



Resource Adequacy Pre-Market Simulation Training and Settlements Workshop

Focusing on the following initiatives:

Reliability Services Initiative (RSI)

Capacity Procurement Mechanism (CPM) Replacement

Commitment Costs Enhancement Phase 2

January 6, 2016

Objective

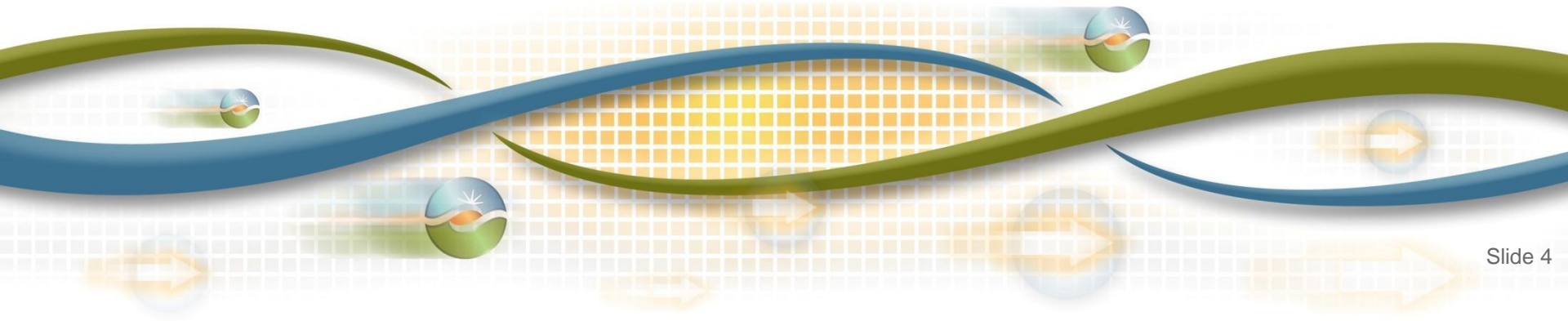
- Prepare market participants for the market simulation to begin on January 19
 - Reliability Services Initiative (RSI)
 - Capacity Procurement Mechanism (CPM) Replacement
 - Commitment Costs Enhancement Phase 2

Agenda



- Reliability Services Initiative
 - New nature of work categories in OMS
 - Substitution requests (day ahead & real-time)
 - Outage exemptions
 - Master file use limit plan data template
- Commitment Cost Enhancements Phase 2
 - Must-offer obligation rule changes in SIBR
- Capacity Procurement Mechanism
 - Accept/reject CPM designation

Market Sim Scope and Schedule



CPM & RSI Market Sim Sessions

LEGEND

11/9 - 12/4/15
Market Sim
1/12/16
Production

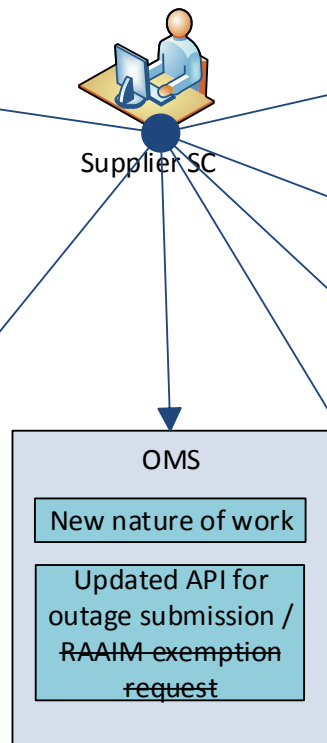
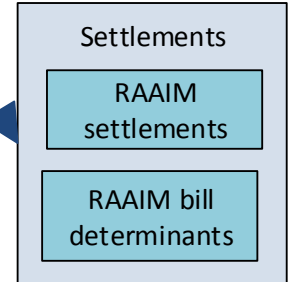
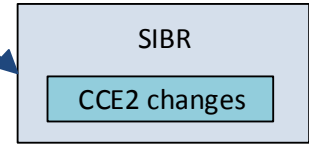
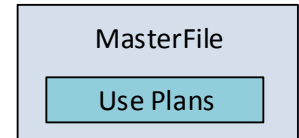
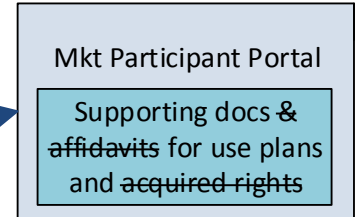
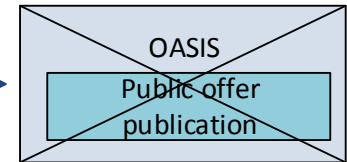
1/19 - 2/12/16
Market Sim
2/22/16
Production
3/1/16
Effective Date



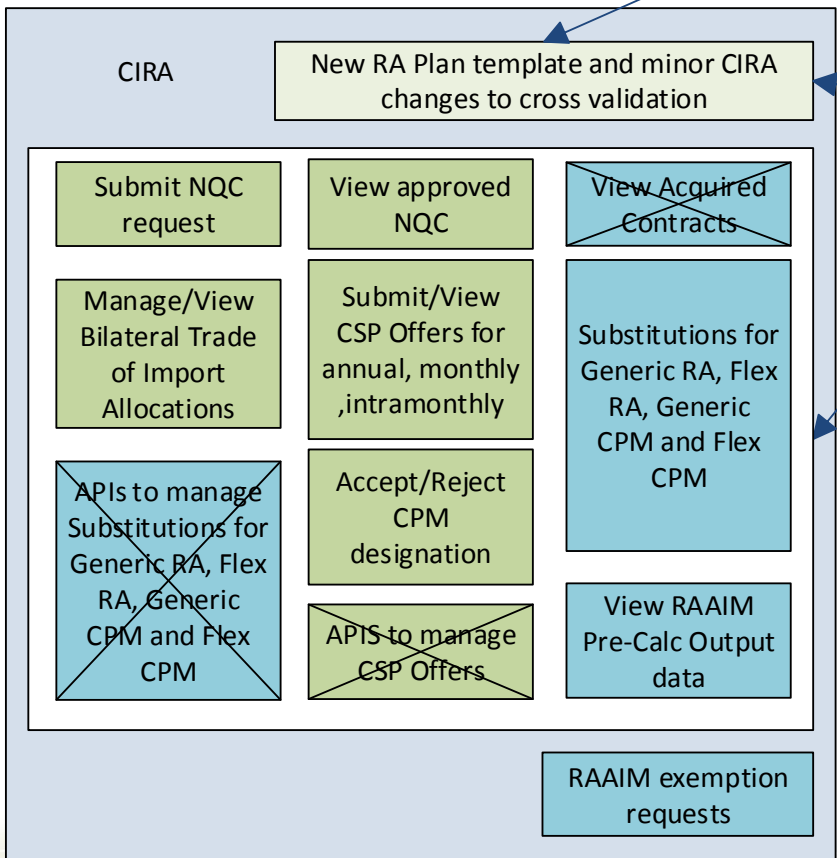
LSE



Public User



Supplier SC



CIRA

New RA Plan template and minor CIRA changes to cross validation

Submit NQC request

View approved NQC

~~View Acquired Contracts~~

Manage/View Bilateral Trade of Import Allocations

Submit/View CSP Offers for annual, monthly, intramonthly

Substitutions for Generic RA, Flex RA, Generic CPM and Flex CPM

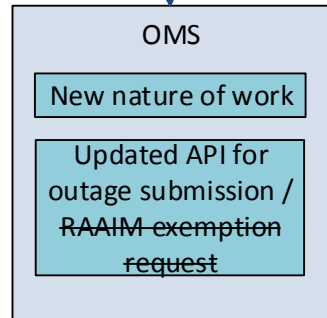
~~APIs to manage Substitutions for Generic RA, Flex RA, Generic CPM and Flex CPM~~

Accept/Reject CPM designation

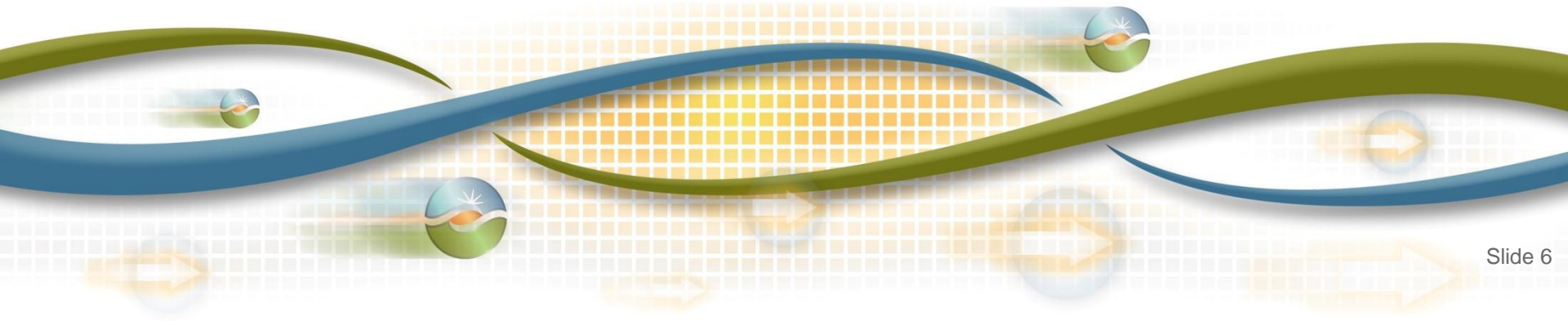
View RAIM Pre-Calc Output data

~~APIs to manage CSP Offers~~

RAAIM exemption requests



Background on RSI



Reliability Services Initiative (RSI)

- RSI is a multi-year effort to address the ISO's rules and processes surrounding resource adequacy (RA)
- Enhancements to must offer obligation and bidding rules
- Enhancements to generic RA substitutions and new flexible substitution
- New performance monitoring framework for generic and flexible RA resources called RA availability incentive mechanism (RAAIM)
 - The framework changes from a forced outage metric to a bid based metric

Resource Adequacy (RA) & Substitution Capacity

Resource Adequacy Capacity - This is capacity committed to the ISO to ensure that the demand can be met at all times. The ISO assesses the performance of resource adequacy resources. There are two types of RA – Generic & Flexible.

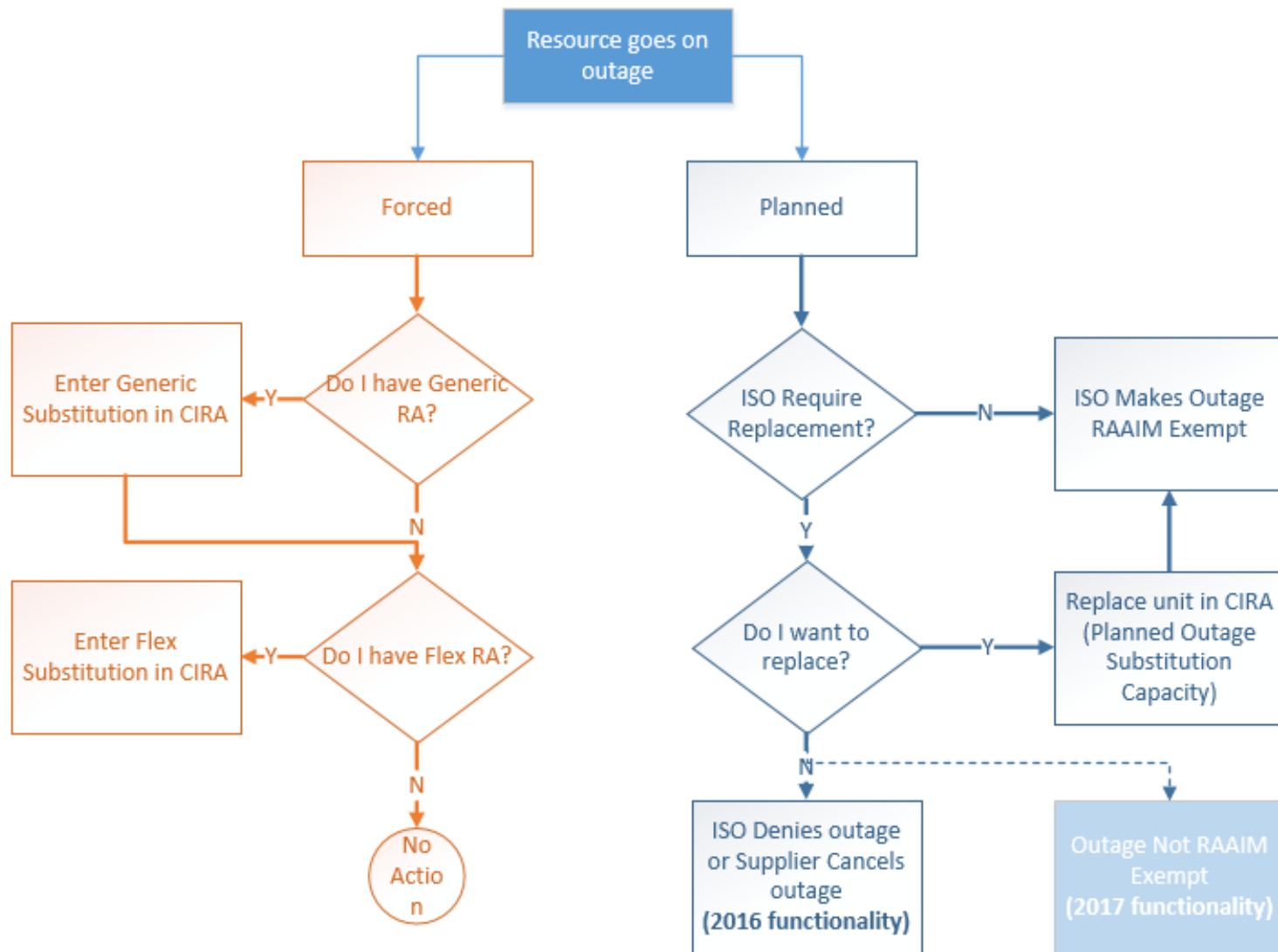
Substitution Capacity - Capacity used to mitigate the impact of forced outages on resource adequacy capacity in the performance assessment.

Resource Adequacy (RA) - Substitutions

How do we get the substitute capacity in the first place?

1. An RA Resource takes a forced outage
2. The SC makes a request to substitute capacity to cover the impact of the forced outage
 - a. Generic RA
 - I. Day Ahead Substitution
 - II. Real Time Substitution
 - b. Flexible RA
 - I. Day Ahead Substitution
 - II. Real Time Substitution

Substitution Process Flow



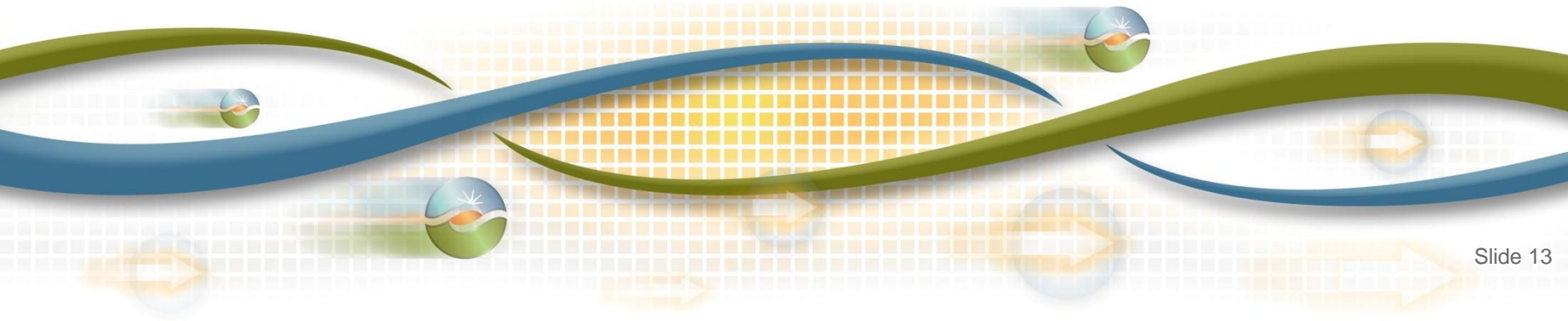
RA Substitutions

- OMS Nature of Work Categories
- Day-ahead substitution
- Real-time Substitution
- Review Substitution
- Release Substitution
- Outage Exemptions (RAAIM exemption request)

RA Substitution Process Notes

- An outage must be submitted in the Outage Management System (OMS) prior to entering a substitution request in CIRA
- CIRA receives outage data from OMS as each outage is submitted

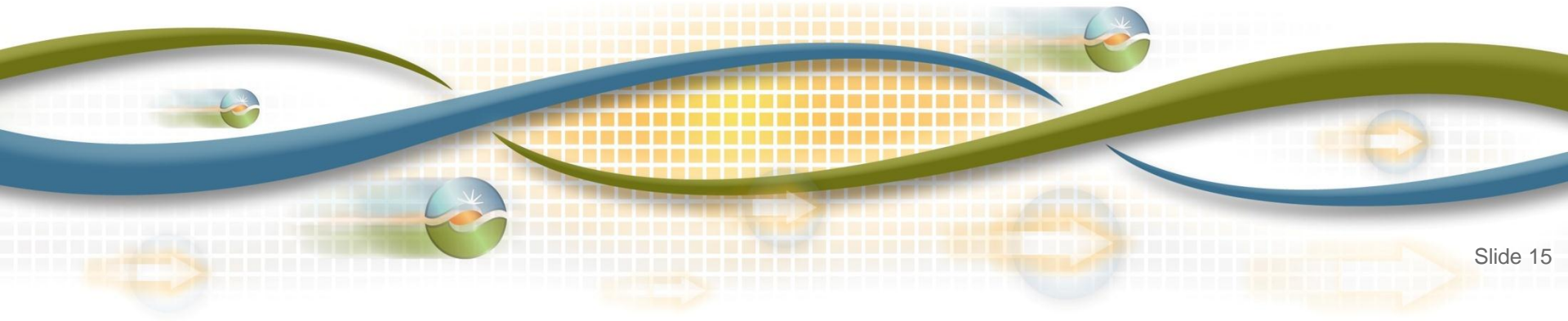
Outage Management System (OMS) Nature of Work Categories



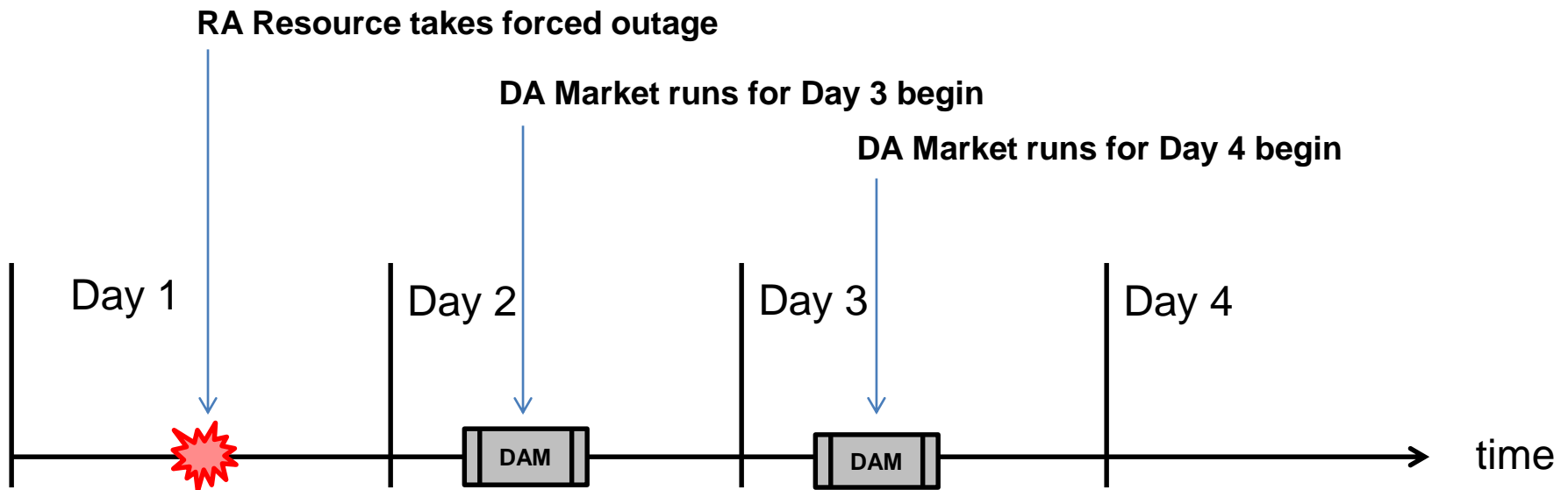
(Note: New categories are shown in bold)

Outage Type	Nature of Work/Opportunity Status	Substitution Required?	Outage Type	Nature of Work/Opportunity Status	Substitution Required?
Forced	Ambient Due to Temperature	Y	Forced	Plant Trouble	Y
Forced	Ambient Not Due to Temperature	N	Forced	Power System Stabilizer (PSS)	Y
Forced	Ambient due to Fuel insufficiency	N	Forced	Ramp Rate	Y
Forced	AVR/Exciter	Y	Forced	RTU/RIG	Y
Forced	Environmental Restrictions	N	Forced	Transitional Limitation	N
Forced	Short term use limit reached	N	Forced	Transmission Induced	N
Forced	Annual use limit reached	N	Forced	Unit Cycling	Y
Forced	Monthly use limit reached	N	Forced	Unit Supporting Startup	N
Forced	Other use limit reached	N	Forced	Unit Testing	Y
Forced	ICCP	N	Forced	Use Limit Reached	N
Forced	Metering/Telemetry	Y	Forced	Off Peak Opportunity	N
Forced	New Generator Test Energy	Y	Forced	Short Notice Opportunity	N
Forced	Plant Maintenance	Y	Planned	Regardless of nature of work/opportunity status	N

Day-Ahead Substitution



Day Ahead Substitution



RA Resource

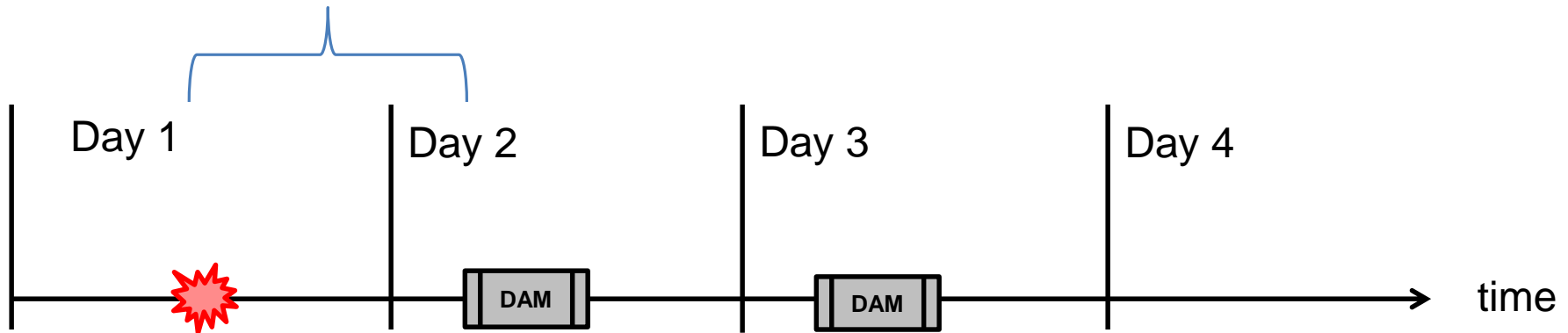


Substitute Resource



Day Ahead Substitution

Substitute request received prior to close of day ahead market (DAM) for Day 3



RA Resource

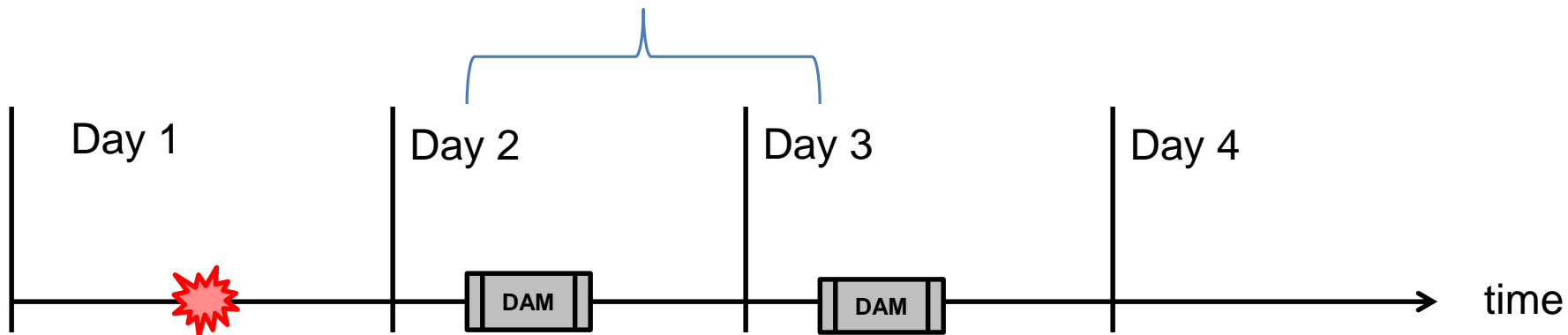


Substitute Resource

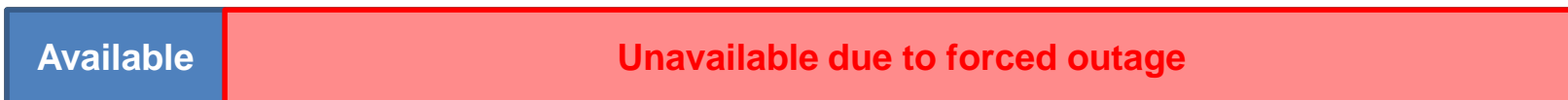


Day Ahead Substitution

If substitute request received prior to DAM, committed for Day 4



RA Resource



Substitute Resource



Day Ahead Substitution

In a nutshell:

If SC does not submit substitute request & gain third party approval by 8 a.m., it misses the DAM and ISO cannot commit.

Substitution Matrix for Generic RA – Day Ahead

Day Ahead

Resource that is in an outage				Substitute Resources				
ID	Location	Dispatchable	Is it a 3rd Party request ?	Submission Time Restriction	Location	Dispatchable	Resource Compatibility required?	3rd Party Approval required before cutoff ?
13	Local Capacity Area	Yes	No	By 8AM for the following trade day	Same Local Capacity Area	Yes	N/A	N/A
14	Local Capacity Area	Yes	Yes	By 8AM for the following trade day	Same Local Capacity Area	Yes	N/A	Yes
15	Local Capacity Area	No	No	By 8AM for the following trade day	Same Local Capacity Area	Any	N/A	N/A
16	Local Capacity Area	No	Yes	By 8AM for the following trade day	Same Local Capacity Area	Any	N/A	Yes
17	Non-Local Internal	Yes	No	By 8AM for the following trade day	Any Local or Non-Local Internal	Yes	N/A	N/A
18	Non-Local Internal	Yes	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal	Yes	N/A	Yes
19	Non-Local Internal	No	No	By 8AM for the following trade day	Any Local or Non-Local Internal	Any	N/A	N/A
20	Non-Local Internal	No	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal	Any	N/A	Yes
21	Non-Local External	N/A	No	By 8AM for the following trade day	Any Local or Non-Local Internal or Non - Local External	N/A	N/A	N/A
22	Non-Local External	N/A	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal or Non - Local External	N/A	N/A	Yes
23	Non-Local External	N/A	No	By 8AM for the following trade day	Any Local or Non-Local Internal or Non - Local External	N/A	N/A	N/A
24	Non-Local External	N/A	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal or Non - Local External	N/A	N/A	Yes

Substitution Matrix for Flexible RA – Day Ahead

Day Ahead

Resource that is in an outage					Substitute Resources			
ID	Location	Dispatchable	Is it a 3rd Party request ?	Submission Time Restriction	Location	Dispatchable	Resource Compatibility required?	3rd Party Approval required before cutoff ?
13	Local Capacity Area	Yes	No	By 8AM for the following trade day	Any Local or Non-Local Internal	Yes	N/A	N/A
14	Local Capacity Area	Yes	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal	Yes	N/A	Yes
15	Local Capacity Area	No	No	By 8AM for the following trade day	Any Local or Non-Local Internal	Any	N/A	N/A
16	Local Capacity Area	No	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal	Any	N/A	Yes
17	Non-Local Internal	Yes	No	By 8AM for the following trade day	Any Local or Non-Local Internal	Yes	N/A	N/A
18	Non-Local Internal	Yes	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal	Yes	N/A	Yes
19	Non-Local Internal	No	No	By 8AM for the following trade day	Any Local or Non-Local Internal	Any	N/A	N/A
20	Non-Local Internal	No	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal	Any	N/A	Yes
21	Non-Local External	N/A	No	By 8AM for the following trade day	Any Local or Non-Local Internal or Non - Local External	N/A	N/A	N/A
22	Non-Local External	N/A	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal or Non - Local External	N/A	N/A	Yes
23	Non-Local External	N/A	No	By 8AM for the following trade day	Any Local or Non-Local Internal or Non - Local External	N/A	N/A	N/A
24	Non-Local External	N/A	Yes	By 8AM for the following trade day	Any Local or Non-Local Internal or Non - Local External	N/A	N/A	Yes

CIRA – Substitutions Menu



California ISO

Customer Interface for Resource Adequacy

Plans

Validation & Reports

Replacements

Substitutions

Welcome to Customer Interface for Resource Adequacy

Please use the menu bar above to navigate the application.

New Substitution

Review Substitution

Release Substitution

Outage Exemptions

CIRA – New Substitution



California ISO

Customer Interface for Resource Adequacy

Plans

Validation & Reports

Replacements

Substitutions

Outage Resource Selection

Trade Month *

Trade Year *

Outage ID

Resource ID

- The screen shows the first step in the substitution process.
- As items are selected, new sections are added to the screen.

CIRA – New Substitution



California ISO

Customer Interface for Resource Adequacy

Plans

Validation & Reports

Replacements

Substitutions

Outage Resource Selection

Trade Month * Trade Year *

Outage ID

Resource ID

- Select a **Trade Month** and **Trade Year**
- Enter the **Outage ID** or **Resource ID**
- Note: The **Resource ID** field will auto-complete after a few characters are entered

CIRA – New Substitution



California ISO

Customer Interface for Resource Adequacy

Plans

Validation & Reports

Replacements

Substitutions

Outage Resource Selection

Trade Month * Trade Year * Outage ID

Resource ID

Generic RA Information

Start Date	End Date	NQC	RA MW	CPM MW
01/01/2016	01/08/2016	293.88	142.38	0
01/09/2016	01/31/2016	293.88	293.88	0

- Enter a **Resource ID** and click the **Generic RA Information** button to display the generic RA requirement for that resource

CIRA – New Substitution

Outage Resource Selection

Trade Month * Trade Year * Outage ID

Resource ID

• Enter a **Resource ID** and click the **Flex RA Information** button to display the flexible RA requirement for that resource

Flex RA Information

Start Date	End Date	EFC	Flex RA MW	CPM MW	Category	Dispatchable	Area
01/01/2016	01/31/2016	239.88	239.88	0	1	Y	

CIRA – New Substitution

Plans Validation & Reports Replacements Substitutions

Outage Resource Selection

Trade Month: January * Trade Year: 2016 * Outage ID:

Resource ID: [Generic RA Information](#) [Flex RA Information](#)

Show Outages

Select Outage	Outage ID	Outage Type	Nature of Work	Resource ID	Resource Name	SC ID	Start Date	End Date	Curtail MW	RAAIM Exempt
<input type="radio"/>	3608694	FORCED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	12/26/2015 00:00:00	01/09/2016 00:00:00	View	YES
<input type="radio"/>	3608341	FORCED	UNIT_CYCLING	[REDACTED]	[REDACTED]	[REDACTED]	12/20/2015 00:00:00	02/29/2016 01:00:00	View	YES
<input type="radio"/>	3608344	FORCED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	12/20/2015 00:00:00	02/29/2016 01:00:00	View	YES
<input type="radio"/>	3608421	PLANNED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	01/01/2016 00:00:00	01/02/2016 00:00:00	View	
<input type="radio"/>	3608338	FORCED	UNIT_CYCLING	[REDACTED]	[REDACTED]	[REDACTED]	12/18/2015 00:00:00	02/29/2016 01:00:00	View	YES
<input type="radio"/>	3608346	PLANNED	AMBIENT_DUE_TO_TEMP	[REDACTED]	[REDACTED]	[REDACTED]	12/29/2015 00:00:00	02/29/2016 01:00:00	View	
<input type="radio"/>	3608333	PLANNED	AMBIENT_NOT_DUE_TO_TEMP	[REDACTED]	[REDACTED]	[REDACTED]	12/30/2015 00:00:00	02/29/2016 00:00:00	View	
<input type="radio"/>	3608216	FORCED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	12/17/2015 00:00:00	02/05/2016 00:00:00	View	YES
<input type="radio"/>	3608242	FORCED	UNIT_CYCLING	[REDACTED]	[REDACTED]	[REDACTED]	12/17/2015 00:00:00	02/05/2016 00:00:00	View	YES
<input type="radio"/>	3608253	FORCED	UNIT_TESTING	[REDACTED]	[REDACTED]	[REDACTED]	12/16/2015 20:31:00	03/02/2016 00:00:00	View	YES

1 | 2 | 3 | 4 | Next | 10

- “Show Outages” view

CIRA – New Substitution

Plans Validation & Reports Replacements Substitutions

Outage Resource Selection

Trade Month: * Trade Year: * Outage ID:

Resource ID:

Select Outage	Outage ID	Outage Type	Nature of Work	Resource ID	Resource Name	SC ID	Start Date	End Date	Curtail MW	RAAIM Exempt
<input type="radio"/>	3608694	FORCED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	12/26/2015 00:00:00	01/09/2016 00:00:00	<input type="button" value="View"/>	YES
<input type="radio"/>	3608341	FORCED	UNIT_CYCLING	[REDACTED]	[REDACTED]	[REDACTED]	12/20/2015 00:00:00	02/29/2016 01:00:00	<input type="button" value="View"/>	YES
<input type="radio"/>	3608344	FORCED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	12/20/2015 00:00:00	02/29/2016 01:00:00	<input type="button" value="View"/>	YES
<input type="radio"/>	3608421	PLANNED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	01/01/2016 00:00:00	01/02/2016 00:00:00	<input type="button" value="View"/>	
<input type="radio"/>	3608338	FORCED	UNIT_CYCLING	[REDACTED]	[REDACTED]	[REDACTED]	12/18/2015 00:00:00	02/29/2016 01:00:00	<input type="button" value="View"/>	YES
<input type="radio"/>	3608346	PLANNED	AMBIENT_DUE_TO_TEMP	[REDACTED]	[REDACTED]	[REDACTED]	12/29/2015 00:00:00	02/29/2016 01:00:00	<input type="button" value="View"/>	
<input type="radio"/>	3608333	PLANNED	AMBIENT_NOT_DUE_TO_TEMP	[REDACTED]	[REDACTED]	[REDACTED]	12/30/2015 00:00:00	02/29/2016 00:00:00	<input type="button" value="View"/>	
<input type="radio"/>	3608216	FORCED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	12/17/2015 00:00:00	02/05/2016 00:00:00	<input type="button" value="View"/>	YES
<input type="radio"/>	3608242	FORCED	UNIT_CYCLING	[REDACTED]	[REDACTED]	[REDACTED]	12/17/2015 00:00:00	02/05/2016 00:00:00	<input type="button" value="View"/>	YES
<input type="radio"/>	3608253	FORCED	UNIT_TESTING	[REDACTED]	[REDACTED]	[REDACTED]	12/16/2015 20:31:00	03/02/2016 00:00:00	<input type="button" value="View"/>	YES

1 2 3 4 Next 10 ▼

- Outage ID, Resource ID, Start Date, and End Date can be sorted ascending/descending

CIRA – New Substitution

Plans Validation & Reports Replacements Substitutions

Outage Resource Selection

Trade Month * Trade Year * Outage ID

Resource ID

Select Outage	Outage ID	Outage Type	Nature of Work	Resource ID	Resource Name	SC ID	Start Date	End Date	Curtail MW	RAAIM Exempt
<input type="radio"/>	3608694	FORCED	PLANT_MAINTENANCE	[REDACTED]	[REDACTED]	[REDACTED]	12/26/2015 00:00:00	01/09/2016 00:00:00	<input type="button" value="View"/>	YES

- Enter a specific outage ID to view just that one outage
- Enter a specific resource ID to see the outage(s) for that resource

CIRA – New Substitution

Outage Resource Selection

Trade Month * Trade Year * Outage ID

Resource ID

Select Outage	Outage ID	Outage Type	Nature of Work	Resource ID	Resource Name	SC ID	Start Date	End Date	Curtail MW	RAAIM Exempt
<input checked="" type="radio"/>	3608694	FORCED	PLANT_MAINTENANCE				12/26/2015 00:00:00	01/09/2016 00:00:00	<input type="button" value="View"/>	YES

Substitute Resource Selection

Resource ID SC ID Area

Resource with Non-RA capacity only Compatible Only Include Third Party Resources

Physical ITIES Substitution Type * Market Timeframe * Substitution Start Date: 01/01/2016

*Press Ctrl + -> or Ctrl + <- keys to copy data in the cells right or left

Day	01/01	01/02	01/03	01/04	01/05	01/06	01/07	01/08
Outage MW	94	94	94	94	94	94	94	94
RA MW	142.38	142.38	142.38	142.38	142.38	142.38	142.38	142.38
Total Cumulative Sub Cap	0	0	0	0	0	0	0	0

- Select an outage to view the Substitute Resource Selection panel

CIRA – Substitute Resource Selection

Substitute Resource Selection

Resource ID SC ID Area Resource with Non-RA capacity only Compatible Only Include Third Party Resources

Market Timeframe * Substitution Start Date: 01/01/2016

Resource Type

(Note: The resource list below the Resource ID field is blurred in the image.)

- Ability to search for a resource by ID. Field will auto-fill after a few characters.

CIRA – Substitute Resource Selection

Substitute Resource Selection

Resource ID SC ID Area

Physical ITIES Substitution Type *

Resource with Non-RA capacity only Compatible Only Include Third Party Resources

Substitution Start Date: 01/01/2016

*Press Ctrl + -> or Ctrl + <- keys to copy data in the cells right or left

Day	01/01	01/02	01/04	01/05	01/06
Outage MW	94	94	94	94	94
D A MW					

Area dropdown menu options: -Select-, -Select-, Bay Area, Big Creek-Ventura, CAISO System, Fresno, Humboldt, Kern, LA Basin, NCNB, San Diego-IV, Sierra, Stockton, Valley Electric Association

- Ability to search for resource by area using drop-down menu

CIRA – Substitute Resource Selection

Substitute Resource Selection

Resource ID <input type="text"/>	SC ID <input type="text" value="-SCID-"/>	Area <input type="text" value="-Select-"/>	<input type="checkbox"/> Resource with Non-RA capacity only	<input type="checkbox"/> Compatible Only	<input type="checkbox"/> Include Third Party Resources
<input checked="" type="radio"/> Physical <input type="radio"/> ITIES	Substitution Type <input type="text" value="GENERIC"/>	Market Timeframe <input type="text" value="DA"/>	Substitution Start Date: 01/01/2016		
<input type="button" value="Search"/>					

- Check boxes to search for:
 - Resource with Non-RA capacity only
 - Compatible Only (for real-time substitution)
 - Include Third Party Resources

CIRA – Substitute Resource Selection

Substitute Resource Selection

Resource ID <input type="text"/>	SC ID <input type="text" value="-SCID-"/>	Area <input type="text" value="-Select-"/>	<input type="checkbox"/> Resource with Non-RA capacity only	<input type="checkbox"/> Compatible Only	<input type="checkbox"/> Include Third Party Resources
<input type="radio"/> Physical	<input checked="" type="radio"/> ITIES	Substitution Type <input type="text" value="GENERIC"/>	Market Timeframe <input type="text" value="DA"/>	Substitution Start Date: 01/01/2016	
<input type="button" value="Search"/>					

- Substitute resource can be physical or an intertie resource, based on substitution matrix
- Intertie resources:
 - Use first 4 characters of resource ID to search for specific resource
 - SC for substitute resource must have import allocation to cover substitution MWs

Intertie Import Allocation – Example Scenario

SCID	CAISO
BRANCH GROUP	PACI_MSL
IMPORT CAPABILITY/TRADE MONTH	50 MW for month of April
RESOURCE IDs mapped to PACI_MSL	<ul style="list-style-type: none">• CAISO_II_123• CAISO_II_125• CAISO_II_127

- The user may choose any of the three resources listed above for substitutions up to 50 MW
- The total substitute MW quantity cannot exceed the current net import capability of 50 MW

CIRA – Substitute Resource Selection

Substitute Resource Selection

Resource ID

SC ID

Area

Resource with Non-RA capacity only Compatible Only Include Third Party Resources

Physical ITIES

Substitution Type *

Market Timeframe *

Substitution Start Date: 01/01/2016

- Choose between generic or flexible substitution

CIRA – Substitute Resource Selection

Substitute Resource Selection

Resource ID

SC ID

Area

Resource with Non-RA capacity only Compatible Only Include Third Party Resources

Physical ITIES

Substitution Type

Market Timeframe *

Substitution Start Date: 01/01/2016

- Ability to choose day-ahead or real-time substitution

CIRA – New Substitution Example

Substitute Resource Selection

Resource ID SC ID Area Resource with Non-RA capacity only Compatible Only Include Third Party Resources

Physical ITIES Substitution Type * Market Timeframe * Substitution Start Date: 01/01/2016

*Press Ctrl + -> or Ctrl + <- keys to copy data in the cells right or left

Select	Resource ID	Resource Name	SC ID	RA Info	Outages	Area	Compatible
<input type="button" value="Add"/>	[REDACTED]	[REDACTED]	[REDACTED]	<input type="button" value="Generic RA"/> <input type="button" value="Flex RA"/>	<input type="button" value="View"/>	Bay Area	No
<input type="button" value="Add"/>	[REDACTED]	[REDACTED]	[REDACTED]	<input type="button" value="Generic RA"/> <input type="button" value="Flex RA"/>	<input type="button" value="View"/>	Bay Area	No
<input type="button" value="Add"/>	[REDACTED]	[REDACTED]	[REDACTED]	<input type="button" value="Generic RA"/> <input type="button" value="Flex RA"/>	<input type="button" value="View"/>	Bay Area	No
<input type="button" value="Add"/>	[REDACTED]	[REDACTED]	[REDACTED]	<input type="button" value="Generic RA"/> <input type="button" value="Flex RA"/>	<input type="button" value="View"/>	Bay Area	No
<input type="button" value="Add"/>	[REDACTED]	[REDACTED]	[REDACTED]	<input type="button" value="Generic RA"/> <input type="button" value="Flex RA"/>	<input type="button" value="View"/>	Bay Area	No

1 2 3 4 Next 10

- Searched for a resource in a specific area
- Info on the Generic RA and Flex RA, and listed Outages are accessible using the respective buttons
- Click Add to select a substitute resource

CIRA – New Substitution Example

Day	01/01	01/02	01/03	01/04	01/05	01/06	01/07	01/08
Outage MW	94	94	94	94	94	94	94	94
RA MW	142.38	142.38	142.38	142.38	142.38	142.38	142.38	142.38
Total Cumulative Sub Cap	0	0	0	0	0	0	0	0
SUBSTITUTE_UNIT1		<input type="button" value="Remove Resource"/>						
Availability MW	196	196	196	196	196	196	196	196
Eligible Non-RA Capacity	95.54	95.54	95.54	95.54	95.54	95.54	95.54	95.54
Substitute MW	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
CPM Substitute MW	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Submitter Information								
Name	<input type="text" value="Test, Testing"/>	Email	<input type="text" value="testing@caiso.com"/>	Phone	<input type="text" value="916-555-1212"/>	Notes <input type="text"/>		
*		*		*				
<input type="button" value="Submit"/>								

- Information on the substitute resource is added to the screen
- Note: if third-party resource is selected – name, email, and phone # for third-party contact will be required

CIRA – New Substitution Example


Day	01/01	01/02	01/03	01/04	01/05	01/06	01/07	01/08
Outage MW	94	94	94	94	94	94	94	94
RA MW	142.38	142.38	142.38	142.38	142.38	142.38	142.38	142.38
Total Cumulative Sub Cap	94	94	94	94	0	0	0	0

SUBSTITUTE_UNIT1
Remove Resource

Availability MW	196	196	196	196	196	196	196	196
Eligible Non-RA Capacity	95.54	95.54	95.54	95.54	95.54	95.54	95.54	95.54
Substitute MW	<input type="text" value="94"/>	<input type="text" value="94"/>	<input type="text" value="94"/>	<input type="text" value="94"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
CPM Substitute MW	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

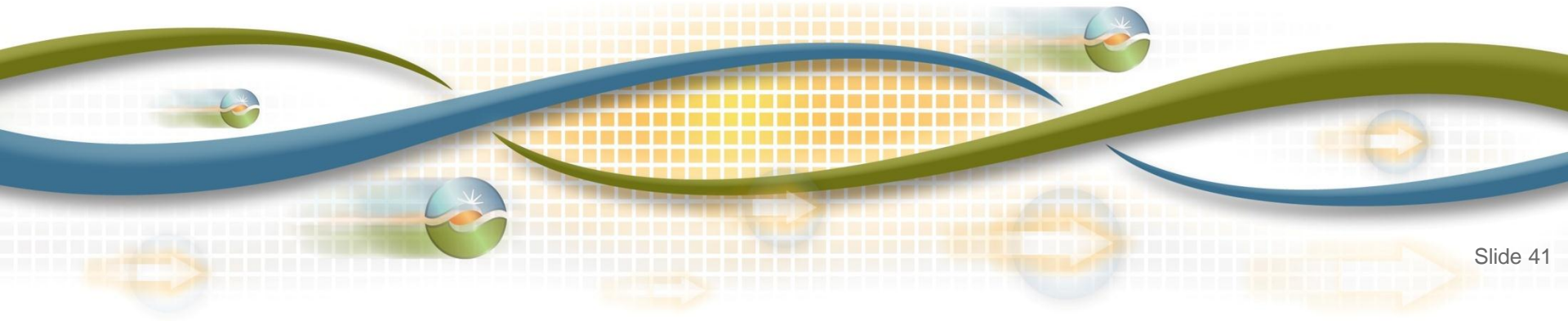
Submitter Information

Name * Email * Phone * Notes



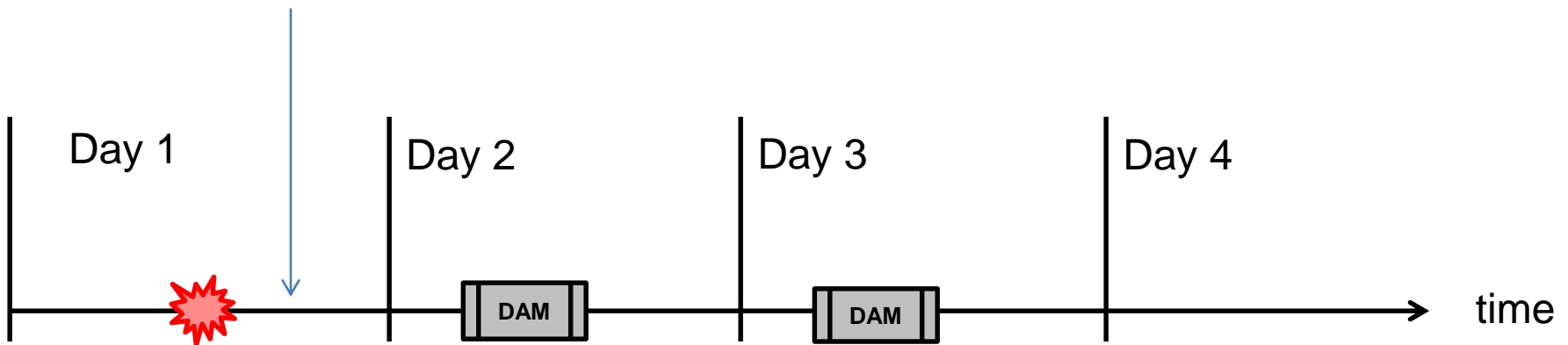
- Press Ctrl+left arrow or Ctrl+right arrow to copy data into the nearby cells
- Ability to select Substitute MW or CPM Substitute MW
- Name, email and phone number are required fields

Real-Time Substitution



Real Time Substitution

Submit real-time substitute anytime after forced outage starts



RA Resource

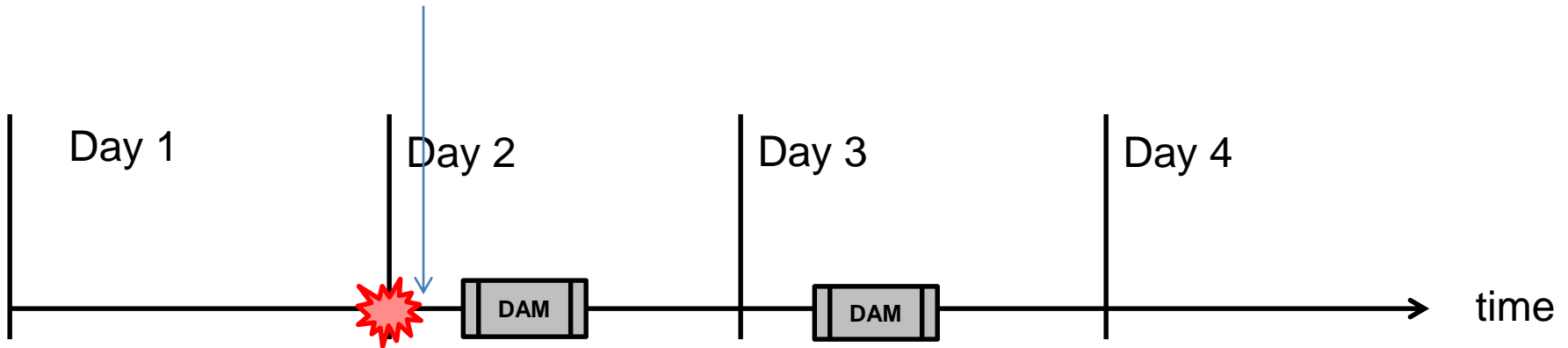


Substitute Resource



Real Time Substitution

Submit real-time substitute anytime after forced outage starts



RA Resource



Substitute Resource



Real Time Substitution

In a nutshell:

Real Time substitutes must at least cover current day plus next day.

Substitution Matrix for Generic RA – Real Time

Real Time

Resource that is in an outage				Submission Time Restriction	Substitute Resources		Resource Compatibility required?	3rd Party Approval required before cutoff ?
ID	Location	Dispatchable	Is it a 3rd Party request ?		Location	Dispatchable		
1	Local Capacity Area	Yes	No	90 minutes before the start of the trading hour	Same Local Capacity Area	Yes	Yes	N/A
2	Local Capacity Area	Yes	Yes	90 minutes before the start of the trading hour	Same Local Capacity Area	Yes	Yes	Yes
3	Local Capacity Area	No	No	90 minutes before the start of the trading hour	Same Local Capacity Area	Any	Yes	N/A
4	Local Capacity Area	No	Yes	90 minutes before the start of the trading hour	Same Local Capacity Area	Any	Yes	Yes
5	Non-Local Internal	Yes	No	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Yes	N/A	N/A
6	Non-Local Internal	Yes	Yes	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Yes	N/A	Yes
7	Non-Local Internal	No	No	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Any	N/A	N/A
8	Non-Local Internal	No	Yes	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Any	N/A	Yes
9	Non-Local External	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Non-Local External	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	Non-Local External	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Non-Local External	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Substitution Matrix for Flexible RA – Real Time

Real Time

Resource that is in an outage				Submission Time Restriction	Substitute Resources		3rd Party Approval required before cutoff ?	
ID	Location	Dispatchable	Is it a 3rd Party request ?		Location	Dispatchable		Resource Compatibility required?
1	Local Capacity Area	Yes	No	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Yes	Yes	N/A
2	Local Capacity Area	Yes	Yes	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Yes	Yes	Yes
3	Local Capacity Area	No	No	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Any	Yes	N/A
4	Local Capacity Area	No	Yes	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Any	Yes	Yes
5	Non-Local Internal	Yes	No	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Yes	N/A	N/A
6	Non-Local Internal	Yes	Yes	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Yes	N/A	Yes
7	Non-Local Internal	No	No	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Any	N/A	N/A
8	Non-Local Internal	No	Yes	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	Any	N/A	Yes
9	Non-Local External	N/A	N/A	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	N/A	N/A	N/A
10	Non-Local External	N/A	Yes	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	N/A	N/A	Yes
11	Non-Local External	N/A	N/A	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	N/A	N/A	N/A
12	Non-Local External	N/A	Yes	90 minutes before the start of the trading hour	Any Local or Non-Local Internal	N/A	N/A	Yes

CIRA – Substitute Resource Selection

Substitute Resource Selection

Resource ID SC ID Area Resource with Non-RA capacity only Compatible Only Include Third Party Resources

Physical ITIES Substitution Type * * Substitution Start Date: 01/06/2016 Time: : :

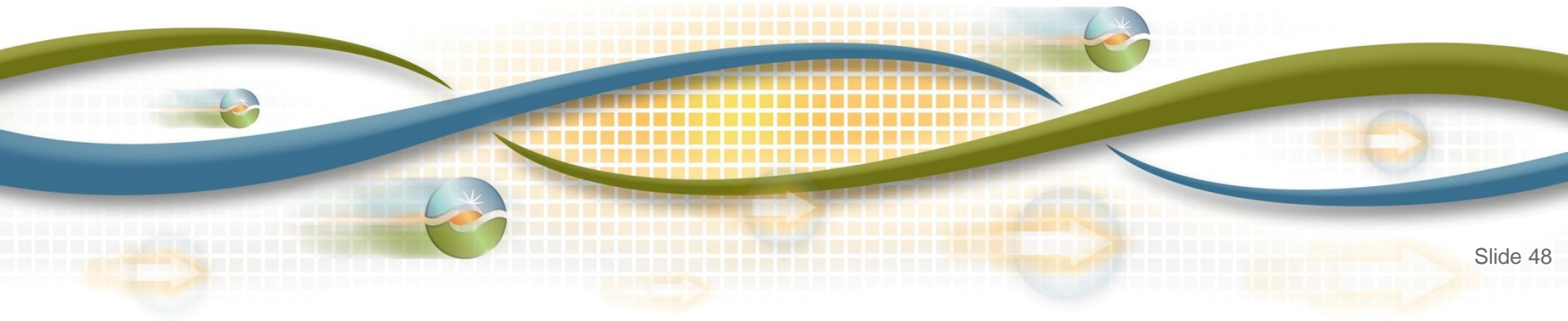
*Press Ctrl + -> or Ctrl + <- keys to copy data in the cells right or left

Day	01/06	01/07	
Outage MW	14.7	14.7	14
RA MW	57.93	57.93	57
Total Cumulative Sub Cap	0	0	0

00
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19

- Real time substitution must be submitted 90 mins ahead of time, at the top of the hour
- Cover current day plus next day
- Compatible only – will filter for compatible resources

Review Substitution



CIRA – Review Substitution



California ISO

Customer Interface for Resource Adequacy

Welcome

Plans

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Welcome to Customer Interface for Resource Adequacy

Please use the menu bar above to navigate the application.

New Substitution

Review Substitution

Release Substitution

Outage Exemptions

CIRA – Review Substitution



California ISO

Customer Interface for Resource Adequacy

Plans Validation & Reports Replacements Substitutions

Search Substitution Request

Substitution ID Original Resource ID Sub Resource ID Outage ID

Trade Month Substitution Type Pending DA Third Party RT

(Note: The dropdown menu for Original Resource ID is open, showing a list of blurred options.)

- Ability to search by resource ID
- Field will auto-complete after a few characters are entered

CIRA – Review Substitution



California ISO

Customer Interface for Resource Adequacy

Plans Validation & Reports Replacements Substitutions

Search Substitution Request

Substitution ID Original Resource ID Sub Resource ID Outage ID

Trade Month Trade Year Substitution Type Pending DA Third Party RT

- Or search by substitute resource ID
- Field will auto-complete after a few characters are entered

CIRA – Review Substitution



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Customer Interface for Resource Adequacy

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Search Substitution Request

Substitution ID <input type="text"/>	Original Resource ID <input type="text"/>	Sub Resource ID <input type="text"/>	Outage ID <input type="text"/>
Trade Month <input type="text" value="January"/>	Trade Year <input type="text" value="2016"/>	Substitution Type <input type="text" value="-Select-"/>	<input type="checkbox"/> Pending <input type="checkbox"/> DA <input type="checkbox"/> Third Party <input type="checkbox"/> RT
			<input type="button" value="Search"/>

- Ability to filter by substitution type

CIRA – Review Substitution Example

Search Substitution Request

Substitution ID Original Resource ID Sub Resource ID Outage ID

Trade Month Trade Year Substitution Type
 Pending DA Third Party RT

Select	Sub ID	Outage ID	Original Resource ID	Original Resource Name	Sub Resource ID	Description	Outage Start Date	Outage End Date	Nature of Work	Market Timeframe	Status	SC ID	Substitution Type
<input type="radio"/>	1247	3608694	<input type="text"/>	<input type="text"/>	<input type="text"/>	test - rkmadrigal	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED	<input type="text"/>	GENERIC
<input type="radio"/>	1229	3608694	<input type="text"/>	<input type="text"/>	<input type="text"/>	test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED	<input type="text"/>	GENERIC
<input type="radio"/>	1228	3608694	<input type="text"/>	<input type="text"/>	<input type="text"/>	test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	PENDING	<input type="text"/>	GENERIC
<input type="radio"/>	1227	3608694	<input type="text"/>	<input type="text"/>	<input type="text"/>	test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED	<input type="text"/>	GENERIC
<input type="radio"/>	1226	3608694	<input type="text"/>	<input type="text"/>	<input type="text"/>	test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED	<input type="text"/>	GENERIC
<input type="radio"/>	1225	3608694	<input type="text"/>	<input type="text"/>	<input type="text"/>	test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED	<input type="text"/>	GENERIC
<input type="radio"/>	1224	3608694	<input type="text"/>	<input type="text"/>	<input type="text"/>	test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED	<input type="text"/>	GENERIC

- Searched by original resource ID and it shows all substitutions related to that resource

CIRA – Review Substitution Example

Welcome RTESTER06x109

[v. 3.2.0_b166]

Plans Validation & Reports Replacements Substitutions

Search Substitution Request

Substitution ID Original Resource ID Sub Resource ID Outage ID

Trade Month Trade Year Substitution Type Pending DA Third Party RT

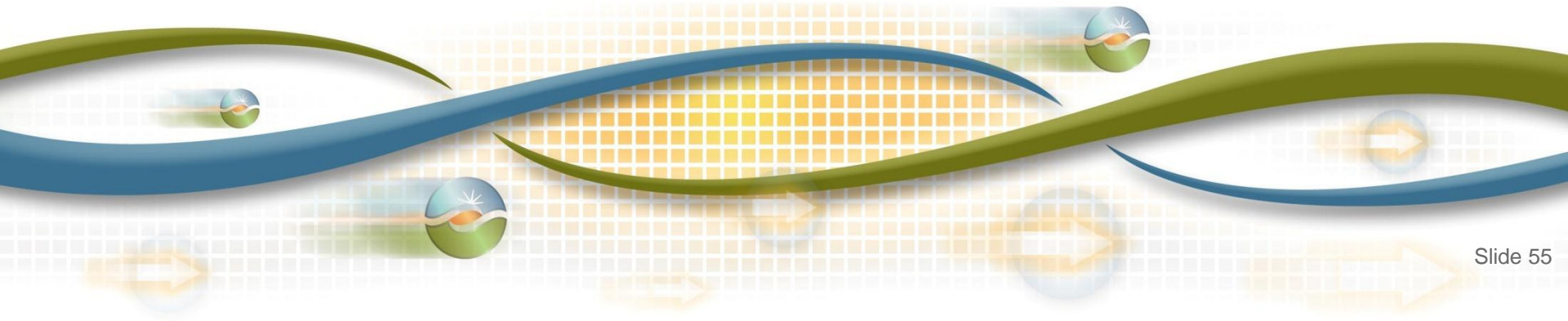
Select	Sub ID	Outage ID	Original Resource ID	Original Resource Name	Sub Resource ID	Description	Outage Start Date	Outage End Date	Nature of Work	Market Timeframe	Status	SC ID	Substitution Type
<input checked="" type="radio"/>	1247	3608694				test - rkmadrigal	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED		GENERIC
<input type="radio"/>	1229	3608694				test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED		GENERIC
<input type="radio"/>	1228	3608694				test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	PENDING		GENERIC
<input type="radio"/>	1227	3608694				test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED		GENERIC
<input type="radio"/>	1226	3608694				test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED		GENERIC
<input type="radio"/>	1225	3608694				test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED		GENERIC
<input type="radio"/>	1224	3608694				test	12/26/2015 00:00:00	01/09/2016 00:00:00	PLANT_MAINTENANCE	DA	APPROVED		GENERIC

Outage ID: 3608694 Resource on Outage:

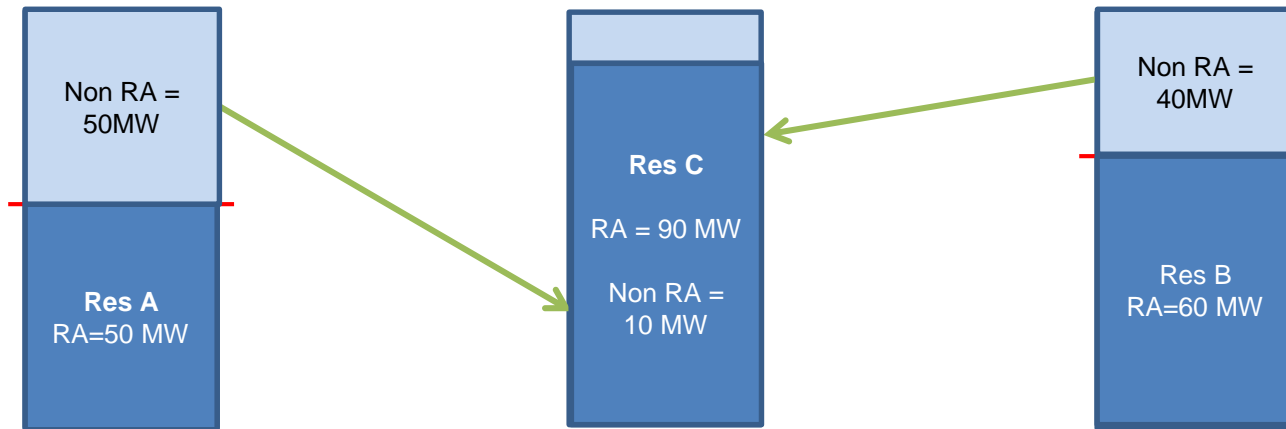
Day	01/01	01/02	01/03	01/04	01/05	01/06	01/07	01/08
Outage MW	94	94	94	94	94	94	94	94
<input type="text" value="Generic RA"/> <input type="text" value="Flex RA"/> <input type="text" value="Outage Info"/>								
Substitute MW	94	94	94	94	94	94	94	94
CPM Substitute MW	0	0	0	0	0	0	0	0
Total Substitution MW	94	94	94	94	94	94	94	94

- Submitter can update or cancel request
- If this were a third-party substitution request, the third-party SC would approve or reject substitution request from this screen

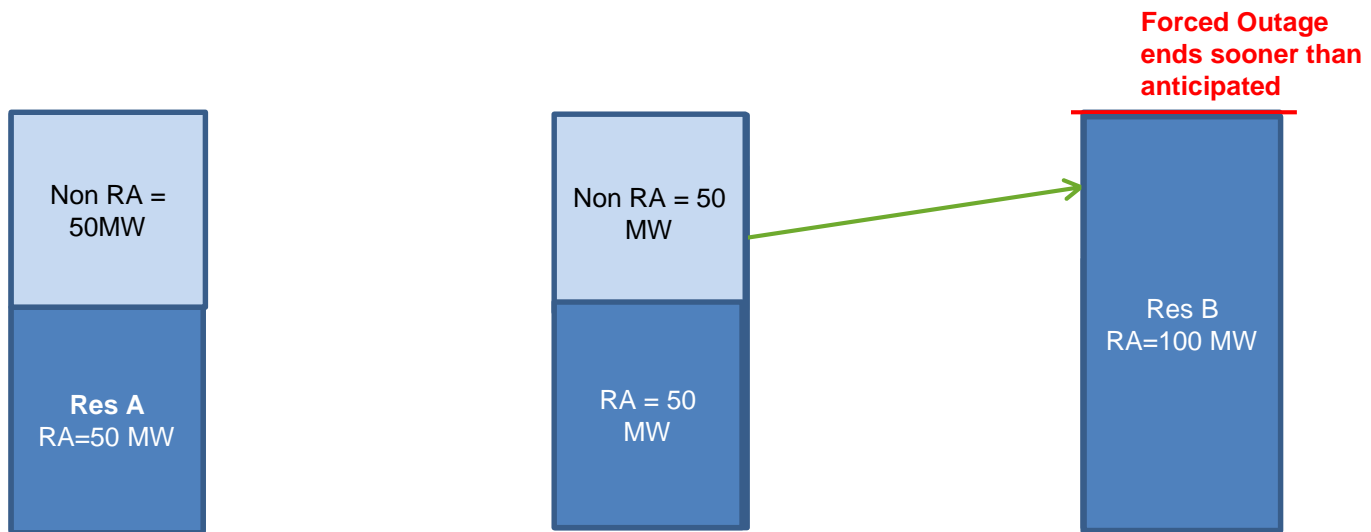
Release Substitution



Substitution Example



Release of Substitution Example



CIRA – Release Substitution



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Outage Exemptions

CIRA – Release Substitution



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Release Substitution Resources

Outage Id:

Substitution Req Id:

Resource Id:

Substitution Type:

Substitution Start Date:

Substitution End date:

- The screen shows the first step in the process.
- As items are selected, new sections are added to the screen.

CIRA – Release Substitution



California ISO


Customer Interface for Resource Adequacy

Plans Validation & Reports Replacements Substitutions

Release Substitution Resources

Outage Id:

Resource Id:

Substitution S 

Substitution Req Id:

Substitution Type:

Substitution End date:

- Ability to search for a resource by ID. Field will auto-fill after a few characters.

CIRA – Release Substitution



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Customer Interface for Resource Adequacy

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Release Substitution Resources

Outage Id:

Resource Id:

Substitution Start Date:

Substitution Req Id:

Substitution Type:

Substitution End date:

-Select-
-Select-
GENERIC
FLEX

- Ability to filter by substitution type

CIRA – Release Substitution



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Release Substitution Resources

Outage Id: Substitution Req Id:

Resource Id: Substitution Type:

Substitution Start Date: Substitution End date:

*Substitution should be commenced for release to be requested

Substitution Release Requests

Outage ID	Substitution Req ID	Original Resource ID	Original SC ID	Original SC Approval	Substitution Resource ID	Substitution SC ID	Substitution SC Approval	Release Date	Comments	Sub Start Date	Sub End Date	Substitution Type
3608694	1247			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC
3608694	1229			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC
3608694	1227			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC
3608694	1226			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC
3608694	1226			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC
3608694	1226			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC
3608694	1225			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC
3608694	1225			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC
3608694	1224			SELECT ▼			SELECT ▼	<input type="text"/>	<input type="text"/>	01/01/2016 00:00:00	01/08/2016 23:59:59	GENERIC

- Substitution should be commenced for release to be requested. If not, the request should be canceled or updated, not released.
- Third-party approvals for release of substitution are done using this screen.

Release Substitution Process Notes

- This functionality provides a platform to manage substitution requests in the event that an outage is cancelled, rescheduled, or ends sooner than planned
- Third-party must approve the request (if applicable)
- Requests for release of substitution must be submitted and approved by 8am for same-day release

Outage Exemptions

- RAIM Exemption Request

Process Notes

- Scenario: If an SC submits a forced outage categorized as an ambient derate due to temperature, but subsequently discovers that the correct outage category is ambient **not** due to temperature
 - SC can submit outage exemption request to correct the outage category
 - ISO will accept these requests up to five business days after the date of outage submission
 - Once the five business day window has passed, the exemption request will be rejected

CIRA – Outage Exemptions



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Outage Exemptions

CIRA – Outage Exemptions

Plans Validation & Reports Replacements Substitutions

Outage Exemption Requests

OutageId: ResourceId: Outage Start Date: Outage End Date: Status:

Search Outages

OutageId: ResourceId: Outage Start Date: Outage End Date:

- Click the Search Outages button and a new search window appears on the screen
- Search for a specific outage or resource, or click the Show Outages button to see all outages

CIRA – Outage Exemptions



California ISO

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Outage Exemption Requests

OutageId: ResourceId: Outage Start Date: Outage End Date: Status:

Search Outages

OutageId: ResourceId: Outage Start Date: Outage End Date:

OutageID	ResourceID	Outage Start	Outage End	Outage Type
3608699	[REDACTED]	12/24/2015 00:00:00	12/25/2015 00:00:00	FORCED
3608696	[REDACTED]	12/24/2015 00:00:00	12/25/2015 00:00:00	FORCED
3608694	[REDACTED]	12/24/2015 00:00:00	01/09/2016 00:00:00	FORCED
3608690	[REDACTED]	12/26/2015 00:00:00	12/27/2015 00:00:00	FORCED

1 2 3 4 5 6 7 8 9 10 .. 112 Next 10

New Outage Exemption Request:

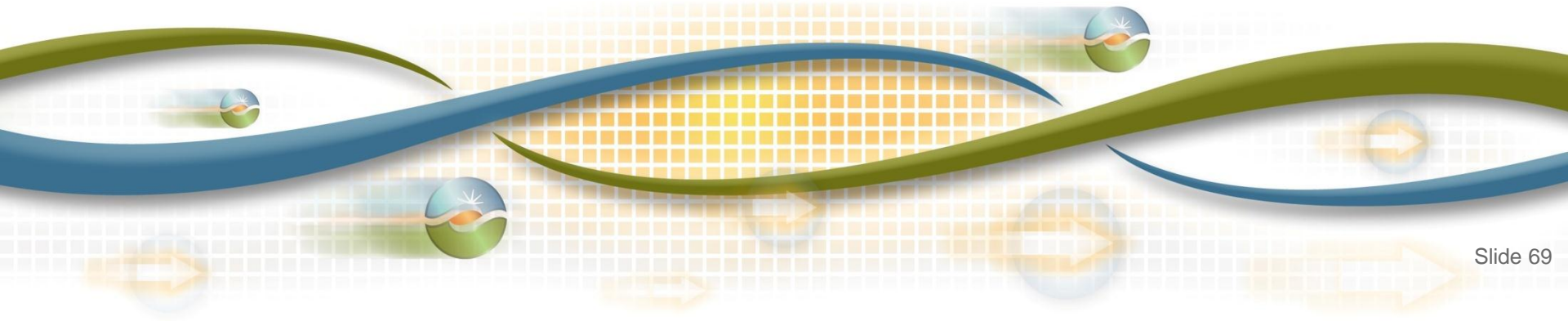
OutageId: ResourceId: OutageStartDate: OutageEndDate:

Outage Exemption Type: RAAIM_EXEMPT PLANNED_OUTAGE_EXEMPT

Comments:

- Click on the row to select the outage
- Click RAAIM Exempt check-box
- Click Submit

RAAIM Pre-Calculation Output Data



CIRA – RAAIM Pre-Calculation Output Data



California ISO

Customer Interface for Resource Adequacy

Plans Validation & Reports Replacements CSP Offers Substitutions Admin

RAAIM Calculations

Calculation Period Month: **January** Calculation Period Year: **2016**
Market Timeframe: **-Select-** Status: **-Select-**

View Publish Reset

Run ID	Calculation Start Date	Calculation End Date	Executed Date	Status	Run Type	Comments	Is Auto Publish	View Details	Publish/Republish
888	01/05/2016 00:00:00	01/05/2016 23:59:59	01/05/2016 14:06:33	PUBLISHED	ONDEMAND	test2	Y		<input type="checkbox"/>
887	01/05/2016 00:00:00	01/05/2016 23:59:59	01/05/2016 14:05:08	PUBLISHED	ONDEMAND	test1	N		<input type="checkbox"/>
886	01/05/2016 00:00:00	01/07/2016 23:59:59	01/05/2016 14:00:52	COMPLETED	ONDEMAND	test	N		<input type="checkbox"/>
885	01/06/2016 00:00:00	01/06/2016 23:59:59	01/05/2016 13:58:08	COMPLETED	SCHEDULER	Triggered By RaaimPrecalcDAJob			<input type="checkbox"/>
884	01/05/2016 00:00:00	01/07/2016 23:59:59	01/05/2016 11:36:13	COMPLETED	ONDEMAND	Test	N		<input type="checkbox"/>
883	01/05/2016 00:00:00	01/07/2016 23:59:59	01/05/2016 11:29:26	COMPLETED	ONDEMAND	test Now	N		<input type="checkbox"/>
882	01/04/2016 00:00:00	01/07/2016 23:59:59	01/05/2016 11:26:53	COMPLETED	ONDEMAND	test NOW	N		<input type="checkbox"/>
881	01/04/2016 00:00:00	01/07/2016 23:59:59	01/05/2016 11:24:56	COMPLETED	ONDEMAND	test NOW	N		<input type="checkbox"/>
861	01/04/2016 00:00:00	01/06/2016 23:59:59	01/04/2016 16:24:32	PUBLISHED	ONDEMAND	test Unit	Y		<input type="checkbox"/>
847	01/13/2016 00:00:00	01/13/2016 23:59:59	01/03/2016 11:46:04	PUBLISHED	ONDEMAND	test	Y		<input type="checkbox"/>

1 2 [Next](#) Max: 10

Download Screen Results
 Download All Results

- Ability to view each run
- Click View Details to access output data

CIRA – RAIM Pre-Calculation Output Data

RAAIM Calculations Details

Run ID
Resource ID
Market Timeframe

Date From
Date To

[View](#)
[Reset](#)

Resource	Outage Info	Run	Market	Date	Pre-Calc Values	HE01	HE02	HE03	HE04	HE05	HE06	HE07	HE08	HE09	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	H
	View Outages	888	DAM	01/05/2016	Exempt	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	
	View Outages	888	DAM	01/05/2016	Use Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	View Outages	888	DAM	01/05/2016	Non-use Limit	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	View Outages	888	DAM	01/05/2016	Gen RA	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0
	View Outages	888	DAM	01/05/2016	Gen CPM RA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	View Outages	888	DAM	01/05/2016	Flex RA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	View Outages	888	DAM	01/05/2016	Flex CPM RA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[1](#)
[2](#)
[3](#)
[4](#)
[Next](#)

- Ability to view pre-calculation output data by category

Use Limitation Template & Documentation Requirements

Resource Updates in Production Environment

- Resource **use limit** flag must be set to Y in order to upload the use limit plan data template (ULPDT)
 - Use limited flag is set using the resource data template (RDT)
- Submit use limit documentation in CIDI and include ticket number in ULPDT
- Effective date of ULPDT must be at least five business days out from date of submission
- Submit ULPDT via master file upload
- If **no** flag changes are required. Market participants (MPs) can upload their March ULPDT in master file (MF) beginning 2/3/16

Resource Updates in Production Environment

- If **use limit** flag changes are required, MPs will need to make the changes by uploading a revised RDT. ISO will approve the RDT and MPs will be notified of approval via the normal process.
- Note that ULPDT cannot be uploaded unless the use limit flag setting is Y
- The ULPDT will come into ISO system as unapproved. ISO will review and approve these templates on a first come, first served basis.
- Nothing in Settlements is binding until trade date 5/1/16 due to the two-month advisory period.

Use Limit Plan Data Template

	A	B	C	D	E	F	G	H	I
1	Resource ID	Use Limit Type	Granularity	Effective Start Date	Effective End Date	Limitation Number	Minimum Capacity Level	Maximum Capacity Level	Documentation Name
2	RES_ID	USE_LIMIT_TYPE	GRANULARITY	PLAN_STRT_DT_TM	PLAN_END_DT_TM	LIMITATION	MIN_USE_LIMIT	MAX_USE_LIMIT	DOC_NAME
3	(An existing active resource provisioned to the SC uploading the ULDT)	(START, RUNHOURS, ENERGY, OTHER)	The period over which the limitation applies (DAILY, MONTHLY, ANNUALLY, OTHER)	When this submitted use limit plan becomes effective. (Must be 5 business days in the future.)	When this submitted use limit plan "expires". This date must be provided.	The number or amount of limitation over the granularity. (For example, number of starts over the year.)	Minimum capacity level for which the limitation applies. (optional)	Maximum capacity level for which the limitation applies. (optional)	Documentation name, page number, CIDI Ticket #
4									
5									
6									

Instruction | Definition | Code | Use Limit Plan | +

- New template is posted to release planning page
- New template can be uploaded via master file UI beginning 2/3/16

Use Limit Plan Data Template (ULPDT) - Example

Scheduling Coordinator	Resource ID	Use Limit Type	Granularity	Effective Start Date	Effective End Date	Limitation Number	Minimum Capacity Level	Maximum Capacity Level	Documentation Name
SC_ID	RES_ID	USE_LIMIT_TYPE	GRANULARITY	PLAN_STRT_DT_TM	PLAN_END_DT_TM	LIMITATION	MIN_USE_LIMIT	MAX_USE_LIMIT	DOC_NAME
SC A	RES A	START	ANNUALLY	1/1/2016	12/31/2026	300	50	200	Air quality management district permit, page 10, CIDI ticket 2890
SC A	RES A	START	MONTHLY	1/1/2016	12/31/2026	40	50	200	Air quality management district permit, page 15, CIDI ticket 2890
SC A	RES A	RUNHOURS	MONTHLY	1/1/2016	12/31/2026	150	50	200	Air quality management district permit, page 8, CIDI ticket 2890
SC C	RES C	ENERGY	MONTHLY	1/1/2016	12/31/2026	3000	50	200	Document name with description of model included in XXX filing, page 10-12, CIDI ticket 35078
SC B	RES B	RUNHOURS	MONTHLY	1/1/2016	1/31/2016	700	10	35	Document name with description of model included in ERRA filing, page 10-12, CIDI ticket 3500
SC B	RES B	RUNHOURS	MONTHLY	2/1/2016	2/29/2016	750	10	35	Document name with description of model included in ERRA filing, page 10-12, CIDI ticket 3500
SC B	RES D	START	ANNUALLY	1/1/2016	12/31/2026	300	10	35	Air quality management district permit, page 10, CIDI ticket 2895. Please provide translation document name in CIDI ticket.

ULPDT Intra Month Update (hydro only) - Example

Scheduling Coordinator	Resource ID	Use Limit Type	Granularity	Effective Start Date	Effective End Date	Limitation Number	Minimum Capacity Level	Maximum Capacity Level	Documentation Name
SC_ID	RES_ID	USE_LIMIT_TYPE	GRANULARITY	PLAN_START_DT_TM	PLAN_END_DT_TM	LIMITATION	MIN_USE_LIMIT	MAX_USE_LIMIT	DOC_NAME
SC B	RES B	RUNHOURS	MONTHLY	1/20/2016	1/31/2016	600	10	35	Document name with description of model included in ERRA filing, page 10-12, CIDI ticket 3500. Document name that cites input values that have changed, resulting in updated limitations
SC B	RES B	RUNHOURS	MONTHLY	2/1/2016	2/29/2016	700	10	35	Document name with description of model included in ERRA filing, page 10-12, CIDI ticket 3500. Document name that cites input values that have changed, resulting in updated limitations
		NOTE: On January 15th, SC submits an intra monthly update for hydro resource as a result of input values that have changed since originally submitted. Start date has to be 5 business days out from submission but the updated value must reflect the limitation of the entire month.							
		NOTE: SC must provide document along with updated values citing which input values from ERRA model description have changed and the new input value							

Note: For intra month hydro updates, No changes are allowed to the methodology or formula, changes only to input values used in the methodology or formula initially provided will be allowed.

ULPDT Scenarios

Example 1

- RES A has environmental limitation
- One air quality management district permit limits the resource monthly starts and run-hours as well as annual starts
- Documentation column must state the document name (air quality permit), the page number on the document the specifies limitation, CIDI ticket number that includes the permit

Example 2

- RES B, is a hydro resource with monthly run-hour limitations due to storage capability
- SC has a complex model which generates monthly run-hours limitations.
- The documentation must describe the input values used, high level description of the model, and resulting monthly limitations
- CIDI ticket number that includes the documents

Documentation Requirement

Resource Type	Use Plan Data
Hydro – Annual & Monthly	Limitation - ERRA Summary of model citing the limitations Translation/Formula – ERRA summary of model describing input values, constraints, and outputs.
Hydro – Intra Month	List of updates to input values used in initial document describing the translation/formula
QF Resource (not Regulatory Must Take)	Limitation - Air Permit Translation/Formula - As Required
Gas-Fired (GT with limited fuel storage)	Limitation - Air Permit Translation/Formula - As Required
Gas-Fired with environmental restrictions that constraint its operation	Limitation - Air Permit Translation/Formula - As Required

Master File – ULPDT Upload

The screenshot displays the California ISO Master File interface. At the top left is the California ISO logo with the tagline "Shaping a Renewed Future". To the right of the logo is the text "Master File". Below this is a navigation bar with buttons for "Upload", "Reports", "Status", "Actions", "Data Load", "Rates", "Notifications", and "Help".

The main content area is divided into two sections:

- RDT Upload:** This section contains a form with the following fields:
 - File Name:** A text input field with a "Browse..." button to its right.
 - RDT Type:** Radio buttons for "Generator" (selected) and "Intertie".
 - Effective Date:** A date input field showing "01/08/2016" with a calendar icon.
 - SC ID:** A dropdown menu.
 - Comments:** A text area with up and down arrow controls.
 - Upload:** A button at the bottom of the form.
- ULPDT Upload:** This section is highlighted with an orange border and contains a form with the following fields:
 - File Name:** A text input field with a "Browse..." button to its right, which is circled in orange.
 - Upload:** A button at the bottom of the form.

At the bottom of the page, there is a footer with the text: "MF Build: mf-6.4.2_b298. ©2015 CAISO, Inc. The contents of these pages are subject to change without notice. Decisions based on information contained within the California ISO's web site are the visitor's sole responsibility."

Master File – View/Download Previous Submissions

California ISO | Master File Reporting

Shaping a Renewed Future

Master File Reporting

MF ULPDT Version 1.0

Trading Date: 12/31/2015 SCID: -Select- Use Limit Type: Granularity: Resource ID:

View Report

First Prev Next Last Goto Page of 100% Download Excel Print

To generate & view report:

- Select report filter options.
- Click on the **View Report** button.
- Results will open up in Excel.

ULPDT Upload Validation in Master File

1. Use Limit flag on the Resource must be 'Y' for MPs to submit the ULPDT
2. Effective Start Date (Plan Start Date) must be at least 5 business days in the future
3. Use Limit Type must be 'START', 'RUNHOURS', 'ENERGY', or 'OTHER'
4. Granularity must be 'DAILY', 'MONTHLY', 'ANNUALLY', or 'OTHER'
5. SC_ID must be the SC who is provisioned to the Resource (all Resources in the template) when the Use Limit Plan is to become effective

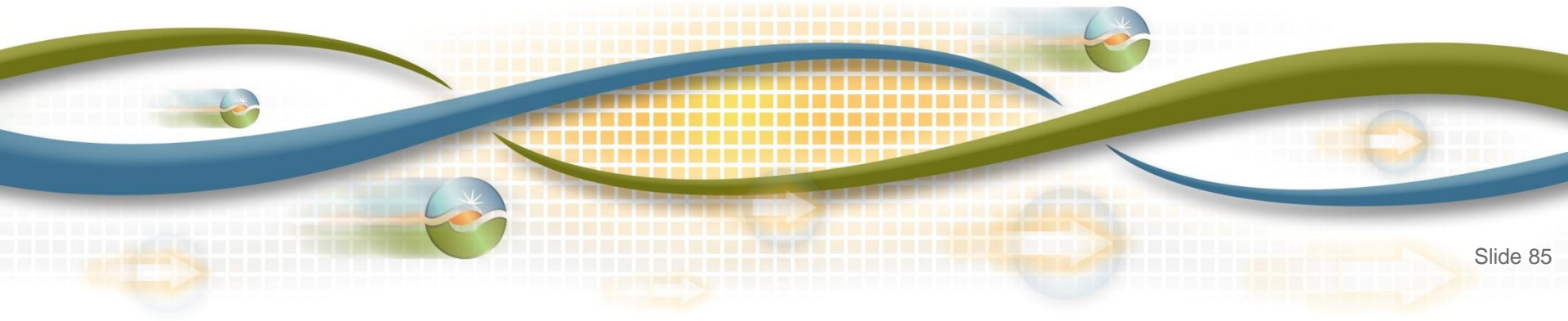
ULPDT Upload Validation in Master File

- The Resource must currently be active
- SC_ID, Resource ID, Use Limit Type, Granularity, Limitation Number, and Effective Dates (Start and End) must be provided. (Other columns are optional.)
- Start Date must be less than End Date. (End Date will default with a timestamp of 23:59:59.)
- Limitation Number must be ≥ 0
- If Use Limit Type = 'START' then Limitation Number must be an integer

ULPDT Upload Validation in Master File

- Min Use Limit, if provided, must be non-negative
- Max Use Limit, if provided, must be $>$ Min Use Limit
- The ULPDT cannot contain more than 1 record with the same Resource ID, Limit Type, Granularity and Effective date range
- The SC must submit the entire template (which includes the Instruction worksheet, Definition worksheet, Code worksheet, and Use_Limit_Plan worksheet)

Commitment Cost Enhancements, Phase 2



Commitment Cost Enhancements

Phase 1

- Calculation of start-up and minimum load costs using proxy cost or registered cost option.

Phase 2 (Fall 2015)

- Transition Cost

★ Phase 2 (Early 2016)

- Must Offer Obligation Rules

Phase 3 (Fall 2016)

- Use Limited Registration Process
- Use Limited Definition
- Opportunity Cost Calculation

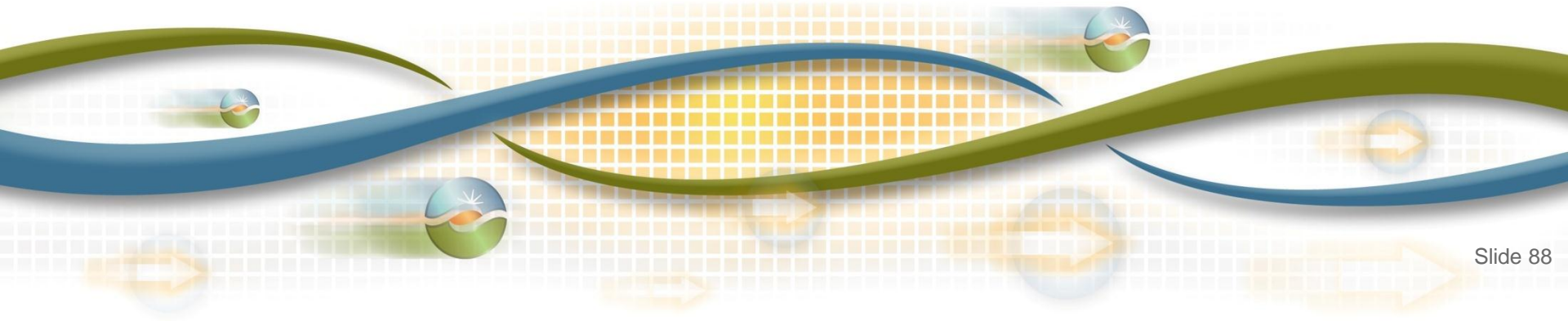
The current rules capture both flexible and generic RA must offer obligation rules with one exception

- Effective in the early 2016 release, in RAAIM assessment hours:
 - the system will generate bids in day-ahead and real-time for Generic RA MW for non-resource specific resources that have RA contracts (NRS-RA)

Generic RAAIM assessment hours are on the following non-holiday weekdays:

- HE 14-18 (April to October)
- HE 17 – 21 (November to March)

Background on CPM



Resource Adequacy (RA) & Capacity Procurement Mechanism (CPM) Capacity

Resource Adequacy Capacity - This is capacity committed to the ISO to ensure that the demand can be met at all times. The ISO assesses the performance of resource adequacy resources. There are two types of RA – Generic & Flexible.

Capacity Procurement Mechanism - Backstop capacity procured by ISO to meet reliability needs

Capacity Procurement Mechanism (CPM) Replacement

- ISO may procure and price backstop capacity designated under CPM through a competitive solicitation process (CSP)
- CSP provides a solution to replace the current administrative price for backstop capacity
- CSP will be set up to run annually, monthly, and intra-monthly to cover all potential CPM designations with the exception of a risk-of-retirement designation

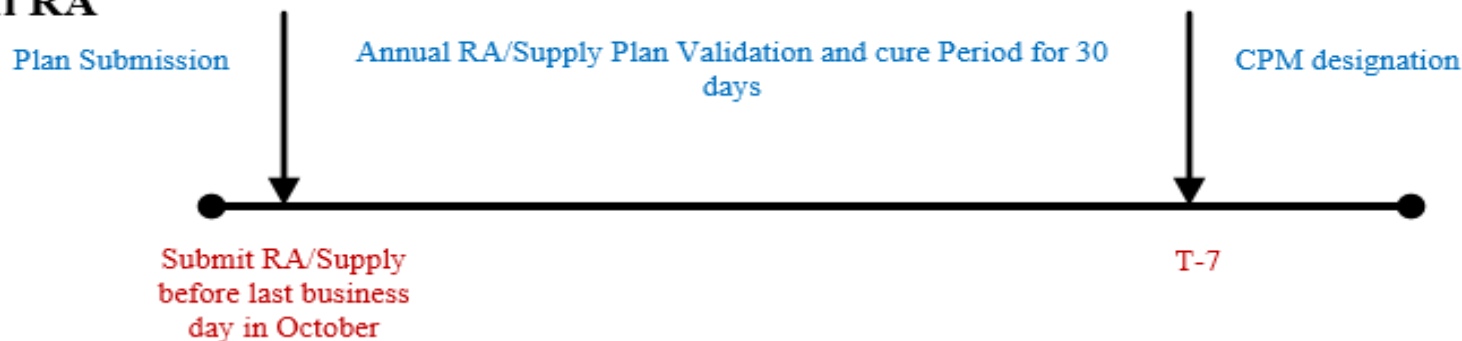
CSP used for different CPM types

Timeframe	CPM event
Annual	<ul style="list-style-type: none">• Insufficient cumulative local, system, or flexible capacity in RA plans• Collective deficiency in local area
Monthly	<ul style="list-style-type: none">• Insufficient cumulative local, system, or flexible capacity in RA plans• Insufficient cumulative system capacity due to planned outages
Intra-monthly	<ul style="list-style-type: none">• Significant event• Exceptional dispatch

Annual CSP

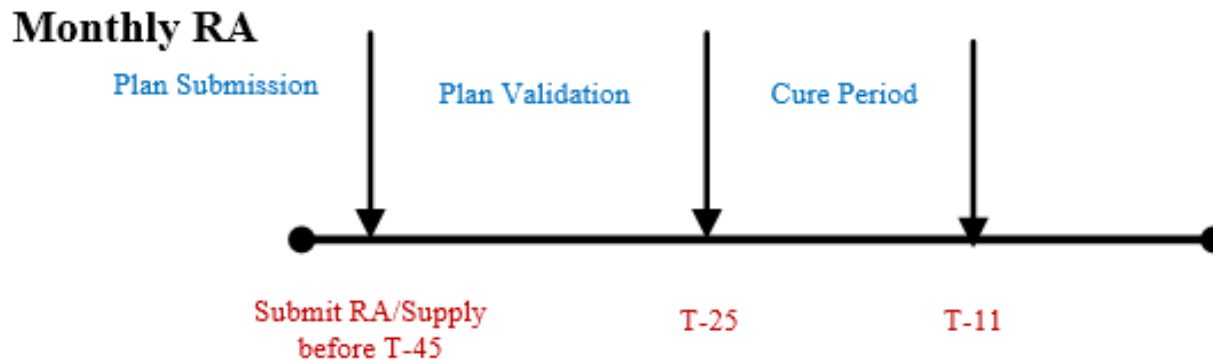
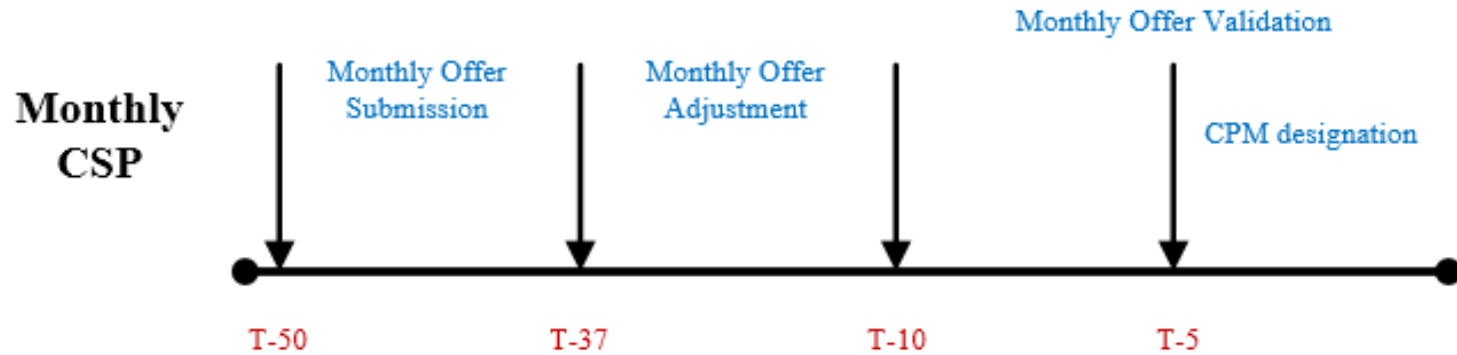


Annual RA



Note: T stands for RA compliance year

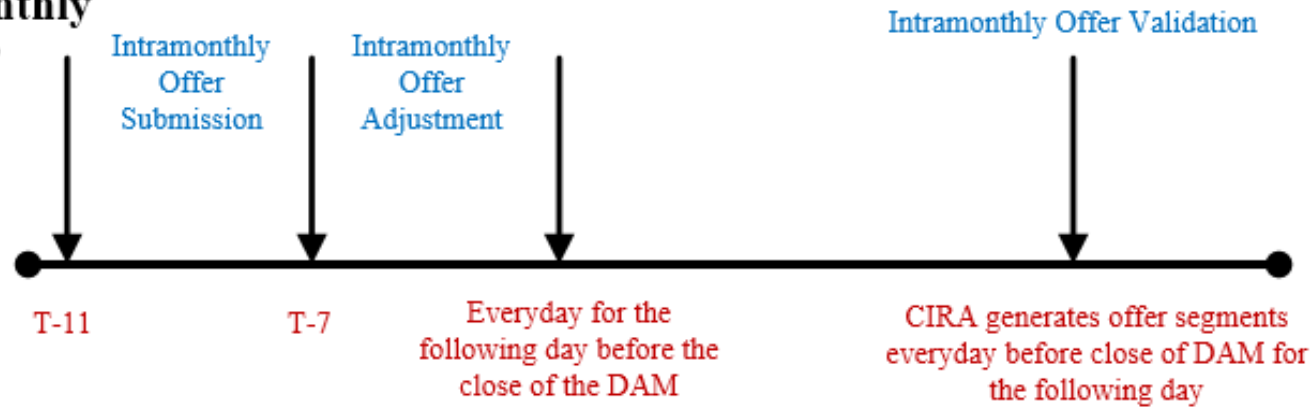
Monthly CSP



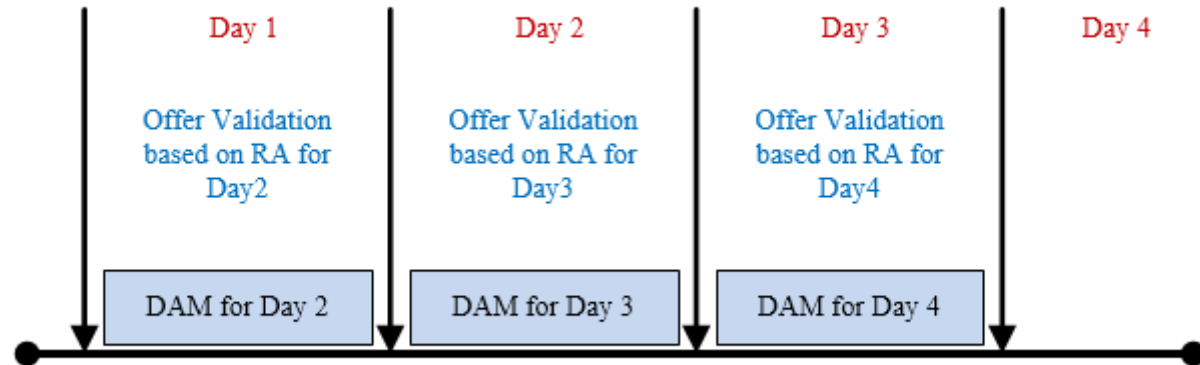
Note: T stands for RA compliance month

Intra-monthly CSP

IntraMonthly CSP

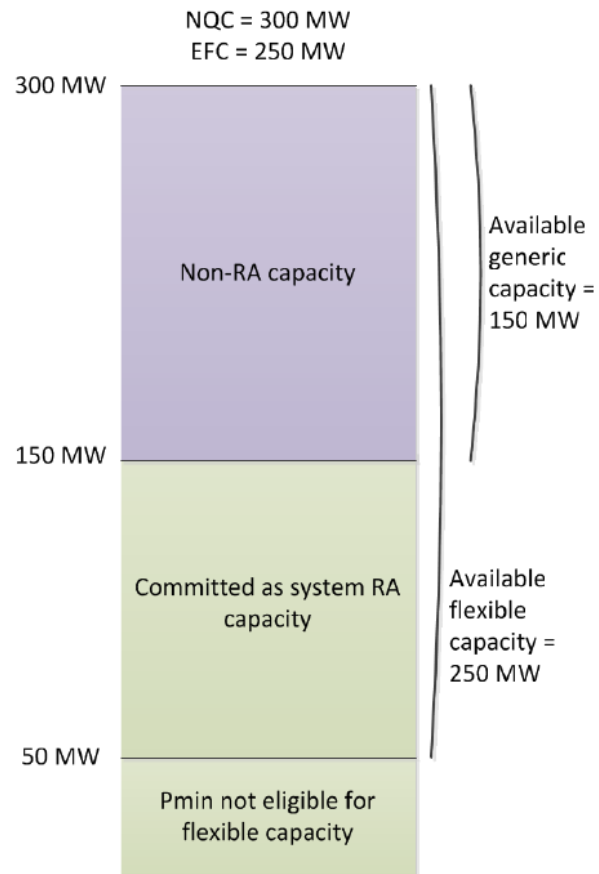


Intramonthly Offer Validation

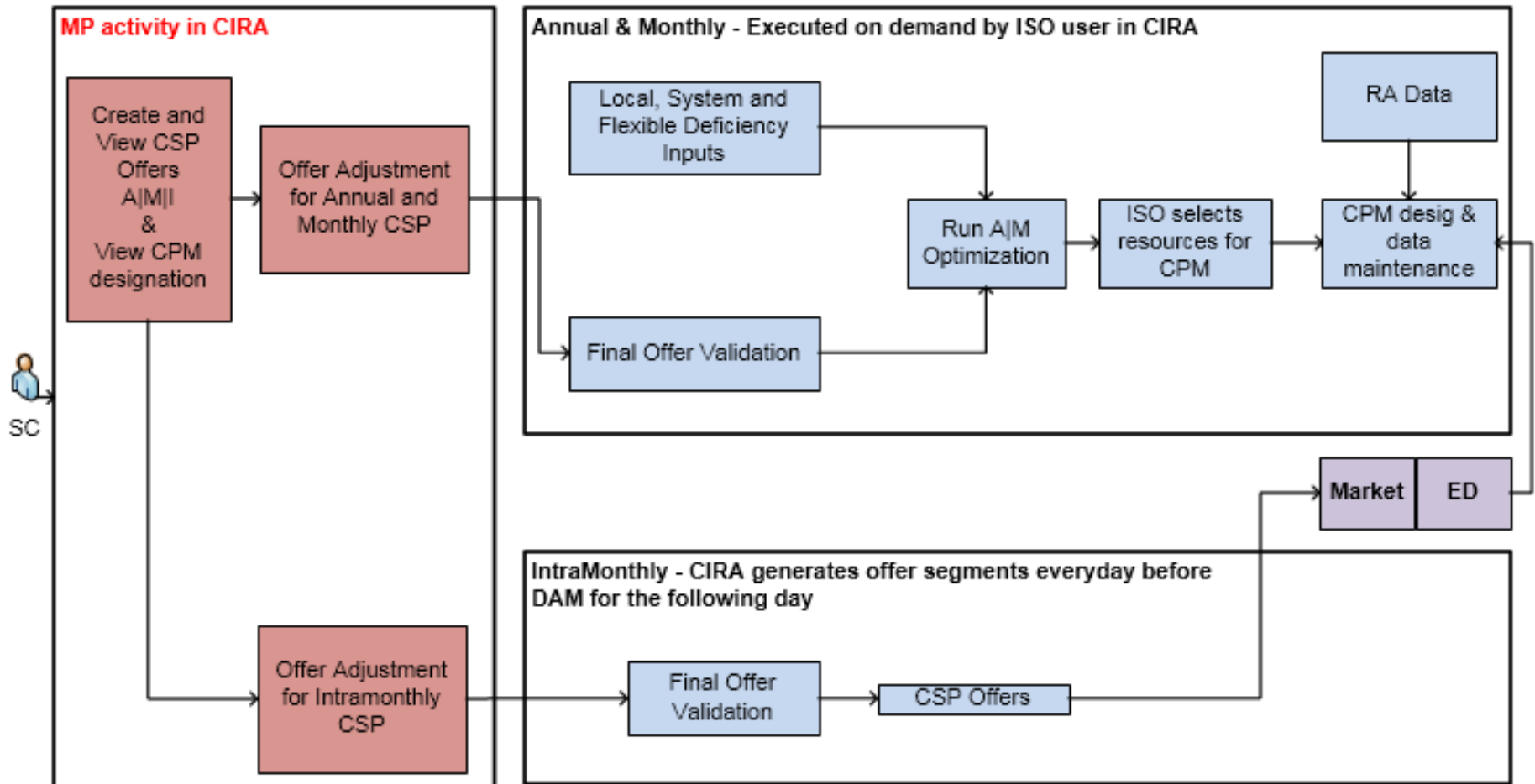


Note: T stands for RA compliance month

Offer Validation



CSP Process



Offer Validation – Annual and Monthly

- Submitted offers must have a Price (\$/kW-month) and have a Capacity (in MW) amount per resource ID
- CIRA will validate that offers do not overlap with RA on a supply plan or approved replacement or substitute capacity during offer finalization
- As long as the resource has sufficient non-RA capacity, the capacity is eligible to participate in CSP

Offer Validation – Annual and Monthly

- Capacity MW can be Generic and/or Flexible.
- If offer has flexible MW then user must choose a flex category
 - Cat 1 resource can be used in cat 1, 2 or 3.
 - Cat 2 resource can be used in cat 2 or 3
 - Cat 3 resource can be used only in category 3

Offer Validation

Sample offer:

Resources	Generic MW	Flexible MW	Flex Category	Price (\$/kW-month)
ResA	65	20	1	\$2
ResB	30			\$3
ResC		25	2	\$5

Offer Validation

Example, 100 MW resource:

- 35 MW RA
 - 5 MW “S” replacement RA for 10 days during the month
-
- How much can SC offer in to Monthly CSP?
 - How much can SC offer in to Intra-monthly CSP?

Offer Validation

- Offer Adjustment for Annual and Monthly CSP
 - Offer may be adjusted down in price
 - Offer may be adjusted down in MW
 - Offer may be withdrawn/cancel

Offer Validation – Intra-monthly CSP

- Single price for a MW value of generic capacity
- Offer Adjustment for Intra-monthly
 - Offers adjusted up and down from previously adjusted price/MW but capped at initial submittal or withdrawn/cancel

Resources	Generic MW	Price
ResA	20	\$2
ResB	30	\$3
ResC	25	\$5

CIRA – Accept/Reject CPM designation

- Adding ability to accept/reject CPM designation in CIRA application
- Screens are in development
- Functionality will be available in market sim environment

References

- 2015-2016 RSI & CPM market simulation plan:
 - http://www.caiso.com/Documents/2015-2016_ReliabilityServices-CapacityProcurementMechanismReplacementMarketSimulationPlan.xls
- Reliability services page:
 - <http://www.caiso.com/informed/Pages/StakeholderProcesses/ReliabilityServices.aspx>
 - Contains links to NQC template, RA plan template, use limit plan data template, and links to slides from previous workshops
- Capacity procurement mechanism replacement:
 - <http://www.caiso.com/informed/Pages/StakeholderProcesses/CapacityProcurementMechanismReplacement.aspx>
- Reliability requirements BPM:
 - <http://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Reliability%20Requirements>