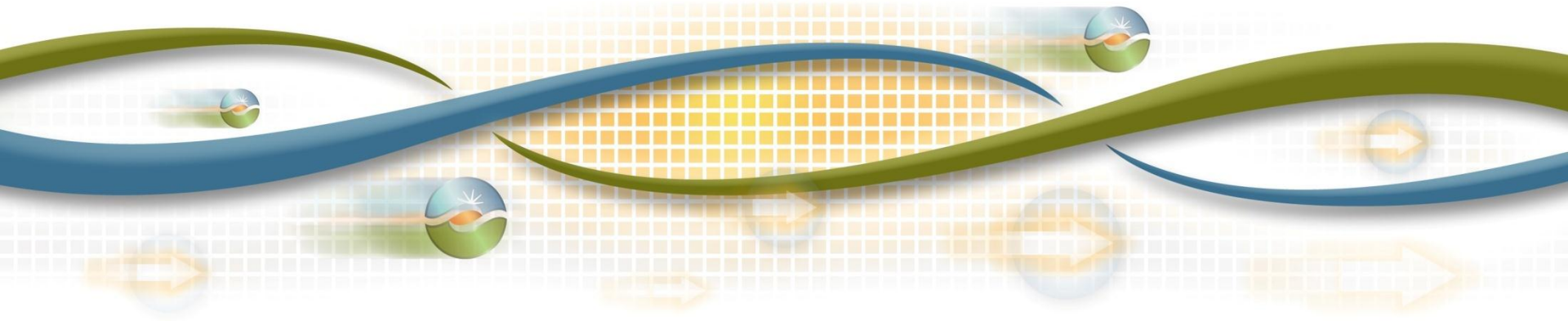




Regional Resource Adequacy Working Group Meeting

Seattle, Washington
January 13, 2016

Chris Devon
Senior Infrastructure Policy Developer



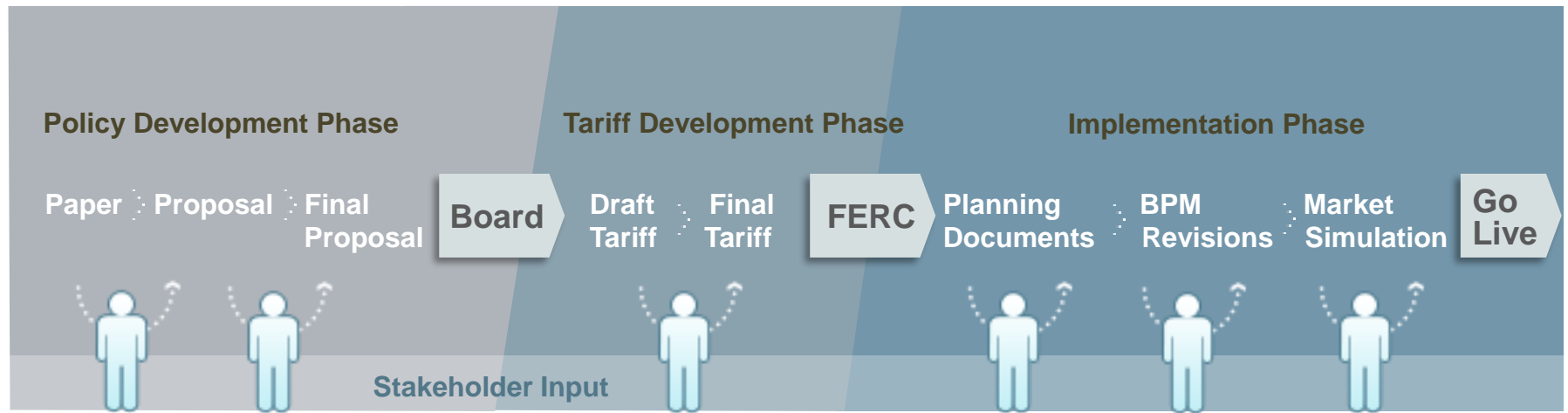
Agenda

Time (PST)		Topic	Presenter
10:00-10:10	1	Introduction and Stakeholder Process	Kristina Osborne
10:10-10:30	2	Goals of Meeting and Initiative Schedule	Chris Devon
10:30-11:00	3	How PacifiCorp Currently Manages Resource Adequacy	Rick Link
11:00-12:00	4	Discussion of Issues and Stakeholder Comments	Chris Devon
12:00-1:00		Lunch	
1:00-2:00	4	Discussion of Issues and Stakeholder Comments (continued)	Chris Devon
2:00-2:50	5	Discussion of Current ISO Tariff Default Counting Rules	Eric Kim
2:50-3:00	6	Next Steps	Kristina Osborne

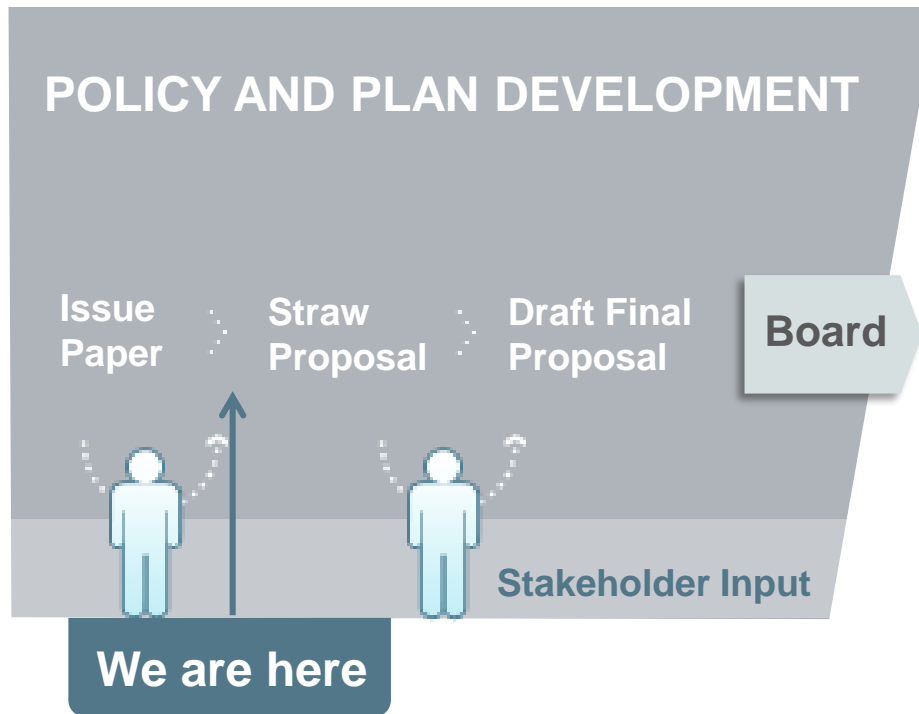
1. Stakeholder Process

ISO Stakeholder Engagement Process

This diagram represents the typical process, often phases will run in parallel.



Stakeholder Process



2. Goals of Meeting and Initiative Schedule

Goals for today's Working Group meeting

- Learn how PacifiCorp currently manages RA
- Review issues and stakeholder comments
 - Hear additional stakeholder views on key issues
 - Discuss potentially problematic items and methods for addressing them
- Obtain information that will help ISO to
 - Finalize scope of initiative
 - Craft a straw proposal

Regional Resource Adequacy Initiative Schedule

Milestone	Date
Post issue paper	Dec 9, 2015
Stakeholder meeting on issue paper (Salt Lake City, UT)	Dec 16
Stakeholder comments due on issue paper	Jan 7, 2016
Working Group meeting (Seattle, WA)	Jan 13
Post straw proposal	Feb 17
Stakeholder meeting on straw proposal (Folsom, CA)	Feb 25
Stakeholder comments due on straw proposal	Mar 11
Working Group meeting (outside California - TBD)	Mar 23
Post draft final proposal	May 4
Stakeholder meeting on draft final proposal (Folsom, CA)	May 12
Stakeholder comments due on draft final proposal	May 23
Present proposal to ISO Board of Governors	Jun 28-29

Stakeholder comments on initiative schedule

- Stakeholders are concerned with pace of proposed initiative timeline
- Stakeholders note that scope includes some significant changes and ISO proposes ambitious schedule
- ISO stakeholder process schedule may not allow enough time to fully address scope of initiative
- Targeting ISO Board approval in June 2016 may be premature

3. How PacifiCorp Currently Manages Resource Adequacy

Discussion on how PacifiCorp currently manages resource adequacy

Rick Link

Director, Origination - PacifiCorp

4. Discussion of Issues and Stakeholder Comments

Issues and stakeholder comments will be discussed under the following categories:

1. Principles to guide policy development
2. Potential standard requirements
3. Making tariff language generic to account for multiple LRAs
4. Update default tariff provisions for counting resources ([agenda item 5](#))
5. Expand default tariff provisions to create complete RA program
6. Load forecasting
7. Establishing RA requirements
8. Methodology for maximum import capability
9. Methodology for transfer capability constraints
10. How to develop annual qualifying capacity lists
11. Other items

ISO identified four principles to guide Regional RA policy development

1. ISO will strive to align new rules for regional RA with current RA program that is in effect
2. Accommodate different LRA procurement programs
3. Ensure LSEs provide sufficient capacity to meet their allocation of forecast operating needs to avoid capacity leaning
4. Provide incentives for LSEs to provide resources to ISO that are aligned with ISO operational needs

Stakeholders generally agree with the ISO's proposed policy development principles

- Request ISO balance need for reliability, reasonable costs, respecting multiple jurisdictional authorities, and avoids allowing “leaning” on system
- General support for simplification and “need to have” items
- Support allowing LRA's current procurement practices and discretion to extent possible
- Believe principles are reasonable, but also acknowledge it may be difficult to meet all objectives
- Some stakeholders suggest ISO take this opportunity to assess best practices and revisit current RA construct

The ISO has raised a question regarding whether standard requirements are needed

- Possible that regional structure needs standard requirements across an expanded balancing authority area (BAA)
- Without standard requirements there may be concerns
 - Equity concerns, i.e., entities “leaning” on other entities where there are disparate requirements among entities
 - Reliability concerns, due to insufficient procurement to meet operational needs

The ISO believes this is a fundamental question that needs to be addressed now, as it influences much of the discussion for this initiative

There are two general directions that could be pursued through Regional RA initiative, each with pros and cons

Model 1:

No standardized requirements and allow LRAs to set their own requirements, which may have equity (leaning) and reliability consequences

Model 2:

Have standard requirements, which would prevent leaning but will reduce some LRA discretion and flexibility when establishing RA requirements

Comments on standardized RA requirements

- Stakeholders provided comments both in support and opposition to standard RA requirements
- Some see benefits to having more standard RA requirements, i.e., Planning Reserve Margin (PRM) and minimum counting criteria
 - Could help to identify and prevent or properly allocate risks and costs of entities leaning
 - Better allow realizing benefits of transacting for RA resources across a regional footprint
- Some believe standard RA requirements are not needed and current flexibility provided to LRAs works well and is appropriate and necessary
 - Allows LRAs to exercise greater discretion in resource planning and procurement

Stakeholders support making the ISO tariff language more generic

- Current structure with recognition of CPUC jurisdictional entities and non-CPUC jurisdictional entities will need to change to accommodate additional entities that will have a role in a regional ISO. (PAC, BAMx, NIPPC, ORA)
- Updating CPUC and non-CPUC references to more generic LRA seems appropriate. It is unclear if this change is solely administrative. ISO should be clear on whether these changes are expected to have additional impacts on RA program. (PG&E)

The ISO has suggested expanding default tariff provisions to create a full RA program

- ISO's current default tariff provisions should be expanded such that they cover and create an entire RA program
- LRAs that do not wish to create their own RA program could then choose to
 - Not to develop their own RA programs
 - Instead, choose to use the ISO's default RA program
- ISO understands from LRAs that there may be interest from LRAs in this approach

General support for updating default tariff provisions to ensure they cover a comprehensive RA program

- Stakeholders believe it is appropriate to update default tariff provisions that would be applicable when an LRA does not set specific requirements
- Some stakeholders are concerned that default RA provisions would need to be updated regularly and could negatively impact entities under jurisdiction of LRAs that have already established their own RA Programs
 - This is **NOT** the ISO's intent
 - Default RA provisions would **only apply** to entities under jurisdiction of LRAs that have **NOT** established their own RA programs

Comments on updating default tariff provisions to ensure they cover a comprehensive RA program

- ISO should better align default tariff provisions with current conventions and to accommodate additional resource technologies, i.e., energy storage. Default tariff provisions should be based on industry best practices that consider both reliability and cost. (PAC)
- ISO should identify what must be included in an RA program. (PAC)
- Default provisions are necessary, but not sufficient to ensure equitable RA treatment across large geographic areas. (WPTF)

Elements that should be included in default tariff provisions to comprise a default RA program

- PRM
- Standardized load forecast
- Capacity procured in advance
- System, local and flexible capacity requirements
- Rules for “counting” MW value of resources
- Requirements to offer RA capacity into ISO market
- Procured resources must be “deliverable” to load
- Formal process to review procurement reports
- Clear *ex ante* consequences for noncompliance and poor performance

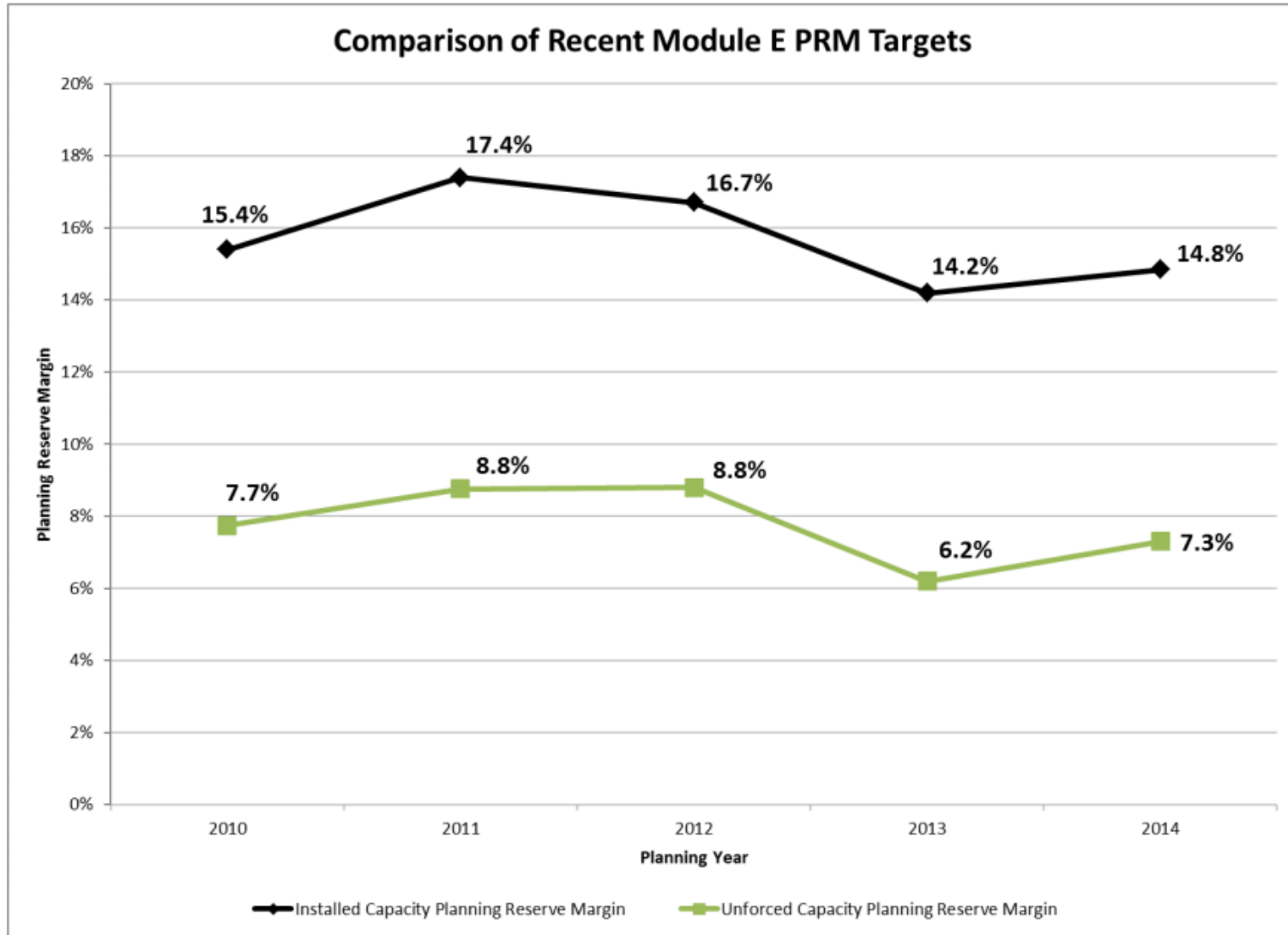
Stakeholders have varying positions on load forecasting

- Some stakeholders believe California Energy Commission should be asked to conduct load forecasting in expanded BAA
- Some stakeholders believe that ISO or another third party should be responsible for developing load forecasting in expanded BAA
- Others believe that PacifiCorp should provide load forecasts for its service areas and publish accuracy of results yearly
- Whatever process is developed should continue to allow for interested parties to participate and be an open and transparent process that properly accounts for jurisdictional programs such as energy efficiency and demand response policies

How does MISO deal with load forecasting and Planning Reserve Margin (PRM) requirements?

- MISO develops system and zonal load forecasts through a “bottom-up” approach
 - Uses individual load forecasts submitted by each LSE
- Conducts a yearly loss of load expectation (LOLE) study
- PRM requirements for system and zones determined by probabilistic LOLE analysis such that LOLE for planning year is one day in ten years (1-in-10), or 0.1 day per year

Comparison of MISO System PRM targets



Stakeholders have varying positions on how to determine RA requirements

- Some stakeholders do not see a need for standard RA requirements and indicated support for continued discretion to LRAs setting RA requirements including Planning Reserve Margins (PRM)
- Some stakeholders support standard RA requirements such as a uniform system wide PRM and a minimum PRM thresholds
- Any changes to setting RA requirements should not negatively affect parties that are already subject to an LRAs RA requirements and procurement programs

Comments on how to determine RA requirements

- Variation in reserve margins amongst LRAs would result in unequal contribution to regional reliability. Appropriate PRM balances reliability and loss of load events with associated ratepayer costs and impacts. (ORA)
- ISO should explain extent to which any RA obligations exceed NERC requirements. (NIPPC)
- Reserve requirements should not be standardized and tariff revisions should recognize PRMs developed by LSEs and acknowledged or approved by LRAs. (PAC, NCPA)

Comments on how to determine RA requirements

- WPTF asks ISO to consider a standardized minimum PRM and proposes ISO mandate a minimum PRM value as well as a default PRM value. For example, using 5.5% forced outage allowance under ISO's RA Availability Incentive Mechanism and an assumed load forecast error of 7%, ISO would mandate a minimum PRM of 12.5%. (WPTF)
- ISO should ensure that reliability enjoyed or costs experienced by LSEs flow from their LRA's choices in selecting a PRM. It is important that consequences of such a choice, positive or negative, rest with LSEs subject to LRA's jurisdiction. (BAMx)

Stakeholders have questions about revising methodology to determine maximum import capability (MIC)

- General agreement that ISO should consider what changes may be necessary to MIC methodology for a regional organization
- Stakeholders requested further information regarding this issue
- Concerned with ensuring reliability while allowing imports and respecting existing transmission rights of new entities in expanded BAA

Questions on revising methodology to determine maximum import capability (MIC)

1. Will all new interties points be eligible as RA points, as under current system?
2. How much new RA intertie capacity will there be with PacifiCorp integration?
3. Does having a large increments of new RA intertie space create any new reliability issues?
4. Will the space for new interties be allocated in same manner as today?
5. How much, if any, of the RA intertie capacity is going to be grandfathered to joining entity, and what are market impacts of such grandfathering? (WPTF)

Comments on revising methodology to determine maximum import capability (MIC)

- ISO should allow continued use of legacy transmission rights so new entrants can continue to use imports in their RA programs in perpetuity. (PAC)
- ISO may need to address potential problems that could arise using the current ISO MIC methodology. Will congestion issues within areas of the BAA require changes to import classifications and new methodology for calculating imports? (ORA)

Stakeholders support tariff provisions to account for transfer capability constraints on system

- Stakeholders are generally supportive of studying and reflecting constraints that may affect the reliable transfer of capacity among different areas of expanded BAA
- Stakeholders want any transfer constraints that are imposed to recognize existing transmission rights
- Supportive of developing tariff provisions to analyze and develop zonal transmission transfer constraints for RA purposes in expanded BAA
- Using zones may increase the need to evaluate differences in QC counting rules

Comments on tariff provisions to account for transfer capability constraints on system

- Adoption of zonal transfer constraints may be needed to ensure RA procurement accounts for paths with limited transmission transfer capability. Further studies on transfer limitations in expanded footprint are needed to help identify zonal transfer constraints and inform RA counting constraint methodology. (PAC)
- Zonal transfer constraints methodology should honor any legacy transmission rights on limited transfer capability paths. (PAC)
- As use of zones expands, benefits and risks of alternate counting mechanisms need to be vetted among stakeholders. (BAMx)

ISO received limited comments on how annual qualifying capacity lists should be developed

- ISO currently works with CPUC to develop QC and NQC lists each year; CPUC develops QC list and submits to ISO for deliverability analysis which is a key input to NQC list
- Who will the ISO work with, and how, to develop QC and NQC lists for regional organization?
- ISO received limited feedback on this topic
- ISO believes this item should still be within initiative scope and welcomes any additional feedback
- Comments support a similar process to current method for developing QC lists

Other topics that the ISO should consider were identified in stakeholder comments

- Local capacity requirements
- Flexible capacity requirements
- Deliverability
- Backstop provisions
- Resource showings and compliance
- Consider broad review and changes to current RA provisions
- More info on PacifiCorp LRAs and LSEs

Local capacity requirements determination should be evaluated

- ISO needs to determine whether LCR study methodology needs to change given an entity like PAC joining. (PAC)
- Transmission system in Pacific Northwest is highly interconnected between multiple LSEs with existing resources often remote from load pockets reliant on transmission system for import into load pockets. RA local capacity requirement basis and methodology may need to be revised to meet needs and existing operability of diverse topology of an expanded BAA. (PAC)

Flexible capacity requirements and allocation process should be evaluated

- ISO determination and assigning flexible capacity need is communicated to LRAs, which in turn allocate flexible capacity need to LSEs. This process should be revised to accommodate transformation toward a regional ISO. (PAC)
- Alternative approach that assigns flexible capacity requirements directly to LSE, at least for new entrants to a regional ISO, is likely required. (PAC)

It will be important to carefully consider ISO's application of backstop provisions

- How ISO's backstop authority would apply in expanded footprint is issue that requires careful consideration to ensure it is modified as necessary to work well with existing RA programs in expanded footprint. (NIPPC)
- In broader regional ISO, PacifiCorp recommends ISO fully evaluate alternatives to its capacity procurement mechanisms in remedying RA deficiencies to account for potential unique differences in sub-regions or local capacity areas. (PAC)

Costs and benefits of backstop procurement should be assigned appropriately

- ISO should determine cumulative shortages by LRA or newly created zone. Allowing leaning will reduce efficiencies and provide incentives for LSEs to not fully demonstrate RA sufficiency each month....it is extremely important for planning requirements to be strictly enforced by ISO in order to provide LSEs and LRAs correct incentives to build and contract optimal resource set in short- and long-term. (WPTF)
- Costs for backstop resource procurement should flow to beneficiaries of such procurement. Within benefitting area, consideration should be given for differentials in planning margins maintained by individual LSEs. (BAMx)

Deliverability methodology should be evaluated

- Methodologies for assessing deliverability of resources within a regional ISO BAA and assessing deliverability of imports will need to be reevaluated to meet needs of a regional ISO. Deliverability for distributed generation may also need to be revised. (PAC)
- ISO's current deliverability methodology, built around delivering generation to "aggregate of load" may need adjustment (BAMx, NIPPC)
- System dispatch used in transmission deliverability assessment should be consistent with typical operating practices for ISO, not an N-2 outage condition. (AWEA-CalWEA)

Resource showings and compliance process may need to be revisited

- Current process for resource showing and compliance may need to be adjusted to reflect different regulatory structures outside of current ISO footprint as well as bilateral markets and non-contiguous service territories outside of ISO footprint.
- IRP processes are vehicle for showing that PacifiCorp is able to meet its load with required resources.
- LRAs acknowledge or accept IRP, which acknowledges utility's planned procurement of resources meets resource planning standards and guidelines adopted by a given LRA. (PAC)

The ISO should review and consider broad overall RA provision changes

- Rather than taking default position that existing framework should be extended, ISO should consider fundamental reforms that improve transparency, liquidity, and efficiency of RA framework. (Powerex)
- ISO should consider developing a mechanism to periodically review overall RA rules. ISO may be more successful in expanding its footprint if LRAs are confident that there is a defined timeline for a full review of RA requirements after ISO, LRAs, and LSEs have gained more experience working together. (NIPPC)

PacifiCorp and ISO should identify potential new LRAs and LSEs

- ISO and PacifiCorp should work together to prepare a summary of LRAs that have authority over LSEs within a merged balancing authority. Summary should identify which LRAs have authority over which LSEs and describe basic planning and decision processes that each LRA uses to oversee and direct generation and demand side management planning activities of their respective LSEs. (SDG&E)

5. Discussion of Current ISO Tariff Default Counting Rules

The ISO's default tariff provisions for determining resource QC values likely need to be revised

- Section 40.8 of ISO tariff sets forth criteria for determining qualifying capacity (“QC”) that apply only if an LRA has not established rules and provided those rules to ISO
 - Outlines types of resources that may provide QC and methodology for calculating QC for each resource type
- Provisions likely need to be updated to reflect latest counting methodologies currently in use in BAA
- Default QC rules are one aspect of creating a comprehensive default RA program
 - ISO intent is default counting rules would **NOT** apply to LRAs with established QC counting rules

Stakeholders had a range of responses on updating default QC counting rules

- Most stakeholders support updating ISO's default tariff provisions for counting resources QC values
- Some stakeholders suggest ISO explore minimum standards for resource's QC counting rules, and consider a standardized local, system, and flexible QC value for all resources
- Stakeholders suggest exploring ELCC method for use in default counting rules, some believe it would be a useful methodology, others question its value
- ISO default counting rules should defer to established LRA counting conventions

There are two default tariff provisions for counting resources that may no longer be needed

Provision Topic	Current Rule	Why no longer needed
Unit-Specific Contracts	Unit-specific contracts with Participating Generators or System Units will qualify as RA Capacity if the total MW quantity of all contracts from a specific unit do not exceed the total Net QC.	Outdated due to transition of use of resource IDs. ISO does not have jurisdiction of resource specific contracts.
Contracts with Liquidated Damage Provisions	Firm Energy contracts with liquidated damages provisions and specifies a delivery point internal to the ISO BAA entered into before October 27, 2005 is eligible to count as QC until the end of 2008. A SC cannot have more than 25% of its QC met by contracts with liquidated damage provisions for 2008.	Outdated resource type for RA. The use of these type of energy contracts was transitioned out of the RA program years ago. RA program is a capacity program.

There are certain default tariff provisions for counting resources that may need to be updated

Provision Topic	Current Rule	Why needs updating
Nuclear and Thermal	Based on net dependable capacity defined by NERC GADS information.	Current default may need to be updated to more current methodology
Hydro	Based on net dependable capacity defined by NERC GADS minus variable head derate based on an average dry year reservoir level.	Current default may need to be updated to more current methodology, and will need to consider if category split of “non-dispatchable” and “dispatchable” is needed.
Hydro- QF	Based on historic performance during the hours of noon to 6:00 p.m., using a three-year rolling average.	

There are certain default tariff provisions for counting resources that may need to be updated (continued)

Provision Topic	Current Rule	Why needs updating
Wind and Solar	Based on monthly historic performance during that same month during the hours of noon to 6:00 p.m. (three-year rolling avg.) If less than three years of operating history, the monthly avg. production factor of all units within the TAC area or an area determined by the ISO will be used.	Should update to current methodology.
Geothermal	Based on NERC GADS net dependable capacity minus a derate for steam field degradation.	May need to update to more current methodology.

- *There are other resource technologies that are currently being counted and may need to be included in the ISO's default counting tariff provisions.*

6. Next Steps

Next Steps and contact information

	Milestone	Date
➔	Post straw proposal	February 17
	Stakeholder meeting on straw proposal (Folsom, CA)	February 25
	Stakeholder comments due on straw proposal	March 11

Additional questions or comments can be directed to:
initiativecomments@caiso.com

Materials related to this initiative are available on the ISO website at:
<http://www.caiso.com/informed/Pages/StakeholderProcesses/RegionalResourceAdequacy.aspx>

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