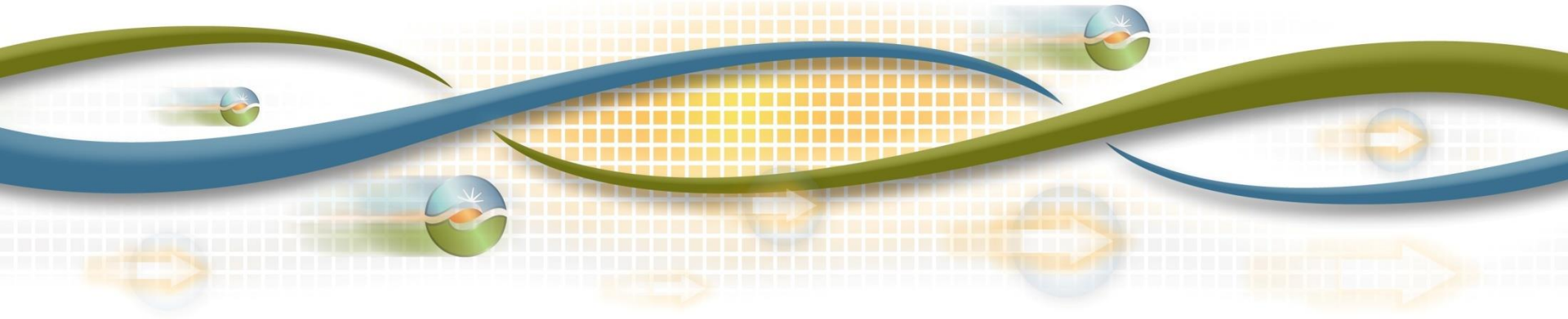# Resource Adequacy Availability Incentive Mechanism Calculation Modifications Draft Final Proposal

Karl Meeusen
Senior Advisor – Infrastructure and Regulatory Policy
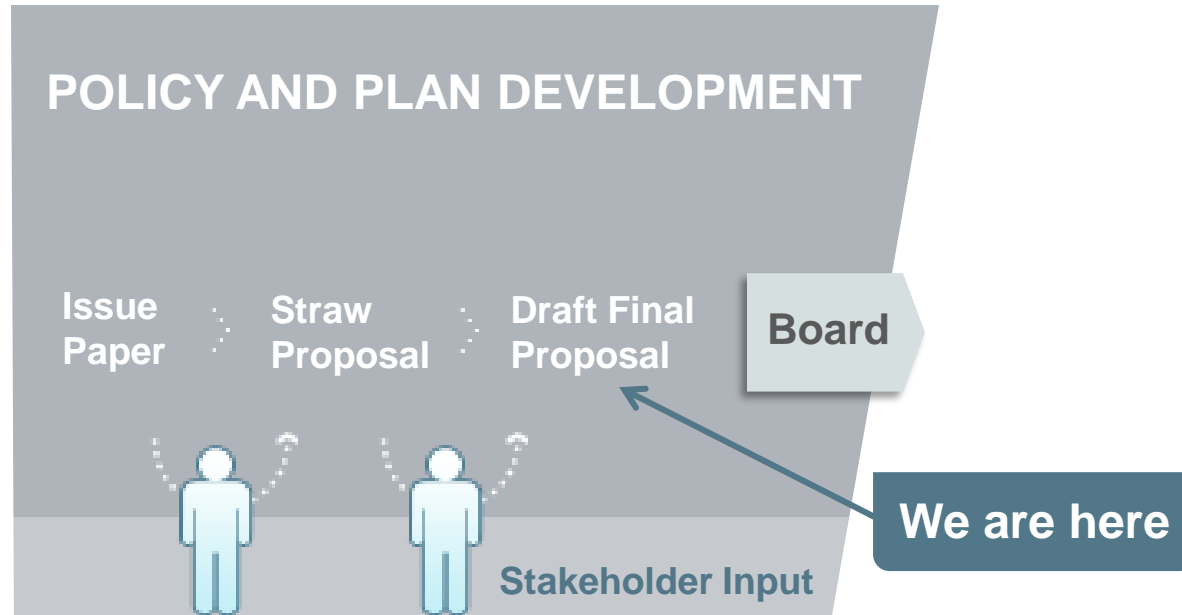
September 28, 2017

Schedule

Date	Milestone
Aug 31	Post White Paper and Spreadsheet
Sep 7	Hold Stakeholder call on White Paper
Sep 14	Stakeholder comments on White Paper due
Sep 21	Post Draft Final Proposal
Sep 28	Hold Stakeholder call on Draft Final Proposal
Oct 3	Stakeholder comments on Draft Final Proposal due
Nov 1-2	Present Proposal to Board of Governors

California ISO

ISO Policy Initiative Stakeholder Process

POLICY AND PLAN DEVELOPMENT

Issue Paper · **Straw Proposal** · **Draft Final Proposal**

Board

We are here

Stakeholder Input

The ISO has identified the need for additional prospective modifications to the RAAIM availability calculation

- The objective of RAAIM was to create an incentive to follow applicable must-offer obligations (MOOs) and provide replacement capacity when resources go on outage

- RAAIM calculation implemented based on a spreadsheet produced as part of the RSI1 Policy development
  - http://www.caiso.com/Documents/RAAIMIncentiveCalculationModel.xls

- Current calculation
  - Overweighs flexible capacity
  - Scales MW availability to capture relative availability (i.e., percentage available), but fails to reflect absolute availability (i.e., MWs available)

The ISO proposes to make three modifications to the current RAAIM calculation

1. Calculate availability as a MW value each day, and for each product, instead of MW by hour

2. Calculate availability for system RA and flexible RA separately

3. Scale RAAIM penalty and incentive based on the number of days the resource was shown for system RA and flexible RA separately, relative to how many days it could have been shown

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Some elements of the original RAAIM policy remain unchanged

- The calculations use the lesser performing, on a percentage basis, of the whole of the day-ahead or real-time

- Compliance is measured based on meeting the highest MOO

- The ISO will use the AAH for the highest quality flexible capacity for which a resource has been shown

- Same price for generic and flexible capacity

RAAIM calculation should be based on the average compliance with each MOO for the entire day

- Assess availability by calculating the performance of the resource relative to the MOO for the product, divided by the obligation to provide that product for a single day

- Multiply this percentage by the MW value that the resource was supposed to provide to meet its obligations

This calculation yields a daily availability MW value for system or flexible RA

Monthly availability is measured based on daily MW performance

- Availability percent = Sum MW performance over all days ÷ Sum MW obligation over all days

- There will be separate monthly availability percentages calculated for
    - System RA, and
    - Flexible RA capacity

California ISO

Updated proposal facilitates real-time outage replacement

- The ISO will use resource's average system RA obligation in real-time for resources that
  - Go on outage and provides replacement capacity
  - Acts as replacement capacity
- Example:
  - Resource A, with 50 MW of system, RA goes on forced outage in real-time
  - Uses Resource B to substitute for 50 MW for the last AAH,
  - Resource A's obligation = 50 MW * 4/5 or 40 MW
  - Resource B's obligation = 50 MW * 1/5 or 10 MW

Updated proposal also allows for RAAIM exempt outages

- RA resources may go on outages that may be exempt from RAAIM assessment.

- The calculation to determine the average RA obligation for each capacity type takes this into account.

- Example
  - Resource A, with 50 MW of Category 2 flexible RA, has a planned outage to be out of service that starts in the day's last AAH
  - Resource A's Category 2 flexible RA = 50 MW * 4/5 or 40 MW in day-ahead and real-time

- These outage scenarios can be tested by modifying the obligations by the hour in the Generic tab (rows 28-51) and Flex tab (rows 2-25)

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Example 1: Daily calculation of separate products (example 5 in DFP)

Two-day month, one weekday and one weekend,   1 MW of system RA capacity on the weekday, and 1 MW of Category 1 flexible RA capacity on the weekend. Resource is fully out on the weekday and fully available on the weekend.

Step 1: Calculate the average RA obligation for each capacity type each day
 	
    1 MW times 5 hours divided by 5 hours for the day of system RA, or 1 MW system RA on the weekday
 	
    1 MW times 17 hours divided by 17 hours for the day flexible RA capacity, or 1 MW flexible on the weekend

Step 2: Calculate average daily compliance on each capacity type each day
 	
    0 MW times 5 hours divided by 5 hours for the day of system RA, or 0 MW system RA availability on the weekday
 	
    1 MW times 17 hours divided by 17 hours for the day flexible RA capacity, or 1 MW flexible RA availability on the weekend

Step 3: Determine monthly availability for each product
 	
    System: 0 MW of total availability divided by 1 MW of obligation equals zero percent available
 	
    Flexible: 1 MW of total availability divided by 1 MW of obligation equals 100 percent available

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Example 2: Daily calculation of separate products and different quantities (example 7 in DFP)

One day month, weekday.

2 MW of system RA capacity and 1 MW of Category 1 flexible RA capacity. Resource is fully on line, but self-schedules the entire day (i.e., not compliant with flexible capacity MOO to bid economically).

Step 1: Calculate the average RA obligation for each capacity type.

> **1 MW times 5 hours divided by 5 hours for the quantity of system RA that is beyond the flexible RA, or 1 MW system RA.**

> **1 MW times 17 hours divided by 17 hours for flexible RA capacity, or 1 MW flexible RA capacity.**

Step 2: Calculate average daily compliance on each day for each product.

> **1 MW times 5 hours divided by 5 hours for the quantity of system RA availability that is beyond the flexible RA, or 1 MW of system RA availability.**

> **0 MW times 17 hours divided by 17 hours for flexible RA capacity, or 0 MW flexible RA availability.**

Step 3: Determine monthly availability percentage for each product

> **System: 1 MW of total availability divided by 1 MW of obligation equals 100 percent available.**

> **Flexible: 0 MW of total availability divided by 1 MW of obligation equals zero percent available.**

Next steps

- Stakeholder comments due 10/3
  - Submit all comments to InitiativeComments@caiso.com
    - The ISO will not issue a comments template

- Board of Governors November 1, 2017