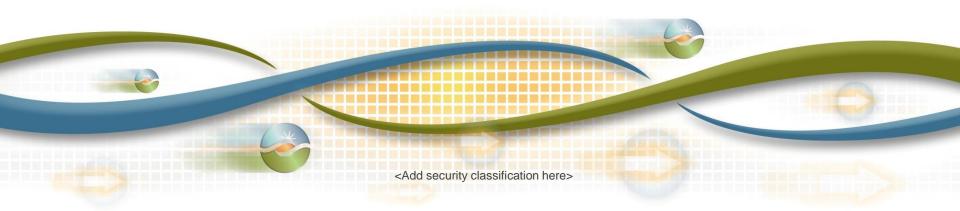# Resource Adequacy & Outage Coordination Process

Dede Subakti, Director Operations Engineering Services

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Resource Adequacy/ Outage Coordination Process
(Currently in Production)

Current Process – Planning Horizon

- All Plans are due 45 days before the start of the month.

- All Planned Outages are exempt from RAAIM.

- Planned Outage Analysis/Replacement requirement assigned to Load Serving Entities (LSE) 25 days before the start of the month.

- LSE purchase additional replacement RA and submit replacements through excel upload 11 days before the start of the month.

- Suppliers approve replacement RA 11 days before the start of the month.

California ISO
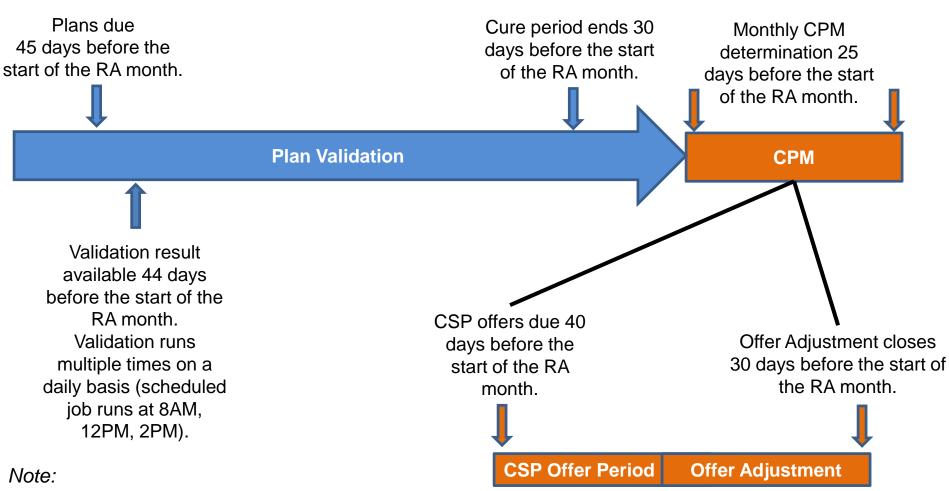
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Current Process – Operations Horizon

- ISO performs month ahead CPM determination.

- Supplier responsible for outages during the operations horizon.

- ISO coordinates with suppliers the need to replace RA due to Outages (email or phone call).

- Forced Outages Substitution does not take in to account Listed Local.

Resource Adequacy Timeline
(Effective 4/1/18)

Resource Adequacy Timeline

Plans due 45 days before the start of the RA month.

Cure period ends 30 days before the start of the RA month.

Monthly CPM determination 25 days before the start of the RA month.

Plan Validation

CPM

Validation result available 44 days before the start of the RA month. Validation runs multiple times on a daily basis (scheduled job runs at 8AM, 12PM, 2PM).

CSP offers due 40 days before the start of the RA month.

Offer Adjustment closes 30 days before the start of the RA month.

CSP Offer Period

Offer Adjustment

Note:

1) *New RA & Supply Plan Templates must be used.*
2) *Timeline applies to LSE & Supplier.*

Resource Adequacy Timeline

Planned Outage Substitution Assessment begins 25 days before the start of the RA month.

Planned Outage Substitution Obligation assigned 22 days before the start of the RA month (Initial POSO).

Planned Outage Analysis run everyday till end of the month (scheduled job runs at 3AM, 8AM, 10AM, 12PM, 2PM).

EOM

Planned Outage Substitution Obligation

All Planned Outages submitted in OMS are considered for analysis.

Any Outage updates & New Outages

Note:
1) *The substitution request has to be submitted at least 8 days before the start of the substitution day.*
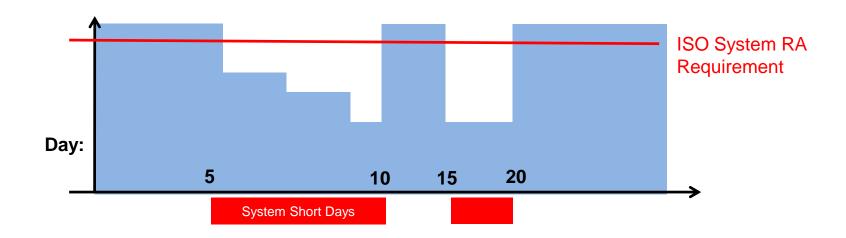2) *Timeline applies only to Suppliers.*

California ISO

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Planned Outage Substitution Obligation (Effective - 4/1/18)

Planned Outage Analysis

- ISO performs <u>Planned</u> Outage Analysis 25 days before the start of the RA month. RA resources including CPM are considered for analysis.

- On each day, if the System RA is short due to <u>Planned</u> Outages, a Planned Outage Substitution Obligation is assigned per outage based on last in first out order of Outage submission.

- Substitutions are due by eight days before the start of the substitution obligation.

- All Planned Outages are considered for analysis and the validation is run every day till end of the month.

Concept - POSO for Scheduled Generation Outages

- ISO System RA Requirement is the redline; Blue is operational RA.

- Days 5 through 10 & 15 through 20 System RA is short.

Planned Outage Analysis

- All planned outages irrespective of nature of work will be considered for analysis.
  - This includes transmission induced nature of work as well.

  - Off Peak Opportunity Outages will be considered for analysis however these outages are exempt from RAAIM.
    - If ISO determines that the outage is likely to have a detrimental effect on the availability of Resource Adequacy Capacity or the efficient use and reliable operation of the CAISO Controlled Grid then the Outage may be rescheduled or cancelled or may require substitution.

Planned Outage Analysis

- An outage approved in the long range study process may see a substitution obligation assigned 25 days before the start of the month.

- The substitution assignment is automatic in CIRA. It is the responsibility of the SC of the resource to check the substitution obligation.

- If an outage has a substitution obligation and the outage is not substituted then the resource is exposed to potential RAAIM penalties.
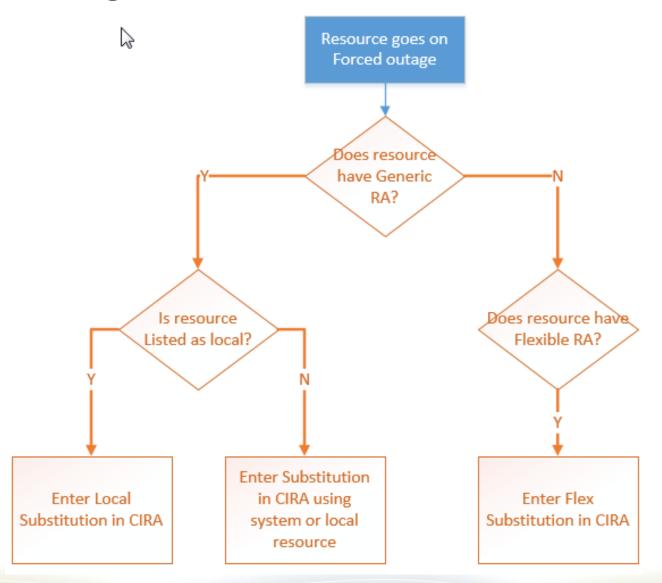
Planned Outage Analysis

- SC for the resource is responsible for managing the Outages, Substitution Obligation & potential RAAIM impacts.

- Load Serving entities are off the hook to monitor outages and RA replacement requirement.

- Planned Outage analysis is applied only to Generic RA.

- Flexible RA is not considered for this analysis.

- Planned Outage analysis information is available in CIRA.

<Add security classification here>

Planned Outage Analysis

- All Planned Outage Substitutions are submitted in CIRA.

- No API; No bulk substitution uploads.

- Substitution RA is treated as system RA.

- Substitutions can be canceled if the substitution is not commenced.

- If outage ends sooner then substitution RA can be released
  - For both cancel and release the original resource RA gets back its initial RA listing.

Forced Outage Substitution
(Effective - 4/1/18)

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Forced Outage Substitution

Local RA

Local RA
(within any local area)

1. PGE TAC area has 7 local areas - Humboldt, Bay Area, North Bay, Sierra, Stockton, Fresno, Kern.

2. SCE TAC area has 2 local areas - Big Creek & LA Basin.

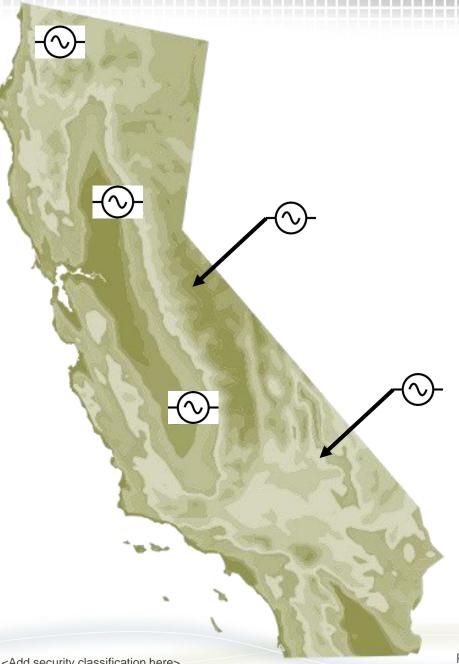3. SDG TAC area has 1 local area.

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System RA

System RA

1. Non Local Internal Capacity
   - Anywhere within ISO BAA.

2. Non Local External Capacity
   - Outside the BAA.
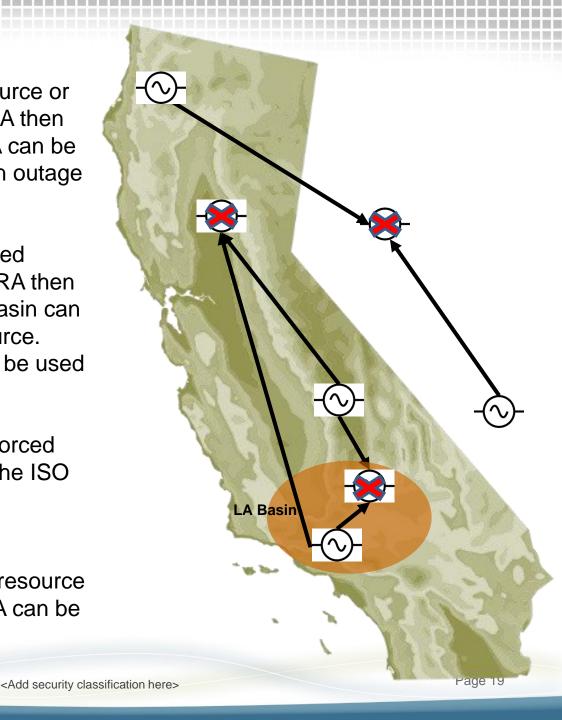   - Entity must have import allocation to use this.

System RA Substitution

If resource is an internal system resource or if local resource is listed as system RA then any non-RA resource within ISO BAA can be used to substitute the RA resource on outage
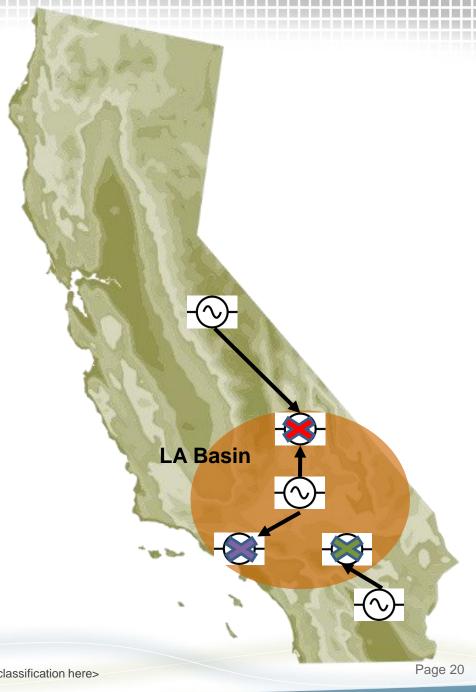
Example:
1. If LA basin RA resource is on forced outage which is listed as system RA then
   - Non-RA resource within LA basin can be used as a substitute resource.
   - Internal system resource can be used as a substitute resource.

2. If Internal system resource is on forced outage then any resource within the ISO BAA can be used as a substitute resource.

3. If resource is an external system resource then any resource within ISO BAA can be used as a substitute resource.

LA Basin

<Add security classification here>

Local RA Substitution

- A local area resource on forced outage

  - If listed as local RA then the substitute resource has to be within the same local area.

  - If listed as system RA then the substitute resource has to be within the ISO BAA.

  - Listed as local and system RA

LA Basin

California ISO

<Add security classification here>

Forced Outage Substitution

- All forced outage substitutions are submitted in CIRA

- No API; No bulk substitution uploads

- Substitutions can be canceled if the substitution is not commenced

- If outage ends sooner then substitution RA can be released

- For both cancel and release the original resource RA gets back its initial RA listing

Nature of Work Attributes for Generation Outages (Currently in Production)

Nature of Work for Generation Outages

Category	Purpose
Annual, Monthly, Other & Short term Use Limit Reached	To be used when unit reaches annual or monthly or other use limitation specified in the use plan data template. This attribute applies only to use limited resources. Proxy demand resources can use only short term use limit reached nature of work. Example of Use limitations are run hours, number of starts, environmental restrictions.
Transmission Induced	To be used if Transmission equipment outage curtails a generator output, or distribution equipment outage in the case of distribution-connected generator. ISO will create the transmission induced gen outage card for those resources impacted by ISO controlled transmission equipment.
Ambient due to temperature	Ambient temperature related availability derate.
Ambient Not Due to Temp	Non-temperature related availability derate that is outside the control of the plant operator. Example: SC provides notification of actual physical limitations of fuel availability due to hourly gas burn limitations issued by the natural gas transmission pipeline operator as described in CAISO Operating Procedure 4120.

Nature of Work for Generation Outages

Category	Purpose
Ambient due to Fuel insufficiency	SC has to provide notification of unit unavailability due to fuel availability for reasons other than those that would fall in "Ambient Not Due to Temp."
RIMS Outage	To be used for projects that are new, equipment replacement, or decommissioning of resource scheduled to be energized.
RIMS Testing	Used to test new or replaced equipment/resource before energizing.
Unit Testing	To be used for return to service of equipment testing or performance testing.

Questions??