Regional Resource Adequacy

Stakeholder Meeting on Revised Straw Proposal

Salt Lake City, UT
April 21, 2016

Acronyms

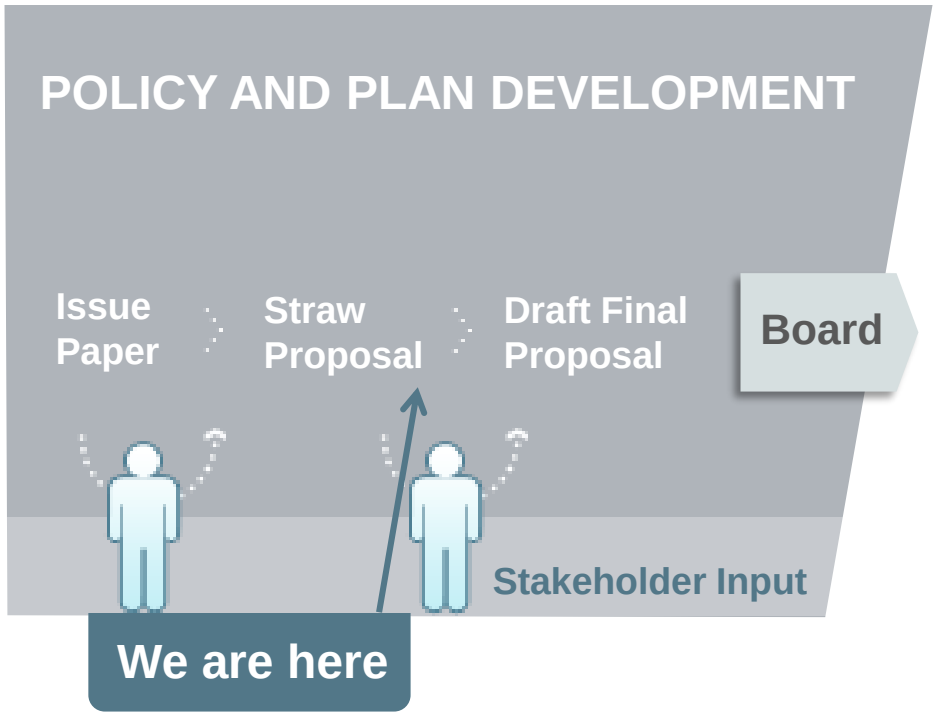
- BAA – Balancing Authority Area
- CEC – California Energy Commission
- CPUC – California Public Utilities Commission
- CRR – Congestion Revenue Rights
- DR – Demand Response
- DG – Distributed Generation
- EE – Energy Efficiency
- ETC – Existing Transmission Contract
- LSE – Load Serving Entity
- LRA – Local Regulatory Authority
- MIC – Maximum Import Capability
- PRM – Planning Reserve Margin
- RA – Resource Adequacy
- TPP – Transmission Planning Process
- TOR – Transmission Ownership Rights

Agenda

Time (PST)	Topic	Presenter
10:00 - 10:10 am	Welcome and Stakeholder Process	Kristina Osborne
10:10 - 10:20 am	Initiative Schedule	Chris Devon
10:20 - 11:00 am	Internal RA Transfers – Zonal RA	Chris Devon
11:00 - 11:30 am	Planning Reserve Margin	Chris Devon
11:30 - 12:00 pm	Uniform Counting Rules	Eric Kim
12:00 - 1:00 pm	Lunch	
1:00 - 1:20 pm	Uniform Counting Rules (continued)	Eric Kim
1:20 - 2:00 pm	Load Forecasting	Chris Devon
2:00 - 2:30 pm	Maximum Import Capability	Chris Devon
2:30 - 2:50 pm	Other Proposal Items	Chris Devon
2:50 - 3:00 pm	Next Steps	Kristina Osborne

Stakeholder Process

Stakeholder Process



Initiative Schedule

Chris Devon
Market and Infrastructure Policy

Stakeholder comments on schedule

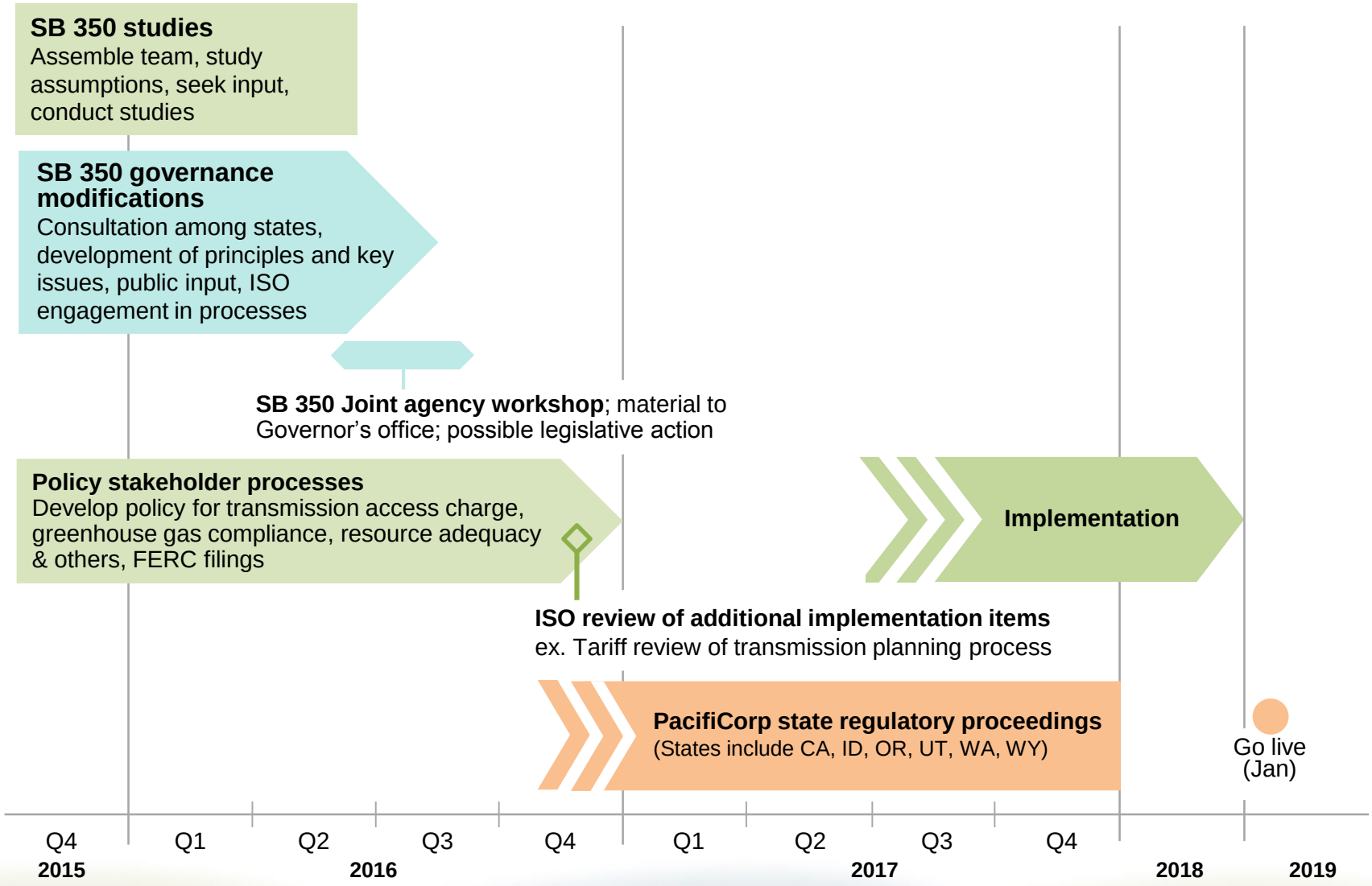
- Stakeholders have commented schedule is too aggressive and requested ISO allow more time for stakeholder process
- ISO evaluated Regional RA schedule following prior stakeholder meeting and written stakeholder comments
- ISO has heard stakeholder concerns and extended schedule to target the Aug 31-Sep 1 Board meeting
- Allows for additional iterations of revisions to proposal and more time to work on further details

Updated Initiative Schedule

Date	Milestone
Feb 24	Post straw proposal
Mar 2	Stakeholder meeting on straw proposal (Folsom, CA)
Mar 16	Stakeholder comments due on straw proposal
Apr 13	Post revised straw proposal
Apr 21	**Stakeholder meeting on revised straw proposal (Salt Lake City, UT)**
May 4	**Stakeholder comments due on revised straw proposal**
May 26	Post second revised straw proposal
Jun 2	Stakeholder meeting on second revised straw proposal (Outside CA)
Jun 15	Stakeholder comments due on second revised straw proposal
Jun 30	Post draft final proposal
Jul 12	Stakeholder meeting on draft final proposal (Folsom, CA)
Jul 26	Stakeholder comments due on draft final proposal
Aug 31-Sep 1	Present proposal to ISO Board of Governors

Timeline for regional integration activities

Note: Designed to allow PacifiCorp to obtain state regulatory approvals before the end of 2017



Requests for workshops and further training on RA issues

- RA is a complicated subject with many interrelated elements that require a broad understanding of various key components of an RA program
- Stakeholders have requested the ISO provide workshops and other forums to provide opportunities to drill down into elements of RA and fully understand ISO proposals
- The ISO believes that a targeted approach with calls for stakeholders as needed will be more efficient for both stakeholders and the ISO

ISO will hold informational calls with stakeholders

- As an alternative to workshops:
- ISO will hold an informational call with a stakeholder on topics that the stakeholder would like additional information on such as
  1. How RA works in general or specific training on certain RA provisions
  2. Specific topics related to ISO Regional RA proposal
- If a stakeholder would like an informational call, the stakeholder should submit a request at: regionalintegration@caiso.com

Regional RA Proposal Discussion

Tariff provisions that need to be revised or added

1. Internal RA transfer capability constraints: Zonal RA
2. Reliability assessment
   A. PRM
   B. Counting Rules
   C. Updating Backstop Provisions
3. Load forecasting
4. Maximum Import Capability
5. Allocating RA requirements to LRAs/LSEs
6. Updating ISO tariff language to be more generic

Internal RA Transfer Constraints: Zonal RA

Internal RA transfer capability constraints background

- Intra-BAA transfer constraints may potentially limit transfer of RA resources between major internal areas in an expanded BAA
- Potential internal transfer constraints need to be respected in ISO processes
- Path 26 Counting Constraint is utilized by LSEs within current BAA
  - Multi-step, iterative process to allocate path 26 capability to prevent over reliance by LSEs on limited transfer capability across transmission path when procuring resources for meeting RA requirements

Stakeholder comments on internal RA transfer capability constraints

- ISO should re-examine the methodology for internal RA transfer constraints
- General support for proposal to ensure that any constraints that may potentially limit transfers of RA resources between major internal areas in an expanded BAA are identified and accurately recognized
- Numerous concerns, questions, and issues were posed about the proposal to extend the path counting constraint methodology and accounting and allocation process for additional internal constraints

Internal RA transfer capability constraints / Zonal RA concept

- ISO previously proposed concept of additional path 26-type capability constraints to ensure any constraints that may limit transfers of RA resources between major internal areas were respected
- Determined problematic to utilize similar path counting constraint methodology for accounting and allocation of limiting internal constraint paths for additional internal path constraints that would be needed in expanded BAA
- ISO believes it is more appropriate to develop a zonal RA concept as explained in following slides

Problems with path counting constraint concept

- Problems resulting from simple expansion of current methodology:
  - Current allocations on Path 26 would be impacted by new entrants that would also receive shares of path constraint allocation
  - Potential for negatively impacting current participant's ability to utilize transfer capability across Path 26 for RA purposes.
  - Any newly identified constraints would need to be allocated fairly to all LSEs and may already be limited in transfer capability
  - Adding additional internal constraints and allocation similar to current method will necessitate excessively complex accounting of allocation and netting over multiple internal path constraints

Zonal RA is a better approach

- ISO believes it is more appropriate to develop a zonal RA concept
- ISO would establish RA zones, zonal import limits, and zonal RA requirements for each RA zone and each LSE serving load in each defined RA zone
- The ISO believes that this zonal RA approach better ensures that any internal RA transfer constraints are properly accounted for and respected in the most efficient and equitable manner possible

Proposed Zonal RA concept

- ISO will conduct proposed Zonal RA steps as part of a recurring Zonal RA process that will establish Zonal RA requirements for LSE's serving load in each RA zone
- This concept accounts for all internal transfer constraints and import capability through the Zonal Import Limit (ZIL) determination
  - Also should account for the interaction between MIC and any internal constraints
- This concept will recognize "netting benefits" provided by overall system RA procurement conducted in specified zones by LSEs not serving loads in specified zone – effectively reducing zonal requirement for other LSEs serving load in the zone

Zonal RA concept needs further refinement

- Numerous considerations to discuss related to this Zonal RA proposal
- ISO welcomes stakeholder feedback in further developing the concepts
- The ISO will continue to build upon this aspect of the initiative in subsequent proposals
  - What issues or other items do stakeholders believe the ISO should address and consider in building upon the zonal concept?

Reliability Assessment

Reliability Assessment for Regional RA

- A reliability assessment is necessary to ensure LSE/LRA procurement programs have secured and committed adequate resources to ISO markets to allow reliable system operation
  - Mitigates potential “leaning” on system by individual entities
- ISO proposes three elements for reliability assessment:
  - PRM targets to evaluate total system-wide and zonal procurement levels
  - Uniform counting methodologies for assessing the capacity value that each resource type can provide towards meeting the ISOs reliability needs
  - Revisions to current backstop procurement authority and cost allocation tariff language to incorporate reliability assessment

Stakeholder comments on Planning Reserve Margin

- Support for applying a PRM minimum and zone-specific constraints that would provide safeguards against capacity leaning while preserving avoidance of prescribed PRM assignments to specific LSEs
- Concern that LRAs and LSEs will have to adopt the ISO PRM and other reliability metrics
- Some support for PRM requirements to be established for individual LSEs specifically, not only a system PRM minimum
- PRMs should reflect the different capability and needs of different sub-regions in an expanded ISO BAA

Planning Reserve Margin background

- Planning Reserve Margins (PRMs) are a widely used deterministic criterion for generation reliability
- PRMs target procurement levels for required margin of resources sufficient to maintain reliability to a specified generation reliability target
- PRMs cover a number of risks to reliability of electric system including:
  - Planned maintenance and unplanned or forced outages
  - Generation and demand response resource deratings
  - Expected variations in weather, customer demands, and load forecast error

PRM for Reliability Assessment

- ISO must be able to assess level of reliability on a comparable basis across expanded BAA
  - ISO will establish PRM targets to evaluate reliability levels and ensure adequate capacity has been made available
- For the purposes of creating system and zonal PRM targets for use under the reliability assessment the ISO offers the two following options for stakeholder's consideration:
  - Probabilistic PRM translation (LOLE study)
  - Simplified deterministic PRM calculation

Option 1: Probabilistic PRM – LOLE study approach

- Many other regions use a probabilistic PRM approach
- These are usually based on statistical analysis such as Monte Carlo simulation
- Benefits of probabilistic/LOLE PRM approach:
  - More accurate risk assessment; LOLE is a complex probabilistic criterion that accurately accounts for dynamic nature of power system
  - Probability concepts incorporate uncertainty in the assessment of power systems quantitatively, which cannot be done using deterministic methods and criteria
  - LOLE uses statistical methods to address future uncertainties in various system components and accounts for individual unit level variability of characteristics such as outage rates

Probabilistic PRM – LOLE study approach

- Potential shortfalls of LOLE PRM approach:
  - LOLE requires complex power flow modeling including detailed data and assumption inputs
  - Significant development time as well as requiring additional need to gather required data inputs from entities
  - Target level of LOLE reliability criterion would need to be determined, (1-day-in-10 years, 1-in-5, etc.) which may create disagreement amongst parties with different interests
  - Choosing level of LOLE reliability criterion to use for determining PRMs is not straightforward:
    - WECC has no applicable standards for generation reliability criterion unlike many of the other North American regional reliability organizations
    - 1-in-10 LOLE is generally accepted as an appropriate target in most other NERC regions

LOLE model inputs

LOLE Model Inputs
Load Inputs
Hourly demand and energy forecasts
Monthly load shapes/profiles
Load forecast uncertainty (load forecast error projection - expected/probabilistic)
Generation Resource Data
Operating parameters
Unit forced outage rates
Planned maintenance schedules and maintenance cycles
Energy limits for DR / Interruptible Load
System and External Information
Zone definitions
Internal transfer limits / zonal import limits
External system model with load and generation characteristics
Historical import levels
Detailed Transmission Model Inputs
Typical load and Power Flow model used in transmission studies
Transmission system details including specific buses and branches
Loads modeled at bus level

Option 2: Deterministic PRM “Building Block” approach

- ISO could consider using a simple deterministic formula with specified inputs to determine needed PRM targets
- Basic analytical method to “build” a PRM target with existing data points and available information or “building blocks”
- Major disadvantage is that they do not directly address any generation reliability metrics so it is not possible to know system risk level and whether resource adequacy measure is actually appropriate to meet needs for each situation
- This approach can be described as somewhat of a judgement call, where professional experience and system knowledge is used, replacing the more rigorous modeling of probabilistic approaches
- ISO could use this approach to determine both system-wide and zonal PRM targets

Deterministic PRM Building Block inputs

- If deterministic PRM approach is chosen ISO would need to determine basic elements that would be inputs to calculation
- These deterministic components and inputs are generally available data and can be called PRM “Building Blocks”
- Deterministic PRM Building Block Inputs:
  - Average forced outage rates
  - Assumed levels of available external support
  - Average load forecast error
  - Operating reserve requirements
  - Reserve for unusual weather events
  - Others that are suggested for use

Benefits of Deterministic PRM approach

- Benefits of a deterministic PRM approach:
  - Relatively easy to incorporate because it is simple and straightforward, easy to understand, and easy to compute
  - Simplified deterministic approach can be calculated easily so ISO could set PRM targets simply through this basic analytical approach which could also remain relatively static over time but are able to be refreshed with updated inputs periodically

Shortfalls of Deterministic PRM approach

- Shortfalls of a deterministic PRM approach:
  - Resulting PRM target is developed through a less analytically rigorous method compared to LOLE PRM and would still create controversy among parties with different view over decisions on what level of reliability to target with out any real analytical support
  - Does not recognize varying outage rates among similar generators (i.e., average forced outage rates does not account for different individual outage rates)
  - Does not recognize that different types of plants with same capacity may have different effects on supply adequacy (i.e., would not be able to account for variability of supply from renewables/VERs well)
  - Only provides limited representation of actual level of reliability and is not able to capture any future uncertainty of various system components that a probabilistic approach would

Deterministic PRM example

Deterministic Building Block PRM Example		
Load/Supply Balance	100%	+
Average Forced Outage Rate	5%	+
Average Load Forecasting Error	1.5%	+
Operating Reserves Requirements	6%	+
Unusual Weather Event Reserves	1.5%	=
Total PRM Target	114%	
Note: Example PRM building blocks and percentages are for illustrative purposes only		

Uniform Counting Methodologies Proposal

Eric Kim

Market and Infrastructure Policy

Uniform counting methodologies for RA resources

- ISO must have consistent counting rules so resources in different areas are treated comparably
  - ISO proposes to develop a uniform counting methodologies for each resource type/category
  - Would provide consistent and transparent methodologies for evaluating amounts that each resource type is able to effectively contribute towards meeting ISO reliability needs
- Maximum quantity of MW that a particular resource could be used for RA capacity in RA showings and would be used in reliability assessment would be published by ISO prior to year-ahead RA procurement

Stakeholder comments on resource counting methodologies

- Allowing resources to qualify as different amounts of RA may lead to additional complications and inequitable treatment between LSEs
- Uniform counting values will simplify contracting for resources contracting with multiple LRAs and simplify internal RA processes
- Significant differences in RA programs across LRAs may cause difficulty transacting for capacity to meet RA requirements across states, which will prevent significant RA cost savings for all LSEs
- Some opposition to uniform counting rules and certain parties would not support adopting a standardized approach applicable to all jurisdictions within regional ISO
- Uniform approach may make it difficult to tailor a resource portfolio to LRA/LSE's specific needs

What does uniform counting methods mean for stakeholders?

- Using different counting rules would cause the ISO to be unable to accurately evaluate the level of reliability consistently across the system
  - Some jurisdictions may choose differing values for certain resource types which will cause potential inequities and difficulty in assessing reliability
- Determination of counting methodologies will be completed through open and transparent stakeholder process
  - Not proposing to eliminate the ability of LRAs to develop their own counting methodologies for their own evaluation/policy purposes - however those LRA specific rules would not be used in ISO RA showing and reliability assessment

Currently used counting methodologies

- Pmax: The maximum power output a resource can reach as established by an ISO conducted Pmax test
- Exceedance Methodology: The minimum amount of generation produced by a resource in at least 70% of the studied hours at the time of system peak demand
- Historical Data: The monthly historic performance during that same month using a three-year rolling average. Missing data will be replaced with average values for the same hours and day but different years

Currently used counting methodologies

- Technology Factors: For new resources that do not have historical data, technology factors are used
- For each fuel type, technology factors are currently calculated as follows:
  - Wind and solar – exceedance methodology evaluation of similar fuel type
  - All other fuel types – historical data methodology evaluation of similar fuel type

ISO proposes the following uniform counting methodologies for each fuel or technology type

- Thermal and Nuclear: Tested and validated Pmax value
- Hydro:
  - Run-of-river hydro resources will be assessed by the historical methodology and technology factors if no historical data is available
  - All other hydro will assessed by tested and validated Pmax value
- Qualifying facilities and Combined Heat and Power: Historical methodology
  - If no historical data is available, technology factors will be used

ISO proposes two possible options for solar and wind resources

- Solar and wind counting options: Exceedance or ELCC
- Exceedance methodology: Measures minimum amount of generation produced by a resource during a certain percentage of included hours
  - Advantages: simplistic implementation, able to account for expected performance during hours of greatest need, and ISO's current familiarity and use
  - Disadvantages: Limited view of when variability occurs and certainty of a resources ability to serve load at a given point in time

ISO proposes two possible options for solar and wind resources (cont.)

- Effective Load Carrying Capability (ELCC): Measures amount of incremental load a resource can serve, using probabilistic modeling of generation shortfalls and random forced outages resulting in unserved load
  - Advantages: Would better help to determine ISO's ability to serve load under uncertainty and ability to understand a resource's potential capacity contribution over the full 24 hours of a day
  - Disadvantages: Complex implementation efforts and large amounts of data to take into considerations weather patterns and other specific information

The ISO proposes two possible options for storage resources

- Storage counting options: Four hour test or Registered capacity value methods
- Four hour test: Similar to Pmax test for non-generating resources (NGR), resources would be tested for maximum continuous output that can be sustained over four hour period
- Registered capacity value: Scheduling Coordinators for resources submit the NGR's self-determined capacity factor, which should be based on sustainable output for four hours and the ISO will accept the value
  - ISO would conduct compliance testing and audits to verify the registered capacity value

The ISO proposes two possible options for PDR, RDRR, and Participating Load

- PDR/RDRR/Participating Load counting options: Four hour test or Registered capacity value methods
- Historical: Average monthly historic demand reduction during established Availability Assessment Hours - using a three-year rolling average
- Registered capacity value: Scheduling Coordinators for resources submit the PDR/RDRR/Participating Load's self-determined capacity factor, which should be based on sustainable output for four hours and the ISO will accept the value
  - ISO would conduct compliance testing and audits to verify the registered capacity value

ISO seeks feedback on the proposed counting methodologies

- Counting method options mentioned above are provided as a starting point in the proposal
- ISO would like to hear feedback on the various options from stakeholders in order to determine what method should be utilized
- What sort of issues or needs for certain resource types should be considered?

Load Forecasting

Chris Devon

Market and Infrastructure Policy

Revising the process for developing load forecasts for RA

- ISO proposes to consolidate sources of load forecasting data in order to create system-wide coincident forecast
- ISO must strive to balance the current California load forecasting process with the needs of a broader organization in which many potential new entities effectively conduct their own load forecasting.
- Approach blends ability of LSEs to provide their own load forecast data with the current CEC load forecasting
- Will allow ISO to develop accurate and transparent load forecasts for use in an expanded ISO BAA

Stakeholder comments on load forecasting

- Stakeholders generally support the concepts proposed but requested additional details
- Load forecasting for expanded BAA should also be robust and transparent
- Actual results should be compared with forecasts and accuracy/forecast error should be made public
- Some SH believe ISO should require standardized load forecasting processes with prescribed methods for treatment of forecast adjustments, such as DR, EE, DG

Proposed load forecasting process

- System-wide coincident load forecast for expanded BAA would be created by ISO based on LSE-specific hourly non-coincident load forecast data
- Many existing methods and arrangements continue
- CEC continues to develop load forecasts for LSEs in CA
- Entities outside of current BAA create and submit their own load forecasting data
- ISO calculates system-wide coincidence peak and LSE-specific coincidence factors to identify system-wide coincident load ratio share for each individual LSE in BAA

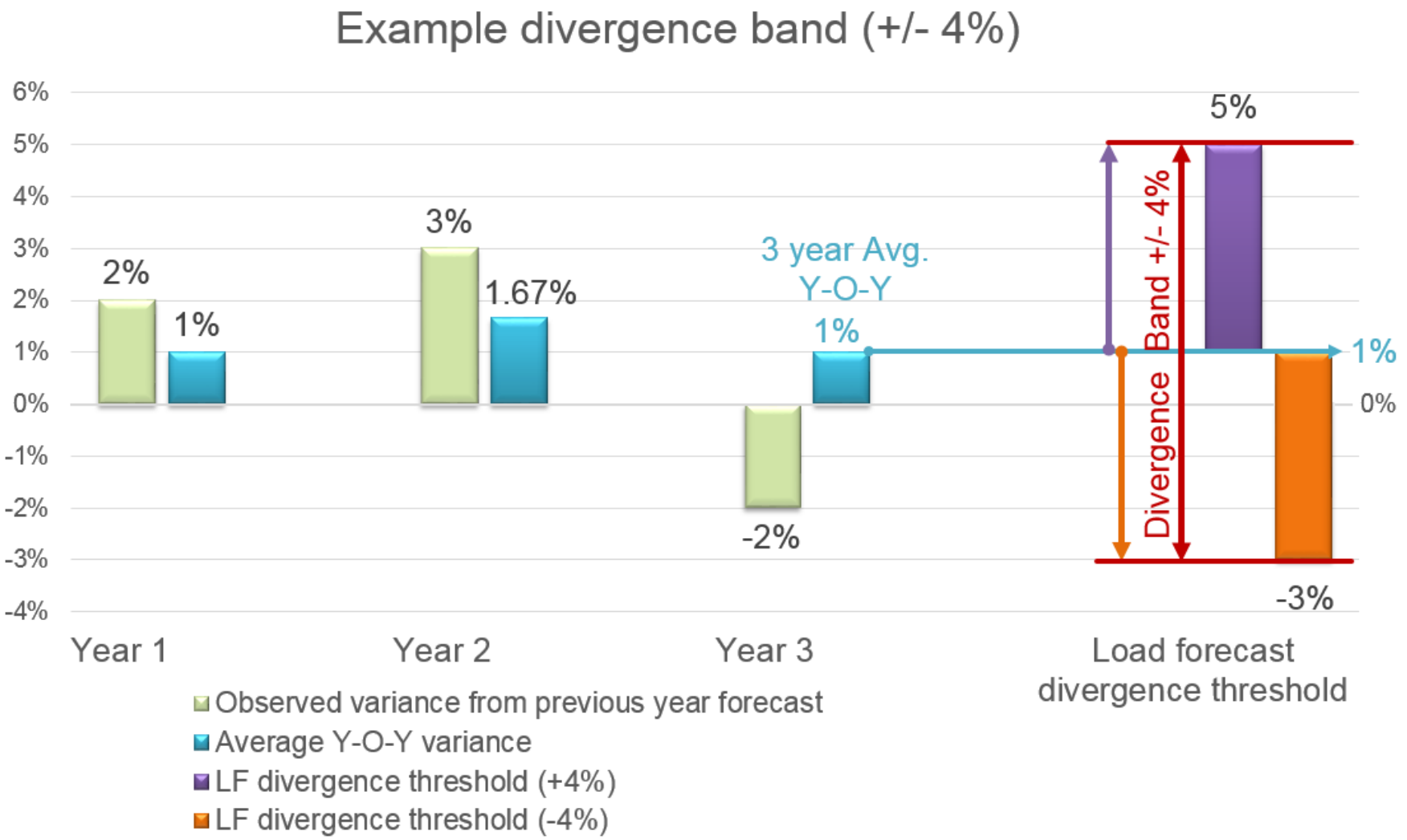
Load forecasting flexibility

- ISO believes flexibility for LF submittals is appropriate
  - Allow LSEs to treat assumptions and adjustments to LFs how they see fit (i.e., DR, EE, DG, etc.)
  - However ISO will require reporting of adjustment treatment and impact of adjustments to overall load forecast
- ISO proposes ability to review entities forecasts
  - May make adjustments if forecasts diverge unreasonably from actual peak loads or historical usage
  - Intent only if cannot demonstrate divergence is reasonable
  - Safeguard against submission of unreasonable overall forecasts

Load forecasting review criteria

- ISO proposes to conduct reasonableness review of LSE's submitted forecasts if criteria trigger
- Criteria uses historic normalized peak trends as a reference
- ISO proposes to use a 4% divergence threshold in a LSE's average year-over-year change in LSE's previous 3 years of normalized peak load data
- Example of this criteria calculation provided on next slide

Load forecasting review criteria example



Load forecasting review process

- If submitted forecast is outside of divergence band criteria would trigger ISO review ability
- ISO would discuss submittal under review with all involved parties – includes LSE and LRAs
- ISO may request LSE resubmit amended forecast or adjust submitted forecasts
- Only if both:

1. LSE's non-coincident peak forecast diverges beyond +/- 4% band and has triggered review

   -AND-

2. LSE and cannot demonstrate forecast divergence is reasonable

Load forecasting coincidence factor options

- ISO proposes to calculate coincidence factor and determine the contribution to system coincident peak for each LSE in an expanded ISO BAA
- Need to determine LSE-specific coincidence factors for each month based on a system wide forecast in order to properly capture regional diversity and determine RA requirements for each LSE
- To determine monthly LSE-specific coincidence factors:
  - ISO will need to use a specified coincidence factor formula
  - ISO proposes two potential options for coincidence factor formulas for feedback:
    1. Median of Five Monthly Peaks (CEC) CF formula
    2. Power Systems CF formula

Option 1: Median of Five Monthly Peaks (CEC) CF Formula

- Methodology utilized by CEC for LSEs in current BAA
- ISO could continue using methodology for expanded BAA system-wide load forecasting process
- LSE-specific monthly CF calculated as ratio LSE peak load at the time and hour of the five highest monthly ISO's system peak loads to the specific LSE's actual non-coincident peak load in any given month:

$$Coincidence\ Factor_{CEC}\ (CF_{CEC}) = \frac{Median\ of\ LSE\ Load\ at\ five\ highest\ monthly\ System\ Peak}{LSE\ Non-coincidence\ peak}$$

Option 2: Power System CF Formula

- An alternative approach the ISO could utilize is the Power Systems CF formula
- Power Systems CF formula is a ratio of the simultaneous maximum demand of a group of electrical consumers within a specified period to the sum of their individual maximum demands within the same period:

$$Coincidence\ Factor_{PS}\ (CF_{PS}) = \frac{System\ Coincidence\ Peak}{LSE\ Non-coincidence\ peak\ +\ ISO\ Non-coincidence\ peak}$$

- ISO seeks feedback on the proposed options for coincidence factor formulas or other formula suggestions

Maximum Import Capability

Stakeholder comments on MIC

- ISO should evaluate if different areas of expanded BAA would require changes to adjust methodology for calculating MIC values
- Address if any potential problems could hinder RA compliance if current ISO MIC methodology is utilized
- MIC calculations & allocations should respect pre-existing contracts and allow entities to maintain viability of their current practices and existing obligations
- Many requests for data and specific results about what MIC values could be for PacifiCorp interties if PacifiCorp becomes a PTO and ISO BAA expanded to encompass PacifiCorp footprint

Maximum Import Capability background

- ISO calculates MIC MW amounts based on historical usage that establishes a baseline set of values for each intertie
- ISO examines previous two years of historical import schedule data to identify max amount of simultaneous energy schedules into ISO BAA at ISO coincident peak system load hours, identifying the **highest total import level** when peak load was at least 90% of the annual system peak load
- MIC values for each intertie calculated annually for one-year term and 13-step process used to allocate MIC to LSEs
- MIC allocations are made available to LSEs on each intertie for use in procuring RA capacity from external resources

Maximum Import Capability background (cont.)

- ISO understands the need to understand how MIC provisions would affect potential new entrants
- MIC process **already considers and protects existing contractual rights and pre-existing commitments** and will allow existing arrangements and practices to continue without negatively impacting potential new entrants
- ISO will account for existing arrangements and practices that are established under firm transmission rights and contractual obligations
- 13-step allocation process allows LSEs to select the interties on which they seek an allocation of import capability; **it does not simply allocate import capability to all entities on all interties**
- Allows greater flexibility than some SHs have stated concerns over

Minor modification to MIC methodology

- ISO believes current MIC calculation and allocation methodology are still mostly appropriate
- Methodology for calculating MIC values needs slight adjustment
- Minor change to methodology necessary to perform MIC calculations using non-simultaneous base case studies
- Allows calculation of true max reliable MIC values where no simultaneous constraints exist between certain areas of expanded ISO BAA that have non-simultaneous peaks
  - Captures benefits of regional diversity by measuring the MIC capability during the peaks of particular sub-regions

Data requests and specific results for PacifiCorp footprint

- Many SHs requested data and specific results about what MIC values would look like for specific interties into PacifiCorp footprint
- Stakeholders have indicated need for this information on MIC in order to conduct their own assessments
- ISO is currently conducting requested analysis to apply current MIC methodology to an ISO and PacifiCorp combined BAA footprint
- Still developing results with assistance of PacifiCorp and will share once the results of analysis are available

Reliability Assessment Proposal (cont.)
Backstop Procurement Authority Revisions

Stakeholder comments on ISO backstop procurement authority

- ISO should ensure that LSEs are given opportunity to cure shortfalls before being allocated any backstop costs
- Should be an open and fair procedure that limits the ability of assigning backstop procurement costs to LSEs that did not contribute to RA shortfalls
- ISO must have some authority to respond when an LSE proves to be deficient in meeting RA requirements
- As ISO expands, having a structure that innately allows leaning between LSEs and LRAs will likely reduce efficiencies and provide incentives for LSEs to not fully demonstrate RA sufficiency each month

Backstop procurement for reliability assessment

- Current ISO tariff language does not expressly acknowledge ISO performing a reliability assessment
- ISO proposes to revise tariff to recognize that ISO may identify a shortage and authorize ISO ability to procure backstop capacity as a last resort to cure shortages
- If there is a shortage of capacity identified by reliability assessment the ISO proposes to follow the standard practice:
  - Notifying stakeholders of the shortage
  - Providing load serving entities an opportunity to cure shortage
  - If load serving entities do not cure the shortage then ISO may engage in backstop procurement to cure any remaining shortage

Process for backstop procurement

- ISO will conduct reliability assessment and determine if sufficient resources have been procured to meet system, local, flexible, and zonal needs
- ONLY if ISO identifies an aggregate deficiency in a particular category would the ISO use backstop process:
  - ISO will notify deficient LSEs and provide a period when they may procure additional resources to cure deficiency
  - If aggregate deficiency still exists after cure period - only then would the ISO need to make a decision on any backstop procurement
  - Backstop procurement costs assigned to entities that have not met minimum reliability requirements

Backstop procurement revisions

- ISO proposes to revise Section 43A of the ISO tariff for four categories of CPM designation to recognize potential shortage that could result from the reliability assessment:
  1. Insufficient RA resources in a LSE's annual or monthly RA plan;
  2. Deficiency in local capacity area resources in a LSE's annual or monthly RA plan;
  3. Collective deficiency in a local capacity area after accounting for all procured RA resources; and
  4. 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
- These four categories of CPM designation are affected because applying the ISO PRM or resource counting rules that are used in the reliability assessment may result in identification of a shortage in one of these categories

Backstop procurement revisions (continued)

- ISO will continue to provide same level of transparency and protections against over-procurement existing under current backstop procurement framework
- Initial proposal is only categories of CPM designation identified on previous slide would be affected
- Other CPM tariff language regarding reporting requirements, transparency, opportunities to cure, duration of designation, etc. would not change
- ISO will need to determine how zonal RA proposal would need to be accounted for in backstop revisions as well

Other Items

Allocation of RA requirements to LRAs/LSEs

- This proposal addresses two potential issues related to allocating RA requirements to potential new ISO participants
  - Need for allocating RA requirements to LSEs with state or local regulatory agency not willing to take on role of receiving RA requirements and allocating requirements to respective LSEs
  - Where there is more than one LRA, State Commission, or other jurisdictional entity overseeing and/or approving a multi-jurisdictional LSEs procurement decisions
- To address these two potential scenarios ISO proposes to create a new mechanism for LRAs and state agencies to defer allocation of RA requirements to ISO so ISO can directly allocate RA requirements LSEs

Allocation of RA requirements to LRAs/LSEs

- Proposal is **not** intended to change how LSEs and LRAs in the current ISO BAA receive and/or allocate RA requirements
- Only intended to address any potential barriers or issues related to allowing the ISO to directly allocate RA requirements to LSEs with LRAs/State Commissions that do not wish to take on that role
- ISO intends to create a new mechanism to allocate all system, zonal, local, and flexibility RA requirements directly to multi-jurisdictional LSEs
  - Will require ISO define “multi-jurisdictional LSE” in the tariff

Updating tariff language to be more generic

- Propose to update the tariff provisions related to RA and the performance of RA resources to be more generic
  - Current tariff utilizes California-centric language that may not be applicable to entities in an expanded BAA.
- ISO believes this is necessary to avoid any unintended barriers or consequences associated with current tariff language as ISO expands
- Not intended to materially impact any of the current RA program or procurement practices
- As a general principle: ISO believes that RA tariff provisions should not make general references to any particular state or regulatory agency unless needed

Stakeholders have also raised other issues and concerns over governance and effective date

- Governance
  - The ISO has specifically responded to concerns about governance proposals and the related impact to any consideration of this Regional RA initiative in the stakeholder comments matrix in specific response to individual stakeholders comments
- Effective Date
  - The ISO has specifically responded to concerns regarding the effective date of any changes to tariff provisions under this Regional RA initiative in the introduction to the revised straw proposal, Section 4 as well as in the stakeholder comments matrix in specific response to individual stakeholders comments

Next Steps

Next Steps

- Stakeholders are requested to submit their written comments by May 4 to initiativecomments@caiso.com
- Stakeholders should use the template at the following link to submit comments: http://www.caiso.com/Documents/CommentsTemplate-RegionalResourceAdequacy-RevisedStrawProposal_.doc

- Initiative contact: Chris Devon (cdevon@caiso.com)