Commitment Cost Enhancements Phase 3 Pre-Market Sim Training

Cynthia Hinman

California ISO

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Goals of the CCE3 initiative:

1. Redefine the criteria for Use-Limited Resources
2. Implement a methodology to allow eligible Use-Limited resources to include opportunity cost adders in their commitment costs and default energy bid costs
3. Clarify the Use Limit Plan submission for Resource Adequacy resources
4. Subject Resource Adequacy resources with Use Limit Reached outages to a substitution requirement in future months
5. Exempt Resource Adequacy resources with short-term Use Limit Reached outages from substitution requirement.

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What is the goal of the market sim?

- <u>Functional testing</u> of the following:
  - Data flow of opportunity cost adders
  - New SIBR bid validation rules (including new bid cap formulation)
  - New CMRI reports
  - New substitution requirement and RAAIM exemption rules for outage cards

Pre-requisites for participation in market sim

- – Submission of ULPDTs for up to five resources per SC in MAP Stage by 9/5
  - • All ULPDTs were accepted for Market Sim
- – The CAISO has set "Use Limit" flags to "Y" in MAP Stage Master File to all current Use-Limited Resources

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MARKET SIMULATION SCENARIOS

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Stakeholder Timeline for CCE3 Structured Scenarios

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9/17-9/21: Run Opportunity Cost Calculator for October 2018

SCs

9/25: Confirm CMRI reports are available:
1. Actual Limitation Values Report
2. Resource Opportunity Cost Report

9/26-10/5: Submit forced outages and verify RAAIM exemptions in CIRA
9/30-10/5: Submit SIBR bids for October trade dates to verify Commitment Cost bid cap validation functionality

9/5: Deadline to Submit ULPDTs in MAP Stage***

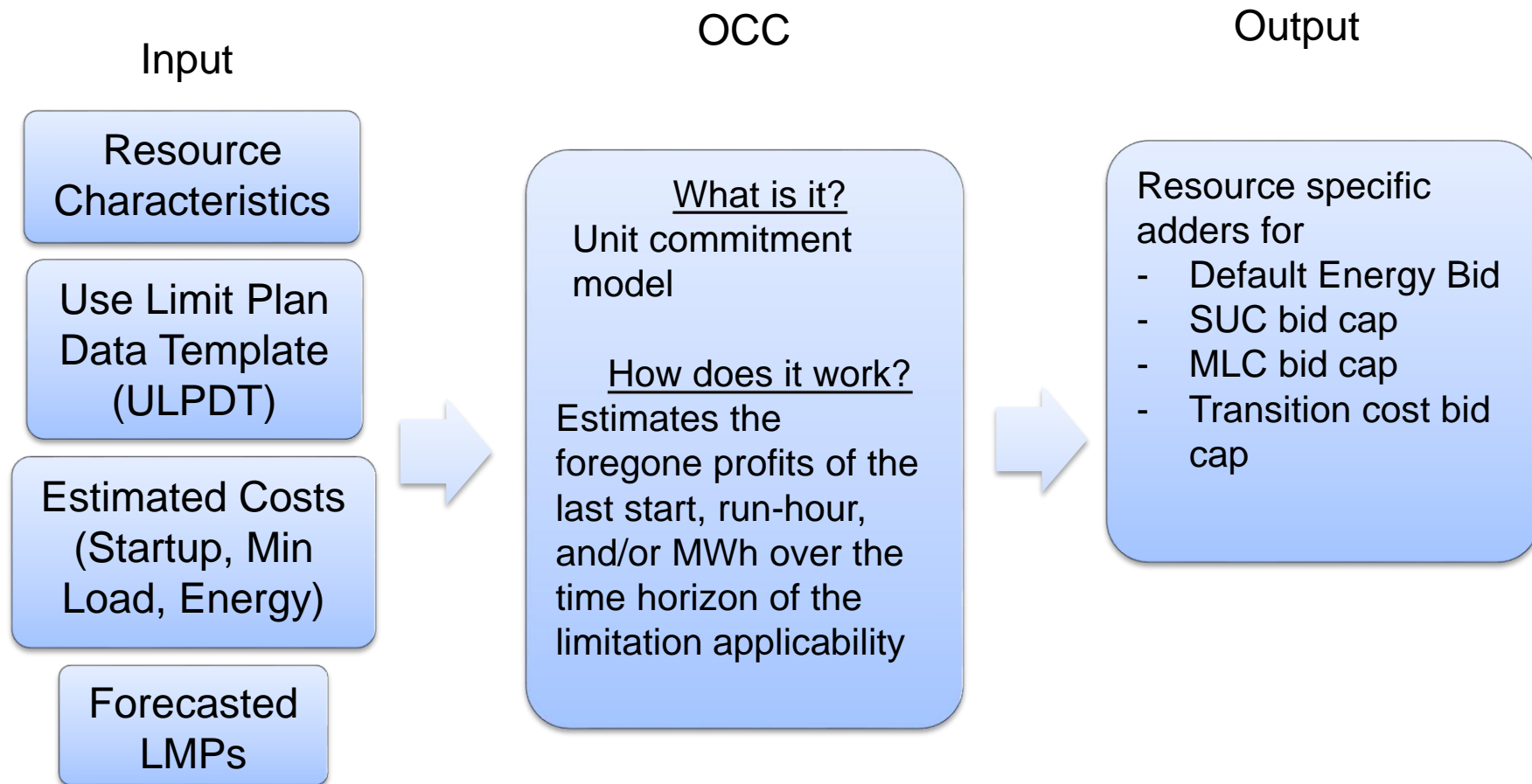**4/1**: Production Activation- subject to FERC filing

Sep 2018 ••••• Oct 2018 •••• Apr 2019

***ULPDTs for up to five resource per SC submitted into MAP Stage will be automatically accepted for Market Simulation purposes only. SCs should continue to participate in the standard Use Limit Registration process to ensure validation of actual Use Limitations prior to Production Activation. SCs can modify production implied starts in GRDT in Map Stage to test the Opportunity Cost Calculation for the specific type of MSG limitation (Section 4 of Use Limited Resource Guidebook).

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Overview of Opportunity Cost Calculator (OCC)

Input

- Resource Characteristics
- Use Limit Plan Data Template (ULPDT)
- Estimated Costs (Startup, Min Load, Energy)
- Forecasted LMPs

OCC

<u>What is it?</u>
Unit commitment model

<u>How does it work?</u>
Estimates the foregone profits of the last start, run-hour, and/or MWh over the time horizon of the limitation applicability

Output

Resource specific adders for
- Default Energy Bid
- SUC bid cap
- MLC bid cap
- Transition cost bid cap

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Applicable Changes to BPMs

- Market Instruments – Opportunity Cost Calculation methodology in Attachment N: http://www.caiso.com/Documents/Market_Instruments_AttachmentN-Opportunity_Cost_Calculation_for_Use-Limited_Resources.pdf

Scenario 1 – Opportunity Cost Adders to CMRI and SIBR

- Functional testing of the data flow of new Opportunity Cost Adders
- ISO Actions by September 25
  - Publish limitation usage values to the Actual Limitation Values report in MAP Stage CMRI.
  - Publish monthly opportunity cost adders to Resource Opportunity Costs report in MAP Stage CMRI for the month of October 2018.

CMRI Report – Actual Limitation Values

Available in MAP Stage CMRI by 9/25

- Actual market starts, run-hours, or energy output values incurred within the limitation granularity to account for the remaining limitation availability

SC ID	Resource	Actual Output [MWH]	Actual Run Hours [Hours]	Actual Start ups [Count]	Start Date Time	End Date Time
		2,900.80	225.00	73.00	04/01/2018 00:00	05/01/2018 00:00
		1,790.13	124.00	486.00	04/01/2018 00:00	05/01/2018 00:00
		2.366.00	117.00	342.00	04/01/2018 00:00	05/01/2018 00:00

Actual Limitation Values – example April 2018 month
See appendix for specific CMRI query instructions

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CMRI Report – Actual Limitation Value

Available in MAP Stage CMRI by 9/25

- For example, if a resource has registered a start limitation and has 300 starts per year and has incurred 100 market starts for January to April the report will show these starts.

- The Opportunity Cost calculation for the months of May-December will consider that only 200 starts are available for the remainder of the year: 300 starts minus 100 starts used.

CMRI Report – Monthly Resource Opportunity Costs Adders

Available in MAP Stage CMRI by 9/25

Resource Opportunity Costs – "Monthly" - available prior to month-ahead, example August 2018 month
See appendix for specific CMRI query instructions

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Scenario 1 – Opportunity Cost Adders to CMRI and SIBR – ISO Actions

- ISO Actions from October 1 to 5
  - Calculate default energy bid under variable cost option which includes opportunity cost adder for ULPDT submissions with use limit type of energy.
  - Publish default energy bid curves report and Daily Resource Opportunity Cost report in Map Stage CMRI
  - SIBR will incorporate commitment cost opportunity cost adder for commitment cost bid validation.

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CMRI Report – Daily Resource Opportunity Cost Adders

Available in MAP Stage CMRI by 9/30

Resource Opportunity Costs

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SC ID	Resource	Configuration	Granularity	Market	Adder Type	Opportunity Cost Type	Start Trade Date	End Trade Date	Opportunity Cost [$]	From Configuration	To Configuration
			DAILY	RTM	ENERGY	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	4.27		
			DAILY	RTM	RUNHOURS	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	29.83		
			DAILY	RTM	START	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	133.27		

Resource Opportunity Costs

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SC ID	Resource	Configuration	Granularity	Market	Adder Type	Opportunity Cost Type	Start Trade Date	End Trade Date	Opportunity Cost [$]	From Configuration	To Configuration
			DAILY	RTM	START	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	2,360.69		
			DAILY	RTM	ENERGY	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	15.30		
			DAILY	RTM	RUNHOURS	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	715.95		
			DAILY	RTM	START	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	2,360.69		
			DAILY	RTM	TRANSITION	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	0.00		
			DAILY	RTM	TRANSITION	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	0.00		
			DAILY	RTM	TRANSITION	CALCULATED	07/10/2018 00:00	07/10/2018 23:59	1,180.35		

Resource Opportunity Costs – "Daily" - covers Trade Date / Market (DAM/RTM), example TD 7/10

Opportunity Cost Adders sent to SIBR daily

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Scenario 1 – Opportunity Cost Adders to CMRI and SIBR - Market Participant Actions

- Market Participant Actions starting September 25
  - Review Actual Limitation Values report in MAP Stage CMRI.
  - Review Monthly Resource Opportunity Costs report in Map Stage CMRI for the month of October 2018.

Scenario 1 – Opportunity Cost Adders to CMRI and SIBR – Market Participant Actions

- Market Participant Actions from October 1 to 5
  - Review Daily Resource Opportunity Costs report in Map Stage CMRI
  - Submit bids in SIBR day-ahead and real-time market bidding windows to test that the commitment cost bids are being validated against a maximum allowable value that includes the applicable opportunity cost adders.
  - OCC-BRQ5632

  Maximum Allowable SUC/TC/MLC =

  (125% * Proxy existing) + OC SUC/TC/MLC

Scenario 1 – Opportunity Cost Adders to CMRI and SIBR – Market Participant Actions

- Market Participant Actions from October 1 to 5
  - Market participants can submit bids as follows to test:
    - Bid resource or MSG with commitment costs between the values shown in the Default Commitment Costs CMRI report and the expected value for maximum allowable commitment cost to test appropriate validation of bids.
    - Bid resource or MSG with commitment costs above the maximum allowable value for commitment cost. The system will cap the commitment cost bid to the maximum allowable value.

Scenario 2 – Test Nature of Work Attributes

- Test RAAIM exemptions due to outage cards with the following Natures of Work:

    1. Annual Use Limit Reached

    2. Other Use Limit Reached

    3. Monthly Use Limit Reached

    4. Short Term Use Limit Reached

- "Annual" and "Other" cards will provide exemption from RAAIM
        for the <u>entire month</u> of the outage
- "Monthly" outage cards will provide exemption from RAAIM
        for the <u>remainder of the month</u> of the outage
- "Short Term" cards will provide exemption from RAAIM
        for the <u>duration</u> of the outage

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Scenario 2 – Test Nature of Work Attributes

- By Sep 15th, Market Participants should…
  - Validate monthly RA showings, including resources with Use Limitations, for Sep and Oct 2018
  - ISO will copy RA production data into MAP Stage
- Between Sep 26th and Oct 5th, Market Participants should…
  - Submit forced outage(s) with the four Natures of Work for Use Limitations

Submit only forced outages

(planned outage cards do not provide RAAIM exemptions)

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Scenario 2 – Test Nature of Work Attributes for RA

Expected Outcomes:

- Participants verify the accuracy of exempt MW quantities in CIRA, which are shown on the RAAIM pre-calculation screen:

RAAIM Calculations Details

Run ID 25152932820   Resource ID

Date From 09/06/2018   Date To 09/06/2018

📄 View   ↩ Reset

Resource	Outage Info	Run	Market	Date	Pre-Calc Values	HE01	HE02	HE03	HE04	HE05
	View Outages	25152932820	RTM	09/06/2018	Flex Use Limit	0	0	0	0	0
	View Outages	25152932820	RTM	09/06/2018	Flex Non Use Limit	50	50	50	50	50
	View Outages	25152932820	RTM	09/06/2018	Gen RA	16.5	16.5	16.5	16.5	16.5
	View Outages	25152932820	RTM	09/06/2018	Gen CPM RA	0	0	0	0	0
	View Outages	25152932820	RTM	09/06/2018	Flex RA	0	0	0	0	0
	View Outages	25152932820	RTM	09/06/2018	Flex CPM RA	0	0	0	0	0
	View Outages	25152932820	RTM	09/06/2018	Gen Exempt	0.52	0.52	0.52	0.52	0.52
	View Outages	25152932820	RTM	09/06/2018	Gen Use Limit	0	0	0	0	0
	View Outages	25152932820	RTM	09/06/2018	Gen Non Use Limit	0.52	0.52	0.52	0.52	0.52
	View Outages	25152932820	RTM	09/06/2018	Flex Exempt	0.52	0.52	0.52	0.52	0.52
	View Outages	25152932820	RTM	09/06/2018	Flex Use Limit	0	0	0	0	0
	View Outages	25152932820	RTM	09/06/2018	Flex Non Use Limit	0.52	0.52	0.52	0.52	0.52

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Market Simulation Issue Management

- Submit all issues to the CIDI case management system
- CIDI tickets must have "**Functional Environment**" = "**Market Simulation Fall 2018**" to be reviewed by ISO subject matter experts.

Questions?

Appendix

CMRI Query Instructions

CMRI queries for data must be entered in a specific way (descriptions below) for data to be returned.

Actual Limitation Values

- API query and DocAttach API query must be for Start Date: MM/01/YYYY End Date: MM+1/1/YYYY. Mid-month queries will not return data.
  - Example
    - Input Start date as 6/1/2018 and End date as 7/1/2018 **Data is returned.**
    - Input Start date as 6/1/2018 and End date as 6/02/2018 **Data is not returned.**
    - Input Start date as 6/1/2018 and End date as 6/30/2018 **Data is not returned.**

- UI query must be MM/01/YYYY. Mid-month queries will not return data.
  - Example
    - Input Start date as 6/1/2018. **Data is returned.**
    - Input Start date as 6/8/2018. **Data is not returned.**

Resource Opportunity Costs

- API query and DocAttach API query must be for Start Date: MM/01/YYYY End Date: MM+1/1/YYYY. Mid-month queries will not return data.
  - Example
    - Input Start date as 6/1/2018 and End date as 7/1/2018 **Data is returned.**
    - Input Start date as 6/1/2018 and End date as 6/02/2018 **Data is not returned.**
    - Input Start date as 6/1/2018 and End date as 6/30/2018 **Data is not returned.**

- UI query for monthly data must be MM/01/YYYY. Mid-month queries will not return data.
  - Example
    - Input Start date as 6/1/2018. **Data is returned.**
    - Input Start date as 6/8/2018. **Data is not returned.**

- Note: UI query for daily data works as expected