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

February 25, 2020

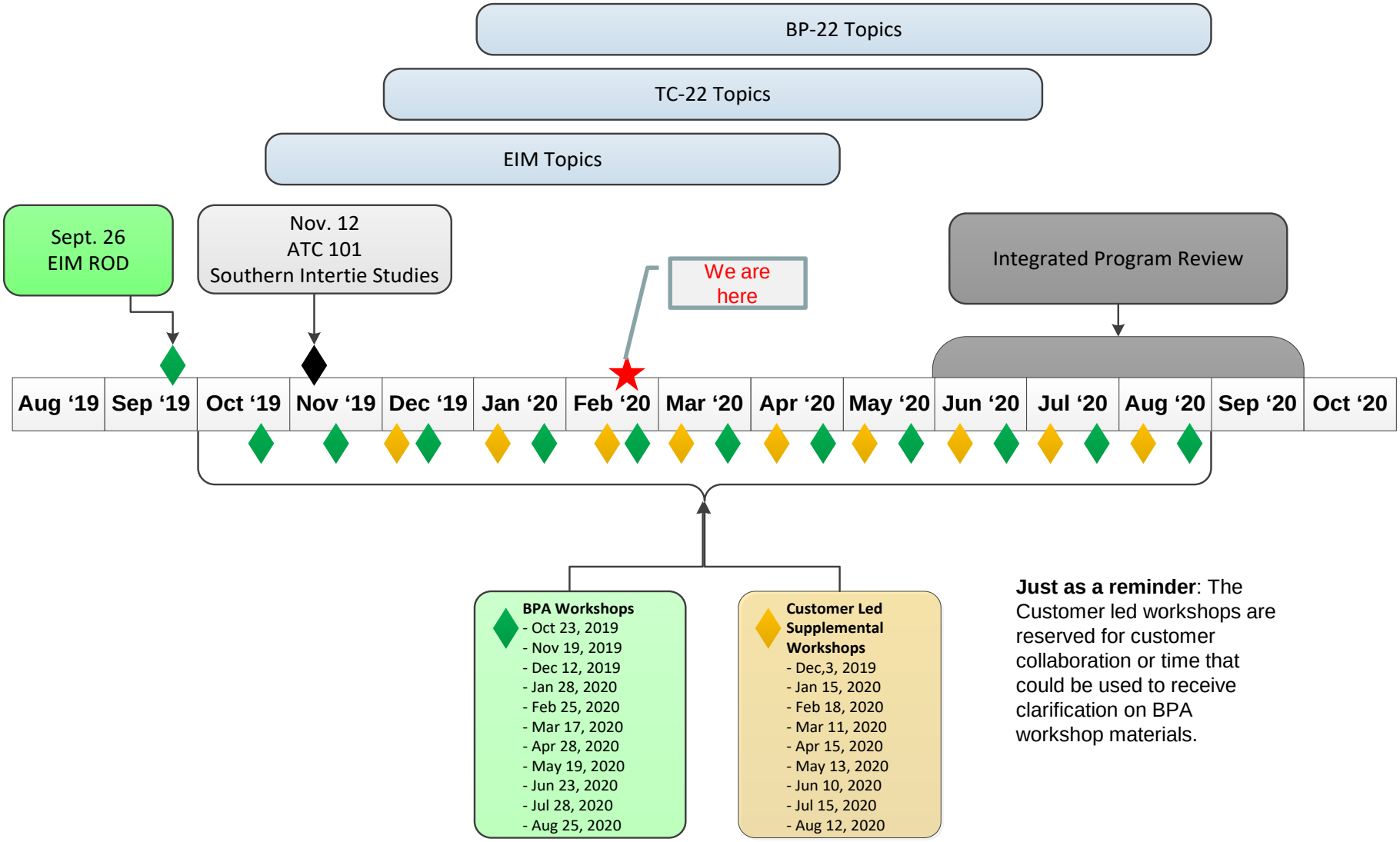
Agenda

TIME*	TOPIC	Presenter
9:30 to 9:40 a.m.	Agenda Review & Safety	Rebecca Fredrickson Rachel Dibble
9:40 to 9:50 a.m.	Regional Planning Organization • Update on FERC orders of non-BPA Attachment Ks	Ravi Aggarwal, Jennifer Gingrich
9:50 to 10:20 a.m.	Creditworthiness • Steps 1-2	Rahul Kukreti, Tony Palandri
10:20 to 10:30 a.m.	BREAK	
10:30 to 12:00 p.m.	EIM Charge Code Allocation • Steps 3-4	Miranda McGraw and Derek Pleger
12:00 pm to 1:00 pm	**LUNCH**	
1:00 to 2:00 p.m.	Generation Inputs • Steps 1-2	Eric King, Frank Puyleart, Libby Kirby
2:00 to 3:30 p.m.	Resource Sufficiency • Steps 3-4	Frank Puyleart, Mariano Mezzatesta, Libby Kirby
3:30 to 3:45 p.m.	Generator Interconnection • Steps 1-2	Tammie Vincent, Cherilyn Randall, Ava Green

** Times are approximate.*

AGENDA REVIEW AND FEEDBACK FROM PRIOR WORKSHOP

BP/TC-22 Proposed Workshop Timeline



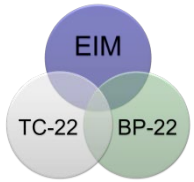
Just as a reminder: The Customer led workshops are reserved for customer collaboration or time that could be used to receive clarification on BPA workshop materials.

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):

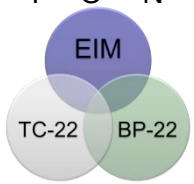
Phase One: Approach Development	Phase Two: Evaluation	Phase Three: Proposal Development
Step 1: Introduction & Education Step 2: Description of the Issue	Step 3: Analyze the Issue Step 4: Discuss Alternatives	Step 5: Discuss Customer Feedback Step 6: Staff Proposal

EIM Priority Issues



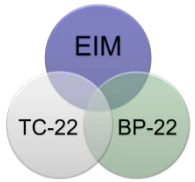
#	Issue	BP-22	TC-22	Future BP/TC
1	EIM Charge Code Allocation	X	?	X
2	EIM Losses	X	X	?
3	Resource Sufficiency	X	X	?
3a	- Balancing Area Obligations	X	X	?
3b	- LSE Performance & Obligations	X	X	?
3c	- Gen Input Impacts	X	X	?
4	Development of EIM Tariff Changes		X	?
5	Transmission Usage for Network	X	X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

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

REGIONAL PLANNING ORGANIZATION

Update on FERC orders of non-BPA Attachment Ks

NORTHERNGRID UPDATE

- Project Coordinator: NWPP selected in December 2019
- Revised Tariffs: NorthernGrid jurisdictional participants have made filings with FERC related to NorthernGrid.
  - Jurisdictional and non-jurisdictional participants continue to coordinate.
- BPA's Attachment K: BPA expects to present alternatives for modifying its Attachment K at the May 19 BP/TC/EIM workshop.
- Transition: Revised target start date for transition to NorthernGrid is April 2020.

JURISDICTIONAL TARIFF FILINGS

- FERC Dockets (Jurisdictional Attachment Ks): Jurisdictional participants filed revised Attachment Ks with FERC in September 2019 to incorporate the NorthernGrid process for jurisdictional participation ("Enrolled Party" process).
  - December 2019 Order: On December 27, 2019, FERC issued an order rejecting the jurisdictional participants' initial filings.
  - January 2020 Filings: Jurisdictional participants filed revised Attachment Ks on January 28, 2020 in response to the December order. Those dockets are pending.
  - NorthernGrid Member Planning Agreement: Planning agreement that governs the NorthernGrid process for both jurisdictional and non-jurisdictional participants ("Member" process) will be revised to align to Enrolled Party process changes as appropriate.

ADDITIONAL INFORMATION

- Consideration of options – BPA will weigh the pros and cons of the two options of referring to the NorthernGrid website or propose revisions to align with other participants filings.
- In a future workshop BPA will provide an update on its preferred option and seek customer feedback.
- BPA will propose revisions to Attachment K to reflect NorthernGrid membership as part of the TC-22 initial proposal.

ISSUE #14: CREDIT-WORTHINESS

Step 1: Introduction and Education
Step 2: Description of the Issue

BPA Strategic Plan 2018 – 2023: align with *pro forma* tariff

Objective 4d:

Offer more standardized products and services by better aligning BPA's Open Access Transmission Tariff with pro forma and industry best practices

Creditworthiness in the *pro forma* Tariff

Placement	Section 11 and Attachment L
Requirements	• Quantitative and qualitative criteria for the level of secured and unsecured credit. • Include additional information related to the transmission provider's creditworthiness procedures (e.g. list of acceptable collateral and security)
Supplemental documents	Post additional documents, such as manuals, on OASIS and the Transmission Provider's website

Bonneville's creditworthiness procedures

Placement	Section 11 reference Basic Credit Standards, which are posted on OASIS and Bonneville's website (approved in past filing with FERC)
Requirements	Bonneville's Basic Credit Standards tariff includes quantitative and qualitative criteria and all additional information required in Transmission Providers' creditworthiness procedures
Supplemental documents	Bonneville posts a business practice for Creditworthiness on OASIS and its website

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	• Quantitative and qualitative criteria • Additional information for to creditworthiness procedures	Basic Credit Standards include: • 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

Description of the Issue

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

Creditworthiness Next Steps

- Please submit any questions to techforum@bpa.gov (with copy to your account executive) by March 10, 2020
- Next workshop: April 28, 2020
  - Step 3: Analysis of the Issue
  - Step 4: Alternatives

ISSUE #1: EIM CHARGE CODE ALLOCATION

Step 3: Data and/or analysis that supports the issue

Step 4: Discussions on possible alternatives to solve the issue

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

Note: Settlement mechanics (e.g. frequency or type of BPA customer billing) will be addressed separately in future workshops, if there is a sub-allocation methodology adopted.

Customer Feedback Themes

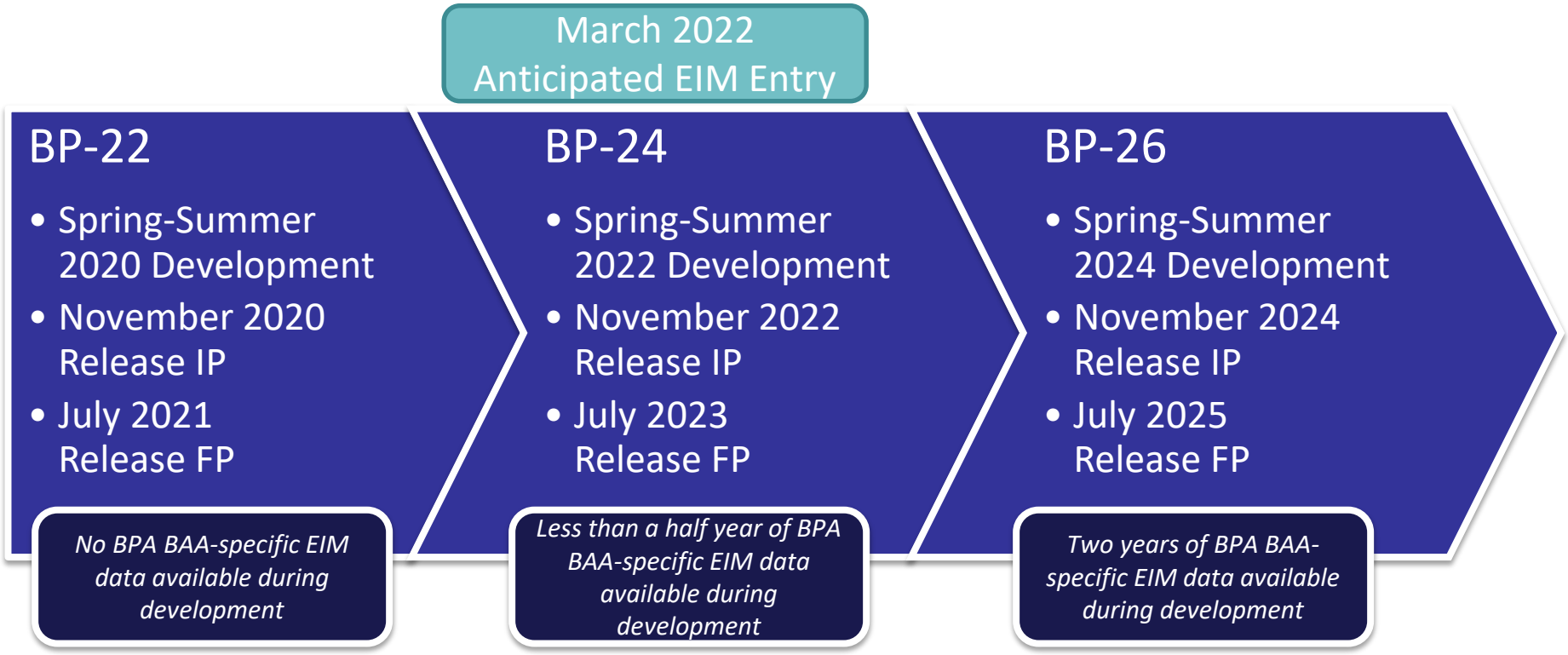
- Customers expressed interest in phasing in changes for the EIM and considering a partial insulation approach, which BPA has considered in developing alternatives
- Working towards a methodology that considers cost causation and market implications was expressed, consistent with the charge code allocation principles BPA developed
- Requests for additional charge code education were received and further discussion occurred at a customer-led workshop. Today's workshop will work to provide further information, in context of the alternatives and the relationships to BPA's existing structure
  - Magnitude of charges/credits was requested, but there is not comparative information available, given the complexities and size of BPA's BAA compared to other EIM entities

Charge Code Allocation Approach

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
December 12 Workshop	Today's Workshop	April 28 Workshop

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

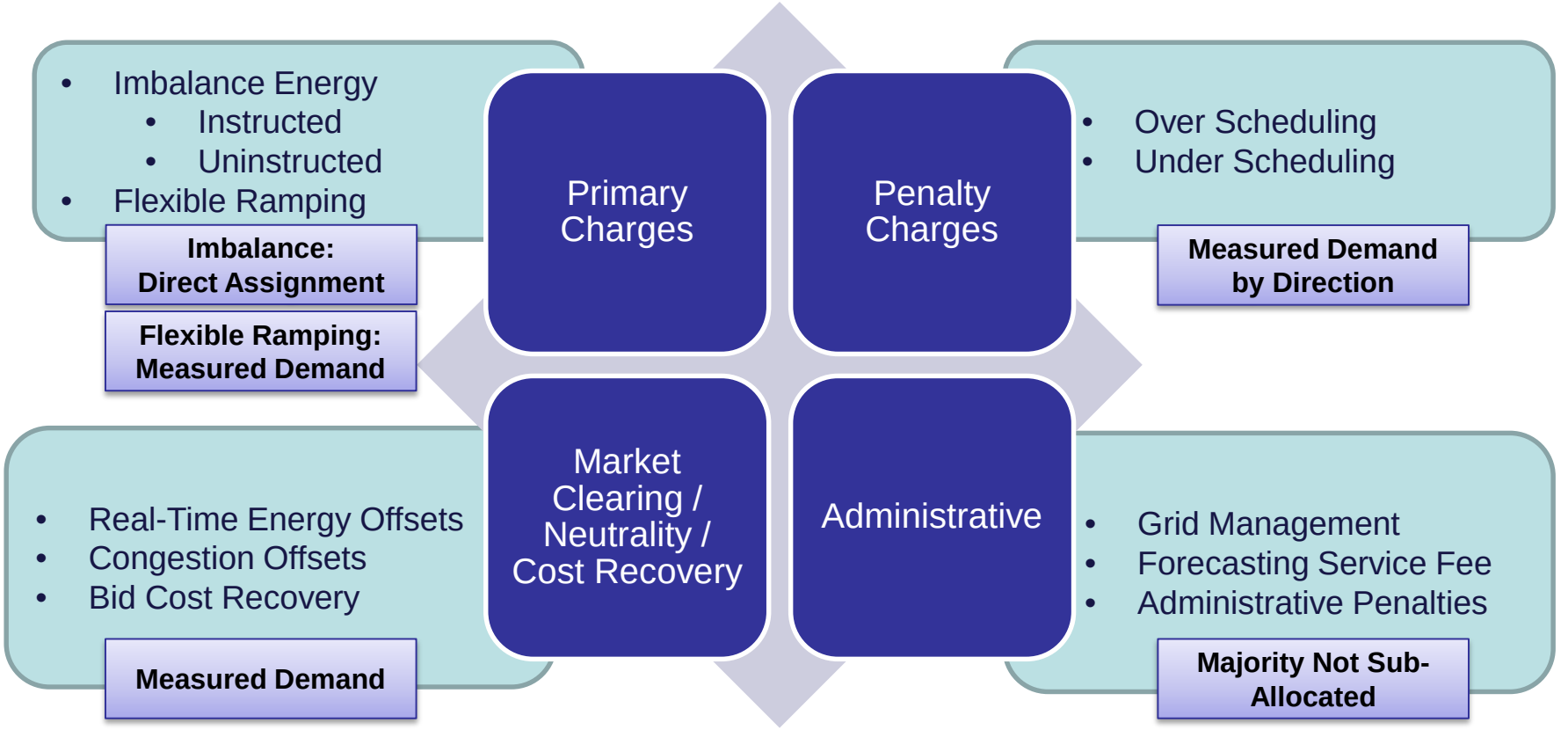
Timing Context for Rate Development and EIM Information Availability



Sub-Allocation Focuses on EESC

- Sub-allocation considerations included in today's workshop are focused on the EESC approach
- Allocation of Bonneville Power's costs and benefits as the PRSC is a Power product issue that will be discussed in a future workshop

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*

CAISO to BPA Comparisons

Imbalance Energy (IIE & UIE)

Similar to BPA's Energy Imbalance (EI) and Generation Imbalance (GI)

- Intent is to settle for generation and load imbalances
- UIE is most similar to the EI/GI of today
- IIE also settles Interchange imbalances, which is different from today

Over & Under Scheduling

Similar to BPA's Intentional Deviation (ID) and Persistent Deviation (PD)

- Over/Under Scheduling (applied to load) is meant to prevent entities from leaning on the market
- ID (applied to variable generators) and PD (applied to load and dispatchable generators) are meant to prevent leaning on the BAA

Flexible Ramping

Similar to BPA's DERBS, VERBS, & RFR

- Intent is to ensure there is enough uncertainty capacity to meet unexpected load and generation changes (or load forecast error)
- DERBS and VERBS is capacity to meet unexpected generation changes
- RFR is capacity to meet load

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

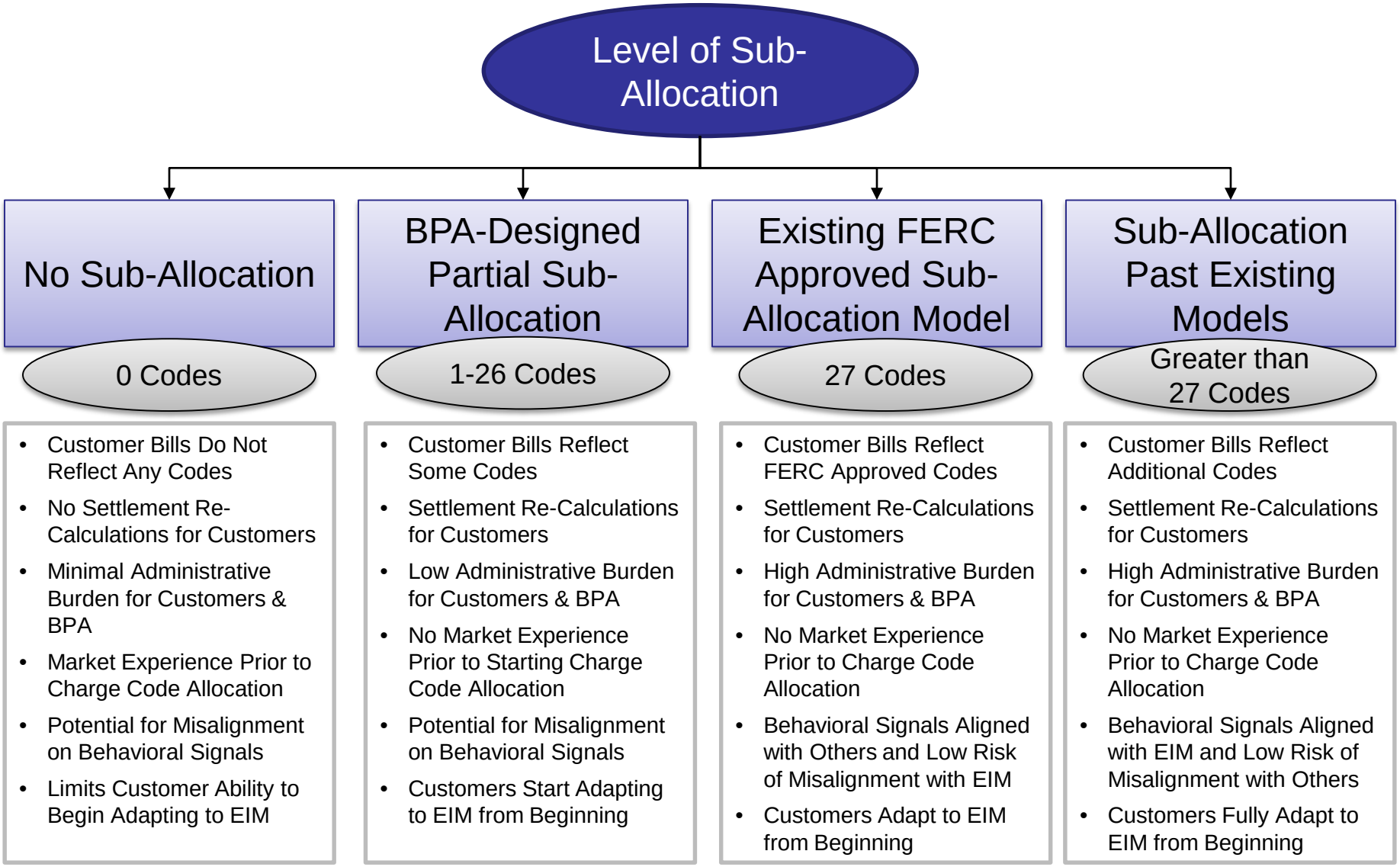
Customer Perspective
- Cost of Administering
- Volume of Supporting Billing Data

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

Decision-Tree Based Alternatives



- Customer Bills Do Not Reflect Any Codes
- No Settlement Re-Calculations for Customers
- Minimal Administrative Burden for Customers & BPA
- Market Experience Prior to Charge Code Allocation
- Potential for Misalignment on Behavioral Signals
- Limits Customer Ability to Begin Adapting to EIM

- Customer Bills Reflect Some Codes
- Settlement Re-Calculations for Customers
- Low Administrative Burden for Customers & BPA
- No Market Experience Prior to Starting Charge Code Allocation
- Potential for Misalignment on Behavioral Signals
- Customers Start Adapting to EIM from Beginning

- Customer Bills Reflect FERC Approved Codes
- Settlement Re-Calculations for Customers
- High Administrative Burden for Customers & BPA
- No Market Experience Prior to Charge Code Allocation
- Behavioral Signals Aligned with Others and Low Risk of Misalignment with EIM
- Customers Adapt to EIM from Beginning

- Customer Bills Reflect Additional Codes
- Settlement Re-Calculations for Customers
- High Administrative Burden for Customers & BPA
- No Market Experience Prior to Charge Code Allocation
- Behavioral Signals Aligned with EIM and Low Risk of Misalignment with Others
- Customers Fully Adapt to EIM from Beginning

No Sub-Allocation Alternative

No Sub-Allocation

0 Codes

Define Cost Recovery Mechanism

- Customer Bills Do Not Reflect Any Codes
- No Settlement Re-Calculations for Customers
- Minimal Administrative Burden for Customers & BPA
- Market Experience Prior to Charge Code Allocation
- Potential for Misalignment on Behavioral Signals
- Limits Customer Ability to Begin Adapting to EIM

While cost recovery mechanisms would be developed later, options for cost recovery under any of the alternatives may include:

1) *Rate Design Mechanisms*
2) *Planned Risk Mechanisms*
3) *Status Quo (utilize existing risk mechanisms only)*

Criteria Considerations:

Feasible to Implement

Postpones settlement process development, but will require cost recovery mechanisms

Administrative Burden

Minimal administrative burden for customers, thereby limiting BPA administrative burden

Cost Recovery Design

Delays alignment with EIM signals, but there is flexibility for future allocation development

BPA-Designed Partial Sub-Allocation Alternative

BPA-Designed Partial Sub-Allocation

1-26 Codes

- Customer Bills Reflect Some Codes
- Settlement Re-Calculations for Customers
- Low Administrative Burden for Customers & BPA
- No Market Experience Prior to Starting Charge Code Allocation
- Potential for Misalignment on Behavioral Signals
- Customers Start Adapting to EIM from Beginning

Behavior Driven or Distribution Approach

Define Code Scope

- Define Sub-Allocation Mechanics for In-Scope Codes
- Define Cost Recovery Mechanism for Out of Scope Codes

Criteria Considerations:

Feasible to Implement

Starts settlement process and will require some cost recovery mechanisms

Administrative Burden

Some administrative burden for customers, thereby adding to BPA administrative burden

Cost Recovery Design

Starts alignment with EIM signals, but there is flexibility for future allocation development

BPA-Defined Partial Sub-Allocation

Base Code Option

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.
- Sub-allocating this set of codes on its own ignores the neutrality charges and credits passed on by the CAISO to EIM entities.
- Today's EI and GI bands may be further evaluated given the potential EIM entry.

BPA-Defined Partial Sub-Allocation

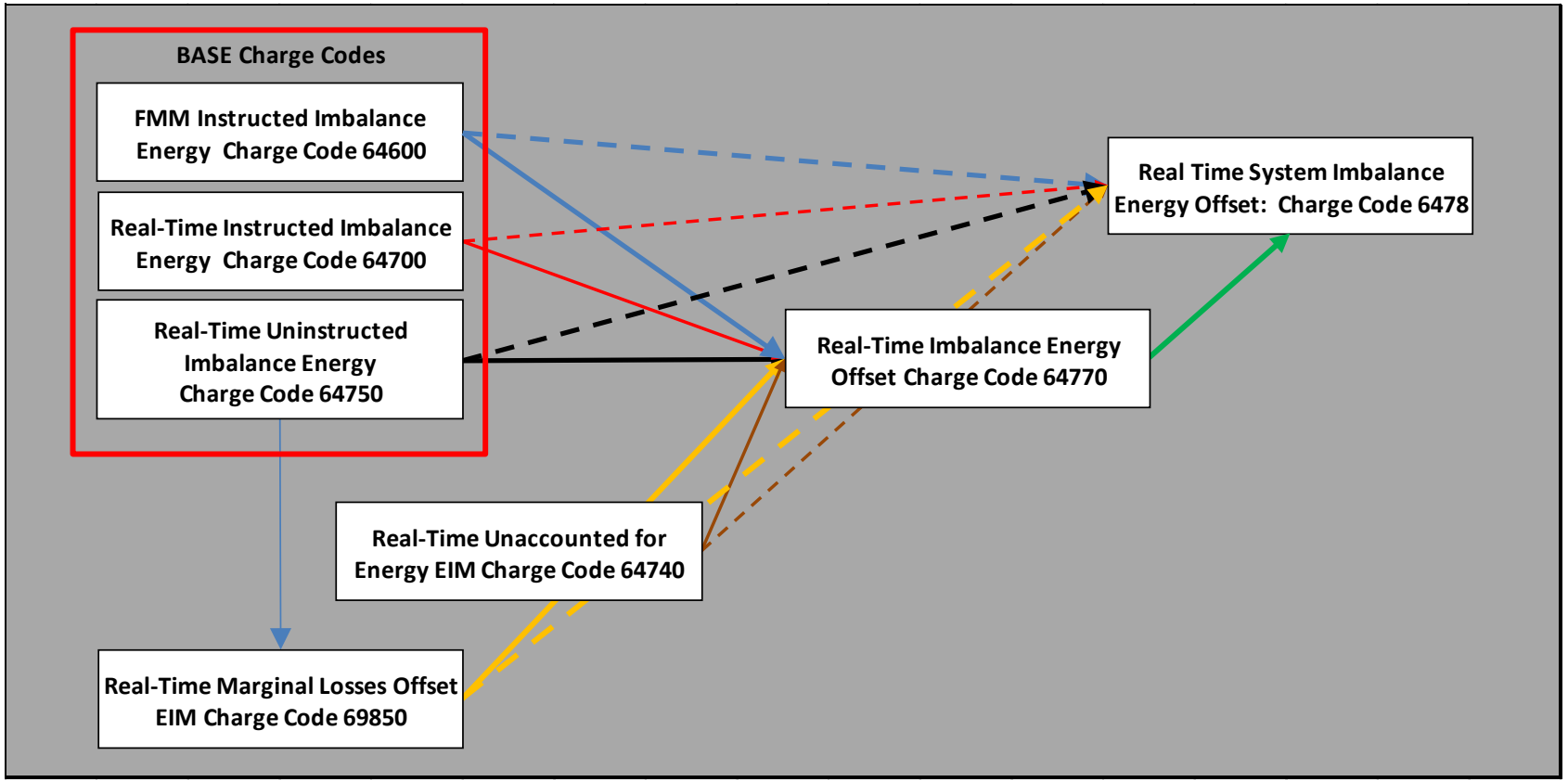
Base + Neutrality Code Option

Code Number	Description	FERC Allocation Method	Rationale for Allocation
64770	**Real Time Imbalance Energy Offset EIM**	**Measured Demand** *(BPA May Consider Alternative Methods – such as Pro-Rata Shares of Code Components)*	**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 *(BPA-Proposed Method)*	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.

- Neutrality Codes could be sub-allocated in addition to the Base Codes.
- While 64740 is not currently part of the FERC-approved sub-allocation, this code is part of the neutrality codes that settle the market.
- See next slide for mapping between the Base and Neutrality codes.

Base + Neutrality Codes Relationship



- Within the CAISO financial settlements, the Base and Neutrality charge codes are combined to complete the IIE and UIE transactions.
- The map above shows how the Base codes flow into the calculations for the Neutrality codes in order to financially settle the market.

BPA-Defined Partial Sub-Allocation

Potential Adder: Scheduling Penalty 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**

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

- If the Base or Base + Neutrality options are selected, Scheduling Penalties could be a potential adder for sub-allocation.
- As described, Over/Under Scheduling prevents entities from leaning on the market, whereas ID and PD prevent entities from leaning on the BAA.

BPA-Defined Partial Sub-Allocation

Potential Adder: EIM Dispatch Codes

Code Number	Description	FERC Allocation Method	Rationale for Allocation
66200	**RTM Bid Cost Recovery EIM Settlement**	**Measured Demand**	**Reimbursements where the commitment costs were not covered by the LMP.**
66780	**Real Time Bid Cost Recovery EIM Allocation**	**Measured Demand**	**Charges to EESC to reimburse generating resources for costs not recovered through the LMP.**
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.

- If the Base or Base + Neutrality options are selected, EIM Dispatch Codes could be a potential adder for sub-allocation.

BPA-Defined Partial Sub-Allocation

Potential Adder: Flexible Ramp Codes *(Slide 1 of 2)*

Code Number	Description	FERC Allocation Method	Rationale for Allocation
7076, 7077, 7078, 7087, and 7088	**Flexible Ramping** ***(Detail by Code on Next Slide)***	**Measured Demand**	**Capacity held out to cover load forecast uncertainty.**

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

- If the Base or Base + Neutrality options are selected, Flexible Ramp Codes could be a potential adder for sub-allocation.
- Flexible Ramping Defined: Capacity on participating units capable of meeting a five minute ramping need used to address load uncertainty realized prior to Real-Time Dispatch (RTD).
- Today's DERBS, VERBS, and RFR are similar in working to meet unexpected generation and load changes.
  - FCRPS is the primary provider for the flexible ramping needed within BPA's BAA

BPA-Defined Partial Sub-Allocation

Potential Adder: Flexible Ramp Codes *(Slide 2 of 2)*

Code Number	Description	FERC Allocation Method	Rationale for Allocation
7076	**Flexible Ramp Forecast Movement Allocation**	**Measured Demand**	**Capacity held out to cover load forecast uncertainty.**
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**	

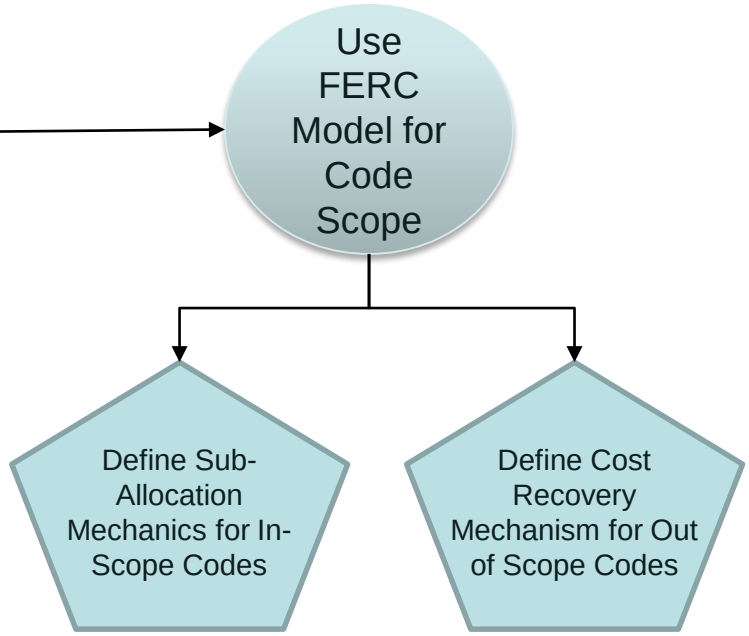
Codes in **bold** are included in FERC-Approved sub-allocation.

Existing FERC Approved Sub-Allocation Model Alternative

Existing FERC Approved Sub-Allocation Model

27 Codes

- Customer Bills Reflect FERC Approved Codes
- Settlement Re-Calculations for Customers
- High Administrative Burden for Customers & BPA
- No Market Experience Prior to Charge Code Allocation
- Behavioral Signals Aligned with Others and Low Risk of Misalignment with EIM
- Customers Adapt to EIM from Beginning



Approved sub-allocation methodologies are the result of other EIM entities filing tariffs with FERC.

Criteria Considerations:

- Feasible to Implement
  - *Settlement process for majority of codes and will require cost recovery mechanisms*
- Administrative Burden
  - *High administrative burden for customers and BPA*
- Cost Recovery Design
  - *Aligns with EIM signals, with potential limitation on flexibility for future allocation development*

Detailed FERC Approved Sub-Allocation

Sub-Allocated Codes (slide 1 of 4)

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
6045	**Under/Over Schedule Load Charge**	**Measured Demand by Direction**
6046	**Under/Over Schedule Load Allocation**	**Measured Demand by Direction**
6478	**Real Time Imbalance Energy Offset**	**Measured Demand**

Codes in **bold** are included as options for sub-allocation under the BPA-Defined Partial Sub-Allocation alternative.

- For codes not listed, there is not a sub-allocation method assigned (see Codes without FERC-Approved Sub-Allocation List on Slide 2)

For Further Charge Code Details, See CAISO Code Matrix: http://www.caiso.com/Documents/ISOChargeCodesMatrix.xls

Detailed FERC Approved Sub-Allocation

Sub-Allocated Codes (slide 2 of 4)

Code Number	Description	FERC Allocation Method
64750	**Uninstructed Imbalance Energy (Schedule 4)**	**Direct Assignment**
64600	**FMM Instructed Imbalance Energy (Schedule 4, Bonneville Interpretation)**	**Direct Assignment**
64700	**Real-Time Instructed Imbalance Energy (Schedule 4, Bonneville Interpretation)**	**Direct Assignment**
64770	**Real Time Imbalance Energy Offset EIM**	**Measured Demand**
67740	**Real Time Congestion Offset EIM**	**Measured Demand**
66200	**RTM Bid Cost Recovery EIM Settlement**	**Measured Demand**
66780	**Real Time Bid Cost Recovery EIM Allocation**	**Measured Demand**
69850	**Real Time Marginal Losses Offset EIM**	**Measured Demand**

Codes in **bold** are included as options for sub-allocation under the BPA-Defined Partial Sub-Allocation alternative.

Detailed FERC Approved Sub-Allocation

Sub-Allocated Codes (slide 3 of 4)

Code Number	Description	FERC Allocation Method
7070	Flexible Ramp Forecast Movement Settlement	Measured Demand
7071	Daily Flexible Ramp Up Uncertainty Capacity Settlement	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**
7081	Daily Flexible Ramp Down Uncertainty Capacity Settlement	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 as options for sub-allocation under the BPA-Defined Partial Sub-Allocation alternative.

Detailed FERC Approved Sub-Allocation

Sub-Allocated Codes (slide 4 of 4)

Code Number	Description	FERC Allocation Method
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

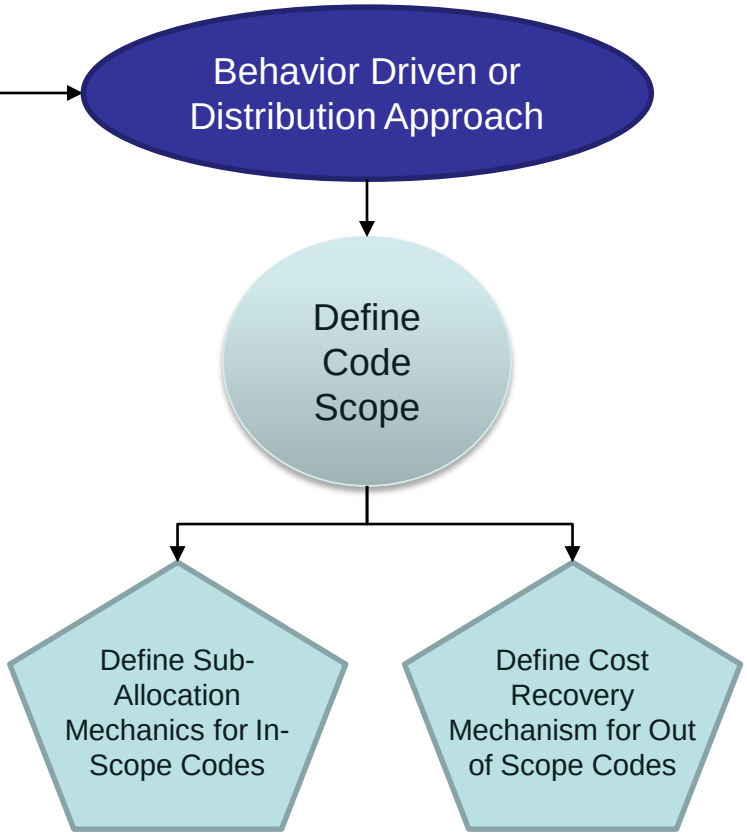
Codes in **bold** are included as options for sub-allocation under the BPA-Defined Partial Sub-Allocation alternative.

Sub-Allocation Past Existing Models Alternative

Sub-Allocation Past Existing Models

Greater than 27 Codes

- Customer Bills Reflect Additional Codes
- Settlement Re-Calculations for Customers
- High Administrative Burden for Customers & BPA
- No Market Experience Prior to Charge Code Allocation
- Behavioral Signals Aligned with EIM and Low Risk of Misalignment with Others
- Customers Fully Adapt to EIM from Beginning



Criteria Considerations:

Feasible to Implement

Settlement process for majority of codes and will require cost recovery mechanisms

Administrative Burden

Highest amount of administrative burden for customers and BPA

Cost Recovery Design

Aligns with EIM signals past other entities, with potential limitation on flexibility for future allocation development

Additional Codes for Sub-Allocation

Codes Without FERC-Approved Sub-Allocation

Code Number	Description
64740	**Real Time Unaccounted for EIM Energy Settlement**
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

Code Number	Description
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

Code in **bold** is included as an option for sub-allocation under the BPA-Defined Partial Sub-Allocation alternative.

- Allocation method on each of the additional codes would need to be defined, as currently there is not a FERC-approved method for sub-allocation.

For Further Charge Code Details, See CAISO Code Matrix: http://www.caiso.com/Documents/ISOChargeCodesMatrix.xls

Alternative Trade-Offs

Level of sub-allocation requires alternative trade-offs, with considerations to the level of:

- **Precision** (behavior-driven cost causation)
- **Market Impacts** (understanding which behaviors drive majority of costs)
- **Administrative Complexity** (transparency and volume of data)
- **Data for Billing** (training needs and resources to interpret bills)
- **Service Needed to Support Design** (potential for increased costs to staff the support)

Next Steps

- Feedback on alternatives under consideration
  - Please submit to techforum@bpa.gov (with copy to your account executive) by Tuesday, March 10
- Next Charge Code Allocation Workshop: April 28
  - Step 5: Discuss Customer Feedback
  - Step 6: Staff Proposal

ISSUE #3C: GENERATION INPUTS

Step 1: Introduction and Education
Step 2: Description of the Issue

Objective

To introduce and educate on the following topics:

- Generation Inputs Background
- Operating Reserves
- Balancing Reserves
- Scheduling Elections
- Intentional Deviation and Persistent Deviation Penalties
- Energy Imbalance and Generation Imbalance Service Rates

Generation Inputs

- Each Balancing Authority (BA) is responsible for ensuring that electrical generation equals electrical load in its Balancing Authority Area (BAA).
- BPA must maintain reliability within its BAA in accordance with applicable NERC reliability standards.
- BPA utilizes generation inputs to provide Ancillary and Control Area Services to maintain load-resource balance at all times and to respond to the many variables that affect transmission system reliability in its BAA.
- Generation inputs are the various uses of generation resources that are needed by BPA in order to provide Ancillary Services, Control Area Services, and other services that are necessary to support reliable operations of the transmission system.

Current Service Design

- BPA is required to offer to provide and the customers are required to acquire reserves-based Ancillary and Control Area Services from BPA or by self-supply to meet OATT requirements.
- Reserves-based Ancillary and Control Area Services include:
  - Services using Balancing Reserve (BR) Capacity and Energy
    - Schedule 3 – Regulation and Frequency Response Service
    - Schedule 4 – Energy Imbalance Service
    - Schedule 9 – Generator Imbalance Service
    - Schedule 10 – Capacity for Generator Balancing Services
  - Services using Operating Reserve (OR) Capacity and Energy
    - Schedule 5 – Operating Reserve – Spinning Reserve Service
    - Schedule 6 – Operating Reserve – Supplemental Reserve Service

Ancillary Services If BPA Joins EIM

- If BPA joins the EIM, the CAISO does not become the BA for BPA. BPA will continue to assume all of the responsibility for managing and operating its BAA.
  - EIM is an energy market, not a capacity market
- BPA will continue to be responsible to meet its BA and tariff obligations, including the performance standards in BAL-001 and BAL-002.
- BPA must continue to ensure that as a BA, it has sufficient capacity to supply Ancillary and Control Area Services to loads and generators located in its BAA.
- Real-time load and generation energy imbalances within the BPA BAA will be settled through the EIM.
- BPA will need to evaluate Ancillary and Control Area Services in both the tariff and rate schedules.

Potential Issues Raised by Joining EIM

Areas that BPA will have to consider:

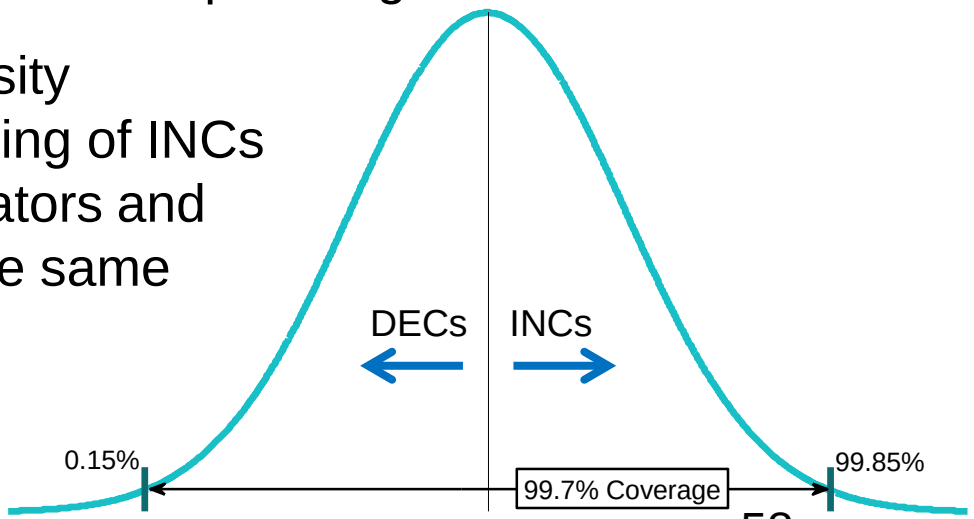
- Determination of the balancing reserve capacity and components
- Impacts of participating resources
- Scheduling election options
- Intentional Deviation and Persistent Deviation penalties
- Energy Imbalance and Generation Imbalance service rates

Operating Reserves

- Operating Reserves capacity requirement and deployment are defined by the NERC standards and the NWPP rules
  - Capacity requirement: 3% of online generation plus 3% of load
  - Qualifying events: defined through NWPP rules
- In the EIM:
  - All currently applicable Operating Reserves standards and rules continue to apply
  - Operating Reserves are held separate from the market and are designated in the hourly EIM Entity Scheduling Coordinator resource plan
  - After experiencing a qualifying event, the BA must notify the market, and the market will freeze EIM Transfer System Resources in and out of the BAA
  - This allows the BA (and the NWPP) to solve the contingency event without the market attempting to solve it for them
- No anticipated changes to Operating Reserves products due to the EIM

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 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.

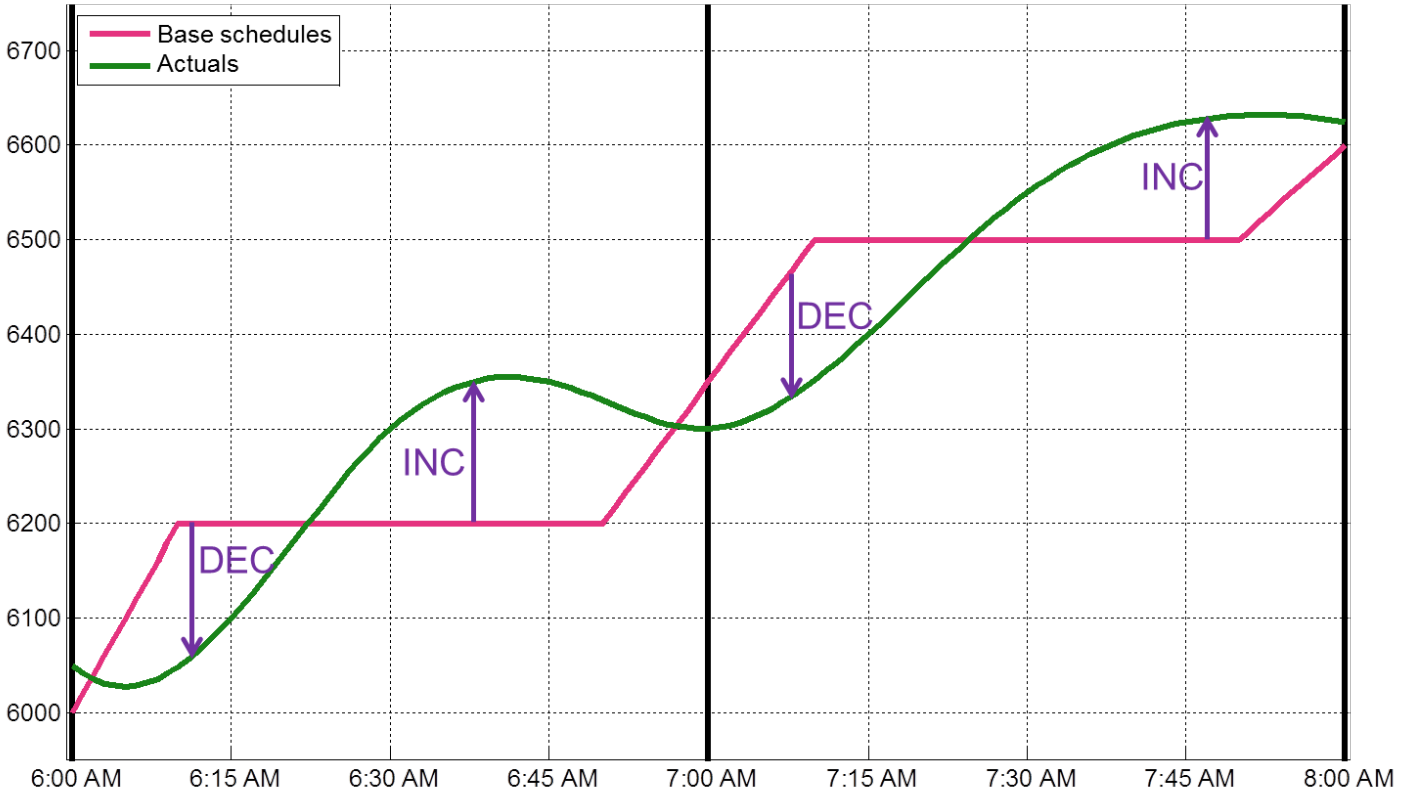


Balancing Reserve Capacity in EIM

- Today, BPA carries sufficient capacity to cover the error or uncertainty in its BAA.
  - BPA currently maintains a 99.7% planning standard for BAA balancing needs.
  - Error is the variability of load and generation vs. their schedule/forecast.
- In the EIM, the error or uncertainty (of loads and resources) in the BPA BAA is the same
- BPA is still responsible for carrying sufficient balancing reserve capacity to meet its BAA obligations, with or without participation in EIM.
  - BAA obligations are not the same as resource sufficiency requirements.
- The EIM will find the most economic deployment of energy from bid-in resources in the EIM footprint to meet the 5-minute dispatch.

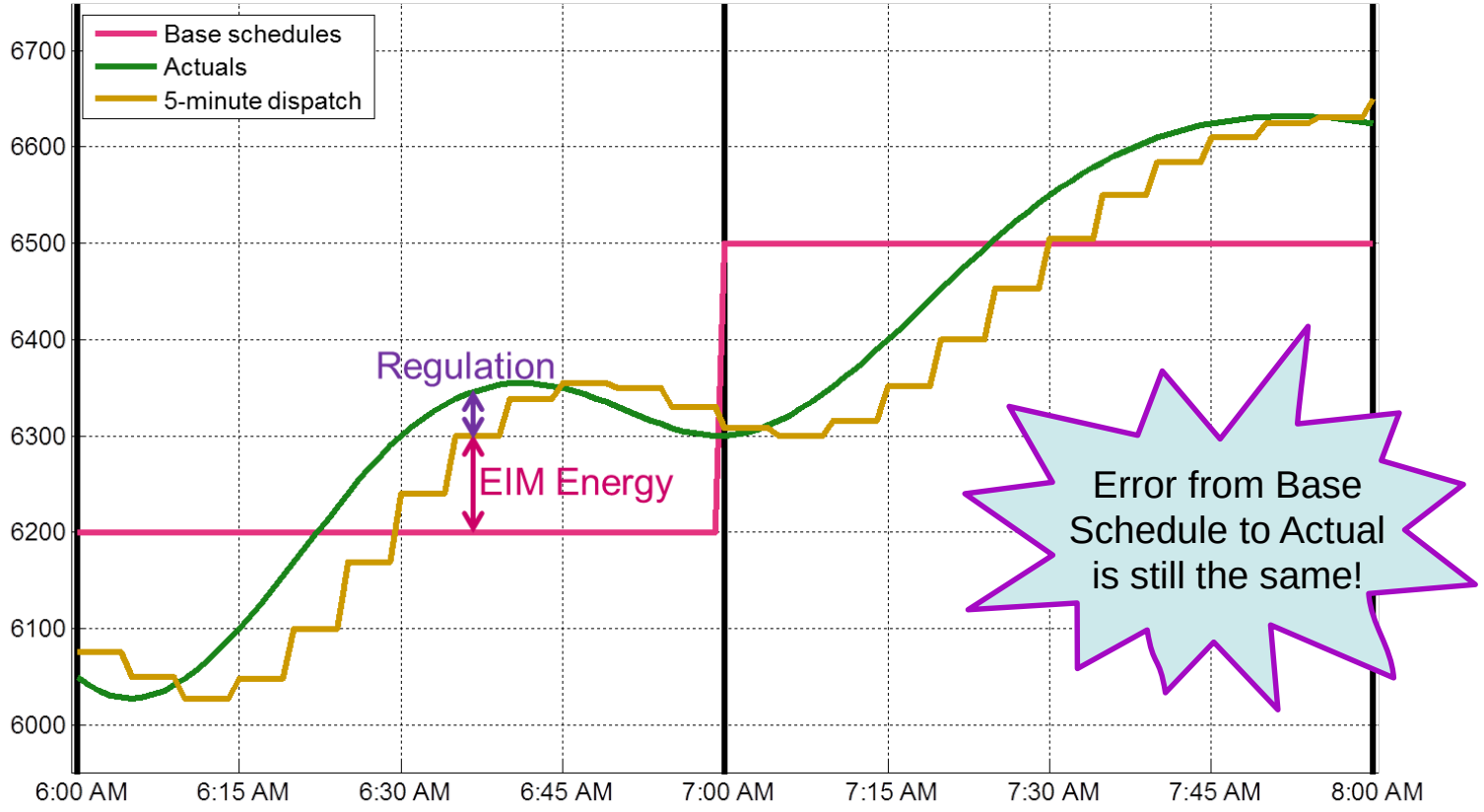
Balancing Reserves Today

- BPA currently holds balancing reserves in order to balance within-hour variability



Balancing Reserves in the EIM

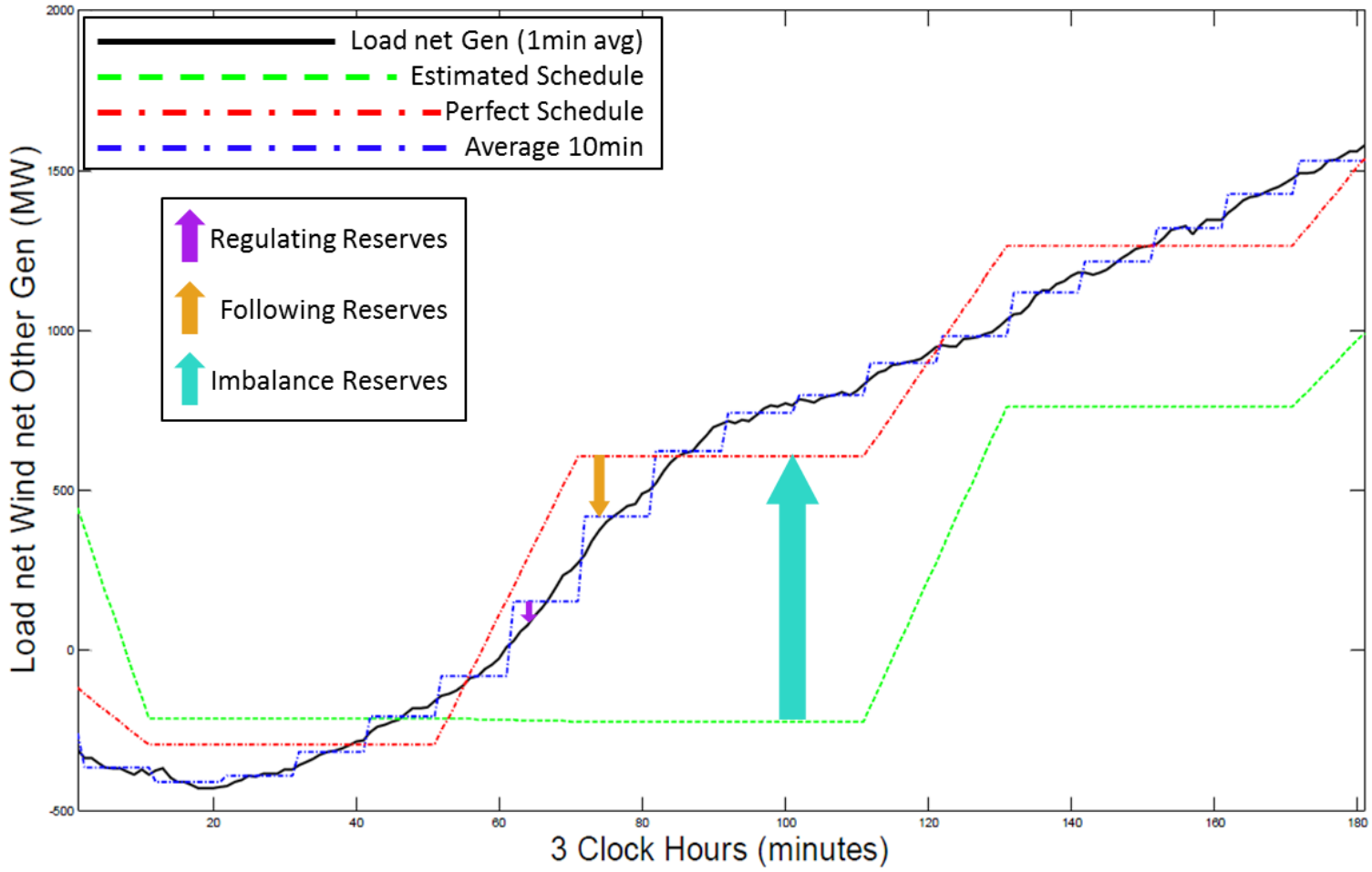
- Once in the EIM:
  - The BA dispatches regulation reserves (within-5 minute imbalance)
  - The EIM dispatches bid-in resources to meet imbalance



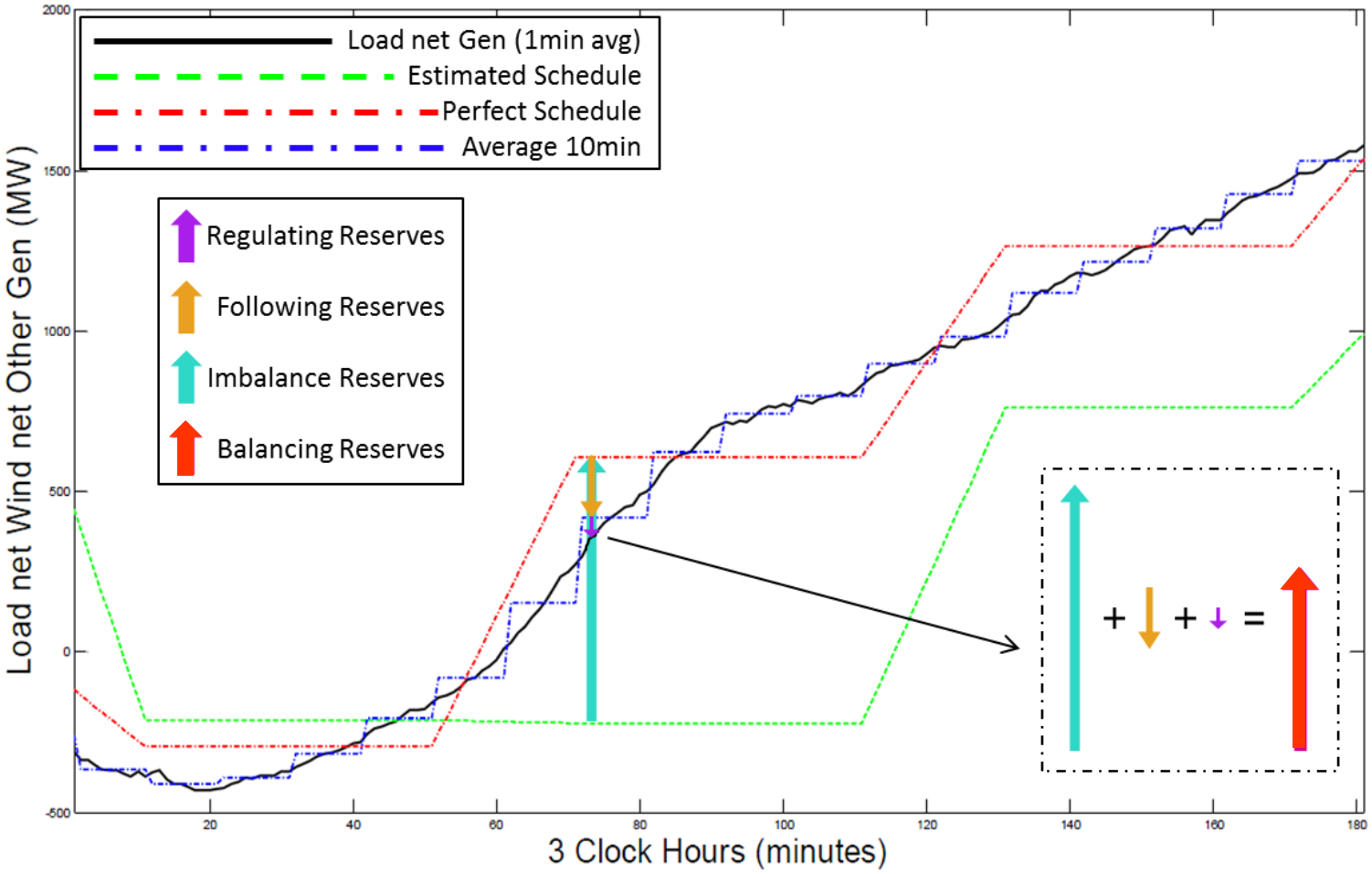
Current Methodology – 3 Components

- BPA's balancing reserves consist of 3 components - Regulation (100% spin), Following (50% spin), and Imbalance (100% non-spin).
  - Regulation: The difference between actual Load net Generation and the 10-minute average of Load net Generation
  - Following: The difference between the 10-minute average of Load net Generation and the "perfect schedule" of Load net Generation
    - Perfect schedule: hourly average, ramped from xx:50 to xy:10
  - Imbalance: The difference between the "perfect schedule" of Load net Generation and the entered schedules/forecasts of Load net Generation
- History on 3 components
  - To date, no industry standard for regulation or balancing capacity requirements exist, while NERC standards focus solely on performance outcomes.
  - As part of the original Wind Initiative Team efforts, BPA collaborated with Pacific Northwest National Lab, producing a study on balancing wind variability in a BAA. Out of that study, definitions for regulation and following reserves were created. BPA further split following into 2 components, as listed above, to separately capture the capacity associated with forecast/scheduling error.
  - https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-17558.pdf

Current Methodology – 3 Components

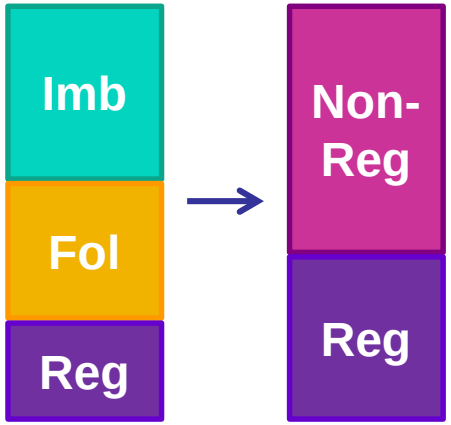


Current Methodology – 3 Components



Balancing Reserve Components in EIM

- BPA's balancing reserves currently consist of 3 components - Regulation (100% spin), Following (50% spin), and Imbalance (100% non-spin).
  - 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 = 100% Spin Balancing Reserves
    - The difference between actual Load net Generation and the net EIM dispatch operating target (DOT) of Load net Generation
  - "Non-Regulation" Capacity = TBD
    - 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)



Participating Resources in EIM

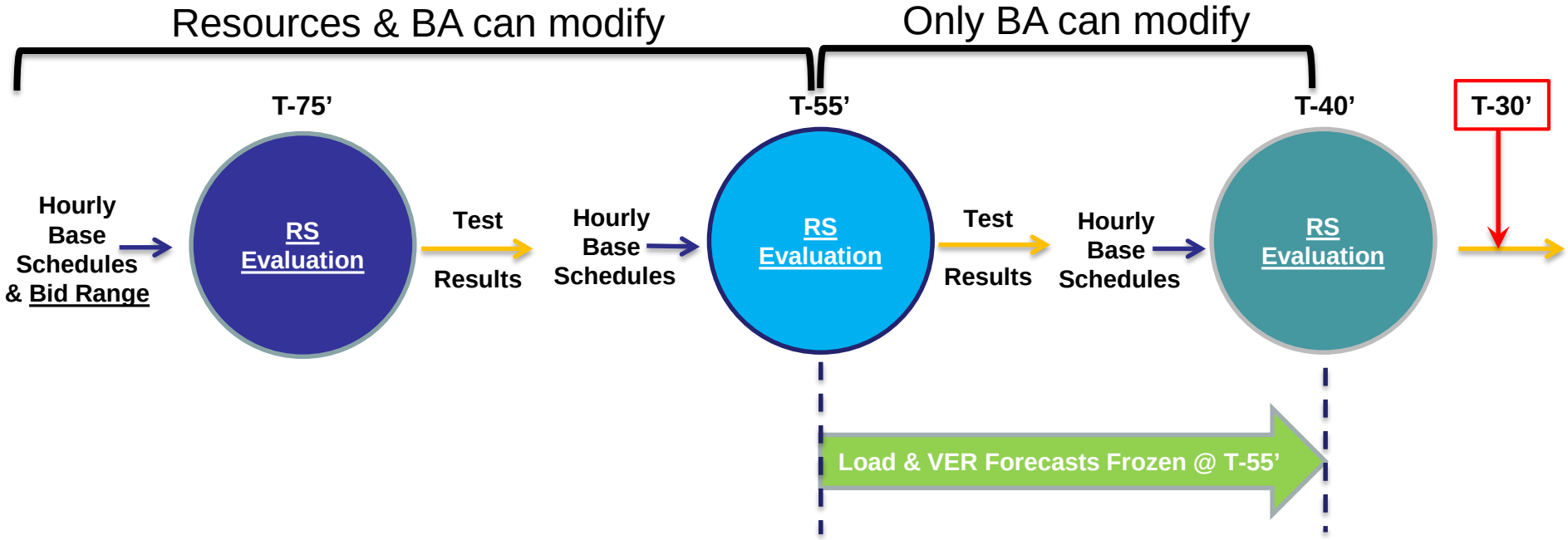
- Regardless of resource EIM participation status (PR and NPR):
  - Capacity for Generator Balancing Service is still required to meet the variability of resources
  - The resource may acquire these services from BPA (VERBS/DERBS) or the resource may elect to self-supply
- Does the EIM PR's capacity bid replace FCRPS BR capacity?
  - BPA needs certainty that sufficient capacity is available to the BA in order to maintain reliability and to meet the NERC standards
  - BPA sets the BR need in advance of the start of each two-year rate period
  - By the time the EIM PR's bid is known, BPA will have already committed to provide the BR capacity
- Thus, unless customers self-supply, they will have to purchase VERBS/DERBS whether they bid into the market or not

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
  - 30/15 Committed Scheduling -- customer commits to receive BPA's 30-minute signal for each 15-minute schedule period
  - Uncommitted Scheduling -- customer does not commit to 30/60 or 30/15 committed scheduling

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 by T-55, with allowance for the BA to modify until T-40.



Intentional Deviation & Persistent Deviation

- Intentional Deviation (applied to variable generators) and Persistent Deviation (applied to load and dispatchable generators) are BPA penalty rates meant to discourage **leaning on the BA**
- In EIM:
  - Scheduling accuracy still impacts balancing reserves capacity need
  - BPA still has a need to not incur excess accumulated imbalance on the FCRPS
  - BPA still wants to incentivize accurate scheduling between the base schedule, e-tag, and forecast
- Need to evaluate Intentional Deviation and Persistent Deviation vs Over/Under Scheduling Penalty
  - Over/Under Scheduling Penalty: penalty meant to discourage entities from **leaning on the market**

Energy Imbalance & Generation Imbalance Service Rates

- Today, Energy Imbalance (EI) and Generation Imbalance (GI) are priced based on three "bands."

Band 1	EI and GI deviations of 1.5% or lower are settled at BPA's incremental cost of energy
Band 2	EI and GI deviations above 1.5% but below 7.5% are settled at BPA's incremental cost of energy adjusted by a percentage (e.g., 110%/90%)
Band 3	EI and GI deviations above 7.5% are settled at BPA's highest/lowest incremental cost of energy adjusted by a percentage (e.g., 125%/75%)

- EI/GI band structure will need to be further evaluated given the potential EIM entry
- Need to consider charge code allocation methodology regarding Uninstructed Imbalance Energy (UIE)/Instructed Imbalance Energy (IIE) charges

Next Steps

- Please provide feedback via techforum@bpa.gov (with copy to your account executive)

- The next Gen. Inputs Workshop will be tentatively on April 28th
  - Step 3: Analyze the Issue
  - Step 4: Discuss Alternatives

ISSUE #3A/3B: RESOURCE SUFFICIENCY

Step 3: Data and/or analysis that supports the issue

Step 4: Discussions on possible alternatives to solve the issue

Objective

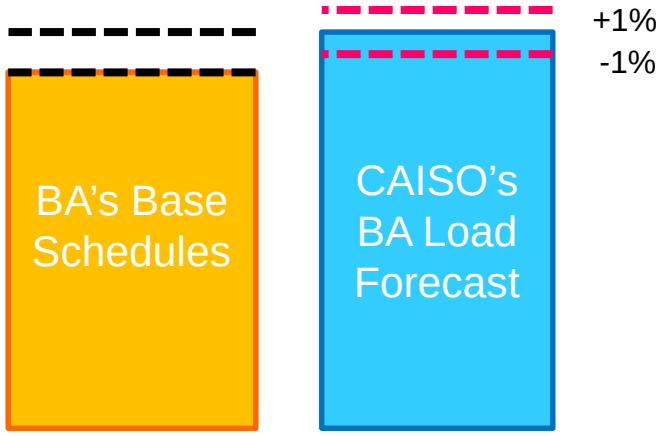
- To analyze and review possible alternatives:
  - What are the Options Available to Balance the BAA in the EIM?
  - Should BPA Set a Pass Target for RS?

What Options are Available to Balance the BAA in the EIM?

Step 3: Analysis

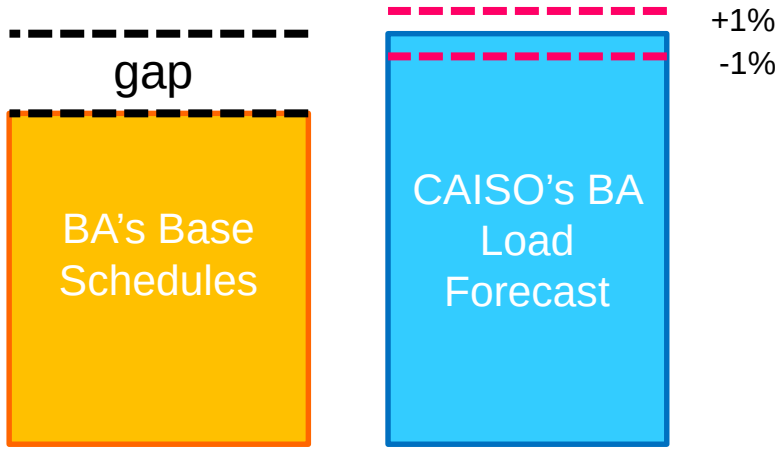
Balancing Test

- The BA'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 BA's base schedules:
  - Were the BA's base schedules at T-40 within +/-1% of the CAISO's BA load forecast?
  - Were the BA's base schedules at T-40 within +/- 5% of the BA's actual load (after-the-fact)?
- If the BA fails both checks, then it's charged an over/under scheduling penalty



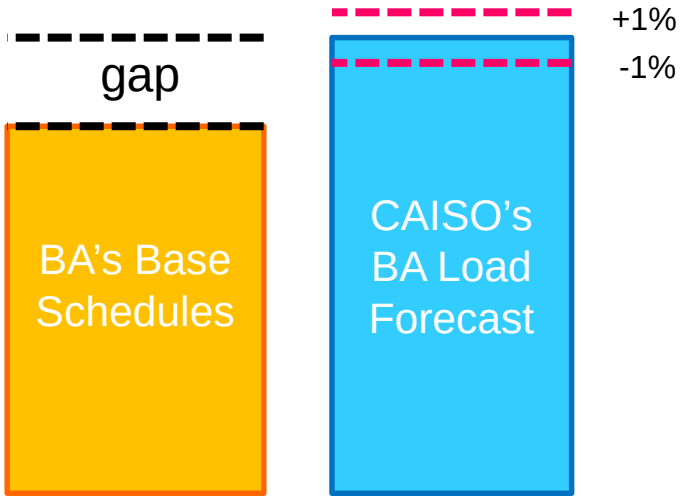
Gap in the Balancing Test

- The gap in the Balancing Test at T-55 equals the difference between CAISO's BA load forecast and the BA's base schedules
- Everyone within the BAA can impact the gap in the Balancing Test



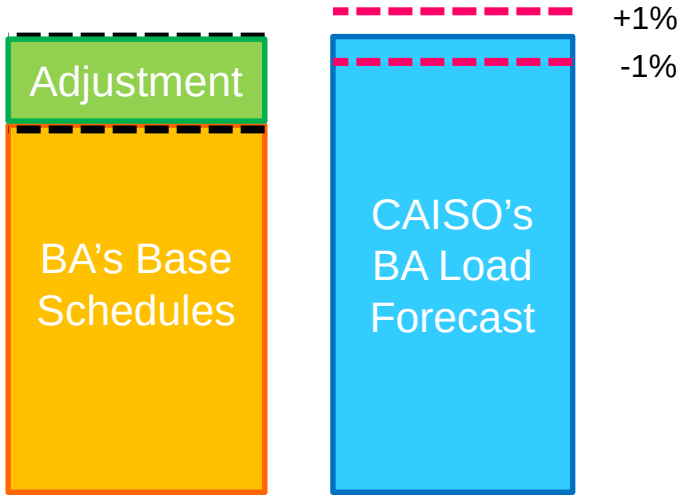
Reasons for a Gap

- Customers' or BPA's load forecasts are less accurate
- CAISO's BA load forecast is less accurate
- Under/over-scheduling to a load forecast:
  - For example, a customer is unable to schedule sufficient power to serve their load forecast due to a transmission constraint
- BPA will work with CAISO to investigate differences in load forecast methodologies and to determine the best approach to minimize errors from both forecasts



Balancing to CAISO's BA Load Forecast

- If balancing to CAISO's BA load forecast by T-40:
  - Base schedules would need to be adjusted if there's a gap at T-55
  - BPA would not be exposed an over/under-scheduling penalty
  - If CAISO's BA load forecast is the most accurate forecast, balancing to this forecast would reduce the BA's load imbalance (UIE)
- Not balancing to the CAISO's BA load forecast can increase a BA's requirements to pass the Capacity Test



Estimating the Gap

What are the challenges to estimating the magnitude of the gap prior to joining the EIM?

- CAISO's BA load forecast is not available
- Current BPA scheduling timeline is T-20, not T-55
  - Schedules at T-20 may not reflect what base schedules would be at T-55
- BPA Power's current process for setting basepoints is different than the anticipated process for setting base schedules in the EIM
- BPA does not receive load forecasts from customers at T-75 or T-55

Step 4: Alternatives

BPA's Desired State

- BPA should have visibility into how everyone is meeting their load obligations and into the accuracy of their load forecasts and scheduling

- Sub-BAA visibility is vital to evaluating the possible causes of imbalance in the RS time frame and 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

- Achieving the desired state will likely span beyond EIM go-live

Alternatives towards Desired State

BPA is evaluating alternatives to move towards its desired state for balancing the BAA. Some alternatives may not be achievable by the EIM go-live.

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

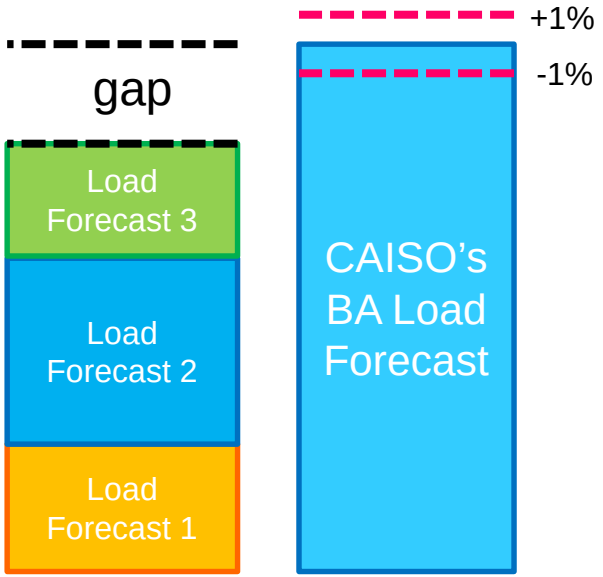
3. Sub-allocation of CAISO's BA load forecast:
   - BPA provides everyone with a share of the hourly CAISO BA load forecast
   - Everyone provides BPA with their hourly load forecast
   - Everyone schedules to their best available expected load

Alternative 1: Status Quo

- Status Quo: Everyone schedules to their best available expected load
- BPA would have less visibility into the possible sources of a gap in the Balancing Test:
  - BPA would have visibility into schedules
  - However, BPA would not have visibility into schedules versus load forecasts or the performance of load forecasts
- If BPA chooses to balance to CAISO's BA load forecast, BPA would potentially need to adjust base schedules to cover the gap:
  - If BPA isn't balanced to CAISO's BA load forecast, BPA may be exposed to an O/U penalty
- BPA will track the performance of the CAISO's BA load forecast

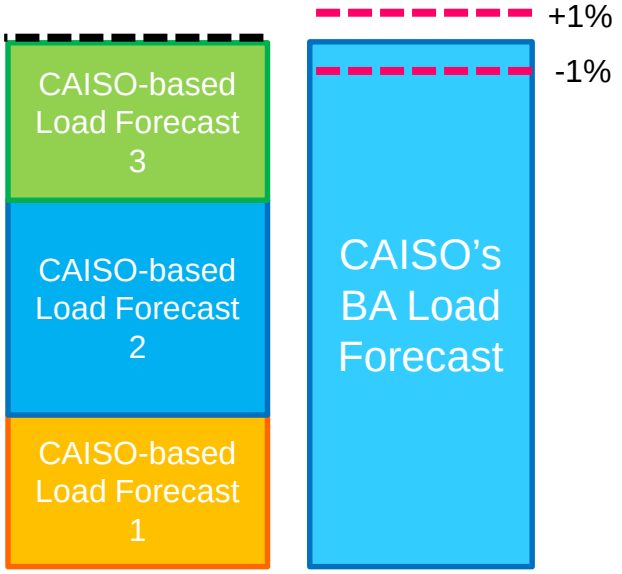
Alternative 2: Collection of Load Forecast

- Collection of load forecasts:
  - Everyone provides BPA with their own hourly load forecast for a certain time horizon
  - Everyone schedules to their best available expected load
- BPA would track load forecasts versus schedules
  - This would allow BPA to evaluate potential causes of gaps in the Balancing Test
- BPA would track the performance of a customer's hourly load forecast compared to its actual load
  - BPA could work with customers to improve their load forecasts
- BPA will track the performance of the CAISO's BA load forecast
- If BPA chooses to balance to CAISO's BA load forecast, BPA would potentially need to adjust base schedules to cover the gap:
  - If BPA isn't balanced to CAISO's BA load forecast, BPA may be exposed to an O/U penalty



Alternative 3: Sub-Allocation of Load Forecast

- Sub-allocation of CAISO's BA load forecast:
  - BPA provides everyone with a share of the hourly CAISO BA load forecast
  - Everyone provides BPA with their hourly load forecast
  - Everyone schedules to their best available expected load
- BPA would track load forecasts versus schedules
  - This would allow BPA to evaluate potential causes of gaps in the Balancing Test
- BPA would track the performance of the CAISO-based load forecast and a customer's hourly load forecast compared to its actual load
  - BPA could work with customers to improve their load forecasts
- BPA will track the performance of the CAISO's BA load forecast
- Assuming most everyone schedules to their CAISO-based load forecast, there would be a smaller risk of not being balanced to the CAISO's BA load forecast by T-55



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 Tests

- All capacity bid into the EIM counts towards meeting the RS requirements of the Capacity Test and the Flex Ramp Sufficiency Test (FRST)

- BPA could bid into the EIM all, or part of, the non-regulation capacity held under Schedules 3 and 10 of the Tariff:
  - Any non-regulation capacity not bid in would be held as available balancing capacity (ABC)
  - BPA will hold regulation capacity as well, which would not be bid in

- BPA could also bid in additional capacity beyond the non-regulation capacity held under Schedules 3 and 10 of the Tariff, as could any participating resource

BPA's Desired State

- Preserve BPA's ability to meet its statutory, regulatory and contractual obligations, and its ability to maintain reliable transmission and delivery of power to its customers
- BPA's participation in the EIM remains discretionary, consistent with a sound business rationale, and aligned with the objectives of BPA's Strategic Plan
- Maximize EIM benefits for Power and Transmission customers
- Maintain operational (Power and Transmission) and marketing flexibility

Alternatives for Managing the RS Evaluation

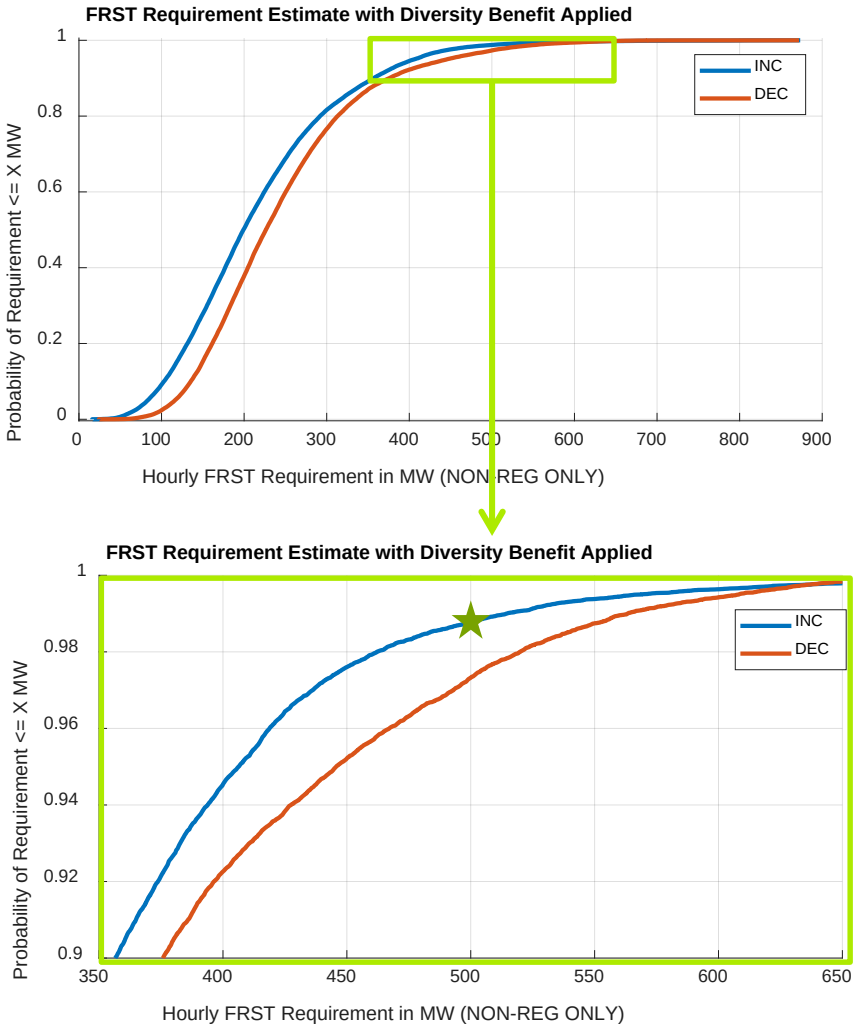
BPA is evaluating 2 alternatives for managing the RS evaluation:

1. BPA does not set an expected RS pass target

2. BPA does set an expected RS pass target

Analysis of the RS Evaluation

- BPA ran a preliminary analysis to calculate BPA's expected hourly RS requirements:
  - Focused exclusively on the final RS test – the Flex Ramp Sufficiency Test
  - Assumed no ramp rate limitation
  - Assumed sufficient donated Transmission to obtain the diversity benefit
  - Developed proxy input data for unknowns
- For instance, the results show that if 500 MW of capacity was bid in every hour, the BA would pass the FRST at least 98.7% of the time



Analysis of RS Pass Target

Pros to setting an RS pass target:

- Would establish greater certainty of market access for the BAA

Cons to setting an RS pass target:

- Would likely increase the complexity of EIM implementation
- Could expose BPA to uncertain RS requirements in the future:
  - Changes to the RS tests in the future are likely
- Not industry standard/pro forma:
  - No EIM Entity has defined an expected RS pass target
- Could reduce BPA's operational and marketing flexibility:
  - BPA would likely have to hold capacity specifically to bid into the EIM to meet the expected RS pass target rather than using that capacity in a potentially more valuable market
  - How much transmission will be made available is uncertain – diversity benefit
  - Non-reg capacity bid in versus ABC (available balancing capacity)
- Could result in significant changes to the Balancing Reserve Capacity Business Practice and rates

Next Steps

- Review feedback on alternatives under consideration:
  - Please submit to techforum@bpa.gov (with copy to your account executive) by Tuesday, March 10

- The next RS customer workshop:
  - Step 5: Discuss the feedback provided by customers on the alternatives and provide BPA's responses
  - Step 6: Discuss staff's proposal

ISSUE #12: GENERATOR INTERCONNECTION

Step 1: Introduction and Education
Step 2: Description of the Issue

Objective

- To educate and give background on the Generator Interconnection

Background: FERC Order No. 845

- Order No. 845: Revised the pro forma LGIP and LGIA to improve certainty for interconnection customers and promote more informed interconnection decisions and enhance the interconnection process. In Order No. 845 (845), FERC adopted ten reforms:
  1. Interconnection Customer's Option to Build;
  2. Dispute Resolution;
  3. Identification and Definition of Contingent Facilities;
  4. Transparency Regarding Study Models and Assumptions;
  5. Definition of Generating Facility in the Pro Forma LGIP and LGIA;
  6. Interconnection Study Deadlines;
  7. Requesting Interconnection Service Below Generating Facility Capacity;
  8. Provisional Interconnection Service;
  9. Utilization of Surplus Interconnection Service; and
  10. Material Modification and Incorporation of Advanced Technologies.

Background: TC20 Settlement Agreement

- Settlement: As part of the TC20 Settlement Agreement, Bonneville agreed to adopt tariff language to implement eight (8) of the reforms pursuant to 845 (see below):
  - Interconnection Customer's Option to Build;
  - Dispute Resolution
  - Identification and Definition of Contingent Facilities;
  - Transparency Regarding Study Models and Assumptions;
  - Definition of Generating Facility in the Pro Forma LGIP and LGIA;
  - Interconnection Study Deadlines;
  - Requesting Interconnection Service Below Generating Facility Capacity; and
  - Provisional Interconnection Service.
- Phased Approach: Bonneville also agreed to develop a business practice to take a phased approach to the implementation of two (2) of the 845 reforms (see below):
  - Utilization of Surplus Interconnection Service; and
  - Material Modification and Incorporation of Advanced Technologies.

Background: FERC Order No. 845, 845-A, & TC22

- **Order No. 845-A:** On February 21, 2019, FERC issued an order on rehearing of 845—845-A. As part of the TC-22 Terms and Conditions Tariff Proceeding, Bonneville seeks to complete its phased approach of 845 and also adopt revisions made by 845-A. 845-A made substantive revisions to the highlighted reforms below:
  1. Interconnection Customer's Option to Build;
  2. Dispute Resolution;
  3. **Identification and Definition of Contingent Facilities;***
  4. Transparency Regarding Study Models and Assumptions;
  5. Definition of Generating Facility in the Pro Forma LGIP and LGIA;
  6. Interconnection Study Deadlines;
  7. Requesting Interconnection Service Below Generating Facility Capacity;
  8. Provisional Interconnection Service;
  9. **Utilization of Surplus Interconnection Service;* and**
  10. **Material Modification and Incorporation of Advanced Technologies.***

***In an effort to complete its phased approach of implementing 845 (and now 845-A), Bonneville is proposing significant edits to Attachment L that are consistent with pro forma where possible.*

TC22 Significant Revisions Reform #3

- Identification and Definition of Contingent Facilities:
  1. Requires Transmission Providers to publish a method for identifying Contingent Facilities and provide a list of potential Contingent Facilities to Interconnection Customers at the close of the System Impact Study phase;
  2. Transmission Providers must provide, upon Interconnection Customer's request, the estimated Network Upgrade costs and estimated in-service completion date associated with each identified Contingent Facility if Transmission Provider determines that this information is readily available and not commercially sensitive.

TC22 Significant Revisions Reform #9

- Utilization of Surplus Interconnection Service: Surplus Interconnection Service enables an existing Interconnection Customer whose Generating Facility is already interconnected, one of its affiliates, or a non-affiliate to utilize the unused portion of an existing Interconnection Customer's Interconnection Service within specific parameters.
  - Includes a new definition of Surplus Interconnection Service in the LGIP and LGIA
  - Provides an expedited interconnection process outside of the interconnection queue for Surplus Interconnection Service:
    - Must allow affiliates of the existing Interconnection Customer to use Surplus Interconnection Service for another interconnecting generating facility, and;
    - Must allow for the transfer of Surplus Interconnection Service that the existing Interconnection Customer or one of its affiliates does not intend to use.

TC22 Significant Revisions Reform #9 (continued)

- The Transmission Provider must perform reactive power, short circuit/fault duty, and stability analyses studies as well as steady-state (thermal/voltage) analyses as necessary to ensure evaluation of all required reliability conditions to provide Surplus Interconnection Service and ensure the reliable use of Surplus Interconnection Service.
- Surplus interconnection service cannot be granted if doing so would require new network upgrades.
- The original interconnection customer must be able to stipulate the amount of surplus interconnection service that is available, designate when that service is available, and describe any other conditions under which Surplus Interconnection Service at the Point of Interconnection may be used. .

TC22 Significant Revisions Reform #10

- Material Modification and Incorporation of Advanced Technologies: Requires transmission providers to:
  1. Include in their pro forma LGIP a technological change procedure;
  2. Transmission providers must also assess, and if necessary, study whether proposed technological advancements can be incorporated into interconnection requests without triggering the material modification provisions of the pro forma LGIP;
  3. Transmission providers must, consistent with the guidance provided in the Final Rule, develop a definition of “Permissible Technological Advancement.” Such permissible technological advancements would, by definition, not constitute material modifications.

TC20 & TC22

Other Revisions to Attachments L & N

- TC20: Bonneville deleted from Attachments L and N tariff language that made reference to Bonneville filing its tariff with FERC.
- TC22:
  - Bonneville will continue its review of Attachments L and N to remove any remaining instances that may make reference to filing with FERC.
  - Bonneville will also review Attachments L and N to clean up tariff language and align with pro forma to the extent possible.

TC22: Other Efforts

- Exploring repowering and replacements provisions for the TC-22 tariff.
  - Interconnection Customers' generating facilities are aging and some are finding it necessary to replace/update equipment.
  - Bonneville has an opportunity to create a streamlined process to facilitate these efforts.

Next Steps

- Provide feedback by March 10, 2020 to techforum@bpa.gov (with a copy to your Transmission Account Executive).
  - The next workshop is on April 28, 2020.
  - Steps 3 and 4
  - BPA will share draft tariff language at this workshop.

Proposed March Workshop Agenda

- TC-22, BP-22 & EIM Topics
  - Seller's Choice
    - Steps 1-3
  - Intertie Studies
    - Steps 1-4
  - Network Usage
    - Steps 3-4
  - Transmission Losses
    - Steps 2-4
- TC-20 Topics
  - Hourly Firm (2.d)
  - De minimus
  - Short term ATC Improvements (2.e)

APPENDIX

Summary of Customer Feedback

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.

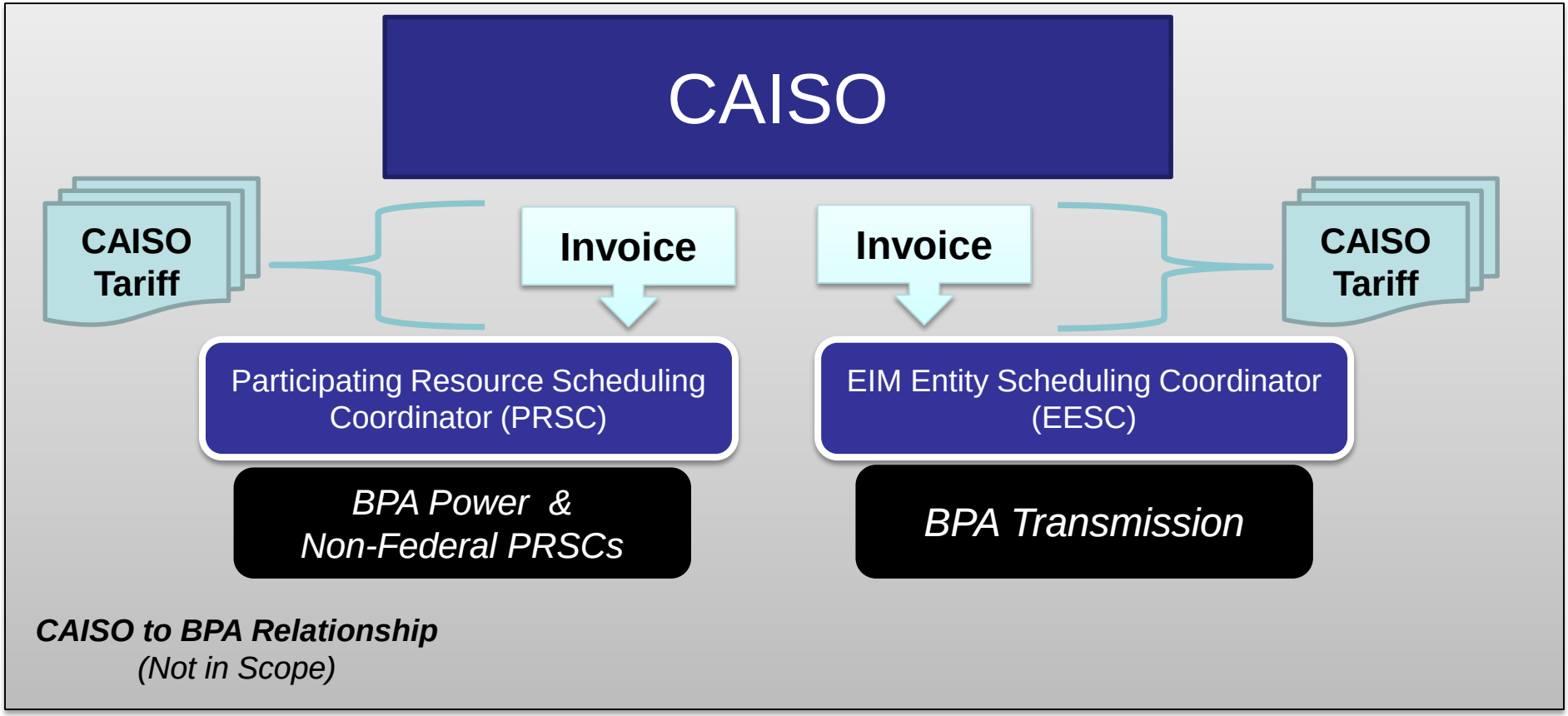
Customer Led Workshop Protocol

- 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 within the Rates Hearing Room.
- BPA will verify that it will staff for the requested topics within three business days via Tech Forum.

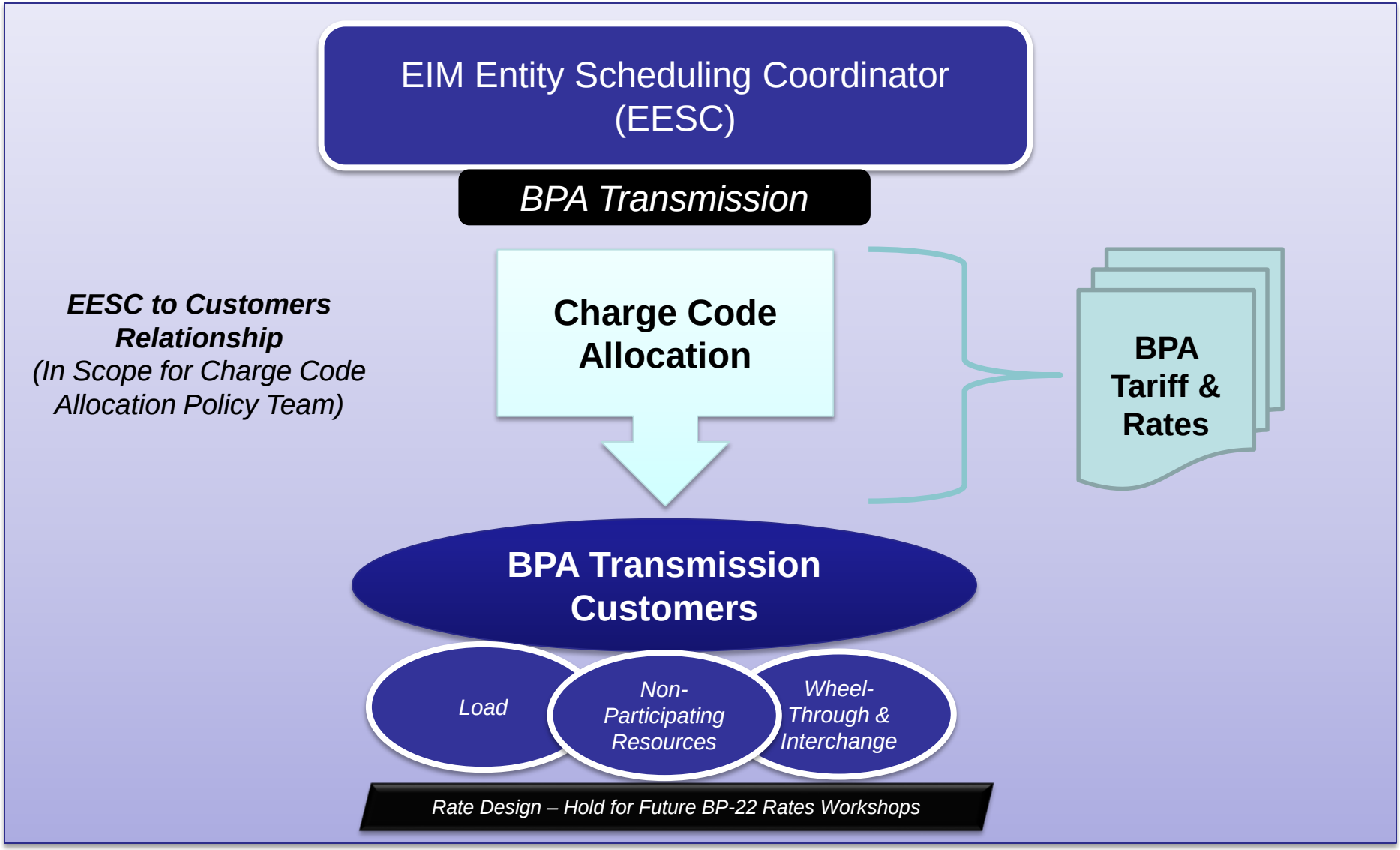
APPENDIX

EIM charge code allocation

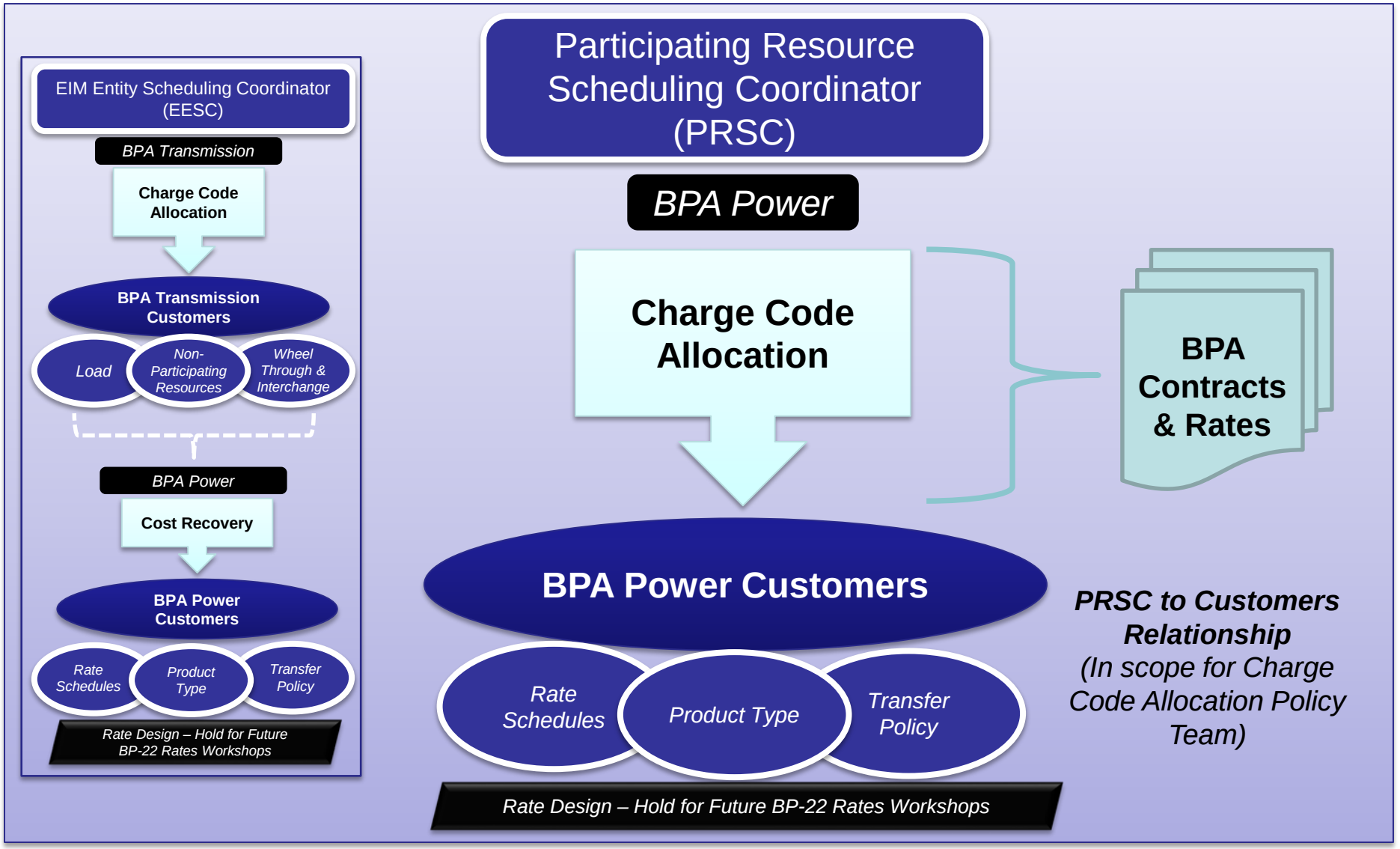
Organizational Relationships: CAISO



Organizational Relationships: EESC



Organizational Relationships: PRSC



Potential Bonneville Charge Code Allocation Principles

- Full and timely cost recovery, considering cost causation while balancing with simplicity.
- Develop understandable and transparent methodology that we can build upon as we gain experience in the market.
- Feasibility of implementation, recognizing forecasting constraints and administrative implications.

Potential Transmission Charge Code Allocation Principles

- Equitable cost allocation between Federal and non-Federal users of the transmission system.
- Behavior-driven cost causation where practical, to incentivize appropriate market behaviors.
- Mitigate seams and potential for charge code allocation misalignments with other EIM Entities and BAAs.

Potential Power Charge Code Allocation Principles

- Costs and benefits are allocated among cost pools consistent with the Tiered Rates Methodology and power product purchased from BPA.
- To the extent possible, treat directly connected and transfer customers comparably.
- Maintain similar level of exposure to actual market conditions as is included in power products today.

Appendix: Requirements for Attachment L in the *pro forma* Tariff

- Quantitative and qualitative criteria for the level of secured and unsecured credit.
- Following 6 elements:
  1. Summary of the procedure for determining the level of secured and unsecured credit;
  2. List of acceptable types of collateral/security;
  3. Procedure for providing customers with reasonable notice of changes in credit level and collateral requirements;
  4. Procedure for providing customers written explanation for change in credit levels or collateral requirements
  5. Reasonable opportunity to contest determinations of credit levels or collateral requirements; and,
  6. Reasonable opportunity to post additional collateral, including curing any non creditworthiness determination.