

**EAGLE CREST ENERGY COMMENTS
ON FRACMOO2 SUPPLEMENTAL ISSUE PAPER
AND STAKEHOLDER MEETING PRESENTATION**

Eagle Crest Energy (ECE) appreciates this opportunity to comment on the CAISO’s Supplemental Issue Paper (Paper) and December 9th meeting (Meeting) presentation on enlarging the Flexible Resource Adequacy and Must Offer Obligation – Phase 2 (FRACMOO2) initiative scope.

ECE supports the CAISO’s efforts to revise and refine the Flexible Resource Adequacy (FlexRA) framework to better ensure that the resources counted toward FlexRA obligations individually and collectively better meet the CAISO’s ramping and other operational needs. ECE further believes that the kinds of changes discussed in the Paper will better address over-generation and renewables curtailment issues in a manner that will help the state achieve its 50% renewable energy mandate and carbon goals.

The concepts in the Paper are summarized below. ECE believes that large pumped storage facilities, such as the Eagle Mountain Project, could help the CAISO mitigate all of the operational issues identified. However, most of those operational benefits may be achievable without the need for such storage resources to be fully deliverable as “generic” RA resources; thus, ECE asks the CAISO to consider including in this initiative a reexamination of the ability of resources to be counted toward FlexRA obligations even if they are not fully deliverable as “generic” RA resources.

CAISO-IDENTIFIED ISSUE	FRACMOO2 SUPPLEMENTAL ISSUE PAPER CONCEPTS
Ramping speed – Large single hour net load ramps – Transition from low net loads to steep ramps – Intra-hour variability	Require Flex RA resources to have a minimum weighted-average ramp rate
Cycle time for determining Category 1 daily start requirements should be clarified	Base Category 1 daily start requirements on full resource cycle time, & possible additional limitations
High generic & flexible RA minimum operating levels	FlexRA resources with a Pmin/Pmax ratio greater than a predetermined level must have at least two starts per day
Most significant net load ramps occur on weekends or holiday weekdays	Category 3 resources must be available seven days a week
Large quantities of long start resources may limit CAISO ability to meet RT flexibility needs	Consider capping quantity of long-start resources that can be counted as FlexRA
No adopted method to assess likelihood that FlexRA showings meet all ramping needs	Consider developing a FlexRA showings analysis methodology to assess likelihood that these showings meet ramping needs

Background

ECE is developing the 1,300 MW Eagle Mountain Pumped Storage Project (Eagle Mountain or the Project) in Riverside County, California. The Project has been awarded an operating license by the Federal Energy Regulatory Commission (FERC).

The Project is located at the inactive Eagle Mountain Iron Ore mine and makes use of two former mine pits as the upper and lower reservoirs (i.e., is a “brownfield” site). The Project will be a closed loop pumped hydro project, i.e., will not be located on a perennial river or have a surface water connection to other bodies of water. These features will allow the Project to provide, with minimal environmental impacts: (1) 22,000 MWh of multi-hour energy storage; (2) ramping capability of 10 MW per second, for fast Regulation and ramping/load-following services; and (3) relief of import congestion from the southwest.

ECE comments

The FlexRA requirements were motivated by the CAISO's need to address ramping issues associated with "duck belly" conditions. It is thus odd (though understandable, given the process to date) that the FlexRA requirements do not actually address ramping speed, or focus on availability requirements that match the likely (weekend/holiday) timing of these ramping needs. At a minimum, the FlexRA requirements should focus on these key variables and allow the CAISO to ensure that the resources procured and offered to meet these requirements would actually do so.

The Paper states that, by 2019, the largest three-hour net load ramp could reach nearly 16,000 MW, with single-hour ramps as high as 7,000 MW and significant intra-hour variability (as much as 115 MW a minute, per the Meeting presentation). Currently, the CAISO is relying heavily on long-start resources with relatively high Pmin values – many of which are Once-Through Cooling (OTC) gas-fired resources – to meet its ramping needs.

The need to commit and dispatch these resources to Pmin far in advance of the ramping need "can result in over-supply and significant quantities [of] decremental dispatches to wind or solar resources." These early dispatches, and resulting renewables curtailments, could impair the state's ability to reach both its renewables and greenhouse-gas emissions targets. Moreover, the OTC resources may not even be available in the long term.

ECE notes that large pumped-storage facilities like Eagle Mountain can meet a large portion of the operational needs identified by the CAISO in the Paper. As noted above, Eagle Mountain will have a ramp rate of 10 MW a second – enough to cover, by itself, much or most of the intra-hour variability and a significant portion of the inter-hour ramps.

The CAISO should also consider the following:

- **The information in the Paper makes it obvious that generic RA resources and FlexRA resources cover completely different operational needs.** Currently, resources that don't qualify for "generic" RA Net Qualifying Capacity (NQC) cannot receive a FlexRA Effective Flexible Capacity (EFC). The CAISO's Deliverability Assessment in the interconnection-study process assumes system loads and other conditions at the system peak, while the CAISO's ramping needs are occurring at entirely different times and under different conditions.

Thus, there is no particular reason why NQC and EFC ratings should be linked, or why resources must have the former to receive the latter. The CAISO earlier considered separating the FlexRA EFC and generic RA NQC determinations; this more recent information indicates that a re-consideration of the earlier decision to keep these determinations linked is in order.

- **Even if pumped-storage facilities do not receive an EFC rating, they can reduce the FlexRA requirement overall by reducing the CAISO's ramping needs** (and, therefore, the need to dispatch those long-start and/or slow-ramping resources to meet those needs). The CAISO could rely on those resources, for example, if the procurement terms for those resources include a must-offer-obligation even if they are not RA resources.
- **ECE is not confident that the Economic Planning Study and Large Storage Special Study in this year's Transmission Planning Process will capture these ramping and FlexRA reduction benefits.** The CAISO should consider either including these benefits in the TPP study or supplementing that analysis once the Transmission Plan is issued in March 2017.