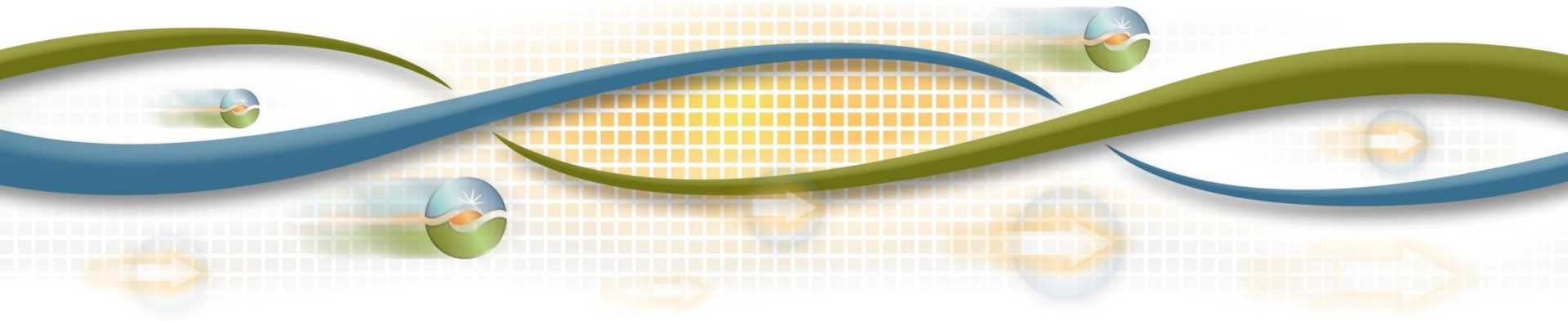




Regional Resource Adequacy Draft Regional Framework Proposal

Stakeholder Meeting
December 8, 2016



Acronyms

- ADR – Alternative Dispute Resolution
- BAA – Balancing Authority Area
- BPM – Business Practice Manual
- CEC – California Energy Commission
- CPM – Capacity Procurement Mechanism
- DR – Demand Response
- DG – Distributed Generation
- EE – Energy Efficiency
- ELCC – Effective Load Carrying Capability
- ETC – Existing Transmission Contract
- LOLE – Loss of Load Expectation
- LSE – Load Serving Entity
- LRA – Local Regulatory Authority
- NGR – Non-generating Resource
- MIC – Maximum Import Capability
- PDR – Proxy Demand Resource
- PRM – Planning Reserve Margin
- PTO – Participating Transmission Owner
- RA – Resource Adequacy
- RAAIM – Resource Adequacy Availability Incentive Mechanism
- RDRR – Reliability Demand Response Resources
- RTO – Regional Transmission Operator
- TAC – Transmission Access Charge
- TOR – Transmission Ownership Rights
- TPP – Transmission Planning Process
- UDC – Utility Distribution Company
- WECC – Western Electricity Coordinating Council
- WSC – Western State Committee

Agenda

Time (PST)	Topic	Presenter
10:00 – 10:10 am	Welcome and Introduction	Kristina Osborne
10:10 – 10:30 am	Maximum Import Capability	Chris Devon
10:30 – 11:15 am	Imports for RA	
11:15 am – 12:00 pm	Resource substitution issues	
12:00 – 1:00 pm	Lunch	
1:00 – 1:30 pm	Resource substitution issues (continued)	Chris Devon
1:30 – 2:15 pm	Load forecasting	
2:15 – 2:45 pm	Uniform counting rules	Karl Meeusen
2:45 – 3:15 pm	Planning Reserve Margin	Chris Devon
3:15 – 3:30 pm	Showings/validations & backstop procurement	
3:30 – 3:45 pm	Allocation of RA requirements to LSEs/LRAs	
3:45 – 3:55 pm	Other issues	
3:55 – 4:00 pm	Next steps	Kristina Osborne
4:00 pm	Adjourn	

Initiative Schedule

Date	Milestone
December 1	Draft regional framework proposal posted
December 8	Stakeholder meeting on draft regional framework proposal
January 4	Written comments on draft regional framework proposal due

Maximum Import Capability

Maximum Import Capability

- ISO will make adjustments to MIC calculation method
 - Intended to capture true maximum and reliable MIC when peak load of a new region in an expanded BAA occurs “seasonally non-coincidental” with the peak load of rest of the ISO and there are no simultaneous constraints between that area of an expanded BAA
- ISO will also make adjustments to MIC allocation process
 - Intended to reflect proposed TAC options policy
 - Splits MIC allocation proportionally based upon TAC options sub-regions that are paying for parts of underlying transmission of overall system

MIC calculation

- Current MIC calculation methodology without proposed adjustment would needlessly restrict the MW amount that can actually be reliably achieved for certain branch groups
 - Affected branch groups mainly used to serve peaks in new areas where peak is seasonally non-coincidental with rest of system
 - Only would be used when area is identified to have no simultaneous constraints with rest of the system
- Seasonally non-coincidental analysis of historic import observations works without causing reliability issues
 - Once MIC levels are determined under this approach, they are used as input assumptions in generation interconnection and annual TPP to ensure MIC levels are deliverable to aggregate load and there are no simultaneous import constraints

MIC calculation (cont.)

- ISO intends to evaluate simultaneous constraints for any expanded areas of the ISO balancing area:
 - Simultaneous deliverability constraints can be identified among imports and/or internal generation
 - Constraints are resolved by a least squares algorithm where internal generation and/or imports with the highest impact on constraint is curtailed more than those with a smaller impact, as described in generation interconnection BPM
 - If over time, simultaneous constraints are identified between MIC intertie points, then a similar approach could be utilized
- If ISO finds simultaneous import constraints during planning or operating studies, ISO will calculate MIC for new area of system simultaneously with existing part of ISO that has same simultaneous constraint

MIC allocation

- ISO proposes to limit initial allocations of MIC capability only to those ISO sub-regions that are defined by TAC options proposal sub-regions
 - Allocations based on a load ratio share basis of only the LSEs serving load within each sub-regional TAC area
 - Reflects proposed TAC options policy
- Ensures LSEs in the current BAA will still receive similar allocations of MIC capability that are made available by current BAA interties today
- LSEs serving load within new areas of expanded BAA (identified as one of the sub-regional TAC areas) will receive all MIC capability that is provided by that area's current capability

MIC allocation (cont.)

- Change will limit entities in a particular TAC sub-region to nominate only on interties into that sub-region area in the initial steps of MIC allocation process
- Will still allow LSEs to utilize MIC in other sub-regions of the ISO through the bilateral trading
 - Under Step 8 (Transfer of Import Capability) of MIC allocation process
 - Step 13 (Requests for Balance of Year Unassigned Available Import Capability) of MIC allocation process will allow for all remaining MIC capability that has yet to be assigned on all interties would be open for nomination by all LSEs in all areas of the entire expanded ISO BAA

Requirements for RA Imports

Requirements for RA Imports

- ISO proposes clarifications to imports for RA tariff language to remove ambiguity in current provisions for imports qualifying for RA
- Previous proposal was that import resources used for RA would be required to be secured prior to month-ahead showings due date time frame
 - Would no longer allow intra-month short-term spot market energy purchases or other intra-month contractual arrangements to qualify for resource adequacy
- Many entities external to current BAA indicate they manage reliable systems and maintain RA while relying on some short-term arrangements so the ISO has reevaluated this aspect of prior proposals

ISO will permit some short-term imports to qualify as RA

- ISO will permit short-term capacity arrangements (which can be executed after the resource adequacy showings due date) to qualify towards meeting up to **10 percent** (%) of the total system resource adequacy requirement for an individual LSE's system RA requirements
- This allowance for short-term arrangements recognizes current practices and desire for flexibility to use short-term arrangements, while reducing the potential exposure to adverse effects by setting a reasonable 10% limit on total short term capacity purchases

Short-term RA imports proposal example

- An example to illustrate this proposal numerically:
 - Assume: Individual LSE, LSE 1 has a system RA requirement of 10,000 MW and a total MIC allocation of 3,000 MW
 - LSE 1 would be permitted to show short-term import arrangements up to 1,000 MW (10% of individual LSE requirement)
 - LSE 1 can also use its remaining MIC allocation, up to 2,000 additional MW, for any other qualifying import resources that have been secured ahead of the monthly showings due date
- Summary of import types allowed under proposed rules:
 - LSE 1 would be allowed to show up to 3,000 MW total imports, comprised of up to 1,000 MW of short-term arrangements (secured intra-month) and 2,000 MW of long-term arrangements (secured ahead of the month)

Enhancing protections to ensure availability

- To ensure these short-term resource adequacy arrangements are made available to the ISO markets, the ISO proposes additional protections in the form of enhanced incentives, or penalties for non-performance
 - Adjust cost allocation provisions for intra-month exceptional dispatch CPMs to allocate some costs to LSEs that showed short-term import arrangements but failed to perform when system conditions required an exceptional dispatch CPM
 - Enhance penalties for non-performance during system emergencies or other significant events triggering adverse system conditions
 - Require LSEs to provide data and documentation to demonstrate compliance with the ISO's proposed 10% limit on short-term import arrangements on each monthly showing

Revised cost allocation for exceptional dispatch CPM

- ISO would perform an after-the-fact review of CPMs to identify entities that failed to deliver short term import arrangements when there is a system-wide deficiency requiring an intra-month exceptional dispatch CPM
- ISO would adjust the cost allocation for this CPM category to incentivize delivery of short term import arrangements
 - Allocating some amount of an ED CPM cost to those entities that had shown short-term arrangements that were dispatched during the event but failed to deliver
 - Amount of CPM costs allocated to such entities not delivering short term imports would need to correspond to magnitude of non-performance of entities' short-term import arrangements during period of system need that led ISO to issue ED CPM

Enhanced non-performance penalties

- ISO is also exploring potential changes to the provisions for non-performance in system emergencies or other significant events
 - Suspend the Resource Adequacy Availability Incentive Mechanism (“RAAIM”) assessment during identified situations of system emergencies or other significant events
 - Apply a more forceful non-performance penalty to all non-performing resource adequacy resources during those situations, including both internal and external resources
- ISO seeks feedback:
 - What specific situations that should trigger this enhanced non-performance penalty?
 - What magnitude of charge or penalty that it would apply on a per-MW basis to create an appropriate but forceful penalty that would sufficiently incent resource performance during the most critical periods of system needs?

LSE documentation and verification

- ISO will require all LSEs provide documentation and data to the ISO to demonstrate that utilization of short-term import arrangements to meet system RA requirements does not exceed proposed 10% limit
 - Documentation of non-resource specific import resources that were shown on their monthly showings
 - Corresponding MW values, the duration of the arrangements, and execution dates for contracts or market purchases
 - Other potential documentation that would be needed?

Resource Substitution Issues

Treating forced outages more similarly to planned outages

- ISO proposes to modify treatment of forced outages to better align with treatment of planned outages relative to substitution and RAIM assessment
 - Current provisions exclude planned outages approved by ISO from metrics for assessing RAIM availability
- ISO will study forced outages in a similar manner as planned outages and will not assess availability for RAIM on resources on forced outages if ISO determines it would not necessitate substitution due to immediate forecasted system needs
 - This change is intended to mitigate concerns regarding potential for RAIM availability charges being assessed on resources that are not needed for immediate reliable operation of the system

Forced outage assessment

- Proposed forced outage assessment will be performed for all forced outages daily
- Forced outage assessment will determine if resources experiencing forced outages should be assessed for availability under ISO's RAAIM metric or be exempt from RAAIM assessment for each day
 - *i.e.*, requires substitution to avoid reduction in availability metric
- ISO will utilize the most current available forecasted needs for forced outage assessment
 - ISO's available load forecasting data and system-wide PRM requirement applied to load forecast would be used to determine immediate system-wide needs

Forced outage assessment

- ISO will assess forced outages using an ordering protocol similar to the one it uses for planned outages
 - *i.e.*, last in, first out method (“LIFO”)
- Difference between proposed forced outage assessment and the current planned outage assessment is the forced outage assessment is performed daily
 - If forecasted needs and resource mix changes from one day to the next, the ISO may not continue exempting a resource on forced outage for more than one day
 - For example, if system needs increase for the following day the ISO may assess RAIM availability on the resource on outage given the changed forecasted needs the next day (*i.e.*, require substitution to avoid availability metric reduction)

External resource substitution for internal resources

- Current ISO tariff does not allow internal, non-local resource providing RA capacity on outage to provide substitute capacity from an external resource
- ISO has previously examined substitution restriction because of a perception that this rule creates barriers for regional expansion by limiting the pool of replacement resources
 - ISO previously proposed to defer this change due to implementation complexity but stakeholder feedback was significant
- ISO proposes to reinstate consideration of changes to allow external resources to substitute for internal system resources experiencing outages

External resource substitution for internal resources (cont.)

- ISO previously indicated that to make this change at least two conditions would have to be met by external resources
 - First condition was to require external resource supplier to have sufficient MIC allocation to be used for substitute resource and the ISO still believes that this MIC condition is necessary
 - Second condition was requiring the external resource to fulfill the same must-offer obligation of the outage resource, but after further consideration the ISO now believes the second condition is not essential

External substitution - MIC condition: Intra-month MIC transfers

- ISO will require that sufficient MIC be designated to use the external import resource for substitution
 - ISO will modify its CIRA system to allow for the transfers and tracking of transfer/designations of MIC allocations intra-month
 - CIRA system currently provides capability to accommodate MIC transfers before the start of the month
- LSEs, suppliers, and SCs coordinate and bilaterally trade MIC intra-month to ensure that sufficient MIC is made available and designated for use by that import resource

External substitution - Must-offer obligation condition

- Previously, the ISO proposed that this substitution rule change would require a similar must-offer obligation condition for the substitute resource
 - ISO no longer believes this is an essential condition
 - ISO currently allows contracts of a subset of hours to qualify as resource adequacy import resources and prior proposal potentially could have resulted in similarly situated resources being treated differently
 - Inconsistent to allow imports of subset of hours resources to qualify for RA, but require external resources being used for substitution to meet a 24/7 must-offer obligation
- Would also simplify potential implementation complexity, no longer would have to change MOO master file info associated with particular import resource IDs

Load Forecasting

Proposed monthly peak load forecasting

- ISO proposes a monthly peak load forecasting aggregation approach
 - Allows LSE (or forecasting agency) to determine how to conduct individual LSE coincident peak forecasting
 - ISO will consolidate individual LSE level load forecasting data
- Approach leverages individual LSE load forecast submittals to identify
 - Individual LSE level resource adequacy requirements
 - Determine the level of system resource adequacy

Load forecasting proposal allows various approaches

- ISO will require monthly coincident peak forecast submittals for all LSEs
 - Either LSEs themselves, or a forecasting agency, such as CEC, must submit these individual LSE level load forecasts to ISO
 - For LSE's under jurisdiction of a load forecasting agency, those LSEs should discuss what entity will bear the ultimate responsibility to submit the LSE specific forecast with the relevant jurisdictional agencies
 - ISO is not stating that the CEC and LSEs have to do it one specific way and the ISO is only concerned with receiving the LSE specific submittals for each LSE
- Flexibility is provided for all LSEs and/or load forecasting agencies to continue conducting load forecasting with minimal impact to current processes

Accommodating different coincidence factor approaches

- Load forecast submittals need to apply a coincidence adjustment to non-coincident peak forecasts based on contribution to expanded BAA observed system peaks
 - ISO will provide historical monthly system peak data for use in this process and will post information on ISO public website
- Allows for individual LSEs/forecasting agencies to make their own determination how to apply a coincidence factor to determine their coincident peak load forecasts
 - Not necessary for ISO to develop a uniform coincidence factor methodology under this proposal

ISO load forecast submittal review process

- ISO proposes to have the ability to review a subset of any of the individual LSE forecast submittals each year
 - ISO will utilize load forecasting methodology review document in this process
- Proposed ISO review will deter inaccurate submittals and unreasonable forecasting methodologies
 - ISO will also publish all LSE specific load forecast error (%) for previous years once that data is available to provide transparency
- ISO ADR process is available as an additional avenue for potential recourse if entities do not agree with the ISO's determination

ISO load forecast submittal review process (cont.)

- If ISO review reveals an improper statistical method or other issues with individual LSE load forecast submittal:
 - ISO will discuss issues identified in its review with **ALL** relevant entities, includes the LSE, UDC, LRA, and any involved forecasting agency
 - ISO will not seek adjusted LSE forecasts if LSEs and involved entities provide adequate explanation or justification for issues raised by ISO
 - If entities have not adequately explained issues raised; ISO retains right to request an adjusted load forecast addressing identified concerns be submitted by forecasting entity
 - If LSE/forecasting entity declines to resubmit adjusted forecast addressing concerns, ISO will conduct a load forecast for LSE

Intra-year load forecasting updates for load migration

- ISO will allow individual LSEs to submit adjustments for all load migration associated retail choice
 - *i.e.*, changes in customer base due to direct access, community choice aggregation, or any other type of demonstrable load migration
 - ISO also proposes that the LSE's LRA or load forecasting agency such as the CEC, provide verification or supporting documentation, if possible
- Similar to process for CEC jurisdictional LSEs today

Intra-year load forecasting updates for other reasons

- Some stakeholders requested the ISO allow intra-year updates to load forecasts for other reasons beyond load migration, that also may be outside of LSE's control
 - ISO has previously expressed concerns over allowing that level of flexibility for intra-year load forecast updates because it could create gaming and manipulation opportunities
- After significant consideration, ISO determined it is appropriate to allow for some additional flexibility because the ISO is already deferring to LSEs and LRAs or load forecasting agencies

Intra-year load forecasting updates for other reasons (cont)

- ISO proposes to allow monthly load forecast adjustments for reasons beyond only load migration
 - Only when the LSE's LRA or other government load forecasting agency, such as the CEC, submits updates on behalf of the individual LSE, and the regulatory or government agency submitting the monthly update verifies that it has reviewed the updated forecast and believes the update is reasonable
- The LRA or other government load forecasting agency providing the monthly updates for reasons other than load migration must not have any load serving function or RA obligation themselves
 - ISO believes this requirement will help avoid the gaming concerns described above

ISO load forecasting benchmarking

- ISO proposes to perform a system load forecast similar to the year-ahead forecasts it performs annually for the ISO Summer Load and Resources Assessment as a benchmarking exercise
 - ISO would use ISO system-wide forecast to compare to the aggregate of LSE forecast submittals
 - If the difference is significant, (e.g., greater than 5% variation between forecasted coincident peaks) the ISO would further investigate the matter during its review of individual forecasts, but the ISO will not use top down ISO benchmarking forecasts to determine if LSE load forecast submittals are reasonable or not
 - ISO will only use supporting documentation provided under individual load forecasts submittals to determine if LSEs may have submitted unreasonable forecasts

ISO load forecast benchmarking (cont)

- Stakeholders expressed concerns over what actions the ISO might take if there were discrepancies between the ISO calculated coincident peak and the resulting coincident peak requirement of the bottom-up LSE forecast aggregation
- Proposed ISO system-wide top down load forecast is simply a benchmarking exercise
 - ISO will use it only as advisory for reviewing the bottom-up load forecasting aggregation results
 - Proposed top down ISO forecast is only intended to inform process and provide additional transparency to compare with results of the overall system-wide load forecasting results
- ISO will publish the methodology used for the top down forecast for transparency

Reliability Assessment

Planning Reserve Margin

- ISO proposes to establish a system-wide PRM target to evaluate reliability levels and ensure adequate capacity will be made available to the ISO markets
- ISO proposes to utilize a LOLE study to identify the system-wide PRM target
- ISO will conduct a stakeholder process to establish the target PRM
 - Process would ensure transparency and engagement with stakeholders at the time the study is being conducted
 - The ISO will also review the results and subsequent report on the study with its stakeholders
- Role for states/WSC still being discussed (other forum)

ISO PRM target: Loss of Load study approach

- Proposing to use a probabilistic study to determine system-wide PRM target
 - Probabilistic PRM targets generally considered industry best practice used in many other regions
 - Specified level of reliability can be measured using an established reliability criterion, such as 1-in-10 Loss of Load Expectation (LOLE)
- No current WECC standard and other regions commonly utilize a 1-in-10 LOLE standard
 - ISO proposes to conduct default PRM analysis using the 1-in-10 LOLE level of generation reliability criterion in order to establish the system-wide PRM target

Frequency of system-wide PRM target analysis

- Proposing to conduct an LOLE study to determine the system-wide PRM target on a periodic basis, but not annually
 - System-wide PRM target should be refreshed, at a minimum, when significant changes to the ISO system, such as a new PTO joining ISO BAA occurs
 - ISO intends to set default PRM target at a value that would remain fixed between LOLE study updates
- Changes to system-wide PRM would be made only once a new PRM value is established by a new study with stakeholder input

The ISO proposes to develop uniform counting methodologies for system capacity resources

- Standard counting methodologies allows the ISO to consistently determine the maximum capacity value for purposes of the ISO system reliability assessment
- Counting methodologies will be determined through a transparent and open stakeholder process
- LRAs may develop their own counting rules for state procurement/policy objectives
 - Proposed counting rule applies only to ISO assessments
- All capacity values will be subject to an ISO deliverability assessment

The ISO proposes to use the following capacity counting methodologies

1. Deliverable Capacity Verification Test: A test to determine if the resource can produce at its full deliverable capacity
2. Effective Load Carrying Capability (ELCC): A probabilistic assessment to determine the likelihood that the ISO would be unable to serve load
3. Historical Data: The monthly historic performance during that same month using a three-year rolling average.
4. Registered Capacity Value: A process by which supply-side demand response or load based resources inform the ISO the amount of capacity it will provide
5. Sustainable Energy Output Test: A test to ensure energy limited resources are able to provide a sustained output for a defined period of time
6. Ancillary Service Testing: 30 minute energy test to determine the capacity values for resources not providing energy bids

Eligibility to use deliverable capacity verification test for capacity value

- An evaluation of a resource's ability to produce output at the maximum deliverable capacity output
 - Interconnection study determines how much of that capacity is deliverable under peak load conditions
 - it does not account for the ability of the resource to provide full deliverable capacity
- Resource must sustain output at for one hour
- ISO proposed to use this option for:
 - Thermal: Nuclear, natural gas, oil, coal, geothermal, biomass, and biogas
 - Excludes qualifying facilities
 - Participating hydro
- Completion of Pmax test can also be used as verification

The ISO proposes to utilize an ELCC methodology for solar and wind resources

- ISO will develop an ELCC methodology to determine uniform counting rules for wind and solar resources
- ELCC values will be established based on an assessment of entire ISO footprint
- The subsequent ELCC study process will determine
 - Specific study methodology and assumptions
 - Local counting rules
 - “Fall-back” counting rules
 - The ISO will not set a “date certain” for completion
- May consider ELCC for other resource types in the future

Historical methodology

- The historical methodology is a resource's monthly historic performance during that same month during the availability assessment hours, using a three-year rolling average
- The ISO proposes to use the historical methodology for
 - Run-of-the-river hydro
 - Qualifying facilities including combined heat and power
- Resources with missing data due to outages occurring during the availability assessment hours will use average values for the same hours on the same calendar day but from other years

Registered Capacity Value

- The ISO proposes to use registered capacity value for load based capacity products such as:
 - PDR
 - RDRR
- Scheduling coordinator for resource submits the capacity value
- Capacity value should be based on a resource ability sustain output (i.e. load reduction) for four hours
- ISO will accept and establish as the resource's capacity value subject to resource performance audit

Performance audit and unannounced compliance testing for registered capacity value resources

- The ISO may conduct random compliance testing for all resources with a registered capacity
 - Audits
 - Seasonal tests
- The ISO may conduct performance audits
 - i.e. Review of actual performance relative to dispatch instruction and registered capacity value
- The ISO may conduct audits for any months the resource has
 - been shown as a capacity resource and
 - Received an ISO dispatch

Registered capacity value performance audit

- The ISO will perform audits of
 - Actual dispatches of the resource
 - Bid-in capacity quantity and frequency
 - Bid-in capacity compared to the performance of the resource
- If the resource fails the audit, the resource will be deemed unavailable in the RAIM calculation

Registered capacity value seasonal tests

- The ISO may test resources with registered capacity values once seasonally
 - Non-summer (January – April, October – December),
 - Summer (May – September)
- The ISO will only have the ability to issue a test event in situations meeting these following criteria:
 - Resource has not already demonstrated its registered capacity value for that season,
 - It is a non-holiday weekday, and;
 - It is during the applicable availability assessment hours for the month
- RDRR resources will not be exempt from testing
 - Must have confidence they are capable of delivering full registered capacity value during emergency and stressed system conditions

Registered capacity value seasonal tests (cont.)

- If the resource fails the test
 - ISO will assess the resource as unavailable under the RAIM for the number of MWs by which the resource fell short of the registered capacity value
- Resource would be eligible for retesting by submitting a retesting request to the ISO
 - The ISO would administer an unannounced retest within seven days of the request
 - If resource fails second test, the ISO would consider unavailable for RA for the lower testing shortfall MW quantity for the remainder of the season

Sustained energy output test

- Evaluate capacity value of an energy-limited resource by testing the resource's sustained output over a four-hour period
 - Non-generator resource (NGR)
 - Pumped hydro
- Resource could substitute an actual four-hour dispatch from the previous 12 months as a demonstration of capacity value
- The test would require the resource to provide four hours of continuous output to determine its maximum sustainable discharge capability in order to establish the capacity value
 - Ensures ISO has sufficient energy output to cover peak load conditions plus uncertainty range

Ancillary Service Testing

- Participating load resources will be tested through the Resource Performance Verification process which
 - Test resources providing ancillary services
- Applies to participating load and Regulation Energy Management (REM) NGRs
- 30 minute energy test to determine the capacity values
- ISO will assess the need to apply a limit on the amount of RA capacity these resources can provide

RA Showings and Validation Process Modifications

- ISO requires LSEs and suppliers to participate in a resource “showing” process
- This resource adequacy showing process requires LSEs to demonstrate that they have procured and made available to the ISO adequate resources
 - system, local, and flexible operational needs
 - cross validates these demonstrations against supplier’s similar showings in their supply plans
- ISO validates showings during each month-ahead assessment to determine whether any potential deficiencies exist

Reliability Assessment changes to validation process

- ISO will conduct a reliability assessment similar to current practice with some important modifications:
 - ISO will utilize system-wide PRM target for the System RA assessment - no longer using individual LRA PRMs for this assessment
 - ISO will utilize the uniform capacity values for resources - no longer using individual LRA counting rules for assessment
- What does this mean?
 - ISO reliability assessment will only use the system-wide PRM for PRM requirement in the assessment of individual LSE and system-wide resource adequacy
 - All resources will be provided a uniform counting rules capacity valuation through ISO process each year

Showings and validation modifications

- RA showings and validation process allows ISO to identify any potential deficiencies for:
 - Individual LSEs
 - System-wide basis
- Cross validation is the first step
 - ISO matches LSE records to supplier records
 - ISO will confirm total MW value for each resource ID **does not exceed** each resource's deliverable MW capacity value (determined through ISO uniform counting rules process)
- ISO will notify any potentially deficient LSEs and provide opportunities to cure potential deficiencies

Backstop procurement and CPM process and changes

- If ISO determines capacity shortage needing remedy exists based on reliability assessment:
 - ISO will inform stakeholders and evaluate need for potentially exercising backstop procurement authority
 - When identified reliability needs are found ISO will follow process defined in tariff Section 43A
- Current tariff does not expressly contemplate ISO performing a reliability assessment as proposed
 - ISO proposing revisions to recognize reliability assessment may identify a shortage the ISO needs to cure and authorize the ISO to procure backstop capacity as a last resort to cure shortage

CPM tariff changes necessary to recognize reliability assessment

- ISO proposes revisions for four categories of CPM:
 - Insufficient RA resources in a LSE's annual or monthly RA plan
 - Deficiency in local capacity area resources in a LSE's annual or monthly RA plan
 - Collective deficiency in a local capacity area after accounting for all procured RA resources
 - Cumulative deficiency in the total flexible RA capacity in the annual or monthly flexible RA capacity plans or in a flexible capacity category in the monthly RA plans of LSEs
- Only these categories of CPM designation are affected
 - Other CPM provisions for reporting requirements, transparency, opportunities to cure, duration of designation, etc. would not change

System RA backstop procurement need identification

- ISO will evaluate overall system-wide level of procurement provided through cross-validated RA showings against the system-wide PRM target
 - Cumulative deficiency occurs when sum total of all RA capacity shown is less than approved system-wide RA requirement
 - Possible for an individual LSE to be deficient and not have a resulting cumulative deficiency if another LSE has shown capacity in excess of its requirement
 - Not possible to have a cumulative system deficiency if all LSEs show their required quantity of RA capacity

System RA backstop procurement cost allocation

- ISO may decide to engage backstop procurement only if identified cumulative deficiency remains uncured
 - If ISO procures backstop capacity to fill an uncured cumulative deficiency ISO will only procure up to amount needed to eliminate cumulative deficiency
 - Associated costs will be allocated first to LSEs that have not met individual system RA requirements
- Consistent with current cost allocation rules
 - Cost allocation for any backstop procurement will continue to be based on short LSEs' proportional share of any backstopped cumulative shortage:

$$\text{Total cost allocation to a deficient LSE} = \text{Backstop MW procured} \times (\text{LSE showing deficiency} \div \text{Sum of all deficiencies of deficient LSEs})$$

Allocating RA requirements to LRAs and LSEs

Allocating RA requirements to LRAs and LSEs

- Proposing to create a mechanism for allocating RA requirements directly to LSEs with LRAs that do not wish to assume the role of receiving RA requirements from ISO and allocating requirements to respective LSEs
- ISO also must address circumstances where more than one regulatory entity oversees a multi-jurisdictional LSE's procurement decisions in an expanded BAA
- ISO proposes to allocate resource adequacy requirements directly to all multi-jurisdictional LSEs

Allocating RA requirements to LRAs and LSEs

- Due to complexity of calculations and LRA-specific need determinations that would be required for each individual LRA area of a multi-jurisdictional LSE, ISO determined it is appropriate to allocate all RA requirements directly to multi-jurisdictional LSEs
- Allocating resource adequacy requirements directly to multi-jurisdictional LSEs is a more straightforward approach for calculating and allocating overall resource adequacy requirements of such LSEs
- This approach is consistent with the practice in other ISO/RTO regions that have had to deal with multi-jurisdictional LSEs

Other items

Monitoring locational resource adequacy needs and procurement

- ISO proposes to monitor the locational resource adequacy needs across an expanded balancing area
- ISO also will continue to monitor any internal constraints under the current ISO study processes in place today and will inform stakeholders about these locational needs
- Stakeholders raised concerns that this aspect of proposal could cause potential uncertainty because ISO is not imposing any additional RA requirements
 - ISO maintains proposed approach is reasonable and will provide adequate information to mitigate any additional cost risks

Monitoring locational resource adequacy needs and procurement (cont)

- ISO will provide stakeholders with info on locational resource needs, including number of megawatts in respective locational constrained areas/potential zones
 - Prior to the annual procurement period so entities have the necessary information to be able to mitigate the risks of over or under-procurement in respective locational/zonal areas
- ISO also performs deliverability studies which will assume that any transmission constrained zones have an adequate amount of generation within each zone
- Current local capacity requirements provide additional certainty that potential constraints will be respected and local resource procurement will mitigate excessive reliance on reliability measures that would be needed, such as exceptional dispatches, which is one of the major concerns stakeholders have expressed

Monitoring locational resource adequacy needs and procurement (cont.)

- Zonal boundaries ISO will study will be determined by known major transmission constraints, such as WECC paths that limit power transfers between the regions
 - For example, should PacifiCorp join the expanded ISO BAA there would be three WECC paths that would create four candidate zones:
 1. Path 26 between Northern California and Southern California
 2. Path 66 (COI) between PACW and Northern California
 3. Path 17 (Borah West) between PACE and PACW
- Resulting zones for proposed monitoring:
 - PACE, PACW, Northern California and Southern California

Next Steps

- Stakeholders are requested to submit their written comments by January 4, 2017 to initiativecomments@caiso.com
- Stakeholders should use the template available on the ISO's Regional RA initiative website at the following link to submit comments:
<http://www.caiso.com/informed/Pages/StakeholderProcesses/RegionalResourceAdequacy.aspx>
- Initiative contact: Chris Devon (cdevon@caiso.com)