




# Business Requirements Specification

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## Reliability Must-Run and Capacity Procurement Mechanism Enhancements

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<b>Reliability Must-Run and Capacity Procurement Mechanism Enhancements Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>10/30/2019</b>

## Revision History


Date	Version	Description
10/30/2019	1.0	Initial document release.
7/25/2019	1.1	<p>Updated 5/24 to reflect following changes:</p> <p>Section 3: Add reference to Legacy RMR (as “RMRL”), new-tariff RMR (as “RMR”) for CIRA effective 1/1/2020.</p> <p style="padding-left: 40px;">Added/clarified acronym references</p> <p>Section 5: Clarified Market Instruments impact for MOO qualified bid-insertion added inclusion of new-tariff type RMR resources only (not Legacy RMR); also clarified that RMR SC bid submission still required</p> <p style="padding-left: 40px;">Removed “CPM true-ups” from Settlements BPM impacts</p> <p>Section 6:</p> <p>BRQ-0020: Removed reference to Masterfile dependency of FERC approval</p> <p>BRQ-0025: Clarified text that all Interim RMR agreements will use new RMR tariff provisions going forward. It is implied all forthcoming RMR contracts will apply to the new tariff.</p> <p>BRQ-0026: Removed requirement. Identification for RMR under the new tariff provisions as “MOO-qualified” will be managed by the ISO (no action from Market Participant required). See BRQ-0035 and Appendix 2 of BRS.</p> <p>BRQ-0030: Clarified impacted system as “N/A” (non-applicable). No MasterFile impact for market participants.</p> <p>BRQ-0035: Clarified ISO systems (e.g. CIRA, IFM, RTM, Settlements) shall identify RMR resources by tariff vintage. MasterFile identification shall be managed by ISO internally.</p> <p>BRQ-0040: Clarified requirement to reflect RMR units within local areas shall provide local area capacity benefits (among others) for purchasing LSEs</p> <p>BRQ-0048: Added requirement (process only) explaining how RMR Suppliers should submit partial outages if their resource incurs diminished MW capability (i.e. lowered Pmax) during its RMR contract period (until Pmax can be adjusted in MasterFile). To adjust Pmax in MasterFile during an RMR contract period, FERC Approval of RMR contract re-negotiation or RMR Contract expiration must occur.</p> <p>BRQ-0057: ISO will perform market monitoring of RMR units, based on contract.</p> <p>BRQ-0065, 0066, 0067: Requirement clarifications for DEB calculations by RMR type, resource fuel type;</p>



Date	Version	Description
		BRQ-0062, 0080, 1206: Variable Energy Cost component of Opportunity Cost will include Energy Bid as well as DEB
		BRQ-0111: Clarified that CIRA will not support RMR RA capacity substitution, RAAIM pre-calculation process for Legacy RMR units
		BRQ-0116, 0117: Effective January 1, 2020, RMR Credit will be differentiated by CIRA as "RMRL" (Legacy RMR) and "RMR" (New-Tariff RMR); change will not be backdated to previous months/years
		BRQ-0121: Clarified that RMR credits are non-transferable between LSEs.
		BRQ-0221: Remaining displays will include RMR capacity in the RA column value
		BRQ-0225: Confirmed SC transfer handling also applies to RMR resources
		BRQ-0260: Clarified criteria for applying automated bid-insertion, where MOO-qualified RMR resources are RMR without use limitations or constraints under the new-tariff (rule applies to all RA, CPM, and new RMR resources)
		BRQ-0755: MED Tool is an internal ISO RTM function supporting economic prioritization of exceptional dispatches. New-tariff RMR capacity will be prioritized over CPM.
		BRQ-0760: Added requirement that current OASIS, CMRI reports for RMR will only apply for Legacy RMR resources. RMR under the new-tariff will be included in the same reports as RA resources today.
		BRQ-0761: Added requirement that ADS RMR dispatch flag will only apply to Legacy RMR resources. RMR under new tariff will receive dispatch instructions in the same manner as RA resources today. No impact to Legacy RMR.
		BRQ-1205: Clarified Settlements system identifies RMR resources (both new-tariff and Legacy) as internally managed by ISO through the Masterfile
		BRQ-1210: Clarified RMR Contract Price unit ("\$/MW-day"); Clarified Legacy RMR is not included as part of the ISO settlements process (instead continues through existing RMR invoicing process)
		BRQ-1225: Clarified RMR Capacity Payment unit as "\$/MW-day"
		BRQ-1240: Added clarification that RAAIM obligation penalty charges shall settle at the RMR contract price (incentive payment will remain as current RA/CPM resources)
		BRQ-1260: Added Startup and Minimum Load costs associated with Exceptional Dispatch are assessed through Bid Cost Recovery for RMR resources under the new-tariff provisions.
		BRQ-1300, 1310, 1315: Removed as CPM tariff revisions shall be addressed in the CPM Soft Offer Cap policy initiative.
		BRQ-1316: Added for clarification that risk-of-retirement (ROR) will now apply under the RMR designation (and not the CPM designation) under the new tariff.
		BRQ-1320: Clarify impact for CPM offer price correction is process only.


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Date	Version	Description
<u>7/25/2019</u>	<u>1.2</u>	<p><u>Updated 10/30 to reflect following changes:</u></p> <p><u>Section 3: Added "CCDEBE" reference to Glossary (as CCDEBE support for RMR is reflected in this revision).</u></p> <p><u>Section 5.1: Added Settlements &amp; Billing BPM impact for "OC, MMA settlement clawback"</u></p> <p><u>BRQ-0052: Minor edits to reflect DMM review of retirement attestation, and FERC oversight.</u></p> <p><u>BRQ-0062, 0065, 0066: Minor edits to reflect opportunity costs will not apply to ineligible resources (such as RMR Condition 2 resources)</u></p> <p><u>BRQ-0064: for post-CCDEBE go live trade dates, it is confirmed that the same reasonableness threshold applied to RA resources will apply to RMR resources (with the exception for RMR Condition 2 resources)</u></p> <p><u>BRQ-0067: removed as only the existing RMR Condition 2 resource will apply to this fuel type (jet/distillate).</u></p> <p><u>BRQ-0080: modified to include MMA Transition Cost (only for calculated values).</u></p> <p><u>Add BRQ-0090: Included support for RMR Condition 1 and RMR under new tariff for the CCDEBE ex ante and ex post processes (exclude RMR Condition 2)</u></p> <p><u>Add BRQ-0091: Ex ante/ex post ref level adjustment request rules apply for all eligible resources (including RMR Cond 1 and New-Tariff RMR); Unlike non-RMR resources, RMR resource default energy cost components will not receive 10% adder</u></p> <p><u>Add BRQ-0092: New fuel regions may be created in system to allow for separate volatility scalars for RMR resources</u></p> <p><u>Add BRQ-0093: MasterFile shall not support registered costs for RMR resources (only proxy cost option)</u></p> <p><u>Add BRQ-0094: Systems shall publish ex ante approved costs to downstream systems per CCDEBE design.</u></p> <p><u>Add BRQ-0095: Settlements shall apply the approved actual costs in the BCR qualification process for eligible RMR resources.</u></p> <p><u>Add BRQ-0097: Internal MMA transition cost calculator to read all valid MSG transitions daily</u></p> <p><u>Add BRQ-0098: ISO system to calculate MMA Transition costs (if applicable)</u></p> <p><u>BRQ-0121: Note that the RMR credits are non-transferrable.</u></p> <p><u>Remove BRQ-0305, 0310, 1320: CPM tariff amendments have been deferred to the CPM Soft Offer Cap initiative (currently ongoing).</u></p> <p><u>BRQ-0520: Clarifications to MOO and bid-insertion conditions for new-tariff RMR resources.</u></p> <p><u>Add BRQ-0521: Clarification specific to opportunity costs (as reflected in the recent CCE3 - Commitment Cost Enhancements Phase 3 implementation).</u></p> <p><u>Add BRQ-0523: Clarification of specific costs to be used by bid-insertion for RMR MOO units.</u></p>

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		<u>BRQ-0720: Clarification on the use of “manually dispatch” term.</u> <u>Remove BRQ-0755: Economic prioritization logic for manual dispatch stack will be addressed in future initiative).</u> <u>BRQ-0761: Clarifications that the ADS dispatch for legacy RMR resources will not change with regards to receiving RMR Dispatch flag in dispatch instruction, but RMR resources under the amended tariff will not receive this flag going forward.</u> <u>BRQ-1206: Addition of calculated MMA transition cost value retrieval by settlement systems.</u> <u>BRQ-1260: Addition of calculated MMA transition cost to settlement clawback, if applicable.</u> <u>Remove BRQ-1320: CPM</u> <u>Add MSIM-2025: Addition of MMA Transition Cost market simulation scenario for MSG units with negotiated MMA Start Up costs for both From and To Configurations.</u> <u>Addition of Appendix 5 (MMA Transition Cost Calculation). Calculation logic and examples provided.</u>

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# 1 Introduction

## 1.1 Purpose

The purpose of this document is to capture and record a description of what the Users and Business Stakeholders of the project wish to obtain by providing high-level business requirements. This document establishes the basis for the agreement between the initiators and implementers of the project. The information in this document serves as input to determining the scope of projects and to all Business Process Modeling and System Requirements Specifications efforts.

Business requirements are what must be delivered to provide value for the Users and Business Stakeholders. Systems, software, and processes are the ways (how) to delivery, satisfy or meet the business requirements (what). The Initial BRS will provide sufficient information to determine the scope of the project and will provide the functional business requirements so that the Architecture Decision can be made. Following the Architecture Decision, the remaining non-functional business requirements, such as data, performance, web services, and security can be added to complete the Final BRS.

The objective of the RMR and CPM Enhancements initiative was to enhance existing ISO backstop procurement mechanisms, specifically the Capacity Procurement Mechanism (CPM) and Reliability Must-Run (RMR) agreement, as the use of backstop resource adequacy procurement by the ISO moves forward. Updates to the RMR tariff provisions, pro forma agreements, and procurement processes shall clarify how RMR and CPM procurements align. Under these changes, RMR contracts shall only be used when a resource owner has notified the ISO of its intention to enter retirement (merging risk-of-retirement into this mechanism). Short of retirement notice, CPM will serve as the procurement backstop for resource adequacy.

# 2 Intellectual Property Ownership


Intellectual property covers a broad array of information and materials, including written works, computer programs, software, business manuals, processes, symbols, logos, and other work products. Determining ownership of intellectual property is very important in preserving rights of the California ISO and helps to avoid intellectual property infringement issues. In considering the business requirements or service requirements to be performed, the business owner of the project must determine intellectual property Ownership.

## 2.1 Checklist

*CAISO retains intellectual property ownership of the following:*


- Policy and Market Design; includes methodologies, software code, data structures, and mathematical formulation
- Related Business Practice Manuals
- Software codes to implement the RMR and CPM Enhancements initiative
- All rights reserved for works included within this BRS document




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### 3 Acronym and Term Definitions

<b>Term</b>	<b>Description/Definitions</b>
A2A	Application-to-Application (internal API)
ADS	Automated Dispatch System
AS	Ancillary Services
ASMP	Ancillary Services Marginal Price
B2B	Business-to-Business (external API)
BRS	Business Requirement Specification
<u>CCDEBE</u>	<u>Commitment Costs and Default Energy Bid Enhancements (Fall 2019 Initiative)</u>
<u>CCE3</u>	<u>Commitment Cost Enhancements Phase 3 (Spring 2019 Initiative)</u>
CDN	Conformed Dispatch Notice
CIRA	Capacity Procurement Mechanism
CLRC	CAISO Local Reliability Check
CMRI	CAISO Market Results Interface
CSRM	CAISO System Reliability Margin
CPM	Capacity Procurement Mechanism
CSP	Competitive Solicitation Process
DEB	Default Energy Bid
EAL	Estimated Aggregate Liability
ED	Exceptional Dispatch
EFC	Effective Flexible Capacity; the number of megawatts eligible to be counted towards meeting a load serving entity's Flexible Resource Adequacy requirements.
ELC	Extra-Long Commitment
GFFC	Going Forward Fixed Cost
HASP	Hour-Ahead Scheduling Process
IFM	Integrated Forward Market
ISO	Independent System Operator
Legacy RMR	RMR Designations made effective before 9/1/2019 (activation date of the Interim RMR Agreement tariff provisions). Will be referenced as "RMRL" effective 1/1/2020 in the RA system (and identified as "RMR" prior to then).
LMPM	Local Market Power Mitigation
LSE	Load Serving Entity
LSE SC	Load Serving Entity Scheduling Coordinator
MED Tool	Manual Economic Dispatch Tool
MF	MasterFile

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Term	Description/Definitions
MMA	Major Maintenance Adder
MPM	Market Power Mitigation
New-Tariff RMR	RMR Designations made effective on or after 9/1/2019 (activation date of the Interim RMR Agreement tariff provisions). Will be referenced as “RMR” effective 1/1/2020 in the RA system.
NQC	Net Qualifying Capacity; represents the maximum MW capacity that a resource can sell to a Load Serving Entity (LSE) as part of the RA Program for a calendar year.
OASIS	Open Access Same Time Information System
OC	Opportunity Cost
RA	Resource Adequacy
RAAIM	Resource Adequacy Availability Incentive Mechanism
RMR	Reliability Must-Run
ROR	Risk-of-Retirement
RTD	Real-Time Dispatch
RTM	Real-Time Market
RTPD	Real-Time Pre-Dispatch
SC	Scheduling Coordinator
SIBR	Scheduling Infrastructure and Business Rules
TAC	Transmission Access Charge
TAC Area	Transmission Access Charge Area


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## 4 Details of Business Need/Problem

### 4.1 Description

From policy initiative discussions how Reliability Must-Run (RMR) and Capacity Procurement Mechanism (CPM) procurement processes should be realigned, the following business needs were addressed:


1. RMR and CPM mechanisms need to be aligned with one another, allowing for a holistic approach to procuring resource adequacy and reliability capacity
2. RMR contract pro forma needs to be made current and aligned with existing RA/CPM and established market mechanisms
3. Existing RMR invoicing, validation, and settlement processes are inefficient and unable to track with market release updates (process needs to be merged with existing settlement calendar, systems, processes)
4. RMR compensation needs to be simplified, updated to current markets
5. MPM bid mitigation should be consistent for RMR and non-RMR resources
6. LSE's benefitting from procured RMR should receive Flexible RA credit

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## 5 Business Impacts

### 5.1 Business Practice Manual (BPM)

BPM	Description of Impact(s)
<b>Credit Management and Market Clearing</b>	§9.3 (no DI impacts from RMR invoices) §13.1 (no change in credit responsibilities for legacy RMR, typical treatment for market invoices for new RMR) §13.2 (review RMR risk assignments)
<b>Generator Management</b>	§12 (additional to retirement requirement criteria, retirement notice calendar)
<b>Market Instruments</b>	§2.1 RMR mitigation methodology aligns with non-RMR resource bid mitigation. §2.4.1 SIBR – MOO requirements for new RMR, ISO-generated MOO bids up to RMR capacity for resources with RMR obligation under new-tariff provisions, RMR SCs required to submit bids up to RMR Capacity §3.3 RMR units have RA obligation in RUC (e.g. RUC capacity is entirely all RMR/RA) §5.1.1.3 ISO bid-generation for MSGs (RA/RMR) §6.1 AS MOO for new RMR contract units §7.1 RUC Availability Bids (Register the RMR capacity as RA Capacity, RMR must participate in RUC market, Include RMR with RA and MOO resource consideration of Capacity Limit indicator) §B.2.2 Resource Tab (identify RMR Contract Type) §D.7 Calculation of Default Energy Bids (DEBs) §A10.1 CMRI display impacts (CDN, Day-Ahead RMR Dispatches, Default RMR Minimum Load & Startup Cost Bids Curves reports)
<b>Market Operations</b>	§2.3.1 DA Processes: MPM methodology for RMR matches non-RMR §6.4.3 New RMR no longer flagged for dispatch after DAM in CDN (treated like all other RA/CPM units) §6.4.6 Published RMR report impacts §6.5.2 Treatment of RMR Resources under new tariff in MPM §7.4 MPM for Real-Time (remove “Condition 1”, manual RMR dispatch) §A6.4.6 Day-Ahead reports associated with RMR

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BPM	Description of Impact(s)
<b>Reliability Requirement</b>	§5.1 Risk of Retirement Designation (revised consistent with tariff change) §7.1 RAAIM (for new-tariff RMR) §9 Resource Adequacy Substitution (includes new-tariff RMR) §12.1 Extend authority to call RMR units for system and flexible RA needs. §12.5, 12.6.4 Change CPM ROR to RMR ROR, update conditions for RMR ROR §13 RA information submittal timelines (RMR retirement, designation) Add: <ul style="list-style-type: none"> <li>- New-Tariff RMR alignment with RA/CPM as reliability capacity (capacity allocations to LSE SCs, substitution)</li> <li>- New-Tariff RMR Must-offer requirement</li> <li>- RMR inclusion of RAAIM penalty</li> <li>- RMR provision of Local, System, and Flex RA credit</li> </ul>
<b>Settlements &amp; Billing</b>	§2.4.2 Clarify RMR Payments Calendar for legacy contracts §26 RMR unit settlement rules Add: <ul style="list-style-type: none"> <li>- RMR capacity payments, cost allocations</li> <li>- <u>RMR settlement calendar for new RMR resources</u></li> <li>- <u>RMR settlement clawback for OC, MMA costs</u></li> <li>- BCR for RMR (RMR Full Cost of Service Only)</li> <li>- RMR true-ups (market revenue above full cost-of-service)</li> </ul>
<b>BPM Change Management</b>	N/A
<b>Candidate CRR Holder</b>	N/A
<b>Compliance Monitoring</b>	N/A
<b>Congestion Revenue Rights</b>	N/A
<b>BPM Change Management</b>	N/A
<b>Definitions &amp; Acronyms</b>	N/A
<b>Direct Telemetry</b>	N/A
<b>Distributed Generation for Deliverability</b>	N/A
<b>Energy Imbalance Market (EIM)</b>	N/A

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BPM	Description of Impact(s)
<b>Generator Interconnection and Deliverability Allocation Procedures</b>	N/A
<b>Generator Interconnection Procedure (GIP)</b>	N/A
<b>Managing Full Network Model</b>	N/A
<b>Metering</b>	N/A
<b>Outage Management</b>	N/A
<b>Rules of Conduct Administration</b>	N/A
<b>Scheduling Coordinator Certification &amp; Termination</b>	N/A
<b>Transmission Planning Process</b>	N/A

## 5.2 Other

Impact:	Description: (optional)
<b>Market Simulation</b>	Yes (MF, CIRA, SIBR, IFM/RTM, Settlements)
<b>Market Participant Impact</b>	Yes (ISO Market Participants, no EIM impact)
<b>External Training</b>	Yes
<b>Policy Initiative</b>	Yes

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## 6 Business Requirements

The sections below describe the Business Processes and the associated Business Requirements involved in the project. These may represent high level functional, non-functional, reporting, and/or infrastructure requirements. These business requirements directly relate to the high level scope items determined for the project.

### 6.1 Business Process: Manage Resource Implementation


#### 6.1.1 Business Requirements: RMR Designation of Retiring/Mothballing Resources

ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0001	ISO shall report in Daily Briefing all retiring/mothballing resources at or above 45 MW  Retiring resources that are currently mothballed must provide a minimum 90-day notice prior to moving resource into full retirement state.	Process Existing Function	N/A
RMR-CPM-BRQ-0010	ISO shall publish listing of retiring/mothballing resources on its public website (all units), RSS provided to notify market participants/stakeholders of listing update.	Process Existing Function	ISO Public Web-site
RMR-CPM-BRQ-0015	If its studies determine the retiring/mothballing resource is needed for reliability purposes, the ISO shall have the authority to designate resources intending to retire or mothball as RMR under a new-tariff contract (i.e. contracts effective on or after 9/1/18).	Existing Function	N/A
RMR-CPM-BRQ-0020	RMR designated resources under the new tariff provisions shall be contracted for the resource's entire capacity amount (i.e. Pmax).	Existing Process	N/A
RMR-CPM-BRQ-0025	RMR contracts effective on or after 9/1/2018 must use the new tariff provisions and pro forma.  RMR contracts effective prior to 9/1/2018 will, by default, remain under their existing tariff provisions and are not forced to convert to the new tariff provisions.	Tariff	N/A
RMR-CPM-BRQ-0030	RMR resources under the new tariff are subject to RAAIM.  Legacy RMR contracts will retain their RAAIM exemptions.	Core	N/A




ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0035	<p>ISO systems shall distinguish each RMR resource by tariff vintage as either:</p> <ul style="list-style-type: none"> <li>Legacy (for contracts effective prior to 9/1/18*), or</li> <li>New-Tariff (for contracts effective on or after 9/1/18)</li> </ul> <p>* Recall that September 1, 2018 was the effective date when the Interim RMR Agreement was approved in the ISO Tariff, which established the authority of the ISO to immediately convert new RMR contracts to new RMR tariff provisions.</p>	Existing Function	CIRA IFM, RTM Settlements Review Appendix 2 for identification and treatment of Legacy, New-Tariff RMR resources
RMR-CPM-BRQ-0040	If RMR designation is procured and the unit is determined to exist in a local area, the new-tariff RMR resource will be treated as listed local RA capacity regardless of the reliability reason for the RMR designation.	Policy Tariff	CIRA
RMR-CPM-BRQ-0045	Legacy RMR shall be verified/updated in MasterFile to reflect correct assignment on the basis of Appendix 2 (which provides a matrix of RMR MasterFile settings).	Process Existing Function	MasterFile
RMR-CPM-BRQ-0048	<p>If an RMR resource cannot perform its contract Pmax value due a physical limitation prior to a FERC-approved RMR contract renegotiation or the expiration of its RMR contract, the RMR resource must submit an outage ticket following the standard outage coordination process to reflect the true MW availability for the remaining period under the existing RMR contract.</p> <p>Once the RMR contract expires or is renegotiated and approved by FERC, a Pmax adjustment may be registered in the Masterfile.</p> <p>FERC Approval of RMR contract re-negotiation or RMR Contract expiration must occur during designation period to modify Pmax in Masterfile.</p>	Process	N/A
RMR-CPM-BRQ-0050	If a retirement or mothball affidavit is determined or suspected to contain inaccurate information, ISO may refer resource owner to Market Monitoring for further review.	Existing Process	N/A
RMR-CPM-BRQ-0051	Resources returning to service, or reversing a retirement/mothball decision after submitting an affidavit attesting to plans of retirement, must submit an affidavit with documented justification of the decision (such as improved economic conditions, a new RA agreement, or a similar basis).	Process	N/A




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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0052	<p>Regulatory Contracts will receive affidavits from generator owners when they come out of retirement, and will forward them to Legal. <u>Review may include the Department of Market Monitoring.</u></p> <p>Legal shall make the decision of whether to report the generator owner to <u>DMM-FERC</u> for providing false <u>and-or</u> misleading information as part of the retirement process.</p>	Process	N/A
RMR-CPM-BRQ-0055	<p>New RMR Designations will only effectively start on the first day of the month, and end on the last day of the month. RMR contract termination may occur prior to the end of the RA year, but shall not extend beyond without renewal.</p>	Core Internal	MasterFile
RMR-CPM-BRQ-0056	<p>RMR Units shall be subject to Resource Adequacy Availability Incentive Mechanism (RAAIM) under their must offer obligation under Section 6.1(d) of the tariff pro forma and CAISO Section 40 of the CAISO Tariff.</p> <p>In the alternative, in the event that RAAIM is not aligned with the reliability need for the RMR Unit, the CAISO and the Owner shall negotiate an alternative non-performance penalty.</p>	Tariff	N/A

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### 6.1.2 Business Requirements: RMR Calculated Costs


ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0062	<p>System shall <del>receive and store the following</del> <u>calculated/negotiated resource-level and store the following</u> costs for applicable RMR resources for both Day-Ahead and Real-Time Markets:</p> <ul style="list-style-type: none"> <li>• Opportunity Cost adders*,: <ul style="list-style-type: none"> <li>○ Start Up Cost (\$/start)</li> <li>○ Minimum Load Cost (\$/run-hour)</li> <li>○ Transition Cost (\$/transition)</li> <li>○ Variable Energy Cost, for Energy Bid and DEB (\$/MWh)</li> </ul> </li> <li>• Major Maintenance Adders <ul style="list-style-type: none"> <li>○ Start Up Cost (\$/start)</li> <li>○ Minimum Load Cost (\$/run-hour)</li> </ul> </li> </ul> <p>* For resources that are <u>not eligible to receive opportunity costs, non-use-limited, the</u> opportunity cost adder values will not apply.</p>	Core	- ISO Internal
RMR-CPM-BRQ-0063	System shall apply a DEB scalar of 100% for DEB calculations, which include all Legacy and New-Tariff RMR resources.	Core	- ISO Internal
<u>RMR-CPM-BRQ-0064</u>	<u>Effective on CCDEBE Go Live date, system shall apply a headroom scalar of 110% for reasonableness threshold calculations (same as non-RMR resources), which include both RMR Condition 1 and New-Tariff RMR resources (RMR Condition 2 resources will not apply).</u>	<u>Core</u>	<u>- ISO Internal</u>

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0065	<p>For resources where fuel type is natural gas, which includes applicable RMR units, system shall include the Energy Opportunity Cost adder component when calculating and storing cost-based Day-Ahead and Real-Time Market Default Energy Bids (DEBs) for Legacy and New-Tariff RMR resources, per the following formula:</p> <p>DEB (\$/MW) =</p> <p>[(Incremental Heat Rate Curve/1000 * Gas Price Index) + Grid Management Charge + Variable O&amp;M Adder+ <i>Energy OC Component</i> + GHG Component]</p> <p>Where,</p> <p>Incremental Heat Rate Curve =</p> <p>(Average Heat Rate of High Segment * High Segment MW) - (Average Heat Rate of Low Segment* Low Segment MW)/(High Segment MW – Low Segment MW)</p> <p>GHG Component =</p> <p>Incremental heat rate/1000 * CO2e emission rate * Greenhouse Gas Allowance Price</p> <p><u>For resources that are non use-limited, the opportunity cost adder values will not apply</u></p>	Core	- ISO Internal



ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0066	<p>For resources where fuel type is not natural gas, which includes applicable RMR resources, system shall include the Energy Opportunity Cost adder component when calculating and storing cost-based Day-Ahead and Real-Time Market Default Energy Bids (DEBs) for Legacy and New-Tariff RMR resources, per the following formula:</p> <p>DEB (\$/MW) =</p> <p><u>Incremental</u> Heat Average Cost + Grid Management Charge + Variable O&amp;M Adder+ Energy OC Component + GHG Component</p> <p>Where <u>Incremental</u> Heat Average Cost = <math>((\text{Heat Average Cost of High Segment} * \text{High Segment MW}) - (\text{Heat Average Cost of Low Segment} * \text{Low Segment MW})) / (\text{High Segment MW} - \text{Low Segment MW})</math> is the non-natural gas resource average cost.</p> <p>GHG Component =</p> <p>Incremental heat rate/1000 * CO2e emission rate * Greenhouse Gas Allowance Price</p> <p>Where Incremental Heat Rate Curve =</p> <p><math>(\text{Average Heat Rate of High Segment} * \text{High Segment MW}) - (\text{Average Heat Rate of Low Segment} * \text{Low Segment MW}) / (\text{High Segment MW} - \text{Low Segment MW})</math></p> <p>For resources that are non use-limited, the opportunity cost adder values will not apply.</p>	Core	- ISO Internal
RMR-CPM-BRQ-0067	<p><del>For New-Tariff RMR units using jet fuel and diesel, system shall apply the same DEB formula as defined in RMR-CPM-BRQ-0065, which includes the Opportunity Cost component for use-limited resources, while replacing the gas price index with the resource distillate and jet fuel price.</del></p>	Core (New-Tariff type) Existing Function (Legacy Tariff type)	<del>—ISO Internal</del>

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0076	On a daily basis, system shall publish default energy bids (DEBs) for active new-tariff and legacy RMR resources to the Day-Ahead and Real-Time Markets.	Existing Function, no change	- ISO Internal
RMR-CPM-BRQ-0080	<p>On a daily basis, system shall publish the following <u>resource-level costs (same value for both Day-Ahead and Real-Time Market resource costs to the settlements system)</u>:</p> <ul style="list-style-type: none"> <li>• Opportunity Cost for following Adder Types <ul style="list-style-type: none"> <li>○ Start Up Cost (\$/startup)</li> <li>○ Minimum Load Cost (\$/run-hour)</li> <li>○ Transition Cost (\$/transition)</li> <li>○ Variable Energy Cost, for the Energy Bid and DEB (\$/MWh)</li> </ul> </li> <li>• <u>Major Maintenance Adder Types</u>: <ul style="list-style-type: none"> <li>○ <u>Startup Cost (\$/startup)</u></li> <li>○ <u>Min Load Cost (\$/run-hour)</u></li> <li>○ <u>Transition Cost (\$/transition)*</u></li> </ul> </li> </ul> <p><u>* Only calculated for upward transitions with negotiated MMA startup costs for both "From" and "To" configurations</u></p>	<p>Existing Function <u>(startup and minload OC+MMA, transition cost OC)</u></p> <p><u>Core (transition costs)</u></p>	- ISO Internal



ID#	Business Feature	Req Type	Potential Application(s) Impacted
<u>RMR-CPM-BRQ-0090</u>	<p><u>Effective on the CCDEBE Go Live date, ISO systems and processes shall support request submissions for the ex-ante and ex post reference level adjustment based on fuel (or fuel-equivalent) cost reasonableness expectations for the following RMR resource types (i.e. "eligible RMR"):</u></p> <ul style="list-style-type: none"> <li><u>RMR Condition 1 (ex-ante and ex post applies with no limitations per the CCDEBE process; for RMR dispatches, market shortfall recovered under RMR invoicing process)</u></li> <li><u>New-Tariff RMR (ex-ante and ex post applies with no limitations per CCDEBE process; if ex post is insufficient, RMR invoicing process will follow)</u></li> </ul> <p><u>RMR Condition 2 resources shall be ineligible for ex ante and ex post reference level adjustment as they may only receive payment for fixed and variable costs specific to its RMR contract without opportunity for additional payments.</u></p>	<u>No functional change from CCDEBE Scope</u>	<ul style="list-style-type: none"> <li><u>- SIBR (ex-ante)</u></li> <li><u>- Process (ex post)</u></li> </ul>
<u>RMR-CPM-BRQ-0091</u>	<p><u>Effective on CCDEBE Go Live date, RMR resources eligible for CCDEBE ex ante and ex post reference level adjustments and reasonableness thresholds, system shall apply the same rules from the CCDEBE initiative as applied to eligible non-RMR resources of the same fuel type class (e.g. natural gas, non-gas).</u></p> <p><u>Separate from non-RMR resources under CCDEBE rules, RMR DEBs will not receive the 10% adder for default energy cost components.</u></p> <p><u>Fuel-region-specific volatility scalars and resource-specific DEB scalars shall apply as with all eligible resources.</u></p>	<u>No functional change from CCDEBE Scope</u>	<ul style="list-style-type: none"> <li><u>- ECIC (reasonableness thresholds)</u></li> <li><u>- SIBR (ex-ante rules)</u></li> </ul>
<u>RMR-CPM-BRQ-0093</u>	<u>Effective on CCDEBE Go Live date, eligible RMR resources may only select the proxy cost option for calculating default commitment costs. Registered costs must not apply to RMR resources.</u>	Existing Function	<u>- MasterFile</u>
<u>RMR-CPM-BRQ-0094</u>	<u>Effective on CCDEBE Go Live date, modified actual costs approved through ex ante shall be published for eligible RMR resources in the same manner as performed for CCDEBE.</u>	<u>No functional change from CCDEBE Scope</u>	<ul style="list-style-type: none"> <li><u>- Settlements</u></li> <li><u>- CMRI</u></li> <li><u>- OASIS</u></li> </ul>
<u>RMR-CPM-BRQ-0095</u>	<u>Effective on CCDEBE Go Live date, system shall apply the approved actual costs in the BCR qualification process as payment to eligible RMR resources under the existing ex ante process.</u>	<u>No functional change from CCDEBE Scope</u>	<u>- Settlements</u>



ID#	Business Feature	Req Type	Potential Application(s) Impacted
<p><u>RMR-CPM-BRQ-0097</u></p>	<p><u>On a daily basis, system shall record all eligible upward transitions as defined by the MasterFile associated for each MSG resource (with or without RMR) for the current Day-Ahead and Real-Time market trade dates.</u></p> <p><u>An MSG resource's transition shall be determined as <i>upward</i> if <math>P_{maxToConfig} &gt; P_{maxFromConfig}</math></u></p> <p><u>MSG resource transitions that are <i>downward</i>, or have <math>P_{maxToConfig} \leq P_{maxFromConfig}</math>, will not be recorded or have MMA transition costs calculated.</u></p>	<p><u>Core</u></p>	<p><u>- ISO Internal</u></p>
<p><u>RMR-CPM-BRQ-0098</u></p>	<p><u>On a daily basis, system will evaluate all Multi-Stage Generator resources with MMA Start Up Costs associated with their configurations.</u></p> <p><u>For all MSG upward transitions with an MMA startup cost associated with both the "From" and "To" configurations, system shall calculate an MMA Transition Cost in the following manner:</u></p> <p><u>MMA Transition Cost = <math>\text{Max}(0, \text{"To" Configuration MMA Startup Cost} - \text{"From" Configuration MMA Startup Cost})</math></u></p> <p><u>Where,</u></p> <ul style="list-style-type: none"> <li><u>Calculated MMA Transition Cost shall apply for both Day-Ahead and Real-Time Markets for a given trade date</u></li> </ul> <p><u>See Appendix 5 for examples of calculated MMA Transition Costs.</u></p>	<p><u>Core</u></p>	<p><u>- ISO Internal</u></p>


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## 6.2 Business Process: Manage Reliability Requirements


### 6.2.1 Business Requirements: RMR Resource, RMR Credit, and TAC Area Data Uploads to RA System

ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0100	<p>System shall retrieve the following additional resource attributes for new-tariff RMR designations from MasterFile (daily):</p> <ul style="list-style-type: none"> <li>• RMR status flag (e.g. resource is 'RMR')</li> <li>• RMR condition type flag (new-tariff, legacy RMR types)</li> </ul> <p>Additionally, resource attributes shall also be retrieved as performed today (such as Supplier SCID, Pmax, Pmin, MOO Qualified Flag, etc.).</p> <p>Only resources and attributes for RMR resources under the new tariff contract ("new RMR") shall be retrieved by RA system.</p>	Core	Source: MF Target: CIRA
RMR-CPM-BRQ-0105	<p>System shall provide ISO-user with an interface display to upload and store the following RMR resource attributes:</p> <ul style="list-style-type: none"> <li>• NQC</li> <li>• EFC</li> <li>• Flex Category Type</li> <li>• Local Listing Area, if applicable</li> </ul> <p>NQC/EFC approvals shall be consistent with existing system functions.</p> <p>Only attributes for RMR resources under the new tariff contract ("new RMR") shall be retrieved by RA system.</p> <p>EFC and Flex Category Type values shall be stored in the EFC List.</p> <p>Validations to incoming data shall be provided by ISO-user.</p>	Process Existing Function	- CIRA (ISO-user only)




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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0111	<p>System shall allow ISO-user to query and review all active new-tariff RMR Designations by RA Year from the RMR Designations display. Legacy RMR resources shall be excluded from the RA system's resource substitutions, RAIM processes.</p> <p>System shall additionally provide user-defined start/end date display period controls for viewing specific time periods.</p>	<p>Core</p> <p>Process</p>	- CIRA (ISO-user only, SC impact exclusion of Legacy RMR from substitution displays)
RMR-CPM-BRQ-0114	<p>RMR Credit distribution across TAC Area and LSE shall be calculated for both the Annual and Monthly RA process.</p> <p>The following rules shall apply for manual submission of the RMR credit data:</p> <ul style="list-style-type: none"> <li>• <i>If a Local RMR credit is associated with more than one TAC Area, the distribution of RMR Credit amount shall apply across the multiple TAC Areas on a pro rata basis of the TAC Areas' CEC Demand Forecasts;</i></li> <li>• LSE allocation of RMR Credits shall be applied on a Load Share Ratio basis</li> <li>• Annual RA process shall apply the same RMR credit amount to each month of the year.</li> <li>• Monthly RA process may apply RMR credit amounts independently for each of month of year.</li> </ul>	Process	- N/A
RMR-CPM-BRQ-0116	<p>RMR Credit applied for a system reliability RMR resource will apply to all TAC Areas and their associated LSEs</p> <ul style="list-style-type: none"> <li>• Flex RMR Credits shall be submitted by ISO admin user based on RMR contract capacity</li> <li>• Flex RMR credits will be identified to system as one of the following RMR types effective January 1, 2020: 1) Legacy ("RMRL"), 2) New-tariff ("RMR")</li> </ul> <p>Changes will not be backdated to prior months/years.</p>	Core	- CIRA


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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0117	System shall apply RMR Credit for an RMR system reliability resource to all TAC Areas, wherein: <ul style="list-style-type: none"> <li>• Both local and system RMR credits will be identified to system as one of the following RMR types effective January 1, 2020: 1) Legacy (“RMRL”), 2) New-tariff (“RMR”)</li> </ul> Changes will not be backdated to prior months/years)	Core	- CIRA
RMR-CPM-BRQ-0119	System shall prohibit inclusion of RMR resource showings in uploaded RA and Supply Plans.	Core	- CIRA
RMR-CPM-BRQ-0121	System shall apply Flex RMR credits as it would for Flex RA credit, observing the following rules: <ul style="list-style-type: none"> <li>• RMR Credits of a certain Flex Category type shall not apply to a lower order category type</li> <li>• System must first fill the highest order of Category Type Obligation with highest order Flex credit available until obligation is fulfilled before addressing the next highest order of Flex Obligation until obligation or credit amounts are exhausted</li> </ul> Specifically, the following rules apply for Flex RA order <ul style="list-style-type: none"> <li>• Flex RMR credits of Category 1 type may apply to Flex RA obligations of types 1, 2, and 3.</li> <li>• Flex RMR credits of Category 2 type may apply to Flex RA obligations of types 2 and 3.</li> <li>• Flex RMR credits of Category 3 type may apply to Flex RA obligations of type 3 only.</li> </ul> <p style="color: red; margin-top: 10px;"><u>Note: RMR Credits are non-transferable.</u></p>	Core	- CIRA

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## 6.2.2 Business Requirements: RMR Reliability Capacity RA Management


ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0210	System shall perform both planned and forced outage substitution for RMR designated resources under the same methodology and rules as currently applied to RA.  RA substitution rules shall only apply to RMR under the new tariff.	Core	- CIRA
RMR-CPM-BRQ-0211	No RMR resource (new or legacy tariff RMR types) may be considered as a substitution replacement.	Core	- CIRA
RMR-CPM-BRQ-0215	System shall manage outage exemption requests for RMR resources under the same methodology as currently applied to RA.	Existing Function	- CIRA - OMS
RMR-CPM-BRQ-0216	System shall perform RAAIM pre-calc for RMR designated resources under the same methodology as currently applied to RA, under the following rules: <ul style="list-style-type: none"> <li>RMR resources under the new RMR tariff provisions shall be subject to RAAIM (unlike RMR under legacy tariff versions)</li> <li>RAAIM pre-calc process may allow exemptions to RMR resources similar to RA under the tariff</li> </ul>	Existing Function	- CIRA
RMR-CPM-BRQ-0221	System displays shall process RMR resource, capacity data and present as RA capacity under the existing RA displays.	Core	- CIRA
RMR-CPM-BRQ-0225	The RA system shall account for SC Transfers of RMR resource under its existing SC Transfer feature for RA resources.	Existing Function	- CIRA
RMR-CPM-BRQ-0254	If FERC approval for RMR contract price is approved, Regulatory Contracts shall notify OES contract that the RMR contract price shall be updated to the system and applied for specified past trade dates.	Process	- N/A
RMR-CPM-BRQ-0255	System shall be able to re-publish RMR Reliability Capacity payloads for all impacted past trade dates if RMR contract price is modified.  This is only applicable for a price change (not MW quantity).	Core (new service)	Source: CIRA Target: Settlements

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0260	<p>Bidding system shall automatically insert generated bids into markets for new-tariff RMR resources under the following criteria:</p> <ul style="list-style-type: none"> <li>Resources that are MOO-qualified (per Masterfile) AND have RA Obligation &gt; 0 MW</li> </ul> <p>Automated bid-insertion shall not apply for new-tariff RMR resources under the following criteria:</p> <ul style="list-style-type: none"> <li>Resources with availability limitations (e.g. use-limited) OR have RA Obligation = 0MW</li> </ul> <p>New-tariff RMR resources are still required to submit own bids into market under their Must Offer Obligation.</p>	Core	SIBR

### 6.2.3 Business Requirements: CPM Capacity Management

ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0300	<p>System shall not award any CPM to RMR designated resources. Existing functionality for Legacy RMR contracts, new function for new RMR contracts.</p>	Core (New-Tariff RMR)  Existing Function (Legacy RMR)	- CIRA
RMR-CPM-BRQ-0305	<p><del>Resources submitting CSP offers shall have mandatory CPM if accepted by ISO.</del></p> <p><del>If resource accepts CPM offer by ISO, the CPM award is binding. ISO CPM offers shall be made at soft-offer cap price.</del></p>	<del>Process Existing Function</del>	<del>-CIRA</del>


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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0310	<p><del>Resources filing with FERC for approval of CPM bid offers above the soft-offer cap price. The pricing formula shall be amended to cover resource going forward fixed costs (GFFC) using same cost categories and the same 20% cost adder used for the CPM reference resource. As a note, the resource will keep all market rents earned.</del></p> <p><del>If FERC approves CPM bid offers over soft-offer cap price, Legal shall notify OES and Settlements of the updated CPM bid offer price and what specific trade dates the new price became effective.</del></p>	Process Existing Function	<del>- CIRA</del>
RMR-CPM-BRQ-0330	<p>ISO shall post a designation report, and provide market notification of the report's availability, to the public ISO website for procured CPM effective on the first of the succeeding month the earlier of:</p> <ul style="list-style-type: none"> <li>• 30 days after ISO selects its resource designation</li> <li>• 10<sup>th</sup> day of the month in which the designation takes effect</li> </ul> <p>Requirement does not apply to Exceptionally Dispatched CPMs.</p>	Process (New Deadline)	- ISO Public Website

## 6.3 Business Process: Manage Day-Ahead and Real-Time Markets

### 6.3.1 Business Requirements: RMR and CPM Resource Bid Submissions


ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0500	<p>Legacy RMR resources under legacy tariff versions ("legacy RMR") shall not have any changes applied to their existing bid submission rules.</p>	Process Existing Function	- SIBR
RMR-CPM-BRQ-0505	<p>CPM resources shall not have any changes applied to their existing RA/CPM bid submission rules.</p>	Process Existing Function	- SIBR

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0520	<p>RMR resources under the new tariff will have a Must-Offer Obligation (MOO) to submit bids into the Day-Ahead and Real-Time Markets 24x7. System will perform bid-insertion for new-<del>tariff</del> RMR as aligned with <u>CPM Resource Adequacy</u> bid-insertion rules, such that:</p> <ul style="list-style-type: none"> <li>If bid submissions are not provided up to the full RMR capacity RMR resources with an application-level Bid Insertion Flag = Y, ISO shall automatically perform bid-insertion similar to existing RA/CPM for the total or unsubmitted portion of the bid</li> <li>Bid-insertion shall include RA Obligation, resulting in RUC and AS bids submitted for \$0/MWh <u>up to the RA value (Pmax for RMR units)</u>.</li> <li>If the application-level Bid Insertion <del>Flag = N</del><u>capability is disabled (as maintained by the ISO)</u>, no bid-insertion shall be performed (<del>e.g. this may include use-limited RMR resource has with no RA obligation, e.g. resource is on outage</del>) <u>Opportunity costs shall only apply to use-limited resources and will not be included in ISO bid-insertion</u></li> </ul>	Process Existing Function	- SIBR
<u>RMR-CPM-BRQ-0521</u>	<p><u>RMR resources under the new tariff ("new RMR") will have a Must-Offer Obligation (MOO) to submit bids into the Day-Ahead and Real-Time Markets 24x7. Bidding system will perform bid-insertion for new-tariff RMR as aligned with Resource Adequacy bid-insertion rules, such that:</u></p> <ul style="list-style-type: none"> <li><u>Opportunity costs (OC) shall only apply to use-limited resources, automatically populating calculated OC commitment costs and bid adders (which may be overwritten by SC prior to manual submission to market)</u></li> </ul>	<u>Existing Function</u>	<u>- SIBR</u>




ID#	Business Feature	Req Type	Potential Application(s) Impacted
<a href="#">RMR-CPM-BRQ-0523</a>	<p><u>When performing energy, startup, minimum load, and AS automatic bid-insertion into the DA or RT markets (at times when no bids are submitted by an RA/RMR resource Scheduling Coordinator with a Must-Offer Obligation), the bidding system shall include the following costs for new-tariff RMR resources:</u></p> <ul style="list-style-type: none"> <li>• <u>Opportunity Cost (as applicable)</u></li> <li>• <u>Major Maintenance Adder (if applicable)</u></li> <li>• <u>MSG Transition Costs (if applicable)</u></li> <li>• <u>Gas Price</u></li> <li>• <u>Greenhouse Gas Compliance Costs</u></li> <li>• <u>O&amp;M Rate</u></li> <li>• <u>GMC Rate</u></li> </ul>	<p><u>Process</u> <u>Existing Function</u></p>	<p>- <u>SIBR</u></p>
RMR-CPM-BRQ-0525	<p>New RMR resources shall only be classified as full cost-of-service, and therefore must only submit cost-based bids for the Day-Ahead and Real-Time Markets.</p>	<p>Process Existing Function</p>	<p>- SIBR</p>
RMR-CPM-BRQ-0530	<p>RMR resources shall be expected to monitor their own use-limitations, and will be required to bid full marginal costs, submitting the appropriate outage cards to prevent exhaustion of use availability.</p> <p>Under extreme circumstances where a future reliability need has been determined by the ISO to be “at risk” through use-limitation of an RMR resource, the ISO retains its authority to instruct the RMR resource to submit an outage card to preserve starts, run hours, etc.</p>	<p>Process Existing Function</p>	<p>- SIBR - OMS</p>

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### 6.3.2 Business Requirements: RMR in Day-Ahead Markets


ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0600	<p>On a daily basis, Day-Ahead Markets shall retrieve the RMR_CD_TYPE resource attribute for all active RMR resources from MasterFile.</p> <p>This attribute will be used to identify the following resource RMR types:</p> <ul style="list-style-type: none"> <li>• RMR Condition 1 (Legacy)</li> <li>• RMR Condition 2 (Legacy)</li> <li>• RMR, under new tariff</li> </ul>	Core	Source: MasterFile Target: IFM
RMR-CPM-BRQ-0601	<p>On a daily basis, Day-Ahead Markets shall receive default energy bids (DEBs) for all active new-tariff RMR resources.</p>	Existing Function	- IFM
RMR-CPM-BRQ-0602	<p>Day-Ahead Markets shall receive energy, RUC, and AS bids, through bid-insertion if applicable, for active new RMR units.</p>	Existing Function	Source: SIBR Target: IFM, RUC
RMR-CPM-BRQ-0605	<p>Day-Ahead Markets shall include new RMR resources within the Market Power Mitigation (MPM) process just as non-RMR resources are today.</p>	Existing Function	- IFM, MPM - RTM, MPM
RMR-CPM-BRQ-0620	<p>RMR resources under the new-tariff that require extremely-long start (ELS) shall be committed under the same rules and mechanisms as RA and CPM resources.</p>	Process Existing Function	- IFM, RUC



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### 6.3.3 Business Requirements: RMR in Real-Time Markets

ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0700	<p>On a daily basis, Day-Ahead Markets shall retrieve the RMR_CD_TYPE resource attribute for all active RMR resources from MasterFile.</p> <p>This attribute will be used to identify the following resource RMR types:</p> <ul style="list-style-type: none"> <li>• RMR Condition 1 (Legacy)</li> <li>• RMR Condition 2 (Legacy)</li> <li>• RMR, under new tariff</li> </ul>	Core	Source: MasterFile Target: RTM
RMR-CPM-BRQ-0701	<p>On a daily basis, Real-Time Markets shall receive default energy bids (DEBs) for all active RMR resources.</p>	Existing Function	- RTM
RMR-CPM-BRQ-0705	<p>Real-Time Markets shall receive energy and AS bids, through ISO bid-insertion if applicable, for active new-tariff RMR units.</p>	Existing Function	Source: SIBR Target: RTM
RMR-CPM-BRQ-0710	<p>Real-Time Markets shall include new-tariff RMR resources within the Market Power Mitigation (MPM) process just as non-RMR resources are today.</p>	Existing Function (MPMFlag)	- RTM, MPM
RMR-CPM-BRQ-0720	<p><u>Whenever dispatch is required beyond dispatch determined by market processes.</u> Operations shall manually dispatch new-tariff RMR resources through exceptional dispatch instructions, applying non-RMR instruction types.</p> <p>For RMR dispatch of ancillary services requirements under contract, ISO shall instruct resources as today.</p> <p>Legacy RMR shall continue to use existing RMR mechanisms for RMR dispatch.</p>	Process Existing Function	- RTM - ED Tool
RMR-CPM-BRQ-0740	<p>ED Tool shall remove its CPM alert for new-tariff type RMR resources.</p>	Core	- ED Tool
RMR-CPM-BRQ-0750	<p>RTM Operator may exceptionally dispatch new-tariff RMR resources using non-RMR instruction types.</p> <p>RTM Operator may continue to exceptionally dispatch legacy RMR resources using RMR instruction types (e.g. "RMRR").</p>	Existing Function	- ED Tool

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-0755	<del>MED Tool economic prioritization logic shall consider new-tariff type RMR resources based solely on their submitted cost-based bids, automatically setting the resource capacity price to zero.</del>	Core	<del>– MED Tool (internal to ISO)</del>
RMR-CPM-BRQ-0760	RMR resources under the new tariff shall only receive unit commitment and dispatch notification as currently received for any resources.  Legacy RMR resources will continue to have dispatch notifications reported in the same manner as today.	Core	<ul style="list-style-type: none"> <li>- IFM, RTM</li> <li>- CMRI</li> <li>- OASIS</li> </ul>
RMR-CPM-BRQ-0761	Real-Time Market shall set the RMR Flag in the ADS dispatch system for Legacy RMR only, since new-tariff RMR unit commitment and dispatch shall align with RA resources.  <u>The Automated Dispatch System (ADS) shall continue to broadcast RMR dispatch flags for Legacy RMR (RMRL) resources at time when the real-time dispatch is incremental to the day-ahead schedule.</u>  <u>RMR resources under the new tariff provisions, which have required bid submissions through their Must-Offer Obligation (MOO), shall be excluded from receiving RMR Dispatch flag for these types of dispatches.</u>	Core	<ul style="list-style-type: none"> <li>- RTM</li> <li>- ADS</li> </ul>


## 6.4 Business Process: Manage Settlements & Billing

### 6.4.1 Business Requirements: RMR Settlements and Billing

ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-1200	Settlement of RMR resources under previous-tariff versions shall follow the same RMR Settlements Calendar, validation, and invoicing processes as today.	Process Existing Function	<ul style="list-style-type: none"> <li>- RMR Settlements</li> </ul>
RMR-CPM-BRQ-1201	Settlement of RMR resources under the new-tariff shall be included in the market settlement, billing, and invoicing runs under the ISO market settlement calendar.	Process	<ul style="list-style-type: none"> <li>- Settlements</li> </ul>



ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-1202	RMR resources under the new-tariff shall no longer submit Excel-based invoicing for settlement, but rather use the ISO settlement system invoice process and timeline.	Process	- Settlements
RMR-CPM-BRQ-1203	New RMR resources will follow the dispute process outlined for the ISO market in the Tariff. There will not be a special RMR dispute process for these resources.	Process	- Settlements
RMR-CPM-BRQ-1205	On a daily basis, Settlement systems shall retrieve and identify the following data from the MasterFile: <ul style="list-style-type: none"> <li>• Resource ID</li> <li>• RMR contract type (“new-tariff” vs. “legacy” tariff RMR types)</li> </ul>	Core	Source: MasterFile (ISO-managed)  Target: Settlements
RMR-CPM-BRQ-1206	System shall receive and store the following calculated/ <u>contracted</u> costs ( <u>same value applies for both Day-Ahead and Real-Time Markets</u> ) for all active new-tariff RMR units (if applicable): <ul style="list-style-type: none"> <li>• Opportunity Cost for following Adder Types               <ul style="list-style-type: none"> <li>○ Start Up Cost (\$/startup)</li> <li>○ Minimum Load Cost (\$/run-hour)</li> <li>○ Transition Cost (\$/transition)</li> <li>○ Variable Energy Cost, for the Energy Bid and DEB (\$/MWh)</li> </ul> </li> <li>• <u>Major Maintenance Adder</u> <ul style="list-style-type: none"> <li>○ <u>Startup Cost (\$/start)</u></li> <li>○ <u>Transition Cost (\$/transition)</u></li> <li>○ <u>Min Load Cost (\$/run-hour)</u></li> </ul> </li> <li>• <del>Major Maintenance Adder, Startup Cost (\$/startup)</del></li> <li>• <del>Major Maintenance Adder, Min Load Cost (\$/run-hour)</del></li> </ul>	Existing Function  <u>Core (Transition Cost)</u>	- Settlements

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-1210	<p>System shall receive new-tariff RMR resource reliability capacity data for each applicable TAC Area (for both Generic and Flex obligation types):</p> <ul style="list-style-type: none"> <li>• RMR Resource ID</li> <li>• Start and End Timestamp (RMR contract period)</li> <li>• RMR Contract Price (\$/MW-day)</li> <li>• MW Capacity amount (MW) by TAC Area by Obligation Type (Generic, Flex)</li> <li>• Associated TAC Area(s)</li> </ul> <p>Resource may have a one-to-one, or one-to-many relationship with associated TAC Area(s).</p> <p>Legacy RMR shall not be submitted to Settlements as part of this process.</p>	Core	- Settlements
RMR-CPM-BRQ-1215	<p>Settlement systems shall receive the following new-tariff RMR resource RAAIM assessment data from the RA system:</p> <ul style="list-style-type: none"> <li>• RMR Resource ID</li> <li>• Trade Date</li> <li>• Trade Hour</li> <li>• RA Type (Generic RA, Flex RA)</li> <li>• MW Curtailment, averaged by hour</li> </ul>	Existing Function	Source: CIRA Target: Settlements



ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-1225	<p>On a daily basis, system shall settle RMR reliability capacity payments, under the following rules:</p> <ul style="list-style-type: none"> <li>Reliability capacity payments shall only apply to RMR resources with contracts under the new tariff; resources under legacy RMR tariffs will not apply</li> <li>Capacity payments for RMR shall apply Capacity quantity (MW) * RMR contract price (\$/MW-day)</li> <li>On a daily basis, RMR capacity payments shall true-up by removing MMA and OC <del>calculated</del> costs (where applicable, as provided)</li> <li>On a daily basis, RMR capacity payments shall be adjusted by the price differential between market LMP/ASMP and bid-in costs for each trade hour settlement day</li> </ul>	Core	- Settlements
RMR-CPM-BRQ-1230	<p>On a daily basis, system shall allocate RMR reliability capacity costs to SCs with load which benefits from RMR reliability capacity, under the following rules:</p> <ul style="list-style-type: none"> <li>Reliability capacity amounts less the true-up value and any credited settlement amounts shall only be provided by RMR resources under the new RMR tariff provisions</li> <li>Apply the aggregate amount of reliability capacity costs based on Load Ratio Share of specified TAC Area(s)</li> <li>System RMR will apply to Load Ratio Share by SCs in all ISO TAC Areas</li> </ul>	Core	- Settlements
RMR-CPM-BRQ-1240	<p>On a monthly basis, system shall settle RAAIM obligation incentive payments and penalty charges for new RMR resources, under the same RAAIM settlement rules as any RA/CPM resource, but at the RMR contract price in the case of the penalty payment (incentive payment shall not change or differ from current RA/CPM resources).</p>	Core	- Settlements
RMR-CPM-BRQ-1255	<p>On a daily basis, system shall settle Bid Cost Recovery for new RMR resources, under the following rules:</p> <ul style="list-style-type: none"> <li>Existing rules for generators shall apply</li> <li>Adjustments shall be applied for MMA and OC costs, where applicable</li> </ul>	Core	- Settlements



ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-1260	<p>On a daily basis, system shall settle Exceptional Dispatch for Energy Settlement for new RMR resources, under the following rules:</p> <ul style="list-style-type: none"> <li>Existing rules for generators shall apply</li> <li>Adjustments shall be applied for MMA and OC costs, where applicable</li> <li>Startup, <u>Transition</u>, and Min Load costs associated with Exceptional Dispatch will be assessed through BCR (<u>Bid Cost Recovery</u>)</li> </ul>	Core	- Settlements
RMR-CPM-BRQ-1265	<p>Scheduling Coordinators for new RMR resources with unrecovered gas costs based on ISO-provided indexed gas price may file a cost recovery request to the ISO with the following information provided:</p> <ul style="list-style-type: none"> <li>RMR Resource ID</li> <li>Trade Dates (for unrecovered costs)</li> <li>Actual gas costs (with supporting documentation)</li> </ul>	Process	- Settlements
RMR-CPM-BRQ-1270	<p>Scheduling Coordinators for new RMR resources with unrecovered charges (e.g. motoring charges, repair item costs) may file a cost recovery request to the ISO with the following information provided:</p> <ul style="list-style-type: none"> <li>RMR Resource ID</li> <li>Trade Dates (for unrecovered costs)</li> <li>Repair Item Costs (with Supporting information)</li> <li>Motoring charges (with supporting documentation)</li> </ul>	Process	- Settlements
RMR-CPM-BRQ-1275	<p>Approved RMR unrecovered charge requests shall recover submitted costs for the portions in excess of ISO-provided cost basis (if applicable) that is not above the Real-Time Market LMP.</p>	Process	- Settlements

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## 6.4.2 Business Requirements: CPM Settlements and Billing

ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-1316	Risk-of-Retirement (ROR) designation authority shall be incorporated into RMR provisions, and removed from the CPM tariff provisions.	Tariff	- Settlements
<del>RMR-CPM-BRQ-1320</del>	<del>If an adjustment is made to the CPM offer price late in the Settlements cycle, the following shall occur:</del> <ul style="list-style-type: none"> <li><del>• If change occurs after T+55, OES must notify Settlements that an optional run is needed.</del></li> <li><del>• Settlements system shall receive the corrected CPM price from the RA system and resettle the impacted trade dates.</del></li> </ul>	<del>Process</del>	<del>- Settlements</del>

## 6.5 Business Process: Manage Market Clearing

### 6.5.1 Business Requirements: Market Clearing for RMR

ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-1400	Market Clearing system shall continue to process Legacy RMR invoices outside of the system, excluding legacy RMR resources from the Shortfall, Default Loss, and Credit Limit calculations for as long as they remain under their current contracts.	Process Existing Function	- Market Clearing
RMR-CPM-BRQ-1401	Market Clearing system shall process Shortfall, Default Loss, and Credit Limit calculations for RMR resources under the new-tariff as is currently performed for any other market invoiced generator.	Process Existing Function	- Market Clearing
RMR-CPM-BRQ-1402	<p>Scheduling Coordinators benefitting from procured RMR capacity shall have their collateral requirement adjusted to account for their increased EAL (Estimated Aggregate Liability) on the basis of their RMR cost allocation.</p> <p>Note: This only applies to EAL resulting from new-tariff RMR cost allocations.</p>	Process Existing Function	- Market Clearing

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
RMR-CPM-BRQ-1410	<p>The market clearing account shall be used to administer all RMR-related transactions for RMR resources under the new-tariff. No separate RMR account needs to be maintained for these resources.</p> <p>Legacy RMR resources shall continue to have their existing RMR accounts open to process Legacy RMR transactions until the expiration of those contracts.</p>	Process	- Market Clearing

## 6.6 Business Process: Market/Business Simulation


### 6.6.1 Business Requirements

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Structured Scenario
RMR-CPM-MSIM-2000	<p><b>RMR Resource Bid-Insertion</b></p> <p>Day-ahead and Real-Time bid insertion shall be performed by SIBR for new-tariff RMR designations.</p> <p>Use Case Conditions; Outcomes:</p> <ul style="list-style-type: none"> <li>• RMR submits partial bid; bid inserted for remaining available capacity</li> <li>• RMR submits Energy, omits RUC and/or AS Bids; bids inserted for missing bid types</li> <li>• RMR is on partial outage (&lt; Pmax) and does not submit bid; bid inserted up to available capacity</li> <li>• RMR is non-MOO qualified (e.g. Use-Limited, Conditionally Available Resource); bid not inserted for missing bids</li> </ul>	CIRA,  MF	SIBR  (DA, RT Bids)	1. Rule Impacts  4. New system process





ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Structured Scenario
RMR-CPM-MSIM-2005	<p><b>RMR Resource Substitution</b></p> <p>Planned and Forced Outage substitutions shall be performed for RMR resources.</p> <ul style="list-style-type: none"> <li>Outaged RMR has Local Obligation</li> <li>Outaged RMR has System Obligation</li> <li>Outaged RMR has Flex Obligation</li> <li>RMR resource cannot provide outaged resource with substitution</li> </ul>	CIRA OMS	Settlements	1. Rule Impacts 4. New system process
RMR-CPM-MSIM-2010	<p><b>RMR Daily Capacity Settlement</b></p> <ul style="list-style-type: none"> <li>Daily settlements provided for RMR resource; true-up for submitted Opportunity Cost, Major Maintenance Adder extracted</li> </ul>	CIRA	Settlements	1. Rule Impacts 4. New system process
RMR-CPM-MSIM-2020	<p><b>RMR RAIM Settlement</b></p> <ul style="list-style-type: none"> <li>RAAIM settlement applied to outaged new-tariff RMR resource</li> </ul>	CIRA, OMS	Settlements	1. Rule Impacts 4. New system process
<u>RMR-CPM-MSIM-2025</u>	<p><u><b>RMR Transition Cost Settlement Clawback</b></u></p> <p><u>MMA Transition Cost settlement clawback only applied to RMR MSG resource with MMA Startup Costs associated to both FROM and TO Configurations of a transition (no clawback for non-RMR)</u></p>	<u>Internal ISO</u>	<u>Settlements</u>	<u>1. Rule Impacts</u> <u>4. New system process</u>

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## Appendix 1: [Intentionally Blank]

## Appendix 2: RMR Flag, RAAIM, Bidding Matrix

ISO system shall identify and treat RMR resources under the new tariff (“RMR”), as opposed to those RMR units under legacy tariff versions (“RMRL”), according to the following matrix.


RMR Resource Type	MOO QUALIFIED	RMR CONTRACT STATUS	RMR CONDITION TYPE	RAAIM Classification	Bidding Behavior
Legacy RMR (“RMRL”)	R	Y	Condition 1, Condition 2	Exempt	No bid-insertion performed.
RMR	N*, R	Y	N/A	Non-Exempt	Bid-insertion performed if bids or missing or below RMR Capacity

\* RMR Must-Offer Qualified status will be subject to exceptions, as applicable.

MOO\_QUALIFIED, RMR contract status, and RMR CONDITION TYPE identifiers are managed internally by ISO based on RMR contract and resource criteria. No MasterFile registration action required by Market Participants.

## Appendix 3: [Intentionally Blank]

## Appendix 4: [Intentionally Blank]

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## Appendix 5: MMA Transition Cost Calculation

Per RMR-CPM-BRQ-0098, Major Maintenance Adder Transition Cost shall be calculated under the following scenarios.

No.	Scenario	Calculation	RLC Data Broadcast
1	<u>MMA transition is downward</u>	<u>System does not evaluate transition for MMA Transition Cost.</u>	<u>N/A</u>
2	<u>MMA transition is upward, but one or both configurations are missing MMA startup costs</u>	<u>System evaluates transition for MMA Transition Cost, but no calculation is provided.</u>	<u>N/A</u>
3	<u>MMA transition is upward, and both configurations have MMA startup costs associated</u>	<u>System evaluates transition for MMA Transition Cost, and provides calculated value.</u>	<u>Broadcast performed for each calculated MMA Transition costs for each qualified upward MSG transition</u>


Scenario 1: MSG Resource A (MMA Startup Costs exist for all Configurations)

MMA Startup Costs, by MSG Configuration

Config	MSG Configuration (RESOURCE A)	MMA Startup Cost (\$/Start)
<u>A</u>	<u>RESOURCE A 1X1</u>	<u>\$ 1000</u>
<u>B</u>	<u>RESOURCE A 1X2</u>	<u>\$ 3500</u>
<u>C</u>	<u>RESOURCE A 2X3</u>	<u>\$ 7000</u>
<u>D</u>	<u>RESOURCE A 1X2_DF</u>	<u>\$ 6000</u>

Calculated MMA Transition Cost, by Transition

No.	Transition	Calculated MMA Transition Cost	Broadcast Value?
1	<u>A → B</u>	<u>= Max (0, 3500 – 1000)</u> <u>= \$2500/transition</u>	<u>Yes</u>
2	<u>B → C</u>	<u>= Max (0, 7000 – 3500)</u> <u>= \$3500/transition</u>	<u>Yes</u>
3	<u>B → D</u>	<u>= Max (0, 6000 – 3500)</u> <u>= \$2500/transition</u>	<u>Yes</u>
4	<u>B → A</u>	<u>Ineligible since downward transition.</u>	<u>No</u>

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>4.6</b>
		<b>Document Version:</b>	<b><u>1.11.2</u></b>
<b>Reliability Must-Run and Capacity Procurement Mechanism Enhancements Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>10/30/2019</b>

No.	Transition	Calculated MMA Transition Cost	Broadcast Value?
<u>5</u>	<u>C → B</u>	<u>Ineligible since downward transition.</u>	<u>No</u>
<u>6</u>	<u>D → B</u>	<u>Ineligible since downward transition.</u>	<u>No</u>


Scenario 2: MSG Resource B (MMA Startup Costs exist for some Configurations)

MMA Startup Costs, by MSG Configuration

Config	MSG Configuration (RESOURCE B)	MMA Startup Cost (\$/Start)
<u>A</u>	<u>RESOURCE B 1X1</u>	<u>\$ 2000</u>
<u>B</u>	<u>RESOURCE B 1X2</u>	<u>\$ 6000</u>
<u>C</u>	<u>RESOURCE B 2X3</u>	<u>N/A (Not Available)</u>
<u>D</u>	<u>RESOURCE B 1X2 DF</u>	<u>N/A (Not Available)</u>
<u>E</u>	<u>RESOURCE B 2X3 DF</u>	<u>N/A (Not Available)</u>

Calculated MMA Transition Cost, by Transition (Upward and Downward)

No.	Transition	Calculated MMA Transition Cost	Broadcast Value?
<u>1</u>	<u>A → B</u>	<u>= Max (0, 6000 – 2000)</u> <u>= \$4000/transition</u>	<u>Yes</u>
<u>2</u>	<u>B → C</u>	<u>Ineligible since one or both configurations do not have an associated MMA startup cost.</u>	<u>No</u>
<u>3</u>	<u>B → D</u>	<u>Ineligible since one or both configurations do not have an associated MMA startup cost.</u>	<u>No</u>
<u>4</u>	<u>C → E</u>	<u>Ineligible since one or both configurations do not have an associated MMA startup cost.</u>	<u>No</u>
<u>5</u>	<u>B → A</u>	<u>Ineligible since downward transition.</u>	<u>No</u>
<u>6</u>	<u>C → B</u>	<u>Ineligible since downward transition.</u>	<u>No</u>
<u>7</u>	<u>D → B</u>	<u>Ineligible since downward transition.</u>	<u>No</u>
<u>8</u>	<u>E → C</u>	<u>Ineligible since downward transition.</u>	<u>No</u>

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>4.6</b>
		<b>Document Version:</b>	<b><u>4.11.2</u></b>
<b>Reliability Must-Run and Capacity Procurement Mechanism Enhancements Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>10/30/2019</b>

Scenario 3: MSG Resource C (MMA Startup Costs non-existent for all Configurations)

MMA Startup Costs, by MSG Configuration

<u>Config</u>	<u>MSG Configuration (RESOURCE C)</u>	<u>MMA Startup Cost (\$/Start)</u>
<u>A</u>	<u>RESOURCE C 1X1</u>	<u>N/A (Not Available)</u>
<u>B</u>	<u>RESOURCE C 1X2</u>	<u>N/A (Not Available)</u>
<u>C</u>	<u>RESOURCE C 2X3</u>	<u>N/A (Not Available)</u>
<u>D</u>	<u>RESOURCE C 1X2 DF</u>	<u>N/A (Not Available)</u>
<u>E</u>	<u>RESOURCE C 2X3 DF</u>	<u>N/A (Not Available)</u>

Calculated MMA Transition Cost, by Transition (Upward and Downward)

<u>No.</u>	<u>Transition</u>	<u>Calculated MMA Transition Cost</u>	<u>Broadcast Value?</u>
<u>1</u>	<u>A → B</u>	<u>Ineligible since one or both configurations do not have an associated MMA startup cost.</u>	<u>No</u>
<u>2</u>	<u>B → C</u>	<u>Ineligible since one or both configurations do not have an associated MMA startup cost.</u>	<u>No</u>
<u>3</u>	<u>B → D</u>	<u>Ineligible since one or both configurations do not have an associated MMA startup cost.</u>	<u>No</u>
<u>4</u>	<u>C → E</u>	<u>Ineligible since one or both configurations do not have an associated MMA startup cost.</u>	<u>No</u>
<u>5</u>	<u>B → A</u>	<u>Ineligible since downward transition.</u>	<u>No</u>
<u>6</u>	<u>C → B</u>	<u>Ineligible since downward transition.</u>	<u>No</u>
<u>7</u>	<u>D → B</u>	<u>Ineligible since downward transition.</u>	<u>No</u>
<u>8</u>	<u>E → C</u>	<u>Ineligible since downward transition.</u>	<u>No</u>