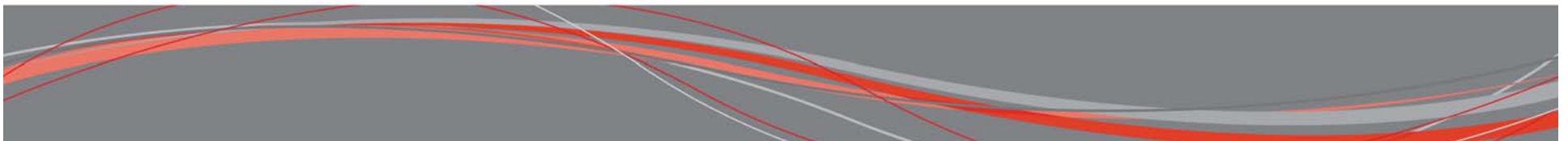


Energy Imbalance Market Overview WSPP Operating Committee Meeting September 27, 2011

David Lemmons – Senior Manager, Market Operations

303-571-6520



What is an EIM?

The EIM is...

- A Market for Balancing Energy
- Centralized Unit Dispatch for Balancing Energy
- Voluntary

The EIM is NOT...

- An RTO (with planning, day-ahead markets, etc.)
- Centralized Unit Commitment
- Capacity market
- A replacement for current contractual business structure

What is an EIM?

- **An EIM is a regional economic dispatch tool that supplies imbalance energy within transmission and reliability constraints.**
 - **Effectively aggregates the variability of generation and load over many BAs thereby reducing the total amount of required load-following reserves**
 - **Allows participants to use the lowest cost generation in the market to balance loads and generation across many BAs**
 - **No penalty for imbalance – just market price**

Energy Imbalance Market

- **Uses offer-based security-constrained economic dispatch on a regional basis**
- **Operational impact is projected to include increased reliability and reduced operating costs**
- **Retains existing utility balancing areas, but results in a “virtual consolidation” for operating purposes**
 - **Proposal includes some transfer of reliability standards compliance obligations to regional operator**

Energy Imbalance Market

- **WECC EIM proposal includes a regional balancing market operator function but does not establish a Regional Transmission Organization nor an all-in regional transmission tariff**
 - **Transmission providers retain their own OASIS and Available Transfer Capability (ATC) calculations**

Energy Imbalance Market

- Uses regional security-constrained economic dispatch (SCED)
 - Balancing Area regulating burden drops to 5-minute variability instead of hourly
- Generators are dispatched based on voluntary market-based offers to transact energy

Balancing Service

- **Balancing is provided based on hourly MWH deviations from schedule**
 - **For example: load scheduled 15 MWH but actually consumed 18 MWH**
 - **Purchase of 3MWH of energy balancing service**
 - **For example: generator scheduled 200 MWH but actually produced 203 MWH**
 - **Sale of 3 MWH of energy balancing service**

Congestion Redispatch Service

- **Congestion Redispatch** is provided to transmission use that was curtailed by the seams coordination tool but did not change flows.
 - For example: Scheduled Tag for 100MWh was curtailed 20MWh by the seams tool, but continued to flow at 100MWh. This results in an imbalance settlement.
 - Energy Imbalance is calculated based on the reduced scheduled volume of 80MWh:
$$\text{EI} = \text{Actual} - \text{Schedule}$$
$$\text{EI} = 100\text{MWh} - 80\text{MWh} = 20\text{MWh}$$
 - This results in an imbalance settlement of 20MWh at both the source and sink of the tag. The difference in price between source and sink is the *net congestion* cost paid by the tag owner.

Congestion Redispatch Service

- (continued)

- The revenues from this price difference are paid to the resources that cleared in the SCED
- As an alternative to buying redispatch, the curtailed schedule can match its new curtailed value; it then has zero imbalance in settlement

$$EI = \text{Actual} - \text{Schedule}$$

$$EI = 80\text{MWh} - 80\text{MWh} = 0\text{MWh}$$

Who supplies Energy Balancing and Congestion Redispatch?

- **Balancing and congestion redispatch are provided by resources that have *voluntarily* offered responsive dispatch capability**
- **The resources are cleared by the SCED to meet the spot-forecasted balancing need plus any congestion redispatch**

Comparison of EIM w. CAISO

■ CAISO

- Existing Transmission Commitments (ETC)
 - Grandfathered physical rights paradigm
- Two-pass SCED to attempt to accommodate the ETC component
 - Dispatch of market resources
 - Administrative price dispatch of ETC cuts
- Financial market

■ EIM

- OATT or GFA does not matter, but transmission service curtailment priority does
- Schedule using physical right
- Full economic dispatch based on available offers
- Physical curtailment obligation is based on curtailment calculator tool
 - SPP uses IDC/CAT
 - WECC proposed ECC
- Financial only for imbalance

High Level Outstanding Issues

- Is there enough interest to make it work
- Compensation for Transmission Use
 - Not an issue in traditional RTO markets
- Market Operator

Questions?