Transitional Fast-Flexible RA Program Proposal

Rulemaking 17-09-020
Track 1 Workshops

February 23, 2018

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- Maintaining the existing fleet of fast-flexible capacity is becoming critical

- CAISO FRACMOO2 delayed again until 2020 RA season and possibly the 2021 RA season

- Proceeding schedule proposed by Scoping Memo waits for FRACMOO2 to conclude and for CAISO to file a new proposal some time in 2019

- Holistic review of the RA program will likely take 18-36 months to complete

- Meanwhile, further delays to RA reform will result in increased solar curtailment, risk of early retirements of generation and continued out-of-market procurement through RMR and CPM

- Cogentrix proposed Transitional Fast-Flexible RA Program ("Transitional Proposal") will serve as a bridge to the eventual product of CAISO's FRACMOO2 initiative

Demonstrated Need for Transitional Fast-Flexible RA Program

- CAISO has demonstrated that it has sufficient flexible capacity in the day-ahead market, yet operational challenges remain due to lack of flexibility in the real-time market

- CAISO Department of Market Monitoring analysis indicated that in 2016, flexible RA requirements failed to meet the maximum 3-hour net load ramp in nine out of the twelve months, highlighting the ineffectiveness of Category 2 and 3 flex resources under the current flex RA framework

- Cogentrix Transitional Proposal is based on a simplified version of the current CAISO FRACMOO2 Revised Draft Framework Proposal

- Establishes a Fast-Flexible Capacity Requirement that captures the operational need for a certain amount of capacity that is able to be committed and dispatched in the CAISO real-time market to address load uncertainty

- The Fast-Flexible Capacity Requirement will represent a subset of the total existing Flexible Capacity Requirement

- Effective beginning the 2019 RA Season until permanent FRACMOO2 reform is approved and implemented

- Cogentrix proposes a Fast-Flexible Capacity Requirement be established so that LSEs must procure a portion of their current flexible RA requirement from a set of fast-flexible resources as defined below:

  ➤ Requirement – 75% of the existing flexible RA requirement, with solar resource contribution being capped at 25% of this amount

  ➤ Eligibility –

    ➤ Start up and cycle time of 4.5 hours or less

    ➤ Resource must ramp and sustain energy output for minimum three hours

    ➤ Two starts per day

  ➤ Obligations – 24/7 must-offer obligation to bid in economically when available into the day-ahead and real-time markets with no changes to the RA Availability Incentive Mechanism ("RAAIM") assessment hours at this time

  ➤ Allocation – LSE and LRA allocation of the Fast-Flexible Capacity Requirement and backstop rules for fast-flexible RA should be established in the same manner as the flexible RA requirement is today

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- Cogentrix arrived at the proposed 75% requirement by considering the CAISO's framework and assessing the potential need for flexible capability in the real-time market

- The proposed Fast-Flexible Capacity Requirement as a percentage of current flexible capacity requirements is based on mutual consideration of the following components:

  – The difference between the monthly peak net load forecasted three-hour ramping need in the day-ahead market and the five-minute real-time market;

  – An adder for the amount of real-time flexible capacity the CAISO depends on in the Residual Unit Commitment (RUC) process;

  – Need to reserve capacity on resources to provide Regulation services; and

  – The uncertainty between the DA market and the five-minute real-time market, including forecast error between the requirement and peak coincident net load

CPM Designations 2016 & 2017

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Significant amounts of capacity have been procured in the past two years as a result of real-time events and forecast error

Resource	Total MW	Date	Price	Reason
Pio Pico 1-3	309 MW	Nov - Dec 2016	$6.31/kw-mo	ACE error and low system frequency
Sentinel 1-3, 6	4 MW	Nov - Dec 2016	$6.31/kw-mo	ACE error and low system frequency
Otay Mesa Energy Center	155 MW	May 2017	$4.16/kw-mo	Higher loads in real-time
Mandalay 1	20 MW	June 2017	$6.31/kw-mo	Higher temperature and loads
Mandalay 2	20 MW	June 2017	$6.31/kw-mo	Higher temperature and loads
Mandalay 3	119 MW	Oct – Nov 2017	$6.31/kw-mo	Higher loads in real-time

2016 Flex RA Requirements vs. Max 3-Hour Ramp

Average monthly flex RA requirements in 2016 during maximum net load ramps were insufficient in nine out of the twelve months

Month	Maximum 3-hour net load ramp (MW)	Total flexible RA requirement (MW)	Average requirement during maximum net load ramp (MW)	Date of maximum net load ramp	Ramp start time	Average requirement met ramp? (Y/N)	Why average requirement during max net load ramp was less than the maximum 3-hour net load ramp
Jan	9,621	11,103	10,091	1/26/2016	14:50	Y	Did not overlap with must-offer hours for 50 minutes
Feb	11,010	10,507	10,506	2/1/2016	15:00	N	
Mar	9,756	10,362	9,844	3/6/2016	15:20	Y	Ramp occurred on a weekend
Apr	8,333	9,989	9,489	4/16/2016	17:05	Y	Ramp occurred on a weekend
May	8,340	7,731	6,730	5/15/2016	16:20	N	Ramp occurred on a weekend and did not overlap with must-offer hours for 20 minutes
Jun	7,495	7,244	6,306	6/15/2016	17:15	N	Did not overlap with must-offer hours for 2 hours and 15 minutes
Jul	7,703	7,935	6,908	7/10/2016	16:15	N	Ramp occurred on a weekend and entirely outside of must-offer hours
Aug	8,003	7,998	6,963	8/14/2016	16:00	N	Ramp occurred on a weekend and entirely outside of must-offer hours
Sep	10,340	9,259	8,061	9/25/2016	15:10	N	Ramp occurred on a weekend and and did not overlap with must-offer hours for 10 minutes
Oct	9,921	10,331	9,815	10/15/2016	15:45	N	Ramp occurred on a weekend and one hour and 45 minutes did not overlap with must-offer hours
Nov	11,265	12,005	10,910	11/29/2016	14:25	N	Did not overlap with must-offer hours for 25 minutes
Dec	12,898	12,817	11,168	12/18/2016	14:40	N	Ramp occurred on a weekend and one hour and 40 minutes did not overlap with must-offer hours