



California ISO
Shaping a Renewed Future

Reliability Services Initiative

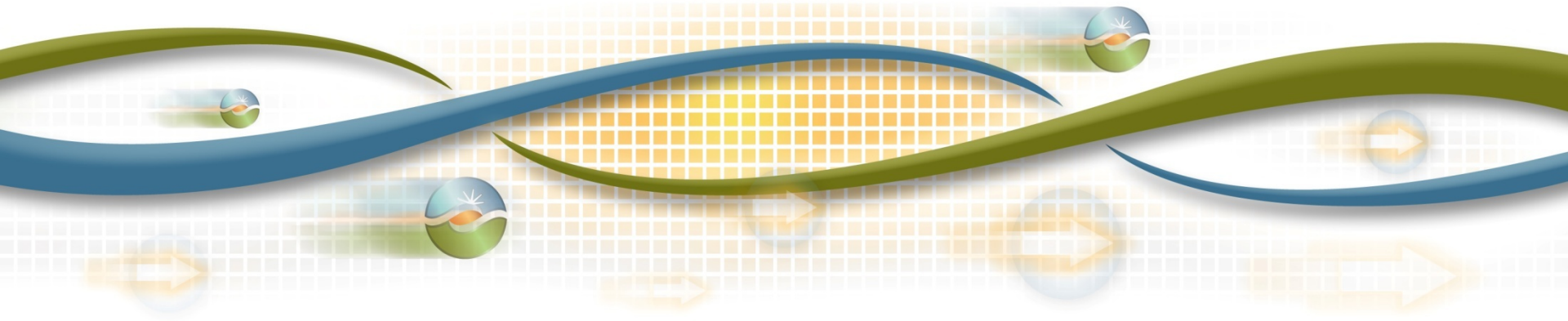
Working group

December 10, 2014

Carrie Bentley

cbentley@caiso.com

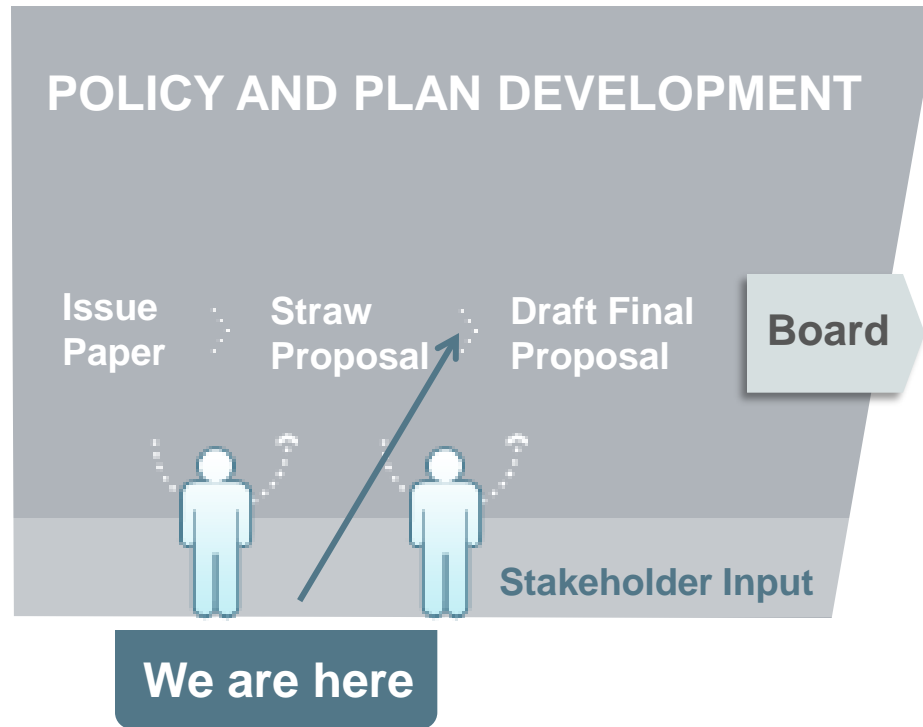
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Stakeholder Meeting Agenda- December 10, 2014

Time	Topic
9:00 – 09:15	Introduction, meeting agenda, and comments review
9:15 – 10:15	RA Availability Incentive Mechanism (RAAIM)
10:15 – 10:45	Impact of use-limited definition change on RA resources
10:45 – 11:00	Break
11:00 – 11:55	Replacement, substitution, and RA process rules
11:55 – 12:00	Next steps

ISO Policy Initiative Stakeholder Process



Stakeholder engagement schedule

Item	Date
Comments due: 2nd Revised Straw Proposal	Wednesday, November 19, 2014
Presentation: Working Group	Monday, December 8, 2014
Call: Working Group	Wednesday, December 10, 2014
Comments due: Working Group	Friday, December 19, 2014
Paper: Final Draft Proposal	Tuesday, January 20, 2015
Call: Final Draft Proposal	Tuesday, January 27, 2015
Board of Governors (BOG) Meeting	March 2015

Stakeholder comments on second revised proposal

- Response to comment matrix is posted
- Mostly supportive of design with a few exceptions
- Clarifying or clean up items will be included in final draft
- Any significant changes to the proposal resulting from second revised draft comments are included in this presentation

AVAILABILITY INCENTIVE MECHANISM

Availability incentive mechanism purpose

- Maintain real-time reliability during forced outages
 - Some capacity is expected to be on forced outage during the month and this is accounted for in the planning reserve margin
- Incent scheduling coordinators to provide ISO forced outage substitute capacity in the event a resource becomes unavailable for a long period of time
 - Penalize resources that have a monthly average availability less than acceptable reliability percentage
 - Reward resources that have monthly average availability higher than acceptable reliability percentage

Summary of proposal design changes

- New RAIM price and updating methodology
- New RAIM feature that adds a penalty during CPM events
- Exemption clarifications
 - Tariff section 40.9.2
- Forced outage reporting rules
- Updated spreadsheet posted

AVAILABILITY INCENTIVE MECHANISM PROPOSAL

Availability assessment process summary

- Determine the hourly target MWs a resource was supposed to have offered into the energy market
- Assess bids hourly to determine total available MWs
- Compute resource specific monthly percentage by dividing the total hourly available MWs by the total hourly target MWs
- Compare percentage against availability threshold'
- Assess penalty and payments
 - If within threshold- do nothing
 - If above threshold- determine MW value for payment
 - If below threshold- determine MW value for penalty

Penalty price

RAAIM straw proposal price

- ISO proposed RAAIM price \$3.5/ kW- month
- Believes this reflects a price slightly above the average bilateral contract price
 - Market participant feedback
 - 2012 CPUC report (weighted average price 2013)
- Proposed to reassess in three years using available RA bilateral contract data

Penalty price

RAAIM new proposal

- ISO proposed RAAIM price at 60% of the CPM soft offer cap price, \$3.79 / kW- month
 - Believe this reflects a price slightly above the average bilateral contract price
 - Still aligned with market participant feedback
 - Still close to 2012 CPUC report (weighted average price 2013)
- This will allow the ISO to automatically update AIM price each time CPM soft offer cap price is updated and limited stakeholder and ISO time in renegotiating price every three years

Provision for additional penalties during CPM designation: participant proposal

- It has been suggested that if a supplier goes on forced outage and does not provide substitute capacity, and the forced outage causes a CPM designation, then the supplier on forced outage should be penalized at a higher rate
 - Incent resources to provide substitute capacity
 - Reflect the fact that the resource on forced outage caused additional costs to the system by not substituting the outage
- Therefore it has been suggested the supplier would be penalized at the CPM soft offer cap rate

Provision for additional penalties during CPM designation: practical considerations

- Would all forced outage that “contributed” to need for CPM be held accountable to higher rate?
- Would ISO do a “but for” analysis to determine CPM responsibility?
- What duration would the ISO penalize the capacity at a higher rate under? During CPM or during entire outage?
- What MW amount would be penalized? What if the CPM was for less than the outage capacity value?
- What if the price for the CPM designated capacity was less than the soft offer cap? What if it was less than the current AIM price?

Provision for additional penalties during CPM designation: workable solutions?

- ISO would have to create a process to determine if a forced outage caused the CPM and if it would have if it were the only outage on the system (transmission and generation)
- Duration during the overlapping outage and CPM designation period
- MW value assessed under higher rate equal to the minimum of the outage capacity and CPM designation capacity
- Rate assessed at minimum RAAIM price and CPM designation price (capped at soft offer cap price)

Exemptions

Exempt resources from flexible and generic AIM

Proposed exempt resources:

- $P_{\max} < 1.0$ MW
- Contracts for Energy from non-specified resources
- Modified Reserve Sharing LSE and Load following MSS resources
- Qualified Facilities (QFs) in accordance with current tariff
- Grandfathered resources under specific conditions

Exemptions

Grandfathering provisions in SCP mechanism

- Current SCP mechanism will retire with the implementation of availability incentive mechanism, so grandfather provisions will no longer apply
- ISO proposes to exempt grandfathered resources under following conditions:
 - Capacity must be under resource specific contract that existed prior to June 28, 2009 AND
 - Scheduling coordinator must ask for exemption and demonstrate the contract either (1) has penalties for nonperformance or (2) does not have a reopener clause due to ISO market design changes

Forced outage reporting rules

- Resource Adequacy Resources with a P_{max} between 1.0 and 10 MW are not required to report their availability near real-time, but must provide Forced Outages or de-rates and temperature related ambient de-rates no later than 3 business days after the end of the calendar month”
- These resources will be assessed under the availability incentive mechanism with no additional provisions

Updated RAAIM monthly spreadsheet

- Monthly spreadsheet illustrates how generic and flexible RA will be assessed separately and together
- Availability incentive mechanism will use assessment hours not MOO hours
 - Flexible RA these are the same
 - Generic RA different
 - 24 hour MOO
 - 5 hour assessment

USE-LIMITED DEFINITION CHANGE IMPACT ON RESOURCE ADEQUACY RESOURCES

Existing and proposed definition of use-limited resources

Existing (per CCE1 policy)	Proposed	
<p>A resource that, due to design considerations, environmental restrictions on operations, cyclical requirements, such as the need to recharge or refill, or other non-economic reasons, is unable to operate continuously.</p> <p>This definition is not limited to Resource Adequacy Resources. A Use-Limited Resource that is a Resource Adequacy Resource must also meet the definition of a Resource Adequacy Resource.</p>	<p>A resource with non-economic and non-contractual limitations the CAISO optimization cannot model but for the inclusion of opportunity cost adders. Limitations may include environmental, regulatory, or operational restrictions, as approved by the CAISO.</p> <p>This definition is not limited to Resource Adequacy Resources. A Use-Limited Resource that is a Resource Adequacy Resource must also meet the definition of a Resource Adequacy Resource.</p>	<p>Same as current but make this explicit.</p> <p>CAISO optimization is only over a single day.</p> <p>Use-limited resources have an opportunity cost. They are not simply fuel-limited.</p> <p>Will discuss later in RA section</p>

Resource-specific changes

Resource type	Use-limited (Yes/No)	Proposed changes
Gas-Fired (Steam)	No	None
Gas-Fired (Combined Cycle)	No	None
Gas-Fired (GT with limited fuel storage)	Yes	Not use-limited if can be optimized by ISO
Gas-Fired (GT without limited fuel storage)	No	None
Gas-Fired with environmental restrictions that constrain its operation	Yes	Not use-limited if can be optimized by ISO.
Hydro-Large Storage	Yes/No - although Hydro with large amount of storage may have more flexibility to generate on demand and thus may not be use-limited in a manner similar to a run-of-the river, downstream water flow and water-release needs and other environmental conditions may dictate output so as to warrant Use-Limited status	None. See additional discussion above on run-of-river hydro
Hydro-Small Storage/Small Conduit	Yes	None
Hydro-Run of the River	Yes	None

Resource-specific changes

Resource type	Use-limited (Yes/No)	Proposed changes
Wind	Yes	Not default use-limited. Do not have to bid in DAM (40.6.4.3.4). Assume same treatment in RTM.
Solar	Yes	Not default use-limited. Do not have to bid in DAM (40.6.4.3.4). Assume same treatment in RTM.
Nuclear	Yes	Not use-limited – regulatory must-take.
QF	Yes	Not use-limited – regulatory must-take. See additional discussion on combined heat and power resources.
Resource with Contractual Limitation that Limits Availability	No	This is an overarching requirement, not just under QFs.
Clarification: Proxy demand and reliability demand response resources	Yes, per current tariff section 40.6.4.1	No commitment-related opportunity cost for RDRR. Both may have energy-related opportunity costs.*
New: Combined heat and power (non-QF)	n/a	Not use-limited for regulatory must-take capacity; may be use-limited otherwise.
New: Geothermal (non-QF)	n/a	Not default use-limited. [seeking feedback]
New: Storage	n/a	Not default use-limited.
New: Biomass, landfill gas, others (non-QF)	n/a	Likely not use-limited but more discussion needed. [seeking feedback]

Overview

- Three RA rules depend on use-limited definition
 - Generated bids (bid insertion)
 - Residual unit commitment participation
 - AS must-offer obligation
- Generating bids (40.6.8)
 - The ISO does not insert any bid into the energy market for an RA resource that is use-limited
- RUC participation (40.6.4.3.2)
 - The ISO does not insert a \$0 RUC bid or require participation by hydro, pumping load, and non-dispatchable, use-limited resources

Use-limited definition impacts the generated bids rules

- Use-limited resources are exempt from generated bid rules
 - Definition of use-limited is changing
 - Certain resources therefore may be subject to generated bid rules
- Could continue to exempt use-limited resources, in addition to:
 - Regulatory must-take
 - Storage
 - Variable energy resources – solar and wind
 - Other?

Use-limited definition impacts AS bid insertion rules

- “The CAISO will not insert any Bid in the Real-Time Market required under this Section 40 for a Resource Adequacy Resource that is a Use-Limited Resource unless the resource submits an Energy Bid and fails to submit an Ancillary Service Bid” (40.6.8)
- Could continue to exempt use-limited resources, in addition to:
 - Regulatory must-take
 - Storage
 - Variable energy resources – solar and wind
 - Other?

Use-limited definition impacts RUC participation rules

- Hydro, pumping load, and non-dispatchable, use-limited resources are exempt from RUC participation
- Hydro and pumping load will remain exempt
- Resources that are currently non-dispatchable, use-limited may not be in the future
 - May need to change rules to accommodate resource set change
 - QFs?
 - Other resources?

15 MINUTE BREAK

REPLACEMENT, SUBSTITUTION, AND RA PROCESS

Summary of proposal design changes

- Substitution implementation timing clarification
- Changes to replacement rule in the event the ISO tells a resource to move its approved outage
- RA processing system feature
- RA process timeline changes
- CPM assessment influence on outage impact report baseline
- LSE monthly RA position (long/short) impact on replacement requirement assignment

Replacement and substitution

- Replacement rule- define when additional capacity is needed to accommodate a planned outage
 - Planned outages are not accounted for in PRM
 - Outages are allowed on monthly RA resources
 - Replacement rule currently evaluates system capacity
- Substitution rule- define when additional capacity is needed to accommodate a forced outage
 - Forced outages are accounted for up to a point in PRM
 - “Like for like” rules cover system and local capacity needs

FORCED OUTAGE RULES TARGETED IMPLEMENTATION PRIOR TO 2016 RA YEAR

Substitution proposal clarification

- Following rules were in the paper twice
 - Under both 2016 and 2017 sections
- Rules will be proposed to BOG in March
- Rules will be included in tariff filing; however, at this time not sure on the implementation date
- Likely it will be 2016

Substitution proposal

ISO tells resource to move outage

- If the ISO tells the resource they must move previously approved outage, then no replacement requirement

Substitution is locked in even if outage moves or is cancelled

- Propose to provide ability for SC to release substitute RA capacity in the event the outage is moved or cancelled

Deadline for providing day-ahead substitution is very early in the morning

- Propose to move deadline from 6am to 8am

Substitution proposal (cont.) – no policy changes from second revised proposal

The ISO does not allow real-time substitution for system resources

- Allow real-time substitution
- Remove ramp rate criteria

Local substitution rules require the substitute capacity to be located at the same bus

- Propose new prequalification criteria that allows substitution from a “compatible bus”

No flexible RA substitution rules in place

- Propose category or better substitution rules for flexible RA
- Propose substitution quantity flexibility

OUTAGE RULES TARGETED IMPLEMENTATION PRIOR TO 2017 RA YEAR

Monthly RA and outage process proposal: Summary

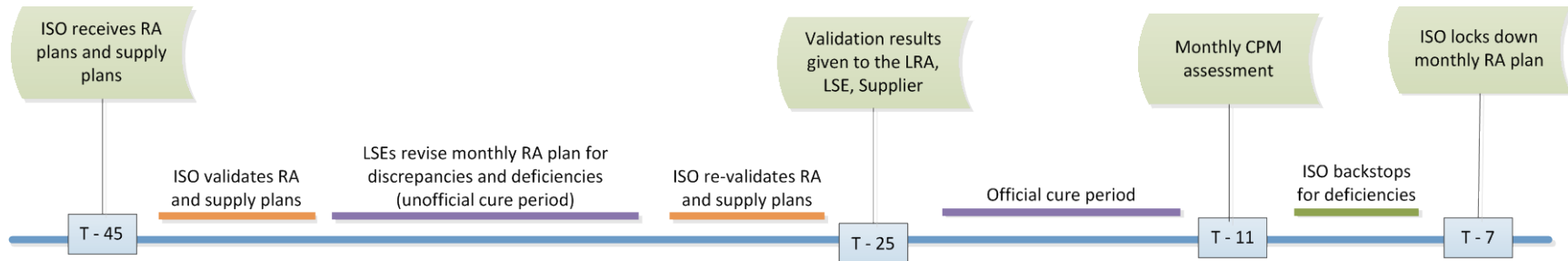
- ISO proposes both timeline and rule changes to monthly RA planning and outage process
 - Goal is to remove complexity when it does not serve a reliability purpose
- Vision:
 - Outages with nature of work categories
 - Depending on the outage category, the ISO will require or allow:
 - Planned outage substitute capacity
 - Forced outage substitute capacity
 - No substitute capacity
 - All outages run through same processing system

RA processing system feature- requesting market participant feedback

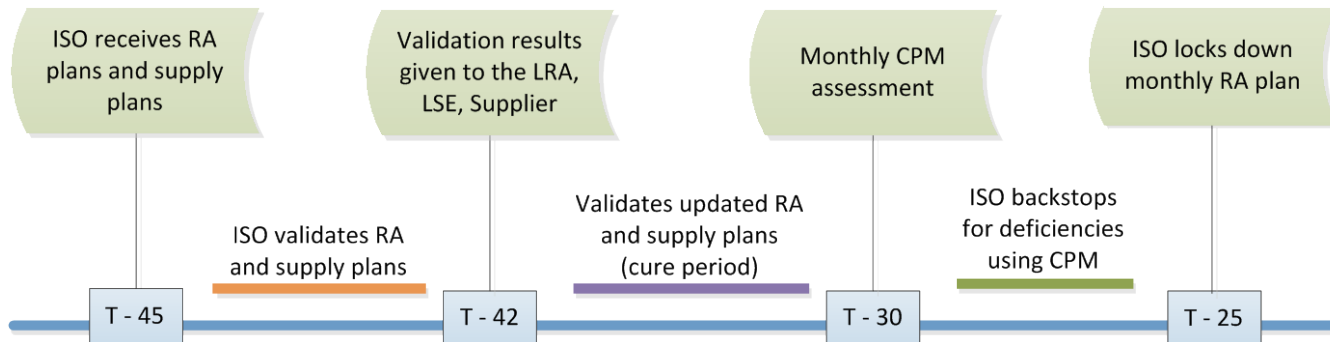
- Currently upon upload of RA plans there is an automated warning if the total LSE plan is less than the ISO calculated requirement
- This warning is not notification of an imminent CPM, but an indication of accepted capacity the ISO has in its system, and feedback on the sum of RA capacity in the uploaded file
 - CPM will only occur in the instance of an aggregate deficiency or local collective deficiency
- Is the warning helpful or confusing?
- Would it help if we called it an advisory alert or something similar instead?

Monthly RA and outage process proposal: Monthly RA timeline changes

Current Process

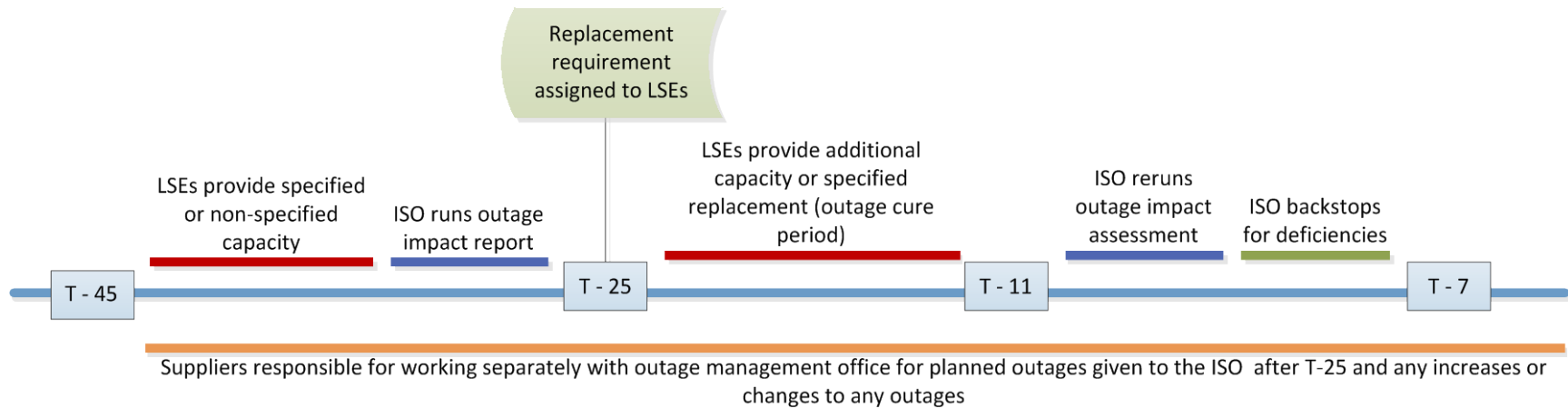


Proposed Process

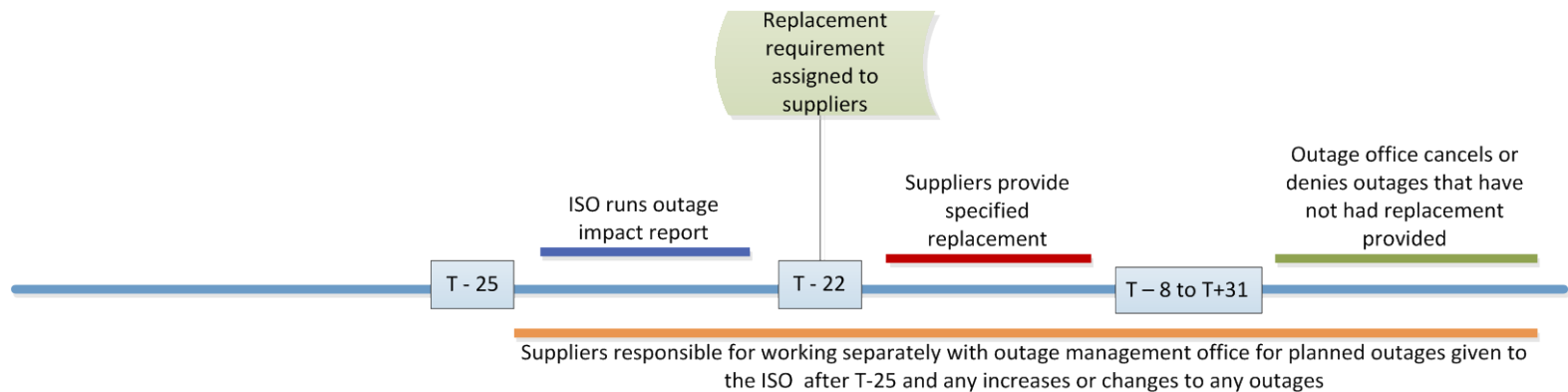


Monthly RA and outage process proposal: Outage assessment timeline changes

Current Process



Proposed Process



Connection between CPM assessment and outage impact assessment baseline

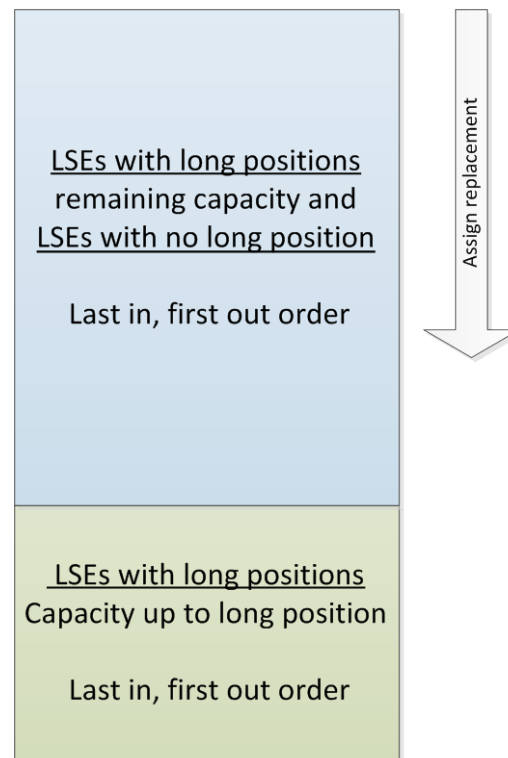
- There is the potential that there could be a system deficiency, but the ISO chooses not to issue a CPM designation
- In that case, going into the outage impact assessment the system will be short everyday by that amount
- Rather than require additional replacement, ISO proposes to use the requirement minus the system short amount in the outage impact assessment to assign replacement capacity

Accounting for LSE position in replacement requirement: options

- LSE could come into the RA showing long in system capacity
 - Currently if this occurs the “credit” is given to the resource associated with that LSE who put in their outage last
 - This sends the wrong incentive
- The ISO has proposed in the RSI straw proposals to assign the replacement based on last in, first out order regardless of LSE affiliation
- Alternative is much more complicated, but can account for LSE long/short position and last in, first out order

Accounting for LSE position in replacement requirement: proposal

- Can account for LSE long position by stacking in the following order:



Next steps

- Comments due December 19, 2014
 - Send to RSA@caiso.com
- No template being posted.
- Response to second revised draft comments posted will be posted Monday, December 15th.
- Please review and let me know if you have any additional questions/outstanding issues.