



Review of Reliability Must-Run and Capacity Procurement Mechanism

**Stakeholder Meeting
July 11, 2018**

Keith Johnson
Infrastructure & Regulatory Policy Manager

Agenda

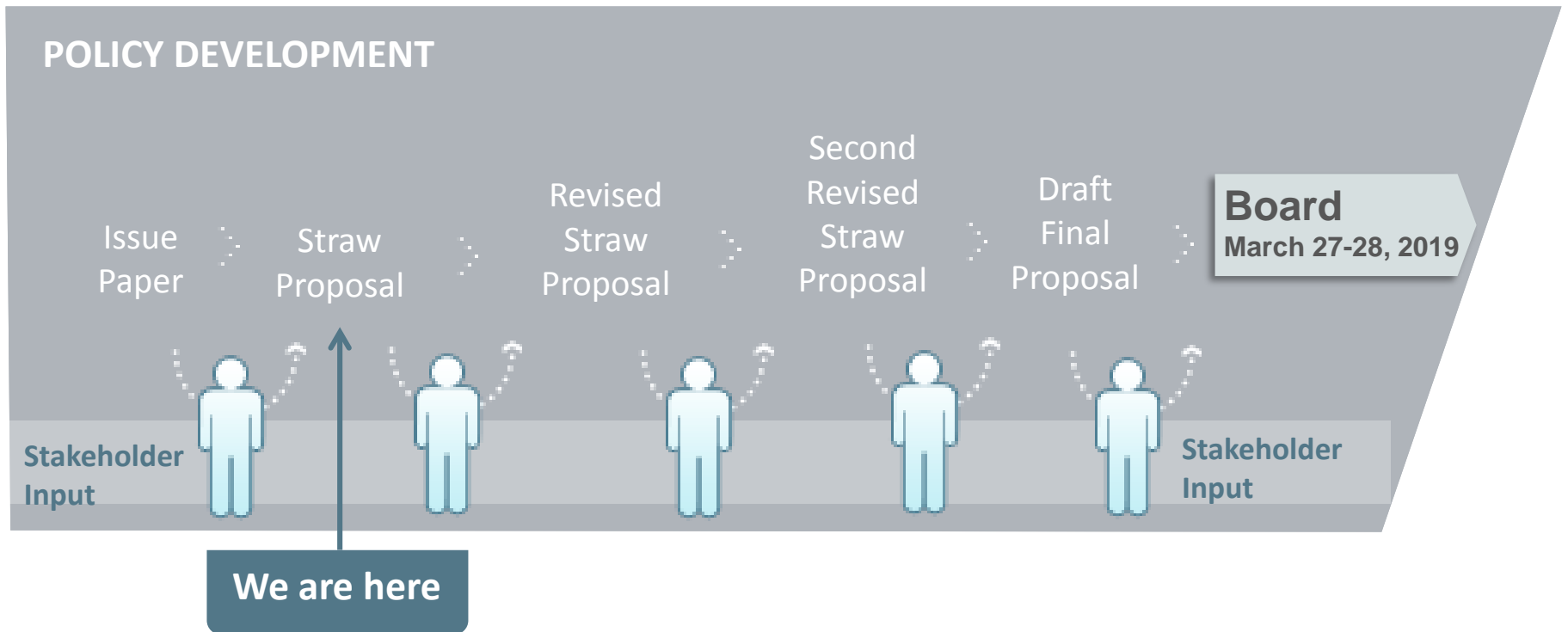
Time	Item	Speaker
10:00-10:10	Introduction and stakeholder process	Jody Cross
10:10-10:25	Scope of initiative	Keith Johnson
10:25-10:40	Notifying stakeholders of planned resource retirements	Keith Johnson
10:40-11:00	Lower banking costs for RMR invoicing	Chhanna Hasegawa
11:00-12:00	Use of RMR and CPM backstop procurement	Keith Johnson
12:00-1:00	Lunch break	(on your own)
1:00-1:20	Develop interim pro forma RMR agreement	Sidney Mannheim
1:20-1:45	Update certain terms of pro forma RMR agreement	Riddhi Ray
1:45-2:10	Update allowed rate of return for RMR	Gabe Murtaugh
2:10-2:35	Make RMR resources subject to a MOO	Keith Johnson
2:35-2:55	Make RMR resources subject to RAAIM	Keith Johnson
2:55-3:15	Allocate flexible RA credits from RMR designations	Keith Johnson
3:15-3:35	Evaluate year-ahead CPM cost allocation and credits	Gabe Murtaugh
3:35-3:55	Evaluate if LSEs using CPM for primary procurement	Keith Johnson
3:55-4:00	Next steps	Jody Cross

INTRODUCTION AND STAKEHOLDER PROCESS

Jody Cross

Stakeholder Engagement & Policy Specialist

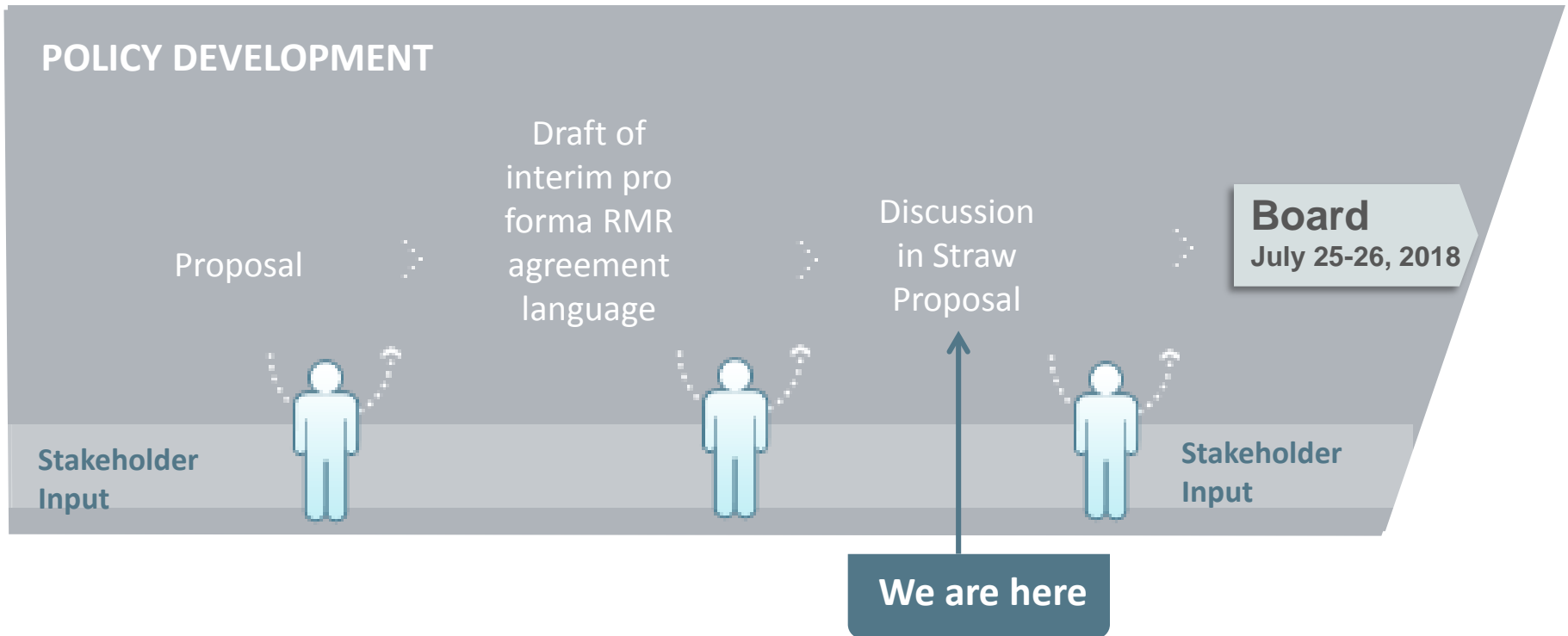
Stakeholder process for items going to March 2019 Board meeting



Schedule for items going to March 2019 Board meeting

Stage	Date	Milestone
Milestones prior to May 30	Nov 2, 2017	ISO commits to undertake review of RMR and CPM
	Jan 2, 2018	Issue market notice announcing this initiative
	Jan 23	Post issue paper and straw proposal for two items
	Jan 30	Hold stakeholder meeting
	Feb 20	Stakeholder written comments due
	Mar 13	Post draft final proposal for two items
	Mar 20	Hold stakeholder meeting
	Apr 10	Stakeholder written comments due
Straw proposal	May 30	Hold working group meeting
	Jun 26	Post straw proposal
	Jul 11	Hold stakeholder meeting
Revised straw proposal	Aug 7	Stakeholder written comments due
	Aug 27	Hold working group meeting
	Sep 19	Post revised straw proposal
	Sep 27	Hold stakeholder meeting
	Oct 23	Stakeholder written comments due
Second revised straw proposal	Nov 1	Hold working group meeting
	Nov 19	Post second revised straw proposal
	Nov 26	Hold stakeholder meeting
	Dec 21	Stakeholder written comments due
Draft final proposal	Jan 23, 2019	Post draft final proposal
	Jan 30	Hold stakeholder meeting
	Feb 22	Stakeholder written comments due
Final proposal	Mar 27-28	Present proposal to Board of Governors

Stakeholder Process for one item going to July 2019 Board meeting (interim pro forma RMR agreement)



Schedule for one item going to July 2018 Board meeting (interim pro forma RMR agreement)

Stage	Date	Milestone
Proposal	May 30, 2018	Provide proposal in presentation at RMR/CPM working group meeting
	Jun 12	Post draft of interim pro forma RMR agreement language
	Jun 25	Stakeholder written comments due on draft agreement language
	Jun 26	Post straw proposal for Review of RMR and CPM initiative
	Jul 10	Hold stakeholder call on draft agreement language
	Jul 11	Hold stakeholder meeting for Review of RMR and CPM initiative
Final proposal	Jul 25-26	Present interim pro forma RMR agreement proposal to Board of Governors

List of acronyms/abbreviations used in this presentation

AS	Ancillary Services
BPM	Business Practice Manual
CCA	Community Choice Aggregator
CEC	California Energy Commission
CPM	Capacity procurement mechanism
CPUC	California Public Utilities Commission
DAM	Day-Ahead Market
DMM	Department of Market Monitoring
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
ISO	California Independent System Operator Corporation
LAR	Local area requirement
LCR	Local capacity requirements
LSE	Load serving entity
MMA	Major maintenance adder
MOO	Must-offer obligation
OAL	Office of Administrative Law of State of California
OTC	Once-through cooling
PRR	Proposed Revision Request
PTO	Participating Transmission Owner
RA	Resource Adequacy
RAAIM	Resource Adequacy Availability Incentive Mechanism
RMR	Reliability Must-Run
ROR	Risk of retirement
RTM	Real-Time Market
RUC	Residual Unit Commitment
SC	Scheduling Coordinator
TAC	Transmission Access Charge

SCOPE OF INITIATIVE

Keith Johnson

Infrastructure & Regulatory Policy Manager

The scope items that are common to or have an overlap between RMR and CPM are listed below

- Provide notification to stakeholders when a resource informs the ISO it is retiring
- Clarify when RMR procurement is used versus CPM procurement
- Explore whether ROR CPM and RMR procurement can be merged into one procurement mechanism
- Evaluate compensation paid for RMR and CPM services

The scope items specific only to RMR provisions or processes are listed below

- Develop interim RMR agreement to allow for termination and re-designation when replacement RMR agreement is adopted
- Update certain terms of pro forma RMR agreement
- Update allowed rate of return for RMR compensation
- Make RMR resources subject to a MOO
- Make RMR resources subject to RAAIM
- Consider whether Condition 1 and 2 options are needed for RMR
- Ensure RMR designation authority includes system and flexible needs
- Allocate flexible RA credits from RMR designations
- Lower banking costs associated with RMR invoicing
- Streamline and automate RMR settlement process

The scope items specific only to the CPM tariff are listed below

- Evaluate year-ahead CPM local collective deficiency procurement cost allocation and credits to address load migration
- Evaluate if LSEs are using CPM for their primary capacity procurement

NOTIFYING STAKEHOLDERS OF PLANNED RESOURCE RETIREMENTS

Keith Johnson

Infrastructure & Regulatory Policy Manager

The ISO will now notify stakeholders when it receives a notice that a resource plans to retire

- Early in this initiative stakeholders asked the ISO to create this new policy to provide an early heads up of potential ISO backstop procurement designations
- ISO agreed with this request to increase transparency
- ISO developed new policy through a change to the Generator Management BPM that became effective on July 5

The new policy is summarized below

- If a resource owner sends a notice to the ISO that qualifies under this policy the information will not be considered confidential
- New policy applies if owner states it intends to retire or mothball its resource (make unavailable on a permanent or long-term basis)

The new policy (continued)

- A spreadsheet report is posted under Planning tab on Reliability Requirement page of ISO's website
- Report is updated if ISO receives a notification from an owner and ISO will assess the requested status
- Stakeholders should check website regularly
- For more information see
 - BPM PRR 1056 at <http://www.caiso.com/Documents/Presentation-BusinessPracticeManualChangeManagementMay222018.pdf>
 - Reliability Requirements page at <http://www.caiso.com/planning/Pages/ReliabilityRequirements/Default.aspx>

LOWER BANKING COSTS FOR RMR INVOICING

Chhanna Hasegawa

Lead Corporate & Market Accountant

The proposed new process will result in efficient RMR invoice clearing

- **Current process**
 - Requires minimum of two bank accounts for each RMR agreement (more if multi-party)
 - RMR accounts have zero balances at all times since disbursements are made same day as receipt of payments
- **Proposed process**
 - Use current market clearing bank account to receive and disburse RMR funds
 - RMR funds will still be tracked individually
 - Invoices/payment advices are cleared on specified due dates

Proposed new process (continued)

- Advantages of using market clearing bank account
 - Reduces costs - By using only one bank account instead of multiple accounts (ISO pays fixed fees to maintain each RMR account)
 - Minimizes potential bank fraud - By using only one account as opposed to multiple accounts
 - Reduces administrative burden - Each RMR account has to be monitored, reconciled and verified
 - Eliminates confusion - RMR participants do not have to choose from a list of bank accounts when submitting payments

USE OF RMR AND CPM BACKSTOP PROCUREMENT

Keith Johnson

Infrastructure & Regulatory Policy Manager

Introduction

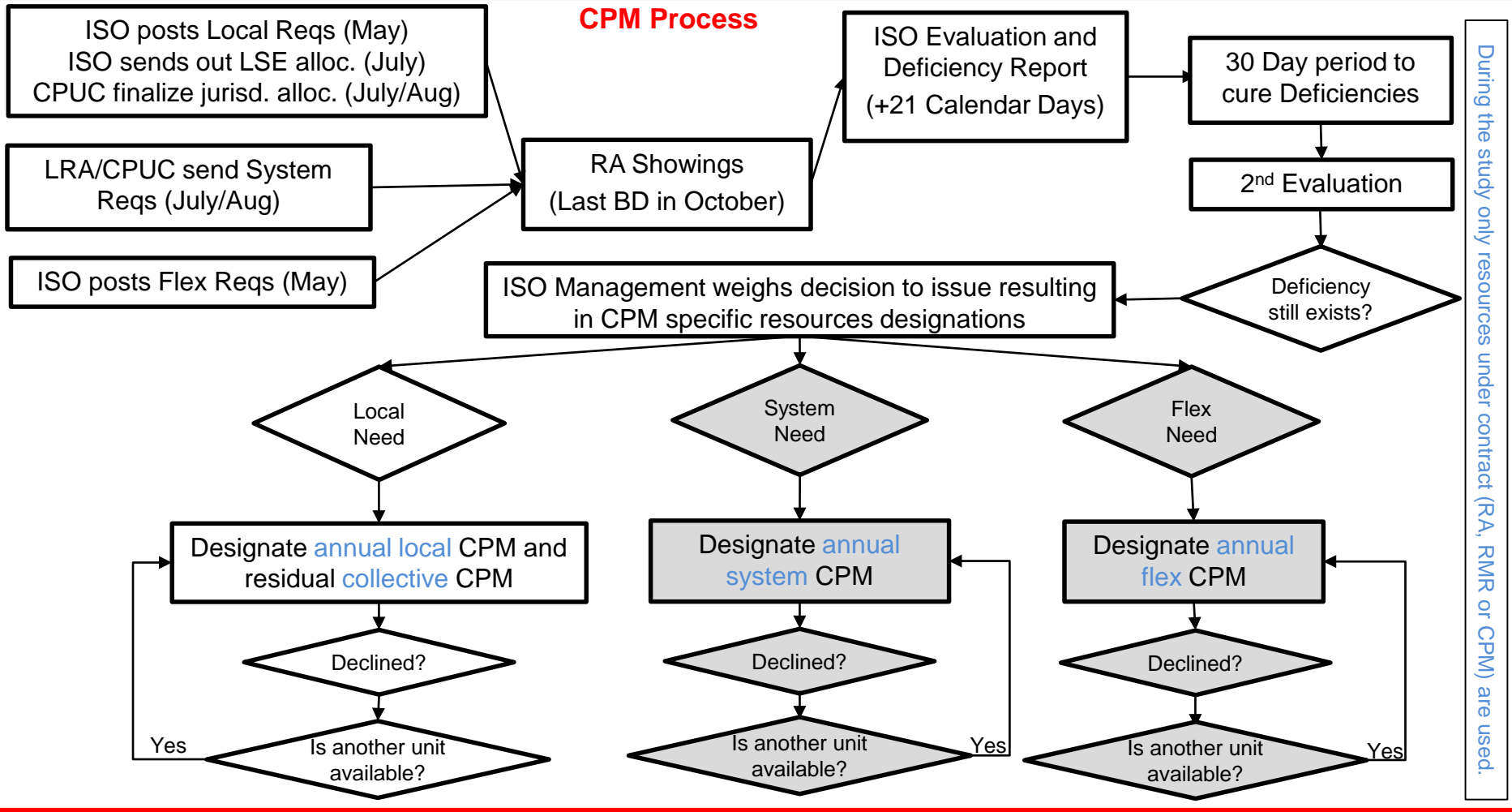
- ISO can implement many of the proposals discussed in this section pursuant to existing authority
- ISO is not proposing significant changes to overall RMR and CPM construct as ISO believes the two existing procurement mechanisms work well together and function as intended
- ISO proposes some changes to certain features of RMR and CPM as described herein

The scope items that are addressed in this section are listed below

- Clarify when RMR versus CPM procurement is used
- Explore whether ROR CPM and RMR can be merged
- Change pricing formula for resources that file at FERC for a CPM price above the CPM soft-offer cap price
- Consider whether Condition 1 and 2 options are needed for RMR resources
- Ensure RMR designation authority includes system and flexible needs

CPM and RMR Backstop Procurement Processes

CPM Process



During the study only resources under contract (RA, RMR or CPM) are used.

RMR Process



There are different uses of and compensation for RMR and CPM services – and rightly so

- All RMR and CPM resources will have a MOO
- All RMR and CPM resources will be subject to RAAIM
- CPM will be used to backstop the RA program
- CPM compensation will be based on bids submitted into the CPM auction, or GFFCs if a bid is not submitted into the auction, as CPM procurement is voluntary, shorter-term procurement
- RMR will be used to address resource retirements and special reliability needs (such as voltage support and flexible needs)
- RMR compensation will be based on cost of service, as RMR procurement is mandatory, longer-term procurement

How the proposal addresses CPM concerns

- Will change CPM compensation methodology where resource can file for compensation based on GFFCs of its unit using same cost categories and 20% cost adder used for CPM reference unit and keep market revenues
- Will delete from ROR CPM tariff existing authority to designate a resource needed for “year two” with a bridge in year one and add that same authority to the ISO’s RMR tariff to allow consideration of need for years two or three

RMR elements of proposal

- Will update allowed rate of return
- Will clarify authority to designate for system or flexible needs
- Default will be a cost of service agreement with a MOO where resource will have all of its cost of service paid and must credit back market revenues earned above its cost of service
 - At ISO's discretion resource may negotiate an agreement where resource is not paid all of its cost of service and may keep market revenues earned above its cost of service
- If resource wants to consider an RMR designation, it must submit a retirement letter

DEVELOP INTERIM PRO FORMA RMR AGREEMENT

Sidney Mannheim

Assistant General Counsel - Tariff

The ISO proposes to file this summer a limited, interim version of the pro forma RMR agreement

- Current RMR agreement
 - Allows ISO to extend term of agreement by giving notice no later than October 1 (2.1(b))
 - Limits ISO's right to re-designate an RMR unit in event ISO terminates or does not extend RMR agreement
 - ISO may not re-designate during the one-year period following termination (2.2(d))
 - Except under limited circumstances

Interim agreement (continued)

- Proposed interim version of pro forma RMR agreement
 - ISO to have right to terminate RMR agreement once FERC accepts new pro forma RMR agreement
 - ISO has right to re-designate RMR units (and other units at same facility) under the new pro forma agreement
- Purpose of the interim version
 - ISO is extending RMR stakeholder process to consider more issues holistically
 - Interim version puts resource owners on notice of potential changes

UPDATE CERTAIN TERMS OF PRO FORMA RMR AGREEMENT

Riddhi Ray

Contracts Negotiator

ISO proposes several revisions to the pro forma RMR agreement

- Remove AS bid insufficiency test and revise dispatch provisions to align with current market design
- Update Schedule M and Schedule C to include GHG compliance cost calculation, DAM and RTM gas price index, and updated SC charge calculation
- Update Schedule M to be consistent with bidding rules in ISO tariff and BPM
- Seek input on defining a heat rate curve formula in Schedule C for multi-stage generator resources

It is appropriate to remove AS bid insufficiency test and revise dispatch provisions

- Original pro forma limited ISO's ability to dispatch RMR resources - designed when no market power mitigation or capacity procurement requirement existed
- Current RA obligations and other market rules ensure sufficient capacity available in market for optimization
- These mechanisms and RMR resources with RA-type MOO for energy and AS in place make a bid insufficiency limitation anachronistic
- For manual RMR AS dispatches reliability needs not met by market even with RA AS MOO

Schedule M and Schedule C should be updated to reflect the current market design

- Currently contain archaic provisions such as antiquated gas price indices, an out-of-date fixed SC charge, and no provisions to reflect GHG compliance cost
- ISO now has well-defined provisions for calculating GHG cost adder for bids, DAM and RTM gas price indices, and GMC-based SC charges
- Updating two schedules will not affect purpose or scope of RMR pro forma and improves operation and administration of RMR resources

Update Schedule M

- Principles and formulas for calculating mandatory energy and AS bids for Condition 2 RMR in Schedule M should be updated to be consistent with ISO tariff and Market Instruments BPM methodology for submitting cost-based bids
- Updates to Schedule M should also consider MMAs and opportunity costs

Update Schedule C

- Update Schedule C to accurately reflect all costs of operating multi-stage generator resources
- Currently does not account for different start-up options or transitions between configurations of a multi-stage generator resource

UPDATE ALLOWED RATE OF RETURN FOR RMR

Gabe Murtaugh

Senior Infrastructure & Regulatory Policy Developer

The allowed rate of return should be updated

- Current pre-tax rate of return is “hard-wired” into pro forma agreement at 12.25%
- Value has not changed in many years, despite changing economic conditions, and should be updated
- FERC has outlined a methodology for calculating these values and calculating zones of reasonableness
- Post-tax rates of return used in recent RMR agreements struck outside of ISO have been at lower than 12.25%

The ISO has identified six potential options for updating the rate of return

Potential Options for Rate of Return	
1	Leave current 12.25% rate of return in place, i.e., “no action” option
2	Determine a base rate that is allowed to float – up or down - relative to a benchmark rate
3	Have an independent expert construct a rate of return to use, which is inserted and periodically updated
4	Require market participants to propose and justify a rate of return in RMR filings
5	Use a blended rate from recent transmission projects, plus an agreed upon risk adder
6	Determine a methodology for an “in-house” calculation to determine a rate of return to use, which is periodically updated

MAKE RMR RESOURCES SUBJECT TO A MOO

Keith Johnson

Infrastructure & Regulatory Policy Manager

On March 13, 2018 the ISO posted a proposal to have RMR resources subject to a MOO

- Many stakeholders supported the ISO moving forward with its proposal
- Several stakeholders requested the ISO
 - Clarify how maintenance costs will be treated in bids
 - Consider applying RAAIM to RMR resources

The ISO proposes a MOO for RMR resources similar to the RA MOO

MOO for an RMR Resource that is paid All of its Cost of Service
and All Market Revenues earned above its Cost of Service are Clawed Back

The SC is required to submit energy and AS cost-based bids during all hours RMR resource is physically available. AS bids can be greater than \$0/MW per hour using formula in Schedule M in RMR agreement. SC credits back to PTO market revenues earned above RMR agreement costs.

If energy and AS bids are not submitted by SC up to full RMR agreement capacity, ISO will submit cost-based bids up to RMR agreement capacity, with bids generated in same way ISO currently generates RA bids when a RA resource fails to submit bids.

ISO generated energy bids will include:

- Start-up costs,
- Minimum load costs, and
- Energy costs.

ISO generated AS bids will be priced at \$0/MW per hour as is done for RA capacity (will not use formula in Schedule M of RMR agreement). Bids will be submitted for all AS services that the RMR resource is certified to provide.

There will be an obligation in RUC for the full RMR capacity at \$0.

The ISO can instruct an RMR resource to not run, such as for a reliability or environmental limitation, or if resource would exceed its service limits established in the RMR agreement.

MOO proposal (continued)

MOO for an RMR Resource that is not paid all of its Cost of Service and can participate in Market and keep All Market Revenues earned above its Cost of Service

A SC is required to submit energy and AS market-based bids during all hours RMR resource is physically available. These market bids are subject to local market power mitigation.

If energy and AS bids are not submitted by SC up to full RMR agreement capacity, ISO will submit cost-based bids in the same manner as shown on the previous slide

ISO can instruct RMR resource to not run, such as for a reliability or environmental limitation, or if resource would exceed its service limits established in the RMR agreement.

The following elements may be included in RMR bids

- MMAs and opportunity costs, if applicable, should be reflected in bids to ensure the true cost of operation is considered in market decisions
 - DMM currently reviews and approves all MMAs and opportunity costs
 - Expect DMM would approve MMAs and opportunity costs at same time as RMR agreement process
 - Will not allow any double recovery of costs for RMR resources
- Will be eligible for bid cost recovery payments when market earnings are insufficient to cover costs
 - Any market revenues earned in excess of variable costs to operate RMR resource will be clawed back
 - Will prevent double payment for major maintenance and opportunity costs

MAKE RMR RESOURCES SUBJECT TO RAAIM

Keith Johnson

Infrastructure & Regulatory Policy Manager

The ISO's straw proposal for resource performance incentives is shown below

- All RMR resources will be subject to RAAIM, with the details to be worked out
- Will determine if any of the current RMR resource performance incentive provisions stay along with the applicability of RAAIM
- Could establish that RMR resources have a greater performance obligation than RA or CPM capacity
- Considering having RMR resources only be subject to RAAIM

The current incentives are contained in Article 8 of Appendix G of the pro forma RMR agreement

- Section 8.5 – a financial penalty is calculated for each hour of penalty period in which an RMR resource is not deemed to be in full compliance with a dispatch notice and is not excused from performance
- Section 8.6 - Long-term Planned Outage financial adjustment will be made if an RMR resource exceeds historical availability metric established for that RMR agreement year

ALLOCATE FLEXIBLE RA CREDITS FROM RMR DESIGNATIONS

Keith Johnson

Infrastructure & Regulatory Policy Manager

The ISO's straw proposal is shown below

- The ISO supports allocating flexible RA credits from RMR resources
- Seeks stakeholder input on any conditions that might need to be established
 - Resource must meet performance requirements
 - Resource must agree to fulfill operating requirements
- Propose to take RMR capacity procured under RMR agreement off of the top of the RA flexible requirement

EVALUATE YEAR-AHEAD CPM COST ALLOCATION AND CREDITS

Gabe Murtaugh

Senior Infrastructure & Regulatory Policy Developer

Stakeholders have asked the ISO to review annual CPM cost allocation and load migration

- Costs and credits for annual local collective deficiency CPM designations are allocated based on load-share ratios established in June from CEC forecasts
- During prior years these allocations have not included CCAs that start operations after July
- June 2018 CPUC decision for local capacity obligations for 2019 requires all LSEs to participate in year-ahead RA process (which addresses load migration issues)
- With new CPUC provisions in place risk from load migration is greatly reduced as all LSEs are subject to same year-ahead RA process going forward

The ISO has identified three potential options to address this item

Potential Options for Cost Allocation and Credits	
1	<p>Maintain the status quo, i.e., “no action” option</p> <ul style="list-style-type: none">• Continue to use year-ahead load forecasts for local collective deficiency CPM costs and credits allocation
2	<p>Costs and credits allocated prior to each RA month</p> <ul style="list-style-type: none">• Costs and credits could be allocated based on estimated load shares prior to monthly local showings (49 days prior to RA month)• Implementation costs for this solution may be burdensome
3	<p>Costs allocated after each month</p> <ul style="list-style-type: none">• Costs could be “trued up” after each month based on true load• Would result in a misalignment between costs and RA credit for allocations

EVALUATE IF LSEs USING CPM FOR PRIMARY PROCUREMENT

Keith Johnson

Infrastructure & Regulatory Policy Manager

A non-tariff element of 2015 CPM settlement was to consider LSEs' use of CPM for primary procurement

- If one of two triggers are met, then ISO has “a stakeholder initiative to explore whether load serving entities have relied on the CPM, to an unacceptable extent, as a primary means of capacity procurement”
 - Trigger #1 – In two-year period, did same LSE twice use CPM to meet RA deficiency?
 - Trigger #2 – Does any LSE ever meet more than half of its RA obligation with CPM capacity?

On December 22, 2017, the ISO issued two year-ahead annual local CPM designations

- Annual CPM designations for the 2018 RA year were issued to resources in the PG&E and SDG&E TAC areas
- Some LSEs in the SDG&E TAC area met 50%+ of their local RA obligation from the CPM designation
- Therefore, it appears that trigger #2 was met

This item was discussed at the May 30, 2018 stakeholder working group meeting

- ISO stated it believes that a change in the design of CPM would not have affected the December 22 procurement and it would have occurred regardless of CPM price or other design parameters
- Stakeholders discussed whether different remedial measures would have discouraged LSEs from relying on CPM and whether there is evidence that LSEs have intentionally relied on CPM to an unacceptable extent as a primary means of capacity procurement
- Discussion concluded with ISO stating this initiative will include consideration of some changes to the design of CPM

NEXT STEPS

Jody Cross

Stakeholder Engagement & Policy Specialist

Next steps

Date	Milestone
August 7	Stakeholder written comments due
August 27	ISO holds working group meeting
September 19	ISO posts revised straw proposal