California ISO
Shaping a Renewed Future

Reliability Services Initiative

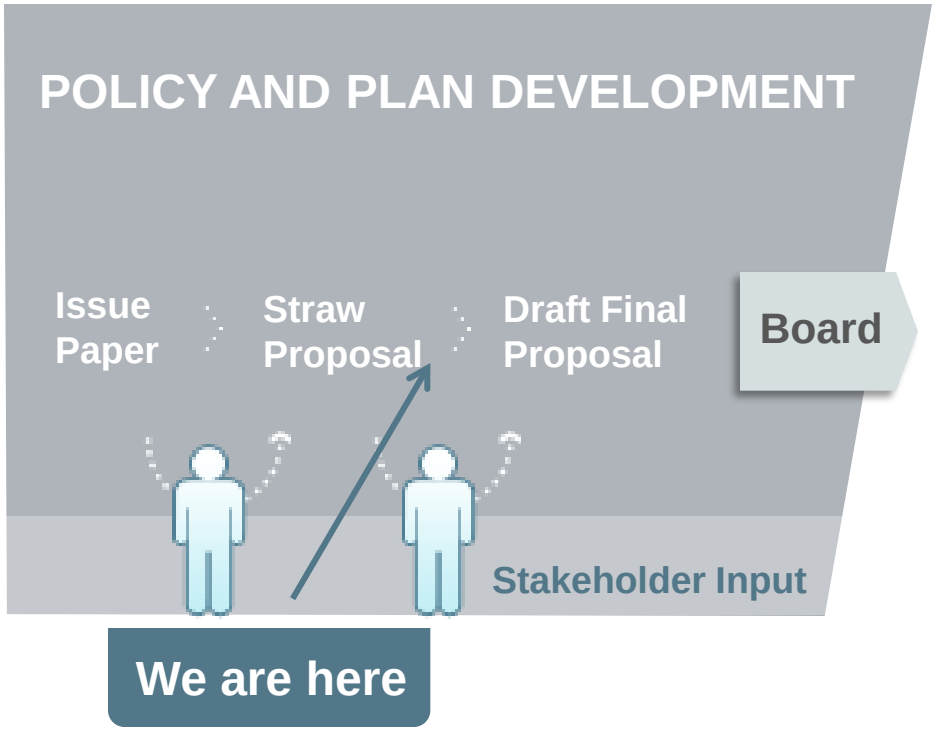
Second revised straw proposal meeting
October 29, 2014

Carrie Bentley
cbentley@caiso.com
916-608-7246

Stakeholder Meeting Agenda- October 29, 2014

Time	Topic
10:00 – 10:05	Introduction and meeting agenda
10:05 – 10:20	Schedules and scope
10:20 – 11:20	Default qualifying capacity and must-offer obligation
11:20 – 12:00	Availability incentive mechanism
12:00 – 1:00	Lunch
1:00 – 2:00	Availability incentive mechanism cont.
2:00 – 2:15	Replacement and substitution roadmap
2:15 – 2:30	Substitution rules proposal targeted for 2016 RA year
2:30 – 2:45	Break
2:45 – 3:30	RA monthly process and outage policy proposal for 2017 RA year
3:30 – 3:35	Next steps

ISO Policy Initiative Stakeholder Process



Stakeholder engagement schedule

Item	Date
Meeting: Replacement and Substitution Working Group Meeting	Tuesday, September 16th, 2014
Comments due: Replacement and Substitution Working Group	Informal
Paper: 2nd Revised Straw Proposal	Wednesday, October 22, 2014
Meeting: 2nd Revised Straw Proposal	Wednesday, October 29, 2014
Comments due: 2nd Revised Straw Proposal	Wednesday, November 19, 2014
Final Draft Proposal	January 2015
Target Board of Governors (BOG) Meeting	March 2015

Comments on second revised proposal

- Comment due date is not until Wednesday, November 19th
  - Length of paper
  - Request for detailed review as this is the last paper before the draft final proposal
- ISO will post a comment template by Friday, October 31st
- Please contact us if your company would like a more detailed walk-through of proposed or current processes
  - RA implementation team
  - Settlements
  - Outage management

Coordination with CPM Replacement initiative

- Separate BOG meetings, same tariff filing
- Limited overlap in scope, but significant overlap in tariff sections and policy assumptions
- For example:
  - 2017 timeline for RA process will be dependent on whether a competitive solicitation process will replace the current administrate CPM price
  - CPM replacement initiative does not change CPM events, but RSI proposes to remove CPM event for a planned outage deficiency in 2017 RA year
  - CPM replacement initiative proposes unique AIM price for CPM designated resources

FERC plan

- Two-phased FERC filing
  - Specific schedule is still being decided
- Target filing date April 2015 will include:
  - All CPM replacement initiative policy
  - All RSI policy, except 2017 RA process and outage proposal
- Second filing Q4 2015/ Q1 2016 will include:
  - 2017 RA process and outage proposal with any needed changes due to CPUC RA process

RSI phase two preliminary schedule and scope

- RSI phase two scope and schedule anticipated Q1 2015
- The ISO envisions it could have several parts:

1. Durable flexible needs studies and proposal
2. Proposal for any changes needed to incorporate durable flexible needs into availability assessment and outage planning rules
3. Consider other changes to other RA rules
   - Unique local eligibility requirements
   - Separate local and system RA showings
   - Import allocation use for replacement and substitution

FRAC MOO – FERC approval and compliance

- Compliance filing (Due within 30 days)
  - Further revisions to explain allocation of the adjustment factor
  - Allow for combined peak and super-peak resources
  - Remove the prior-bid requirement
  - establish a limited exception for use-limited resources from the ancillary services must-offer
- Informational Report (Due January 1, 2016)
  - Quantify the documented and projected impact of non-contracted VERs on CAISO's flexible capacity needs
  - Assess the feasibility of permitting static import resources to provide flexible resource adequacy capacity
  - demonstrate the progress made towards developing a flexible capacity performance incentive mechanism

DEFAULT QUALIFYING CAPACITY AND MUST-OFFER OBLIGATIONS ASSESSMENT

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Changes to minimum eligibility criteria

- All non-generator resources' default qualifying capacity will be measured based on the resource's ability to provide energy for four peak hours
- Proxy Demand Resource availability requirements are clarified to refer to dispatchablity
- An MSS load-following LSE will be required provide adequate flexible capacity to address the flexible capacity needs contributions of variable energy resources that are not included in the portfolio of resources used to balance the LSE's load.

NGR's default qualifying capacity will be measured over four hour period

- Default qualifying capacity of an NGR cannot exceed the resource's maximum instantaneous discharge capability
  - Does not include discharge capability
- NGRs RA resource must be able to provide energy over the peak hours of the day
  - Similar treatment to other RA resources
- Must be able to sustain output over a four-hour period
  - No changes to the flexible capacity counting rules recently approved by FERC
  - No changes to existing NGR technical requirements for providing regulation

The ISO is proposing revised default qualifying capacity provisions for proxy demand resources

- The ISO is proposing to replace the existing PDR default criteria requirements with at least :
  - Able to be dispatched for at least 24 hours per month,
  - Able to be dispatched for at least three consecutive days, and
  - At least four hours per dispatch.

MSS load-following LSE's must provide flexible capacity to address resources not on load following portfolio

- In FRAC MOO, MSS load-following LSEs not be required to provide the ISO with flexible capacity showings
  - Assumed MSS load-following LSEs were required to manage all of their own variability, including contracted VERs
  - Nothing in ISO tariff requires an MSS load-following LSE include all of its contracted wind and solar resources in its portfolio of load-following resources

Determining an MSS load following LSE's flexible capacity allocation: Three hour net load ramp

- MSS Contribution = – Δ Wind Output* – Δ Solar PV* – Δ Solar Thermal*
- Where
  - Δ Wind Output* – LRA's average percent contribution to changes in wind output *from wind resources not included in the MSS load following LSE's resource portfolio* during the five greatest forecasted 3-hour net load changes x ISO total change in wind output during the largest 3-hour net load change
  - Δ Solar PV* – LRA's average percent contribution to changes in solar PV output *from Solar PV resources not included in the MSS load following LSE's resource portfolio* during the five greatest forecasted 3-hour net load changes x total change in solar PV output during the largest 3-hour net load change
  - Δ Solar Thermal* – LRA's average percent contribution to changes in solar thermal output *from Solar Thurmal resources not included in the MSS load following LSE's resource portfolio* during the five greatest forecasted 3-hour net load changes x total change in solar thermal output during the largest 3-hour net load change

Determining an MSS load following LSE's flexible capacity allocation: Three hour net load ramp (cont.)

- MSS load following LSE must submit to the ISO a list of all wind and solar resource that are under contract
  - Part of the annual flexible capacity needs assessment
  - The MSS load-following LSE can, designate resources that will be on it MSS resource portfolio
- MSS load-following LSE will be responsible for providing an additional MW of flexible capacity for each MW of capacity from variable energy resources that was supposed to MSS resource portfolio but was not
  - Only way to ensure changes from original study do not impact the adequacy of flexible capacity

Determining an MSS load following LSE's flexible capacity allocation: 3.5% expected peak load

- FRAC-MOO tariff contemplated overlap between flexible capacity resources and contingency reserves
  - Included 3.5% expected peak load
- 3.5% expected peak load component should not be the primary of an MSS load-following LSE flexible capacity contribution
- Overlap for MSS load-following LSE's will be the lesser of
  - 3.5 percent expected peak load, or
  - the LSE's contribution to the three hour net load ramp

Changes to ISO review of must-offer obligations

- NGRs assumed non-use limited unless SC for the resource demonstrates the resource's limitations meet the ISO's definition of use-limited resources
- Existing options for determining default energy bids can be applied to NGRs:
  - Price taker,
  - LMP, or
  - Negotiated bids
- RUC bidding rules for PDRs clarified

Non-Generator Resources will be non-use limited resources by default

- Definition of use-limited resource:
  - 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 on a daily basis, but is able to operate for a minimum set of consecutive Trading Hours each Trading Day Energy and regulation resources:

- ISO markets optimize the charge and discharge states of the resource based on market conditions
  - There is not a “cyclical requirement” that limits the resource
- SC may submit an application to demonstrate the resource’s limitations meet the ISO’s definition of use-limited resources

NGR does not meet definition of use-limited resource, it would be subject to bid insertion rules

- Ancillary services (all NGR resource)
  - Zero for all certified ancillary service products
    - REM resources will only have bid insertion for regulation
- Energy (non-REM NGR resources only)
  - Default energy bid can be determined using:
    - Price taker,
    - LMP, or
    - Negotiated bids

Differentiating PDR RUC bidding requirement

- Short and medium start PDRs must participate in RUC when the resource also submits a bid into the day-ahead market
  - RUC award would not result in a RUC dispatch instruction
- Long-start Proxy Demand Resources will not be required to participate in RUC even if they bid into the day-ahead market
  - RUC award would result in a RUC dispatch instruction
    - Not appropriate deplete PDR's limited dispatches based on a day-ahead dispatch instruction through RUC
- Notification time should be considered by the PDR as part of the start-up time

AVAILABILITY INCENTIVE MECHANISM

Resource adequacy availability incentive mechanism (AIM) agenda

- Purpose and overview of AIM proposal
- Changes to revised straw proposal
- AIM Proposal
  - Overview and purpose
  - Design summary
  - Availability assessment process
  - Example of assessment
  - Exemptions
  - Use-limited resources
  - Price

Availability incentive mechanism overview

- Create a new mechanism to incent flexible availability, “Availability Incentive Mechanism” and retire the SCP incentive mechanism
- Assess availability based on bids into the ISO market
  - Were you supposed to bid? Did you bid?
- Single availability metric and price for system, local, and flexible capacity
- Fully account for flexible RA must-offer requirements
- Create an incentive structure where resources are rewarded more for availability in months where the ISO sees less availability

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

- Proposed a formula for overlapping assessment of MWs
- Changed the cap to the potential incentive mechanism payment a resource may receive
- Proposed specific resource exemption rules for grandfathered resources
- Clarified use-limited resource AIM exemption hours
  - Proposed a new nature of work category
- Proposed updating methodology to AIM price

AVAILABILITY INCENTIVE MECHANISM PROPOSAL

Availability Incentive Mechanism design summary

- Assess resource availability by comparing bids to applicable must-offer requirement in order to determine resource specific availability percentage
- Address different must-offer requirements for flexible and generic RA though a single availability concept
- Compare resource specific percentage against the standard percentage range to determine MWs to charge or receive payment
- Penalize low performers at $3.5/kW-month and pay high performers pro-rata share of penalty pool up to three times the incentive price
- Exempt certain capacity from mechanism

Availability assessment process

1. Determine the hourly target MWs a resource was supposed to have offered into the energy market
2. Assess bids hourly to determine total available MWs
3. Compute resource specific monthly percentage by dividing the total hourly available MWs by the total hourly target MWs
4. Compare percentage against availability threshold'
5. 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

(1) Determine hourly target MWs

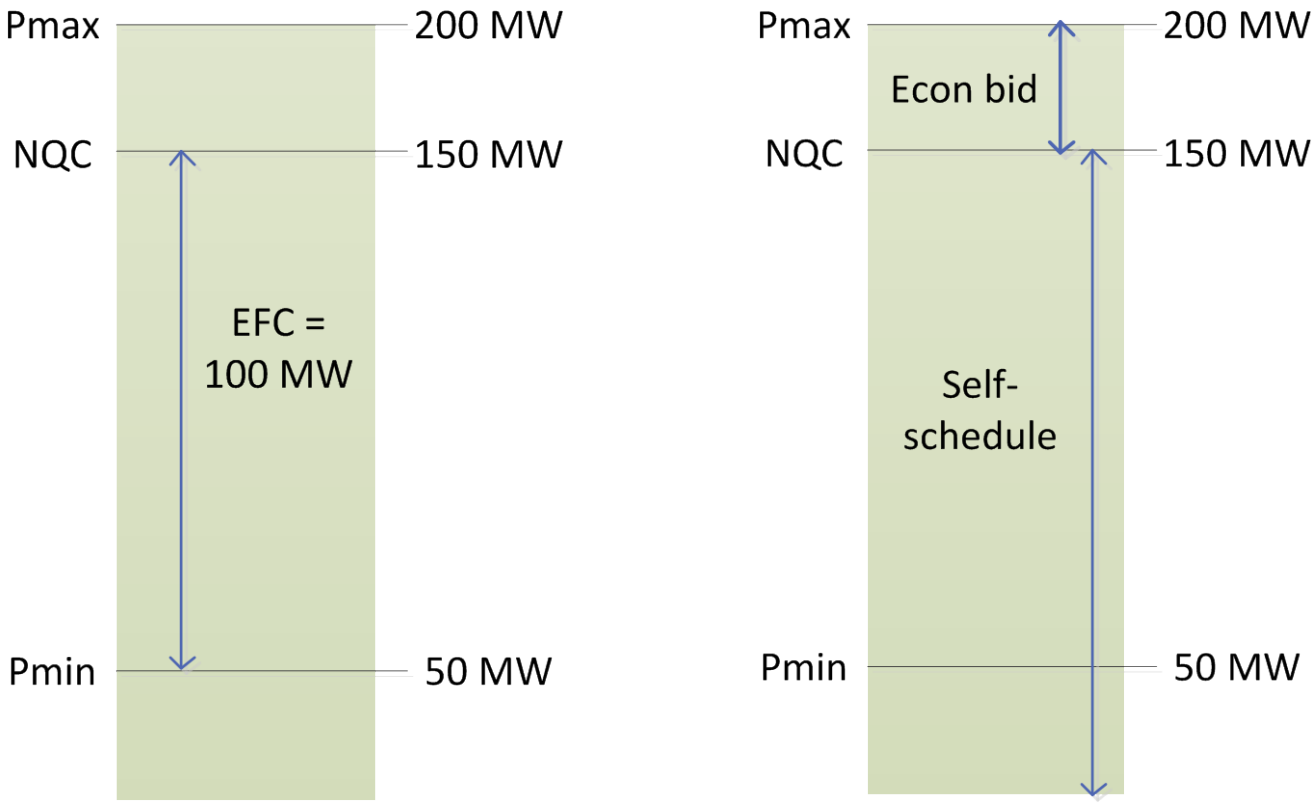
Assessment hours and capacity must-offer obligation

- Assessment hours:
  - System and local capacity: 5 peak hours on non-holiday weekends
  - Flexible capacity: assessment days and hours vary by category
- Capacity:
  - System and local capacity may self-schedule or economically bid in to meet assessment requirement
  - Flexible and “overlapping” capacity must economically bid into the energy market to meet assessment requirement

(2) Determine total available MWs
Overlapping capacity

- In the event that the flexible and generic must-offer requirements overlap, the capacity will be held to the higher flexible must-offer standard in order to be considered available
- Overlapping capacity can be thought of as the minimum portion of the resource that must meet both flexible and generic must-offer requirements during overlapping hours in order to be considered fully available
- A resource may have capacity shown as both flexible and generic RA, but not have any overlapping capacity

(2) Determine total available MWs
Non-overlapping capacity example

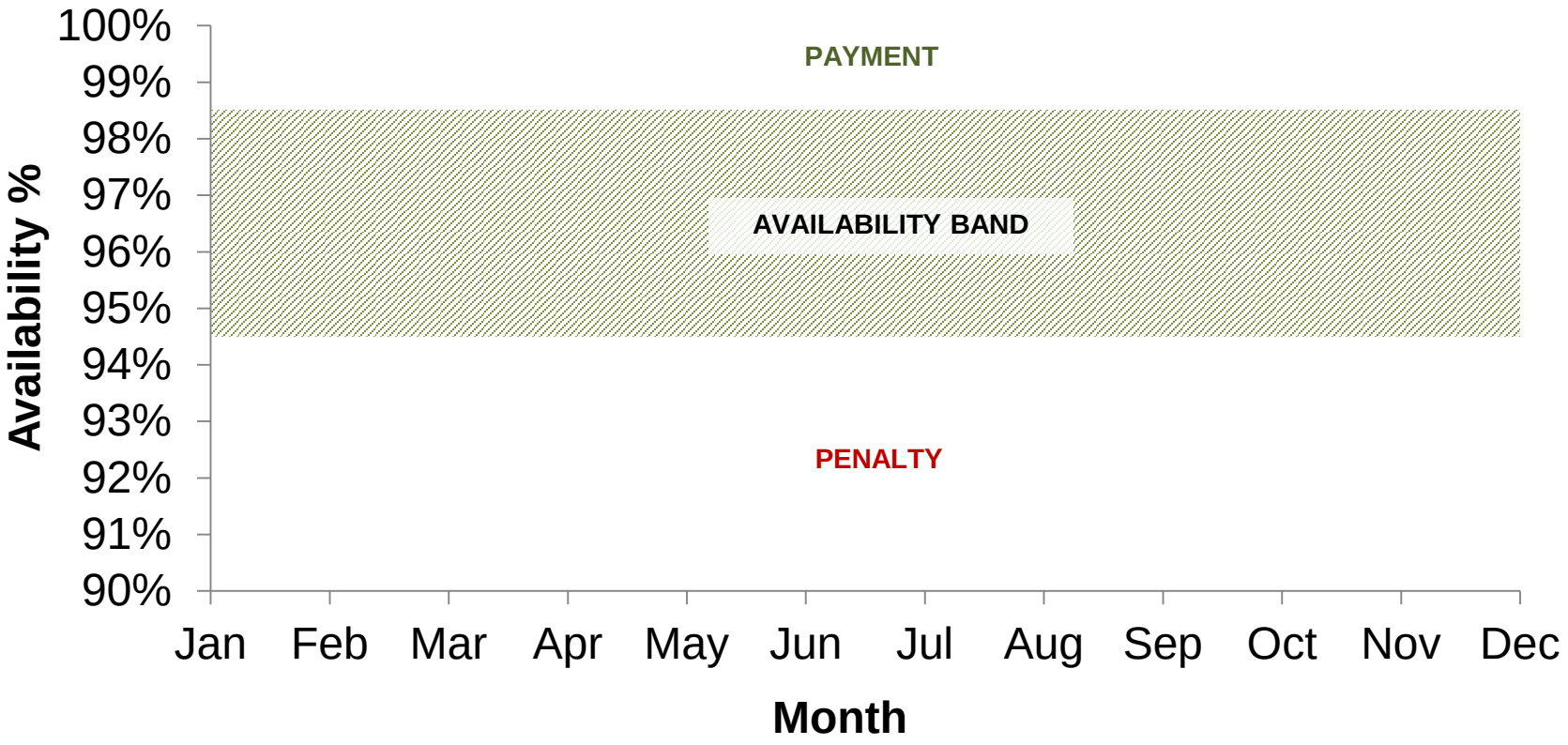


(3) Compute monthly availability
Overview

- ISO will assess availability based on a monthly average
- Expected availability in all eligible hours will provide the baseline
  - Capacity that on exempt outage will not be included in baseline
  - Capacity that is shown as monthly RA, substitute RA, replacement RA, or designated under the CPM will be included in the assessment
- Actual availability in all eligibility will be compared to baseline to determine resource specific availability percentage

(4) Availability Threshold

Proposed availability band



(4) Availability Threshold

Analysis of potential impacts of threshold changes

- Review of settlements data from September 2013 – May 2014
- Past not an indicator of future results
- Cannot assess whether flexible capacity requirements will significantly change payments

Category	# suppliers
Currently paid, would not be paid under proposal	117
Currently not paid, would be paid under proposal	118
Currently penalized, would not be penalized under proposal	10
Currently not penalized, would be penalized under proposal	0

(5) Assess penalties and payments
Overview

- ISO will assess availability based on a monthly average
- If availability below threshold value the ISO will:
  - calculate the difference between the expected monthly availability (lower threshold MW value) and actual monthly availability (monthly average MW value)
  - Multiply this value times the incentive price
  - Pro-rate this amount by the number of eligible days in month

(5) Penalty price

Principles for availability incentive price

- Two ways to allow availability to impact the price paid to capacity
  - Decrease QC based on historic availability
  - Create payment/penalty structure to distribute RA capacity payments after the fact based on actual availability
- No pure theoretical way to come up with availability incentive price due to bilateral market construct where capacity is paid different prices per MW
- Goal is to have a price that incents maintenance of fleet and optimal behavior

(5) Penalty price
AIM straw proposal price

- ISO proposes AIM 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)
- Proposes to reassess in three years using available RA bilateral contract data

(5) Payments
Proposal

- AIM payments will be paid based on amount of dollars collected from penalty pool
- ISO proposes to pay out penalties pro-rata to capacity that has exceeded the threshold
- Payments will be capped at three times the availability incentive mechanism price
- Roll-over account will be created in the event there are excess monthly funds
- If there are still excess funds at end of year will be paid to load (currently each month excess funds are paid to load)

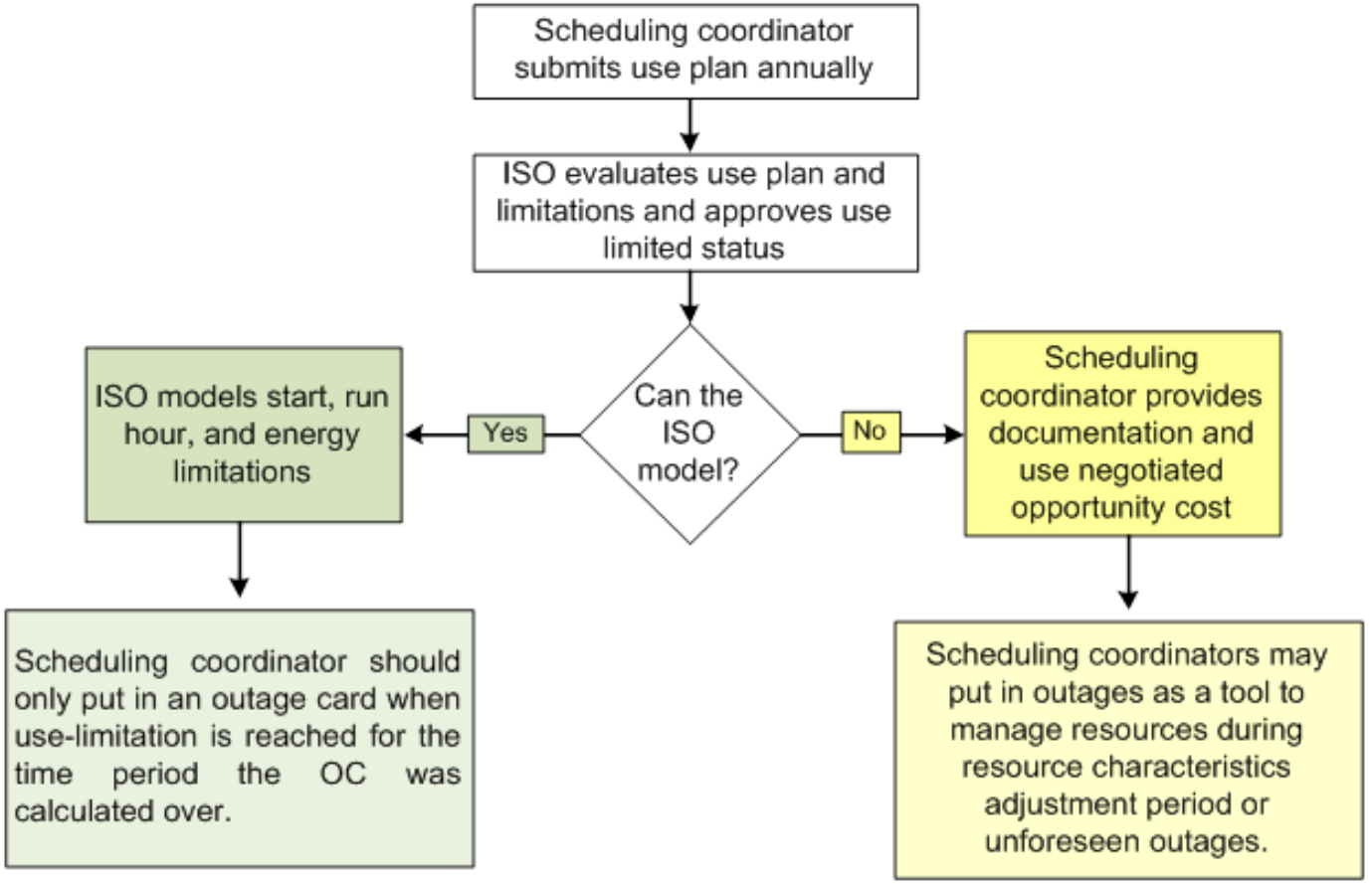
Exemptions
Capacity exemptions

- Planned outage capacity that does not require replacement or has replacement provided
- Planned Unit testing
- Unit Cycling
- Unit Supporting Startup
- Transitional Limitation
- Ambient not due to Temperature
- Transmission induced Outage
- Environmental Restrictions Use Limit Reached
  - Will be monitored for excessive use
- Non-environmental Use Limit Reached

Use-limited resources

- Daily limitations
  - MWh or other limitations, these can be accounted for in the optimization and should not lead to the need for special treatment under availability incentive mechanism
- Monthly limitations
  - Will allow resources to include opportunity cost in their minimum load and start up (Commitment cost enhancements initiative)
  - Will allow resource with negotiated opportunity costs to put in “non-environmental use-limit reached” exempt outage
  - Therefore, no need to exempt use-limited resources

Use-limited resources cont.



Exemptions

Exempt resources from flexible and generic AIM

Proposed exempt resources:

- Pmax < 1.0 MW
- Contracts for Energy from non-specified resources
- Modified Reserve Sharing LSE and Load following MSS resources
- Most Qualified Facilities (QFs)
- Grandfathered resources under specific conditions

Exemptions
Wind, solar, CHP

- Wind, solar, and CHP resources are different from other resource types
- Wind and solar are required to offer up to forecast value, not RA value
- ISO proposes to exempt wind, solar, and CHP resources from generic availability calculation
  - Already have incentives in pro forma contracts to preform to best ability
  - May unfairly take AIM payments from other resources since compared against forecast and not RA value

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

REPLACEMENT & SUBSTITUTION

Replacement and substitution purpose

- 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

Replacement and substitution overview

- Need to integrate flexible RA requirements in replacement and substitution outage rules
- ISO considering provisions to simplify and increase transparency of current outage rules
  - ISO is planning on updating flexible RA requirements in Spring 2016
  - Flexible planned outage rules on non-updated flexible rules would be implemented in Fall 2016
  - The ISO would then need to change planned outage rules immediately after implementing first set of rules
- Therefore, ISO proposes to delay flexible RA outage rules

Replacement and substitution roadmap

Expected implementation date		2016 RA year	2017 RA year	2018 RA year
Proposed in RSI Phase 1	*Planned outages*	N/A	Redesign (1) replacement rule for system RA and (2)monthly RA process	N/A
	Forced outages	Enhancements to substitution rules and new flexible RA forced outage rules	Any policy unable to be implemented by 2016	N/A
Proposed in RSI Phase 2	*Planned outages*	N/A	Any additional changes in advance of implementing updated flexible RA requirements and associated outage rules	Rules related to flexible RA planned outages
	Forced outages	N/A		Updated rules related to flexible RA forced outages, if necessary

Replacement and substitution agenda

1. Replacement rules targeted implementation prior to 2016 RA year
2. Substitution rules targeted implementation prior to 2016 RA year
3. Outage rules targeted implementation prior to 2017 RA year

PLANNED OUTAGE RULES TARGETED IMPLEMENTATION PRIOR TO 2016 RA YEAR

Replacement rule background

- ISO relies on monthly RA showings to ensure capacity is available throughout the month
- Monthly RA requirement varies by month
- Planned outages are not accounted for in the planning reserve margin
- It is expected a resource will take a maintenance outage during months it is not shown as RA or that the during the planned outage the scheduling coordinator will “replace” the outage capacity
- Replacement rule ensures 115% of *system* capacity

Replacement rule issues

- ISO filed flexible RA requirement in August
  - Does not propose to implement replacement rule for flexible RA until 2018
  - There will therefore be a gap in flexible planning process
- ISO has observed that system resources are not always replaced with similar characteristic resource
  - For example:
    - MCC buckets: use limitations may increase beyond acceptable level
    - Dispatchability: Flexible *attributes* may not be replaced

Replacement rule proposal

- Delay any rules ensuring flexibility is replaced during a flexible RA planned outage
- Rely on ISO's ability to:
  - CPM additional resources
  - Cancel new planned outages
- Risk is presumed limited in the very short-term, with the assumption that this will be addressed by 2018 when flexible requirements begin to put more pressure on the grid

FORCED OUTAGE RULES TARGETED IMPLEMENTATION PRIOR TO 2016 RA YEAR

Substitution background

- Forced outages are expected to occur at a certain rate throughout a month
- Availability incentive mechanism is in place to incent SC's to provide additional RA capacity to the ISO in the event this rate is higher than expected
- Substitution rules dictate how this additional RA can be provided to the ISO
  - Timeframe for providing substitution
  - Resource characteristics ("like for like" criteria)

Substitution issues

- Automated many-to-many substitution has not yet been implemented
- Substitution RA is locked in even if outage moves or is cancelled
- Deadline for providing day-ahead substitution is very early in the morning

Substitution issues (cont.)

- The ISO does not allow real-time substitution for system resources
- Local substitution rules require the substitute capacity to be located at the same bus in real-time
- No flexible RA substitution rules in place

Substitution proposal

Automated many-to-many substitution has not yet been implemented	• System on track for Spring 2015 implementation • Need abbreviated stakeholder process to implement
Substitution is locked in even if outage moves or is cancelled	• Propose to provide flexibility to move 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.)

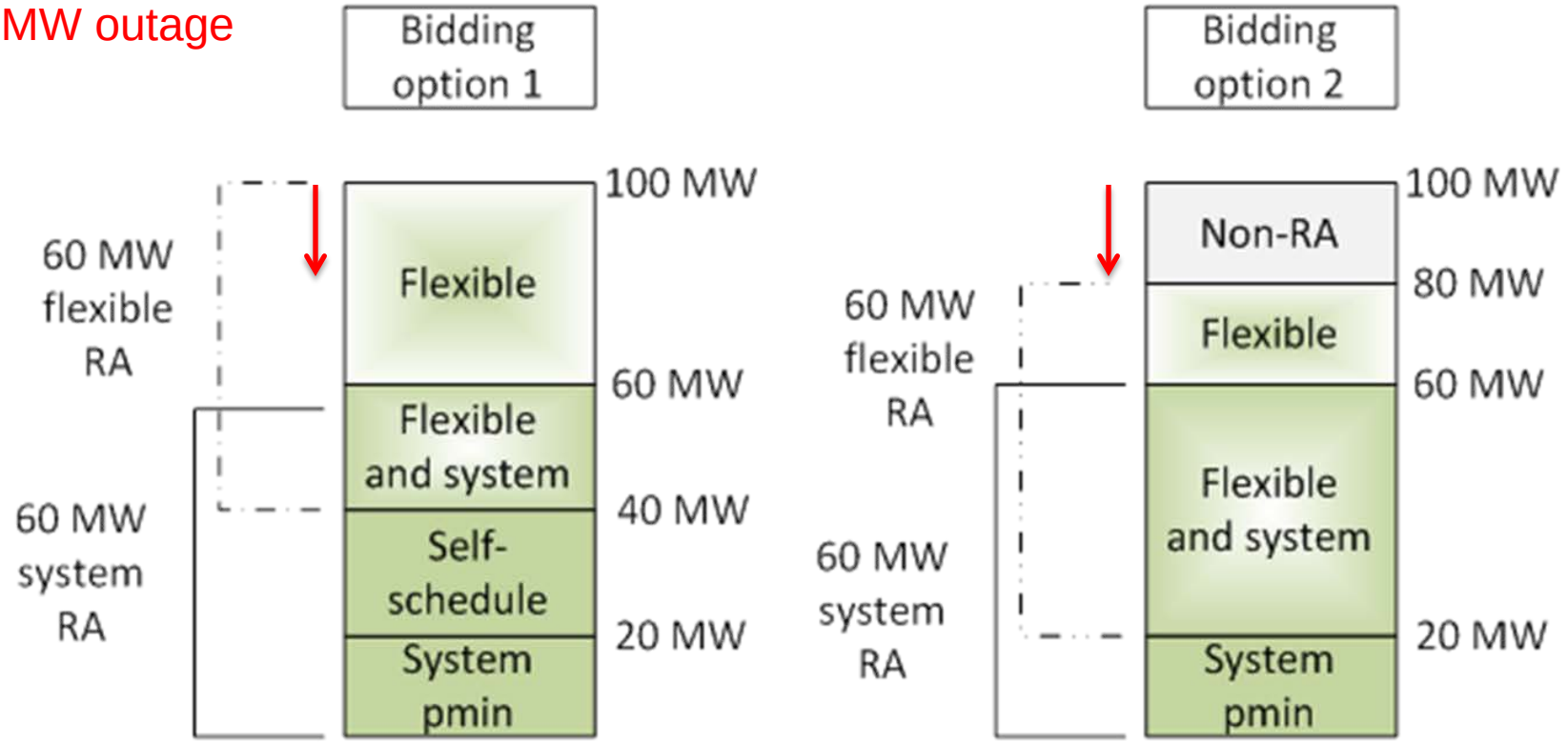
The ISO does not allow real-time substitution for system resources	• Allow real-time substitution • Remove ramp rate criteria
Local substitution rules require the substitute capacity to be located at the same bus	• Propose new prequalification criteria that allows a “comparable bus”
No flexible RA substitution rules in place	• Propose category or better substitution rules for flexible RA • Propose substitution quantity flexibility

Substitution for flexible RA resources

- ISO will make no presumptions on how resource with flexible RA on it will operate
- In the event of an outage, the ISO will allow SC to provide ISO with substitute capacity up to the outage amount
- This is necessary because ISO cannot determine in advance how a resource will meet a flexible requirement

Options to meet 60 MW flexible RA requirement

20 MW outage



OUTAGE RULES TARGETED IMPLEMENTATION PRIOR TO 2017 RA YEAR

RA and outage process background: Monthly validation and requirements

- Monthly RA planning process ensures system, flexible, and local requirements are met with monthly RA plans
  - These resources may be on planned outage for all or part of the month
- Monthly outage planning process ensures system requirement is met daily during planned outages
  - Outage impact assessment checks system requirement daily and requires replacement for capacity on outage if system is short

RA and outage process background: complexity

- ISO process and rules surrounding monthly process for monthly RA validation and replacement rule are very complicated
- Numerous issues identified both by internal to ISO and by external participants
- Much of the complexity comes from the fact the ISO has two separate processes for planned outages with different:
  - Approval procedures by ISO
  - Obligations on supplier and LSE
  - Requirements of when to replace
  - Penalties, if replacement is not provided

RA and outage process background: rules for planned outages prior to 45 days before the RA month (T-45)

- Outages will be approved, denied, or pending by T-25
  - The ISO considers all outage requests within outage assessment
- Outage coordination responsibility is on the LSE
  - Outages stacked in first in, last out order
  - If system short and LSE short, LSE must coordinate replacement
- Replacement is non-discretionary
- Non-replaced outages may trigger a monthly CPM event
  - Costs allocated to deficient LSEs

RA and outage process background: rules for planned outages after 45 days before the RA month (T-45)

- Outages will be approved, denied, or pending by T- 11
  - The ISO considers outage requests as they come in with no deadline
- The outage coordination responsibility is on the supplier
  - Supplier may have to coordinate replacement for all, some, or none of the planned outage capacity
- Replacement is discretionary
- Non-replaced outages may be cancelled or denied
  - If the planned outage turns into a forced outage, the supplier would face SCP incentive mechanism penalties

Monthly RA and outage issues: Process complexity

- Data transparency issues, additional administrative and coordination costs for the market, customer frustration, and general dissatisfaction
  - Overlapping cure periods for LSE monthly RA requirements and LSE replacement requirements
  - Overlapping cure periods for LSE replacement requirements and supplier replacement requirements
  - Tracking outage replacement responsibility across multiple entities
  - Multiple LSE replacement responsibility for a single outage

Monthly RA and outage issues: ISO dual processes and associated incentives

- Dual processes potentially creates incentives for suppliers to cherry pick process
- ISO is concerned that it appears an increasing and significant number of outages are coming in after T-45
  - Less time to evaluate outage impacts on ISO system
  - More ISO ends up moving around outages to try and accommodate all necessary work
  - Concerned in the future this will not allow enough time for market participants to contract with additional capacity

Monthly RA and outage issues: Contract complexity

- Dual processes make it difficult for market participants to anticipate costs and risks related to outages
- If cannot easily quantify costs and risks, then contracting becomes difficult and more costly
- The timing of submission drives the obligation of replacement and potential penalties
  - Obligation on LSE or supplier
  - Penalty could be CPM, outage cancellation, or availability incentive mechanism

Monthly RA and outage issues: Inefficient RA commitment and over-procurement

- Use of load forecasts in both planning and operating horizons
- Overlapping cure periods
- Immobile RA commitment established in planning horizon
- Timing of outage assessment

Monthly RA and outage issues: Risks related to cancelling or moving planned outages

- ISO asks suppliers to move planned outages after T-45
  - Typically if ISO asks suppliers to move the ISO will not require replacement capacity
  - Outage replacement priority will change according to new outage submittal date
- Suppliers cancel or move outages after T-45
  - If outage moves may be required to provide additional replacement capacity
  - Outage replacement priority will change according to new outage submittal date

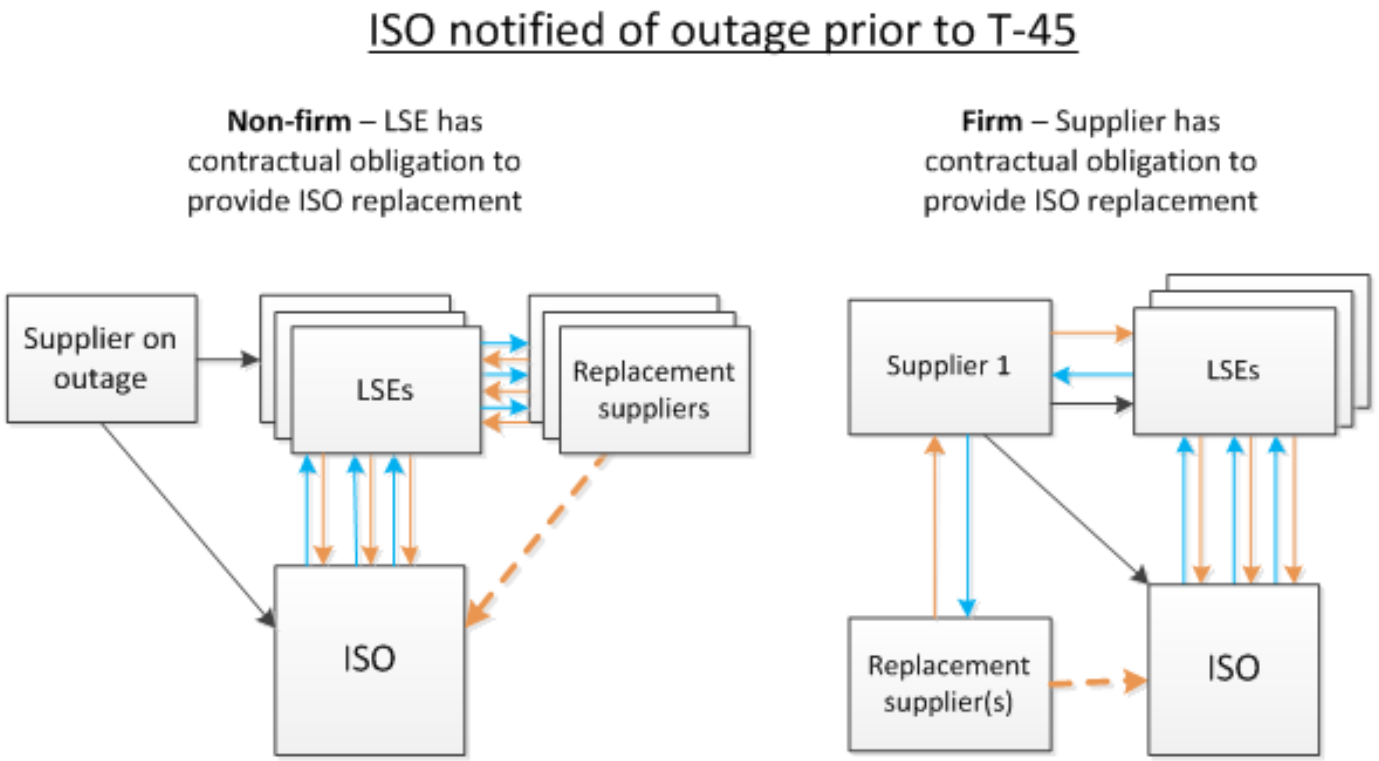
Monthly RA and outage issues: Unnecessary SCP incentive mechanism risk

- Local area capacity commitment
  - In the monthly planning process the ISO counts RA as local on an LSEs plan even if the resource is not needed to satisfy the LSEs local requirement
  - This causes LSE leaning in the validation process
  - During the RA month, this capacity must then be substituted with local capacity if a forced outage occurs
- Market participants have commented that often their resource is “paid as a system resource,” but then takes on the obligation of finding substitute local capacity during a forced outage at a premium price

Monthly RA and outage issues: Outage information sharing

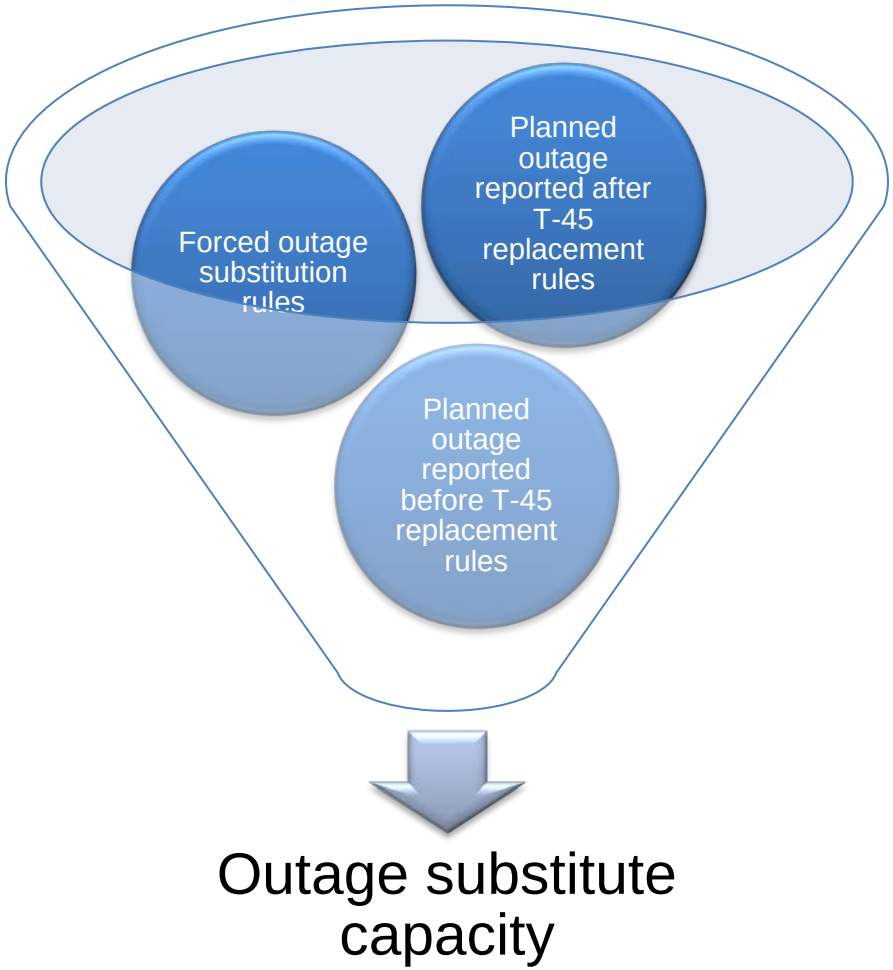
- ISO shares information to aid in cure process
  - LSE is responsible for any necessary coordination of outage replacement if planned outage reported to ISO prior to 45 days before the RA month
  - ISO therefore must inform LSE of supplier outage so that it can be cured
  - Certain market participants have indicated they feel there are confidentiality issues with this process

Monthly RA and outage issues: Outage information sharing



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 in rules and processing

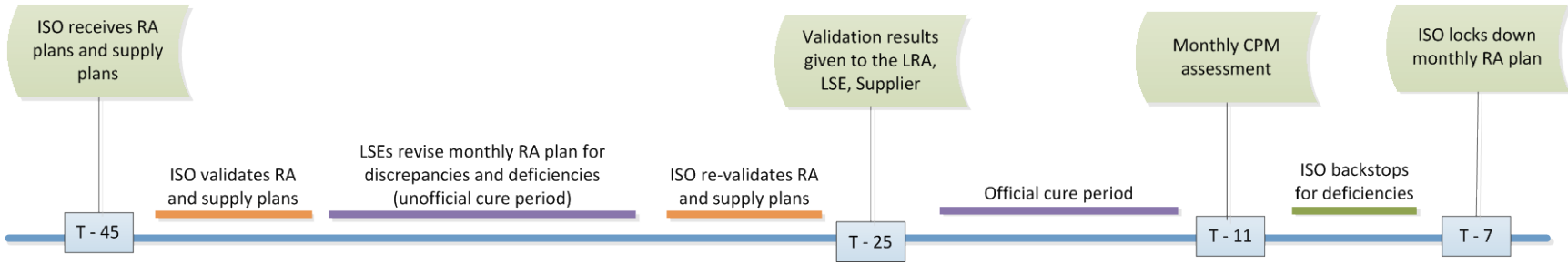


Monthly RA and outage process proposal: Summary

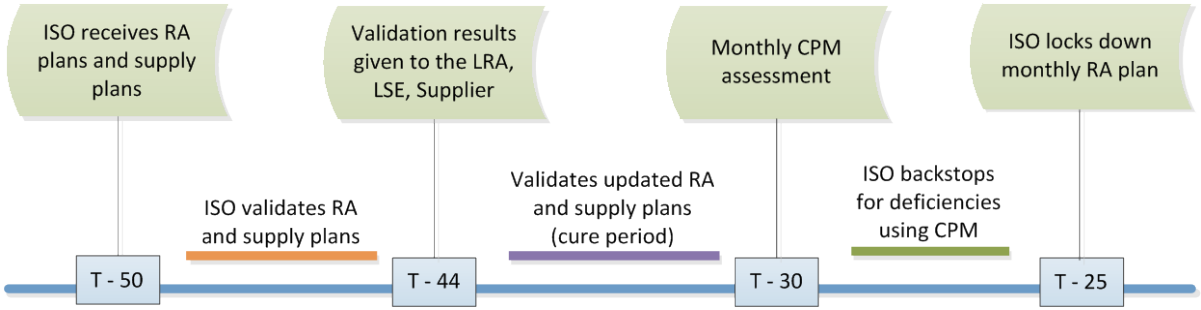
- ISO proposes both timeline and rule changes to monthly RA planning and outage process
  - Goal is to remove complexity when it does not serve a reliability purpose
- Vision:
  - Outages with nature of work categories
  - Depending on the outage category, the ISO will require or allow:
    - Planned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

Monthly RA and outage process proposal: Monthly RA timeline changes

Current Process

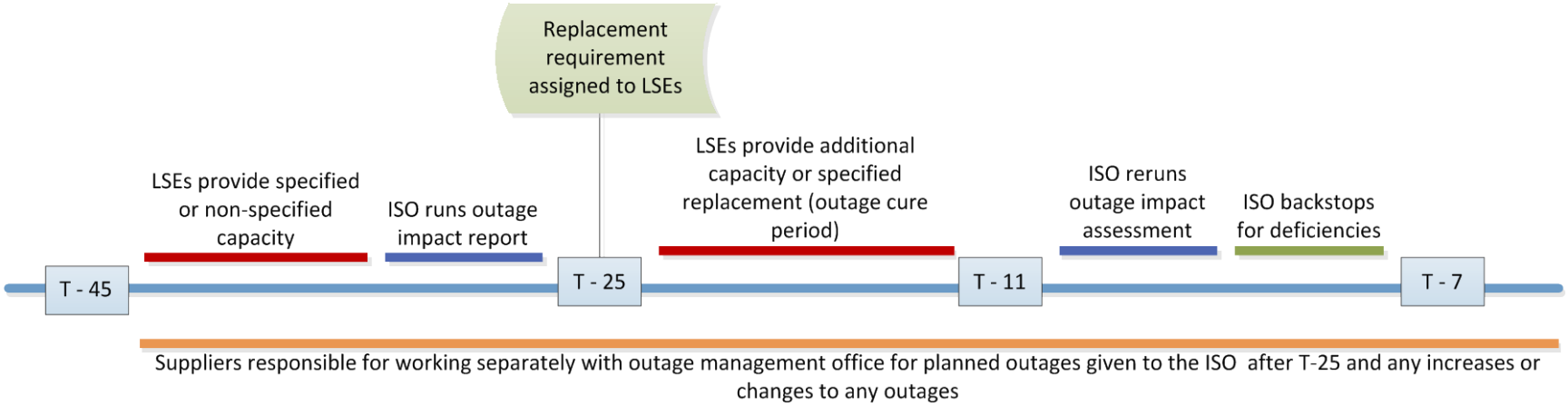


Proposed Process

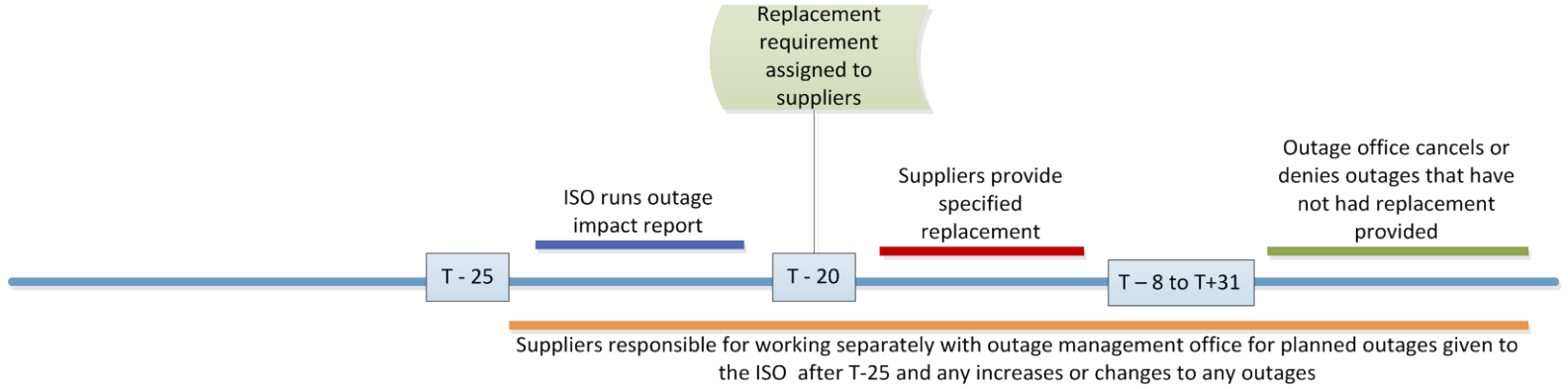


Monthly RA and outage process proposal: Outage assessment timeline changes

Current Process



Proposed Process

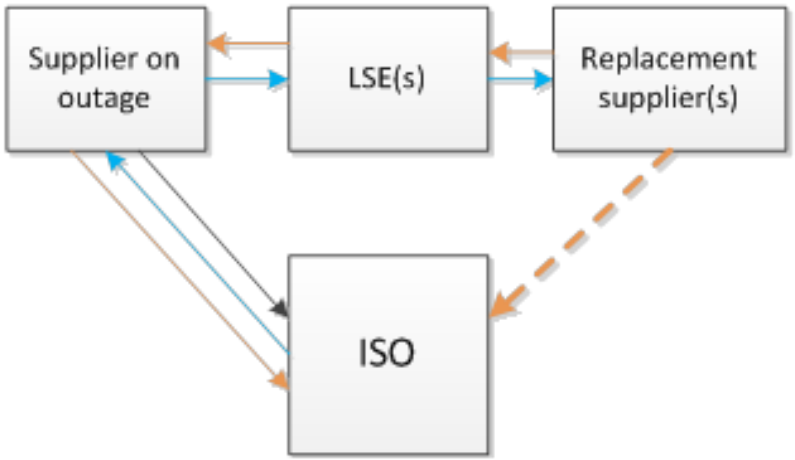


Monthly RA and outage process proposal: Separation of LSE and supplier outage replacement coordination responsibility

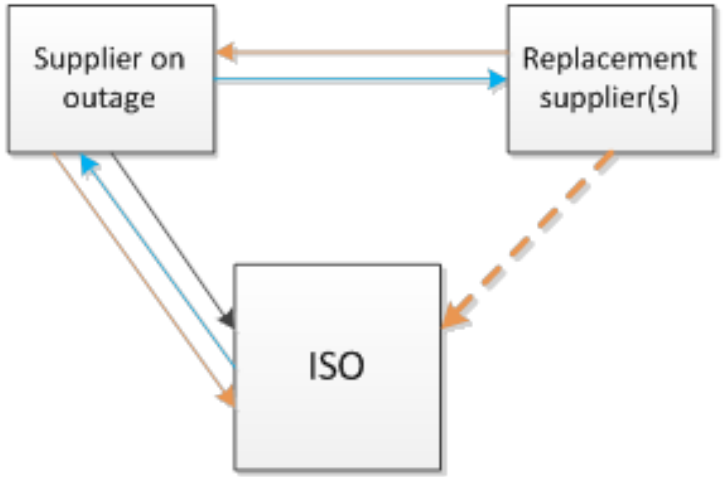
- Supplier will be responsible for all outage replacement coordination with the ISO
- Currently, ISO sees majority of outages come in after T-45 and so the obligation is on the supplier
- ISO understands that ultimately it is the contract between the supplier and LSE that dictates which party will provide replacement capacity to ISO

Monthly RA and outage process proposal: Separation of LSE and supplier outage replacement coordination responsibility

Non-firm – LSE has contractual obligation to provide ISO replacement



Firm – Supplier has contractual obligation to provide ISO replacement



Monthly RA and outage process proposal: Consistent forecast used to assign needed capacity

- ISO proposes to investigate whether a more up-to-date forecast could be done at T – 25
- Currently, after T-45, the ISO will use discretion on replacement
- The ISO proposes to create clear, transparent rules on when replacement will be needed and to use a single set of rules regardless of when the planned outage is reported

Monthly RA and outage process proposal: Penalties for planned and forced outages aligned

- The ISO proposes to remove the potential of designating capacity under a monthly CPM in the event a resource does not supply replacement capacity
- Instead the ISO may cancel or deny the outage
- In the event the outage takes place anyway, regardless of whether it is still reported as a planned outage or was removed and reported as a forced outage, the capacity will be subject to the availability incentive mechanism

Monthly RA and outage process proposal: Release of substitute capacity as RA capacity in the event an outage moves

- Currently once capacity is accepted by the ISO as replacement capacity it is considered RA
  - Cannot be released
  - Is subject to SCP mechanism
- ISO proposes in the event an outage moves or is cancelled, the scheduling coordinator will be able to move any planned or forced substitute capacity up to the amount moved or cancelled

Outage priority maintained if the ISO requests that an outage move

- In order to lessen the impact during instances where the ISO asks suppliers to move their planned outages, the ISO proposes to:
  - Allow outages moved due to ISO request to maintain their original outage replacement priority (< t-25)
  - Only require replacement at the discretion of the outage management team (> t-25)
  - Make every effort to move the outage to a date that will not require replacement (all times)

Monthly RA and outage process proposal: Separation of system and local showings

- The ISO proposes to enhance the monthly RA showing process and require LSEs to indicate which MWs are being shown as local capacity to meet the LSEs requirement
- The ISO in real-time will then require local substitution only if the capacity was shown on the LSEs plan as local
- Given the complexities of implementing separation of showings and significant effects on other rules, the ISO proposes to move this to phase two

Next steps

- Comments due November 19, 2014
  - Send to RSA@caiso.com
- Stakeholder comment template posted by October 31.

APPENDIX

Bid based assessment of hourly availability
Proposed formula for overlapping availability

Hourly availability:

{ Min(economic bid + eligible pmin, flexible RA showing) + Min {Max generic incentive, Max(0,Total bid – flexible RA showing) } / Total RA requirement, *where*

Total bid = self-schedule + economic bid + pmin

Total RA requirement = Max(flexible RA showing, generic RA showing)

Max generic incentive = Max (0, Generic RA showing – Flexible RA showing)

Bid based assessment of hourly availability
Overlapping capacity example: Resource characteristics

- NQC = 100 MW
- EFC = 80 MW
- Start-up time (SUT) = 120 minutes
- Pmin = 20 MW
- The resource is shown on the monthly resource adequacy plan for:
  - 60 MW of flexible capacity
  - 60 MW of system capacity

Bid based assessment of hourly availability
Overlapping capacity example: Resource bidding