Release Notes – Business Rules Version 11.4.1x
Up to WINTER 2021 Release for SIBR/BSAP/RC-BSAP

Revision History

Date	Version	By	Description
11/10/2021	1.0	WT	Initial Draft for Winter Release 2021 set. VOM/JOU

For the Release Notes **version 1.0 this will be the Baseline Release** and is referenced in the revision history as the Initial Draft.
For modifications and adjustments of the Business Rules(BR) for SIBR/BSAP/RC-BSAP that come after the Baseline Release the revision history will **show an Incremental change** with the new BR(vX.X.x).   The incremental changes will be listed on top of the baseline.

The Baseline Release will identify all the Projects associated with the SIBR/BSAP/RC-BSAP Release and if there are any changes to the UI or API web services. <mark>Changes to the UI will be documented in the</mark> <mark>SIBR SC Users Guide</mark>, BSAP Users Guide, or the RC-BSAP Users Guide. Web services changes will be documented in the Technical Specifications and posting of the related artifacts on the application pages on our Developers site.

Contents

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![California ISO logo]

////////////////////////////////////// **Baseline Release** //

This set of Release Notes covers the changes going forward from the Business Rules Version 11.4.1.

WINTER 2021 for Variable Operations and Maintenance (VOM) and Joint Ownded Unit (JOU) Release Impacts

Business Rule changes within a release may force changes to the User Interfaces or Web Services depending on the requirement changes that are needed to support new or modified functionality within system applications. The following elements defined below give a quick overview of expected changes to the systems that interface with the Business Rules.

Application	Element	Change	Comment
SIBR	*SIBR UI*	*No*	
	SIBR Web Services	*No*	
	SIBR Rules	***YES***	○
BSAP	*BSAP UI*	*NO*	
	BSAP Web Services	*NO*	
	BSAP Rules	*NO*	
RC-BSAP	RC-BSAP UI	*NO*	
	RC-BSAP Web Services	*NO*	
	RC-BSAP Rules	*NO*	

Please visit the relevant user documentation on the Release Planning page for the updates to the documents associated to a specific Release.

http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx

SIBR User Guide – UI changes will be documented in this document.
SIBR Interface Specifications - all web service (wsdl, xsd, xml) changes will be documented in this document.
https://developer.caiso.com

BSAP User Guide – UI changes will be documented in this document.
Base Schedule Interface Specification Web Services - all web service (wsdl, xsd, xml) changes will be documented in this document. https://developer.caiso.com

RC-BSAP User Guide – UI changes will be documented in this document.
RC Base Schedule Interface Specification Web Services - all web service (wsdl, xsd, xml) changes will be documented in this document. https://developer.caiso.com

Business Rules Winter 2021 Release Projects (included Independent Projects)

The **Winter 2021 Release** rules capture changes associated with the following projects targeted for implementation near October/November 2021 timeframe.

Below in section "Business Rules Impacted", you will find <mark>Yellow highlighted</mark> rules these are for VOM and JOU functionality, this is the baseline rules set implemented for Market Sim. Tentative start date early December 2021.

Winter VOM:

- For Energy, Minimum Load and Startup:
    - Operating and maintenance cost changes used for calculating commitment costs. There will be a an effective date for this functionality to consider the new data in the commitment cost calculations.

Winter JOU:

- For EIM resource with shared responsibility:
    - A Generating Resource that is owned by multiple entities; the resource is scheduled and dispatched by CAISO, but two or more Scheduling Coordinators provide the bids for their own shares.

http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx this set may also include updates to rule modifications not tied to a release.

The full set of the Business Rules promoted to Production can be seen under the SIBR user documentation under the Application Access/ in SIBR user documentation for all rules related to SIBR/BSAP/RC-BSAP.

http://www.caiso.com/participate/Pages/ApplicationAccess/Default.aspx

SIBR UI Screen shots

N/A there is no new UI feature for Winter 2021.

SIBR API XML Text/Grid Screen shot

N/A there is no new Tech Spec feature for Winter 2021.

Revision History for Rules: (11.3.2)

Version 11.3.2 (highlighted p

Version	Date	Changes	Reference
11.3.2	9/9/2021	Added terms Energy Operation and Maintenance Cost, Minimum Load Operation and Maintenance Cost, Negotiated O&M Indicator, and Start-Up Operation and Maintenance Cost.	VOM Cost Review
11.3.2	9/9/2021	Added rule 10089 for VOM Cost Review effective dating functionality.	VOM Cost Review
11.3.2	9/9/2021	Modified 41129, 41224, 41645, 41652, 41659, 41660, 41662, and 41663 to disable existing cost calculation rules upon activation of the VOM Cost Review policy.	VOM Cost Review
11.3.2	9/9/2021	Added rules 41136, 41210, and 41666-41671 to enable new cost calculation rules upon activation of the VOM Cost Review policy.	VOM Cost Review
Version	Date	Changes	Reference
11.4.1	10/8/2021	Added Terms Joint Operated Unit, JOU Child Ownership Share, JOU Child Resource, and JOU Parent Resource.	JOU Pilot
11.4.1	10/8/2021	Modified 21018 to support separate Bid Content rules for JOU Parent Resources.	JOU Pilot
11.4.1	10/8/2021	Modified 50001 to support bids for JOU Parent Resources.	JOU Pilot
11.4.1	10/8/2021	Added 21020 to specify Bid Content rules to support bids for JOU Parent Resources.	JOU Pilot
11.4.1	10/8/2021	Added 51064 to specify Bid Generation and Final Processing Rules to allow JOU Child Resources to inherit bid components from the associated JOU Parent Resource.	JOU Pilot

11.4.1	10/8/2021	Modified 41133, 41135, 41230, and 41231 to allow JOU Child Resources to inherit default commitment costs from the associated JOU Parent Resource.	JOU Pilot
11.4.1	10/8/2021	Added 41137 and 41233 to specify Bid Processing rules to allow JOU Child Resources to inherit default commitment costs from the associated JOU Parent Resource.	JOU Pilot
11.4.1	10/8/2021	Modified 41645, 41652, 41659, 41660, 41662, 41663, 41666-41671 to allow JOU Child Resources to inherit reasonableness threshold commitment costs from the associated JOU Parent Resource.	JOU Pilot
11.4.1	10/8/2021	Added 41672 and 41673 to specify Bid Processing rules to allow JOU Child Resources to inherit reasonableness threshold commitment costs from the associated JOU Parent Resource.	JOU Pilot
11.4.1	10/8/2021	Modified 28001 to prohibit Base Schedules for JOU Parent Resources.	JOU Pilot
11.4.1	10/8/2021	Modified 61038, 61039, and 61042 to incorporate new rules into the re-firing list.	JOU Pilot / VOM Cost Review
11.4.1	10/8/2021	Added 41136, 41210, 41666-41671, 41106-41110, and 41216-41220 to NPM G RF	VOM Cost Review

Revision of Terms for Summer 2021 Release:

Name	Acronym	Definition
Energy Operation and Maintenance Cost	Energy O&M Cost	The portion of the Energy Cost of a Generating Resource that is related to operating and maintenance expenses.
Minimum Load Operation and Maintenance Cost	Minimum Load O&M Cost	A portion of the Minimum Load Cost of a Generating Resource that is related to operating and maintenance expenses.
Negotiated O&M Indicator		A registered indicator for each generating resource that indicates whether the resource's Minimum Load and Start-Up O&M Costs are negotiated ('Negotiated') or set to the default ('Default') value.
Start-Up Operation and Maintenance Cost	Startup O&M Cost	A portion of the Start-Up Cost of a Generating Resource that is related to operating and maintenance expenses.
Name	Acronym	Definition
Joint Operated Unit	JOU	A Generating Resource that is owned by multiple entities; the resource is scheduled and dispatched by CAISO, but two or more Scheduling Coordinators provide the bids for their own shares.
JOU Child Ownership Share		The fractional share of the JOU Parent Resource that is owned by the JOU Child Resource.
JOU Child Resource		A share of the Joint Operated Unit that is bid by a single Scheduling Coordinator.
JOU Parent Resource		The Joint Operated Unit physical Resource.

![California ISO logo]

Business Rules Impacted – Winter 2021 Release:

Rule changes for the Version 11.3.2 – 11.4.x are located below. Modified Text in red, new rules will be all red and deleted rules in grey 'DEL' in market column. This is the baseline rules set implemented for Market Sim. Tentative start date December 2021.

New and Modified rules are as follows: (Detail Summary)

SIBR BR version 11.3.1

New Rules

Market	Business Rule ID	Business Rule Numbering				Description	Comments
ALL	10089	1	0	0	77	The configurable VOM Cost Review Effective Date must be must be initialized to '01/01/2022'.	
ALL	41129	4	1	1	26	The Proxy Start-Up Cost Curve for an Online Generating Resource State, whether startable or not, in a Generating Resource Bid must be derived as the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, and e) the Grid Management Charge Start-Up Cost Adder, for that Online Generating Resource State of the Generating Resource and Bid Period specified in that Bid, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Online Generating Resou State ($0/start by default curve breakpoints must b same as the breakpoints Start-Up Energy Curve a Start-Up Fuel Cost Curve Start-Up Fuel Curve for t Online Generating Resou State. RLC: Major Maintenance Up Cost Adder for Gener Resources by Online Generating Resource Sta ($0/start by default).

ALL	41136	4	1	1	27	The Proxy Start-Up Cost Curve for an Online Generating Resource State, whether startable or not, in a Generating Resource Bid must be derived as the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) **either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity,** and e) the Grid Management Charge Start-Up Cost Adder, for that Online Generating Resource State of the Generating Resource and Bid Period specified in that Bid, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period, **and the Bid Period is on or after the VOM Cost Review Effective Date.**	RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Online Generating Resou State ($0/start by default curve breakpoints must b same as the breakpoints Start-Up Energy Curve a Start-Up Fuel Cost Curve Start-Up Fuel Curve for t Online Generating Resou State. **MFR: Start-Up Operatio Maintenance Cost and Negotiated O&M Indica registry for Generating Resources.**
ALL	41224	4	1	2	27	The Proxy Minimum Load Cost for an Online Generating Resource State in a Generating Resource Bid must be derived as the sum of a) the Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, for that Online Generating Resource State of the Generating Resource and Bid Period specified in that Bid, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	MFR: Minimum Load Fue ($/hr) and Operation and Maintenance Cost ($/MW registry by online state fo Generating Resources w Minimum Load Cost Bas "Proxy Cost". RLC: Greenhouse Gas Minimum Load Cost Allo for Generating Resource Online Generating Resou State ($0/MWh by defaul RLC: Major Maintenance Minimum Load Cost Add Generating Resources by Online Generating Resou State ($0/h by default). RLC: Grid Management Minimum Load Cost Rate ($0/MWh by default).

| ALL | 41210 | 4 | 1 | 2 | 28 | The Proxy Minimum Load Cost for an Online Generating Resource State in a Generating Resource Bid must be derived as the sum of a) the Minimum Load Fuel Cost, b) the product of the registered **Energy** Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) **either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity,** and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, for that Online Generating Resource State of the Generating Resource and Bid Period specified in that Bid, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period, and the Bid Period is on or after the VOM Cost Review Effective Date. | MFR: Minimum Load Fue ($/hr) and Operation and Maintenance Cost ($/MW registry by online state fo Generating Resources w Minimum Load Cost Bas "Proxy Cost". RLC: Greenhouse Gas Minimum Load Cost Allo for Generating Resource Online Generating Resou State ($0/MWh by defaul **MFR: Energy and Minin Load Operation and Maintenance Cost and Negotiated O&M Indica registry for Generating Resources.** RLC: Grid Management Minimum Load Cost Rate ($0/MWh by default). |

| ALL | 41645 | 4 | 1 | 15 | 1 | The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the Relative Proxy Start-Up Cost Ceiling multiplied by the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, and e) the Grid Management Charge Start-Up Cost Adder, plus the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date. | RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Online Generating Resou State ($0/start by default curve breakpoints must b same as the breakpoints Start-Up Energy Curve a Start-Up Fuel Cost Curve Start-Up Fuel Curve for t Online Generating Resou State. RLC: Major Maintenance Up Cost Adder for Gener Resources by Online Generating Resource Sta ($0/start by default). Does not apply to resour have had a gas price rev due to a manual consulta with the ISO. |

ALL	41659	4	1	15	2	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the sum of a) the Start-Up Energy Cost Curve, b) the Manual Consult Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, e) the Grid Management Charge Start-Up Cost Adder, and f) the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "NO" for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Online Generating Resou State ($0/start by default curve breakpoints must b same as the breakpoints Start-Up Energy Curve a Start-Up Fuel Cost Curve Start-Up Fuel Curve for t Online Generating Resou State. RLC: Major Maintenance Up Cost Adder for Gener Resources by Online Generating Resource Sta ($0/start by default). Applies to resources that had a gas price revision manual consultation with ISO, but a same day gas update is not applicable.

ALL	41660	4	1	15	3	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the greater of 1) the Relative Proxy Start-Up Cost Ceiling multiplied by the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, and e) the Grid Management Charge Start-Up Cost Adder, or 2) the sum of a) the Start-Up Energy Cost Curve, b) the Manual Consult Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, and e) the Grid Management Charge Start-Up Cost Adder, plus the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "YES" for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Online Generating Resou State ($0/start by default curve breakpoints must b same as the breakpoints Start-Up Energy Curve a Start-Up Fuel Cost Curve Start-Up Fuel Curve for t Online Generating Resou State. RLC: Major Maintenance Up Cost Adder for Gener Resources by Online Generating Resource Sta ($0/start by default). Applies to resources that had a gas price revision manual consultation with ISO, and a same day gas update has been applied

| ALL | 41666 | 4 | 1 | 15 | 4 | The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the Relative Proxy Start-Up Cost Ceiling multiplied by the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) **either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity,** and e) the Grid Management Charge Start-Up Cost Adder, plus the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period, **and the Bid Period is on or after the VOM Cost Review Effective Date.** | RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources b Online Generating Resou State ($0/start by default curve breakpoints must b same as the breakpoints Start-Up Energy Curve a Start-Up Fuel Cost Curve Start-Up Fuel Curve for t Online Generating Resou State. **MFR: Start-Up Operatio Maintenance Cost and Negotiated O&M Indica registry for Generating Resources.** Does not apply to resour have had a gas price rev due to a manual consulta with the ISO. |

ALL	41667	4	1	15	5	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the sum of a) the Start-Up Energy Cost Curve, b) the Manual Consult Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) **either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity,** e) the Grid Management Charge Start-Up Cost Adder, and f) the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "NO" for that Bid Period, **and the Bid Period is on or after the VOM Cost Review Effective Date.**	RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources b Online Generating Resou State ($0/start by default curve breakpoints must b same as the breakpoints Start-Up Energy Curve a Start-Up Fuel Cost Curve Start-Up Fuel Curve for t Online Generating Resou State. **MFR: Start-Up Operatio Maintenance Cost and Negotiated O&M Indica registry for Generating Resources.** Applies to resources that had a gas price revision manual consultation with ISO, but a same day gas update is not applicable.

ALL	41668	4	1	15	6	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the greater of 1) the Relative Proxy Start-Up Cost Ceiling multiplied by the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) **either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity,** and e) the Grid Management Charge Start-Up Cost Adder, or 2) the sum of a) the Start-Up Energy Cost Curve, b) the Manual Consult Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) **either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity,** and e) the Grid Management Charge Start-Up Cost Adder, plus the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "YES" for that Bid Period, **and the Bid Period is on or after the VOM Cost Review Effective Date.**	RLC: Greenhouse Gas S… Cost Allowance Curve fo… Generating Resources by… Online Generating Resou… State ($0/start by default… curve breakpoints must b… same as the breakpoints… Start-Up Energy Curve a… Start-Up Fuel Cost Curve… Start-Up Fuel Curve for t… Online Generating Resou… State. **MFR: Start-Up Operatio… Maintenance Cost and … Negotiated O&M Indica… registry for Generating … Resources.** Applies to resources that… had a gas price revision … manual consultation with… ISO, and a same day gas… update has been applied…

ALL	41652	4	1	16	1	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the Relative Proxy Minimum Load Cost Ceiling multiplied by the sum of a) the Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, plus the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	MFR: Minimum Load Fue ($/hr) and Operation and Maintenance Cost ($/MW registry by online state fo Generating Resources w Minimum Load Cost Bas "Proxy Cost". RLC: Greenhouse Gas Minimum Load Cost Allo for Generating Resource Online Generating Resou State ($0/MWh by defaul RLC: Major Maintenance Minimum Load Cost Add Generating Resources by Online Generating Resou State ($0/h by default). RLC: Grid Management C Minimum Load Cost Rate ($0/MWh by default). Does not apply to resour have had a gas price rev due to a manual consulta with the ISO.

ALL	41662	4	1	16	2	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the sum of a) the Manual Consult Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, and f) the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "NO" for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	MFR: Minimum Load Fue ($/hr) and Operation and Maintenance Cost ($/MW registry by online state fo Generating Resources w Minimum Load Cost Bas "Proxy Cost". RLC: Greenhouse Gas Minimum Load Cost Allow for Generating Resource Online Generating Resou State ($0/MWh by defaul RLC: Major Maintenance Minimum Load Cost Add Generating Resources by Online Generating Resou State ($0/h by default). RLC: Grid Management (Minimum Load Cost Rate ($0/MWh by default). Applies to resources that had a gas price revision manual consultation with ISO, but a same day gas update is not applicable.

| ALL | 41663 | 4 | 1 | 16 | 3 | The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the greater of 1) the Relative Proxy Minimum Load Cost Ceiling multiplied by the sum of a) the Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, and 2) the sum of a) the Manual Consult Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, plus the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "YES" for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date. | MFR: Minimum Load Fue ($/hr) and Operation and Maintenance Cost ($/MW registry by online state fo Generating Resources w Minimum Load Cost Bas "Proxy Cost". RLC: Greenhouse Gas Minimum Load Cost Allo for Generating Resource Online Generating Resou State ($0/MWh by defaul RLC: Major Maintenance Minimum Load Cost Add Generating Resources by Online Generating Resou State ($0/h by default). RLC: Grid Management (Minimum Load Cost Rate ($0/MWh by default). Applies to resources that had a gas price revision manual consultation with ISO, and a same day gas update has been applied |

| ALL | 41669 | 4 | 1 | 16 | 4 | The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the Relative Proxy Minimum Load Cost Ceiling multiplied by the sum of a) the Minimum Load Fuel Cost, b) the product of the registered **Energy** Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) **either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity,** and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, plus the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period, **and the Bid Period is on or after the VOM Cost Review Effective Date.** | MFR: Minimum Load Fue ($/hr) registry by online s Generating Resources w Minimum Load Cost Basi "Proxy Cost". RLC: Greenhouse Gas Minimum Load Cost Allo for Generating Resource Online Generating Resou State ($0/MWh by defaul **MFR: Energy and Minim Load Operation and Maintenance Cost and Negotiated O&M Indica registry for Generating Resources.** Does not apply to resour have had a gas price rev due to a manual consulta with the ISO. |

ALL	41670	4	1	16	5	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the sum of a) the Manual Consult Minimum Load Fuel Cost, b) the product of the registered **Energy** Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) **either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity,** e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, and f) the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "NO" for that Bid Period, **and the Bid Period is on or after the VOM Cost Review Effective Date.**	MFR: Minimum Load Fue ($/hr) registry by online s Generating Resources w Minimum Load Cost Bas "Proxy Cost". RLC: Greenhouse Gas Minimum Load Cost Allov for Generating Resource Online Generating Resou State ($0/MWh by defaul **MFR: Energy and Minim Load Operation and Maintenance Cost and Negotiated O&M Indica registry for Generating Resources.** Applies to resources that had a gas price revision manual consultation with ISO, but a same day gas update is not applicable.

| ALL | 41671 | 4 | 1 | 16 | 6 | The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the greater of 1) the Relative Proxy Minimum Load Cost Ceiling multiplied by the sum of a) the Minimum Load Fuel Cost, b) the product of the registered **Energy** Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) **either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity,** and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, and 2) the sum of a) the Manual Consult Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) **either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity,** and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, plus the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "YES" for that Bid Period, **and the Bid Period is on or after the VOM Cost Review Effective Date.** | MFR: Minimum Load Fue ($/hr) registry by online s Generating Resources w Minimum Load Cost Bas "Proxy Cost". RLC: Greenhouse Gas Minimum Load Cost Allo for Generating Resource Online Generating Resou State ($0/MWh by defaul **MFR: Energy and Minin Load Operation and Maintenance Cost and Negotiated O&M Indica registry for Generating Resources.** Applies to resources that had a gas price revision manual consultation with ISO, and a same day gas update has been applied |

SIBR BR version 11.4.1

The following rules have been added or changed:

Market	Business Rule ID	Business Rule Numbering				Description	Comments
RTM	21018	2	1	0	6	A Generating Resource Bid may include the following if that Generating Resource is not registered as a JOU Parent for the Trading Hour specified in that Bid: 1) at most one Start-Up Bid Component for each registered Online Generating Resource State of the Generating Resource specified in that Bid; 2) at most one Minimum Load Cost Bid Component for each registered Online Generating Resource State; 3) at most one Energy Bid Component for each registered Online Generating Resource State; 4) at most one Self-Schedule Bid Component for each registered Online Generating Resource State; 5) at most one Ancillary Service Bid Component for each registered Online Generating Resource State if and only if the Generating Resource specified in the Bid is NOT registered as a EIM Resource for that Trading Hour; 6) at most one Ramp Rate Bid Component for each registered Online Generating Resource State; 7) at most one Distribution Bid Component; 8) at most one Wheeling Bid Component, if and only if the Generating Resource specified in the Bid is registered as an Inter-Tie Generating Resource for the Trading Hour specified in that Bid; 9) at most one Pumping Bid Component, if and only if the Generating Resource specified in the Bid is registered as a Pump Storage Hydro or a Pump for that Trading Hour; 10) at most one State Transition Bid Component, if and only if the Generating Resource specified in the Bid is registered as a MSG for that Trading Hour; 11) at most one Miscellaneous Bid Component; 12) at most one Greenhouse Gas Bid Component, if and only if that Generating Resource is registered as an EIM Resource with GHG Flag "N" for that Trading Hour; 13) at most one Default Start-Up Bid Adjustment Component for each registered Online Generating Resource State, if and only if that Generating Resource is not registered with a Start-Up Cost Basis of "Registered Cost" for that Trading Hour; 14) at most one Default Minimum Load Bid Adjustment Component for each registered Online Generating Resource State, if and only if that Generating Resource is not registered with a Minimum Load Cost Basis of "Registered Cost" for that Trading Hour; and 15) at most one Default Energy Bid Adjustment Component for each registered Online Generating Resource State, if and only if the Calculated Energy Bid Origin for that Online Generating Resource State of that Generating Resource and Trading Hour is not set to "HYDRO_BASED".	MFR: GHG Flag registrat Resources; JOU Parent registration for Generatin Resources. ECIC: Calculated Energy Origin for every Generati Resource.
RTM	21020	2	1	0	7	A Generating Resource Bid may only include one Start-Up Bid Component for each registered Online Generating Resource State of the Generating Resource specified in that Bid, if that Generating Resource is registered as a JOU Parent for the Trading Hour specified in that Bid. **[GREG – should we add rules to generate a JOU parent bid if they do not submit one?]**	MFR: JOU Parent Resou registration for Generatin Resources.

BS	28001	2	8	0	1	A Base Schedule shall include the following if the Resource specified in the Base Schedule is not registered as a JOU Parent for the Base Schedule Period specified in the Base Schedule: it must include a Base Energy Schedule (MW); it must also include a Base Generating Resource State, if and only if the Resource specified in the Base Schedule is a Generating Resource registered as a MSG for the Base Schedule Period specified in the Base Schedule; if the Resource specified in the Base Schedule is a Generating Resource not registered as an ETSR or a DSR for that Base Schedule Period, the Base Schedule may also include any of the following: 1) a Base Regulation Up Schedule (MW); 2) a Base Regulation Down Schedule (MW); 3) a Base Spinning Reserve Schedule (MW); 4) a Base Non-Spinning Reserve Schedule (MW); and 5) at most one Distribution Bid Component, if and only if the Resource specified in the Base Schedule is registered as an Aggregate Resource for the Base Schedule Period specified in the Base Schedule.	MFR: ETSR and DSR registration; ETSR/DSR a System Resources define mirrored pairs (Import to Export and vice-versa). A non-zero Base Energy Schedule for an Online B Generating Resource Sta indicates self-commitmen JOU Parent Resource registration for Generatin Resources.
ALL	41133	4	1	1	22	The Default Start-Up Bid Curve for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be the product of the Relative Proxy Start-Up Cost Ceiling and the Proxy Start-Up Cost Curve for that Online Generating Resource State of that Generating Resource and Bid Period, plus the Start-Up Opportunity Cost for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period, that Generating Resource is not registered as a JOU Child Resource for that Bid Period, and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period.	Start-Up Cost capped by Relative Proxy Start-Up (Ceiling plus the Start-Up Opportunity Cost. Does not apply to resour have had a gas price rev due to a manual consulta with the ISO.
ALL	41135	4	1	1	23	The Default Start-Up Bid Curve for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be the sum of the Proxy Start-Up Cost Curve for that Online Generating Resource State of that Generating Resource and Bid Period and the Start-Up Opportunity Cost for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" for that Bid Period, and is not registered as a JOU Child Resource for that Bid Period.	Start-Up Cost capped by Relative Proxy Start-Up (Ceiling plus the Start-Up Opportunity Cost. Applies to resources that had a gas price revision (manual consultation with ISO.

ALL	41137	4	1	1	24	The Default Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, in a Generating Resource Bid for a Generating Resource registered as a JOU Child Resource for that Bid Period is the Default Start-Up Bid Curve for the equivalent Online Generating Resource State in the Generating Resource Bid of the associated JOU Parent Resource for that Bid Period, multiplied by the JOU Child Ownership Share of that JOU Child Resource for that Bid Period.	Decompose Default SUC JOU Parent to JOU Child MFR: JOU Child Owners Share, JOU Child Resou JOU Parent Resource registry. JOU Child Reso and JOU Parent Resourc association.
ALL	41230	4	1	2	22	The Default Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be the product of the Relative Proxy Minimum Load Cost Ceiling and the Proxy Minimum Load Cost for that Online Generating Resource State of that Generating Resource and Bid Period, plus the Minimum Load Opportunity Cost for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period, that Generating Resource is not registered as a JOU Child Resource for that Bid Period, and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period.	Minimum Load Cost cap the Relative Proxy Minim Load Cost Ceiling plus th Minimum Load Opportun Cost. Does not apply to resour have had a gas price rev due to a manual consulta with the ISO.
ALL	41231	4	1	2	23	The Default Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be the sum of the Proxy Minimum Load Cost for that Online Generating Resource State of that Generating Resource and Bid Period and the Minimum Load Opportunity Cost for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" for that Bid Period, and is not registered as a JOU Child Resource for that Bid Period.	Minimum Load Cost cap the Relative Proxy Minim Load Cost Ceiling plus th Minimum Load Opportun Cost. Applies to resources that had a gas price revision manual consultation with ISO.
ALL	41233	4	1	2	25	The Default Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid for a Generating Resource registered as a JOU Child Resource for that Bid Period is the Default Minimum Load Bid for the equivalent Online Generating Resource State in the Generating Resource Bid of the associated JOU Parent Resource for that Bid Period, multiplied by the JOU Child Ownership Share of that JOU Child Resource for that Bid Period.	Decompose Default MLC JOU Parent to JOU Child MFR: JOU Child Owners Share, JOU Child Resou JOU Parent Resource registry. JOU Child Reso and JOU Parent Resourc association.

ALL	41645	4	1	15	1	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the Relative Proxy Start-Up Cost Ceiling multiplied by the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, and e) the Grid Management Charge Start-Up Cost Adder, plus the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Generating Resource Sta ($0/start by default). The breakpoints must be the as the breakpoints of the Up Energy Curve and the Up Fuel Cost Curve or th Up Fuel Curve for that O Generating Resource Sta RLC: Major Maintenance Up Cost Adder for Gener Resources by Online Ger Resource State ($0/start default). Does not apply to resour have had a gas price rev due to a manual consulta with the ISO.

ALL	41659	4	1	15	2	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the sum of a) the Start-Up Energy Cost Curve, b) the Manual Consult Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, e) the Grid Management Charge Start-Up Cost Adder, and f) the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "NO" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Generating Resource Sta ($0/start by default). The breakpoints must be the as the breakpoints of the Up Energy Curve and the Up Fuel Cost Curve or th Up Fuel Curve for that O Generating Resource Sta RLC: Major Maintenance Up Cost Adder for Gener Resources by Online Ge Resource State ($0/start default). Applies to resources that had a gas price revision manual consultation with ISO, but a same day gas update is not applicable.

| ALL | 41660 | 4 | 1 | 15 | 3 | The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the greater of 1) the Relative Proxy Start-Up Cost Ceiling multiplied by the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, and e) the Grid Management Charge Start-Up Cost Adder, or 2) the sum of a) the Start-Up Energy Cost Curve, b) the Manual Consult Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) the Major Maintenance Start-Up Cost Adder, and e) the Grid Management Charge Start-Up Cost Adder, plus the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "YES" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date. | RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Generating Resource Sta ($0/start by default). The breakpoints must be the as the breakpoints of the Up Energy Curve and the Up Fuel Cost Curve or th Up Fuel Curve for that O Generating Resource Sta RLC: Major Maintenance Up Cost Adder for Gener Resources by Online Ge Resource State ($0/start default). Applies to resources that had a gas price revision manual consultation with ISO, and a same day gas update has been applied |

| ALL | 41666 | 4 | 1 | 15 | 4 | The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the Relative Proxy Start-Up Cost Ceiling multiplied by the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity, and e) the Grid Management Charge Start-Up Cost Adder, plus the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period, and the Bid Period is on or after the VOM Cost Review Effective Date. | RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Generating Resource Sta ($0/start by default). The breakpoints must be the as the breakpoints of the Up Energy Curve and the Up Fuel Cost Curve or th Up Fuel Curve for that O Generating Resource Sta MFR: Start-Up Operation Maintenance Cost and Negotiated O&M Indicato registry for Generating Resources. Does not apply to resour have had a gas price rev due to a manual consulta with the ISO. |

ALL	41667	4	1	15	5	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the sum of a) the Start-Up Energy Cost Curve, b) the Manual Consult Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity, e) the Grid Management Charge Start-Up Cost Adder, and f) the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "NO" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and the Bid Period is on or after the VOM Cost Review Effective Date.	RLC: Greenhouse Gas S Cost Allowance Curve fo Generating Resources by Generating Resource Sta ($0/start by default). The breakpoints must be the as the breakpoints of the Up Energy Curve and the Up Fuel Cost Curve or th Up Fuel Curve for that O Generating Resource Sta MFR: Start-Up Operation Maintenance Cost and Negotiated O&M Indicato registry for Generating Resources. Applies to resources that had a gas price revision manual consultation with ISO, but a same day gas update is not applicable.

ALL	41668	4	1	15	6	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the greater of 1) the Relative Proxy Start-Up Cost Ceiling multiplied by the sum of a) the Start-Up Energy Cost Curve, b) the Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity, and e) the Grid Management Charge Start-Up Cost Adder, or 2) the sum of a) the Start-Up Energy Cost Curve, b) the Manual Consult Start-Up Fuel Cost Curve, c) the Greenhouse Gas Start-Up Cost Allowance Curve, d) either the Start-Up Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Start-Up Operation and Maintenance Cost and the registered Maximum Capacity, and e) the Grid Management Charge Start-Up Cost Adder, plus the Start-Up Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Start-Up Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "YES" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and the Bid Period is on or after the VOM Cost Review Effective Date.	RLC: Greenhouse Gas S… Cost Allowance Curve fo… Generating Resources by… Generating Resource Sta… ($0/start by default). The… breakpoints must be the … as the breakpoints of the… Up Energy Curve and the… Up Fuel Cost Curve or th… Up Fuel Curve for that O… Generating Resource Sta… MFR: Start-Up Operation… Maintenance Cost and … Negotiated O&M Indicato… registry for Generating Resources. Applies to resources that… had a gas price revision … manual consultation with… ISO, and a same day gas… update has been applied…
ALL	41672	4	1	15	7	The Reasonableness Threshold Start-Up Bid Curve for an Online Generating Resource State, whether startable or not, for a Generating Resource registered as a JOU Child Resource for a Bid Period in a Generating Resource Bid is the Reasonableness Threshold Start-Up Bid Curve for the equivalent Online Generating Resource State in the Generating Resource Bid of the associated JOU Parent Resource for that Bid Period, multiplied by the JOU Child Ownership Share of that JOU Child Resource for that Bid Period.	MFR: JOU Child Owners… Share, JOU Child Resou… JOU Parent Resource registry. JOU Child Reso… and JOU Parent Resour… association.

| ALL | 41652 | 4 | 1 | 16 | 1 | The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the Relative Proxy Minimum Load Cost Ceiling multiplied by the sum of a) the Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, plus the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date. | MFR: Minimum Load Fue ($/hr) and Operation and Maintenance Cost ($/MW registry by online state fo Generating Resources w Minimum Load Cost Basi "Proxy Cost". RLC: Greenhouse Gas M Load Cost Allowance for Generating Resources by Generating Resource Sta ($0/MWh by default). RLC: Major Maintenance Minimum Load Cost Add Generating Resources by Generating Resource Sta ($0/h by default). RLC: Grid Management (Minimum Load Cost Rate ($0/MWh by default). Does not apply to resour have had a gas price rev due to a manual consulta with the ISO. |

ALL	41662	4	1	16	2	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the sum of a) the Manual Consult Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, and f) the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "NO" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	MFR: Minimum Load Fue ($/hr) and Operation and Maintenance Cost ($/MW registry by online state fo Generating Resources w Minimum Load Cost Basi "Proxy Cost". RLC: Greenhouse Gas M Load Cost Allowance for Generating Resources by Generating Resource Sta ($0/MWh by default). RLC: Major Maintenance Minimum Load Cost Add Generating Resources by Generating Resource Sta ($0/h by default). RLC: Grid Management (Minimum Load Cost Rate ($0/MWh by default). Applies to resources that had a gas price revision (manual consultation with ISO, but a same day gas update is not applicable.

ALL	41663	4	1	16	3	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the greater of 1) the Relative Proxy Minimum Load Cost Ceiling multiplied by the sum of a) the Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, and 2) the sum of a) the Manual Consult Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) the Major Maintenance Minimum Load Cost Adder, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, plus the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "YES" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and the Bid Period is prior to the VOM Cost Review Effective Date.	MFR: Minimum Load Fue ($/hr) and Operation and Maintenance Cost ($/MW registry by online state fo Generating Resources w Minimum Load Cost Basi "Proxy Cost". RLC: Greenhouse Gas M Load Cost Allowance for Generating Resources by Generating Resource Sta ($0/MWh by default). RLC: Major Maintenance Minimum Load Cost Add Generating Resources by Generating Resource Sta ($0/h by default). RLC: Grid Management (Minimum Load Cost Rate ($0/MWh by default). Applies to resources that had a gas price revision manual consultation with ISO, and a same day gas update has been applied

ALL	41669	4	1	16	4	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the Relative Proxy Minimum Load Cost Ceiling multiplied by the sum of a) the Minimum Load Fuel Cost, b) the product of the registered Energy Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, plus the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and if either 1) the Generating Resource is registered as a Natural Gas Resource with a Manual Consult Flag of "NO" for that Bid Period, or 2) the Generating Resource is not registered as a Natural Gas Resource for that Bid Period, and the Bid Period is on or after the VOM Cost Review Effective Date.	MFR: Minimum Load Fue ($/hr) registry by online s Generating Resources w Minimum Load Cost Basi "Proxy Cost". RLC: Greenhouse Gas M Load Cost Allowance for Generating Resources by Generating Resource Sta ($0/MWh by default). MFR: Energy and Minimu Load Operation and Maintenance Cost and Negotiated O&M Indicato registry for Generating Resources. Does not apply to resour have had a gas price rev due to a manual consulta with the ISO.

ALL	41670	4	1	16	5	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the sum of a) the Manual Consult Minimum Load Fuel Cost, b) the product of the registered Energy Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity, e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, and f) the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "NO" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and the Bid Period is on or after the VOM Cost Review Effective Date.	MFR: Minimum Load Fue ($/hr) registry by online s Generating Resources w Minimum Load Cost Basi "Proxy Cost". RLC: Greenhouse Gas M Load Cost Allowance for Generating Resources by Generating Resource Sta ($0/MWh by default). MFR: Energy and Minimu Load Operation and Maintenance Cost and Negotiated O&M Indicatc registry for Generating Resources. Applies to resources that had a gas price revision manual consultation with ISO, but a same day gas update is not applicable.

ALL	41671	4	1	16	6	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid must be derived as the greater of 1) the Relative Proxy Minimum Load Cost Ceiling multiplied by the sum of a) the Minimum Load Fuel Cost, b) the product of the registered Energy Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, and 2) the sum of a) the Manual Consult Minimum Load Fuel Cost, b) the product of the registered Operation and Maintenance Cost and the registered Minimum Load, c) the product of the Greenhouse Gas Minimum Load Cost Allowance and the registered Minimum Load, d) either the Minimum Load Operation and Maintenance Cost, if the Negotiated O&M Indicator is "Negotiated", or else the product of the Minimum Load Operation and Maintenance Cost and the registered Maximum Capacity, and e) the product of the Grid Management Charge Minimum Load Cost Rate and the registered Minimum Load, plus the Minimum Load Opportunity Cost, for that Online Generating Resource State of that Generating Resource and Bid Period, if that Generating Resource is registered with a Minimum Load Cost Basis of "Proxy Cost" for that Bid Period and is a Natural Gas Resource with a Manual Consult Flag of "YES" and a Fuel Region Update Flag of "YES" for that Bid Period, is not registered as a JOU Child Resource for that Bid Period, and the Bid Period is on or after the VOM Cost Review Effective Date.	MFR: Minimum Load Fue ($/hr) registry by online s Generating Resources w Minimum Load Cost Basi "Proxy Cost". RLC: Greenhouse Gas M Load Cost Allowance for Generating Resources by Generating Resource Sta ($0/MWh by default). MFR: Energy and Minimu Load Operation and Maintenance Cost and Negotiated O&M Indicato registry for Generating Resources. Applies to resources that had a gas price revision o manual consultation with ISO, and a same day gas update has been applied
ALL	41673	4	1	16	8	The Reasonableness Threshold Minimum Load Bid for an Online Generating Resource State of a Generating Resource and Bid Period in a Generating Resource Bid for a Generating Resource registered as a JOU Child Resource for that Bid Period is the Reasonableness Threshold Minimum Load Bid for the equivalent Online Generating Resource State in the Generating Resource Bid of the associated JOU Parent Resource for that Bid Period, multiplied by the JOU Child Ownership Share of that JOU Child Resource for that Bid Period.	MFR: JOU Child Owners Share, JOU Child Resou JOU Parent Resource registry. JOU Child Reso and JOU Parent Resour association.
ALL	50001	5	0	0	1	A Valid Bid or a Modified Bid must be promoted to a Clean Bid, unless that Bid is a Generating Resource Bid for a Generating Resource registered as a JOU Parent Resource for the Bid Period specified in that Bid.	To prevent bids for JOU Resources to be publishe the Clean Bid payload. MFR: JOU Parent Resou registration for Generatin Resources.

RTM	51064	5	1	0	29	The Start-Up Time Bid Curve specified in a Generating Resource Start-Up Bid Component for an Online Generating Resource State in a Generating Resource Bid for a Generating Resource registered as a JOU Child Resource for a Bid Period must be replaced with the Start-Up Time Bid Curve specified in the Generating Resource Start-Up Bid Component for the equivalent Online Generating Resource State in the Generating Resource Bid of the associated JOU Parent Resource for that Bid Period, if that Generating Resource Bid exists.	JOU Child Resources inh Start-Up Time values fro JOU Parent Resource. MFR: JOU Child Resour JOU Parent Resource registry. JOU Child Reso and JOU Parent Resour association. JOU Child Resource Online Genera Resource State and JOU Resource Online Genera Resource State associati
DAM	61038	6	1	0	32	If there is a change to the Day-Ahead registered Gas Price Index for a Generating Resource and Trading Day or to the Day-Ahead registered Reasonableness Threshold Gas Price Index for a Generating Resource and Trading Day, the Bid Processing rules for gas prices, commitment cost and commitment cost adjustment (41014, 41105-41110, 41118-41124, 41126, 41127, 41129-41137, 41645-41650, 41659-41661, 41666-41668, 41672, 41203, 41204-41207, 41209-41212, 41215-41220, 41224-41226, 41228, 41230-41233, 41652-41656, 41662-41665, 41669-41671, 41673, 41972-41974, 41985-41988, and 41990) must refire for all Generating Resource Bids for that Generating Resource and Trading Day.	
NPM	61042	6	1	0	33	If there is a change to the Day-Ahead registered Gas Price Index for a Generating Resource and Trading Day or to the Day-Ahead registered Reasonableness Threshold Gas Price Index for a Generating Resource and Trading Day, the Bid Processing rules for gas prices, commitment cost and commitment cost adjustment (41014, 41105-41110, 41118-41124, 41126, 41127, 41129-41137, 41645-41650, 41659-41661, 41666-41668, 41672, 41203, 41204-41207, 41209-41212, 41215-41220, 41224-41226, 41228, 41230-41233, 41652-41656, 41662-41665, 41669-41671, 41673, 41972-41974, 41985-41988, and 41990) must refire for all Generating Resource Bids for that Generating Resource and Trading Day.	

| RTM | 61039 | 6 | 1 | 0 | 34 | If there is a change to the Day-Ahead registered Gas Price Index for a Generating Resource and Trading Day or to the Day-Ahead registered Reasonableness Threshold Gas Price Index for a Generating Resource and Trading Day, the Bid Processing rules for gas prices, commitment cost and commitment cost adjustment (41014, 41105-41190, 41111, 41116-41124, 41126, 41127, 41129-41137, 41645-41650, 41659-41661, 41666-41668, 41672, 41203, 41204-41207, 41209-41212, 41215-41219, 41221-41226, 41228, 41230-41233, 41652-41656, 41662-41665, 41669-41671, 41673, 41972-41974, 41985-41988, and 41990) must refire for all Generating Resource Bids for that Generating Resource and Trading Day. | |

The full set of the Business Rules can be seen under SIBR user documentation under the Application Access/ in SIBR user documentation for all rules related to SIBR/BSAP/RC-BSAP.

http://www.caiso.com/participate/Pages/ApplicationAccess/Default.aspx

END Document