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# *Durable Flexible RA Proposal*

# **2017-02-07**

# The framework modifies the interim solution to create a durable Flexible RA product

## 1) Keep the interim solution product definition

– LSE's procure a single 3 hour product to meet a single flexibility requirement
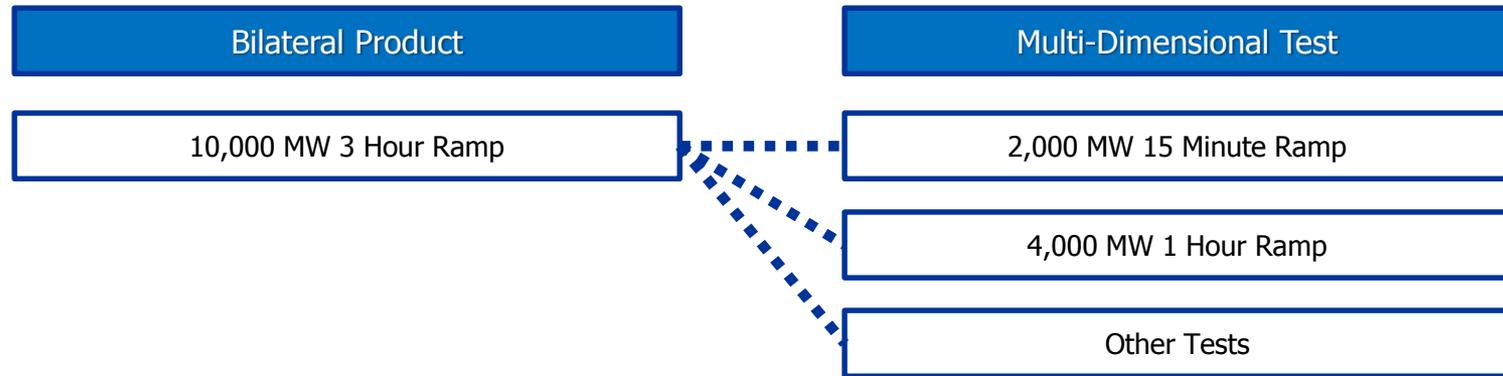
## 2) Perform a Multi-Dimension Test to Ensure Reliability

– Once resources are shown by LSEs, CAISO can validate the shown portfolio using multiple flexibility criteria
– Tests will be predefined and well understood by all parties
– Conceptually similar to the current process for Local RA

Framework results in a product that will meet CAISO's flexibility needs with only minimal changes to the interim product

# Application of the framework results in a simple product that will meet multiple flexibility requirements

| Bilateral Product | | Multi-Dimensional Test |
|---|---|---|
| 10,000 MW 3 Hour Ramp | ···· | 2,000 MW 15 Minute Ramp |
| | | 4,000 MW 1 Hour Ramp |
| | | Other Tests |

**In this example:**

1. LSE's will procure and show a single portfolio that meets a *10,000 MW of 3 hour ramp EFC* requirement.

2. CAISO will test the shown portfolio to see if it has the capability to meet 2,000 MW of 15-minute ramp, 4,000 MW of 1 hour ramp, etc.

3. Deficiencies are cured by additional LSE showing/procurement and/or ISO backstop procurement

    1. Details of cure process are TBD, but, conceptually similar to the cure process for Local RA effectiveness deficiencies

# SCE designed an analysis to verify the 3 hour product will reliably pass the multi-dimensional test

Framework Analysis Methodology*

1. Create generation portfolios that satisfy the 3 hour ramping product

2. Test the generation portfolios against the multi-dimensional requirements "Does the flexible RA portfolio meet the largest 15-minute ramp, 1 hour ramp, etc."

3. Determine how often a portfolio that satisfies the 3 hour ramping requirement will pass the multi-dimensional test:

- Test will **always pass** regardless of generation portfolio selected

- Test is **expected to pass**, but could not be with specific portfolios

- Test is **not expected to pass**, but could be with specific portfolios

- Test could **never pass** with a portfolio that met the product definition

*Assumptions: Generation fleet and System Needs from 2014 LTPP; Product definitions the same as the interim solution; Test requirements developed in a similar manner as the interim solution

# 3 Hour Product in the 2024 Trajectory LTPP Case
## 2024 Net Load and Generation Fleet

| Test Metrics | Month of Year | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 5 Minute Ramp | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 |
| 15 Minute Ramp | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 |
| 30 Minute Ramp | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 |
| 1 Hour Ramp | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 |
| 2 Hour Ramp | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 |
| 3 Hour Ramp (Once a Day) | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 |
| 3 Hour Ramp (Twice a Day)* | 🟨 | 🟩 | 🟩 | 🟩 | 🟩 | 🟩 | 🟨 | 🟨 | 🟩 | 🟨 | 🟩 | 🟩 |

🟩  Test will **always pass** regardless of generation portfolio selected

🟨  Test is **expected to pass**, but could not be with specific portfolios

🟧  Test is **not expected to pass**, but could be with specific portfolios

🟥  Test could **never pass** with a portfolio that met the product definition

*Maintaining the three separate categories from the interim solution (Base, Peak, Super Peak Ramping) will guarantee the twice a day, 3 hour ramp, test always passes

## Forcing resources to economically bid instead of self schedule will not resolve the over-generation problem or prevent negative prices

There are multiple reasons generation self schedules that will not be fixed by requiring economic bids through a must offer obligation (MOO).

*Environmental Limitations*                              *SIBR Rules*

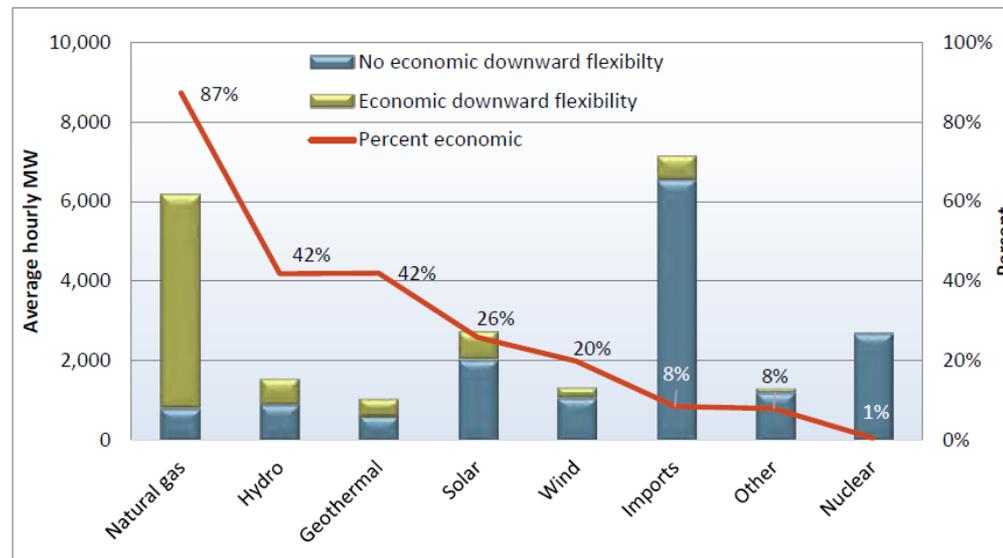*Limitations of a 24 Hour Optimization*              *Contract Limitations*

*Possibly Many More*

1. Forcing bids will cause generators to economically bid in a way that best mimics self scheduling since drivers are not captured in CAISO's market.

2. To best mimic self scheduling, generators are likely to bid the price floor.

3. Having capacity bidding the price instead of self-scheduling does not significantly help the over-generation problem or reduce the frequency of negative prices.

➢ For these reasons, SCE recommends that there only be a single must offer obligation for all capacity that matches the current must offer obligation for generic capacity.

# The causes of self scheduling should be identified and, if needed, directly solved.

- To address self scheduling, the CAISO should identify the cause and magnitude of self schedules and then, if still a concern, work directly to resolve the issues causing resources to self-scheduling.

- SCE believes this type of analysis is possible based on studies already performed by the CAISO's Department of Market Monitoring (DMM)*:



Figure 3.16    Average hourly real-time economic bids by generation type (2015)

*see page 92 of http://www.caiso.com/Documents/2015AnnualReportonMarketIssuesandPerformance.pdf

# Summary of Durable Flexible RA Proposal

1. 3 Hour Flexible RA Product
   *Same as Interim Solution*

2. Multi-Dimension Test to Ensure Reliability
   *Conceptually the same as the Local RA process*

3. Single Must Offer Obligation for All Capacity
   *Self scheduling concerns should be studied and directly addressed*

➢ Framework results in a bilateral product that will meet CAISO's flexibility needs with only minimal changes to the interim product