NRG Energy, Inc. Comments on Day Ahead Market Enhancements Issue Paper/Straw Proposal

Submitted by	Company	Date Submitted
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The CAISO’s Straw Proposal consists of:

1. Increasing the granularity of Day-Ahead (“DA”) Integrated Forward Market (“IFM”) schedules from 60 minutes to 15 minutes.
    a. Scheduling Coordinators (“SCs”) for Variable Energy Resource (“VERs”) may submit 15-minute Upper Energy Limits (“UEL”)
    b. CRR revenues will now be based on 15-minute DA prices.
    c. The process for considering extremely long start-up resources (resources with a start-up time greater than 1,100 minutes) will still be on an hourly granularity.
    d. SCs will still submit hourly bids.
        i. SCs may select hourly “block” scheduling, which will keep the schedule at the same level for all four 15-minute intervals.
2. Creating a DA “Imbalance Reserves” (“IR”) product.
    a. This product, which will cover both the upward and downward direction, is intended to account for imbalance energy needs to arise between the DA IFM and the Fifteen Minute market (“FMM”).
    b. This product, as with the CAISO’s current Ancillary Service Products, will be fully “biddable” (i.e., SCs may submit a capacity bid for providing this reserve product
    c. This product will replace the $0/MW current Residual Unit Commitment (“RUC”) availability bids required from Resource Adequacy (“RA”) resources. RA units will not be required to submit $0/MW IR bids.
    d. Only resources that have DA IR awards are required to offer into the real-time market.
    e. The CAISO’s Resource Adequacy Availability Incentive Mechanism (“RAAIM”) will now only consider how RA capacity complies with its DA must-offer obligation.
    f. Generators, imports and exports may bid to supply IR.
    g. Eligibility to provide this IR product:
        i. For long start and medium start units:
            1. Maximum IR quantity = 15 minutes x Ramp Rate
            2. Eligible Down IR award (if committed in IFM) = min(IFM energy – Pmin, 15 minutes x Ramp Rate)
        ii. For fast start units (start-up time < 60 minutes):
            1. Maximum IR quantity = 15 minutes x Ramp Rate
            2. Eligible Down IR award (if committed in IFM) = min(IFM energy – Pmin, 15 minutes x Ramp Rate)
    h. Resources that are awarded IR must submit real-time bids for energy and AS for the IR amount.
    i. The CAISO will procure 100% of the forecast IR requirement in the DA market – unlike as with the Flexible Ramping Product there will be no demand curve to condition IR procurement.
    j. IR cannot be self-provided.
    k. The RUC process will be eliminated.

NRG Comments

- The CAISO specifically notes, on page 12, that the move to 15-minute DA schedule granularity is being proposed to facilitate the participation of Pacific Northwest (PNW) hydro resources in the CAISO's DA market. The CAISO's desire to enhance the participation of PNW hydro raises several potential issues, including the need to maintain comparable treatment between internal and external resources. This would include specifically identifying which resources are providing this product, and determining on how much PNW flexibility the CAISO can reliably depend in forward time frames given the inherent variability of PNW hydro. The DA Enhancements stakeholder process and the CAISO's FRACMOO2 stakeholder process are and must remain closely linked.

- At this nascent stage of this stakeholder process, NRG is encouraged and intrigued by the CAISO's proposal to replace the RUC process with a fully biddable IR product. NRG notes that the CAISO also initially envisioned the Flexible Ramping Product as a fully biddable product.[1] NRG encourages the CAISO to not follow the same unfortunate trajectory taken by that product design.

- NRG also notes that it took five years from the issuance of the first FRP straw proposal (November 1, 2011) and the FRP's implementation (November 1, 2016). The CAISO cannot allow the development of the IR product to take five years. To prevent this, the CAISO must commit to implementing both DA enhancements (15-minute schedule granularity and the IR product) at the same time.

- On page 21, the CAISO proposes that all resources that are awarded IR must submit economic bids for energy and ancillary services covering the MW quantity of the IR award. Given that spinning reserve and non-spinning reserves are ten-minute products, a resource that has been awarded a quantity of IR equal to 15 minutes times its ramp rate cannot be required to submit spinning or non-spinning reserves for the full amount of the IR award.

- The CAISO has not specified the minimum energy duration of the IR product. This requirement will be an important consideration in determining which and how resources can provide this product.

- How the IR requirement will be determined, and the amount of the IR requirement, will be important considerations in assessing the value and efficacy of the IR product. NRG looks forward to the CAISO providing details on how the IR requirement will be established (as indicated in Appendix B of the proposal). NRG also looks forward to the historical imbalance assessment discussed in Appendix A.

- Finally – should the CAISO be considering five-minute DA schedule granularity? If the CAISO's goal is to set up the system, through the DA awards, to cover as much of the projected next day

[1] *See, e.g.,* November 1, 2011 *Flexible Ramping Products Straw Proposal* at page 7 (available at http://www.caiso.com/Documents/FlexibleRampingProductStrawProposal.pdf).

flexibility needs as possible, fifteen-minute DA schedules will help, but five-minute schedules would help even more. Admittedly, NRG has not yet considered all the things that would factor into a decision to move to DA schedules of this granularity, but offers this question for the CAISO's consideration.