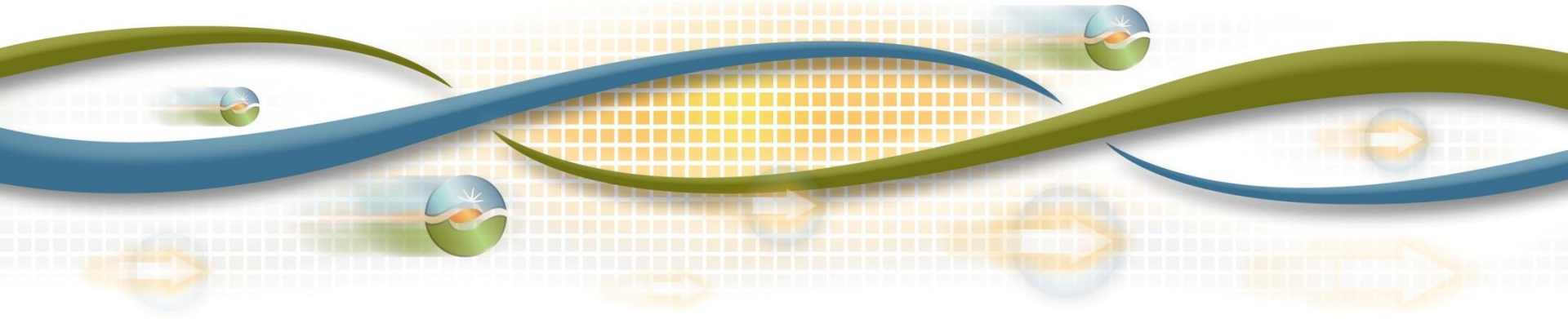




Regional Resource Adequacy

Stakeholder Meeting on Second Revised Straw Proposal

Portland, OR
June 2, 2016

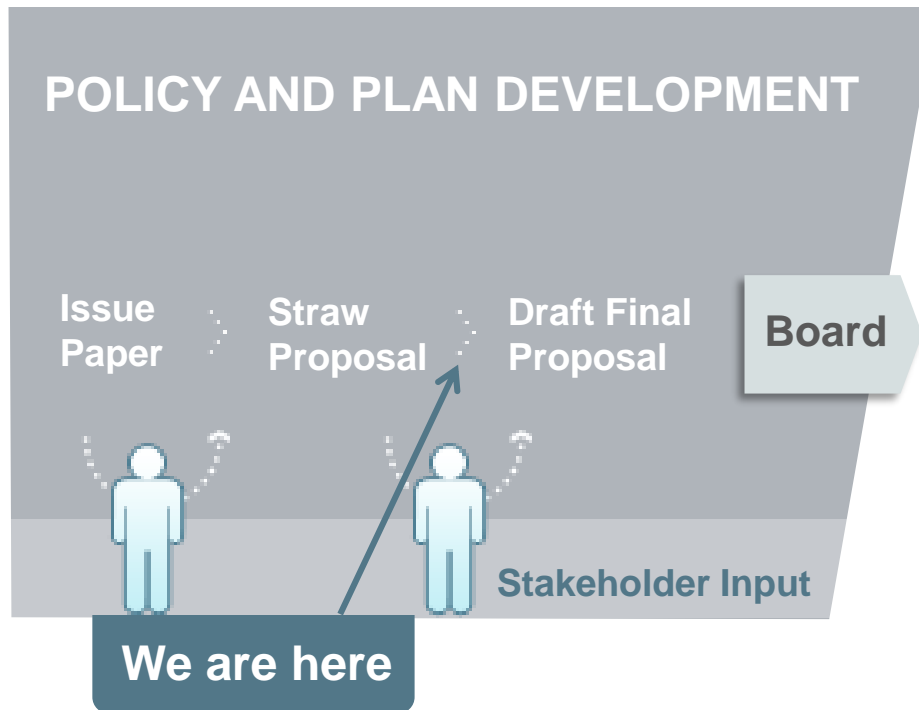


Agenda

Time (PST)	Topic	Presenter
10:00 - 10:10 am	Welcome, Introductions and Stakeholder Process	Kristina Osborne
10:10 - 10:30 am	Monitoring Locational RA Needs and Procurement	Chris Devon
10:30 - 11:10 am	Maximum Import Capability	Chris Devon
11:10 - 11:40 am	Discussion of Import Resources Qualifying for RA Purposes	Chris Devon
11:40 am - 12:00 pm	RA Unit Outage Substitution Rules for Internal and External Resources	Chris Devon
12:00 - 12:45 pm	Lunch	
12:45 - 1:15 pm	Load Forecasting	Chris Devon
1:15 - 1:45 pm	Uniform Counting Methodologies	Eric Kim
1:45 - 2:15 pm	Planning Reserve Margin	Chris Devon
2:15 - 2:30 pm	Backstop Procurement Authority Revisions	Chris Devon
2:30 - 2:50 pm	Allocation of RA Requirements to LSEs/LRAs	Chris Devon
2:50 - 3:00 pm	Next Steps	Kristina Osborne

Stakeholder Process

Stakeholder Process

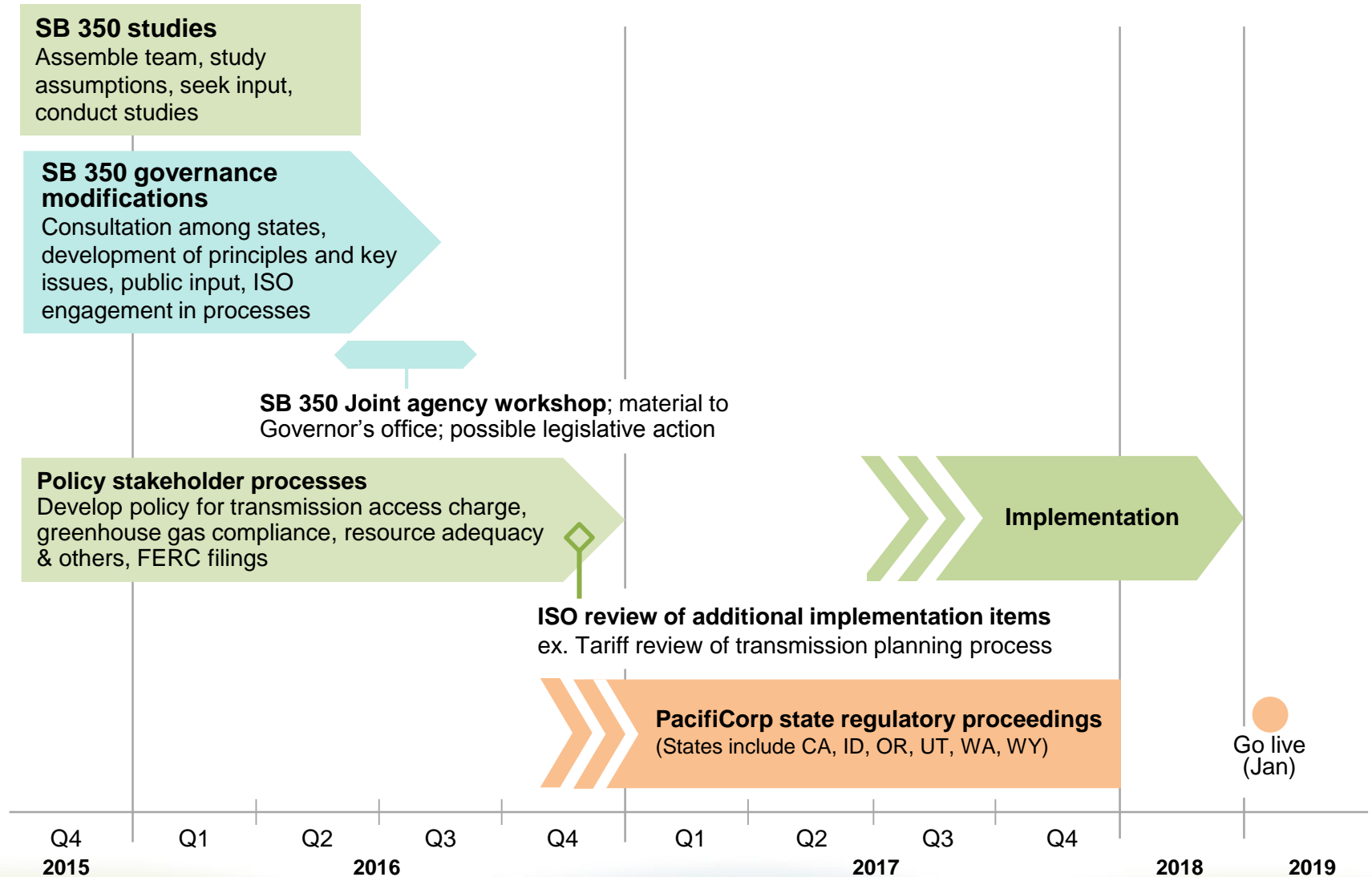


Initiative Schedule

Date	Milestone
May 26	Post second revised straw proposal
Jun 2	Stakeholder meeting on second revised straw proposal (Portland, OR)
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



Regional RA Proposal Discussion

Monitoring Locational RA Needs and Procurement Levels

Stakeholder comments on zonal RA concept

- Stakeholders requested further information and support for the proposal to potentially establish zonal RA concept
- Many concerns and questions posed regarding the potential netting process and interaction with current utilization of MIC
- Concerns regarding potential for additional complexity and burden on LSE administration to meet new RA requirements

Monitoring locational and zonal RA needs background

- Previously proposed zonal RA requirements for an expanded BAA in order to mitigate any potential issues related to internal RA transfer constraints
- Creation of new RA requirements would also produce added complexity for LSEs
 - Netting
 - Outage Substitution
- Development of such a zonal construct requires additional analysis and experience in the operation of additional BAA areas

Proposal to evaluate locational RA needs

- Continue to provide information on the locational nature RA needs in an expanded BAA:
 - Local and Zonal
 - Currently provided in annual Local Capacity Technical Study
 - Summary Zonal Needs, 2016 Local Capacity Technical Report:

Zone	Load Forecast (MW)	15% reserves (MW)	(-) Allocated imports (MW)	(-) Allocated Path 26 Flow (MW)	Total Zonal Resource Need (MW)
SP26	28401	4260	-7792	-3750	21119
NP26=NP15+ZP26	22199	3330	-4346	-2902	18281

Proposal to monitor locational RA procurement

- ISO will also develop monitoring of locational procurement levels
- This analysis will assist the ISO's ability to understand the potential need to revisit the zonal concept in the future
- CPUC continues to administer the Path 26 counting constraint for its jurisdictional entities

Maximum Import Capability

Stakeholder comments on MIC

- Stakeholders generally supported the MIC calculation modification proposal for calculating the MIC for certain areas of the footprint on non-simultaneous peak when needed to capture a reliable maximum capability and there are no simultaneous constraints
- Some additional comments on the need for more forward looking MIC evaluation
- Continued comments in support of continuing to protect existing contractual arrangements
- Stakeholders requested additional MIC data and analysis

Maximum Import Capability background

- MIC process already considers and protects existing contractual rights and pre-existing commitments
- Will allow the ISO to protect entities existing arrangements and allow these 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

Modification to MIC allocation methodology

- ISO has now identified need to revisit MIC allocation methodology, previously believed changes unneeded
- ISO proposes to limit initial allocations of MIC capability to only sub-regions of ISO that would be defined by the Regional TAC sub-regions
- Allocations of MIC would be load ratio share basis for LSEs serving load within specified sub-regional areas
- What does this mean?
 - Current BAA keeps its current MIC allocations
 - PacifiCorp system would keep all MIC capability created by its system and would be allocated by load ratio share of LSEs in that area only

Each sub-region keeps its capability in initial allocation of MIC

- LSEs in the current BAA will still be receiving similar allocations of MIC capability that are made available by the current BAA interties today,
 - Same current BAA LSEs would only be able to nominate MIC on those interties into the current BAA (sub-regional TAC area)
- LSEs serving load within the PacifiCorp footprint will receive all of the MIC capability that is provided by PacifiCorp system's capability
 - LSEs in that sub-region would only be able to nominate for additional MIC allocation only on interties into that PacifiCorp sub-region area

Split MIC allocations to each sub-region limits ability of LSEs to use MIC in other sub-regions

- Proposal will still allow for LSEs to utilize MIC in other sub-regions of the ISO under Step 8 (Transfer of Import Capability) of MIC allocation process
 - Additional MIC in other sub-regions can still be bilaterally transferred between any LSE in any sub-region under this step
- Under Step 13 (Requests for Balance of Year Unassigned Available Import Capability) of MIC allocation process all remaining MIC capability yet to be assigned would be open for nomination by all LSEs in all areas of the entire expanded ISO BAA

Proposal balances MIC allocation needs

- Splitting of the initial allocations combined with the ability to bilaterally transfer MIC between the Regional TAC sub-regions and the final Step 13 ability to nominate any remaining MIC anywhere in the footprint will balance MIC allocation method needs
 - Maintains fair initial MIC allocations to sub-regions
 - Allows flexibility to allow all LSEs some ability to bring system RA imports to the system across any interties in an expanded BAA in order to realize the benefits of a larger geographic footprint

Establishing a Pre-RA Commitments Date

- Currently March 10, 2006 date is the cut-off for considering what arrangements count as Pre-RA Commitments for current BAA
- Discussion regarding a cut-off date for considering what existing contractual obligations constitute Pre-RA Commitments for potential new entrants in expanded BAA
- Process should set cut-off date at a particular date prior to the related RA process for the upcoming year in which a new PTO planned to join an expanded ISO BAA
- ISO will open a future process in order to establish this cut-off date - still to be determined

MIC results for PacifiCorp system

- ISO has received numerous stakeholder request for analysis of the potential MIC values for the PacifiCorp area and in response the ISO has been working with PacifiCorp to develop analysis in order to provide this information
- The provided analysis was based on 2016 test year and 2015 import data provided by PacifiCorp and the calculated coincident peak forecast was developed with 2016 load forecasting information
- ISO provided initial results of this analysis in the posted proposal

MIC allocations for PacifiCorp – 2016 test year

- Analysis showed a potential aggregate MIC for the 2016 test year created by the PacifiCorp footprint of 8477 MWs
- The provided results give stakeholders a general sense for what the MIC values may look like in an expanded BAA but there many caveats that need to be considered
- Results are subject to change once data available for:
 1. TORs and Pre-RA Import Commitments for other LSEs,
 2. A date specific for PacifiCorp integration must be established as related to Pre-RA Import Commitments and all contracts signed before that date will be grandfathered for all LSEs in the existing PacifiCorp footprint and
 3. Updated scheduling data for the target MIC year

MIC results for PacifiCorp system subject to change

- MIC values provided only use PacifiCorp data and MIC values may actually be lower than with inclusion of additional information from other LSEs in PacifiCorp footprint, including TORs and Pre-RA commitments
- Both would potentially increase MIC values
- This other data was not readily available for analysis but ISO understands stakeholders want to see some information related to MIC and provides these values as a starting point
- This information is for illustrative purposes only and these values are subject to change

ISO is open to conducting additional analysis for other potential LSEs and holding a MIC working group

- ISO did not use any data for other LSEs besides PacifiCorp
 - Provided MIC values may be different with the other LSEs information included In a similar analysis
- ISO is open to doing additional analysis for those other potential LSEs that were not included if they are willing to provide that additional data
- ISO is also open to providing additional opportunity to discuss MIC issues at a MIC specific working group in the future

Discussion of Import Resources that Qualify for RA Purposes

Discussion of import resources that qualify for RA

- New topic that is being added to the scope of the Regional RA initiative
- The ISO believes RA showings that designate import MWs to meet RA obligations across interties used in conjunction with a MIC allocation are considered to be a firm monthly commitment to deliver MWs to ISO at the specified interconnection point on ISO system
- ISO has given additional consideration to ensure that these requirements for RA imports are clear which will be especially important as the BAA expands
- ISO's DMM has submitted written comments requesting the ISO consider clarifying requirements for RA imports

Discussion of import resources that qualify for RA - background

- ISO has determined it would be beneficial to clarify requirements for RA imports, including how “firm” commitments should be, and has added this item to scope of the initiative
- LSEs can meet RA system capacity requirements using imported resources, and these imported resources do not have to be tied to a specific physical resource
- ISO tariff is not specific on types of imported resources that can count as RA capacity to meet a RA system capacity requirement
- IRPs for utilities in other states, including in PacifiCorp’s area, indicate that these entities rely on bilateral spot market purchases to meet a significant portion of their power needs

What constitutes a firm monthly commitment?

- Imports used to meet RA obligations are required to bid in the day-ahead market, but are not subject to any limits on bid price and do not have any must-offer obligation in real-time if not accepted in the day-ahead market
- Given these bidding rules and must-offer obligations, the ISO believes that it is important for all stakeholders and the ISO to have a common understanding of what may constitute a “firm monthly commitment” for the purposes of meeting RA system requirements

Important to provide clarity on this issue

- This will be increasingly important as the ISO expands regionally to include additional LSEs that currently rely on established integrated resource planning processes subject to regulation by other states
- Clarification of this topic is also needed to provide a clarity for any monitoring by the ISO's DMM of the compliance of RA imports with market rules
- ISO is not making a proposal at this time
- Instead, the ISO would like to discuss the topic with stakeholders and understand their views on this topic

Discussion of import resources that qualify for RA

- Import system RA amounts shown on many RA system showings and supply plans represent firm capacity contracts.
- The RA construct is a capacity construct, so how “firm” must system RA import resources be?
 - Should there be a role for bilateral spot market purchases or short-term firm market purchases procured at market hubs outside of BAA to meet a portion of an LSE’s requirements?
 - If there is a role or these sorts of products to be used for RA purposes:
 - How much of an LSEs requirement could be met with them?
 - How far ahead of the delivery month must they be established?
 - How should firmness be defined?

RA Unit Outage Substitution Rules for Internal and External Resources

RA unit outage substitution rules for internal and external resources

- New topic that is being added to the scope of the Regional RA initiative
- ISO tariff currently requires that RA capacity from an internal system RA resource (internal non-local RA resource) that has experienced a forced outage requiring substitution be substituted with capacity from another internal RA resource
- This is a requirement because an external RA resource could potentially not be required to meet same must-offer obligation as an internal RA resource and would not provide a “like-for-like” resource if such substitution were allowed

RA unit outage substitution rules for internal and external resources - continued

- This RA substitution rule is not a significant issue for current ISO footprint as there are generally enough internal resources that are available for substitution when an internal RA resource goes out on forced or planned outage
- Stakeholders have inquired as to whether the ISO could consider revisions to this rule and have stated that this rule could cause barriers for regional expansion by limiting the pool of replacement resources for entities in an expanded BAA

RA unit outage substitution rules for internal and external resources - continued

- Expanded BAA may have difficulty finding additional available internal resources to substitute an internal RA resource experiences a forced or planned outage requiring substitution
- In non-contiguous systems there are resources that will be pseudo-tied to the expanded regional ISO BAA, but these resources are currently considered by the ISO tariff to be external resources and require MIC
- This may be a potential barrier to qualify for RA purposes because external resources could not substitute for internal resources requiring substitution

Proposal to allow external RA resources to substitute for internal RA resources

- ISO has considered these stakeholder concerns
- ISO proposes removing the current restriction in the ISO tariff in order to allow for external RA resources to be substituted for internal RA resources
- This change would require some conditions in order to receive a “like for like” resource

Conditions for substitution of internal RA resources with external RA resources

- ISO proposes to allow an external resource to substitute for an internal resource that is on a forced or planned outage as long as the substitution meets the following conditions:
 1. External resource has similar operating characteristics of the outage resource
 2. External resource/entity has sufficient MIC allocation to be used for substitution
 3. External resource has the capability to fulfill the RA must-offer obligation of the outage resource
 - If the internal RA resource has a 24x7 must-offer obligation, then the substitute resource allocation on the required Interties would be required to fulfill a 24x7 must-offer obligation

Load Forecasting

Stakeholder comments on load forecasting

- Stakeholders on both sides of the flexibility versus specified forecasting process issue
 - Some support LSE flexibility while some state a need for more prescribed methods
- Requests for further information on the forecasting review criteria and review process
- Need further details on the process and specific technical issues
- Asked how current CEC method would be incorporated and if it would be affected in some way

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
- 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 in order to determine the system coincidence peak and identify each LSE-specific contribution

Proposed load forecasting process

- ISO proposes that all LSEs provide the ISO with mid-term (one year forward) hourly load forecasts
- ISO aggregates LSE load forecast submittals to create a system-wide coincident load forecast for expanded BAA would based on LSE-specific hourly load forecast data
- Would eliminate the need to develop a specific coincidence factor methodology
 - unnecessary to make any coincidence factor adjustments because the ISO will have all necessary information provided through the hourly load forecast submittals

Load forecasting flexibility

- ISO continues to believe 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
 - If forecast divergence that triggers review is considered appropriate the review would be concluded
 - May request LSE's make adjustments if forecasts diverge unreasonably from actual peak loads or historical usage
 - Safeguard against submission of unreasonable overall forecasts

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

Load forecasting workshop to discuss technical details will be scheduled

- ISO has not determined all of these details yet
- Need the chance for additional discussion to occur with enough time to explore all of the technical issues with stakeholders and their load forecasting experts
- ISO proposes to hold a load forecasting working group in the near future
 - Will announce the date and time through market notice

Uniform Counting Methodologies

Stakeholder comments on uniform counting methods

- Stakeholders generally support establishing uniform counting methodologies with some others still indicating they do not believe it is necessary
- Requests for additional detail on how these methods would be established with some stakeholders requesting that the ISO determine counting methodologies in conjunction with LRAs
- For wind and solar counting some stakeholders support use of the Exceedance method and other support using ELCC with some suggestions for exploring a transition from an Exceedance method to an ELCC method

The ISO proposes to develop uniform counting methodologies

- Uniform counting methodologies will allow the ISO to establish maximum capacity values for RA purposes
- Needed in order to accurately evaluate system adequacy through the proposed reliability assessment
- Counting methodologies are being determined through this open and transparent stakeholder process

The ISO currently uses the following 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.

The ISO currently uses technology factors for counting resources without historic data

- Technology Factors: For new resources that do not have historical data, technology factors are used to calculate the QC
- For fuel type categories below the 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

The ISO proposes to use the Pmax methodology for these resource types

- Pmax – Capacity value is established through an evaluation of a resource's maximum output, which is verified by the ISO
 - Thermal:
 - Nuclear
 - Natural gas
 - Oil
 - Coal
 - Geothermal
 - Biomass
 - Biogas
 - Participating hydro
 - Pumped hydro

The ISO proposes to use the Exceedance methodology for solar and wind resources

- Exceedance methodology measures the minimum amount of generation produced by a resource during a certain percentage of included hours
- The ISO proposes to initially proceed with the Exceedance methodology
- ISO will explore a transition to an alternative methodology such as ELCC in the future
 - The ISO will hold future stakeholder processes to revisit counting methodologies as industry best practices change

Example of calculating capacity value using the exceedance methodology

1. Initial data pull - Compile resource's data set for the past 36 months
2. Isolate "included hours"
 - Jan-Mar, Nov & Dec: 4-9 PM
 - Apr-Oct: 2-6 PM

Example “included hours” data set for one month

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
2:00 PM	100	100	75	25	100	55	15	100	25	40
3:00 PM	75	100	95	75	90	65	25	80	50	50
4:00 PM	100	90	80	80	90	70	25	90	50	50
5:00 PM	80	80	80	50	75	75	25	80	50	60
6:00 PM	95	75	60	40	50	80	20	65	25	70
	Day 11	Day 12	Day 13	Day 14	Day 15	Day 16	Day 17	Day 18	Day 19	Day 20
2:00 PM	50	90	76	98	90	90	45	50	75	80
3:00 PM	53	100	82	99	95	97	75	95	75	90
4:00 PM	63	75	90	100	100	100	90	95	80	98
5:00 PM	90	75	80	80	78	80	90	95	75	80
6:00 PM	68	80	95	78	70	80	90	80	62	60
	Day 21	Day 22	Day 23	Day 24	Day 25	Day 26	Day 27	Day 28	Day 29	Day 30
2:00 PM	90	75	90	80	85	90	90	20	15	90
3:00 PM	100	95	95	80	15	95	95	25	25	95
4:00 PM	75	100	100	80	15	100	100	50	50	100
5:00 PM	80	55	60	80	75	60	50	60	50	70
6:00 PM	60	40	45	80	80	60	45	65	50	56

Example of calculating capacity value using the exceedance methodology

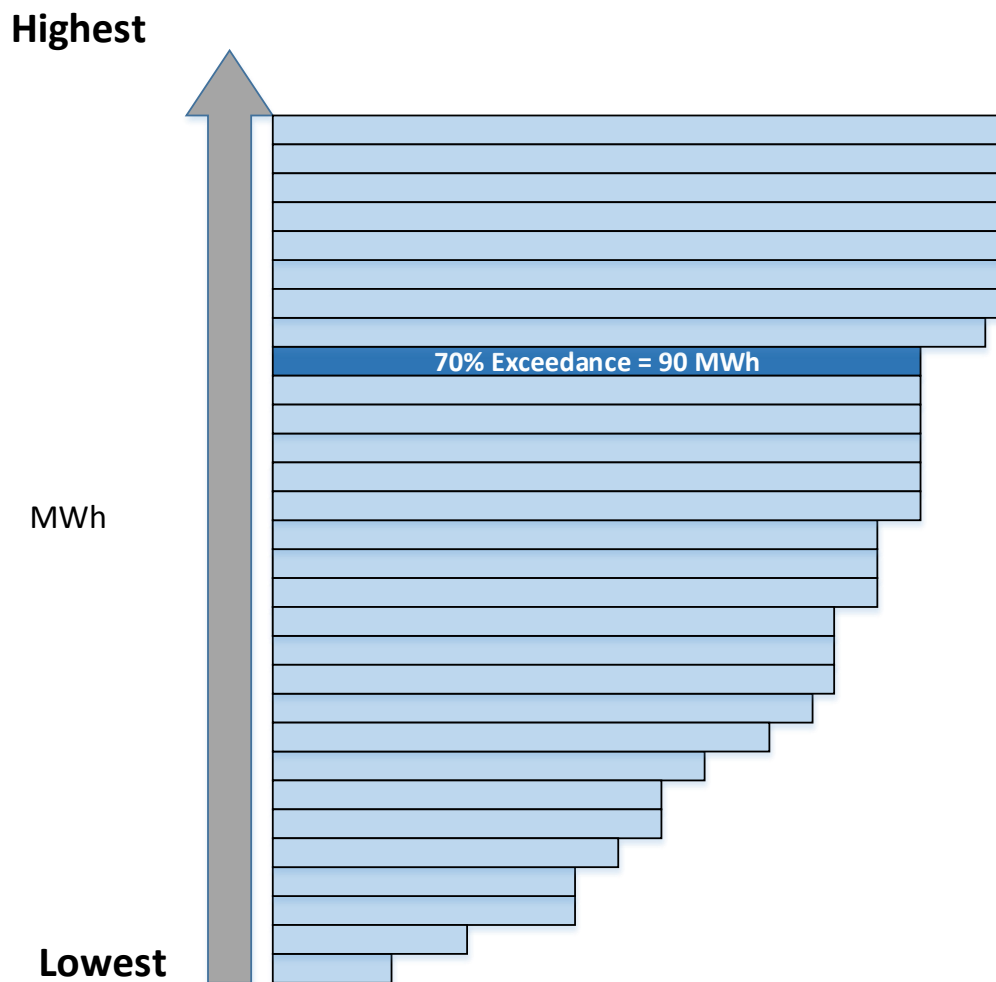
3. Initial exceedance QC calculation

- Identifying the 70th percentile of the “included hours” after stacking MWhs from highest to lowest

4. Diversity benefit calculation

- Captures variation in production profiles across different individual wind or solar resources
- An initial exceedance is calculated using the total of all wind and solar resource production for the system
- Diversity benefit is allocated to each wind and solar resource

Illustrative exceedance data “stack”



Historical counting methodology

- Historical counting methodology uses a resource's monthly historic performance during specified month's Availability Assessment Hours, using a three-year rolling average
- The ISO proposes to use the historical methodology for
 - Run-of-River Hydro
 - Qualifying Facilities, including Combined Heat and Power

Four hour test counting methodology

- Four hour test method will be used to evaluate the capacity value of non-generator resources (NGR) by testing the resource's sustained output capability over a four-hour period
- Test would require an NGR to provide four hours of continuous output to determine resource's maximum sustained discharge capability over that period in order to establish the NGR's QC value
 - NGRs are limited in the ability to provide a sustained output due to the potential to expend and need to recharge their fuel source
 - Need four hour testing as opposed to P_{max} to address recharging issue

Registered capacity value counting methodology

- For the registered capacity value methodology the Scheduling Coordinators will submit the resource's registered capacity value, based on the resources ability to sustain the specified output level for a four hour duration
- ISO will accept and establish this submitted registered capacity value for the resource
- The ISO proposes to use the registered capacity value method for
 - PDR
 - RDRR
 - Participating Load

Performance audit and unannounced compliance testing for registered capacity value resources

- ISO will develop performance audits and compliance testing that can be conducted for all resources with a registered capacity value
- The PDR, RDRR, and Participating Load resources will be tested through the Resource Performance Verification process which also tests resources providing ancillary services

Performance audit and compliance testing enforcement

- If a resource fails a performance audit or compliance test:
- The resource will be flagged for six calendar months from the audit/test date
 - ISO will also send a warning notification to the SC, its respective LRA, and FERC
- If the resource fails another audit or a compliance test within its 6 month flagged warning period the ISO will reduce the resource's registered capacity value for the following RA year
 - During the remainder of the year, the supplier will need to provide replacement capacity for any reductions to registered capacity values

Examples of capacity values using counting methods

Fuel Type	Location	Pmax	Methodology	JAN	FEB	MAR	APR	MAY
Thermal	South	47.00	Pmax	47.00	47.00	47.00	47.00	47.00
Nuclear	North	1150.00	Pmax	1130.00	1130.00	1130.00	1130.00	1130.00
Solar	North	550.00	Exceedance	1.31	7.07	33.00	374.63	385.41
Solar	South	310.00	Exceedance	0.76	3.90	19.30	217.32	217.32
Solar Thermal	South	133.00	Exceedance	1.04	8.81	20.11	80.38	85.29
Wind	North	100.00	Exceedance	2.26	8.32	16.55	16.13	32.24
Wind	South	265.00	Exceedance	7.79	31.60	47.71	41.42	68.81
Pumped Hydro	North	407.00	Pmax	407.00	407.00	407.00	407.00	407.00
Hydro	South	820.00	Historical	773.60	773.60	773.60	773.60	800.60
QF	South	178.00	Historical	17.26	50.81	64.81	73.20	104.38

Fuel Type	Location	Pmax	Methodology	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Thermal	South	47.00	Pmax	47.00	47.00	47.00	47.00	47.00	47.00	47.00
Nuclear	North	1150.00	Pmax	1130.00	1130.00	1130.00	1130.00	1130.00	1130.00	1130.00
Solar	North	550.00	Exceedance	400.38	379.24	394.15	363.79	295.28	0.90	0.66
Solar	South	310.00	Exceedance	222.36	203.35	205.23	208.48	169.17	0.42	0.32
Solar Thermal	South	133.00	Exceedance	106.44	106.92	99.56	97.16	64.23	3.31	1.77
Wind	North	100.00	Exceedance	27.81	32.77	29.14	16.27	5.86	2.19	4.03
Wind	South	265.00	Exceedance	69.78	35.64	24.42	20.84	14.43	7.66	7.84
Pumped Hydro	North	407.00	Pmax	407.00	407.00	407.00	407.00	407.00	407.00	407.00
Hydro	South	820.00	Historical	800.60	800.60	800.60	773.60	773.60	773.60	773.60
QF	South	178.00	Historical	61.77	30.01	33.45	27.93	24.41	10.52	23.33

Planning Reserve Margin

PRM for Reliability Assessment - Background

- ISO must be able to assess level of reliability on a comparable basis across expanded BAA
 - ISO will establish PRM target in order to evaluate reliability levels and ensure adequate capacity has been made available
 - ISO previously provided background on two potential methodologies under consideration:
 1. Establish a probabilistic (stochastic) PRM target through a Loss of Load Expectation (LOLE) study, or
 2. Calculate a more simplified deterministic PRM using observed historical data points

Stakeholder comments on PRM

- Most stakeholders generally supported a probabilistic PRM method, while a few supported the simpler deterministic method
- Whatever method is chosen, the ISO must balance the need for up to date results and the need for certainty for long term planning
- Requests for additional details about the technical issues and requests for further information and analysis on the PRM methods

Proposal for Probabilistic PRM

- ISO is proposing to develop the option of a probabilistic study to determine a system-wide PRM target
- Probabilistic PRM methodology is a best practice that is used in many other regions and can provide a robust and accurate assessment of the necessary reserve margins required to maintain a specified level of reliability across an expanded BAA
- Specified level of reliability can be measured using an established reliability criterion - such as 1-in-10 LOLE, and will also need to be discussed with stakeholders

Establishing a LOLE level for probabilistic PRM

- ISO will need determine what level of LOLE criterion is appropriate to use when studying the loss of load in order to establish the PRM target
- Many other regions use a 1-in-10 LOLE reliability criterion and this level of reliability is generally set forth by NERC regional entities reliability standards
 - WECC has not established any generation reliability criterion standard like many other NERC regional entities have

Establishing a LOLE level for probabilistic PRM

- ISO initially proposes 1-in-10 LOLE is an appropriate level to set as the system-wide generation reliability criterion that will be utilized to establish the PRM target
- It may be necessary to establish guiding principles for this effort, such as weighing both the reliability and cost considerations
- ISO seeks feedback from stakeholders on what considerations should be taken when setting level of LOLE criterion and what level stakeholders believe appropriate
 - If there is support for a different LOLE criterion than 1-in-10, why?

PRM study process

- Next steps in a PRM study process after determining an appropriate level for the LOLE criterion will likely need to take place after this proposal and stakeholder initiative has been finalized
- ISO procuring a vendor/software package, or consulting with those able to conduct a LOLE study with software capable of performing complex probabilistic modeling, such as Monte Carlos simulation
- ISO will need to build appropriate models and cases, and collect required inputs and data sources necessary in order to conduct the study

PRM study process (continued)

- LOLE study requires extensive work and will be time consuming
 - Results of an LOLE study likely not be available prior to completion of this initiative
- If a test PRM target was conducted through an example LOLE study using current input it would potentially yield differing results from a study conducted at a later date utilizing latest input data so example LOLE study for comparison purposes is not under consideration
- LOLE PRM study should occur after completion of Regional RA initiative but prior to RA requirements being established for new PTOs and LSEs joining ISO BAA, and would be complete with an associated SH process

Backstop Procurement Authority

Backstop procurement for reliability assessment

- Current ISO tariff language does not expressly acknowledge ISO performing a reliability assessment
- ISO believes the tariff should be updated to reflect this reliability assessment in the backstop procurement authority language
- 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

Stakeholder comments on ISO backstop procurement authority

- Stakeholders generally supported this element of the ISO proposal to update the CPM tariff language for use with the proposed reliability assessment
- Support for a cost allocation methodology that assigns the costs to the entity that fails to procure their required resources
- Many requests for how zonal proposal would be incorporated (ISO is not pursuing zonal concept at this time)

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

Allocation of RA Requirements to LSEs or LRAs

Allocation of RA requirements to LSEs/LRAs

- The first aspect of the proposal is to create a mechanism that would grant LRAs the choice to defer the allocation of RA requirements to the ISO
- ISO will provide this option for state commissions/LRAs to elect to have ISO allocate all RA requirements directly to their jurisdictional LSEs, if they so desire
- The second aspect of this proposal is to address needs of multi-state/multi-jurisdictional LSEs and how they would receive allocations of RA requirements

Allocation of RA requirements to LSEs/LRAs

- ISO previously proposed allocating directly to multi-jurisdictional LSEs all system, local, and flexibility RA requirements to avoid any related allocation issues due to splitting up LSE requirements based upon LRAs/jurisdictional entities that oversee the multi-jurisdictional LSE
- ISO made this proposal for direct allocation in the interests of creating a more streamlined and administrable RA program
- Some stakeholders and LRAs, however, raised potential jurisdictional concerns with this approach

Allocation of RA requirements to LSEs/LRAs

- In recognition of those concerns the ISO will consider a potential alternative under which it always would defer to each LRA/state commission, even for the RA requirements of multi-jurisdictional LSEs:
 - **Option 1:** ISO allocates all RA requirements directly to multi-jurisdictional LSEs.
 - **Option 2:** ISO provides each LRA the opportunity to allocate RA requirements to every LSE under its jurisdiction, even if some of those LSEs are subject to the jurisdiction of multiple LRAs.

Allocation of RA requirements to LSEs/LRAs

- ISO prefers Option 1 because it's a more straightforward approach to implement to calculate and allocate the overall RA requirements for multi-jurisdictional LSEs
 - ISO also believes Option 1 still would reserve important functions for the LRAs of a multi-jurisdictional LSE
- Option 2 would require creating LRA-specific allocations for system, local, and flexible RA requirements.
 - This potential splitting of calculated requirements by underlying jurisdictional footprints of a multi-jurisdictional LSE would be complex and potentially would require changes to how those requirements are calculated today
- ISO seeks stakeholder feedback on how to best approach this issue and requests stakeholder feedback on the tradeoffs

Next Steps

Next Steps

- Stakeholders are requested to submit their written comments by June 15 to initiativecomments@caiso.com
- Stakeholders should use the template at the following link to submit comments:
<http://www.caiso.com/Documents/CommentsTemplate-RegionalResourceAdequacySecondRevisedStrawProposal-2.doc>
- Initiative contact: Chris Devon (cdevon@caiso.com)