



Western Area Power Administration WACM Balancing Authority

**Transmission & Ancillary Services
Formula Rates Update**

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WACM Balancing Authority Ancillary Services Rates

- Western's OATT (Open Access Transmission Tariff)
 - Originally filed 1/6/98, Revised 1/25/05
 - To comply with FERC 888

- Revised OATT filed 9/30/09 (effective 12/1/09)
 - To comply with FERC 890 and Western's statutory & regulatory requirements

- Move toward common interpretation and implementation of Tariff provisions

WACM Balancing Authority Ancillary Services Rates

- Formula rates have been extended and are set to expire February 28, 2013 (Rate Order WAPA-154)
 - LAP Transmission Rates
 - Network
 - Point-to-Point (Firm and Non-Firm)
 - Transmission Losses
 - WACM Ancillary Service Rates
 - Scheduling, System Control and Dispatch
 - Reactive Supply and Voltage Control from Generation or Other Sources
 - Regulation and Frequency Response
 - Energy Imbalance
 - Operating Reserves – Spinning Reserves
 - Operating Reserves – Supplemental Reserves

WACM Balancing Authority Ancillary Services Rates

- New Rates:
 - Generator Imbalance
 - Penalty Rate for Unreserved Use of Transmission



Rate Proposals

WACM Ancillary Services

WACM Balancing Authority Ancillary Services Rates

Scheduling & Dispatch – Schedule 1 Proposed Formula

$$\begin{array}{l} \text{Rate} \\ \text{Per} \\ \text{Schedule} \end{array} = \frac{\text{Total Annual Revenue Requirement for Scheduling}^*}{\text{Number of Schedules Per Year}}$$

* Changing description in numerator from
'Annual Cost of Scheduling and Dispatch
Personnel, and Related Costs'

WACM Balancing Authority Ancillary Services Rates

Estimated FY 12 Rate:

$$\begin{array}{l} \text{Rate} \\ \text{Per} \\ \text{Schedule} \end{array} = \frac{\$ 3,070,417}{122,778 \text{ Schedules}}$$

= \$ 24.03 per Schedule per Day

WACM Balancing Authority Ancillary Services Rates

- Proposed Change on Data Collection
 - We're more narrowly defining the costs recovered through this rate to be costs related to scheduling/tagging.
- Proposed Change on Implementation/Billing
 - The Schedule charge will be allocated equally among all Transmission Providers on the Schedule that are inside WACM, vs. entire charge being assessed to the last TP.
 - Under Western's Tariff, WACM is performing this service for the TPs inside WACM.
 - Affects each TP differently, depending on the structure of the Schedules.
 - Federal transmission segments will be exempt from billing, as scheduling for these segments continues to be included in Federal transmission service.
 - More equitable method of cost allocation, since all TPs take the service.

WACM Balancing Authority Ancillary Services Rates

Three Transmission Providers on the Schedule
(2 inside WACM)...

<u>Trans.Prov.</u>	<u>POD BA</u>	<u>Current Method</u>	<u>Proposed Method</u>
TP #1	WACM		\$ 12.015
TP #2	WACM	\$ 24.03	\$ 12.015
TP #3	BA #2	<u>-</u>	<u>-</u>
Total Collected for Schedule		\$ 24.03	\$ 24.03

WACM Balancing Authority Ancillary Services Rates

If LAPT or CRCM is a TP on the Schedule...

<u>Trans.Prov.</u>	<u>POD BA</u>	<u>Current Method</u>	<u>Proposed Method</u>
TP #1	WACM		\$ 12.015
TP #2 (LAPT)	WACM	\$ 24.03	\$ 12.015
Total Collected for Schedule		\$ 24.03 -0-	\$ 24.03 12.015

WACM Balancing Authority Ancillary Services Rates

Reactive Supply (VAR Support) – Schedule 2 Formula

$$\text{VAR Support Rate} = \frac{\text{TARRG} \times \% \text{ of Resource}}{\text{Load Requiring VAR Support}}$$

Where:

TARRG = Total Annual Revenue Requirement for Generation

**% of Resource = Percentage of Resource Capacity Used for VAR Support
= (1 minus power factor)**

Load Requiring VAR Support = Trans 12-cp minus self supply/waivers

No Change to Existing Formula

WACM Balancing Authority Ancillary Services Rates

Inputting the TARRG and % of Resource for both LAP and CRSP generators, and reflecting a credit for VAR support revenue on point-to-point transactions:

$$\begin{array}{l} \text{VAR} \\ \text{Support} \\ \text{Rate} \end{array} = \frac{\begin{array}{l} \text{LAP} \\ (\$ 62,278,365 \times 5.824\%) + (\$ 50,165,998 \times 4.9429\% \times 0.5^*) - \\ \$ 53,524 \end{array}}{1,260,472 \text{ kW}} \\ \\ = \$ 0.318 / \text{kW-month}$$

* 1/2 of CRSP Revenue Requirement is allocated to WACM

WACM Balancing Authority Ancillary Services Rates

- Change being proposed on Data Collection:
 - % of Resource will be based on weighted average of unit nameplate values (1-PF). Currently, it's based on actual unit performance data.

	<u>Proposed</u>	<u>Current</u>
LAP Units	5.78%	2.9%
CRSP Units	4.94%	3.6%

WACM Balancing Authority Ancillary Services Rates

Regulation and Frequency Response – Schedule 3

- Four components to Regulation Service:
 - Load-based Assessment
 - Exporting Intermittent Generator Requirement
 - Self-provision by a Sub-BA Using AGC
 - Other Self- or Third-party Supply

WACM Balancing Authority Ancillary Services Rates

Formula

$$\text{Regulation Service Rate} = \frac{\text{Total Annual Revenue Requirement for Regulation Service}}{\text{Load inside WACM Requiring Regulation Service Plus the Installed Nameplate of Intermittent Generators Serving Load inside WACM}}$$

- Load is a 12-cp calculation (on the LAPT system peak) of loads inside WACM taking this service (not necessarily on the LAP system).
- Restricting this service to intermittent generators serving load inside WACM is a change from the current rate (see 'Exporting Intermittent Resource Requirement' following).

WACM Balancing Authority Ancillary Services Rates

$$\begin{array}{rcl} \text{Regulation} & & \$ 11,659,643 \\ \text{Service} & = & \hline \text{Rate} & & 3,016,548 \text{ kW} \\ & & \\ & = & \$.322 / \text{kW-month} \end{array}$$

WACM Balancing Authority Ancillary Services Rates

- Revenue requirement includes:
 - Plant costs for regulation from LAP units (Amount of required regulation capacity to be re-evaluated every year).
 - Purchased regulation.
 - Power purchases needed to support the ability of the LAP units to regulate upward during on-peak periods.
 - Lost sales opportunity from having to generate in off-peak hours to support downward regulation.
 - Third-party transmission costs associated with regulating.
 - Costs for regulation from CRSP units.
- Denominator is BA load requiring regulation, including load served by Federal allocations, plus installed nameplate of intermittent resources serving load **inside** WACM.

WACM Balancing Authority Ancillary Services Rates

Example

Customer A:

12-cp Aux Load inside WACM*	=	150,000 kW
Wind generator serving load in WACM	=	8,000 kW (nameplate)
FY 2012 Proposed Regulation Rate	=	\$0.322/kW-month

Monthly Invoice:

Load	150,000 x \$0.322	=	\$ 48,300
Wind	8,000 x \$0.322	=	<u>2,576</u>
	Total		\$ 50,876

* Including all loads, not just those loads on the LAP transmission system.

WACM Balancing Authority Ancillary Services Rates

- Change being proposed for current Exporting Intermittent Generator Assessment:
 - There will no longer be a Load-based Assessment.
 - There will no longer be a Regulating Reserve Charge for mismatched capacity.

Instead...

- An intermittent generator not serving load inside WACM will be required to be dynamically removed from WACM:
 - Pseudo-tie
 - Dynamic Schedule
- Requires metering/communication changes.
- Customer must still purchase transmission.
- Alternatively, Regulation and Frequency Response service can be secured by another entity inside the BA

WACM Balancing Authority Ancillary Services Rates

- Change being proposed to the current Self-Provision Assessment:
 - Currently, self-provision can be measured by use of the 1-minute average of the customer's ACE or the 1-minute average of the first derivative of the customer's ACE (customer's choice).

Instead...

- Assessment will be measured only by the 1-minute average of the customer's ACE.
 - More accurate measurement of the service being provided.

WACM Balancing Authority Ancillary Services Rates

- WACM may allow an entity to supply some or all of its required regulation, even without being a sub-balancing authority, or contract with a third party to do so. WACM will evaluate the entity's metering, telecommunications and regulating resource, as well as the required level of regulation, and determine whether the entity qualifies to Self-supply under this provision.

WACM Balancing Authority Ancillary Services Rates

Operating Reserves – Spinning and Supplemental:

Schedule 5 & 6

- No change to rate schedules for Spinning and Supplemental Reserves.
- WACM has no long-term Reserves available for sale.
- At a customer's request, WACM will purchase Reserves and pass through that cost and the cost of any activation energy, plus a fee for administration. The customer would be responsible for providing the transmission to deliver the Reserves.

WACM Balancing Authority Ancillary Services Rates

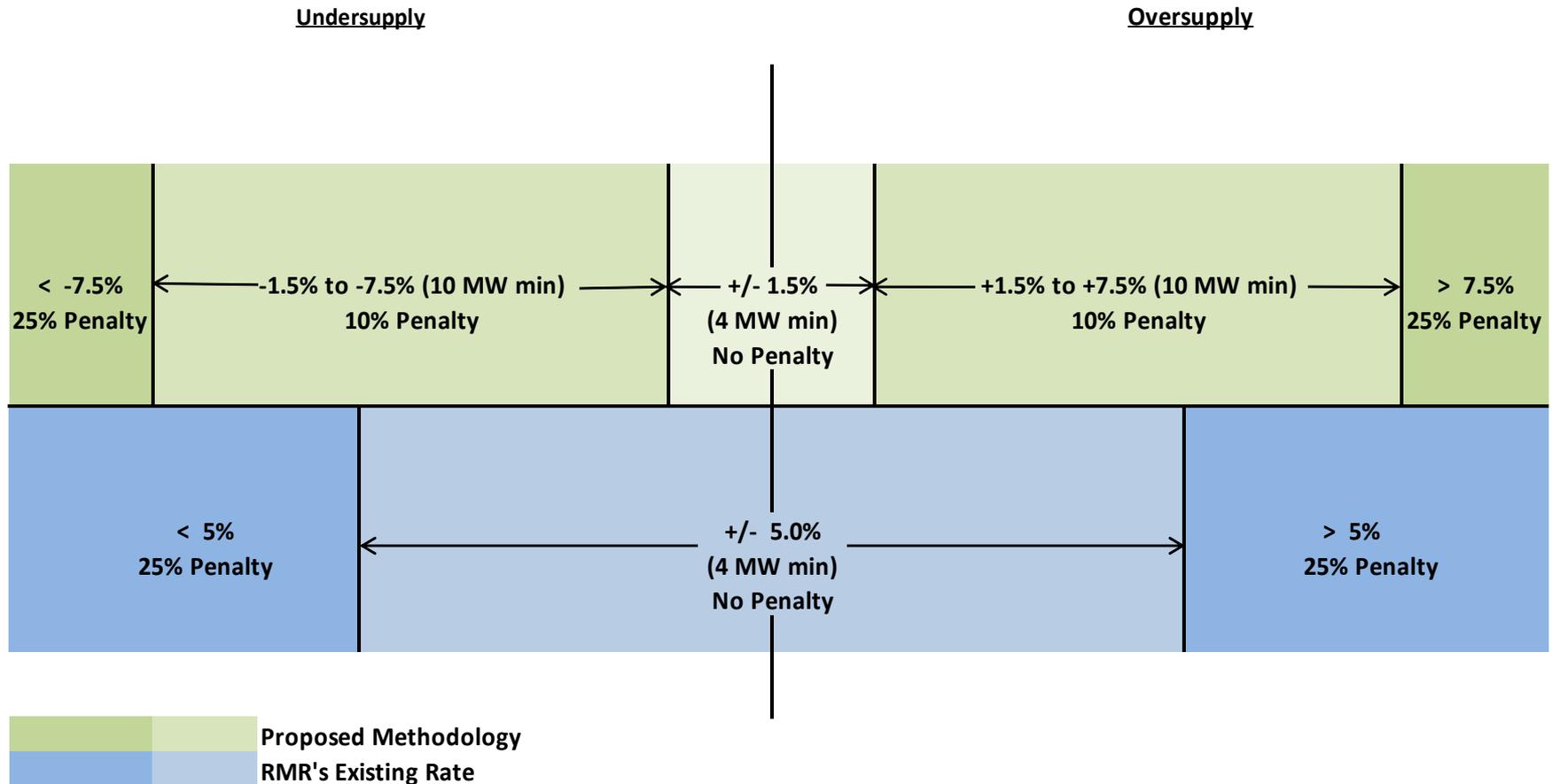
- Energy Imbalance Service: Schedule 4

$$\text{Energy Imbalance} = \text{Resources} - \text{Obligations}$$

Where Resources = Generation (actual and/or scheduled),
purchases of energy, interchange (in)
Obligations= Metered load, sales of energy, interchange
(out)

WACM Balancing Authority Ancillary Services Rates

ENERGY IMBALANCE BANDWIDTHS



Existing Rate - Imbalances settled using WACM pricing.

Proposed Method - Imbalances settled using WACM pricing based on BA aggregate only.

WACM Balancing Authority Ancillary Services Rates

- Features of EI implementation:
 - Bandwidths will continue to be calculated on metered load. *
 - Continued use of 4 MW minimum on first band.*
 - No monthly netting of in-band energy (continuation of current methodology).*
 - Continued use of WACM Pricing as representative of incremental cost. However, the Balancing Authority Aggregate will determine pricing in all bands. This is a change from the current formula.
 - Aggregate Positive = Sales Pricing
 - Aggregate Negative= Purchase Pricing
 - No redistribution of penalty revenue to non-offending customers.*
 - No administrative charge.

WACM Balancing Authority Ancillary Services Rates

- Expansion of the bandwidth may be done to accommodate:
 - Physical Loss of Resource.
 - In the first hour of a coordinated response by a Western-recognized reserve sharing group, such as the Rocky Mountain Reserve Group.
 - Ramping period for entities responding to the event.
 - Transitioning of large base-load thermal resources between on-line and off-line.
 - When generation is below the agreed-upon minimum scheduling level.
 - Western would like to re-verify those levels with existing customers.

WACM Balancing Authority Ancillary Services Rates

General Effects of Proposed Bandwidth and Penalty Structure On Invoicing for FY 2009

- Large Customers—Amounts billed would have increased, as there is now a penalty for deviations between 1.5% and 5%.
- Small Customers—Amounts billed would have decreased, as the penalty for excursions beyond the 4 MW minimum have decreased from 25% to 10%.
- Wind Units—Amounts billed would have increased, as there is now a band with an associated penalty.
- Multi-party Generators—Results were mixed, as the bandwidth was already at 2% and is changing to 1.5%.

These are the general trends noted by applying the proposed bandwidth and penalty structure to FY09 performance and do not imply a guarantee of future results.

WACM Balancing Authority Ancillary Services Rates

Generator Imbalance: Schedule 9

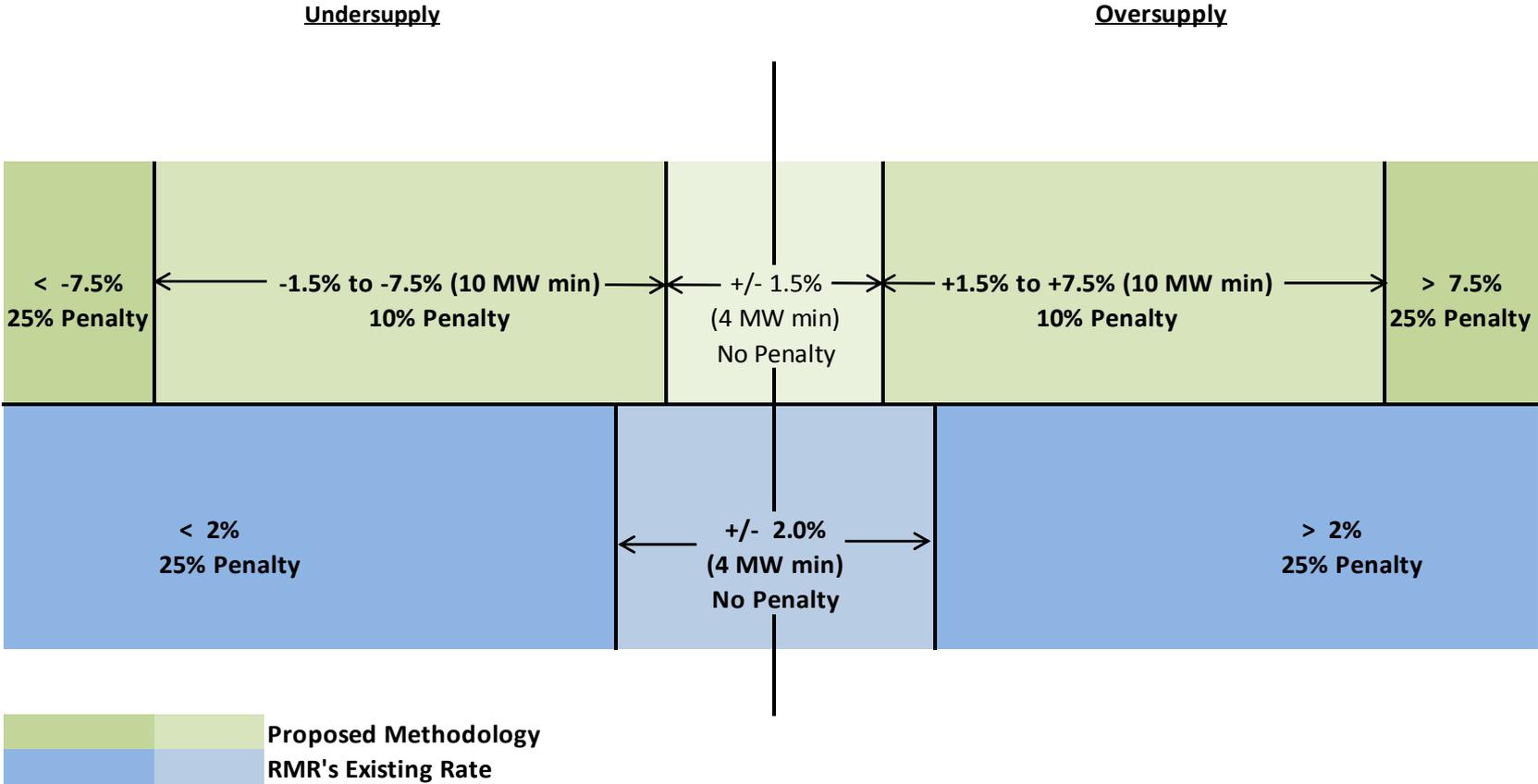
$$\text{Generator Imbalance} = \text{Resources} - \text{Obligations}$$

Where Resources = Actual Generation + Resource Schedule

Obligations = Scheduled Generation + Station Service Use

WACM Balancing Authority Ancillary Services Rates

GENERATOR IMBALANCE BANDWIDTHS



Existing Rate - Imbalances settled using WACM pricing.

Proposed Method - Imbalances settled using WACM pricing based on BA aggregate only.

WACM Balancing Authority Ancillary Services Rates

- Features of GI Implementation:
 - Same bandwidth and penalty structure as with Energy Imbalance calculations.
 - Calculated on metered generation (vs. load).
 - No 7.5% bandwidth (3rd band) for intermittent resources.
 - Will apply to:
 - Jointly-owned generation facilities opting not to allocate generation.
 - Intermittent generation facilities serving load in the WACM balancing authority.
 - Non-intermittent generation facilities that export their entire output.
 - Solely-owned non-intermittent generation will continue to be combined with the Energy Imbalance calculation.
 - Continued use of 4 MW minimum & WACM pricing (incl. the change to use balancing authority aggregate to determine pricing in all bands).
 - No redistribution of penalty revenue to non-offending customers.

WACM Balancing Authority Ancillary Services Rates

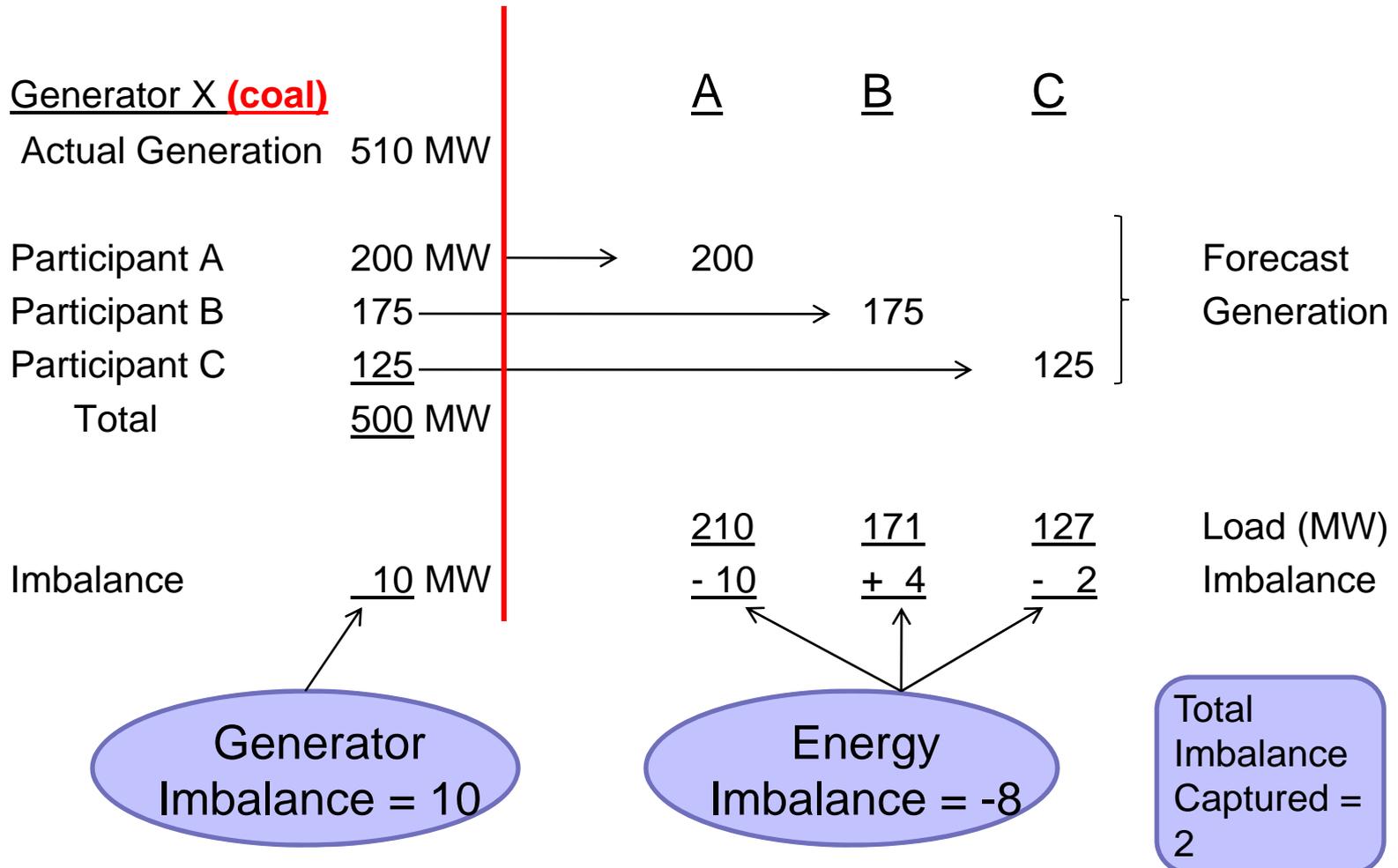
- FERC Order 890 stipulation:
 - The Balancing Authority cannot assess penalties in an entity's Energy Imbalance and Generator Imbalance calculations in the same hour unless the imbalances aggregate rather than offset.
 - Western will eliminate the penalty in the Generator Imbalance calculation in hours in which penalties are present in both calculations, and the imbalances offset.

WACM Balancing Authority Ancillary Services Rates

- Jointly-owned generators will have the option to:
 - Be treated as “stand alone”, with their own generator imbalance calculations.
 - There will be no penalty elimination in the calculation based on the presence of penalties in the participants’ related Energy Imbalance calculations.
 - Allocate the facility generation to the individual participants.
 - If the facility is not an intermittent, the generation will be included as a resource in the participants’ Energy Imbalance calculation.
 - If the facility is intermittent, the generation will be included with the participant’s Generator Imbalance calculation. Penalties will be eliminated as discussed on the previous slide.

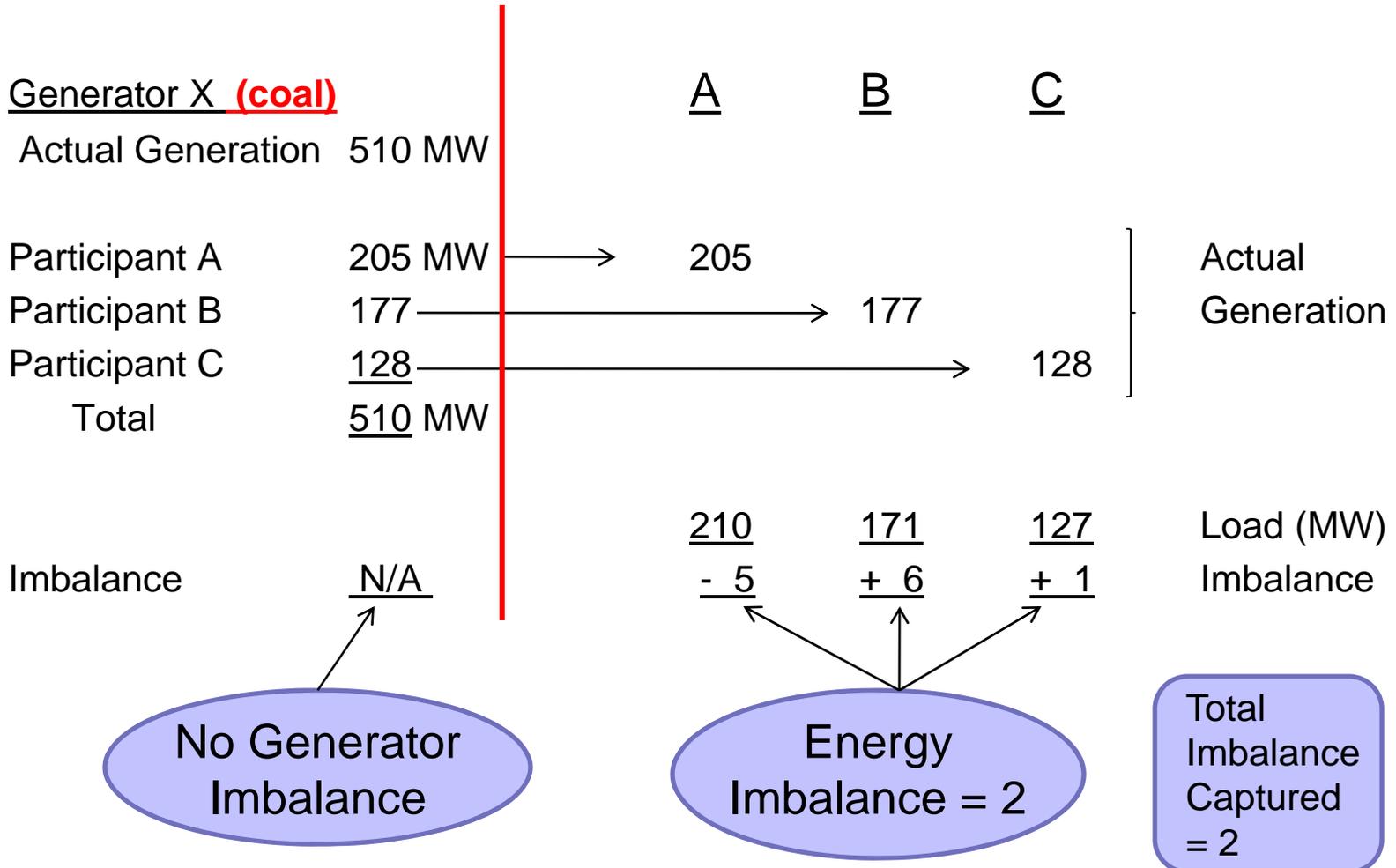
WACM Balancing Authority Ancillary Services Rates

How Jointly-Owned Generators Work-Method A ("Stand-Alone", with Participant Schedules)



WACM Balancing Authority Ancillary Services Rates

How Jointly-Owned Generators Work-Method B (Generation is Allocated)



WACM Balancing Authority Ancillary Services Rates

How Jointly-Owned Generators Work-Method A ("Stand-Alone", Participant Schedules)

Generator X (Intermittent)

Actual Generation 510 MW

Participant A 200 MW

Participant B 175

Participant C 125

Total 500 MW

A

B

C

200

175

125

} Forecast
Generation

Imbalance 10 MW

210

171

127

Load (MW)

-10

+4

-2

Imbalance

Generator
Imbalance = 10

Energy
Imbalance = -8

Total
Imbalance
= 2

WACM Balancing Authority Ancillary Services Rates

How Jointly-Owned Generators Work-Method B (Generation is Allocated)

Generator X (Intermittent)

Actual Generation 510 MW

Participant A 205 MW

Participant B 177

Participant C 128

Total 510 MW

Imbalance N/A

No Generator Imbalance

A

205

Forecast Gen

200

+ 5

Generator Imbalance

A

200

Forecast Generation

210

- 10

Load (MW) Imbalance

Energy Imbalance

WACM Balancing Authority Ancillary Services Rates

Questions?