

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

April 28, 2020



AGENDA REVIEW AND FEEDBACK FROM PRIOR WORKSHOP

Agenda

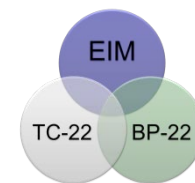
TIME *	TOPIC	Presenter
9:30 to 9:40 a.m.	Agenda Review & Safety	Rebecca Fredrickson Rachel Dibble
9:40 to 10:30 a.m.	EIM Charge Code Allocation <ul style="list-style-type: none"> Steps 5-6 	Miranda McGraw Derrick Pleger
10:30 to 10:45 a.m.	Break	
10:45 to 11:15 a.m.	Timeline for Base Schedules and Transmission Donations for ETSRs <ul style="list-style-type: none"> Steps 1-2 	Eric King, Frank Puyleart Ted Barham
11:15 to 11:45 a.m.	BP-20 Gen Inputs Settlement Deliverable Closeout	Jarek Oliver Libby Kirby Eric King
11:45 to 12:45 pm	LUNCH	
12:45 to 1:15 p.m.	Creditworthiness <ul style="list-style-type: none"> Steps 3-6 	Rahul Kukreti Tony Palandri Mitch Green
1:15 to 1:45 p.m.	Incremental/Minor Changes to Agreement Templates <ul style="list-style-type: none"> Steps 1-2 	Paula Gibson Adelle Harris
1:45 to 2:15 p.m.	Review Tariff Language Approach	Melanie Bersaas Rahul Kukreti
2:15 to 2:30 p.m.	Wrap up	Rebecca Fredrickson

* *Times are approximate.*

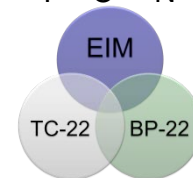
3/17 Workshop - Customer Comments

Customer	Comment Summary	BPA Response
Work Plan & Workshops	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • BPA has included a detail policy questions and proposal on where those decisions will be made in the presentation
Seller's Choice	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • These concerns will be considered and addressed in May, when Seller's choice will be discussed
Transmission Losses	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • Thank you for your feedback. These comments will be considered and addressed in the May workshop
EIM Transmission Usage	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Thank you for your feedback, your concerns will be considered and addressed in the June workshop
Intertie Studies	<ul style="list-style-type: none"> • Support updating the tariff • Maximize flexibility and minimize financial exposure • Work with customers, regional stakeholders and partners on expansion needs 	<ul style="list-style-type: none"> • 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.

EIM Priority Issues

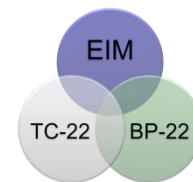


#	Issue	BP-22	TC-22	Future BP/TC
1	EIM Charge Code Allocation	X	?	X
2	EIM Losses	X	X	?
3	Resource Sufficiency	X	X	?
3a	- Balancing Area Obligations	X	X	?
3b	- LSE Performance & Obligations	X	X	?
3c	- Gen Input Impacts	X	X	?
4	Development of EIM Tariff Changes		X	?
5	Transmission Usage for Network	X	X	?
6	Non-federal Resource Participation	X	X	?
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	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	Generator Interconnection (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		

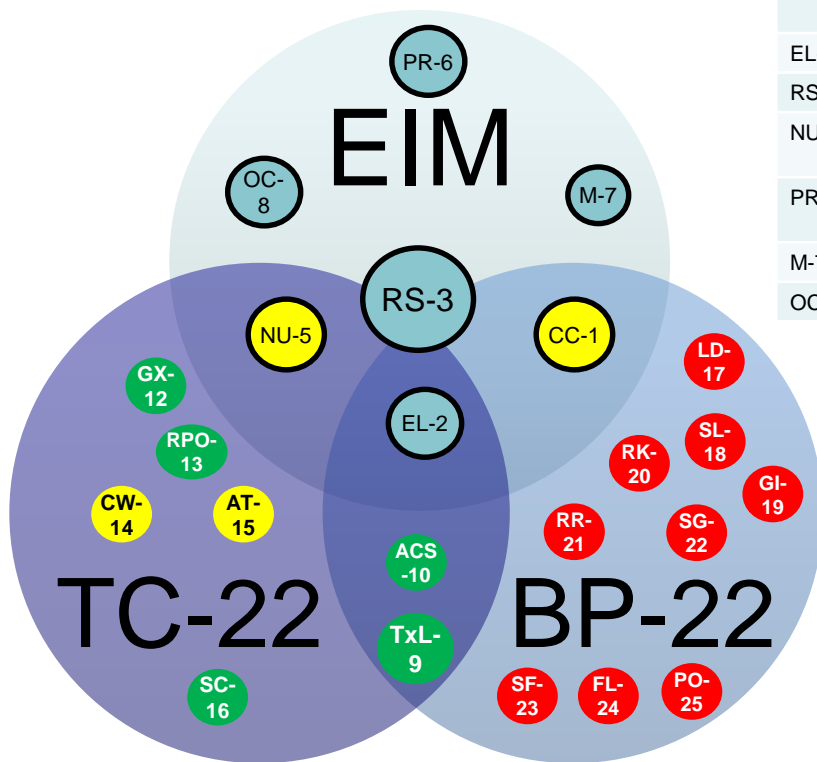


Potential Future Rates & Tariff Issues

#	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

XX-# 4/28 Workshop Topics



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

KEY	TC
TxL-9	Transmission Losses
ACS-10	Ancillary Services
GX-12	Generator Interconnection
RPO-13	Regional Planning
CW-14	Creditworthiness
AT-15	Agreement Templates
SC-16	Seller's Choice

KEY	BP
LD-17	Loads
SL-18	Sales
GI-19	Generator Interconnection
RK-20	Risk
RR-21	Revenue Requirements
SG-22	Segments
SF-23	Sale of Facilities
FL-24	Financial Leverage
PO-25	Power-only

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

Step 1:
Introduction & Education

Step 2:
Description of the Issue

Phase Two: Evaluation

Step 3:
Analyze the Issue

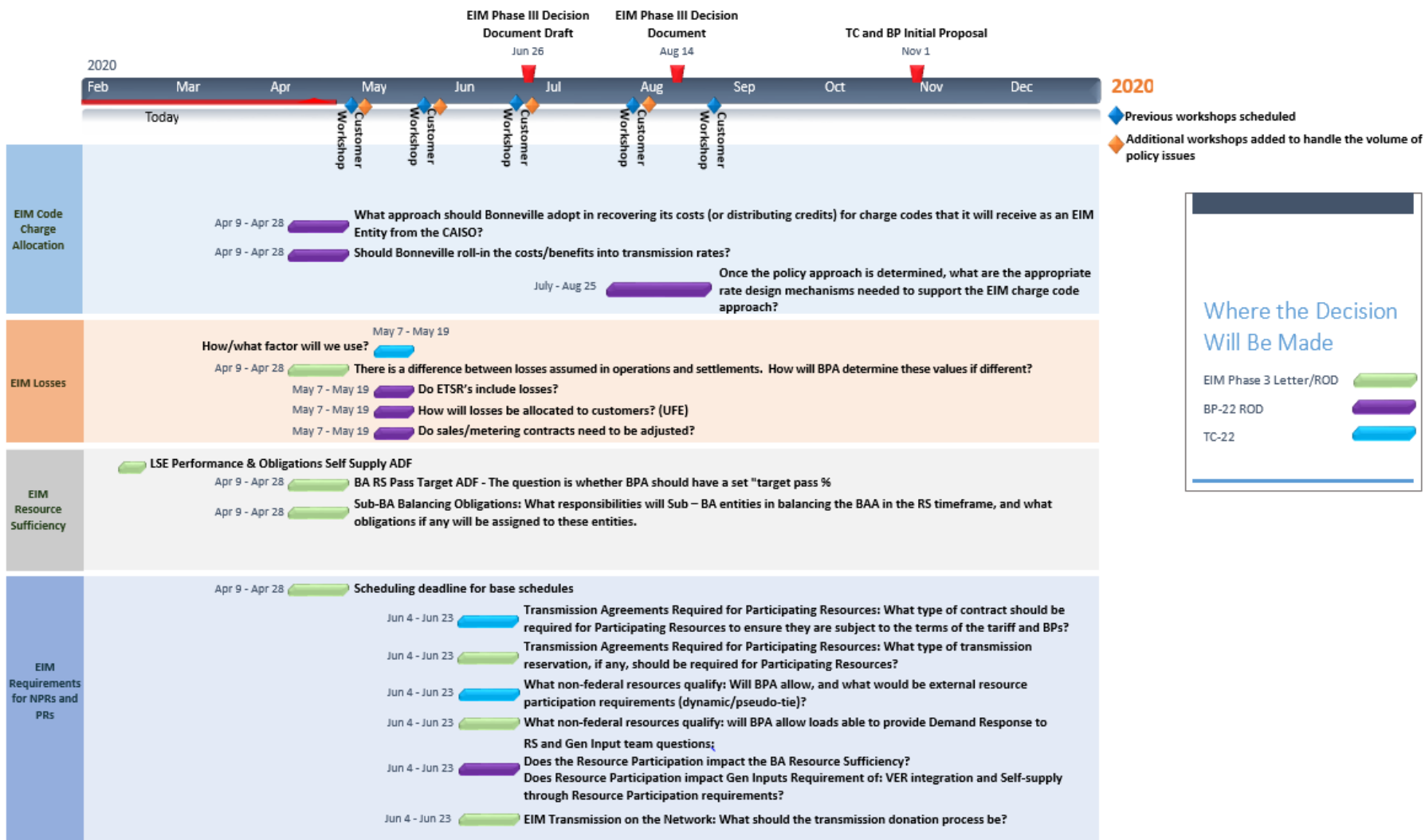
Step 4:
Discuss Alternatives

Phase Three: Proposal Development

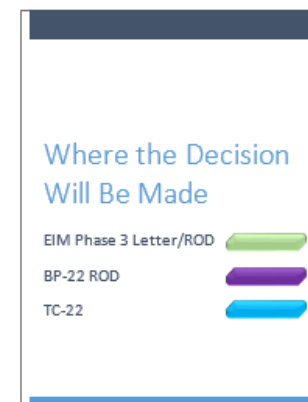
Step 5:
Discuss Customer
Feedback

Step 6:
Staff Proposal

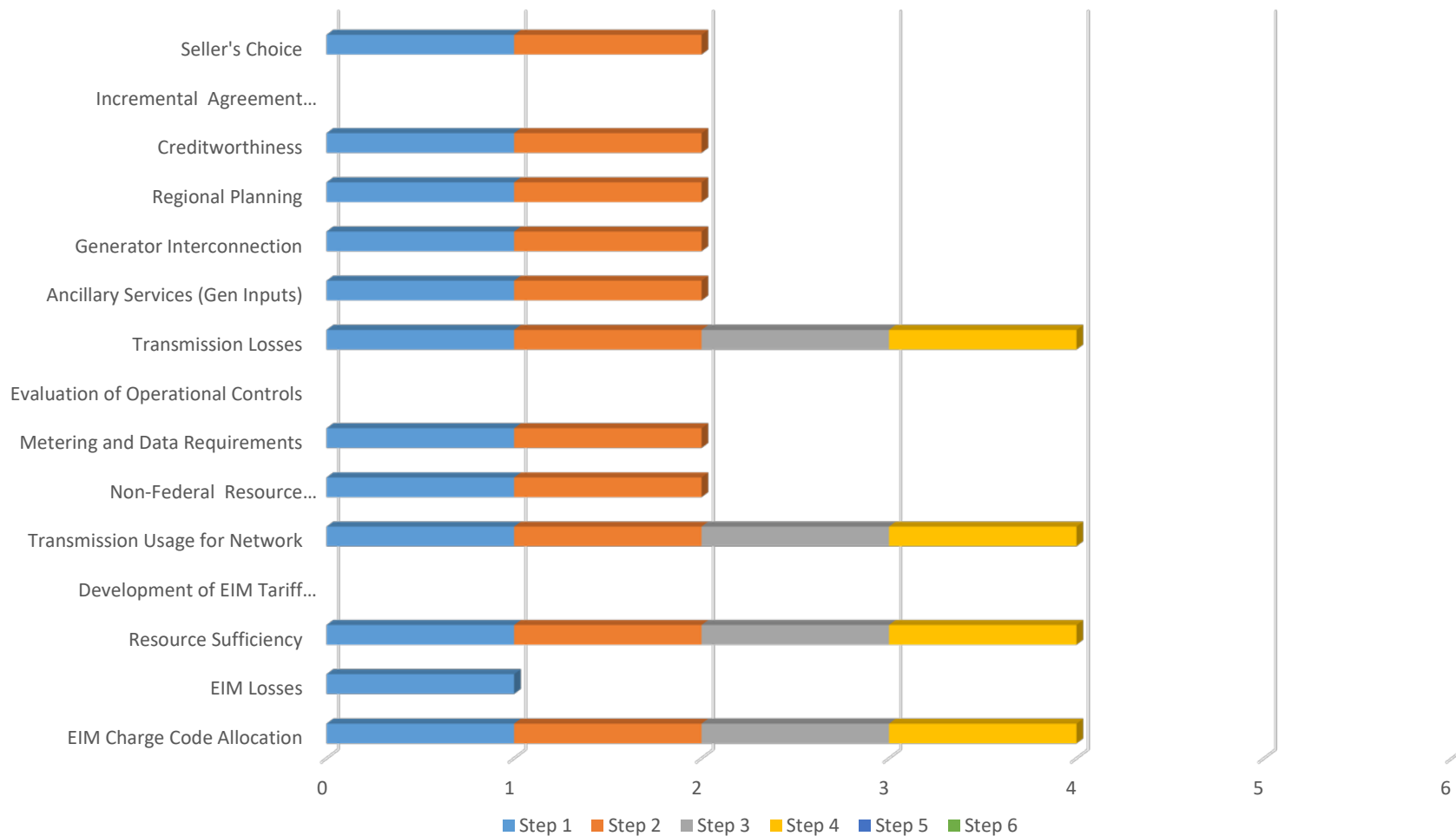
EIM / BP-22 / TC-22 Detailed Work Plan



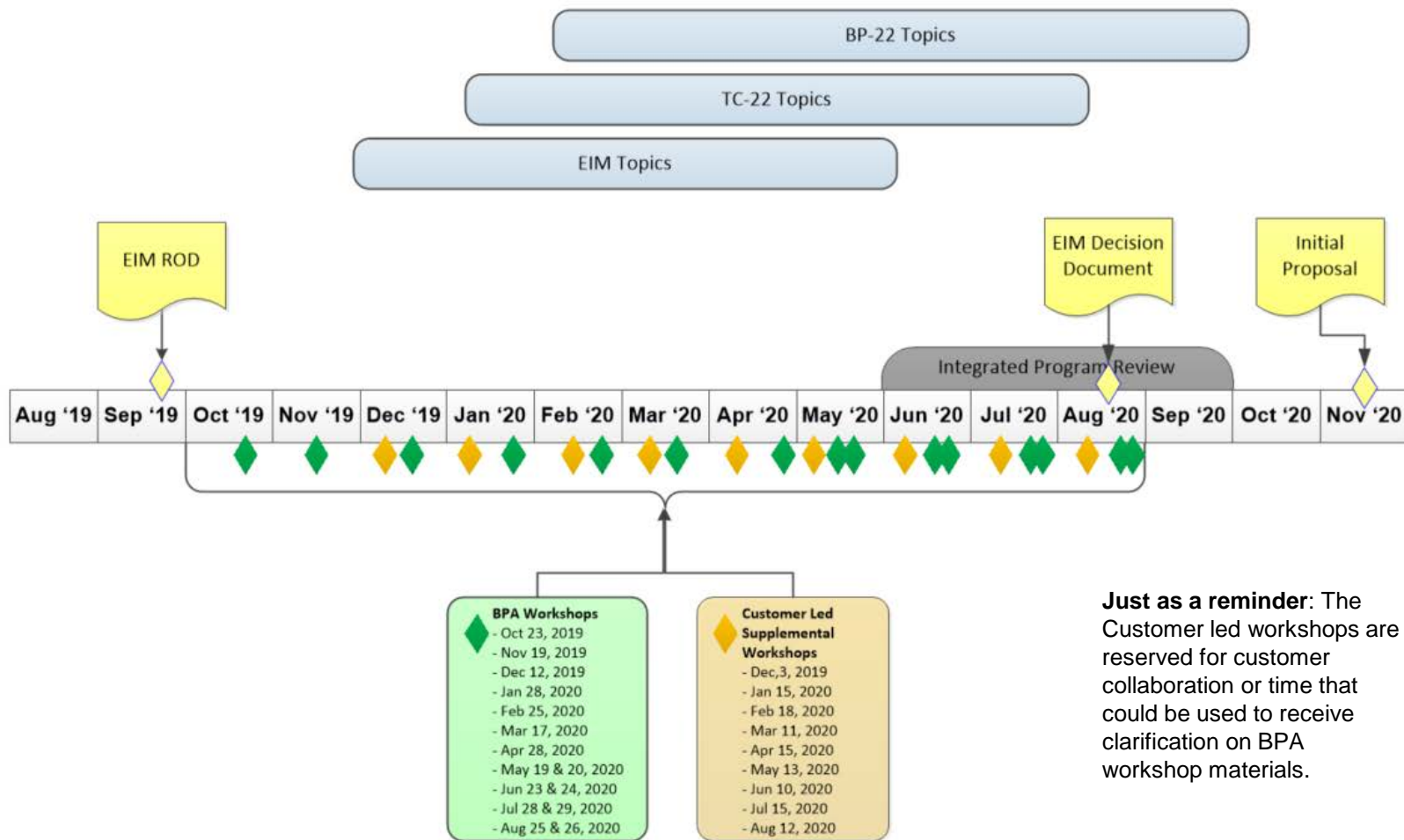
EIM / BP-22 / TC-22 Detailed Work Plan (cont.)



Status of Topics as of 4/28/2020



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.

ISSUE #1: EIM CHARGE CODE ALLOCATION

Step 5: Discuss Customer Feedback

Step 6: Staff Proposal

Objective

- Address charge code allocation policy issues to determine the approach Bonneville should adopt to recover its costs (or distribute credits) for charge codes it receives as an EIM Entity.
- Policy direction will be set as the starting point for development of the BP-22 Initial Proposal
 - Charge code allocation policy issues will not be finalized until the BP-22 Record of Decision

Charge Code Allocation Approach

*Phase One:
Approach Development*

*Step 1:
Introduction & Education*

*Step 2:
Description of the Issue*

*December 12
Workshop*

*Phase Two:
Evaluation*

*Step 3:
Analyze the Issue*

*Step 4:
Discuss Alternatives*

*February 25
Workshop*

**Phase Three:
Proposal Development**

**Step 5:
Discuss Customer
Feedback**

**Step 6:
Staff Proposal**

**Today's
Workshop**

The charge code allocation policy proposal will provide the framework for rate design, then rate design will be developed later.

Customer Feedback Themes

(slide 1 of 4)

Support was expressed for the following methods:

- **No Sub-Allocation:** Ability to gain experience in the market and reduce administrative burden for BPA and customers.
- **Either No Sub-Allocation or Partial Sub-Allocation:** Supports phased-in approach, while balancing cost causation with simplicity.
- **Partial Sub-Allocation:** Balance the administrative burden and cost causation, by covering majority of the costs anticipated.
- **FERC-Approved Sub-Allocation:** Provides consistency with other EIM entities and supports cost causation.

The support expressed by customers was considered in developing the Staff Proposal

Customer Feedback Themes

(slide 2 of 4)

The following concerns were expressed:

- **Seams Issues:** Risk of unintended consequences or costs due to seams, along with complexities for wheel-through customers.
- **Behavioral Issues:** Variability in how quickly customers adapt and concerns regarding lack of incentives for optimal market behavior.
- **Cost Causation:** Concern about additional costs or cost shifts that could occur if customers are insulated.

These concerns were taken into consideration, while balancing with the trade-offs and the other evaluation criteria

Customer Feedback Themes

(slide 3 of 4)

The following recommendations were made:

- Consider FERC-Approved Sub-Allocation Methods
- Base on Cost Causation (where possible)
- Adjust Rates/Allocation Methods Over Time (as needed)
- Adapt Existing Rate Methodologies to Align with EIM
- Support Pursuing Sub-Allocation for UFE Charge Code

These recommendations were taken into account in developing the staff proposal, where applicable. Some of these relate to the next phase of work (designing how to implement the policy proposal) and will be under consideration moving forward.

Customer Feedback Themes

(slide 4 of 4)

Additional information requested, such as:

- Illustrative examples by customer type
- Further connections to other EIM work streams
- Assessments of the alternatives, based on the trade-offs
- Clarity on the phased-in approach

Today's presentation will address these requests, to the extent information is available. Some requests will be addressed in later phases of work.

Phased In Approach

BP-22

No BPA BAA-specific EIM data available during development

BP-24

Less than a half year of BPA BAA-specific EIM data available during development

BP-26

Two years of BPA BAA-specific EIM data available during development

A phased in approach:

- Acknowledges the data availability constraints
- Enables developing a methodology that can be built upon as we gain experience in the market
- Recognizes the forecasting constraints and administrative burden

Customers expressed interested in adopting a phased-in approach

Narrowing Alternatives for Evaluation

By pursuing a phased in approach for charge code allocation, the alternatives for evaluation were narrowed to two options for BP-22:

No Sub-Allocation

0 Codes

- No direct sub-allocation of EIM charge codes
- Evaluate charge code connection to existing products/rates
- Define cost recovery mechanism(s) for charge code costs/credits
- Modify existing rate mechanisms and structures to align with EIM as needed

BPA-Designed Partial Sub- Allocation

1-26 Codes

- Begin sub-allocating select EIM charge codes
- Define sub-allocation method by charge code
- Define cost recovery mechanism(s) for remaining charge codes
- Modify other existing rate mechanisms and structures to align with EIM as needed

Criteria for Evaluation

Feasibility of Implementation

Customer Perspective

- Resource Costs
- Training Costs
(scaled to EIM experience)

BPA Perspective

- Resource Costs to Implement Design
- Recognition of Uncertainties in Forecasting Costs and Revenues

Administrative Burden

Customer Perspective

- Cost of Administering
- Volume of Supporting Billing Data

BPA Perspective

- Cost of Administering Billing and Settlements
- Level of Service based on Complexity of Billing
- Design Limitations based on System Capabilities

Cost Recovery Design

- Full and Timely Cost Recovery
- Cost Allocation Consistent with Cost Causation
- Incentivize Appropriate Market Behaviors
- Understandable and Transparent Methodology
- Flexibility in Design to Develop with Market Experience
- Minimize Settlement Seams Issues
- Design with Consideration of Risk Mitigation

Alternative Evaluation

Criteria	No Sub-Allocation	Partial Sub-Allocation
Feasibility of Implementation	<ul style="list-style-type: none"> • Resource costs to implement the design on the BPA side, potentially more than typical rate-making • Uncertainties in forecasting costs and revenues 	<ul style="list-style-type: none"> • Customers may feel obligated to procure new or enhance existing systems in order to effectively process and analyze settlements. • Resource costs to implement the design on the BPA side, more than typical rate-making • Uncertainties in forecasting costs and revenues
Administrative Burden	<ul style="list-style-type: none"> • Customers' administrative costs compared to status quo may be minimal and BPA's costs may increase • Dispute process complexity could increase, given the CAISO to BPA relationship • Anticipate a similar level of service for customers as currently occurs in the status quo 	<ul style="list-style-type: none"> • Customers' and BPA's administrative costs would likely increase, given the additional complexity and increased volume of data • Dispute process complexity would increase, given customers experience sub-allocation and the CAISO to BPA relationship. • Increased level of service may be required to support customers
Cost Recovery Design	<ul style="list-style-type: none"> • Could be challenges in tying cost recovery to cost causation • Attempts to use existing rate mechanisms/behavioral signals to align with the EIM market • Ability to develop additional rate mechanisms to ensure cost recovery • Methodology similar to today, reduces amount of change for customers 	<ul style="list-style-type: none"> • Begins the alignment between cost causation and cost allocation • May still need to adapt some existing rate mechanisms/behavioral signals • Ability to develop additional rate mechanisms ensure cost recovery • Methodology would evolve compared to today, but is more transparent for EIM settlements charges/credits attributed to customers.

Key Considerations

Criteria	No Sub-Allocation	Partial Sub-Allocation
Customer Feedback	<ul style="list-style-type: none"> • Allows BPA and customers to gain market experience and avoids complexity in allocations • Enables BPA to work with CAISO on data for future allocations, thereby reducing risk for errors • Reduces administrative burden of potential re-settlements due to errors in the market • Allows BPA and customers to assess financial impacts and issues in the BP-24/TC-24 proceedings 	<ul style="list-style-type: none"> • Appears to better align with cost causation, but only if Base + Neutrality codes were sub-allocated • Prioritize sub-allocation of charge codes where customers are able to exert some control over the charges • Consider sub-allocation of codes that have the highest cost recovery risk or inequitable cost recovery risks
Other EIM Implications	<ul style="list-style-type: none"> • For EIM transmission losses connections, Base + Neutrality codes all need to be sub-allocated or not sub-allocated together • Current rate constructs would not be able to recover the Over/Under Scheduling Penalty costs 	<ul style="list-style-type: none"> • For EIM transmission losses connections, Base + Neutrality codes all need to be sub-allocated or not sub-allocated together • Over/Under Scheduling Penalty codes can be sub-allocated, thereby recovering the costs consistent with CAISO EIM structure
Risks	<ul style="list-style-type: none"> • Potential seams issues (<i>very likely</i>) • May not provide customer incentives to accurately schedule in the market 	<ul style="list-style-type: none"> • Potential seams issues for first rate period (<i>somewhat likely</i>) • Deviation from FERC approved model could have risk of unintended consequences
Trade-Offs	<ul style="list-style-type: none"> • Potential for longer time horizon to phase-in, which could reduce EIM benefits • BPA's settlements function would focus on settlements between CAISO/BPA • Limits ability to impact market behaviors to align with EIM in the first rate period 	<ul style="list-style-type: none"> • Enables phased-in approach, but on a shorter time span to recognize EIM benefits • BPA's settlements function would focus on settlements between CAISO/BPA and BPA/customers (potential additional staffing costs) • Ability to impact market behaviors on sub-allocated areas to align with EIM

Staff Proposal

- BPA staff propose to begin the BP-22 Initial Proposal development pursuing a phased in charge code allocation approach.
- For BP-22, staff propose to begin with BPA-defined partial sub-allocation.
- The list of charge codes included in the following slides are a **preliminary** staff proposal for sub-allocation and may evolve.
- Allocation methods will be further evaluated in the next phase of work.

Staff Proposed Phased In Approach

BP-22

Begin Charge Code Allocation and Modify Existing Rate Structures (as needed)

BP-24

Leverage Preliminary Data to Modify Charge Code Allocation and/or Rate Structures (as needed)

BP-26

Utilize Two Years of Data to Complete Refinement of Charge Code Allocation and/or Rate Structures (as needed)

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

Staff Proposed Charge Codes for BP-22 Sub-Allocation

Base Codes

Neutrality
Codes +
Congestion
Offset Code

Scheduling
Penalty
Codes

Charge Codes Excluded from Proposed Sub-Allocation for BP-22:

Bid Cost Recovery Codes

Flexible Ramp Codes

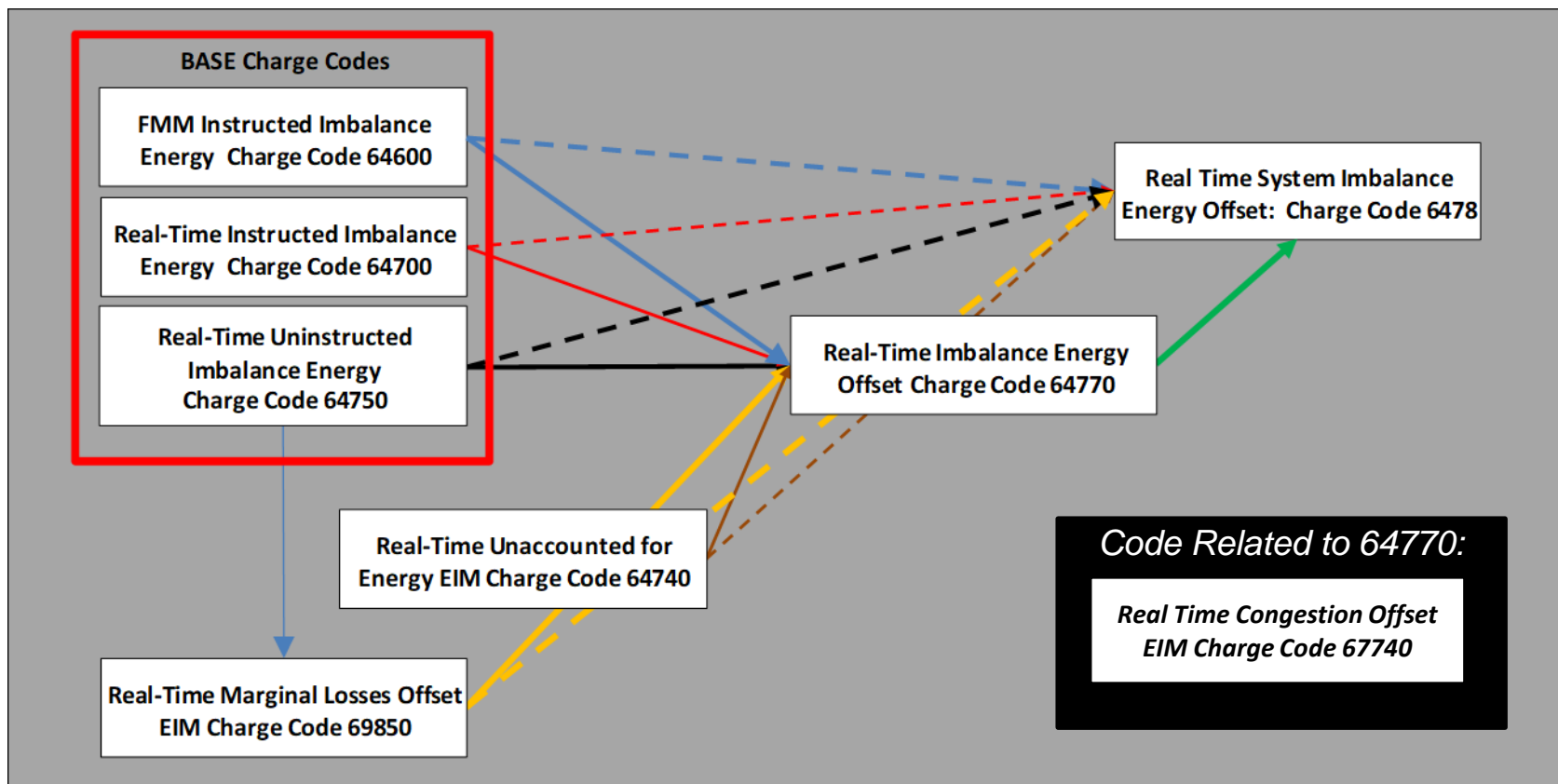
Grid Management Charge Codes

Enforcement Protocol (EP) Penalty Code

Administrative Codes

BPA-Defined Partial Sub-Allocation

How it all fits together *(Slide 1 of 4)*



Base + Neutrality + Congestion Offset

BPA-Defined Partial Sub-Allocation

How it all fits together *(Slide 2 of 4)*

Congestion Offset Connection to 64770

CAISO Description of Charge Code 64770:

- *The calculation of Real-Time Imbalance Energy Offset EIM (64770) also includes the settlement of Greenhouse Gas Compensation. Additional adjustments are calculated to subtract congestion and transmission losses, and adjust for participation in the Energy Imbalance Market.*
- *To the extent that the sum of the Settlement Amounts for EIM Financial Transfer, Greenhouse Gas Compensation, IIE, UIE, and UFE, **less the RT Energy Congestion revenues computed within Real-Time Congestion Offset (from CC 67740)** less the Real-Time Marginal Cost of Losses Offset (from CC 69850) and EIM Transfer Adjustment does not equal zero, the CAISO will assess Charges or make Payments in Real Time Imbalance Energy Offset (CC 64770) for the resulting differences to the EIM Entity Scheduling Coordinator.*

BPA-Defined Partial Sub-Allocation

How it all fits together *(Slide 3 of 4)*

Scheduling Penalty Codes

Charge Codes 6045 and 6046

- Given the interdependency of the BAA's final Base Schedules and scheduling practices, all generation and load serving entities in the BAA have potential to impact the outcome of the Over/Under Scheduling Penalty. Final Base Schedules for the BAA are a summation of Generation Base Schedules minus Export Base Schedules plus Import Base Schedules.
- The penalty structure of the Over/Under Scheduling Penalty includes 2 tiers; (1) 25% penalty for less than 10% error ($5\% \leq \text{error} < 10\%$) between actual and final Base Schedules, or (2) at the $\geq 10\%$ error level, 100% penalty for Under Scheduling and 50% penalty for Over Scheduling. Meaning that there is potential to effectively double the UIE payment for the BAA, which current rate mechanisms would not recover.
- For example, 10% error on a 8,000 MW load hour with today's prices of ~\$15/MWh would incur an hourly charge or \$24,000 (\$12k UIE plus \$12k O/U Penalty) but passing on UIE payments would only recover \$12,000.

BPA-Defined Partial Sub-Allocation

How it all fits together *(Slide 4 of 4)*

Code Surpassing FERC Model

Charge Code 64740 Unaccounted for Energy (UFE)

- Bonneville acknowledges that the allocation of UFE is something that other EIM entities have not sub-allocated
- UFE typically accounts for any difference in the loss factor used to establish a Load Base Schedule (LBS) and real power losses calculated by the market. To the extent BPA's BAA area losses can vary over the course of a day, week, or month, the UFE settlement can also be variable. Since UFE is included in RTIEO, it would be appropriate to allocate UFE to customers.

BPA-Defined Partial Sub-Allocation

Base Codes

Code Number	Description	FERC Allocation Method	Rationale for Allocation
64750	Uninstructed Imbalance Energy (Schedule 4 and Schedule 9)	Direct Assignment	Customer submits a schedule to BPA based on customer forecast
64600	FMM Instructed Imbalance Energy (Energy Imbalance)	Direct Assignment	Customer has the ability to change schedule in real-time "EIM Market"
64700	Real-Time Instructed Imbalance Energy (Energy Imbalance)	Direct Assignment	Customer has the ability to change schedule in real-time "EIM Market"

Codes in **bold** are included in FERC-Approved sub-allocation.

- Approach captures all energy imbalance calculations and real-time schedule changes.
- This set of charge codes is expected to capture the majority of costs.
- Inclusion of the Base Codes will help ensure seams issues are minimized for transactions across multiple EIM BAAs.

BPA-Defined Partial Sub-Allocation Neutrality Codes

Code Number	Description	FERC Allocation Method	Rationale for Allocation
64770	Real Time Imbalance Energy Offset EIM	Measured Demand <i>(BPA May Consider Alternative Methods – such as Pro-Rata Shares of Code Components)</i>	Compensation or charges used to achieve revenue neutrality within each BAA when the market settles.
64740	Real Time Unaccounted for EIM Energy Settlement	Measured Demand <i>(BPA-Proposed Method)</i>	Is presumed to be caused by losses not calculated by the CAISO.
69850	Real Time Marginal Losses Offset EIM	Measured Demand	Associated with a change in losses due to RT generation dispatches.
6478	Real Time Imbalance Energy Offset	Measured Demand	Last allocation to achieve revenue neutrality within CAISO after 64770 settles.

Codes in **bold** are included in FERC-Approved sub-allocation.

As displayed on Slide 16 the above neutrality charge codes are interconnected with the Base Codes on the previous slide. Altogether completing the financial transactions resulting from energy imbalance in the EIM.

BPA-Defined Partial Sub-Allocation

Additional Sub-Allocated Codes

Code Number	Description	FERC Allocation Method	Rationale for Allocation
6045	Under/Over Schedule Load Charge	Measured Demand by Direction	Bonneville decides to hold customers responsible for over and under scheduling
6046	Under/Over Schedule Load Allocation	Measured Demand by Direction	Bonneville decides to hold customers responsible for over and under scheduling
67740	Real Time Congestion Offset EIM	Measured Demand	Recovers the difference between market forecasted congestion cost and resulting congestion cost based on EIM dispatches.

Codes in **bold** are included in FERC-Approved sub-allocation.

- Over/Under Scheduling prevents entities from leaning on the market, whereas ID and PD prevent entities from leaning on the BAA.
- 6045 and 6046 are needed because UIE alone is not sufficient to recover all costs for schedule deviations that cause the BAA to be off scheduled load by greater than 5%.
- Congestion Offset (67740) is related to Real-Time Imbalance Energy Offset EIM (64770).

Potential Transmission Bill Implications

Customer types with a YES or POTENTIAL could see charge codes added to invoices

Code Type	Customer with Non-Participating Resource (Excludes Load)	Customers Receiving Energy Imbalance Today	Load Following Customer	Wheel-Through Customer
Base (Direct Assigned)	YES	YES	NO	YES
Neutrality + Congestion Offset (Measured Demand)	POTENTIAL	YES	NO	POTENTIAL
Scheduling Penalties (Measured Demand by Direction)	NO	YES	NO	POTENTIAL

Treatment of Remaining Codes (those not sub-allocated) is TBD

Customers with Participating Resources settle directly with the CAISO

Please Note: This is a preliminary view based on information available today. This will be further evaluated when sub-allocation methods are defined through the next phase of work.

EIM Preparation Still Underway

- The staff proposal is based on the EIM information available today.
- As EIM preparation proceeds, may identify reasons to modify the staff proposal.
- Next phase of work will develop the mechanics for implementing the sub-allocation and recovering costs for codes not included in sub-allocation.

Next Steps

- Feedback on staff proposal for consideration
 - Please submit to techforum@bpa.gov (with copy to your account executive) by Tuesday, May 12

- Next phase of work to include:
 - Charge code allocation method development
 - Cost recovery mechanics development

ISSUE #5 & #6: TIMELINES FOR BASE SCHEDULES AND TRANSMISSION DONATIONS FOR ETSRS

Step 1: Introduction & Education

Step 2: Description of the Issue

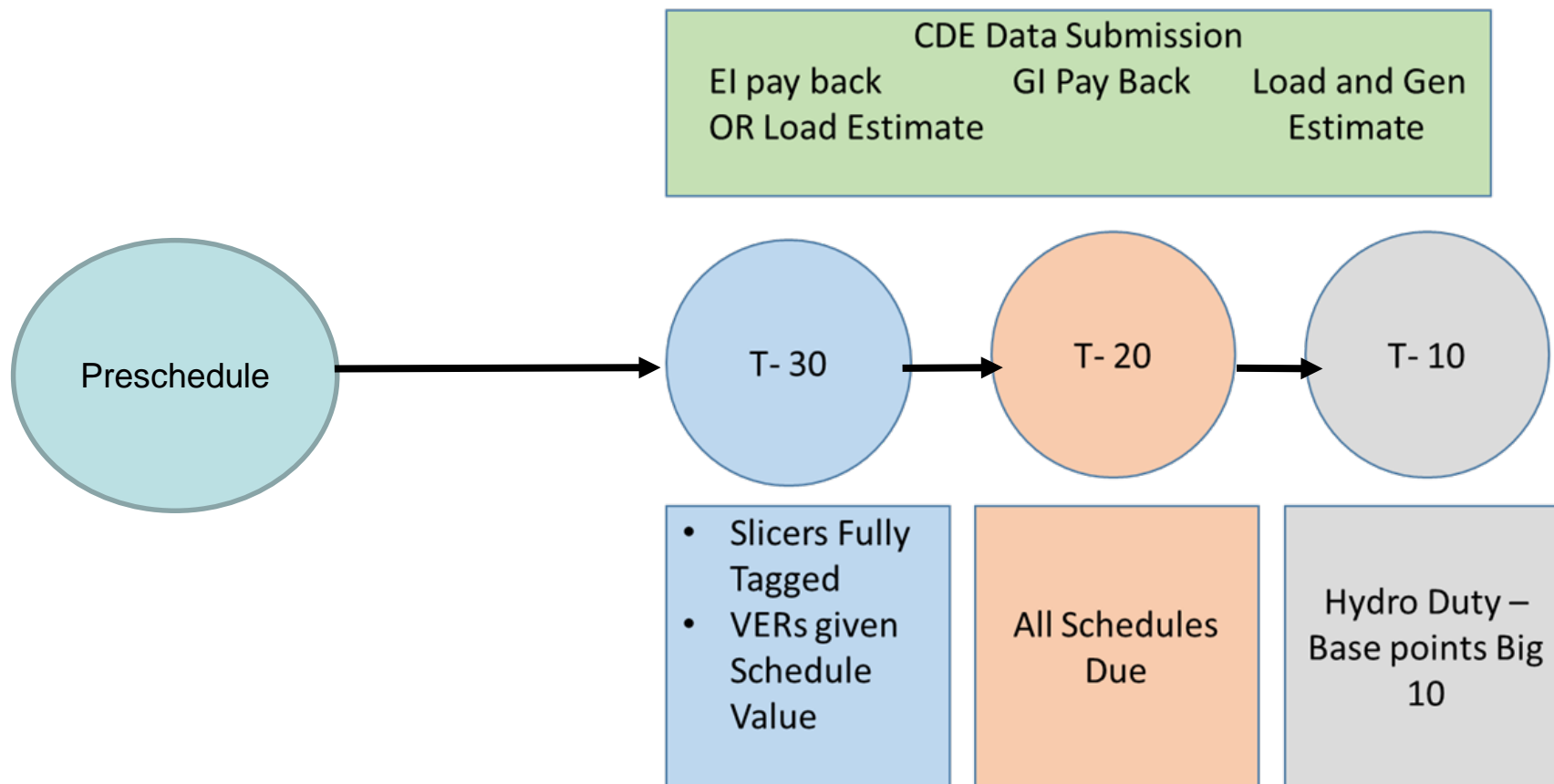
Objective

- Establish scheduling time lines that are conducive to EIM participation
- Establish financial reference point for settlement, and provide BPA with necessary and accurate data to facilitate BPA's participation

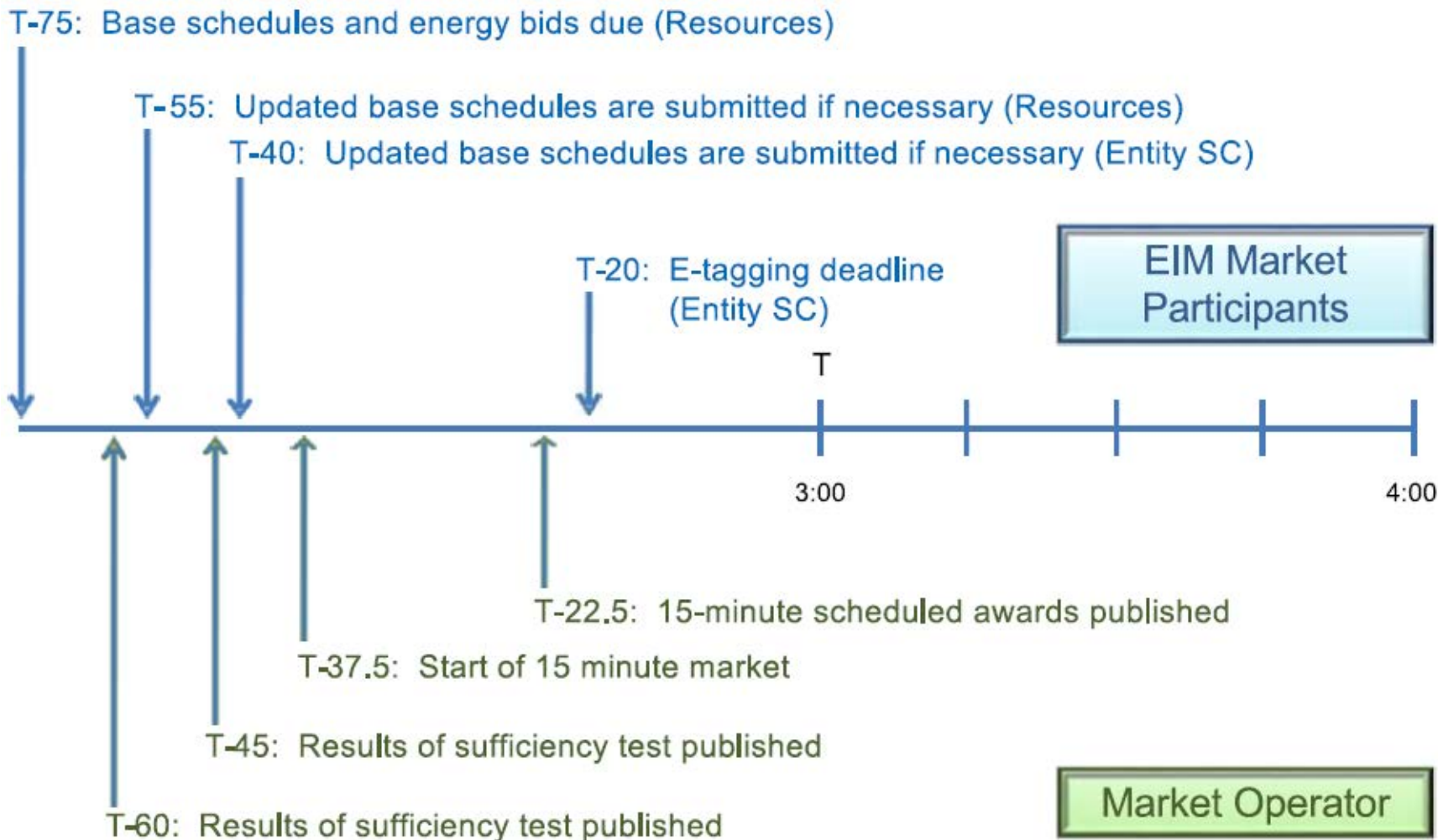
Base Schedule

- A Base Schedule is a forward hourly energy schedule
 - It is the reference for measuring imbalance deviations for EIM settlement
 - It includes generation and interchange schedules, and the load forecast (base scheduled load)
- Used as initial starting points of units and to pass hourly Resource Sufficiency tests.

Current Scheduling Timeline



EIM Base Schedule Timing



Scheduling Timeline Issues

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

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

A Look at VER

VERBS Scheduling Elections

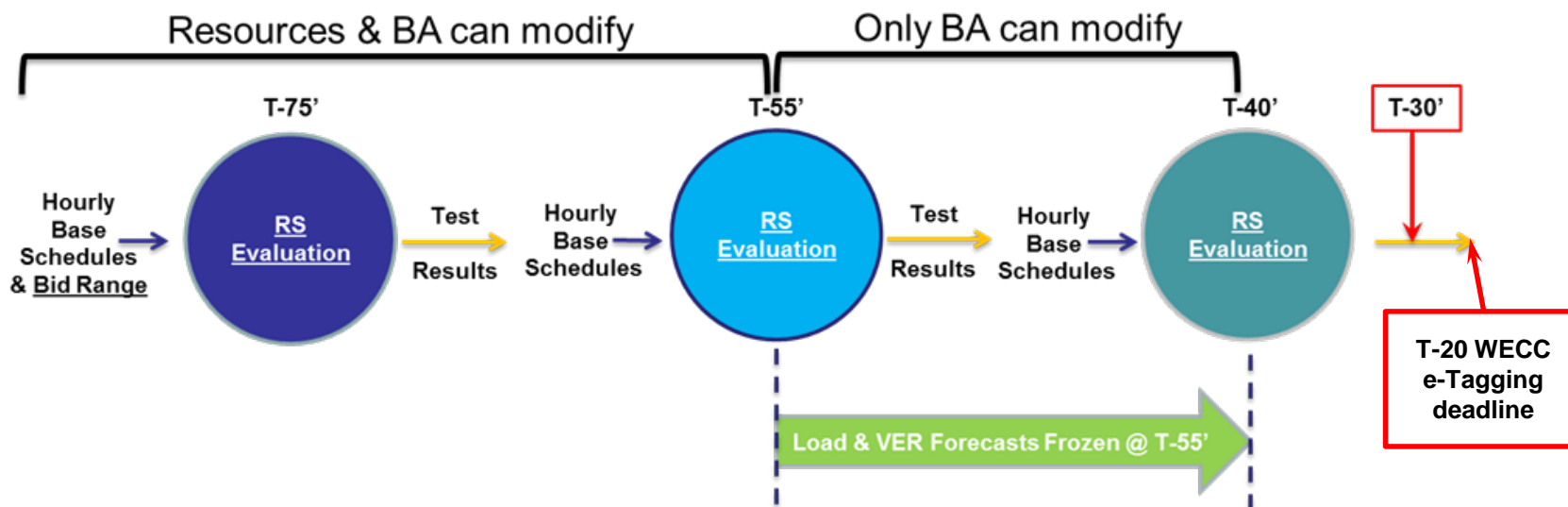
- Current VERBS scheduling election options for wind and solar resources:
 - 30/60 Committed Scheduling -- customer commits to receive BPA's 30-minute signal for each 60-minute schedule period – 1400MW
 - 30/15 Committed Scheduling -- customer commits to receive BPA's 30-minute signal for each 15-minute schedule period – 34MW
 - Uncommitted Scheduling -- customer does not commit to 30/60 or 30/15 committed scheduling – 1330MW

- Scheduling accuracy impacts the Balancing Capacity needed.
 - 30/15 Scheduling adjusts the interchange schedules with in the hour, moving part of the VERs variability to the sink BA.

VERS in EIM

- Like all resources, Variable Energy Resources will need an hourly base schedule
- However, unlike dispatchable resources, VERS have their 5-minute dispatches updated to reflect their expected output within the hour
- Those adjustments are a combination of a short-term persistence value adjusted by forecast data

EIM Scheduling Timeline



Under the EIM scheduling timeline:

- Hourly Base schedules and Bid ranges are due by T-75
- Base schedules can be updated and finalized by T-55.
- After T-55, only the EIM entity (BPA BA) can adjust base schedules up to T-40.

Used for proof that market is not performing BAL compliance for the entity BA

Review of Terms

- Fifteen Minute Market (FMM)
- Real-Time Unit Commitment (RTUC)
- Locational Marginal Price (LMP)
- Instructed Imbalance Energy (IIE)
- Real-Time Dispatch (RTD)
- Uninstructed Imbalance Energy (UIE)

VER NPR Example

	Base	50												÷ 4
		-												
	FMM RTUC (15 min)	50	50	50	30									
		X												
	FMM LMP	\$25	\$25	\$25	\$25									
		=												÷ 12
64600	FMM IIE	\$0	\$0	\$0	\$125									
		-												
	RTD (5 min)	50	50	45	40	40	35	35	30	30	30	30	30	
		-												
	Metered Actuals	45	40	40	35	35	30	30	30	30	30	30	30	
		X												
	RTD LMP	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$25	
		=												
64700	RTD IIE	\$0	\$0	\$10	\$21	\$21	\$31	\$31	\$42	\$42	\$0	\$0	\$0	
64750	RTD UIE	\$10	\$21	\$10	\$10	\$10	\$10	\$10	\$0	\$0	\$0	\$0	\$0	

VERBS Scheduling Elections in EIM

Issues:

- 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 by T-55, with allowance for the BA to modify until T-40.
- Under the EIM, 15 minute scheduling is implemented differently than the way BPA implements 15 minute scheduling today.
 - Prior to T-55 a customer may submit a schedule for the hour with shape 15 minute time intervals
- Under the EIM, the interchange schedules are not adjusted with-in hour to reflect schedule changes that may be made after T-40.
 - The with-in hour variability is not moved out of BPA BA

Industry Practice

Other entities in the Northwest that have joined the EIM have adopted Base Schedule timelines consistent with the EIM Scheduling Timeline. The Timelines are referenced in their Tariffs and in their EIM Business Practice.

- Transmission Customers shall submit proposed final Transmission Customer Base Schedules:
 - No later than 77 minutes prior to each Operating Hour (“T-77”).
 - Transmission Customers may modify Transmission Customer Base Schedules until 57 minutes prior to the Operating Hour (“T-57”).
 - As of 55 minutes prior to each Operating Hour (“T-55”), the Transmission Customer Base Schedule data for the Operating Hour will be considered financially binding and Transmission Customers may not submit further changes.

BPA needs to determine how to implement its scheduling timeline requirements in order to not create seams issues with the EIM Scheduling timeline.

Note: The NERC scheduling time frame is still T-20 for submitting e-Tags, however, e-Tags that are different than the T-55 Base Schedule result in imbalance charges.

Transmission Donations for ETSRs

EIM Transfer Schedules

- The EIM primarily uses **dynamic schedules** to transfer energy between EIM BAAs
 - One exception is on the COI where separate 15-minute normal/static schedules and 5-minute dynamic schedules are used due to DTC issues
- Energy delivered as an EIM Transfer is not tied to specific generation but modeled as an **aggregate** delivery of power between EIM BAAs

<https://www.caiso.com/Documents/TechnicalPaper-EnergyImbalanceMarket-EnergyTransferScheduling.pdf>

Energy Transfer System Resources (ETSR)

- System Resources are defined in each EIM BAA to anchor the Energy Transfer schedules from that BAA to other BAAs in the EIM Area for tracking, tagging, and settlement.
 - Analogous to a Source or Sink on an e-Tag
- ETSRs are defined as aggregate system resources at the EIM BAA Default Generation Aggregation Point (DGAP), which is an aggregation of all supply resources in the BAA.
 - Analogous to a Centroid
- Each ETSR is defined as either an import or an export resource, and it is associated with an EIM intertie with another EIM BAA, or a CAISO intertie with the CAISO.

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

In order not to create seams issues between BPA's Interchange Rights Holder donations and other EIM Entities transmission donations, and to allow for the donated transmission to be included in the Resource Sufficiency test, BPA is considering requiring Interchange Rights Holders to tag their donations by T-75.

Next Steps

- Feedback on issues you may face if BPA were to adopt Base Schedule timelines consistent with the EIM Scheduling Timeline?
- Feedback on issues you may face if BPA requires Interchange Rights Holders to tag their donations by T-75?
- Please submit comments by May 12, 2020 to techforum@bpa.gov

BP-20 GEN INPUTS SETTLEMENT DELIVERABLE CLOSEOUT

Attachment 2 – BP-20 Partial Rates Settlement Agreement

Solar Technical Work. As part of the workshop phase of the BP-22 rate case, and starting no later than January, 2020, Bonneville will:

- i. Present to customers and stakeholders the costs and impacts of holding reserves in a non-flat shape, such as planned shaped diurnal reserve amounts. This presentation(s) will use the BP-18 Solar Integration Study with Solar modeling updates identified and implemented during BP-20 workshops to provide:
 - a) Up to **two shaped balancing reserve forecasts** for all Generation Input customer classes (Wind, Solar, DERBS and Load).
 - b) Forecasts for the different thresholds of installed solar generation in order to identify any meaningful thresholds where a shaped diurnal balancing reserve forecast or other form of planned shaped reserve operation becomes impactful and cost-effective.
- ii. Analyze and present to customers any Generation Inputs variable and embedded cost allocation differences associated with a shaped balancing reserve operation, including the associated impact on Ancillary and Control Area Service rates. This analysis and presentation will:
 - a) Assume that shaped balancing reserve held on Bonneville’s system is physically possible.
 - b) Use a variation of the Generation And Reserves Dispatch (GARD) model or other balancing reserve variable cost estimation method to estimate any material change in Bonneville’s cost of providing balancing reserves associated with a planned shaped balancing reserves operation.

If, following these deliverables, Bonneville staff, customers and stakeholders agree that a shaped balancing reserve operation provides material value, Bonneville will provide customers a list highlighting the workload necessary with approximate completion timelines that would need to occur for Bonneville to be able to implement such an operation.

Summarized Customer Responses:

- AWEC – notes that the reserves allocation to DERBS and resultant DERBS rates are lower relative to the Baseline; and sees material benefit in exploring the shaped operation.
- PPC – does not see a benefit in a shaped operation and believes that Grid Modernization and EIM implementation would be a better use of staff time, especially considering the small amount of solar currently integrated.
- NIPPC – sees a benefit in the shaped operation. They would like to see BPA commit to and present a study program for the year ahead, publish the GARD model and underlying data sets, study a battery pilot program, produce a similar study expanded to include changes in load and DERs forecasts, and invite CAISO to a customer workshop to talk about better scheduling practices. NIPPC requests BPA to provide information regarding the timeline and workload required to implement a shaped reserve operation.

BPA's Response

- In response to AWEC's comment on the DERBS rate: the modeling did not show a benefit to customers overall, but rather shifted costs between customers and made the overall system less efficient.
 - While average reserves levels decreased, the overall cost to the system increased due to holding reserves in more costly times.
- With respect to NIPPC's comment about batteries: the ACS-20 New Generation Technology Pilot Program rate which was added this rate period simply leaves the door open for interested parties to work with BPA to develop a suitable pilot program. Since no customers have elected to do this yet, we have no basis for modeling the benefits.

BPA's Response (continued)

- Increased variability due to small data sets (seasonal/monthly/hourly vs. 2-years) could cause rates to change significantly rate-case to rate-case. This is not consistent with good rate making principles.
- Additional study and work toward implementing this type of shaped reserve operation would detract from staff time for implementing EIM and Grid Modernization objectives.
- The study assumed a much larger quantity of solar in the region than we expect to have for several years, so it does not make sense to implement such an operation now. The benefits that some customers saw in BPA's study would not materialize in BP-22 because of this.
- While we received mixed comments, PPC represents the largest portion of our customers, and their perspective aligned with our internal leaning. Due to the issues outlined above, as well as the PPC comments, BPA will not commit additional staff time to continue to study this in the near future.

ISSUE #14: CREDIT WORTHINESS

Step 3: Analyze the Issue

Step 4: Discuss Alternatives

Step 5: Discuss Customer Feedback

Step 6: Staff Proposal

Agenda

- Review Step 2 (Issue)
- Step 3: Analysis of the Issue
- Step 4: Alternatives
- Step 5: Customer Feedback (from February workshop)
- Step 6: Staff Leaning

Step 2: Issue (recap)

Step 2: Description of the Issue

- Should Bonneville move its Basic Credit Standards from OASIS and the BPA website into an attachment to BPA's tariff?

Step 3: Analysis of the Issue

Pro forma v. Bonneville approach

Pro forma Tariff

Bonneville

Placement	Section 11 and Attachment L	Section 11 references Basic Credit Standards, posted on OASIS and Bonneville’s website.
Requirements	<ul style="list-style-type: none"> Quantitative and qualitative criteria Additional information for to creditworthiness procedures 	Basic Credit Standards include: <ul style="list-style-type: none"> quantitative and qualitative criteria and all additional information required in creditworthiness procedures
Supplemental documents	Post additional documents, on OASIS and website	Business practice for Creditworthiness posted on Bonneville’s OASIS and website

Industry Scan

- Reviewed 12 Transmission Providers' tariffs, Business Practices and OASIS pages for treatment of Creditworthiness procedures.
- All Transmission Providers include Creditworthiness procedures in their tariffs.
- Procedures met pro forma requirements and aligned with the language in BPA's Basic Credit Standards

Pro Forma, Bonneville and Industry Scan

Pro forma Tariff

Bonneville

Industry Scan¹

Placement	Section 11 and Attachment L	Section 11 references Basic Credit Standards, posted on OASIS and Bonneville’s website.	Section 11 and Attachment in tariffs
Requirements	<ul style="list-style-type: none"> Quantitative and qualitative criteria Additional information for procedures 	Basic Credit Standards meet <i>pro forma</i> requirements	Creditworthiness Procedures meet <i>pro forma</i> requirements
Supplemental documents	Post additional documents, on OASIS and website	Posted on Bonneville’s OASIS and website	Supplemental documents posted on OASIS

¹ Arizona Public Service Company, Avista Corporation, Idaho Power, Los Angeles Department of Water and Power, NV Energy, Northwestern, PacifiCorp, Portland General Electric, Puget Sound Energy, Salt River Project, Tucson Electric, and Tri State G & T.

Step 4: Alternatives

Step 4: Alternatives

- *Status Quo*: Retain placement of Basic Credit Standards outside BPA's tariff.
- *Align with pro forma*: Incorporate new Attachment M, Basic Credit Standards, in BPA's tariff proposal.

Step 5: Customer Feedback

Step 5: Customer Feedback

- From February workshop and March customer led workshop:
 - One customer submitted written comments favoring aligning with pro forma
 - Customer questions and comments in February and March indicate preference for Bonneville to move Basic Credit Standards into tariff.

Step 6: Staff Proposal

Step 6: Staff Proposal

- Align with *pro forma*
 - Meets BPA objective and aligns with practice of other Transmission Providers.
- Bonneville staff propose placing Basic Credit Standards in Attachment M.
 - New Attachment M (posted with workshop material).

Attachment M and Section 11

- No substantive changes are necessary to Attachment M due to EIM (or other TC-22 topics).
- Administrative/clean-up changes to remove unnecessary or confusing language are necessary (draft Attachment M is posted).
- Revising section 11 in BPA Tariff to reflect placement of Basic Credit Standards in Attachment M.

Creditworthiness Next Steps

- Please submit any questions to techforum@bpa.gov (with copy to your account executive) by May 12, 2020.
- Bonneville will address any customer questions on staff proposal or draft Attachment M in May customer led workshop or June workshop.

INCREMENTAL CHANGES TO ATTACHMENT A & F SERVICE AGREEMENT TEMPLATES

Step 1: Introduction and Education

Step 2: Description of the Issue

Step 3: Data and Analysis

Step 4: Discussion of Possible Alternatives

Step 1: Introduction and Education

Introduction & Education

- Service Agreement Templates for Point-to-Point Service (PTP) (Attachment A) and Network Integration Service (NT) (Attachment F) in BPA's Open Access Transmission Tariff (OATT) do not fully align with BPA's current contract templates.
- BPA is proposing to align the OATT templates with contract templates to reflect today's business needs. The proposed revisions would apply to new agreements only.
- BPA is proposing other incremental formatting changes.
- BPA is proposing to add language to clarify the effective date of service agreements for entities that become customers solely to participate in the EIM and do not take transmission service.

Step 2: What's 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 3: Data and Analysis

Electronic Signature and Notice

- BPA has been executing contracts electronically since October 1, 2016.
- This process has streamlined the execution process, promoting efficiency, and saving BPA and Customers money.
- The process has also improved the continuity of operations by allowing BPA and Customers to execute agreements remotely and without a carrier service.

Contractual Requirements for EIM Participating Resources

- An entity becomes a customer for the purpose of participating in the EIM and may not take transmission service
- Transmission service “commences” when the customer requests service or construction to enable service is completed. If the customer does not take service, the effective date of the service agreement is never specified apart from the date of execution.
- BPA will propose modifications to address this issue.

Proposed Revisions to Attachments A and F

ELECTRONIC COMMUNICATION AND SIGNATURE FOR NT AND PTP AGREEMENTS

- Revise signature block in the NT and PTP Umbrella Agreement to include electronic signature;
- Revise Exhibit D, Notices to include electronic communication (Email) and electronic signature.

Proposed Revisions to Attachments A and F

INCREMENTAL REVISIONS TO FORMATTING

- Revise the formatting sequence in the NT and PTP Agreement, Exhibit A Section 7 to provide consistency with BPA bullet number sequence format; (a); (b); and (c).

Proposed Revisions to Attachments A and F

EIM PARTICIPATING RESOURCE – SERVICE COMMENCEMENT DATE

- Add language in section 4 of the NT and PTP Umbrella Agreement to allow customers who are not taking transmission service to be a Participating Resource in the EIM.
- To include a Service Commencement Date language.

Impact on Customers

- The revisions to Attachment A and F will only be applicable to new NT or PTP Agreements with the exception of the Exhibit D, Notices Revision, which BPA currently offers to customers.
- Customers who execute a new NT or PTP Agreement will have language in section 4 to include a service commencement date for customers that do not take transmission service and execute agreements solely to participate in the EIM.

Step 4: Possible Alternatives

Alternative 1: Status Quo

- BPA will not make any change to Attachments A and F.
- For continuity of operations and to align with Federal contracting guidelines, BPA would need to continue to update notice exhibits for electronic communications and signatures.
 - This would result in a misalignment with the tariff.
- BPA may need to develop a separate agreement for entities who become customers solely to participate in the EIM and do not take transmission service.

Alternative 2: Implement changes to Attachments A and F

- Revise Attachments A and F to align with the contract templates used today:
 - Allow for electronic signature and notice
 - Address inconsistent numbering
 - Revise the Agreement to include a Service Commencement Date for entities who become customers solely to participate in the EIM and do not take transmission service.

Next Steps

- Please review and submit any questions on the possible changes to Attachments A and F to techforum@bpa.gov (with copy to your account executive) by May 12, 2020
- Next workshop: June 23, 2020
 - Step 5: Discussion of customer feedback to alternatives and BPA's response
 - Step 6: Staff proposal for solution

REVIEW TARIFF LANGUAGE APPROACH FOR TC-22 WORKSHOPS

Objectives

- Explain Bonneville's approach to sharing tariff language proposals and redlines for topics associated with TC-22
- Get customer feedback

TC-22 Tariff Language Review

- Starting point is the tariff adopted in the TC-20 proceeding (“current tariff”)
- Bonneville will share tariff language proposals as separate documents by topic
 - Redlines will be provided to current tariff language
- Share entire TC-22 tariff proposal in final workshop

EIM Tariff Language Approach

- No pro forma language baseline for entities joining EIM, but FERC has approved EIM-related language in other EIM Entities' tariffs
- BPA is starting with PGE's tariff language
 - PGE's Tariff is the most recent with FERC approval
 - Will be revised as needed for BPA
 - BPA will start sharing EIM-related tariff language in May

EIM Entities' Tariff Changes

Tariff Sections	Content	Tariff Sections	Content
1, definitions	EIM-related definitions	16.1, 28.1, PTP and NT responsibilities	EIM Attachment applies to customers
7.1, billing	Flexibility in billing increments	28.7, 30.1, 30.4, use of DNRs	NT customers participation in EIM
10.2, indemnification	Standard of liability for EIM	Schedules 4 and 9, imbalance	Imbalance is priced through EIM
12.4A, disputes	Dispute resolution provisions for EIM	Schedule 11, losses	Losses in EIM
13.6, 14.7, curtailment	EIM-related language	Attachments L and N, GI	EIM application to GI
15.7, 28.5, losses	Language for losses in EIM	Attachment Q	Add EIM Attachment

Tariff sections possibly impacted by TC-22 &/or EIM Topics*

#	Topics	Tariff sections under review
1-8	EIM Topics	Body, Schedules and Attachment Q
9	Transmission Losses	Schedule 11
12	Generator Interconnection	Attachments L and N
13	Regional Planning	Attachment K
14	Creditworthiness	Section 11, Attachment M
15	Incremental/Minor Changes to Agreement Templates	Attachments A and F
16	Seller's Choice	Section 29.2
34	Intertie Studies	Section 15.2 and related sections

* Note: The schedules identified are potential impacts if these topics result in a tariff change.

Next Steps

- Please submit any questions to techforum@bpa.gov (with copy to your account executive) by May 12, 2020.

Proposed May Workshop(s) Agenda

- TC-22, BP-22 & EIM Topics for May 19, 2020
 - Seller's Choice
 - Steps 3-4
 - Regional Planning Organization
 - Steps 3-6
 - Generation Interconnection
 - Steps 3-4
 - Intertie Studies
 - Steps 5-6
 - Review Tariff Language for EIM
 - Rate Case Kickoff
- RHWM Process (8:30 a.m. start)

Next Steps

- Comment period
 - Customers should submit comments by May 12, 2020 to the techforum@bpa.gov

Summary of Customer Feedback

APPENDIX

2/25 Workshop - Customer Comments

Customer	Comment Summary	BPA Response
Charge Code Allocation	<ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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): <ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • The target and the alternatives will be discussed in steps 5 and 6 in the April 28 workshop.
Gen Inputs	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Attachment to the OATT 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Customers have requested we explore contractual solutions such as the grandfathered Green Exception." 	<ul style="list-style-type: none"> • The team will address this in our next workshop on service under 7(f).
Regional Planning	<ul style="list-style-type: none"> • Revise Attachment K to ensure future changes must go through tariff process 	<ul style="list-style-type: none"> • We will consider this alternative in steps 3 and 4 which will be reviewed in the May workshop
Generator Interconnection	<ul style="list-style-type: none"> • Support for implementation of Order 845 • Need more information regarding "streamlining" proposal to ensure no queue discrimination 	<ul style="list-style-type: none"> • Thank you

1/28 Workshop - Customer Comments

Customer	Comment Summary	BPA Response
Objective Statement	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> These suggestive changes to the objective statement will be considered
Network Usage	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Evaluate persistent deviation and intentional deviation penalties with respect to EIM dispatch How does EIM dispatch impact Intentional Deviation policies? 	<ul style="list-style-type: none"> The penalties are discussed in the presentation 2/25 and will be evaluated in steps 3 and 4
Ancillary Services	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> ○ Survey and share findings of how existing EIM participant approaches to these questions. ○ How will BPA manage exposure to EIM prices? 	<ul style="list-style-type: none"> • The concerns and the evaluation will be discussed during the steps 3 and 4
Un-designation of DNR	<ul style="list-style-type: none"> • Un-designation of DNR <ul style="list-style-type: none"> ○ Require the Un-designation of DNRs being used to make Firm network sales ○ Address this issue in TC-22 including review of the NT MOA 	<ul style="list-style-type: none"> • The NT team is reviewing these comments and will have a response at the next TC-20 settlement workshop.
Solar Study (BP-20)	<ul style="list-style-type: none"> • Solar Study (BP-20): Material value to exploring shaped reserve option. • Gen Inputs: limited input to reach conclusions 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Clarify the timing, availability and market risk as a discretionary Tier 1 obligation <ul style="list-style-type: none"> ○ Also include terms & conditions, methodology for new rate and customer obligations ○ 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 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Concerned of disproportionate burden on transmission • use of MRNR per previous filings and testimony <ul style="list-style-type: none"> ○ Accounting policies should be considered outside of a rate case ○ Amortize short-lived regulatory assets for greatest ratepayer benefits ○ More strategic approach at regulatory accounting and MRNR • include long-term cost and rate forecasting. Customers will want greater visibility 	<ul style="list-style-type: none"> • These concerns and comments were forwarded to the financial planning process
General Comments	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> ○ 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 	<ul style="list-style-type: none"> • 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 codes 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: <ul style="list-style-type: none"> • 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.

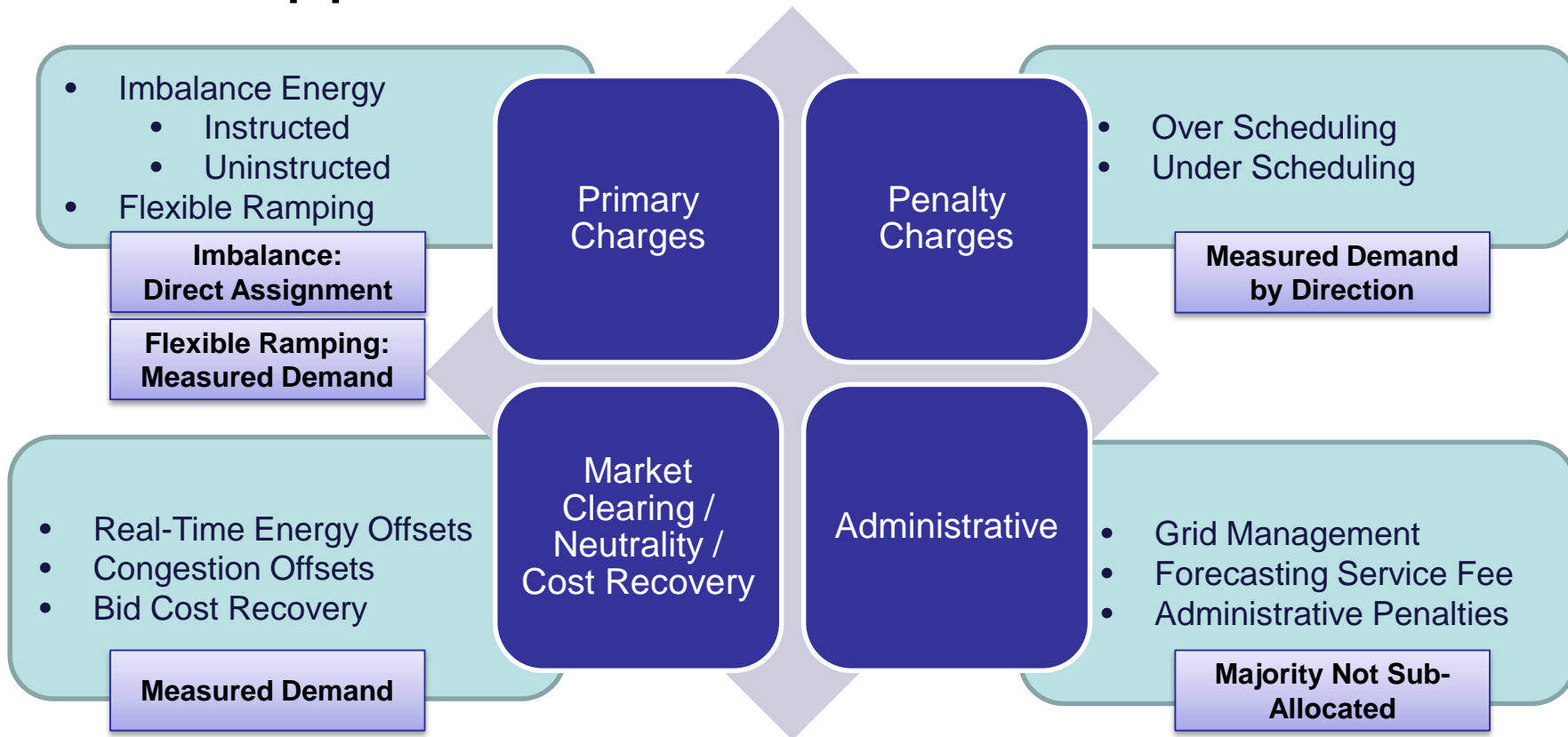
12/15/19 Feedback Summary (cont.)

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

FERC Approved Allocation Method Overview



Sub-Allocation Methods Defined

- **Direct Assignment:** Costs assigned to a customer through a rate or direct pass through that can be linked to a specific action taken by the customer.
- **Measured Demand:** A cost shared among all customers regardless of participation or actions taken.
- **Measured Demand by Direction:** Costs assigned to customers based on contribution to the charge.

Primary Charge Exceptions: Not Sub-Allocated

- *Real Time Unaccounted for Energy (64740)*
- *Daily Flex Ramp Up Uncertainty Capacity (7071)*
- *Daily Flex Ramp Down Uncertainty Capacity (7081)*

Administrative Exceptions

- *GMC (4564 & 4575): Measured Demand*
- *Forecasting Service Fee (701): Direct Assignment*
- *Enforcement Protocol Penalty Allocation (1592): Direct Assignment*

Codes Excluded from Staff Proposal

From Preliminary List of Potential Adders

Code Number	Description	FERC Allocation Method
66200	RTM Bid Cost Recovery EIM Settlement	Measured Demand
66780	Real Time Bid Cost Recovery EIM Allocation	Measured Demand
7076	Flexible Ramp Forecast Movement Allocation	Measured Demand
7077	Daily Flexible Ramp Up Uncertainty Award Allocation	Measured Demand
7078	Monthly Flexible Ramp Up Uncertainty Award Allocation	Measured Demand
7087	Daily Flexible Ramp Down Uncertainty Award Allocation	Measured Demand
7088	Monthly Flexible Ramp Down Uncertainty Award Allocation	Measured Demand

Codes in **bold** are included in FERC-Approved sub-allocation.

Codes Excluded from Staff Proposal

From Additional Codes with FERC-Approved Methods

Code Number	Description	FERC Allocation Method
4564	GMC EIM Transaction Charge (Schedule 1A NEVP)	Measured Demand
4575	GMC Scheduling Coordinator ID Charge	Measured Demand
4989	Daily Rounding Adjustment	Measured Demand
4999	Monthly Rounding Adjustment	Measured Demand
7070	Flexible Ramp Forecast Movement Settlement	Measured Demand
7071	Daily Flexible Ramp Up Uncertainty Capacity Settlement	Measured Demand
7081	Daily Flexible Ramp Down Uncertainty Capacity Settlement	Measured Demand
8989	Daily Neutrality Adjustment	Measured Demand
8999	Monthly Neutrality Adjustment	Measured Demand
701	Forecasting Service Fee	Direct Assignment
1592	Enforcement Protocol (EP) Penalty Allocation Payment	Direct Assignment

Codes Excluded from Staff Proposal

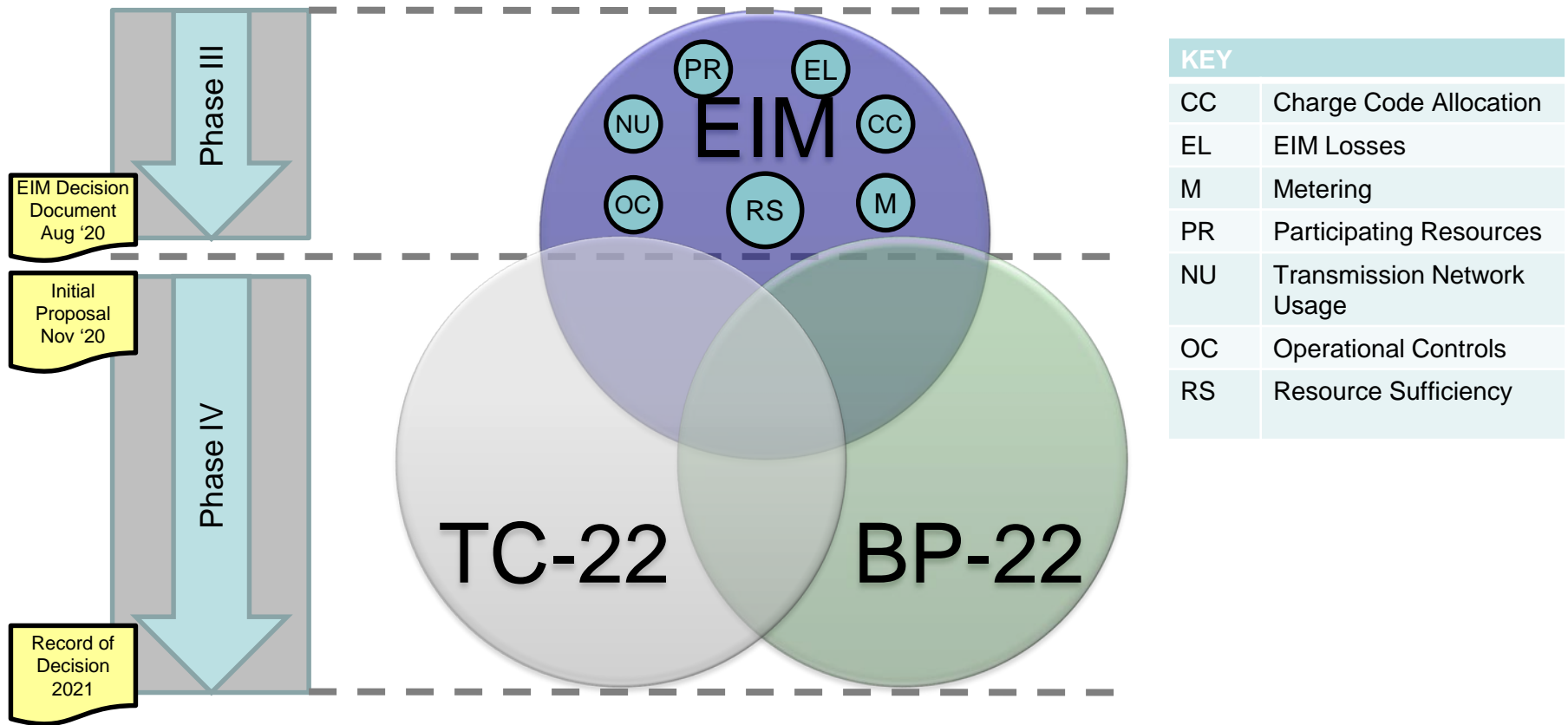
From Codes Without FERC-Approved Sub-Allocation

Code Number	Description
2999	Default Invoice Interest Payment
3999	Default Invoice Interest Charge
5024	Invoice Late Payment Penalty
5025	Financial Security Posting Late Payment Penalty
5900	Shortfall Receipt Distribution
5901	Shortfall Allocation Reversal
5910	Shortfall Allocation
5912	Default Loss Allocation
7989	Invoice Deviation Interest Distribution
7999	Invoice Deviation Interest Allocation
8526	Generator Interconnection Process GIP Forfeited Deposit Allocation

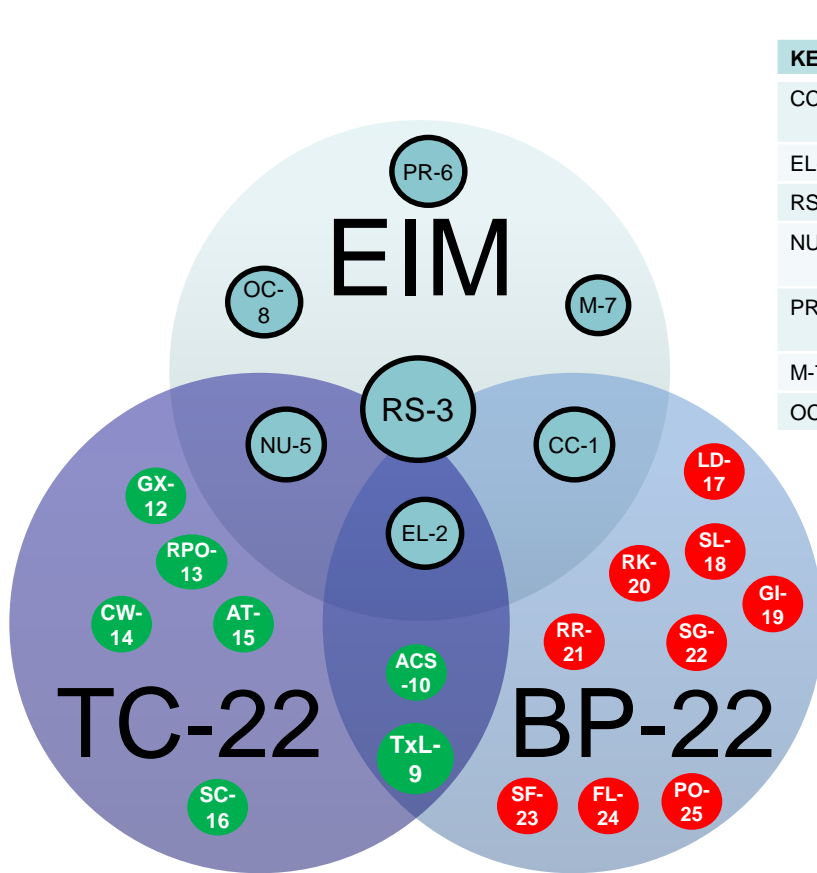
Customer Led Workshop Protocol

- 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.

Coordination of EIM Issues for Phases III and IV



BP-22, TC-22 & EIM Integrated Scope



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

KEY	TC
TxL-9	Transmission Losses
ACS-10	Ancillary Services
GX-12	Generator Interconnection
RPO-13	Regional Planning
CW-14	Creditworthiness
AT-15	Agreement Templates
SC-16	Seller's Choice

KEY	BP
LD-17	Loads
SL-18	Sales
GI-19	Generator Interconnection
RK-20	Risk
RR-21	Revenue Requirements
SG-22	Segments
SF-23	Sale of Facilities
FL-24	Financial Leverage
PO-25	Power-only

EIM Issue Inter-Dependencies Identified

