TC-22, BP-22 and EIM Phase III Customer Workshop

June 23, 2020

AGENDA REVIEW AND FEEDBACK FROM PRIOR WORKSHOP

Agenda

Day 1 – June 23, 2020		
TIME*	**TOPIC**	**Presenter**
9:30 to 9:40 a.m.	Agenda Review & Safety	Rebecca Fredrickson Rachel Dibble
9:40 to 10:40 a.m.	Resource Sufficiency • Steps 5-6	Matt Hayes Libby Kirby Frank Puyleart Mariano Mezzatesta
10:40 to 11:00 a.m.	BREAK	
11:00 to 11:30 a.m.	Network Usage • Steps 5-6	Tracey Salazar Troy Simpson
11:30 to 12:00 p.m.	Requirements for Participating Resources: Non Federal Resource Participation • Steps 3-5	Eric King Bart McManus Ted Barham Kevlyn Baker
12:00 to 1:00 p.m.	LUNCH	
1:00 to 1:30 p.m.	Participating Resources: Base Schedule Timeline • Steps 3-4	Eric King Tracey Salazar
1:30 to 3:00 p.m.	Gen Inputs • Steps 3-4 Balancing Reserve Capacity	Libby Kirby Frank Puyleart Eric King Daniel Fisher
3:00 to 3:30 p.m.	Regional Planning Organization • Steps 5-6	Chris Jones Jennifer Gingrich
3:30 to 4:00 p.m.	Agreement Templates • Steps 5-6	Paula Gibson Rahul Kukreti
END OF DAY ONE		

** Times are approximate*

5/19 Workshop - Customer Comments

Topic	Comment Summary	BPA Response
Workshop Schedule	• Ensure sufficient time to engage customers in iterative process on important issues and if more time is necessary consider additional workshops. • Continue to notify customers of any procedural, topical or timeline changes in advance. • Ensure schedules are aligned on all documentation.	• Thank you for the comments we have added time and dates to give customers time to provide comments in the work plan proceeding these slides

Seller's Choice	• Clarify process for encumbering/unencumbering ATC for NT service, particularly for Seller's Choice.
	  • Clarify Reservation and Scheduling process for Seller's Choice
	• Clarify how an FTSR goes through the ATC process
	• Provide further examples of how impacts/effects of Seller's Choice are calculated.
	  • This analysis is important for any decision to extend.
	• Provide examples/analysis of how Seller's Choice impacts Hourly Firm ATC
	• Evaluate impacts of the NT MOA on ATC and propose to include in TC-22 proceedings.
	• Additional analysis is important to determining whether to support or oppose
	• Seller's Choice is a vital market alternative for NT customers for Mid-C market purchases
	  • Hourly Firm no longer reliable
	• Seller's Choice mitigates impacts resulting from limited Hourly Firm and absence of Preemption & Competition
		• Thank you for your comments the team is reviewing the comments are planning to have a customer meeting on July 15 to respond to customer comments during the customer led workshop.

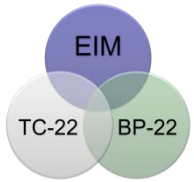
5/19 Workshop - Customer Comments (cont.)

Topic	Comment Summary	BPA Response
RPO	• Support Attachment K referencing NorthernGrid planning process to be most efficient and avoid discrepancies	• Thank you for your comments
Intertie Studies	• Both alternatives appear viable • Consider modification of Alt 1 to include option for customer to request a study • Some concerns with level of "BPA discretion in Alt 1	• Thank you for your comments. The team will consider your comments for alternative #1
Tariff Language	• Supports a separate service agreement for participation in EIM • Supports minor amendments to Attachment A for e-signature and such	• Thank you for your comments, they have been forwarded to the SMEs for consideration.
BP-22 Rates	• If possible, provide materials for Revenue Requirements and Risk as soon as possible to allow for internal vetting prior to workshops • Concerns with degradation of FBS, need to work with region to develop ways to improve value of FBS • DERBS service should be re-evaluated during BP-22 • Functionalization and assignment of GridMod and EIM costs should be addressed in BP-22 • Consider customer input on principles and requirements for a 7(f) rate discussion • 200 kW threshold for SGIP should be addressed in BP-22	• Thank you for your comments. The comments and suggestions are being considered and we will share with you at our next meeting when these topics are scheduled to be discussed.

5/19 Workshop - Customer Comments (cont.)

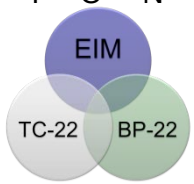
Topic	Comment Summary	BPA Response
General Comments	• Provide an update on Preemption and Competition with regards to BPA's plan to comply with Order 676-I and associated NAESB standards. • BPA must pursue policies that are fair and equitable to both NT and PTP customers.	• Thank you for your comments. We have an update at the customer let workshop on July 15
	• Undesignation of NT Resources should be included in TC-22	• The undesignation of is currently prioritized to be discussed in TC-24
	• No policy decisions on charge code allocation should be made until there is more data to support allocation and price signals.	• Thank you for your comments on the charge code cost allocation. The team will consider this and the Powerex presentation in its evaluation.
	• Provide requirements for small, non-participating resources if BPA joins the EIM	• Thank you for your comments on the requirements for the small and non participating resources. The requirements are included in today's presentation.

EIM Priority Issues



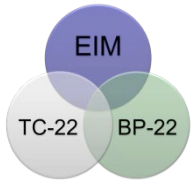
#	Issue	BP-22	TC-22	Future BP/TC
1	EIM Charge Code Allocation	X	?	X
2	EIM Losses	X	X	?
3	Resource Sufficiency	X	X	?
3a	- Balancing Area Obligations	X	X	?
3b	- LSE Performance & Obligations	X	X	?
3c	- Gen Input Impacts	X	X	?
4	Development of EIM Tariff Changes		X	?
5	Transmission Usage for Network	X	X	?
6	Requirements for Participating & Non-Participating Resources	X	X	?
6a	- Participating Resources: Base Scheduling Timeline			
7	Metering & Data Requirements		X	?
8	Evaluation of Operational Controls	X	X	?

Rates & Tariff Topics



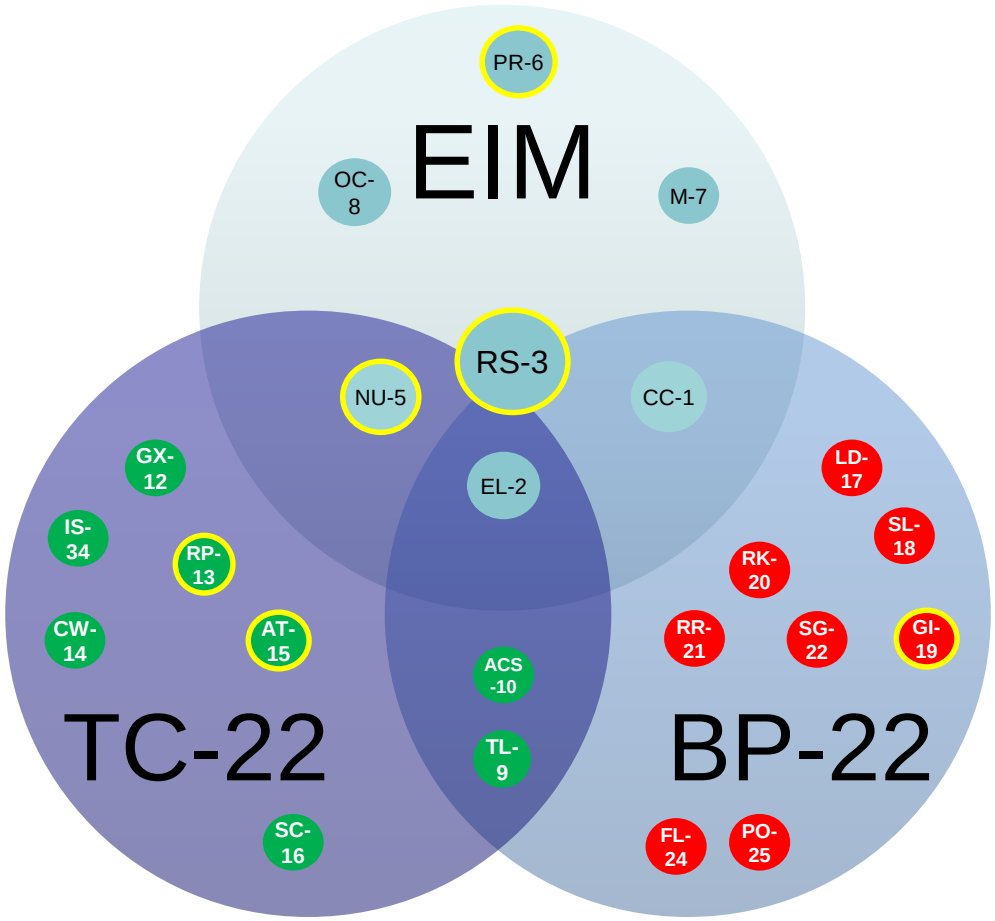
#	Topics	BP-22	TC-22	Future BP/TC
9	Transmission Losses	X	X	
10	Ancillary Services (Gen Inputs)		X	?
11	Debt Management (Revenue Financing)	X		
12	Generator Interconnection		X	
13	Regional Planning		X	
14	Creditworthiness		X	
15	Incremental/Minor Changes to Agreement Templates		X	
16	Seller's Choice		X	
17	Loads	X		
18	Sales	X		
19	Gen Inputs (assumed for BP-22)	X		
20	Risk	X		
21	Revenue Requirements	X		
22	Review of Segments	X		
23	Review of Sale of Facilities	X		
24	Financial Leverage Policy Implementation	X		
25	Power-Only issues	X		

Potential Future Rates & Tariff Issues



#	Issue	BP-22	TC-22	Future BP/TC
26	Simultaneous Submission Window			?
27	Study Process			?
28	Attachment C (Short-term & Long-term ATC)			?
29	Hourly Firm (TC-20 Settlement – Attachment 1: section 2.c.ii)			?
30	Required Undesignation			?
31	Reservation window for Hourly non-firm			?
32	Non-federal NT Redispatch			?
33	PTP/NT Agreement Templates			?
34	Intertie Studies			?
35	De minimus (TC-20 Settlement)			?

BP-22, TC-22 & EIM Integrated Scope



TC	
TL-9	Transmission Losses
ACS-10	Ancillary Services
GX-12	Generator Interconnection
RP-13	Regional Planning
CW-14	Creditworthiness
AT-15	Agreement Templates
SC-16	Seller's Choice
IS-34	Intertie Studies

BP	
LD-17	Loads
SL-18	Sales
GI-19	Gen Inputs
RK-20	Risk
RR-21	Revenue Requirements
SG-22	Segmentation
FL-24	Financial Leverage
PO-25	Power-only

EIM	
CC-1	Charge Code Allocation
EL-2	EIM Losses
RS-3	Resource Sufficiency
NU-5	Network Usage
PR-6	Participating Resources
M-7	Metering
OC-8	Operational Controls

XX-# Yellow Outline Denotes 6/23 Workshop Topics

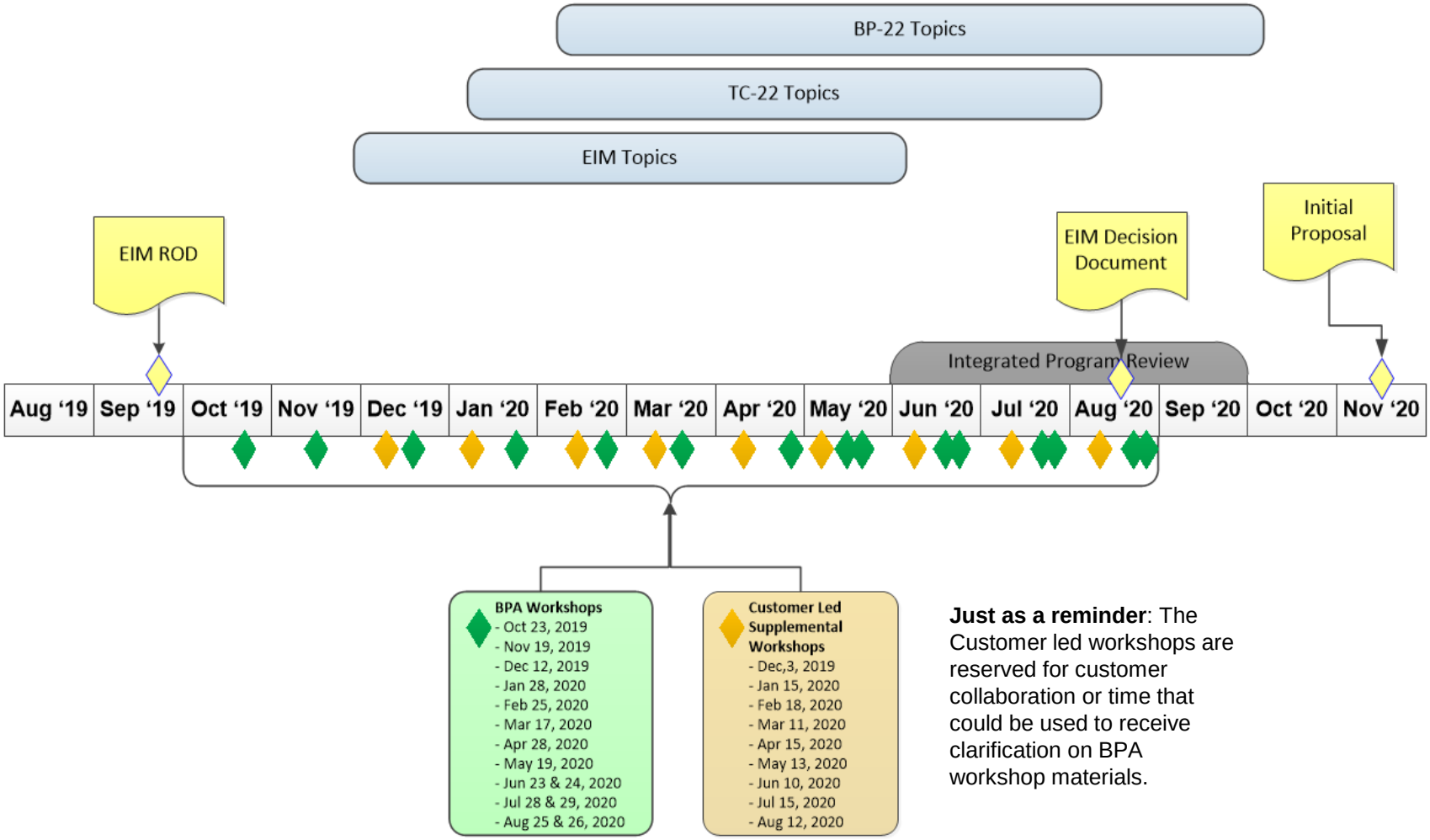
WORKPLAN AND PROPOSAL

Engaging the Region on Issues

- After every workshop, BPA will provide a two-week feedback period for customers.
  - Input can be submitted via email to techforum@bpa.gov. Please copy your Power or Transmission Account Executive on your email.
- Issues will be presented according to the following process at workshops (multiple steps might be addressed in a single workshop):

Phase One: Approach Development	Phase Two: Evaluation	Phase Three: Proposal Development
Step 1: Introduction & Education Step 2: Description of the Issue	Step 3: Analyze the Issue Step 4: Discuss Alternatives	Step 5: Discuss Customer Feedback Step 6: Staff Proposal

BP/TC-22 Proposed Workshop Timeline



Just as a reminder: The Customer led workshops are reserved for customer collaboration or time that could be used to receive clarification on BPA workshop materials.

TC-22, BP-22 and EIM Workshop Topics

June 23-24, 2020

- Resource Sufficiency — RS-3
  - Steps 5-6
- Ancillary Services: Generation Inputs — ACS-10
  - Steps 1-4
- EIM Transmission Usage for Network — NU-5
  - Steps 5-6
- Requirements for Participating Resources & Non-participating Resources — PR-6
  - Steps 3-4
- EIM Losses — EL-2
  - Steps 5-6
- Transmission Losses — TL-9
  - Steps 5-6
- Generator Interconnection — GX-12
  - Steps 3-4
- Participating Resources: Base Schedule Timeline — PR-6
  - Steps 3-4
- Agreement Templates — AT-15
  - Steps 5-6
- Regional Planning Organization — RP-13
  - Steps 5-6
- Review Tariff red line
- Transmission Rates — GI-19
  - Gen Inputs
- *TC-20 Topics*
  - Hourly Firm – share results (2.d) FINAL
  - Short Term ATC
- *Power Rates*

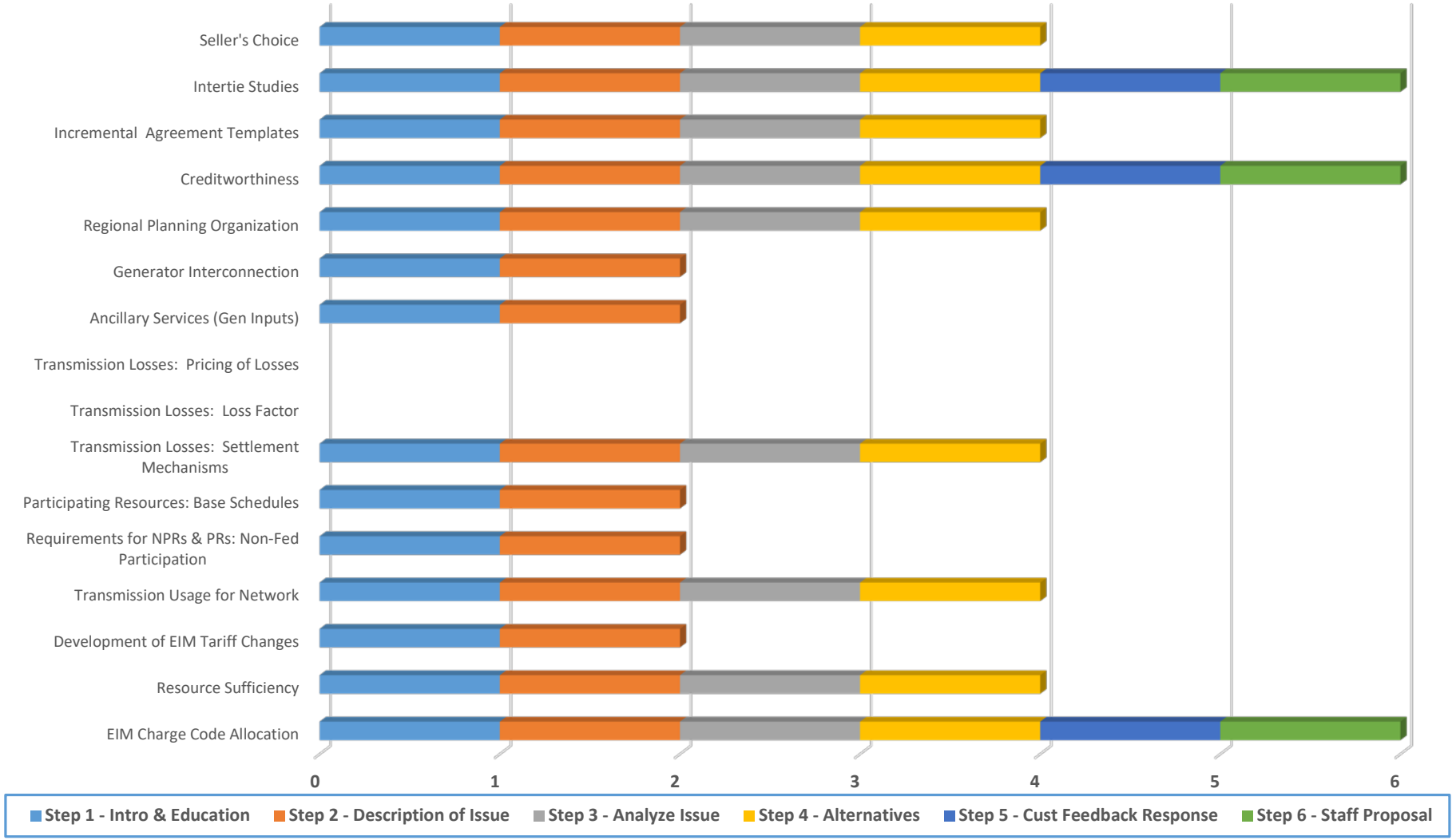
July 28-29, 2020

- Seller's Choice — SC-16
  - Steps 5-6
- Generator Interconnection — GX-12
  - Steps 5-6
- Ancillary Services: Generation Inputs — ACS-10
  - Steps 1-4 – EI/GI Service Rates and Penalties
- Requirements for Participating Resources & Non-participating Resources — PR-6
  - Steps 5-6 – Enabling Agreement
  - Steps 5-6 – Transmission Reservations
- Participating Resources: Base Schedule Timeline — PR-6
  - Steps 5-6
- Transmission Rates — GI-19
  - Gen Inputs
- Review Tariff red line
- Transmission Rates — SL-18, LD-17, RR-21
  - Sales
  - LGIA
  - EIM Charge Code Implementation
  - Cost Recovery of Losses
- Power Rates

August 25-26, 2020

- Summary of Topics & Policy – Staff Leaning through the end of August
- Transmission Rates — RK-20, RR-21, SG-22
  - Rate Schedules
  - Rates Modeling
  - Follow-up: EIM Charge Code Implementation
  - Follow-up: Cost Recovery of Losses
- Ancillary Services: Generation Inputs — ACS-10
  - Steps 5-6 EI/GI Service Rates and Penalties
  - Steps 5-6 BR Capacity Forecast
  - Steps 5-6 Scheduling Elections
  - Steps 5-6 Pricing
- Power Rates
  - Loads & Resources
  - Gas and Market Price Forecasts
  - Secondary Revenue Forecast
  - Transfer Service
  - Follow-up: Treatment of EIM Charge Codes

Status of Topics as of 6/22/20



ISSUE #3: RESOURCE SUFFICIENCY

Step 5: Discuss Customer Feedback

Step 6: Staff Proposal

Agenda

- BPA's Desired End State for RS
- Issue 1: What Options are Available to Balance the BAA in the EIM?
  - Steps 5 and 6:
    - Background
    - Discussion of customer feedback to alternatives
    - Staff proposal for solution to issue 1
- Issue 2: Should BPA Set a Pass Target for RS?
  - Steps 5 and 6:
    - Background
    - Discussion of customer feedback to alternatives
    - Staff proposal for solution to issue 2
- Issue 3: Should BPA Cover the Gap in the Balancing Test?
- Next Steps

Desired End State for RS

BPA's Desired End State

- BPA has visibility, via data, metrics, and processes, to monitor and track via performance criteria that sub-BAA entities are meeting their obligations

- Sub-BAA visibility is vital to evaluating the possible causes of imbalance and incenting behavior in the RS time frame towards meeting the following goals:
  - The gap at T-55 should be as small as possible
  - The BA shouldn't need to make large adjustments to base schedules after T-55 to balance the BAA

- BPA achieves a high pass rate for the RS tests

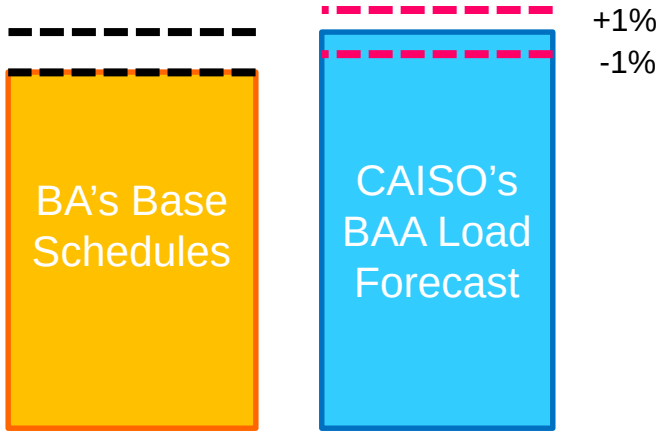
BPA's Desired End State

- BPA is able to measure and plan for the usage or potential usage of the FCRPS to balance the BA ahead of the hour, similar to how BPA sets aside capacity and monitors its deployment via balancing reserves within the hour.
- In developing policies, BPA should balance the complexity and impact of a solution with the size of the problem
- Full and timely cost recovery, considering cost causation while balancing the complexity and impact of a solution
- Achieving the desired end state will span beyond EIM go-live

Issue 1: What Options are Available to Balance the BAA in the EIM?

Balancing Test

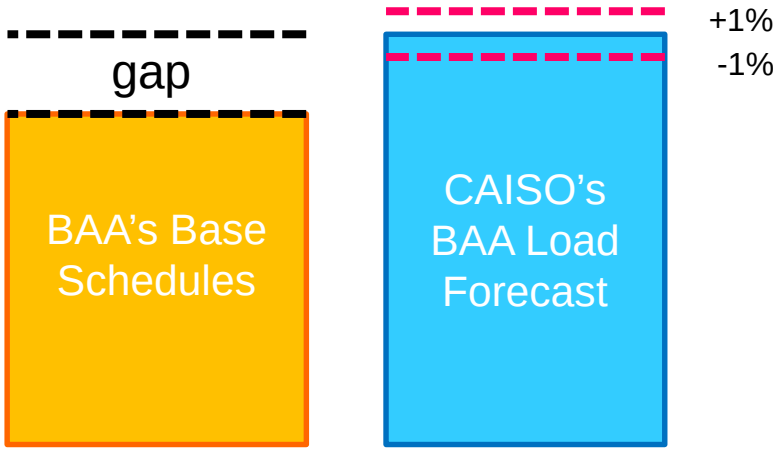
- The BAA's base schedules are the net of submitted gen base schedules and interchange schedules:
  - Everyone must finalize their base schedules and interchange schedules by T-55
- Every hour, the CAISO conducts 2 checks against the BAA's base schedules:
  - Were the BAA's base schedules at T-40 within +/-1% of the CAISO's BA load forecast?
  - Were the BAA's base schedules at T-40 within +/- 5% of the BAA's actual load (after-the-fact)?
    - Only conducted if BAA fails the first check
- If the BAA fails both checks, then it's charged an over/under scheduling penalty



Gap in the Balancing Test

- The gap in the Balancing Test at T-55 equals the difference between CAISO's BAA load forecast and the BAA's gen and interchange base schedules

- Everyone within the BAA can impact the gap in the Balancing Test
  - If CAISO's load forecast is under performing, this could also impact the size of the gap



RS Alternatives

At the March Customer Workshop, BPA committed to consider the following RS alternatives, which would apply prior to T-55:

1. Status Quo:
   - Everyone schedules to their best available anticipated load

2. Collection of load forecasts:
   - Everyone provides BPA with their own hourly load forecast for a certain time horizon
   - Everyone schedules to their best available anticipated load

3. Sub-allocation of CAISO's BA load forecast:
   - BPA provides everyone with a share of the hourly CAISO BAA load forecast
   - Everyone provides BPA with their hourly load forecast
   - Everyone schedules to their best available anticipated load

Staff Proposal for solution to Issue 1

Customer Comments

- Customers were generally supportive of submitting load forecasts to BPA to help BPA better manage the requirements of the Balancing Test

- Customers were not supportive of sub-allocating CAISO's BAA load forecast to the individual LSE level, and requiring that they schedule to this load forecast

Issue 1: Staff Recommendation

- For initial EIM entry, BPA will pursue Alternative 1: Status Quo
- Everyone schedules to their best available anticipated load, subject to EIM timelines
- BPA will not sub-allocate CAISO's load forecast or assign scheduling obligations
- As part of RS, BPA will not ask customers to submit a separate load forecast
  - However, The definition of Forecast Data and Sections 4.2.4 and 4.2.4.3 in Attachment Q have been added to the EIM tariff language documents and this data is expected to be used for RS analysis purposes.

Sub-BAA RS Assessment

- BPA will move forward with the status quo alternative for EIM go-live
- Everyone within the BAA can impact the gap in the Balancing Test, both customers and Power services
- Once in the EIM, BPA will conduct a data-driven assessment to determine whether BPA should adopt a sub-BAA RS policy to better manage the Balancing Test

Sub-BAA RS Assessment: Objectives

- Assess the hourly gap in the Balancing Test
- Assess the impact each sub-BAA entity has on the gap
- Determine whether BPA should adopt a sub-BAA RS policy in a future rate case

Sub-BAA RS Assessment: Analysis

- What is the magnitude and distribution of the gap in the Balancing Test?
- How accurately are sub-BAA entities scheduling to their actual loads?
- Can BPA assess each sub-BAA entity's share of the gap in the Balancing Test?
- Should BPA develop a scheduling performance standard for each sub-BAA entity?
- Questions on covering the gap in the Balancing Test:
  - What is the cost of balancing to CAISO's ALF?
  - What are the benefits of balancing to CAISO's ALF?
  - How should those costs/benefits be allocated to meet cost causation principles?

Issue 2: Should BPA Set a Pass Target for RS?

RS Tests

- A BA must pass the Capacity Test and the Flex Ramp Sufficiency Test (FRST) to be able to fully participate in the EIM
- A BA passes both tests if it has sufficient bid range capacity and ramp capability to meet the requirements
- Upon failure, a BA's EIM Transfers for the upcoming interval are limited to the previous 15-min interval's transfers

RS Alternatives

BPA evaluated 2 alternatives for managing the RS tests:

1. BPA does not set an expected RS pass target

2. BPA does set an expected RS pass target

Staff proposal for solution to Issue 2

Customer Feedback

- Customers were generally supportive of not setting an RS pass target

Issue 2: Staff Recommendation

- BPA will not set an RS pass target
- Setting a specific pass target:
  - Could significantly increase the complexity of EIM implementation
  - Does not align with EIM industry standards
  - Does not seem to be necessary for BPA to having a high pass rate
- BPA expects to frequently pass RS based on analysis it has conducted to date.

Issue 3: Should BPA Cover the Gap in the Balancing Test?

Options for Balancing

1. BPA balances to CAISO's BAA load forecast
   - BPA would aim to balance within 1% of CAISO's BAA load forecast
2. BPA balances to BPA's BAA load forecast
   - There is no guarantee that the BPA load forecast would be within 1% of the CAISO's BAA Load Forecast
   - However, based on staff analysis, the BAA would likely be scheduled within 5% of actual loads the majority of the time
3. BPA doesn't balance to any BAA load forecast
   - No guarantee that the BAA schedules would be within 1% of CAISO's BAA load forecast
   - The accuracy of BAA base schedules without any balancing is uncertain, as such the frequency that the BAA would be within 5% of actual loads is unknown
4. BPA Balances to a BAA forecast within a set of operational criteria

Go-Live Unknowns for Covering the Gap

- What is the cost of balancing to CAISO's ALF?
- What are the benefits of balancing to CAISO's ALF?
- What is the magnitude and distribution of the gap in the Balancing Test?
- How accurately are sub-BAA entities scheduling to their actual loads?
- Because of these unknowns it will be important for BPA to be flexible in the EIM and adjust how we approach the balancing test as necessary, regardless of the option chosen for go-live

Next Steps

Next Steps

- Provide customers with an update on EIM day 1 balancing in July or August

- BPA will begin planning for its post EIM go live assessment of the balancing test.
  - The data and analysis from this assessment will inform how BPA might adjust its operations in the EIM ahead of the 2024 rate/tariff cases.

Questions/Comments

ISSUE #5: EIM TRANSMISSION USAGE ON THE NETWORK

Step 5: Discuss Customer Feedback

Step 6: Staff Proposal

Agenda

- Review of Issue
- Review of Step 4: Possible Alternatives
- Step 5: Customer Feedback to Alternatives and BPA Response
- Step 6: Staff Proposal for Solution
- Update on Transmission Donation Process
- Responses to Miscellaneous Customer Comments

Review of Issue

Review of Issue

- **Issue:** Which transmission products should be eligible for Interchange Rights Holder donation of transmission for EIM transfers?

- **Objective:** Allow donation of transmission products by Interchange Rights Holders for EIM transfers that best considers the efficient function of the EIM via EIM transfers and the operational and commercial impacts to BPA's transmission system and customers.

Baseline: Terms of EIM Entity Tariff

- The CAISO tariff allows both the ATC transmission donation method and the Interchange Rights Holder donation method for EIM transfers. Both are available to EIM Entities.
- All EIM Entities that allow transmission donation by Interchange Rights Holders require donated transmission to be firm.
- Current EIM Entities have very few donations of transmission on their transmission systems by their Interchange Rights Holders because these EIM Entities allow donation of ATC by the EIM Entity.
- The Interchange Rights Holder donation methodology is currently used predominantly to transfer EIM energy across the BPA system.
- Other than on BPA's system, primarily non-firm transmission is used to transfer EIM energy donated through the ATC donation methodology.

Areas of Risk to Be Analyzed

- **Operations:** A successful alternative must not threaten BPA's reliable operation of the electric grid.
- **Market Efficiency:** The successful alternative should not unduly impinge on efficient market operation.
- **Transmission Revenue and Cost Shifts:** The successful alternative should mitigate risks to transmission revenue and undue cost shifts among customers

Areas of Risk to Be Analyzed

- **Customer Impacts:** The successful alternative should not negatively impact the quality of service that BPA's customers currently receive.
- **Cost and Implementation Complexity:** The successful alternative should be feasible in terms of direct costs and not present undue implementation risk due to technical or commercial complexity.

Review of Step 4: Alternatives

Alternatives

- Alternative #1, Status Quo: Allow only firm transmission to be donated for EIM transfers
  - This alternative is interpreted to mean all firm PTP products including conditional firm PTP.
  - Given the nature of NT service for service to load, the transmission products allowed to be donated for EIM do not include NT products
- Alternative #2: Allow both firm and non-firm PTP of any term to be donated for EIM transfers.
  - Given the nature of NT service for service to load, the transmission products allowed to be donated for EIM do not include NT products

Step 5: Customer Feedback to Alternatives and BPA Responses

Customer Feedback on Alternatives

Topic	Comment Summary	BPA Response
Risk, Pros/Cons of Alternatives	• Both Alternative #1 and Alternative #2 should be analyzed, including analysis of the pros and cons of each. • Customer is very interested in BPA's areas of risk to be analyzed (slides 53 and 54). • We agree that the risks listed on Slides 53-54 are worth exploring and encourage BPA to carefully consider these risks when considering which transmission products are to be donated for EIM transfers	Thank you for your comments. BPA has addressed the pros and cons/risks of the alternatives as part of Step 6, Staff Proposal for Solution.
Advantages of Alt. #2	Alternative #2 may offer increased flexibility and promote use of EIM transfers--subject, of course, to analysis of the pros and cons of this alternative.	Thank you. Step 6 addresses this advantage of Alternative #2.
Effects of NF PTP donations	Effects of allowing non-firm PTP transmission donation into the EIM and how that would impact the overall Transmission system usage.	Dynamic ETSR tags will be curtailed in NERC curtailment priority, so allowing non-firm PTP donations to EIM would not negatively affect customers using NT transmission or higher priority PTP transmission in terms of curtailment risk.
Non-firm Donations	It is our understanding that no other EIM Entity allows donations of non-firm transmission by Interchange Rights Holders. As such, we suggest that BPA take a cautious approach to this issue at the outset of joining the EIM to avoid any unintended consequences.	Thank you. Step 6 addresses the issue of deviating from the approach to IRH donations of other EIM Entities.

Customer Feedback on Alternatives

Topic	Comment Summary	BPA Response
Seams Issues	BPA should address any potential seams issues that may be caused by non-firm donations. If BPA allowed customers to donate firm and non-firm transmission to the EIM using the IRH approach (Alternative 2), there may be situations where the non-BPA side of the Dynamic ETSR employs the IRH method using firm transmission, while the BPA side will have non-firm transmission.	BPA doesn't believe this is a problem for operational purposes. The current EIM Entities may want to revise their tariffs to allow non-firm donations by IRH.
Unlimited Hourly NF	As BPA has recognized, Alternative 2 appears misaligned with BPA's current unlimited offering of non-firm transmission service. Alternative 2 could lead to excessive transmission service donations, which, in turn, could hamper EIM performance in the process.	Transmission that is available for EIM Transfers generally helps improve the performance of the market. However, the CAISO models the operational constraints of BPA's transmission system and BAA in the EIM dispatch so reliability shouldn't be impacted by "excessive transmission service donations."
Trans. Revenue and Cost Shifts	Transmission Revenue and Cost shifts. Customer would like robust cost recovery mechanisms in place so EIM users pay appropriately for the use of BPA's transmission system.	Allowing only donations by IRH ensures that BPA is compensated. See analysis of Alternative #2 for cost shifts.

Customer Feedback on Alternatives

Topic	Comment Summary	BPA Response
Curtailment Issues	Alternative 2 could subject customers to additional curtailment charges solely because the donated transmission is lower in curtailment priority. BPA should address whether, and to what extent, curtailments unrelated to EIM dispatches would increase costs on customers donating curtailed transmission to the EIM within the Alternative 2 framework.	EIM will redispatch offered resources to help manage congestion. ETSRs, firm or non-firm, help it achieve those outcomes. As such, ETSRs can help reduce the likelihood of curtailments, which would benefit BPA customers.
Hourly Firm	Alternative 1 can be facilitated through the hourly firm product. Robust and effective EIM participation through the Alternative 1 (firm donation only) framework can be facilitated on BPA's system through the hourly firm product.	BPA is proposing to continue offering hourly firm PTP with current limitations in the TC-22 initial proposal. However, the hourly firm PTP product doesn't address all the issues associated with requiring firm transmission donations. For instance, Interchange Rights Holders with unused LTF PTP on a non-EIM path wouldn't be able to redirect that LTF to an EIM path for donation to EIM on the day of delivery.

Step 6: Staff Proposal for Solution

Evaluation of Alternatives - Common Decision Criteria

Decision Criteria	Alternative 1: Status Quo, Only Firm PTP Transmission Donations	Alternative 2: Firm and Non-Firm PTP Transmission Donations
#1: BPA tariff language is aligned with the pro forma tariff and/or industry standard	• Consistent with definition of IRH in other EIM Entity tariffs	• Inconsistent with definition of IRH in other EIM Entity tariffs • But consistent with the donation of both firm (IRH methodology) and non-firm (ATC methodology) in other EIM Entity tariffs
#2: BPA's participation is consistent with its statutory, regulatory, and contractual obligations.	• Consistent	• Consistent
#3: BPA is able to maintain reliable delivery of power and transmission to its customers	• Would not impact the reliable delivery of power and transmission	• Provides for increased donations of transmission to EIM. In general, the greater the donations, the more able EIM is to dispatch around constraints on the BPA system.
#4: BPA's participation is discretionary and BPA retains its ability to effectively exit the market in the event participation is no longer consistent with these principles	• Presents no risk	• Presents no risk
#5: Consistent with a sound business rationale	• Consistent with sound business rationale as discussed below	• Consistent with sound business rationale as discussed below

Evaluation of Alternatives - Topic Decision Criteria

Areas of Risk to Be Analyzed	Alternative 1: Status Quo, Only Firm PTP Transmission Donations	Alternative 2: Firm and Non-Firm PTP Transmission Donations
Operations: A successful alternative must not threaten BPA's reliable operation of the electric grid	• Does not threaten reliable operation of the grid	• Provides a higher level of transmission donations which would increase the EIM's ability to help manage congestion on the BPA system.
Market Efficiency: The successful alternative should not unduly impinge on efficient market operation	• Presents a risk to market efficiency • Firm redirect deadline limits RT flexibility • Limited firm ATC on certain paths	• IRH could donate non-firm much closer to hour of delivery • Eliminates firm ATC constraint that could limit donations
Transmission Revenue and Cost Shifts: The successful alternative should mitigate risks to transmission revenue and undue cost shifts among customers	• Presents no risk that PTP transmission customers would reduce their long-term firm transmission purchases in favor of non-firm	• Presents little risk of loss of LT firm PTP revenue (see following slide)
Customer Impacts: The successful alternative should not negatively impact the quality of service that BPA's customers current receive	• Would not impact quality of customer service negatively	• Would not impact quality of customer service negatively • Does not negatively impact availability of 6-NN to NT customers
Cost and Implementation Complexity: The successful alternative should be feasible in terms of direct costs and not present undue implementation risk due to technical or commercial complexity	• Does not require significant expenditures for updates of systems or present significant implementation risk	• Does not require significant expenditures for updates of systems or present significant implementation risk

Transmission Revenue Risk

- Under Alternative 1 there is no incremental risk that customers will decrease LTF purchases as a result of the EIM transmission donation policy.
- Under Alternative 2 there is little risk that customers will not roll over some LTF purchases because they can donate non-firm transmission to EIM. This conclusion is based on the fact that:
  - There are relatively small cost savings from switching to HNF for some customers.
  - It would be extremely difficult to determine how much HNF to buy on which hours for donation to EIM. Customers who attempted to do so would surely miss out on many opportunities to benefit financially from EIM dispatches.
  - LTF PTP service allows customers to optimize its use over multiple markets, provides redirect opportunities and provides long-term benefits due to encumbrances over constrained paths.

Staff Recommendation

- Given the risk to market efficiency under Alternative 1 and the similar risk between Alternatives under the other decision criteria, staff recommends Alternative 2, allow both firm and non-firm PTP transmission to be donated for EIM transfers.
- The recommendation is a deviation from industry standard (Interchange Rights Holder donations must be firm). Allowing non-firm transmission donations to EIM will create a significant benefit to the region because it will enable more flexibility for donations of transmission to the EIM.

Proposed Tariff Language

Definition of BPA Interchange Rights Holder:

A Transmission Customer who has informed the BPA EIM Entity that it is electing to make reserved firm and non-firm PTP transmission capacity available for EIM Transfers without compensation.

UPDATE ON TRANSMISSION DONATION PROCESS

Real Power Losses for EIM Transfers

- In the March workshop, BPA stated that it is exploring whether donated transmission would incur a wheeling loss obligation (slide #18).
- While the EIM ensures that any incremental losses due to EIM Transfers are physically supplied to ensure BAA power balance, each EIM Entity is financially obligated through EIM neutrality (RTIEO – Cc 64770) for the costs of providing the incremental losses regardless of whether the energy is provided by a resource inside of the BAA or by a resource outside the BAA via an EIM Transfer.

Real Power Losses for EIM Transfers

- While exempting loss paybacks for EIM Transfers would remove a hurdle to donation, given the financial obligation of the EIM Entity for any incremental losses created by and supplied by market energy, BPA should retain its existing practice of assessing loss returns on donated transmission for EIM transfers to minimize the financial risk to BPA and its customers.
- The implementation costs and complexity of assessing loss returns on EIM transfers is minimal.
- With actual market data and operational experience, BPA can revisit this issue in a future rate case if there is cause to do so.

MISCELLANEOUS CUSTOMER FEEDBACK

Miscellaneous Customer Feedback

Topic	Comment Summary	BPA Response
Dynamic ETSRs	BPA appeared to indicate at the March 17 workshop that, for dynamic ETSRs between BPA's BA and another BA, if one of the BAs requires firm transmission to another BA, then the dynamic ETSR would have to have firm transmission. BPA should clarify its statement in this regard and describe the specific conditions under which such a requirement would apply	This was a misstatement by BPA staff. Dynamic ETSRs do not have to have the same firmness of transmission on all transmission legs.
Transmission Donation Deadline	BPA should not require Transmission Customers to make their Transmission donations far in advance of the market interval. For example, PacifiCorp requires such donations to occur by T-75.	The deadline for transmission donation is within the scope of Issue #6.
ETSR loss obligation	BPA should evaluate whether aggregated Dynamic ETSR loss obligations can be assigned in a manner consistent with cost causation principles, or if such loss obligations can or should be waived.	This issue is under review by BPA staff. A recommendation will be shared with customers.
Dynamic Transfer BP and Curtailment of ETSRs	• Does BPA intend to revise its Dynamic Transfer Operating and Scheduling Requirements Business Practice, or other Business Practice, to allow curtailments of Dynamic Transfers for EIM (i.e. Dynamic ETSRs? • BPA should also provide transmission customers with a comparison of its Curtailment Methodology for both non-EIM and EIM dynamic transfers.	BPA will curtail Dynamic ETSRs consistent with its BPs. There will be no difference between the curtailment methodology for non-EIM and EIM dynamic transfers.

Miscellaneous Customer Feedback

Topic	Comment Summary	BPA Response
Coordinated Transmission Agreement	• What is the role of the CTA once BPA becomes an EIM Entity? • Will BPA seek modifications to the CTA and its Rate of Change Policy? Why or why not? • Will BPA resources be constrained by the rate of change constraints?	The CTA provides value to BPA regardless of whether BPA is an EIM Entity. BPA will evaluate if any modifications are necessary prior to go-live.
EIM Policy vs. Implementation Issues	• Customer thanks BPA for additional clarification of outstanding policy issues on EIM transmission. Customer will work with BPA on how to best engage on implementation details of EIM transmission.	Thank you.
Scope and Objective	• Customer thanks BPA for the additional information on EIM transmission donation and is supportive of BPA's modifications to the scope and objective.	Thank you.

Next Steps

- Please provide comments by July 8, 2020 to techforum@bpa.gov and cc your AE

ISSUE #6: REQUIREMENT FOR PARTICIPATING & NON-PARTICIPATING RESOURCES: Non-Federal Generation Located in the BPA BAA

Step 3: Analyze the Issue

Step 4: Discuss Alternatives

Step 5: Discuss Customer Feedback

ROD and EIM Participation

As part of Phase III, the ROD states that BPA will address EIM participation requirements for non-FCRPS resources.

BPA will develop tools and processes for non-FCRPS resources becoming EIM Participating Resources.

Included in BPA Tariff, Attachment Q, and the BPA EIM BP

- The BPA EIM Entity shall establish and revise, as necessary, procedures to facilitate implementation and operation of the EIM through the BPA EIM BP that shall be posted on the Transmission Provider's OASIS

Participating Resource Eligibility

The CAISO provides the ability for resources located in an EIM Entity's BAA to become an EIM Participating Resource.

The EIM Participating Resource will need to meet CAISO requirements as laid out in the CAISO Tariff and BPs

The EIM Participating Resource will need to meet BPA requirements as laid out in the BPA Tariff and BPA EIM BP

The EIM Participating Resource will need to register with BPA and CAISO – http://www.caiso.com/participate/Pages/Generation/Default.aspx

Technical Requirements of Participating Resources

Participating Resource in the BPA BAA

- Resources owned, controlled, or marketed by Transmission Customers and located within the metered boundaries of BPA's BAA are eligible to become BPA EIM Participating Resources. The Transmission Customer that owns, controls, or markets the resource must have an associated transmission enabling agreement

- A resource owned or controlled by a Transmission Customer that is not physically located inside the metered boundaries of BPA's BAA may participate in the EIM as a BPA EIM Participating Resource if the Transmission Customer implements a Pseudo-Tie into BPA's BAA

Customer Feedback Themes

- What, if any, new requirements will be placed on cogeneration resources?
- BPA staff is not aware of any additional requirements for a cogeneration resource.
  - A cogeneration resource will need to meet all the requirements of other resources that wish to be a Participating Resource

- Why will BPA not allow external resources to use dynamic schedules to support EIM participation?
- BPA addressed this in the Customer lead workshop in February

Customer Feedback Themes

- There is a belief that there can be positive benefits from allowing flexible loads to participate in the EIM. Has BPA considered this and what would be needed to in BPA's EIM implementation for these resources to participate?

- BPA agrees that there could be positive benefits from allowing flexible loads to participate in the EIM. However, given the work load of becoming an EIM participant, BPA needs to prioritize work streams. At this time, enabling load to participate in the EIM is not a top priority.
  - BPA plans to address Demand Response at a later date.
  - Load would need to be able meet all the requirements of a Participating Resource
  - Have to be treated as a non-conforming load in BPA load forecast
  - Have to have a Base Schedule and bid into the MO

Network Model and Dispatchable

- EIM Participating Resources must be accurately modeled in both the BPA EIM Entity and MO's network models and AGC.
  - BPA includes projects of 3 MW and larger in the Network model
  - Looking at other EIM Entities it seems to range from 1MW to 5 MWs

- The resource must be able to receive and respond to 5-min dispatch instructions from MO
  - Integrate to the Automatic Dispatch System (ADS)
  - BPA AGC system will still monitor the ADS dispatch and plant response.

Metering and Telemetry

Meet BPA's metering requirements (STD-00001 and STD-DC-00005)

https://www.bpa.gov/transmission/Doing%20Business/Interconnection/Pages/default.aspx

- BPAs current metering requirements are consistent with the CAISO metering requirements
  - Revenue accurate metering system configured for 5-min interval data
  - BPA access to the 5 min data (MV90 or equivalent)
  - All Participating Resources must meet the BPA's communication, telemetry, and data requirements for a generator of 3 MW for greater
- Resource can not be netted with load for energy imbalance (i.e. subject to Generation Imbalance)

EIM Participating Resource Responsibilities

- Settle IIE and UIE directly with the CAISO
  - The EIM Participating Resource will need to become a certified EIM Participating Resource Scheduling Coordinator, or retain an EIM Participating Resource Scheduling Coordinator that has been certified by the ISO to perform the functions of an EIM PRSC
- Submit meter data to BPA and the CAISO
- Submit Base Schedules to BPA and the CAISO
- Submit a BPA approved Master file (GRDT) to CAISO
- Integrate with Automatic Dispatch System
  - *ADS signal provided to BPA*
  - *BPA will use Dispatch Operating Target (DOT) for base point*
  - *BPA Dispatch can over ride with call to the plant*

Technical Requirements of Non-Participating Resources

Non-Participating Resource

Non-participating resources in the BPA BAA shall be represented by BPA as the EIM Entity Scheduling Coordinator (EESC)

For all resources 3 MW and greater:

- Submit to BPA the information required by the MO
  - BPA's EIM BP will contain a Non-Participating Resource Data Template ("NPRDT")
- Meet the BPA's communication, telemetry, and data requirements for a generator of 3 MW or greater so that it can be included in BPA's AGC
- To be included in the BPA and CAISO Network model
- Submit hourly Forecast Data of anticipated generation
  - Generation Forecast Data shall be submitted for each resource facility or each individual generating unit of the resource based on how the resource is represented in the network model
- EIM outage submissions requirements are not yet defined
- Experience UIE and potential IIE (settle with the EESC)

For the EIM, if a generator is not in the network model it is not considered a resource (negative load)

TX AGREEMENT
TX RESERVATION REQUIREMENT

Phase III Transmission Policy Issues

- Transmission Agreements Required for Participating Resources has been moved from Issue #5, EIM Transmission Usage on the Network, to Issue #6, EIM Non-Federal Resource Participation
  - Issue 1: What type of contract should be required for Participating Resources to ensure they are subject to the terms of the tariff and BPs?
  - Issue 2: What type of transmission reservation, if any, should be required for Participating Resources?

Customer Feedback Themes

BPA is encouraged to survey the approaches that other EIM participants have taken to answer these questions.
BPA will address this in following slides

One customer supports BPA creating a separate service agreement. They are concerned with the use of Attachment A given that various clauses in Attachment A are applicable to firm PTP customers and not to an entity that is only an EIM participant. Other entities use their PTP umbrella agreement for non-firm service.

BPA will address this in following slides

Survey of Other EIM Entities

- Transmission Agreements Required for Participating Resources
  - Issue 1: What type of contract should be required for Participating Resources to ensure they are subject to the terms of the tariff and BPs?
    - Current EIM Entities have adopted tariff language that requires Participating Resources to have either a Network Integration Transmission Service (NT) agreement, a firm PTP enabling agreement or a non-firm enabling agreement with the Transmission Provider associated with the EIM Entity
    - In practice, the other EIM Entities are using their non-firm enabling agreement for EIM Participating Resources not taking transmission service
  - Issue 2: What type of transmission reservation, if any, should be required for Participating Resources?
    - Current EIM Entities do not require Participating Resources to reserve transmission to participate in the EIM.

Objective and Decision Criteria

As BPA evaluates this issue the following objectives and decision criteria will be considered:

- Pro Forma Tariff and/or Industry Standards or Industry Best Practices
- Participating Resources in the BPA BAA are subject to the terms of the BPA tariff.
- BPA is compensated for use of its transmission that supports EIM dispatches.
- Promote an efficient EIM market
- Bonneville's participation is discretionary and Bonneville retains its ability to effectively exit the market in the event participation is no longer consistent with these principles.

#1: Transmission Agreement

Existing Service Agreements

- Minimal Administrative Burden for BPA and Customers
- Consistent with what other EIM entities are doing (BPA attachment A consistent with the non-firm template of others)
  - BPA's attachment A/PTP is applicable to both firm and nonfirm
  - BPA is proposing a change to address the service commencement language in Attachment A.
- Participating Resources in the BPA BAA would be subject to the terms of the BPA tariff
- BPA retains its ability to effectively exit the market - Little impact to EIMPRs

New Enabling Agreement for EIMPRs

- Administration Burden for BPA and Customers
  - A New Enabling Agreement would have to be developed
  - Need to include in EIM BP
- Not consistent with what other EIM entities are doing
- Participating Resources in the BPA BAA would be subject to the terms of the BPA tariff
- BPA retains its ability to effectively exit the market - Impact to EIMPRs who do not have an NT or PTP enabling agreement

BPA staff leaning is to use existing service agreements.
Note: It is not anticipate that there will be any entities in the next few years who would execute a PTP agreement unless they are also taking transmission service from BPA.

#2: Transmission Reservation

No Transmission Reservation (Base Schedule = 0 MW)

- May result in less Transmission revenue
- Aligns with industry best practices
- BPA is compensated for Transmission used in EIM (EIM uses donated transmission and transmission already purchased to serve load in the BAA)
  - Transmission donated to the EIM is paid for by the Transmission customer
- Impact EIMPRs who have not acquired transmission if BPA exits the market

Require Transmission Reservation to some extent

- Potential increase in Transmission revenue
- Does not align with industry best practices
  - Potentially inconsistent with the Commission's ruling on the 2014 PAC proposal
- BPA is compensated for Transmission use in EIM
  - May be viewed as over collecting for Transmission
- May limit participation by non-Federal resources due to the cost of acquiring transmission

BPA staff leaning is to not require transmission reservations for EIMPRs

Proposed Phased In Approach

Mid-TC-22

BPA registers and becomes an EIM Entity

6 months later

Non-federal Resources in the BPA BA can request to become an EIM Participating Resources

Approach implementation is subject to change by rate period, given factors such as information availability, implementation issues, and market changes.

TC-24

Address Demand Response participation in the EIM

Next Steps

BPA requests customer feedback on:

- Transmission Agreement Required for Participating Resources
- Transmission Reservation for EIMPRs

- Please submit to techforum@bpa.gov by July 8, 2020 (with a copy to your account executive)

ISSUE #6A: PARTICIPATING RESOURCES: Timing for Transmission Donations for ETSRs & EIM Base Schedule Timeline

Step 3: Analyze the Issue

Step 4: Discuss Alternatives

Timing for Transmission Donations for ETSRs

Customer Feedback Themes

- Can BPA provide more details on why only interchange rights holders should be allowed to donate transmission for the EIM?
- BPA: Any transmission customer can donate transmission to EIM by redirecting existing reservations to an identified interchange path or purchasing transmission on an identified interchange path and then donating it to the market. The market issues dispatches for BA to BA imbalances so it is concerned only with interchange paths, hence it is only interested in available transmission at the interchanges. For additional details see the Administrator Record of Decision.

Baseline: Tagging Transmission Donations for ETSRs

- BPA will follow the policy laid out in the implementation agreement to only allow Interchange Rights Holder Donation. BPA stated in the September 2019 ROD that BPA would not use the ATC donation method.

- **Note: The transmission donation for ETSRs is not the same as Base schedules for Interchange**

Industry Practice

- Other EIM entities require Interchange Rights Holders to tag their donations by T-75 and ATC (TSP) donations by T-40.

  The EIM Entity shall facilitate the provision of transmission capacity for EIM Transfers offered by an Interchange Rights Holder by providing the MO with information about the amounts made available by the Interchange Rights Holder for EIM Transfers. The provision of EIM Transfer capacity shall be implemented through the Interchange Rights Holder's submission of an e-Tag by 75 minutes prior to the Operating Hour ("T-75").

  The EIM Entity shall facilitate the provision of transmission capacity for EIM Transfers by providing the MO with information about the amounts available for EIM Transfers utilizing Available Transfer Capability ("ATC"). The provision of EIM Transfer capacity corresponding to ATC shall be implemented by 40 minutes prior to the Operating Hour ("T-40") by the EIM Entity.

Objectives and Criteria of Evaluation

Transmission Donation for ETSRs:

Establish a donation time line that:

- Is Pro Forma Tariff and/or Industry Standards or Industry Best Practices
  - Does not create seams issues between BPA's Interchange Rights Holder donations and other EIM Entities transmission donations
- Does not negatively impact Interchange Rights Holder use of transmission in other markets, and
- Allows for the donated transmission to be included in the Resource Sufficiency test

Alternatives

BPA is evaluating the following alternatives for Timing for Transmission Donations for ETSRs

- Alternative #1, Require Interchange Rights Holders to tag their donations by T-75
  - This Alternative is consistent with what other EIM Entitles have adopted
- Alternative #2: Allow Interchange Rights Holders to adjust their donation tags till T-40
  - Other EIM entities require Interchange Rights Holders to tag their donations by T-75 and ATC (TSP) donations by T-40.
  - BPA will follow the policy laid out in the implementation agreement to only allow Interchange Rights Holder Donation.

Time Line for Transmission Donations for ETSRs

Require Donation by T-75

- Consistent with what the other EIM entities require for Interchange Rights Holder Donation
- Would not create a seams issue
- Consistent with the schedule for the Resource Sufficiency tests, thus the donated transmission could be included in the Resource Sufficiency tests
- Could result in less transmission being donated for EIM use

Allow Adjustments till T-40

- Other EIM entities require donation by Interchange Rights Holders by T-75
- Possible seams issues with other EIM Entities transmission donations
- May impact RS test and the BA actions.
  - Parties may hold on to their transmission till later
  - Parties may reduce donation after the T-55 RS tests
- Could result in more transmission being donated for EIM use
  - Allows donation of unused transmission after submitting base schedules

BPA staff leaning is to requiring Interchange Rights Holders to tag their donations by T-75.

EIM Base Schedule Timeline

Baseline

- The EIM base schedule timeline establishes the points in time that data is needed, and the point in time against which imbalance is measured (IIE and UIE)
  - **It does not override the WECC e-tagging timeline**
  - Customers are still able to make e-tag adjustments or submit new e-tags based on existing FERC Order 764 timelines, however there may be financial consequences for changes made after the EIM financially binding point in time
    - Customers may submit schedules 20 minutes prior to each 15 minute timeframe
  - Such changes/new schedules may produce imbalance for the BAA

Customer Feedback Themes

- Customers submitted a number of questions related to the VREs example in the presentation.
- BPA: These questions were addressed at the May 19 customer-led workshop.

- Concern that the change in scheduling timelines will increase the exposure for VERBS in managing exposure to capacity reserves resulting in negative financial impact.
- BPA: These concern are being addressed in the Gen Inputs presentation later today.

Customer Feedback Themes

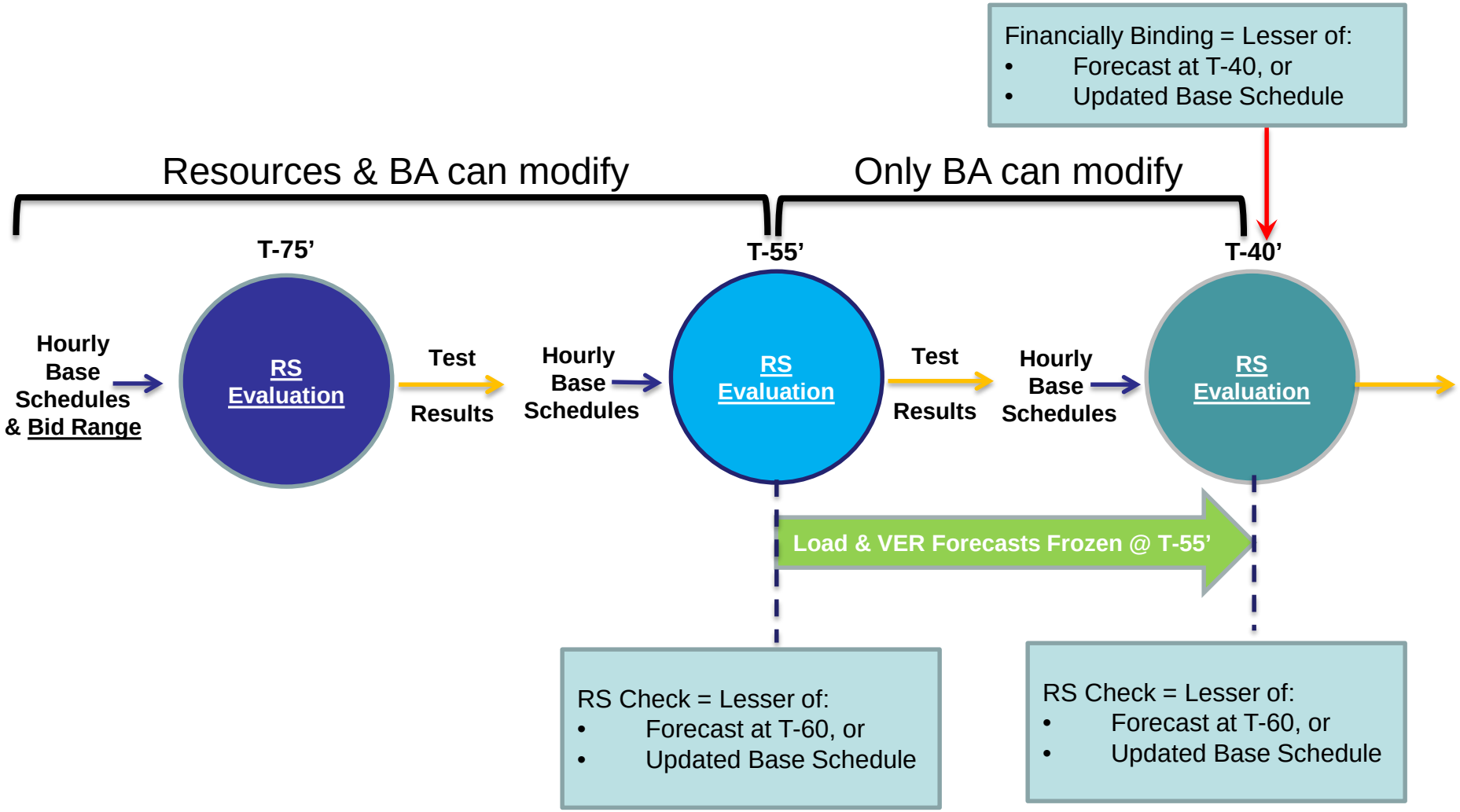
- The effect of applying a financially binding point prior to the WECC T-20 to any and all schedules:
  - Is likely to reduce the accuracy of schedules and increase imbalance MW quantities. Any requirements in this area should therefore be considered in conjunction with the allocation of EIM Entity charges and credits.
  - Has been to charge firm transmission customers EIM-based congestion costs for simply using the existing transmission rights they already paid for. this goes against the intended value proposition of “firm” transmission service.
  - Represents a significant change to the bilateral energy market that makes up the bulk of point to point use of BPA’s system.
  - BPA: The majority of bilateral trades are done prior to pre-schedule, which will not be impacted.
- BPA: The Market requires a financially binding point that is prior to the WECC T-20 . BPA will be looking at these concerns in the rate settlement process

Review of Scheduling Timeline Issues

BPA's current scheduling timeline is not compatible with the EIM Scheduling timeline.

- The EIM scheduling timeline requires financially binding base schedules be submitted significantly earlier than the WECC Scheduling Timelines that BPA follows today
- Failure to follow the EIM base schedule timeline could result in:
  - Economic impacts
  - Potentially not passing Resource Sufficiency test

Review of EIM Base Schedules for VERBS



Step 3: Analyze the Issue

Base Line: Initial Base Schedules

- CAISO base schedule time line requires
  - Initial Base Schedule due T-7 days
- The other EIM Entity base schedule time line requires
  - Transmission Customers with resources or load in the BAA shall submit their initial Transmission Customer Base Schedules to the BPA EIM Entity 7 days prior to each Operating Day (“T - 7 days”).
    - Forecast Data on all resources (significant enough to be continuously monitored for BAA operations), Interchange, and Intrachange, equal to the Transmission Customer’s anticipated load.
    - If the Transmission Customer does not serve load within BPA’s BAA, submission include Forecast Data on all resources, Interchange, and Intrachange and shall balance to the Transmission Customer’s anticipated actual generation.
  - Transmission Customers may modify the proposed Transmission Customer Base Schedule at any time but shall submit at least one update by 10 a.m. of the day before the Operating Day.

Baseline: Terms of EIM Entity

- The CAISO base schedule time line requires:
  - At T-75 Base schedules and energy bids are due (for resources)
  - At T-55 Updated base schedules are submitted if necessary (for resources)
  - At T-40 Updated base schedules are submitted if necessary (EESC)
- The Other EIM Entity in the Northwest have adopted Base Schedule timelines consistent with the EIM Scheduling Timeline.
  - Transmission Customers shall submit initial generation Forecast Data for each resource no later than 77 minutes prior to each Operating Hour (“T-77”). Transmission Customers may modify generation Forecast Data until 57 minutes prior to the Operating Hour (“T-57”). As of 55 minutes prior to each Operating Hour (“T-55”), the generation Forecast Data for the Operating Hour will be considered financially binding and Transmission Customers may submit no further changes.

Objectives and Criteria for Evaluation

Establish EIM Base Schedule Time Line that meet the following objectives and decision criteria:

- Pro Forma Tariff and/or Industry Standards or Industry Best Practices
  - Does not create seams between BPA and the other EIM Entities
  - That is conducive to EIM participation
- Facilitate Passing the Resource Sufficiency tests,
- Consider impact to transmission customers
- Is consistent with BPA's EIM participation model:
  - Provide sufficient time for EESC adjustment period for changes to base schedules – time for the BPA BA to do its job
- Minimize Cost and implementation complexity

Step 4: Alternatives

Alternatives

BPA is evaluating the following alternatives for Timing for Base Schedules

- Alternative #1: Status Quo: – All financially binding at T-57
  - Since BPA's current time line is not compatible with the EIM base schedule timeline, for purposes of this decision, the status quo will be based upon the EIM base schedule timeline in the transmission tariffs of the existing EIM Entities

- Alternative #2 T-50 - Allow change Base Schedules up to T-50
  - This would require the EESC to make base schedule changes on behalf of the customers after T-55
  - May require the BA to make offsetting adjustments to FCRPS base schedules in order to pass the RS and load over/under tests
  - Pushing the time for setting base points (no room for error); limited time to balance for BA need

Impacts of e-Tag Changes

	Impacts of eTag Change:	
Type of Transaction	T-55 to T-40 with corresponding Base Schedule change by EESC	T-40 to T-20; Base Schedule locked at T-40

Gen to Internal Sink	• Impacts Internal Sink EI
	• Puts BA out of balance
	  o BA could rebalance to avoid, but rebalancing resources results in financial impact.
	  o Internal Sink could rebalance with BTM Gen and no further impacts would occur.
	• Could result in RS Test Failure and, without rebalance, increased UIE for the BA and the O/U Scheduling Penalty.
		• Impacts Internal Sink EI and Gen UIE
		• Increases UIE for the BA and possibility of the O/U Scheduling Penalty.

Import to Internal Sink	• Impacts Internal Sink EI
	• Puts BA out of balance
	  o BA could rebalance to avoid, but rebalancing resources results in financial impact.
	  o Internal Sink could rebalance with BTM Gen and no further impacts would occur.
	• Could result in RS Test Failure and, without rebalance, increased UIE for the BA and the O/U Scheduling Penalty.
		• Impacts Internal Sink EI
		• Increases the RS Test requirements for future Bid Range Capacity Test.
		• Increases UIE for the BA and possibility of the O/U Scheduling Penalty.

Impacts of e-Tag Changes Continued

	Impacts of eTag Change:	
Type of Transaction	T-55 to T-40 with corresponding Base Schedule change by EESC	T-40 to T-20; Base Schedule locked at T-40
Gen to Export	• Equal and offsetting changes to eTag export and Gen Base Schedules will have no impacts o Unbalanced changes could result in BA out of balance, RS Test Failure, increases to UIE for BA, and the O/U Scheduling Penalty.	• Increases the RS Test requirements for future Bid Range Capacity Tests. • Increased UIE for Gen • Increased UIE for the BA and possibility of the O/U Scheduling Penalty.
Wheel-Through Transactions	• May have impacts to UFE for losses in the BA • No impacts to BA balance, RS Tests, IIE/UIE or O/U Scheduling Penalty outcome.	• May increase the RS Test requirements for the Bid Range Capacity Test. • May have impacts to UFE for losses in the BA • No impacts to BA balance, IIE/UIE or O/U Scheduling Penalty outcome.

Decision-Tree Based Alternatives

Status Quo: T-57

- Facilities Passing the RS test
- No Seams issue with other EIM Entities
- Consistent with BPA's EIM participation model:
  - Time for EESC to adjust base schedules
- Impact to Customers Due to financial binding earlier than today
- Potential congestion charges for Wheel-throughs

T-50

- Adds risk to Passing the RS test
- Additional administrative Burden
- Seams issues with other EIM Entities that require T-57
- Risk with BPA's EIM participation model:
  - Limited time for EESC to adjust base schedules
- Provides a little more time for customers, however it does not fully address the impacts:
  - Impact to Customers Due to financial binding earlier than today
  - Potential congestion charges for Wheel-throughs

Is there a compelling reason to adopt something other than Status Quo?

Next Steps

BPA requests customer feedback on:

- Risks to be analyzed for alternatives under consideration
- Transmission Donation Timing for ETSRs

- Please submit to techforum@bpa.gov by July 8, 2020 (with a copy to your account executive)

ISSUE #19: GENERATION INPUTS

Step 3: Analyze the Issue

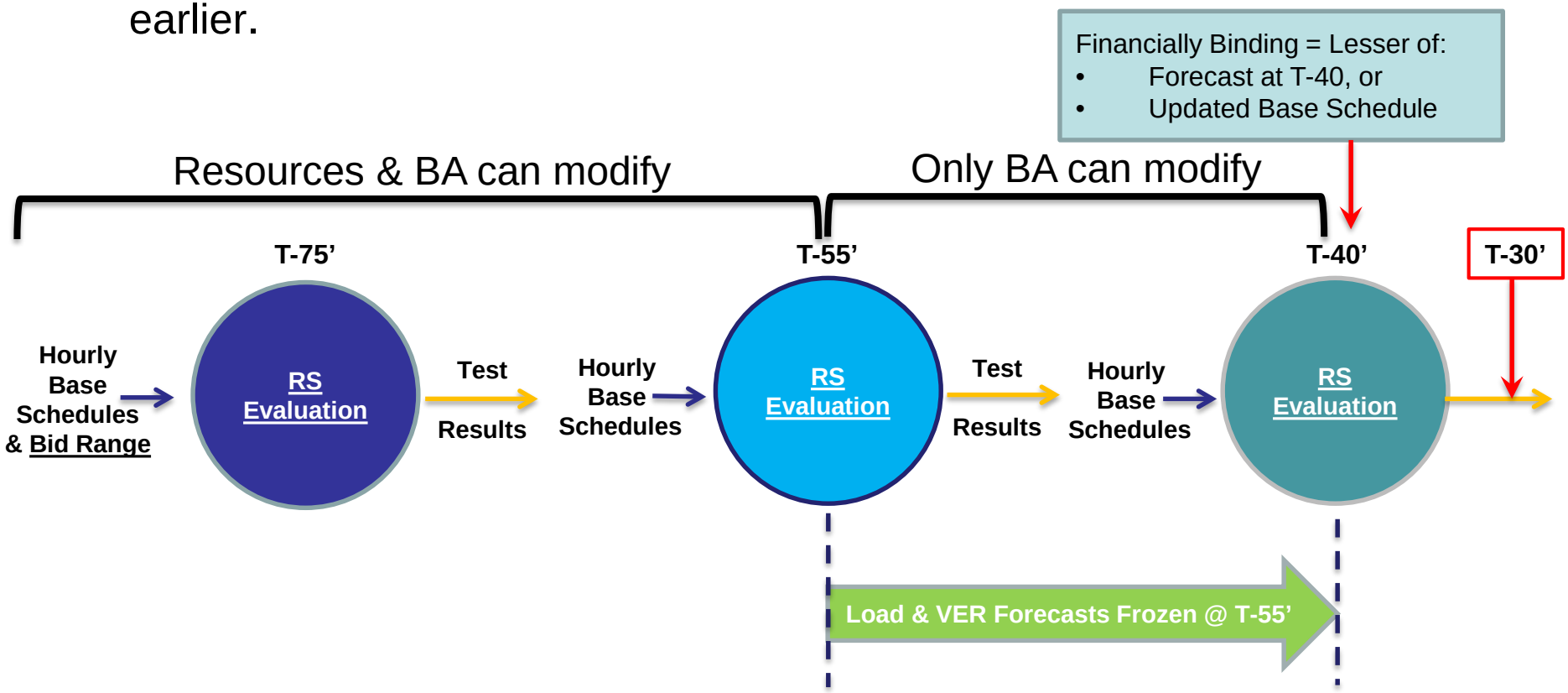
Step 4: Discuss Alternatives

Agenda

- VERBS Scheduling Elections in EIM
- Balancing Reserve Capacity Forecast
  - Change Comparison
  - Component Comparison
- Pricing
  - Embedded Cost
  - Variable Cost
  - Capacity Pricing
- ACS Rates
- Impact of Each Modeling Change
- Conclusion
- Staff Leaning and Next Steps

VERBS Scheduling Elections in EIM

- **Issue**: Under the EIM scheduling timeline, current BPA-offered scheduling elections of 30/60 Committed and 30/15 Committed are no longer feasible, as hourly base schedules are finalized significantly earlier.



Scheduling Elections in the EIM

- The EIM scheduling requirements and timeline requires financially binding base schedules be submitted significantly earlier than the WECC Scheduling Timelines that BPA follows today.
  - As a result, BPA's current Persistence Scheduling Elections are not compatible with the EIM Base Scheduling Timeline.

- The EIM base schedule timeline **does not override the WECC e-tagging timeline**
  - Customers are still able to make e-tag adjustments or submit new e-tags based on existing FERC Order 764 timelines, however there may be financial consequences for changes made after the EIM financially binding point in time.
    - Customers may submit schedules 20 minutes prior to each 15 minute timeframe, however,
    - In the EIM this does not reduce the Balancing Capacity need of the BAA, yet may negatively impact the RS test requirements

Scheduling Elections in the EIM

Benchmarking with EIM Entities

- One EIM entity offers schedule election based on:
  - Self-supplied Hourly Meteorological Forecast, or
  - Market Operator-supplied Hourly Meteorological Forecast
- Other EIM entities offer schedule election based on:
  - Self-supplied Hourly Meteorological Forecast, or
  - Market Operator-supplied Hourly Meteorological Forecast, or
  - BA-supplied Hourly Meteorological Forecast

- Other EIM entities direct assign the costs of the Market Operator-supplied forecast to parties that elect to use it.

BPA Scheduling Elections in the EIM

- The level of Balancing Reserve Capacity need for the BPA BA is linked to the accuracy of the VER forecast and schedules.
- BPA calculates the Balancing Reserve Capacity need using the BA supplied forecast.
- It is uncertain what the level of error would be in the Market Operator-produced forecast or a forecast supplied by the customer.

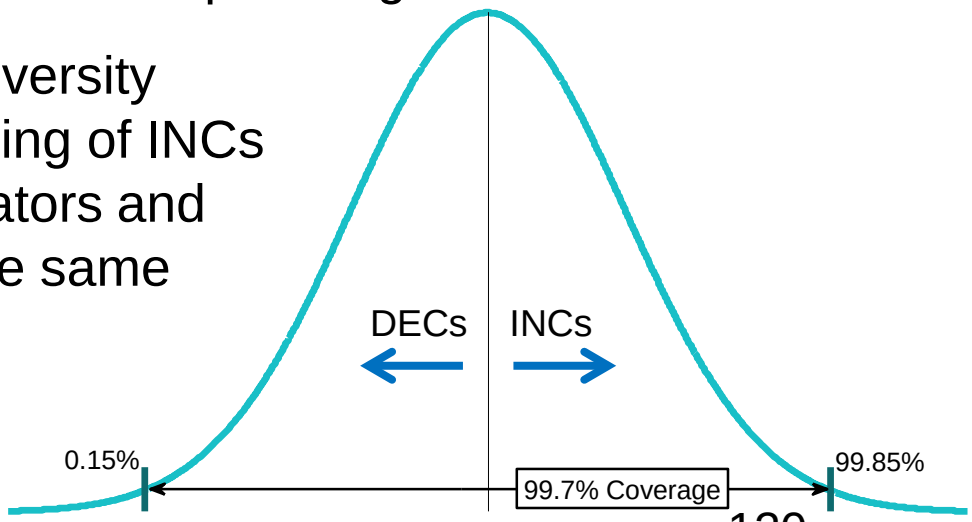
BPA's leaning -
Require VER Schedules to use the BPA supplied Hourly Meteorological Forecast.

BPA is asking for customer input: Is there a need or desire for BPA to allow VER customers to use a self supplied or Market Operator-supplied forecast?*

* *NOTE: Self supplied forecast must meet all CAISO requirements for timing, frequency and performance.*

Current Balancing Reserve Methodology

- BPA holds capacity for balancing reserves to meet the NERC standards and OATT requirements to maintain load-resource balance within its BAA.
- Balancing reserves needed for the BPA BAA is set in advance of the start of each two-year rate period.
- BPA performs statistical evaluations of combined load and generation fleet error to yield a final amount of balancing reserve capacity needed to meet BPA's 99.7% planning standard.
- This evaluation captures BA diversity benefits —the difference in timing of INCs and DECs deployed for generators and load—they don't all move in the same direction at the same time.



Preliminary BP-22 Reserve Forecast; Comparison with BP-20 Final Proposal

Rate Case Average	Wind Capacity (MW)	Solar Capacity (MW)	DERs Capacity (MW)	Total INC Bal. Res. (MW)	Total DEC Bal. Res. (MW)
BP-20	2880	107	1608	698	-863
BP-22	3613	166	1548	773	-949

Rate Case Average	Load Res. (MW)	Wind Res. (MW)	Solar Res. (MW)	DERs Res. (MW)	Fed Res. (MW)
BP-20	261	401	11.4	8	15.5
BP-22	297	435	10	10	21

Changes:

- Increased wind and solar generation
- Change to wind and solar scheduling (EIM timeline) and proxy
- Change to load forecast (EIM timeline)
- Change from 3 to 2 components

Preliminary BP-22 Reserve Forecast; Comparison with BP-20 Final Proposal (cont.)

Rate Case Average	Schedule Type	Wind Reserves (% Nameplate)	Solar Reserves (% Nameplate)
BP-20	30/15	9.03	7.97
	30/60	13.04	9.78
	Uncommitted	15.63	10.72
BP-22	N/A	12.05	5.74

- In comparison with BP-20 Final Proposal:
  - Wind Reserves as a percent of Nameplate decrease for Uncommitted and 30/60 Persistence Schedulers, and increase only for 30/15 Persistence Schedulers
  - Solar Reserves as a percent of Nameplate decrease for all scheduling types

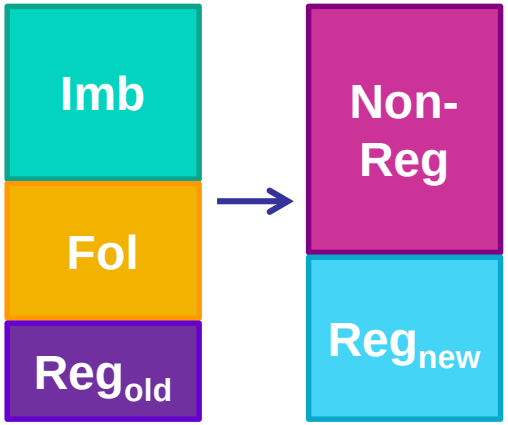
BP-22 Incremental Change Comparison

Change	Total INC Bal. Res. (MW)	Load Reserves (MW)	Wind Reserves (MW)	Solar Reserves (MW)	DERs Reserves (MW)	Fed Reserves (MW)
BP-20 Final Proposal	698	261	401	11.4	8	15.5
BP-22 w/ BP-20 Methodology[1]	778	255	488	13	8	14
Uncommitted at true forecast[2]	716	250	433	12	8	13
Change to EIM Timeline[3]	773	298	443	12	8	13
Change from 3 to 2 Components[4]	773	297	435	10	10	21

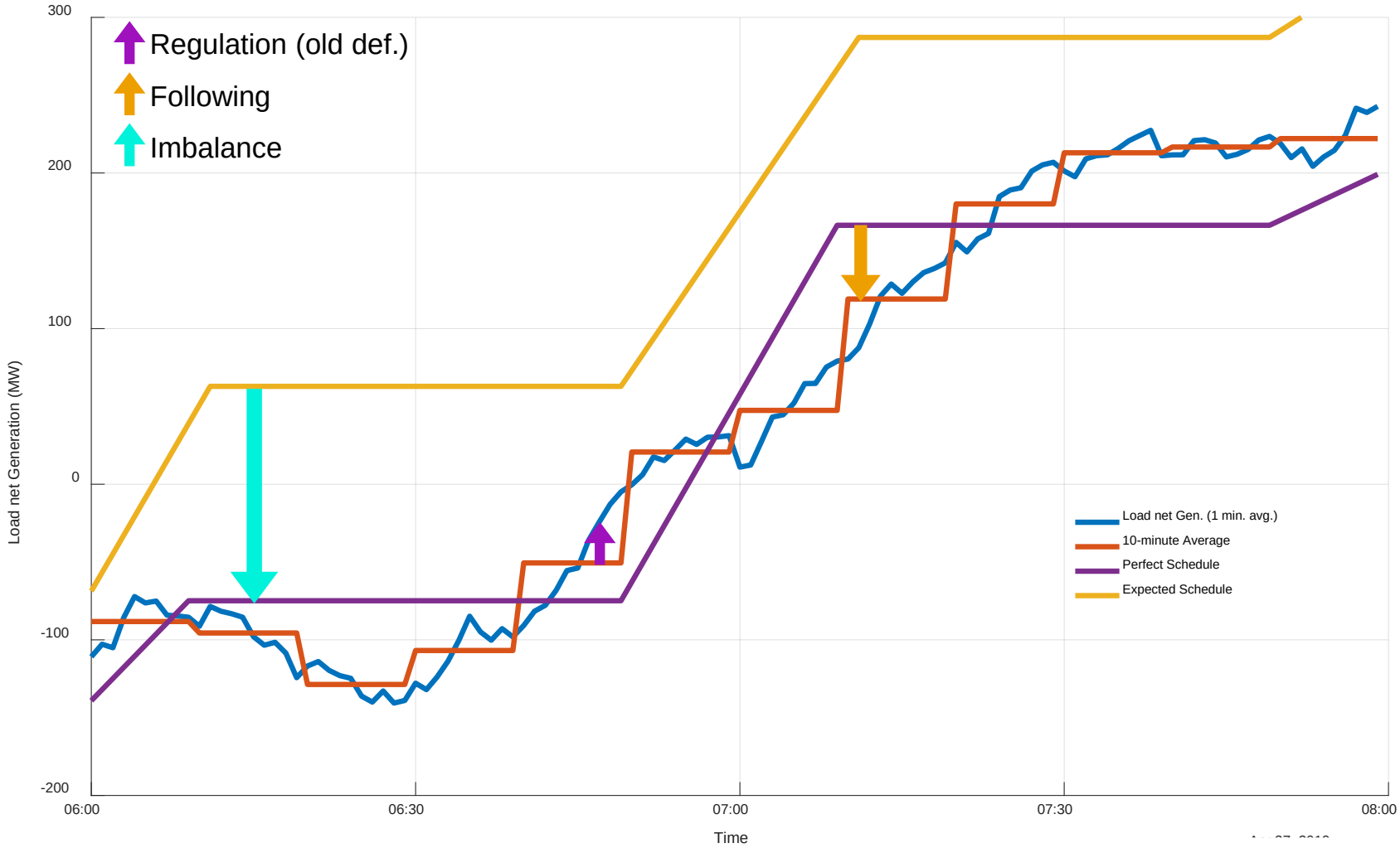
1. Reflects the BP-22 Resource Forecast, uses identical methodology to BP-20: VERs at scheduling elections, Uncommitted Wind at 45/60 Proxy, close-in Load Forecast, 3 Balancing Reserve Components
2. Replacing Uncommitted Wind 45/60 Proxy with true Wind Forecast
3. Adjusting all VERs to forecast (no longer able to offer 30/60 or 30/15 Persistence), further-out Load Forecast to accommodate EIM scheduling timelines
4. Change from 3 Balancing Reserve components (reg/fol/imb) to 2 components (reg/non-reg)

Balancing Reserve Components in EIM

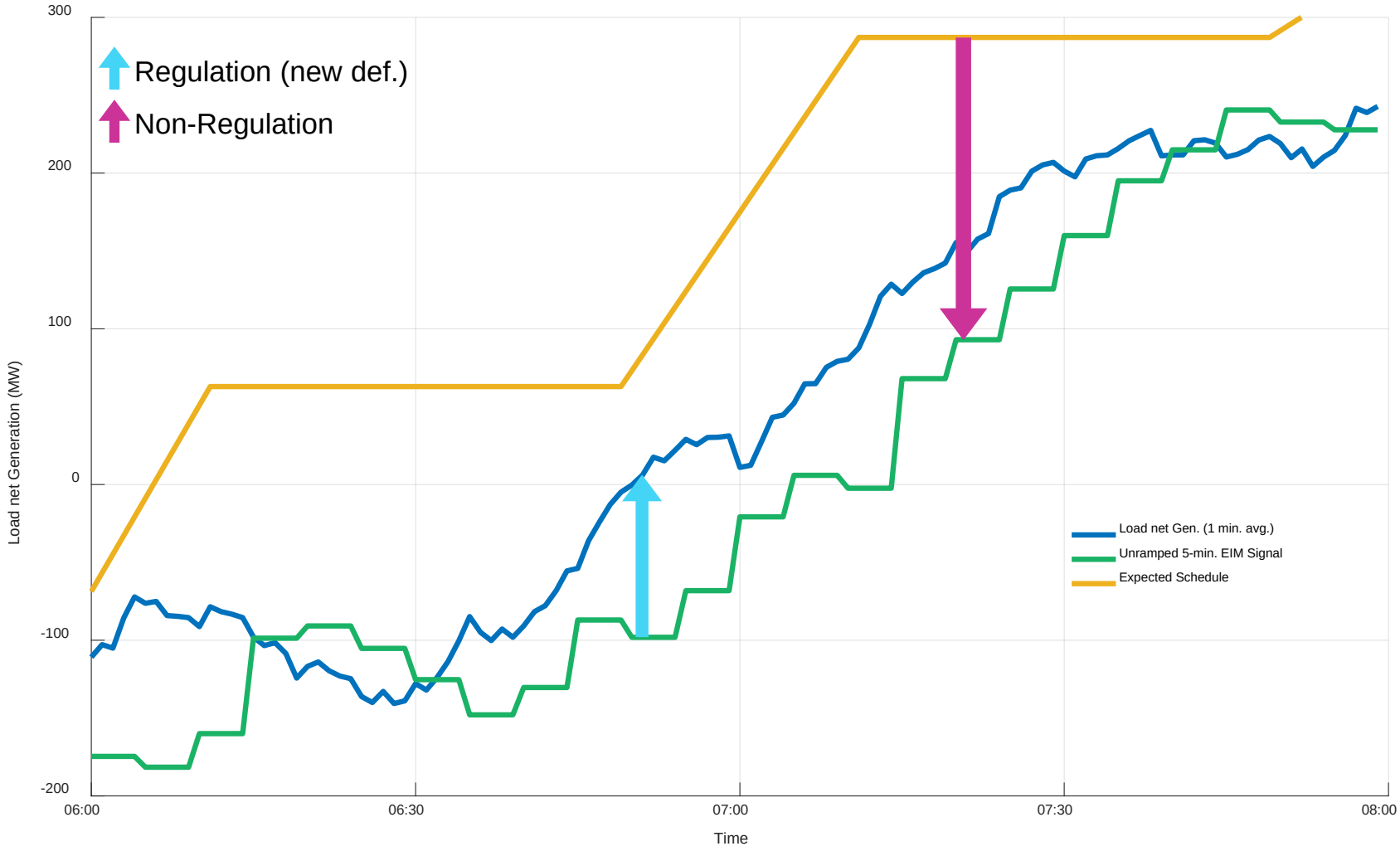
- BPA's balancing reserves currently consist of 3 components - Regulation, Following, and Imbalance
  - These components were developed for the purpose of pricing, rate design, and determining the minimum amount of spinning reserve required by the FCRPS.
  - The current decomposition of balancing capacity into these three components is unique to the BPA BAA.
- BPA proposes to define balancing capacity as regulation and "non-regulation" capacity to promote consistency with definitions in the EIM.
  - Regulation Capacity
    - The difference between actual Load net Generation and the net EIM dispatch operating target (DOT) of Load net Generation
  - "Non-Regulation" Capacity
    - BPA anticipates making available to the EIM the "non-regulation" reserve portion of its balancing reserve, by bidding or designating as Available Balancing Capacity (ABC)



3 Component Definitions



2 Component Definitions



Component Comparison (MW)

Class	Reg. (Old)	Fol.	Imb.	Total
Load	66	136	96	298
Wind	35	134	274	443
Solar	2.1	4.9	4.9	11.9
DERs	3.3	2.3	2.0	7.6
Fed.	4.3	3.8	3.7	11.9
Total	111	281	380	773

Class	Reg. (New)	Non-Reg.	Total
Load	137	160	297
Wind	146	290	435
Solar	5.1	4.4	9.6
DERs	10.1	0	10.1
Fed.	20.7	0	20.7
Total	319	454	773

Capacity Cost Methodology

- Embedded Cost of Capacity
  - This is the cost of capacity embedded in the Federal System; it is calculated by allocating costs between energy and capacity and then dividing the capacity costs by the quantity of capacity available to get a unit cost
- Variable Cost of Capacity
  - This is the fuel cost of setting up the system and standing ready to deploy balancing reserves.
- Pricing Capacity
  - Once the embedded and variable costs have been added up, they are allocated to various reserve types.

Embedded Cost

- The costs used to compute the embedded costs are those costs which are attributable to generation capacity and do not vary with energy output.
  - Capital Related Costs (Depreciation, Amortization, Interest Expense, Decommissioning Costs, MRNR)
  - Fish & Wildlife Program Costs
  - Power Purchase Costs (only the capacity portion)
  - 4(h)10(C) and Synchronous Condensing Revenue Credit
  - Conservation Costs are excluded

- This embedded cost methodology was reviewed with customers in BP-20 workshops.

Embedded Cost (continued)

- The embedded FCRPS capacity cost is approximately $1.005B, based on current IPR data.
- This cost is divided by the 1-hour critical capacity of the federal system: 14,388 MW
- This results in an embedded cost of $5.82/kW/mo.

$$\frac{\$1005M}{14{,}388MW} = \$5.82\ per\ kW\ month$$

Variable Cost

The GARD Model is used to calculate the variable cost of holding reserves - the costs fall into three categories:

1. Hydro Shift
   - Either an inc requirement in high value times reducing generation below ideal; or a dec requirement increasing generation in low value times
2. Spill
   - Incremental spill expected when there is enough water that the inc requirement causes a need to spill in order to generate at a low enough level
3. Efficiency
   - Changes in generation efficiency caused by using different turbines at different generation levels (can be a cost or credit)

- These variable costs add up to around $22M (~$15M in BP-20)

Pricing Capacity

- In order to allocate the capacity costs (embedded and variable) to each reserve type (regulation, following, and imbalance) the current methodology is to compute the unit embedded cost (~$5.82/kW-mo) and then add to it the variable costs for each reserve type.
- Given the new Regulation/Non-Regulation categories, it would result in the following rates ($/kW/mo):

Regulating Reserves inc	$7.20
Regulating Reserves dec	$0.66
Non-Reg Reserves inc	$6.77
Non-Reg Reserves dec	$0.66

These rates would then be used to determine the cost allocation to Transmission based on Transmission's reserve capacity need forecast; and Transmission would collect those costs in ACS rates.

Market Value of Regulation vs Slower Reserve Products

- A survey of reserve prices from markets around the country in the last year shows that on average regulation up-and-down products are worth about double what their average capacity product price is:

Market	Fastest INC Reserves	Average INC Reserves	Slowest INC Reserves
CAISO	$ 9.30	$ 4.87	$ 0.41
PJM	$ 15.50	$ 1.50	$ 0.21
ERCOT	$ 25.95	$ 15.63	$ 15.11
MISO	$ 10.63	$ 2.97	$ 0.91
SPP	$ 9.50	$ 5.00	$ 1.00
NYISO	$ 11.27	$ 5.96	$ 4.34
Average Price	$ 13.69	$ 5.99	$ 3.66
Average Relative Price	200%	73%	26%

- *Fastest, Average and Slowest Reserves refer to a variety of different products and include balancing and operating reserves. Since every market/BAA defines these reserve types differently, they have been categorized by putting faster response requirements and higher spinning requirements as “faster” and lesser spinning requirements and slower response time requirements as “slower.”

A New Method

- Due to the significant miss-alignment between BPA's current allocation method and market values, staff is proposing a new method to allocate the capacity costs between products.
- Alignment with market value is important because it results in charging customers more accurately for the value of services being used, making service more affordable for customers which use relatively less regulating capacity.

Basis for a new method

- Both newly proposed methods will build off of the methodology Power uses today to calculate the Demand Rate.
- For calculating the Demand Rate an LMS100 (a hybrid of frame and aero derivative gas turbine technology) is used to determine the marginal cost of capacity.
- The fixed costs are added up including:
  - Financing/Capital Costs
  - Fixed O&M Costs
  - Insurance
  - Gas Pipeline Access
- These costs are then divided by the nameplate of the plant to get an average cost of $10.29/kW/month.

Alternative Method A

- Building off the Demand Rate method, we use two different combustion turbine plants:
  - To model spinning INC Capacity: An LMS100 is modeled running at min gen (~25% of nameplate), selling that energy at index; and then selling the remaining spinning INC capacity (~75% of nameplate) at the cost necessary to cover the remaining costs.
  - To model non-spinning INC Capacity: A 7HA.02 (frame technology) is modeled to stay offline until called upon, selling its whole nameplate as non-spinning INC capacity at the cost necessary to cover the remaining costs.
- The ratio of calculated spinning cost to non-spinning cost is then applied to Power's capacity rates and adjusted to collect the same revenue they would with no price changes.

Method A Results

Cost Calculations

Plant	Capacity	Average Gen	Fixed Fuel Cost ($/kW-month)	Debt, Insurance, Fixed O&M ($/kW-month)	Fuel Cost ($/MWh)	Power Revenue	Remaining Annual Cost	Available INC	INC Cost
LMS100	450	112.5	$3.5	$6.7	$19.7	$18,600,000	$56,000,000	338	$13.87
7HA02	450	0	$3.5	$3.3	$0	$0	$37,000,000	450	$6.84

Resulting Capacity Rates

	Old	Method A
Regulating Reserves inc	$ 7.20	$ 10.01
Regulating Reserves dec	$ 0.66	$ 0.66
Imbalance Reserves inc	$ 6.77	$ 4.93
Imbalance Reserves dec	$ 0.66	$ 0.66

Approximate Customer Impacts

	Change in $	Percent Change
Load	$ 1,242,955	105%
Wind	$ (1,793,485)	96%
Solar	$ 114,660	116%
Thermal	$ 338,827	135%

Alternative Method B

- Instead of considering fuel costs, alternative B simply compares the monthly fixed costs of the two technologies.
  - This method is still comparing an LMS100 to a 7HA.02
- And instead of using a ratio to determine the reserve capacity rates, method B applies that $/kW/month delta to the rates.
- Like in the previous methods, the rates are then adjusted to be revenue neutral.

Method B Results

Cost Calculations

	Capital	Debt Payments	Fixed O&M	Insurance	Fixed Fuel	Total Annual Cost	Monthly Fixed Cost ($/kw/mo)	Delta
LMS100	1000	$65.39	$ 12.53	$ 2.80	$ 42.29	$123.01	$10.25	
7HA02	550	$31.58	$ 6.89	$ 1.35	$ 42.29	$82.11	$6.84	($3.41)

Resulting Capacity Rates

	Old	Method B
Regulating Reserves inc	$ 6.63	$ 9.00
Regulating Reserves dec	$ 0.66	$ 0.66
Imbalance Reserves inc	$ 6.20	$ 5.59
Imbalance Reserves dec	$ 0.66	$ 0.66

Approximate Customer Impacts

	Change in $	Percent Change
Load	$ 791,797	103%
Wind	$ (1,157,195)	97%
Solar	$ 73,364	110%
Thermal	$ 217,009	123%

Summary

- Method A: applies the ratio between the cost of running an fast turbine at min gen to maximize Spinning INCs to the cost of building a slow turbine to maximize Non-Spinning INCs.
- Method B: applies the delta between the fixed costs of building a fast turbine and a slow turbine. (This method is used for the ACS rate calculations shown in the following slides.)
- Staff's leaning is in favor of method B due to its simplicity, but we welcome customer input on the methods.

	Old ($/kw/mo)	Method A ($/kw/mo)	Method B ($/kw/mo)
Regulating Reserves inc	$ 6.63	$ 9.98	$ 8.98
Regulating Reserves dec	$ 0.66	$ 0.66	$ 0.66
Imbalance Reserves inc	$ 6.20	$ 4.92	$ 5.57
Imbalance Reserves dec	$ 0.66	$ 0.66	$ 0.66

Overall Impact

ACS Rates and Generation Inputs Costs/Credit will be affected due to a variety of factors:

- CRSO Hydro Capability Changes
  - Increased 1-hour flexibility
  - Decreased overall energy
- Moving to Reg/NonReg Reserve Categorization
  - Increased spinning requirement
  - Increased reserve allocation to DERs, Hydro, and Load (Decreased to Wind and Solar).
- Reg/NonReg Pricing (Method B used for these calculations)
  - Increased regulation reserve price; decreased non-reg price
- Modeling the EIM Scheduling Timelines
  - Increased overall reserve requirement
- Transitioning to VER forecast
  - Decreased VER reserve requirement
- Regular Updates
  - New IPR costs
  - New installed resource forecast
  - New operating reserve forecast

ACS Rates

- Here are preliminary (pre-initial proposal) ACS rates resulting from all these changes:

	BP-20	BP-22	Units
RFR	0.49	0.55	mills/kWh
Operating Reserves: Spinning	9.53	9.96	mills/kWh
Operating Reserves: Supplemental	8.32	7.94	mills/kWh
Wind Uncommitted	1.09		$/kW/month
Wind 30/60	0.93		$/kW/month
Wind 30/15	0.63		$/kW/month
Wind (Weighted Avg) vs. New	0.98	0.91	
Solar Uncommitted	0.91		$/kW/month
Solar 30/60	0.69		$/kW/month
Solar 30/15	0.37		$/kW/month
Solar New Forecast	0.71	0.47	
DERBS INC	15.11	21.76	mills/kW (max hourly deviation)
DERBS DEC	1.59	1.95	mills/kW (max hourly deviation)

Impacts of Each Change (Rates)

A		Credit to Power	Wind Rate	Solar Rate	DERBS Rate	Load Rate
B	BP-20 Rates	$110,000,000	$0.98	$0.71	$15.11	$0.49
C	Installed Capacity Forecast Update & All other small changes	$4,594,561	-$0.04	-$0.15	-$2.85	-$0.05
D	Wind Forecast Update	-$4,106,329	-$0.09	-$0.03	-$0.09	-$0.01
E	Reg/NonReg Reserve Categorization	-$443,587	-$0.01	-$0.10	$4.59	$0.00
F	EIM Increased Reserve Requirement	$3,866,699	$0.02	-$0.01	-$0.65	$0.06
G	CRSO Hydro Capability Changes Capacity	-$180,508	$0.00	$0.00	-$0.05	$0.00
H	CRSO Hydro Capability Changes Energy	$2,888,122	$0.04	$0.02	$0.78	$0.02
I	Reg/NonReg Pricing	$9,100	-$0.02	$0.02	$4.35	$0.01
J	IPR Costs	-$541,523	-$0.01	$0.00	-$0.15	$0.00
K	GARD Spin Requirement Increase	$2,707,615	$0.04	$0.02	$0.73	$0.02
L	BP-22 Rates	$118,636,729	$0.91	$0.47	$21.76	$0.55

- Wind and Solar rates are in $/kW/month Nameplate
- Load Rate (RFR) is in mills/kWh
- DERBS Rate is in mills/kW of Max Monthly Deviation

Impacts of Each Change (Dollars)

A		Credit to Power	Wind RR	Solar RR	DERBS RR	Load RR
B	BP-20 Rates	$110,000,000	$33,989,001	$906,552	$825,813	$25,278,185
C	Installed Capacity Forecast Update & All other small changes	$4,594,561	$6,921,060	$196,062	-$142,474	-$2,380,086
D	Wind Forecast Update	-$4,106,329	-$3,704,789	-$65,014	-$4,530	-$331,997
E	Reg/NonReg Reserve Categorization	-$443,587	-$379,872	-$190,271	$228,947	-$102,391
F	EIM Increased Reserve Requirement	$3,866,699	$671,927	-$18,636	-$32,511	$3,245,919
G	CRSO Hydro Capability Changes Capacity	-$180,508	-$104,500	-$2,293	-$2,421	-$71,293
H	CRSO Hydro Capability Changes Energy	$2,888,122	$1,672,002	$36,689	$38,738	$1,140,694
I	Reg/NonReg Pricing	$9,100	-$947,829	$47,394	$217,086	$692,449
J	IPR Costs	-$541,523	-$313,500	-$6,879	-$7,263	-$213,880
K	GARD Spin Requirement Increase	$2,707,615	$1,567,502	$34,396	$36,317	$1,069,401
L	BP-22 Rates	$118,636,729	$39,371,000	$938,000	$1,157,701	$28,327,000

	Wind	Solar	DERs	Load
Percent Nameplate Change	25%	55%	-4%	0%
Percent RR Change	19%	1%	40%	12%

Net Impact to Load

While load will pay an increased RFR Rate, this is more than offset by the increased gen input credit for all PF Customers. Below shows an example a hypothetical PF power customer with a Total Retail Load (TRL) of 404 MW equal to their Rate Period High Water Mark (RHWM) of 404 MW, so they have only Tier 1 load.

Customer with no Above RHWM Load

TOCA	6%
RT1SC	6736 aMW
TRL	404 aMW
RHWM	404 aMW
Above-RHWM Load	0

BP-20 ACS Rate	0.49 mills/kWh
Preliminary BP-22 ACS Rate	0.55 mills/kWh
RFR Effect	$ 209,237

Change in Composite Rate	$ (8,636,729)
Change in $/% Rate	$ (91,491)
PF Effect	$ (548,945)

Net Benefit	$ (339,708)

Net Impact to Load Cont.

Even a customer with 100% above-RHWM load (so their TRL is double their RHWM) will see a benefit. This is more above-RHWM load than any customer is currently forecast in BP-22. Any PF customer which is not in BPA's BAA will see the PF benefit and none of the increased RFR costs.

Customer with 100% Above RHWM Load

TOCA	6%
RT1SC	6736 aMW
TRL	808 aMW
RHWM	404 aMW
Above-RHWM Load	404 aMW

BP-20 ACS Rate	0.49 mills/kWh
Preliminary BP-22 ACS Rate	0.55 mills/kWh
RFR Effect	$ 418,474

Change in Composite Rate	$ (8,636,729)
Change in $/% Rate	$ (91,491)
PF Effect	$ (548,945)

Net Benefit	$ (130,470)

Conclusion

1. By updating VER forecast methodologies, the impact of joining the EIM is mitigated for VERs.
2. The remaining overall increase in ACS rates is due primarily to:
   a. constraints on the FCRPS created by the CRSO
   b. increased spinning reserve requirement
   c. increased Wind and Solar interconnection
3. Cost shifts among customers are due to valuing spinning reserve capacity more than non-spinning reserve capacity.
4. PF Load is not harmed overall since PF customers stand to benefit from Power's participation in the EIM as well as gaining increased Gen Inputs revenues from VERs.
5. The DERBS rate increases with the proposed pricing differential between spinning and non-spinning capacity and the change to 2 components.

Staff Leaning and Next Steps

- Current Staff Leaning:
  - Require VER Schedules to use the BPA-supplied Hourly Meteorological Forecast
  - Regulation/Non-Regulation Pricing Method B
- Please provide feedback via techforum@bpa.gov by July 8, 2020 (with copy to your account executive)
- July customer workshop: EI/GI Service and ID/PD Penalties

ISSUE #13: REGIONAL PLANNING ORGANIZATION

Step 5: Discuss Customer Feedback

Step 6: Staff Proposal

Agenda

- Issue Description/Reminder
- Step 5: Customer Feedback to Alternatives and BPA Response
- Step 6: BPA Staff Proposal for Solution
- Next Steps

Issue Description/Reminder

- At the May 19 customer workshop, BPA provided an overview on the issue of how BPA could incorporate regional planning into its Attachment K
  - BPA provided two alternatives for Customers to review and submit comments
    - Alternative 1 – Place full text of NorthernGrid Member planning process into BPA's Attachment K
    - Alternative 2 – Insert reference to NorthernGrid's website where the Member planning process is contained
  - Under either alternative, BPA would include language clarifying how BPA would engage its customers and stakeholders when amendments to the Member planning process are being proposed

Step 5: Customer Feedback to Alternatives and BPA's Response

Customer Feedback and BPA Response

- BPA received one comment on this topic, from Snohomish PUD, provided below:
  - "Snohomish has noted in past comments that we do not have a strong opinion on how BPA reflects the NorthernGrid's planning process in Attachment K and we see merits in both proposed approaches. Snohomish continues to be comfortable with both approaches, but our leaning is toward referencing the NorthernGrid planning process in BPA's Attachment K. This option will avoid the potential for discrepancies between the Attachment K and the NorthernGrid planning process, and appears to be most efficient for BPA and its staff."
- BPA's response:
  - BPA appreciates Snohomish's feedback. BPA agrees that Alternative 2 will ensure that BPA's tariff will generally always refer to the effective Member planning process agreed to by all NorthernGrid members, and will be more efficient to administer

Step 6: Staff Proposal for Solution

Staff Proposal

- BPA staff's proposal is to implement Alternative 2 – incorporate into Part IV of BPA's Attachment K a reference to the NorthernGrid website where the Member planning process will be posted (as it may be amended), to meet its regional planning tariff obligations
  - This will ensure that BPA's tariff references the most current version of the Member planning process, agreed to by all NorthernGrid members, which will reduce the potential for confusion by Customers / Stakeholders should the Member planning process be revised before being incorporated into BPA's tariff pursuant to a terms and conditions proceeding
  - Additionally, this will result in a potential reduction in administrative burden on both BPA and its Customers, since BPA will not be required to seek changes to the Member planning process through a Terms and Conditions proceeding
- In addition, the BPA staff proposal will include language that clarifies how BPA's customers and stakeholders can engage in potential amendments to the NorthernGrid Member planning process

Next Steps

- BPA will provide draft tariff language related to the staff proposal to implement Alternative 2 for external review as part of the July TC-22 workshop materials
- BPA expects to provide all draft revisions to its Attachment K in August, including sections outside of the regional planning process (Part IV)

ISSUE #15: AGREEMENT TEMPLATES: Incremental Changes to Attachments A and F Service Agreement Templates

Step 5: Discuss Customer Feedback

Step 6: Staff Proposal

Agenda

- Review of the Issue
- Step 5: Customer Feedback (from February workshop)
- Step 6: Staff Leaning

Review of the Issue: Should BPA revise Attachments A and F to Incorporate the Identified Changes?

- Revise PTP and NT Service Agreement Templates to allow for electronic communication and signature.
- Correct minor format/numbering sequences for consistency.
- Clarify the effective date of service agreements for entities that become customers solely to participate in the EIM.

Step 5: Customer Feedback

Customer Feedback following April workshop

- No comments on proposed changes for formatting, notice and signature.
- BPA did receive comments in regard to:
  - the use of the PTP agreement for EIM Participating Resources (discussed this morning) and
  - the proposed language changes to the Service Commencement in the PTP template.

Proposed edits to Service Commencement language

BPA language proposal from April	Customer edits received in May
Service under this Service Agreement for a transaction shall commence on (1) the date on which the Transmission Customer receives notice its Energy Imbalance Marketing (EIM) Participating Resource is certified and therefore eligible to participate in the EIM; or (2) the later of (a) the Service Commencement Date as specified by the Transmission Customer in a subsequent request for transmission service; or (b) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed.	Service under this Service Agreement for a transaction shall commence on the first to occur of (1) the date on which the Transmission Customer receives notice its Energy Imbalance Marketing (EIM) Participating Resource is certified and therefore eligible to participate in the EIM; or (2) the later of (a) the Service Commencement Date as specified by the Transmission Customer in a subsequent request for transmission service; or (b) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed.

- BPA will incorporate the edits proposed by the customers.

Step 6: Staff Proposal

Staff Proposal

- The staff leaning is to propose to revise the PTP and NT Service Agreement Templates in Attachments A and F
  - Revise templates to allow for electronic communication and signature.
  - Correct minor format/numbering sequences for consistency.
  - Clarify the effective date of service agreements for entities that become customers solely to participate in the EIM (incorporating customer suggestions)

Agreement Templates Next Steps

- Please submit any questions to techforum@bpa.gov (with copy to your account executive) by July 8, 2020.
- Bonneville will address any customer questions or comments on staff proposal in the July customer led workshop or July/August TC-22 workshop.

Summary of Customer Feedback

APPENDIX

4/28 Workshop - Customer Comments

Customer	Comment Summary	BPA Response
Charge Code Allocation	• Existing transmission usage should be preserved to the extent possible to minimize unintended consequences of existing use of the FCRTS and BPA's transmission business model • Per BPA's own criteria, to the extent possible, maintain alignment with FERC-approved allocation methods, particularly to avoid seams issues • Allocation of charges/credits should be consistent with cost causation to avoid uneconomic price signals and increased costs and included in evaluation criteria • Clarify how charges attributable to load following customers will be allocated and accounted for. • Concerned with unintended shift of costs to transmission customers and with revenues only benefiting BPA Power • Revenues should be allocated to transmission customers to offset costs with any surplus to Power • Request further clarification on certain charge codes that are excluded from initial sub-allocation (bid cost recovery, flexible ramp, grid management, enforcement protocol, administrative) • Operational experience will mitigate inappropriate allocation of charges/credits. Until such experience is attained, consider no sub-allocation. • If proceeding with sub-allocation, develop a framework to guide charge/credit allocation. • If proceeding with sub-allocation, all charge codes should be well understood	• Thank you for your comments. BPA will continue to evaluate the impacts and consider the concerns expressed as we approach the implementation phase.

4/28 Workshop - Customer Comments (Cont.)

Customer	Comment Summary	BPA Response
Proposed Workplan	• Provide clarification on status of 7(f) options and grandfathered Green Exception • Undesignation of DNR should be addressed in TC-22	• See BP-22 Rate Case Kickoff presentation. • BPA does not calculate its ST ATC frequently enough for ST undesignations to be reflected in ST ATC. • The systems are not in place at this time to recognize ST undesignations of NT resources and release the corresponding ST ATC to the market. • The full implementation of NITS on OASIS will include this functionality. However, the recent FERC Order 676-I makes extensive changes to the NITS on OASIS module that OATI needs to build over the next several months. • BPA still offers unlimited non-firm transmission, which mitigates the impact of not releasing ST ATC to the non-firm market after ST undesignation of a network resource.

4/28 Workshop - Customer Comments (Cont.)

Customer	Comment Summary	BPA Response
Solar Study (BP-20 Settlement)	• Don't support decision to delay development of a shaped quantity of reserves • Study should be expanded to include wind resources • BPA should be prepared to revisit should circumstances change	• Thank you for your comment. Should circumstances change significantly, BPA is prepared to revisit.
Creditworthiness	• Support alignment with structure of pro forma approach	• Thank you
Agreement Templates	• Proposed clarifying language regarding service commencement	• Thank you. We will review consider it our next workshop in June
Tariff Language Review	• Inter-related issues should be presented together to ensure complete picture of tariff edits is understood	• BPA will share tariff language with customers as it's available. At the final workshop a complete draft tariff will be shared with customers with an opportunity to provide feedback before that language goes into the Initial Proposal.
General Comments	• EIM must support the Northwest's current shift to low carbon resources and not result in negative financial impact to VERS • Requests a workshop to educate CAISO on tools that BPA and renewables have used to reduce integration costs	• Thank you
Timeline for Base Schedules	• T-57 scheduling deadline may increase VERBS exposure to balancing reserves • Supports exploration of possibly reducing balancing reserve requirements • Entities may be forced to make decisions to use transmission to support within hour scheduling versus EIM participation.	• This will be considered in the June presentation

3/17 Workshop - Customer Comments

Customer	Comment Summary	BPA Response
Work Plan & Workshops	• More information and clarity needed on EIM Phase III Decision Document • Clarify where all policy issues will be documented • Identify topics that could be delayed or simplified to allow focus on priority issues • Support additional workshops • Continue to use the VENN diagram to highlight topics	• BPA has included a detail policy questions and proposal on where those decisions will be made in the presentation
Seller's Choice	• Support access to non-federal resources at Mid-C • Clarify whether there is an impact to ATC due to NT encumbrance. • Be careful with any policies that deviate from the OATT. • Provide additional analysis of reservations/schedules/flow impacts at Mid-C.	• These concerns will be considered and addressed in May, when Seller's choice will be discussed
Transmission Losses	• General support for Alternative 3 and 5, maintain both options with financial rate developed in rate case. • This issue should be able to be resolved quickly • Support financial for inaccuracy charge • Additional details needed on financial pricing including impacts by customer type • Additional details needed on customer impacts/benefits • Administrative costs may be worthwhile/appropriate • Consider additional decision criteria (per submissions)	• Thank you for your feedback. These comments will be considered and addressed in the May workshop
EIM Transmission Usage	• Support for modifications to scope and objective • Support non-firm donations • Concerns with donation deadlines misaligned with market intervals • Evaluate impacts to dynamic transfers as compared to ETSRs. • Cost recovery mechanisms must be in place to follow cost-causation principles	• Thank you for your feedback, your concerns will be considered and addressed in the June workshop
Intertie Studies	• Support updating the tariff • Maximize flexibility and minimize financial exposure • Work with customers, regional stakeholders and partners on expansion needs	• Thank you for your comments. BPA staff will consider these comments as we address the tariff discussion for the Intertie studies at the May workshop.

2/25 Workshop - Customer Comments

Customer	Comment Summary	BPA Response

Charge Code Allocation	• Comments received reflected support for both a phased in sub-allocation approach as well as a "direct-assigned" approach that would utilize CAISO charge codes.
	  • Develop more examples of how different customer types would be treated under the different alternatives.
	  • Provide additional estimates on the administrative costs.
	  • Provide a cost-benefit analysis for each alternative that weighs benefits against administrative costs.
	• If no sub or sub-allocation:
	  • Balance cost-causation with simplicity
	  • Imbalance service should be developed as a separate rate
	  • Will better ensure existing transmission rights are respected
	  • Focus on Base Codes and Scheduling Entity Codes
	• If direct assigned (FERC-approved allocation method):
	  • Maintain incentives for customers to schedule accurately within the BAA
	  • Consistency across EIM footprint
	  • Maintains consistency with FERC, one of BPA's tariff principles
	  • Insulation of costs will create risk of hiding EIM market signals
	  • A phased in approach could be applied
	  • Concerned that development of rate mechanisms will not capture granularity
	  • Experiences with EIM suggest more administrative burden up front but ease of that burden moving forward.
	  • Administrative burden to insulate customers is not a justifiable argument and eventually will be same level as other EIM entities
	  • Customers need transparency for market signals and disputes
	  • Ensures better adaptability and response to future changes from CAISO instead of every two years.
		• Direct assignment, sub allocation will be discussed in the alternatives in Steps 5 and 6 on April 28.

2/25 Workshop - Customer Comments (Cont.)

Customer	Comment Summary	BPA Response
Resource Sufficiency	• Don't establish a target • Develop financial mitigation for the t-20 to t-55 window • Develop a matrix of 4 alternatives for better comparative capability	• The target and the alternatives will be discussed in steps 5 and 6 in the April 28 workshop.
Gen Inputs	• Develop principles for Gen Inputs • EIM benefits should be part of Gen Input rate design • Maintain close association with Charge Code discussion • Schedules 9 and 10 might benefit from transitioning to EIM methodology • Need a more robust conversation about ID, PD, EI, and GI rates relative to the charge code sub-allocation alternatives • Eliminating the 30/60 and 30/15 committed scheduling elections options will increase the capacity that BPA must set aside for reserves and increase the rates that ancillary services customers will have to pay	• The team will consider the customer request and respond at the April workshop • The alternatives will be considered in the development of steps 3 and 4 in the April workshop.
Creditworthiness	• Attachment to the OATT	• Attachment to the OATT will be considered the review of the alternatives in steps 3 to 4 in the April workshop
Section 7(f) Power Rates	• Customers have requested we explore contractual solutions such as the grandfathered Green Exception."	• The team will address this in our next workshop on service under 7(f).
Regional Planning	• Revise Attachment K to ensure future changes must go through tariff process	• We will consider this alternative in steps 3 and 4 which will be reviewed in the May workshop
Generator Interconnection	• Support for implementation of Order 845 • Need more information regarding "streamlining" proposal to ensure no queue discrimination	• Thank you

1/28 Workshop - Customer Comments

Customer	Comment Summary	BPA Response
Objective Statement	• Clarify that BPA will not negatively impact existing rights or existing uses in favor of EIM • Costs associated with EIM should be allocated to those benefiting • Alternatives should consider the sub-elements of the objective statement.	• These suggestive changes to the objective statement will be considered
Network Usage	• Concerns that EIM will reduce capacity used to support bilateral transactions • Encourage BPA to pursue solutions that would allow use of ATC Methodology. Admittedly may be most appropriate in EDAM • BPA needs to ensure rights and expectations of existing customers under the tariff and in some cases may need to eliminate adverse commercial impacts. • EIM reciprocity transmission framework is an essential principle. Align with requirements utilized by other EIM entities	• The concerns and considerations will be evaluated in steps 3 and 4. Some of these concerns were addressed in the other forums and we will address these concerns in our evaluation.
Deviation Policies	• Evaluate persistent deviation and intentional deviation penalties with respect to EIM dispatch • How does EIM dispatch impact Intentional Deviation policies?	• The penalties are discussed in the presentation 2/25 and will be evaluated in steps 3 and 4
Ancillary Services	• NIPPC posed several questions addressing concerns around how BPA will address ancillary services in EIM. • Penalties/Negative Prices: Review ACS rate schedules for appropriate modifications	• The ancillary services questions as it relates to rates are discussed in the Gen Inputs of the 2/25 workshop and will continue the discussion in future rate case workshops

1/28 Workshop - Customer Comments (Cont.)

Customer	Comment Summary	BPA Response
Participating & Non-participating Resources	• Non-participating Resources: Concerned with requirements for co-gen resources • Participating Resources: BPA should present preliminary evaluation along with pros and cons on what types of transmission products for EIM transfers. • External-BA Resources: will BPA allow dynamic schedules? • Participating Resources: NIPPC poses several questions regarding type of transmission donations and the donation process. o Survey and share findings of how existing EIM participant approaches to these questions. o How will BPA manage exposure to EIM prices?	• The concerns and the evaluation will be discussed during the steps 3 and 4
Un-designation of DNR	• Un-designation of DNR o Require the Un-designation of DNRs being used to make Firm network sales o Address this issue in TC-22 including review of the NT MOA	• The NT team is reviewing these comments and will have a response at the next TC-20 settlement workshop.
Solar Study (BP-20)	• Solar Study (BP-20): Material value to exploring shaped reserve option. • Gen Inputs: limited input to reach conclusions	• The concerns and considerations will be evaluated in steps 3 and 4

1/28 Workshop - Customer Comments (Cont.)

Customer	Comment Summary	BPA Response

7f Rate Design	• Clarify the timing, availability and market risk as a discretionary Tier 1 obligation
	  o Also include terms & conditions, methodology for new rate and customer obligations
	  o New firm surplus rate could be explored with similar clarification per above
	• Support continued exploration as long as available to all preference customers among other considerations.
	• Any new proposal for serving load following customers should be win-win for all preference customers and not create any new material risks or cost shifts
	• There is potential merit deserving further exploration based on initial customer benefits and BPA revenues
		• The 7f rates team are reviewing these comments and will consider them as part of their evaluation and alternatives in upcoming rates workshop

Financial Planning	• Concerned of disproportionate burden on transmission
	• use of MRNR per previous filings and testimony
	  o Accounting policies should be considered outside of a rate case
	  o Amortize short-lived regulatory assets for greatest ratepayer benefits
	  o More strategic approach at regulatory accounting and MRNR
	• include long-term cost and rate forecasting. Customers will want greater visibility
		• These concerns and comments were forwarded to the financial planning process

General Comments	• BPA should demonstrate how it will track how the new processes will affect other topics. • EIM charges: incremental transmission charges would be problematic and upset the reciprocity transmission framework o FERC expressly disapproved of PAC's proposal of an incremental transmission rate for EIM • VERBS: 30/15 option will most likely be eliminated. What other changes might be needed? • In general, avoid seams issues • Encourage BPA to work with stakeholders across EIM footprint	• These comments will be considered by the affected teams moving forward

12/12/19 Feedback Summary

Themes	BPA's Response
Transmission Losses concerns on pricing and capacity adder	The review of the pricing and the value for transmission losses will be discussed in the rate case
Customers would like to have a better understanding of the objective and reason for change for Transmission Losses.	Losses will return in the -March workshop to address this request.
Customers would like to have choices for settling transmission losses (i.e. physical vs financial). For example one choice could be to consider an option of returns in like kind with a penalty for customers who fail to return the loss obligation	Losses will return in the March workshop to begin sharing options.
Transmission loss factor should be established in Tariff proceedings	The Tariff does contain the annual average system loss factor for the network and intertie. We do not intend to suggest removing it from the Tariff.
Transmission losses should be included in the Transmission rates and rates schedule and should be equitably allocated	Bonneville intends to have any rate discussions during the upcoming rate case proceedings. Any discussion regarding the location (i.e. Power or Transmission Rates Schedules) will be discussed during the rate proceeding. Options of transmission losses pricing will be discussed in the rate case in steps 4 and 5.
The EIM losses are important and BPA is in the the best position to determine the appropriate transmission loss percentage for OATT service	In the workshops, steps 4 and 5 will discuss the option for the EIM Losses
Provide more information on the value lost to BPA from a customer's failure to deliver In Kind	This will be addressed in steps 4 and 5.
Costs are inevitable so develop cost/benefit analysis (administrative burden) for financial returns (similar to what was developed for In Kind). In other words, realize that certain administrative costs may be worthwhile due to the market value they deliver – such costs should be appropriately allocated.	This will be addressed in steps 4 and 5
Be clearer of the strategic interplay between EIM Losses and Transmission Losses both in implementation and long-term	We will continue to look for opportunities to share interplay between EIM losses and Transmission losses if applicable. At this point, we do not see any interplay between EIM Losses and Transmission Losses.
Maintain separation between EIM Losses and Transmission Losses	We agree there is a separation of EIM Losses and Transmission Losses

12/12/19 Feedback Summary (cont.)

Themes	BPA's Response
Customer proposed changes to EIM Charge Code principles	The team will consider the proposed principles and will give feedback to customers at the February workshop
Include a glossary of EIM charge codes and a crosswalk to current BPA rates where applicable	We will continue discussing the EIM charge code s and cross walk to current BPA rates where applicable in the February workshop materials
EIM charge code cost allocation should include wheel through , preference customers and interchange and non-participating resources. How are customers outside the BA considered?	Analysis and alternatives will be discussed in steps 4 and 5.
EIM charge code cost allocation should be initially based on cost causation and should be phased in with a partial insulation	Cost allocation is an important issue and the feedback on a phased in and partial insulation will be considered in the alternatives development
As the EIM charge code cost allocation (and other EIM policy issues) is discussed, one consideration is to ensuring customers existing OATT rights are fully respected and that customers maintain the ability to use their rights without facing new costs.	In the evaluation phase, there will be consideration of OATT rights and how to recover new costs . In the steps 5 and 6 the consideration of OATT rights will be evaluated
More clearly tie Ancillary Services to EIM Charge Codes	In the rates discussion, there will be an in-depth discussion of tying the Ancillary Services to EIM Charge Codes where it is applicable.

12/15/19 Feedback Summary

Themes	BPA's Response: Updated 1/28
Provide a detailed summary timeline with topics for each workshop	We will keep an agile schedule and adjust as we hear feedback from customers.
Customers concurred with BPA's proposal for engagement for certain topics	No change
Customers want early discussions on the following topics: • Transmission Usage • Creditworthiness • EIM Metering and Data Requirements • EIM Non Federal Resources	Based on customer feedback, we have started discussion on the identified topics from customers in Jan. and Feb. This is reflected in the schedule on the Meetings and Workshops page
Provide customers information on where/if there will be changes for Rate Case topics	We recognize rates have dependencies on EIM policy topic decisions and we will stay coordinated with the topics. We also recognize their dependencies on charge code, gen inputs and Priority Firm Load. We have discussions on rate case issue in the Jan workshop and will continue those discussions through the summer.
Provide an explanation of why the proposed future tariff topics are not part of TC-22	The future deferred tariff topics are due to possible changes in industry standards and developing markets. As we discussed in the Oct. 23 workshop, we are focusing on EIM for this proceeding.
Identify early in steps 1 & 2 where there are dependencies for other topics	We will identify the steps and to the extent we know the dependencies, will include them.
Provide a crosswalk of the Tariff issues from TC-20 to TC-22	Please see appendix at workshop in Nov. 19.

12/15/19 Feedback Summary (cont.)

Themes	BPA's Response: Updated 1/28
EDAM impact on rates and tariff	EDAM policy is out of scope in the rates and tariff. Customers have the ability to participate directly in the CAISO's EDAM policy initiative process. Bonneville's evaluation of whether and how to join EDAM is anticipated to be another decision process – much like EIM – including the development of principles for our evaluation. We also anticipate that process would then be followed by rates and tariff cases.
Green House accounting	Green house gas accounting is out of scope in the rates and tariff process. The policy was discussed in the following workshop: https://www.bpa.gov/Projects/Initiatives/EIM/Doc/20190312-March-13-2019-EIM-Stakeholder-Mtg.pdf
EIM governance	EIM governance is out of scope in the rates and tariff process. Customers have the ability to participate in CAISO's governance review process.
Leverage customer led workshops to share experiences and challenges	We worked with other participants to get a better understanding of their experiences and challenges. We also agree the monthly customer led workshops are an excellent forum to share experiences and challenges with other customers. Our first requested customer led workshop was 1/15.
Carry larger ancillary services reserves	This will be addressed in the Gen Inputs discussion.
More discussion is needed on steps 1 & 2 for resource sufficiency. Customers provided several questions to gain a better understanding.	We will look at the schedule and update it to address these questions.

12/15/19 Feedback Summary (cont.)

Themes	BPA's Response: Updated 1/28
Develop a roadmap of how future deferred tariff topics are addressed.	The future deferred tariff topics are due to possible changes in industry standards and developing markets. We don't have roadmaps at this time. We would look to develop roadmaps after the conclusion of TC-22 if warranted.
Regional Planning Organization may have a couple of options	This will be addressed in steps 3-6 of the RPO discussion. An RPO update will be discussed at the 2/25 workshop and step 3 will be addressed in the 4/28 workshop.
Oversupply discussion and if it is needed in EIM	As noted in the EIM discussions at https://www.bpa.gov/Projects/Initiatives/EIM/Doc/20190312-March-13-2019-EIM-Stakeholder-Mtg.pdf BPA believes OMP is compatible with EIM. As we gain experience with EIM operations, we will continue to evaluate implementation and consider any potential changes in future tariff cases.

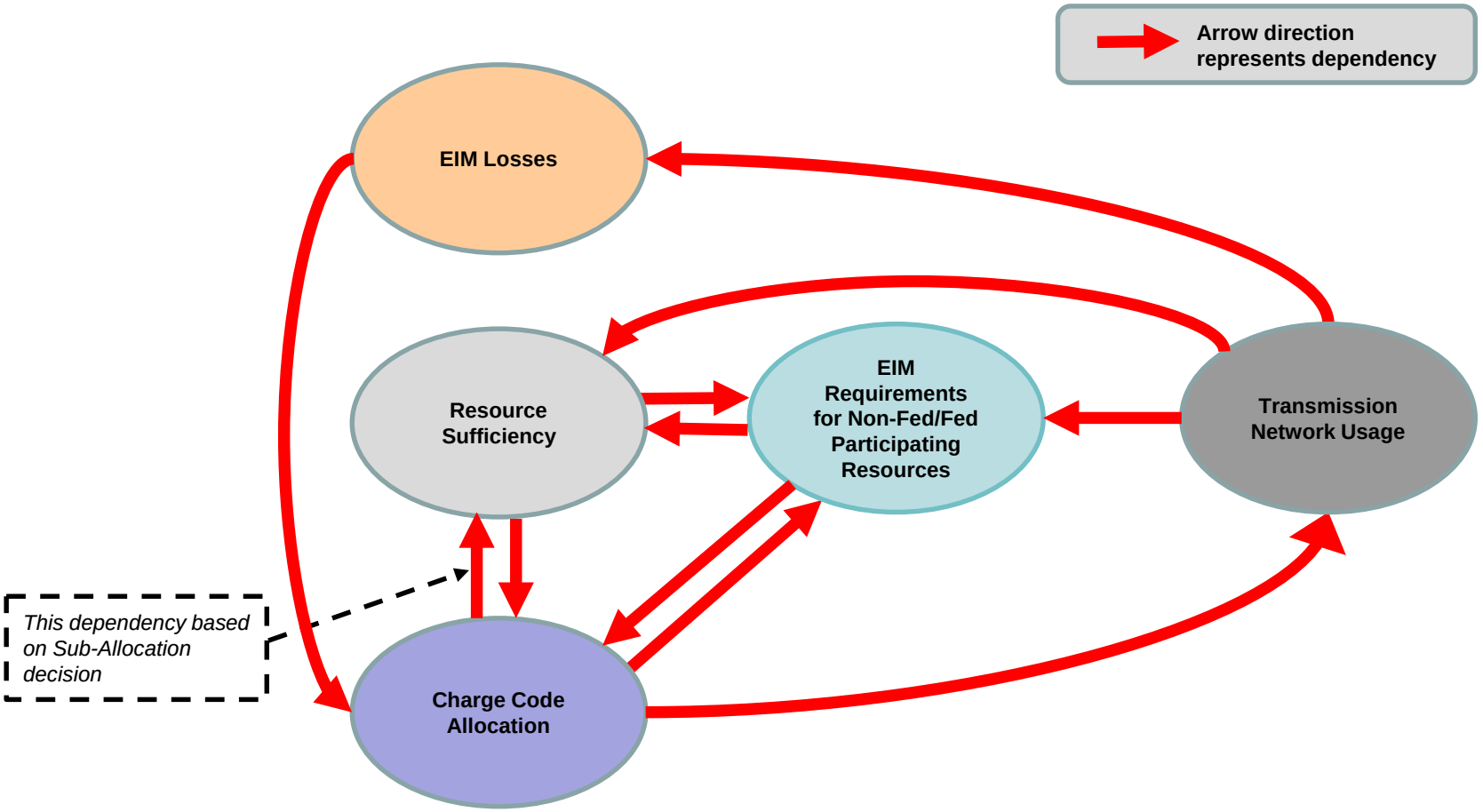
EIM Charge Code Allocation

APPENDIX

Customer Led Workshop Protocol

- Submit a workshop request no later than one week before the scheduled date (see slide 4 for dates).
- Requests must include a list of topics/issues you wish to cover if you are requesting Bonneville SME support.
- Discussions/workshops will only cover previously reviewed materials.
- Customers must inform BPA if A/V resources are required to include remote participants and/or present materials **through virtual meeting**.
- BPA will verify that it will staff for the requested topics within three business days via Tech Forum.

EIM Issue Inter-Dependencies Identified



Appendix – Generation Inputs

BP-22 Forecasted Generation Profile

Month	Wind (MW)	Solar (MW)	DERs* (MW)	CGS (MW)	Hydro (MW)
Oct ’21	3521	109	1548	1230	2527
Nov ’21	3521	129	1548	1230	2527
…	…	…	…	…	…
Oct ‘22	3521	205	1548	1230	2527
Nov ‘22	3721	205	1548	1230	2527
…	…	…	…	…	…
Sept ’23	3721	205	1548	1230	2527
Average	**3613**	**166**	**1548**	**1230**	**2527**

*Throughout the presentation, DERs stands for Dispatchable Energy Resources (thermal plants)

Reserve Capacity Forecast by Class (INC)

Month	Total (MW)	Load (MW)	Wind (MW)	Solar (MW)	DERs (MW)	Fed Hydro + CGS (MW)
Oct '21	763	297	429	6	10	21
Nov '21	764	297	430	6	10	21
…	…	…	…	…	…	…
Oct '22	768	297	428	13	10	21
Nov '22	783	297	442	13	10	21
…	…	…	…	…	…	…
Sept '23	783	297	442	13	10	21
Average	**773**	**297**	**435**	**10**	**10**	**21**

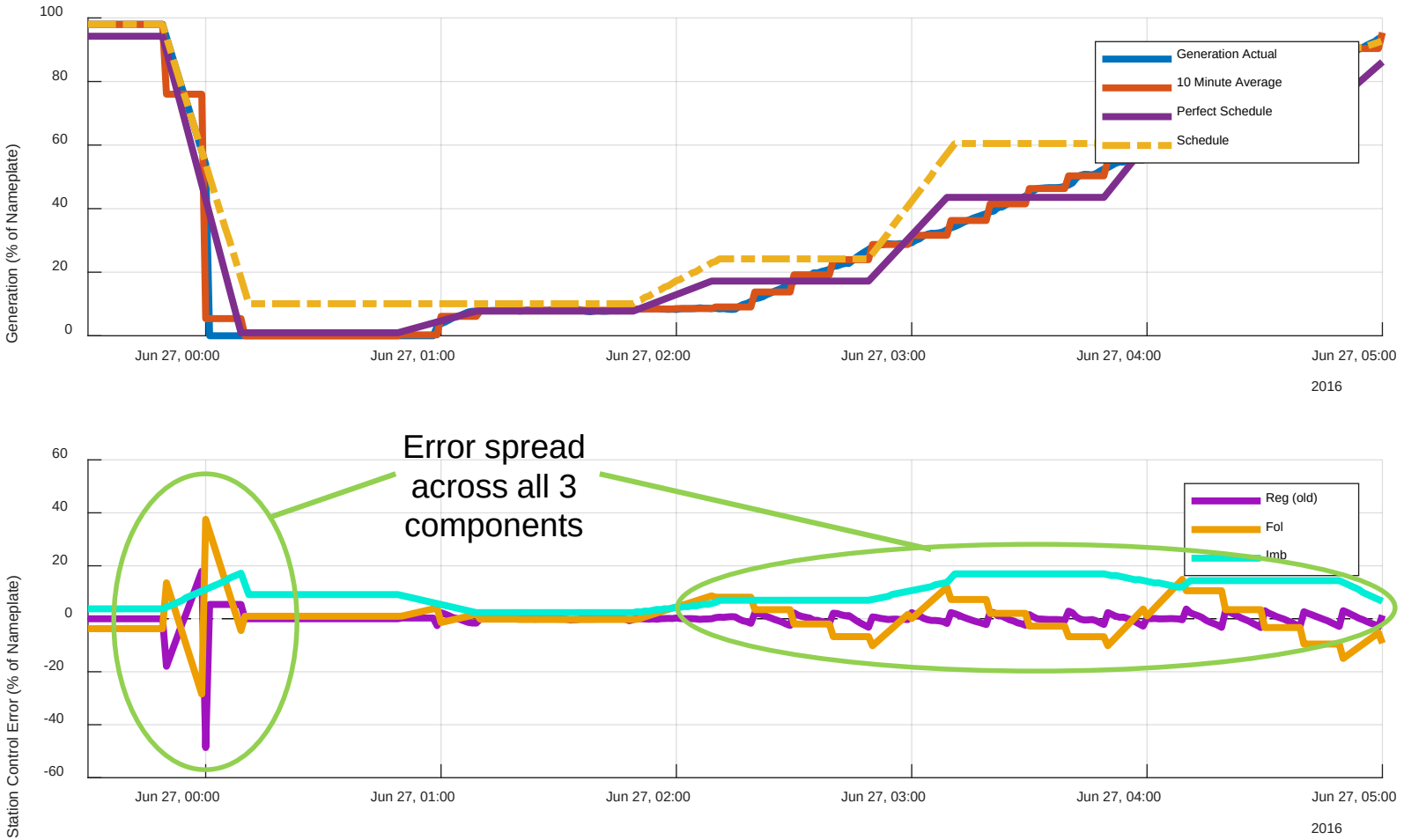
Reserve Capacity Forecast by Class (DEC)

Month	Total (MW)	Load (MW)	Wind (MW)	Solar (MW)	DERs (MW)	Fed Hydro + CGS (MW)
Oct '21	-943	-364	-539	-7	-11	-23
Nov '21	-943	-363	-538	-8	-11	-23
…	…	…	…	…	…	…
Oct '22	-942	-360	-533	-15	-11	-23
Nov '22	-957	-360	-548	-15	-11	-23
…	…	…	…	…	…	…
Sept '22	-957	-360	-548	-15	-11	-23
Average	**-949**	**-362**	**-542**	**-11**	**-11**	**-23**

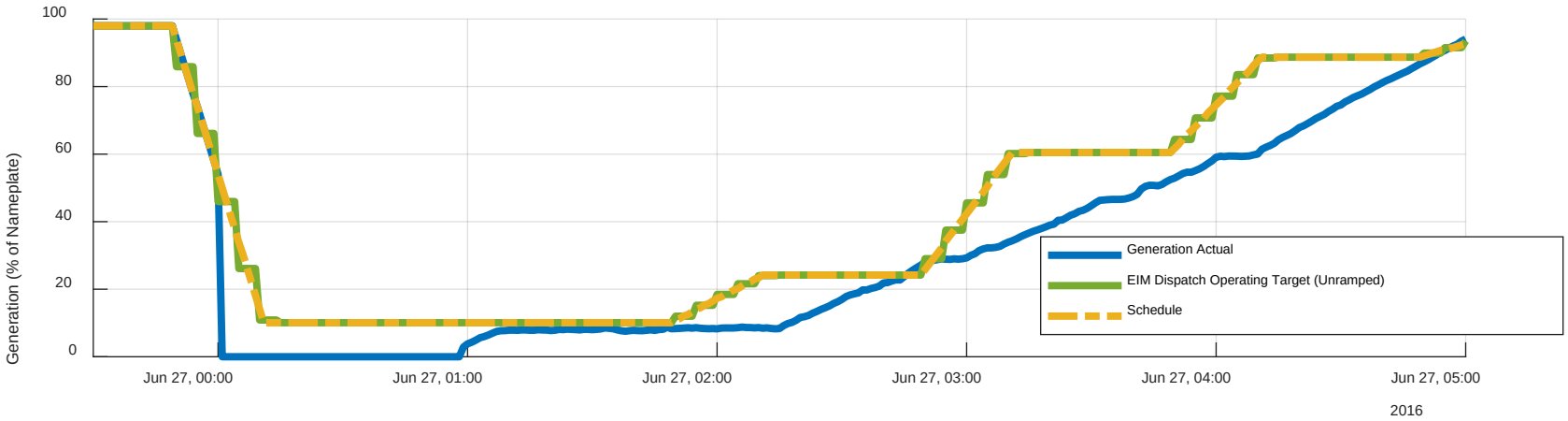
Reg. vs. Non-Reg. for Dispatchable Plants

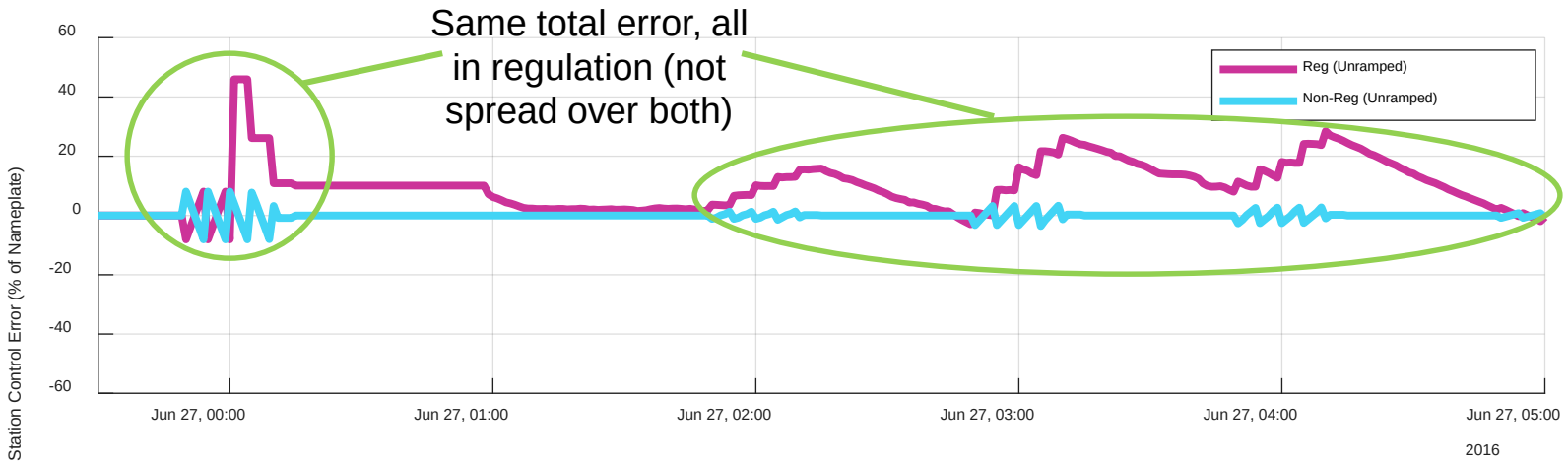
- For dispatchable plants with no incremental awards from the EIM, the 5-minute ramped Dispatch Operating Target (DOT) follows the ramped base schedule, resulting in zero error in the Non-Regulation bucket.
- Thus, any error for dispatchable plants shows up in the (new) Regulation bucket.
- Because all dispatchable plant error shows up in the Regulation bucket, and the error of other classes is spread between the two buckets, Incremental Standard Deviation (ISD) allocates a higher portion of the regulation bucket to the dispatchable plants, resulting in a higher total reserve allocation.

Three Components for Dispatchable Plants

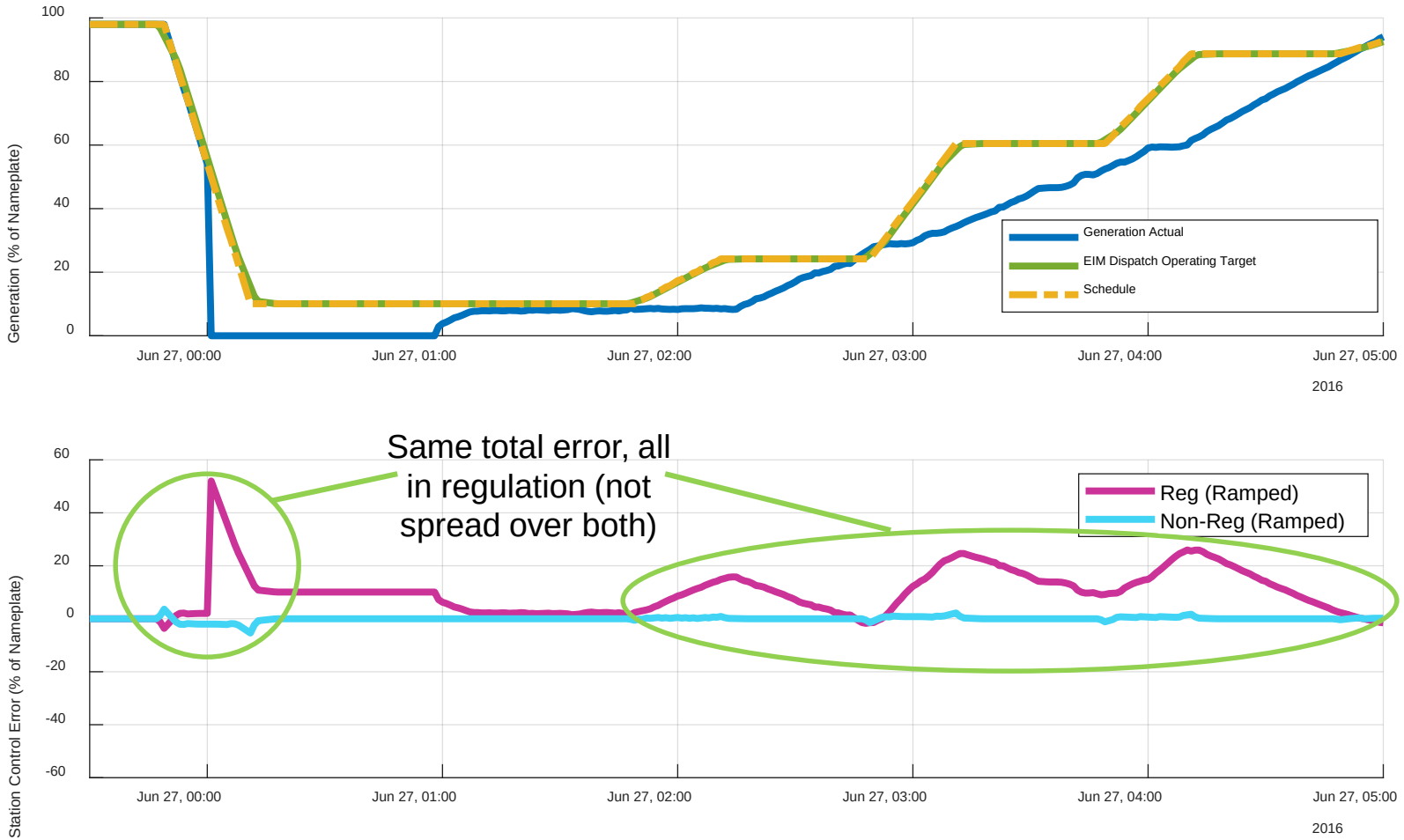


Two Components for Dispatchable Plants





Two Components for Dispatchable Plants



ACS Rates (Method A)

- Here are the ACS rates resulting from all these changes:

	BP-20	BP-22	Units
RFR	0.49	0.56	mills/kWh
Operating Reserves: Spinning	9.53	9.96	mills/kWh
Operating Reserves: Supplemental	8.32	7.94	mills/kWh
Wind Uncommitted	1.09		$/kW-month
Wind 30/60	0.93		$/kW-month
Wind 30/15	0.63		$/kW-month
Wind (Weighted Avg) vs. New	0.98	0.89	
Solar Uncommitted	0.91		$/kW-month
Solar 30/60	0.69		$/kW-month
Solar 30/15	0.37		$/kW-month
Solar New Forecast	0.71	0.49	
DERBS INC	15.11	24.18	mills/kW (max hourly deviation)
DERBS DEC	1.59	1.95	mills/kW (max hourly deviation)

Impacts of Each Change (Rates) (Method A)

A		Credit to Power	Wind Rate	Solar Rate	DERBS Rate	Load Rate
B	BP-20 Rates	$110,000,000	$0.98	$0.71	$15.11	$0.49
C	Resource Forecast Updates & Minor Changes	$8,976,928	$0.01	-$0.13	-$1.91	-$0.01
D	EIM Increased Reserve Requirement	$3,413,000	$0.01	-$0.01	-$0.58	$0.06
E	Reg/NonReg Reserve Categorization	-$453,000	-$0.01	-$0.10	$4.63	$0.00
F	CRSO Hydro Capability Changes Energy	$2,113,000	$0.03	$0.02	$0.82	$0.02
G	CRSO Hydro Capability Changes Capacity	-$193,000	$0.00	$0.00	-$0.08	$0.00
H	Reg/NonReg Pricing	-$707,000	-$0.04	$0.03	$6.57	$0.02
I	IPR Costs	-$731,000	-$0.01	-$0.01	-$0.30	-$0.01
J	Wind Scheduling Update	-$3,623,000	-$0.08	-$0.03	-$0.08	-$0.01
K	BP-22 Rates	$118,636,729	$0.90	$0.48	$24.18	$0.56

- Wind and Solar rates are in $/kW-month Nameplate
- Load Rate is in mills/kWh
- DERBs Rate is in mills/kW of Max Monthly Deviation

Impacts of Each Change (Dollars) (Method A)

A		Credit to Power	Wind RR	Solar RR	DERBS RR	Load RR
B	BP-20 Rates	$110,000,000	$33,989,001	$906,552	$825,813	$25,278,185
C	Resource Forecast Updates & Minor Changes	$8,976,928	$9,147,999	$242,448	-$95,334	-$318,185
D	EIM Increased Reserve Requirement	$3,413,000	$593,000	-$16,000	-$29,000	$2,865,000
E	Reg/NonReg Reserve Categorization	-$453,000	-$387,000	-$193,000	$231,000	-$104,000
F	CRSO Hydro Capability Changes Energy	$2,113,000	$1,168,000	$30,000	$41,000	$874,000
G	CRSO Hydro Capability Changes Capacity	-$193,000	-$106,000	-$3,000	-$4,000	-$80,000
H	Reg/NonReg Pricing	-$707,000	-$1,891,000	$65,000	$328,000	$791,000
I	IPR Costs	-$731,000	-$402,000	-$10,000	-$15,000	-$304,000
J	Wind Scheduling Update	-$3,623,000	-$3,269,000	-$57,000	-$4,000	-$293,000
K	BP-22 Rates	$118,636,729	$38,843,000	$965,000	$1,278,478	$28,709,000

	Wind	Solar	DERs	Load
Percent Nameplate Change	25%	55%	-4%	0%
Percent RR Change	17%	2%	55%	14%