worse.** Using data from the CAISO's web site, NRG estimates the 2015 year-to-date minimum net load to be approximately 14,365 MW. Adding another 6,000 MW of CAISO-metered solar generation and another 3,000 MW of behind-the-meter solar generation could drive minimum net load levels down to the values projected on slide 14 of the August 18 presentation.

- **Will be even worse when hydro production returns to normal levels.**

Extending the Unit Commitment Time Horizon. The CAISO offers that extending the time horizon over which the CAISO's market optimization can look forward and make unit commitment decisions will be a useful took in mitigating over-generation (slide 22). Whether an extended look ahead will help or hurt will largely depend on the accuracy of the look-ahead forecasts. Improving the accuracy of look-ahead forecasts over a longer time horizon is a challenge that will only be made more difficult by the amount of additional renewable resources that will be added over the coming years. NRG is not yet convinced about the benefits of extending the look-ahead time without also achieving commensurate improvements in forecasts over the same horizon. Extending the look-ahead time without improving the forecasts will lead to less effective unit commitment, more prices that do not really reflect the reliability needs of the system and more bid cost recovery uplifts.

Allowances. The CAISO's proposal to limit the amount of inflexible generation that an LSE can show, but also to provide "allowances" that would help offset some of the inflexible generation in an LSE's portfolio, is a novel and intriguing concept. NRG looks forward to further discussion on this topic.

Southern California Edison Proposal. NRG regrets that it was unable to be present for SCE's presentation of its proposal at the August 18 meeting. NRG acknowledges that it currently may have an incomplete understanding of the SCE proposal, but also acknowledges that some aspects of the SCE proposal may have some appeal, specifically (1) relaxing the blanket prohibition on self-scheduling flexible capacity and (2) standardizing the must-offer obligation. One aspect of the SCE proposal that NRG is concerned with is this: as long as there is only a three-hour flexibility product, what happens when the multi-dimensional feasibility test demonstrates that an LSE's portfolio lacks adequate one-hour ramping capability? In any case, NRG looks forward to further discussion of SCE's ideas within the CAISO working group process.