

DSW EIM Implementation Update

Business Practice Review Meeting

DSW EIM Implementation Team

September 21, 2022



Webex Participation

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- All participants are muted.
- For questions, please choose one of the following options:
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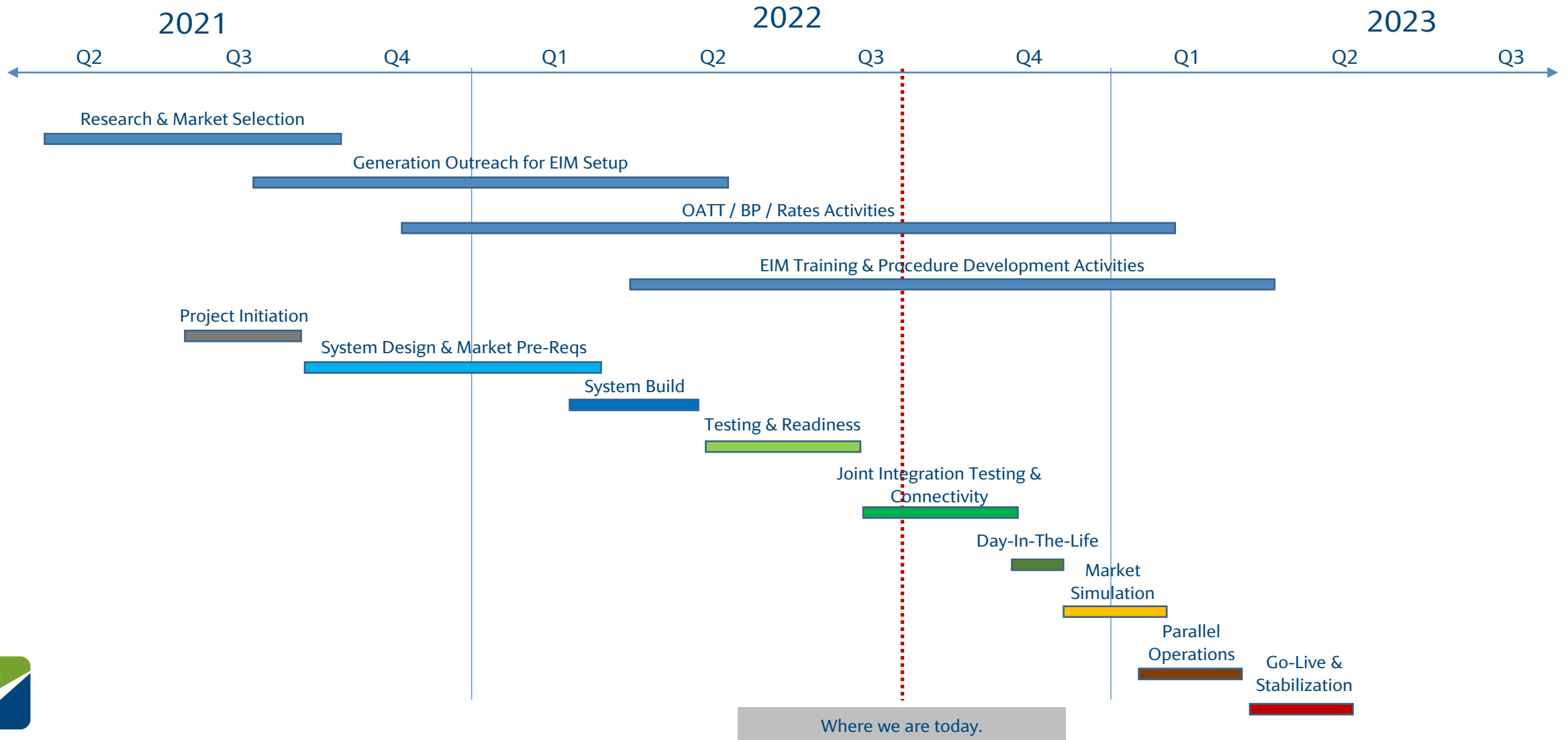


Agenda

- EIM Implementation Timeline
- OATT, Business Practice, and Rate Schedules Overview
- Business Practice Process and Applicability
- Operations Overview
- Settlements Overview
- Rate Impacts and Rate Adjustment Process
- Questions



EIM Implementation Timeline



OATT, Business Practice, and Rate Schedules Overview

- Three major activities are necessary to prepare for the OATT based on DSW's non-jurisdictional model for EIM operations: preparation of the OATT, Business Practice (BP), and new rate schedules.
 - OATT: WAPA's open comment period was held in July on the OATT with the customer meeting on July 14, 2022
 - BP: Today's discussion covers the following areas:
 - Operations
 - Settlements
 - Rate Schedules: Preview upcoming rate process



CAISO EIM Business Practice Process

- DSW's OASIS was posted September 8, 2022 at:

<http://www.oasis.oati.com/walc/index.html>

- Final day for comment period is October 21, 2022

- Send comments to:

Email: steward@wapa.gov & hancock@wapa.gov

U.S. Mail: Western Area Power Administration
Desert Southwest Region
P.O. Box 6457, Phoenix, AZ 85005



CAISO EIM Business Practice Applicability

- This EIM BP will apply to all transmission customers which includes interconnection customers, as applicable with new and existing service agreements, all transmission customers with legacy transmission agreements that expressly incorporate by reference the applicability of WAPA's OATT, and Boulder Canyon Project electric service contractors in accordance with applicable requirements of their electric service contracts.
- The Business Practice has been developed consistent with WALC's Business Practice entitled, "Process for Creation of and Modification to Business Practices" per section 4.3 of Western's OATT.
 - Link:
<http://www.oasis.oati.com/woa/docs/WAPA/WAPAdocs/Western-OATT-BP-Update-Process-Version-2009-1002.pdf>



Operations Overview – Communications

COMMUNICATION WITH DSW

All electronic communication with DSW as the EIM Entity related to applications, registration, certification, and changes in information under the WAPA OATT and this EIM BP shall be sent to eimrequest@wapa.gov.

CATEGORY "BP reference"	E-MAIL	PHONE NUMBERS
Generation Questions		
"WAPA DSW EIM Entity"	eimrequest@wapa.gov	
EIM Scheduling & Outages		
"WAPA DSW Outage Coordinator"	walcoutage@wapa.gov	
Generation		
Generation Outages (planned) "WAPA DSW Outage Coordinator"	walcoutage@wapa.gov Subject Line: EIM Outage	
Generation Outages (unplanned) "WAPA DSW AGC Desk"	Call first, then follow up with email to: walcoutage@wapa.gov	602-605-2512
Transmission		
Transmission Outages (planned) "WAPA DSW Outage Coordinator"	walcoutage@wapa.gov Subject Line: EIM Outage	
Transmission Outages (unplanned) "WAPA DSW TSO Desk"	Call first, then follow up with email to: walcoutage@wapa.gov	602-605-2501



Operations Overview – Resource Certification

- Participating Resource Registration Certification
 - Application form and deposit
 - Processing the application
 - Technical review
 - Application status notification
- Resources external to DSW EIM Entity BAA
 - Use of pseudo-ties
 - Pseudo-tie costs



Operations Overview – Resource Registration

- Participating Resource registration
- Non-Participating Resource
- New resources
- Updates to registration data (PR/NPR)



Operations Overview – Transmission Outages

- Planned Transmission Outages and Known De-Rates
 - Preferably 45 calendar days in advance; No later than 30 calendar days
 - Notify DSW EIM Entity of the planned transmission outage or known de-rate by e-mail at: walcoutage@wapa.gov
 - TOP to submit directly to RTMO webOMS / CAISO's webOMS
- Unplanned Transmission Outages and De-Rates
 - Report as soon as possible to RTMO webOMS / CAISO's webOMS for outages lasting 15 minutes or longer but no later than 30 minutes after the outage or de-rate commences
 - Contact TSO desk by telephone at 602.605.2501
 - Email walcoutage@wapa.gov within 1 hour of telephone notification



Operations Overview – Generation Outages

- Planned Generation Outages
 - Preferably 45 calendar days in advance; No later than 30 calendar days
 - Notify DSW EIM Entity of the planned generation outage or known de-rate by e-mail at: walcoutage@wapa.gov; Subject Line: EIM Outage
 - GO/O to submit directly to RTMO webOMS / CAISO's webOMS
- Unplanned Generation Outages
 - Report as soon as possible to RTMO webOMS / CAISO's webOMS no later than 30 minutes after the outage or de-rate commences
 - Contact AGC desk by telephone at 602.605.2512
 - Email walcoutage@wapa.gov within 1 hour of telephone notification



Operations Overview – Forecasting & Transmission Operations

- Generation forecast data
- Interchange forecast data
- Intrachange forecast data
- Load component of base schedule
- Transmission customers with wheels, imports, or exports
- Transmission operations

Forecast Data Type	Method of Supplying Forecast Data	Initial Submission Deadline	Update Submission Deadline	Proposed Final Submission Deadline	Final Submission Deadline
Generation forecast data	Base Schedule Aggregation Portal (BSAP)	T-7 Days	10 am ppt before Operating day	T-77 minutes	T-57 minutes
Interchange & Intrachange forecast data ¹	E-Tags	T-7 Days	10 am ppt before Operating day	T-77 minutes	T-57 minutes
Interchange forecast data ²	E-Tags	Not Applicable	Not Applicable	T-77 minutes	T-57 minutes

Notes:

1. Transmission customers with resources or load in WAPA EIM Entity BAA
2. Transmission customers without resources or load in WAPA EIM Entity BAA



Operations Overview – Variable Energy Resources Forecast

- Variable Energy Resource (VER) forecast data

Transmission customers or their designated agent(s) with Non-Participating Resources which are VERs shall submit additional generation forecast data for VER resources of, at a minimum, a rolling five-hour forecast of the anticipated resource MW output in five-minute or fifteen-minute granularity updated at least every fifteen minutes.

- Methods for transmission customers with Non-Participating Resources that are VERs to submit resource forecast data

A transmission customer shall elect one of the following methods to provide Forecast Data:

- (i) Use DSW's VER reliability forecast service.
- (ii) Self-supply the forecast data through its own capabilities or through the services of an independent forecast service provider; or
- (iii) Use the forecast service offered by the MO.



Settlements Overview

- DSW thoroughly reviewed peer utilities and Federal entities OATTs and Business Practices in the formation of our own documents.
- WALC, as a Federal Agency, must allocate 100% of the monies exchanged with CAISO to its customers.
- Many of the charges covered in the BP are relevant to some, but not all our customers; therefore, today – we will cover general concepts.
- If you have specific concerns for an issue specific to your company / asset mix, DSW is happy to schedule a follow-up discussion with you at your request to explain settlement concepts in more detail.



Settlements Overview – Key Concepts

- DSW customers subject to EIM Entity settlement allocations would be customers with activity in any of these areas:
 - Load
 - Transmission customers with BA interchange schedules (BA imports/exports/wheels)
 - EIM Non-Participating Generation (NPR)
- EIM Entity Charges are allocated via these four methodologies which will be discussed in the following slides:
 - Measured Demand
 - Metered Demand
 - Direct Allocation
 - None



Measured Demand Methodology

Settlements Update – Key Concepts

Measured Demand

- A ratio of a given customer's metered load MWs, plus export schedule MWs over (divided by) the total BA metered load, plus total BA export schedule MWs.
- Where export schedule MWs include wheel-through schedule export leg MWs.

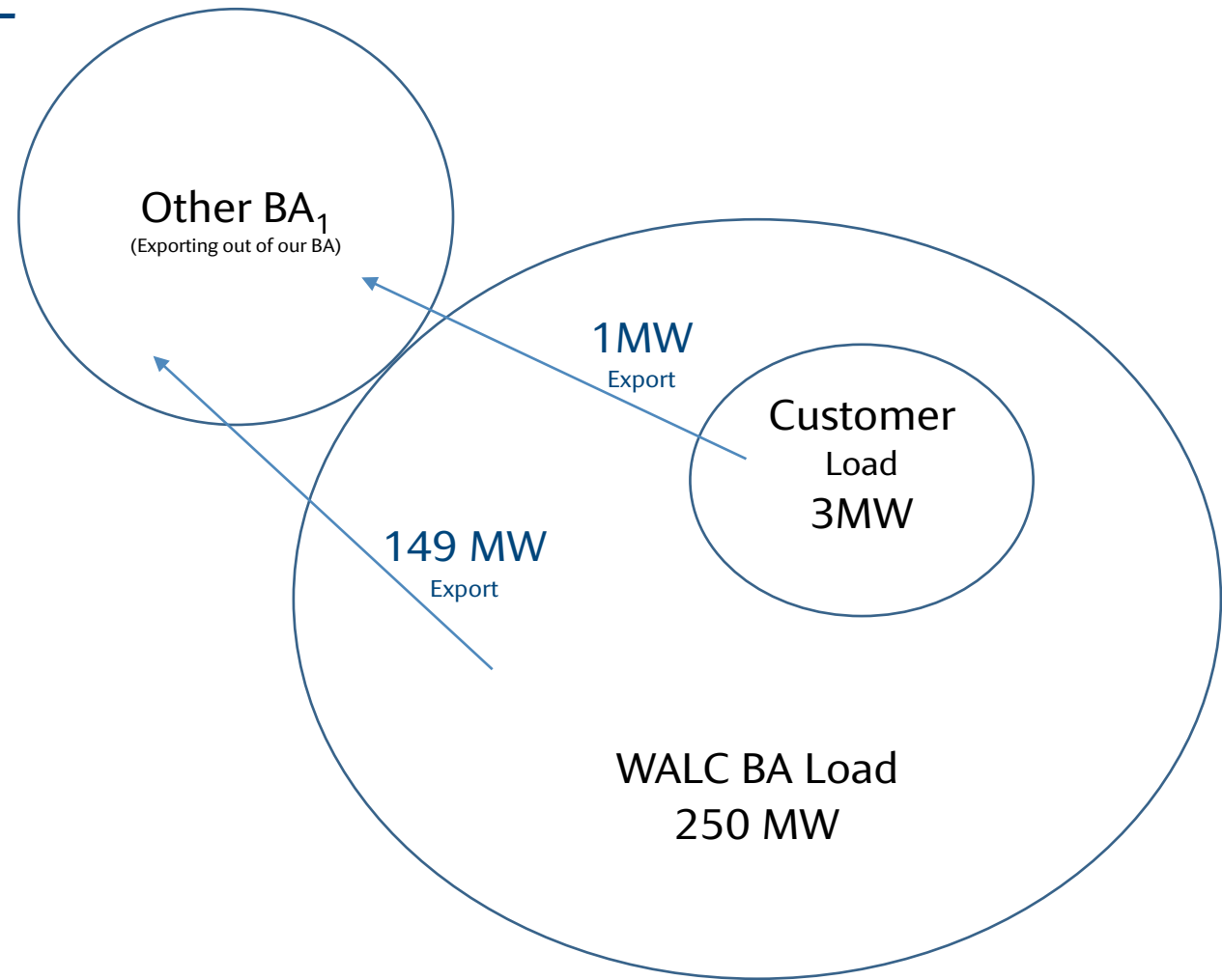
Charge Code	Description
64740	Real Time Unaccounted for Energy, EIM Settlement
64770	Real Time Imbalance Energy Offset EIM
6478	Real Time System Imbalance Energy Offset
67740	Real Time Congestion Offset EIM
69850	Real Time Marginal Losses Offset EIM
66200	Real Time Bid Cost Recovery, EIM Settlement
7070	Flexible Ramp Forecasted Movement Settlement
7071	Flexible Ramp Up Uncertainty Capacity Settlement
7076	Flexible Ramp Forecast Movement Allocation
7077	Daily Flexible Ramp Up Uncertainty Award Allocation
7078	Monthly Flexible Ramp Up Uncertainty Award Allocation
7081	Flexible Ramp Down Uncertainty Capacity Settlement
7087	Daily Flexible Ramp Down Uncertainty Award Allocation
7088	Monthly Flexible Ramp Down Uncertainty Award Allocation



$$\text{Measured Demand} = \frac{\text{customer (Metered load + export schedule)}}{\text{total BA (Metered load + export schedule)}}$$

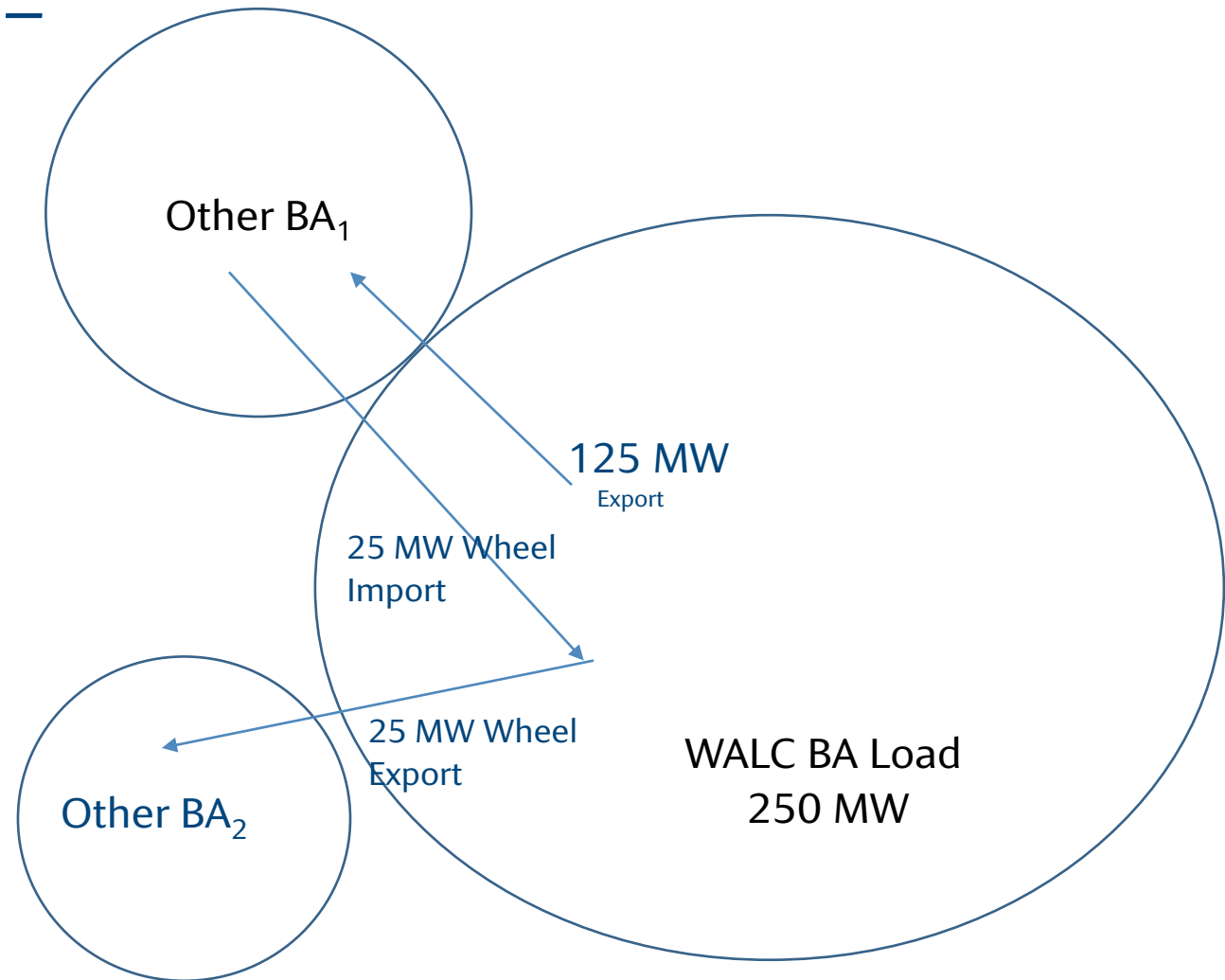
Measured Demand Methodology Overview – Load Customer

Measured Demand=
 $customer(3+1) / total\ BA\ (250+150) = 1\%$



Measured Demand Methodology Overview – Wheel Through Customer

Measured Demand=
 $customer(0+25)/total\ BA\ (250+150)= 6.25\%$



Metered Demand Methodology

Settlements Update – Key Concepts

Metered Demand

- A ratio of a given customer's metered load MWs, over (divided by) the total BA metered load MWs.
- Similar to Measured Demand, but only includes metered load component.

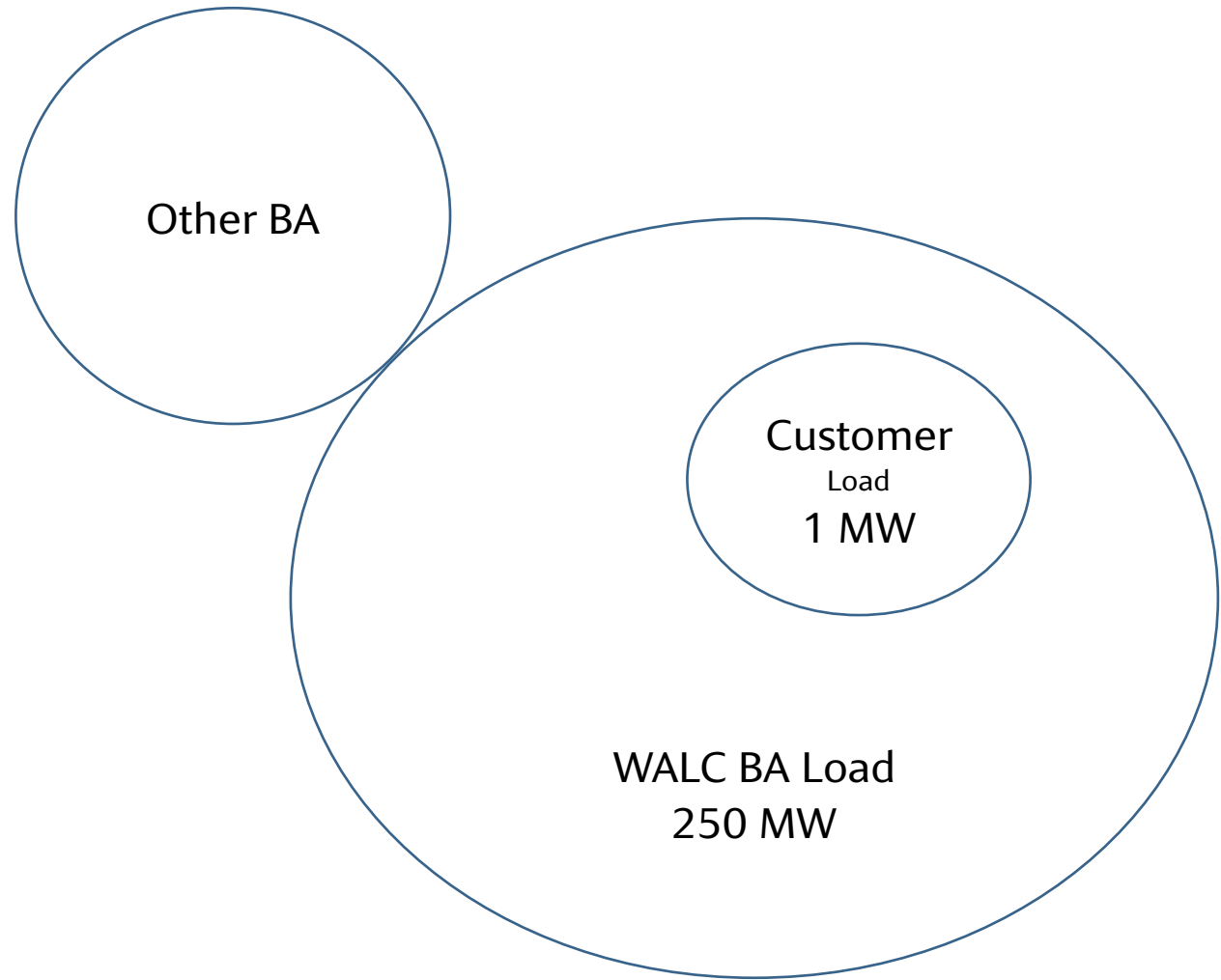
Charge Code	Description
4564	Transaction Charge
4575	Scheduling Coordinator Charge
6046	Over and Under Scheduling Proceeds

Metered Demand = $\frac{\text{customer (Metered load)}}{\text{total BA (Metered load)}}$



Metered Demand Methodology Concept Overview

Metered Demand=
 $customer(1) / total\ BA\ (250) = .4\%$



Direct Allocation Methodology

Settlements Update – Key Concepts

Direct Allocation

- Direct Allocation applies to EIM imbalance related charges where the ‘cause’ of the charge or credit can be directly attributed to a specific resource or schedule action.
- There are three categories of imbalance settlement direct allocations based on the EIM resource type and each will be covered on the following slides:
 - Load imbalance is subject to EIM uninstructed imbalance settlement
 - Non-Participating Resource Generators are subject to uninstructed imbalance settlement.
 - Interchange Schedules are subject to Fifteen Minute Market (FMM) imbalance; and Real-time Dispatch (RTD) imbalance.

Charge Code	Other EIM Settlements Description
701	Forecasting Service Fee
1591	Enforcement Protocol Penalty Charge
64600	Fifteen Minute Market IIE, EIM Settlement
64700	Real Time Dispatch IIE, EIM Settlement
64750	Real Time UIE, EIM Settlement
6045	Over and Under Scheduling Charges



Direct Allocation – Load Imbalance

Settlements Update – Key Concepts

Load Imbalance

- Components:
 - Load Base Schedule = the BA's hourly EIM net supply MWs which is typically equal to the ISO's hourly load forecast.
 - Load Actual Meter value = the total load consumed (less area transmission losses).
- Calculation:
 - Load UIE = Load Actual Meter Value less Load Base Schedule.
 - Therefore, if Load Actual Meter value is less than the Load Base Schedule, load customers would receive a credit; and if it is greater than the Load Base Schedule, load customers would receive a charge.

Market Activity	Settlement Result
<i>Load Base Schedule calculated at 75 MW.</i>	<i>No settlement</i>
<i>No FMM Market for load.</i>	<i>No settlement</i>
<i>Final Load Meter value is 71 MW.</i>	64750 UIE = 71 – 75 = -4 MWs



Direct Allocation – NPR Generator Imbalance

Settlements Update – Key Concepts

NPR Generator Imbalance:

- An NPR Generator tells the BA and the EIM Market its schedule for the future hour(s) via an EIM Generator Base Schedule submission. This NPR operator supplied hourly schedule becomes the Generator Base Schedule.
- For a NPR Generator, the EIM Market does NOT award or dispatch the NPR generator away from its Generator Base Schedule. Therefore, in EIM market terms: NPR Generator Base Schedule = FMM Award MWs = Dispatch Operating Target (DOT). No ‘market’ imbalance settlement occurs.
- The NPR Generator is settled for the difference between its provided Generator Base Schedule MW; and the final metered output of the generator.
- If the NPR Generator’s actual output is greater than its Base Schedule, it receives a credit; if the actual output is less than the Base Schedule it receives a charge.

Market Activity	Settlement Result
<i>NPR submits a 100 MW Gen Base Schedule.</i>	<i>No settlement</i>
<i>No FMM Market for NPR</i>	64600 FMM IIE = No settlement
<i>No RTD dispatches</i>	64700 RTD IIE = No settlement
<i>Actual Meter value is 105 MW.</i>	64750 UIE = 105 – 100 = 5 MWs



Direct Allocation – Interchange Imbalance

Settlements Update – Key Concepts

Interchange Imbalance:

- An interchange schedule that is eTagged by T-57 minutes, and then does not change/curtail/cancel after T-57 minutes is NOT SUBJECT to EIM Imbalance MW charges.
- An interchange schedule that is adjusted for any reason after T-57 minutes is subject to Imbalance MW charges.
- For interchange schedules, the supporting eTag defines its EIM market MW position, and EIM Settlement impacts are determined from these positions.
 - **Base Schedule** = The eTag MW profile at T-57 minutes.
 - **FMM Schedule** = The eTag MW profile at the time CAISO executes each 15-minute market run (4x per hour).
 - **RTD Schedule** = the final after-the-fact eTag MW profile.



Direct Allocation – Interchange Imbalance

Settlements Update – Key Concepts

Interchange Imbalance (Cont'd)

- FMM Imbalance charge is based on the **FMM Schedule** MW less the **Base Schedule** MWs.
- RTD Imbalance charge is based on the Interchange **RTD Schedule** MW less the Interchange **FMM Schedule** MWs.
- In general:
 - An Export schedule that increases MW = charge; decreases MW = credit.
 - An Import schedule that increases MW = credit; decreases MW = charge.
 - A wheel-through schedule is assessed as both an Import and Export schedule.
 - Note this results in offsetting settlement amounts.



Direct Allocation – Interchange Imbalance Examples

Market Activity	Settlement Result
<i>ETAG for 50 MW Export converted to EIM Interchange Base Schedule of 50 MWs.</i>	<i>No settlement</i>
<i>ETAG Unadjusted in FMM</i>	64600 FMM IIE = 50 – 50 = 0 MWs
<i>ETAG Unadjusted after the fact.</i>	64700 RTD IIE = 50 – 50 = 0 MWs

Market Activity	Settlement Result
<i>ETAG for 50 MW Export converted to EIM Interchange Base Schedule of 50 MWs.</i>	<i>No settlement</i>
<i>ETAG adjusted to 40MW prior to FMM1</i>	64600 FMM IIE = 40-50= -10 MWs for each FMM.
<i>ETAG Unadjusted after the fact.</i>	64700 RTD IIE = 40 – 40 = 0 MWs

Market Activity	Settlement Result
<i>ETAG for 50 MW Export converted to EIM Interchange Base Schedule of 50 MWs.</i>	<i>No settlement</i>
<i>ETAG Unadjusted in FMM</i>	64600 FMM IIE = 0 MWs
<i>ETAG adjusted after the fact to 30MW RTD7-12.</i>	64700 RTD IIE = 30- 50 = -20 MWs for each 5-minute interval from RTD 7-12



None Methodology

Settlements Update – Key Concepts

- None – charges and/or credits that are small and infrequent. These charges will be handled under the guidance provided within subsections 8.9 Operating Reserves and 8.10 Other EIM Settlements.
- Operating Reserves
The MO may procure Spinning Reserves and Non-Spinning Reserves incrementally as needed in the real-time market. Any charges assessed to the WALC Transmission Provider for Operating Reserves will not be directly settled with Transmission Customers and will be allocated to the appropriate projects.
- OTHER EIM SETTLEMENTS
Any charges or payments listed below that are assessed to the WALC Transmission Provider will be settled with Transmission Customers as indicated or will be allocated to the appropriate projects.

Charge Code	Operating Reserves Description
6194	Spinning Reserve Obligation
6196	Spinning Reserve Neutrality Allocation
6294	Non-Spinning Reserve Obligation
6296	Non-Spinning Reserve Neutrality Allocation

Charge Code	Other EIM Settlements Description
1592	Enforcement Protocol Penalty Allocation Payment
2999	Default Invoice Interest Payment
3999	Default Invoice Interest Charge
5024	Invoice Late Payment Penalty
5025	Collateral 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
8989	Daily Neutrality Adjustment
8999	Monthly Neutrality Adjustment



Settlements Concept Summary

- Load Customer EIM Allocations:
 - Direct Allocation for proportionate share of the Load Imbalance
 - Metered Demand Allocations
 - Measured Demand Allocations
- Interchange Allocations:
 - Direct Allocation of each interchange schedule's Interchange Imbalance charges.
 - Measured Demand Allocation for EXPORT schedules, including the export leg of a wheel through schedule.
- Dispute Resolution:
 - Disputes between DSW and a transmission customer or interconnection customer related to DSW's allocation of charges or payments from the MO.
 - Disputes between the MO and DSW.



Updated Rate Impacts

	Annual Ongoing Costs ¹	FY23 Rates ²	Impacts ³	Change
BCP	\$0	\$66,798,560	n/a	0.0%
CAP	\$86,797	\$1.75 /kW-Mo	\$0.01 /kW-Mo	0.6%
Intertie	\$319,667	\$1.61 /kW-Mo	\$0.02 /kW-Mo	1.1%
P-DP Generation	\$230,753	17.77 mills/kWh	0.16 mills/kWh	0.9%
P-DP Transmission	\$412,815	\$1.89 /kW-Mo	\$0.01 /kW-Mo	0.7%
WALC Regulation	\$1,066,968	\$0.10 /kW-Mo	\$0.00 /kW-Mo ⁴	0.0%
Total	\$2,117,000			

¹ Ongoing costs do not include offsetting reductions in purchase power costs

² FY23 rates used for illustrative purposes

³ Impacts for FY23 will be approximately 50% based on planned entry date of April 1, 2023

⁴ Ongoing costs will displace existing costs for regulating capacity with no rate impact anticipated



Upcoming Rate Adjustment

Tentative Timeline	Activity
November 2022	Proposal published in <i>Federal Register</i> ; Public comment and consultation period begins
January 2023	Public comment and consultation period concludes
March 2023	Rate Order with schedules approved and published in <i>Federal Register</i>
April 2023	New rate schedules effective



Rate Adjustment Preview

Proposed DSW Rate Schedules	Description
<p>DSW-EIM1T EIM Administrative Service (Schedule 1T to Tariff)</p>	<p>Recovers the administrative costs associated with EIM participation. Applicable to all customers purchasing transmission service from DSW/WALC.</p>
<p>DSW-EIM4T EIM Energy Imbalance Service (Schedule 4T to Tariff)</p>	<p>Addresses the Energy Imbalance Service charges/credits allocated to DSW/WALC resulting from EIM participation.</p> <p>These charges/credits will be settled with transmission customers in accordance with the methods outlined in Section 8 of the EIM Business Practice.</p>



Rate Adjustment Preview (cont'd)

Proposed DSW Rate Schedules	Description
DSW-EIM9T EIM Generator Imbalance Service (Schedule 9T to Tariff)	<p>Addresses the Generator Imbalance Service charges/credits allocated to DSW/WALC resulting from EIM participation.</p> <p>These charges/credits will be settled with interconnection and transmission customers in accordance with the methods outlined in Section 8 of the EIM Business Practice.</p>



Questions or concerns?

Contact: John Paulsen (Paulsen@wapa.gov), Stacy Russ (Russ@wapa.gov), Trent Nunn (Nunn@wapa.gov), and Tina Ramsey (Ramsey@wapa.gov)

BP comments due by 10/21/22 and should be directed to:

John Steward (steward@wapa.gov) & Russell Hancock (hancock@wapa.gov)

