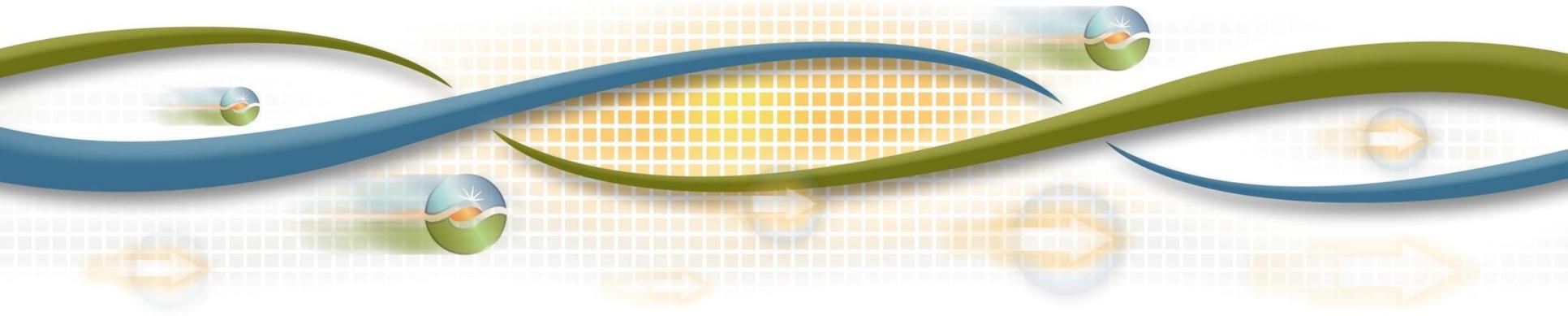




Consolidated EIM Initiatives from 2017 Roadmap Issue Paper

Stakeholder Meeting
June 20, 2017

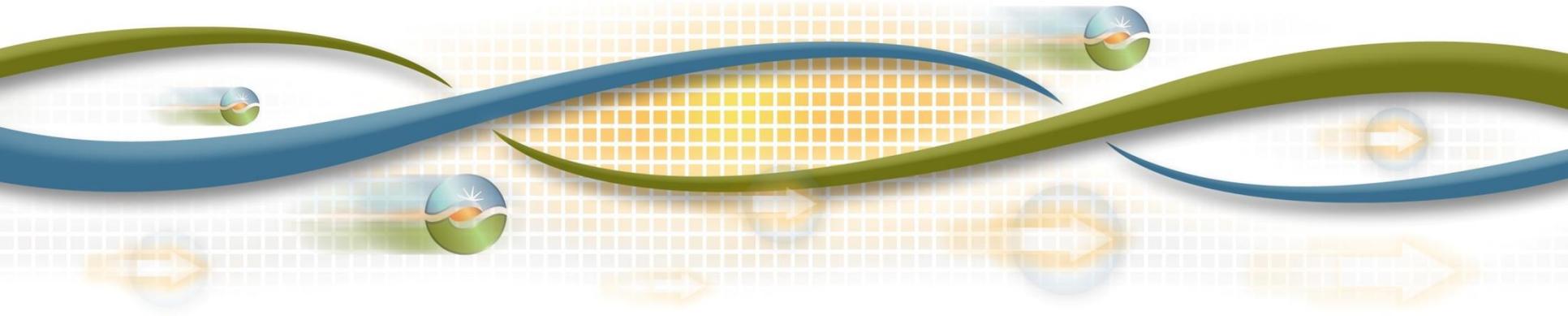


Agenda

Time	Topic	Presenter
10:00 – 10:10	Introduction	Kristina Osborne
10:10 – 10:40	Third Party Transmission Contribution	Megan Poage
10:40 – 11:10	Management of Bilateral Schedule Changes	Emily Hughes
11:10 – 11:50	Net Wheeling Charge	Megan Poage
11:50 – 12:00	Next Steps	Kristina Osborne



Introduction



EIM Categorization

- The EIM Governing Body has primary authority for considering and approving policy changes to market rules that would not exist but for the EIM.
- EIM Governing Body – E1 classification (Primary Authority)

“For a policy initiative involving market rules changes that fall **entirely** in the EIM Governing Body’s primary authority, the matter goes to the EIM Governing Body for approval, and then to the consent agenda of the next Board meeting.”

<http://www.caiso.com/Documents/GuidanceforHandlingPolicyInitiatives-EIMGoverningBody.pdf>

Consolidated EIM Initiatives from 2017 Roadmap

- This initiative combines three items from the ISO's 2017 roadmap to make the engagement process more efficient for stakeholders
 1. Third Party Transmission Contribution for EIM Transfers
 2. Management of EIM Imbalance Settlement for Bilateral Schedule Changes
 3. Net EIM Wheeling

ISO Policy Initiative Stakeholder Process



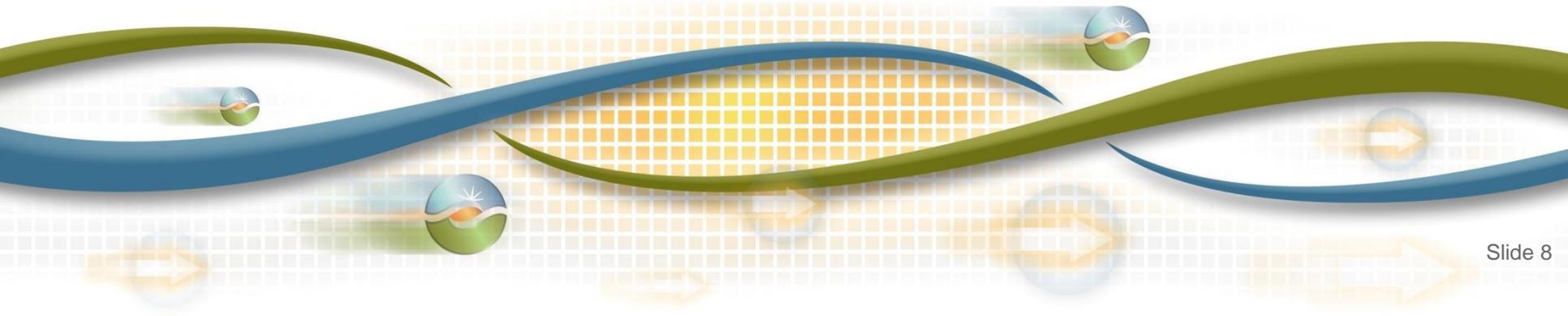
Plan for stakeholder engagement



Milestone	Date
Post Issue Paper	June 13, 2017
Stakeholder Conference Call	June 20, 2017
Stakeholder Written Comments Due	June 30, 2017
Post Straw Proposal	July 27, 2017
Stakeholder Meeting	August 3, 2017
Stakeholder Written Comments Due	August 15, 2017
Post Draft Final Proposal	August 29, 2017
Stakeholder Conference Call	September 5, 2017
Stakeholder Written Comments Due	September 12, 2017
EIM Governing Body Meeting	October 10, 2017
Board of Governors Meeting*	November 1-2, 2017

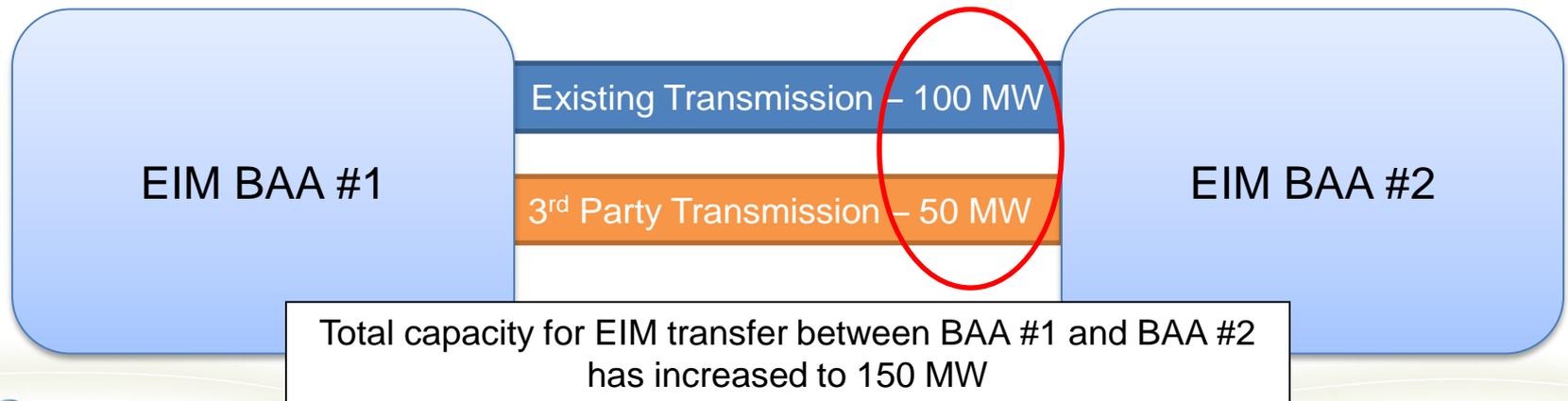
*November 2017 is the target date for the Board of Governors Meeting. It is not a requirement for all 3 initiatives in this consolidated effort to go to the board at the same time.

Third Party Transmission Contribution



Background – 3rd party transmission contributions

- Currently, EIM transfers occur on transmission provided by EIM entities.
- Non EIM entities have expressed interest to contribute transmission located between EIM BAAs for use in the EIM markets.



Allow 3rd parties to contribute transmission between EIM BAAs to support EIM transfers

- Benefits EIM BAAs
 - Availability for increased transfers
- Benefits 3rd party
 - Contribute unused transmission capacity
 - Receive congestion revenue

Leverage existing ETSR functionality for transmission contribution

- What are energy transfer system resources (ETSRs)?
 - Used to track, tag, and settle EIM transfers
 - Defined as aggregate resources at EIM BAA default generation aggregation point (DGAP)
 - Defined as an import or export
 - Associated with an intertie
- Need to establish a pro-forma agreement:
 - Enables Scheduling Coordinator to submit transmission contributions on behalf of 3rd party

Leverage existing RTCO functionality to enable 3rd party to receive congestion revenues

Example 1

- Fifteen Minute Market dispatch results in positive or neutral congestion revenues



Economic transfer from BAA1 to BAA2

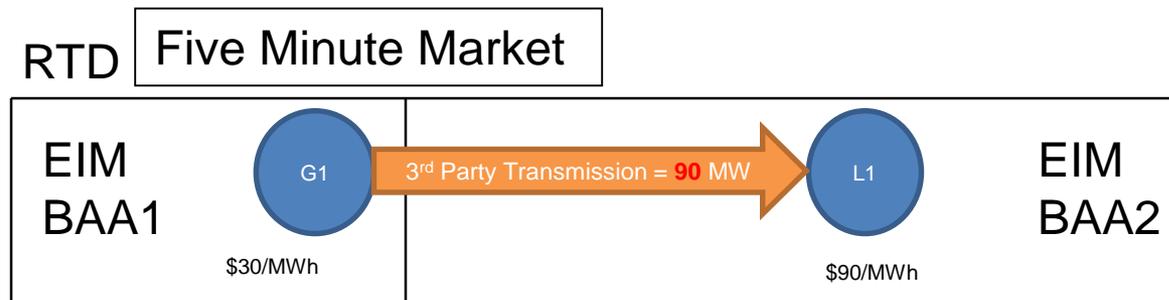
Congestion Revenues = $(\$45 - \$40) * 100 = \$500$

5-Minute Settlement Interval = $\text{Congestion Revenues}/12 = \41.67 payment

Policy Discussion – RTD charge

Example 2

- Curtailment results in limitation on 3rd party transfer
- FMM congestion revenues + RTD net shortage results = net charge



3rd party transmission transfer limited to 90 MW due to curtailment
Net shortage $(\$90 - \$30) \times 10 \text{ MW} = \600
5-Minute Settlement Interval = Net Shortage/12 = **\$50 charge**

Additive FMM settlement +
RTD net shortage settlement = **\$8.33 charge**

Two settlement options to consider for contributed transmission

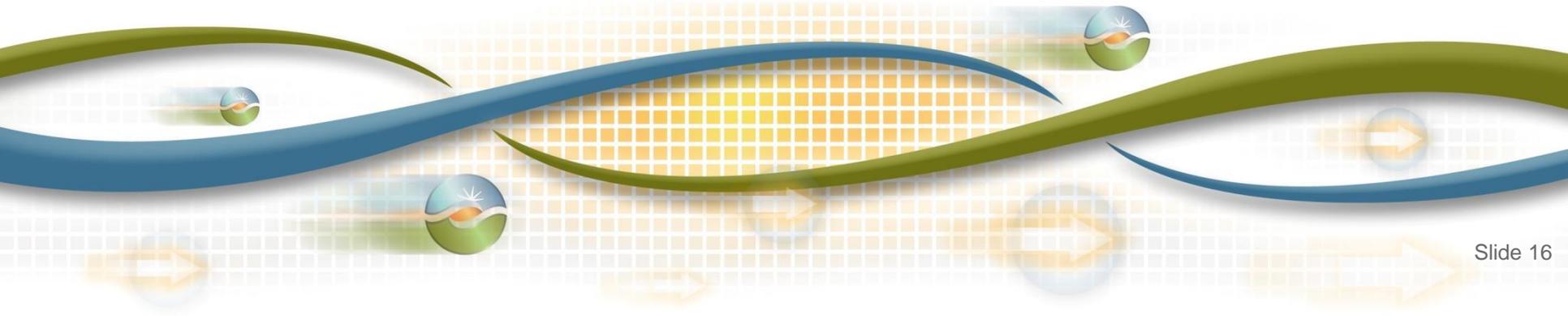
1. Congestion revenue could result in a net charge or net payment
 - Current ETSR and RTCO functionality
2. Congestion revenue guaranteed to be a payment
 - Would require a make whole mechanism

Policy questions assuming 3rd party should receive a make whole payment

- At what interval granularity should make whole payment be calculated?
- How should cost to fund the make whole payment be allocated?

Additional comments and/or questions?

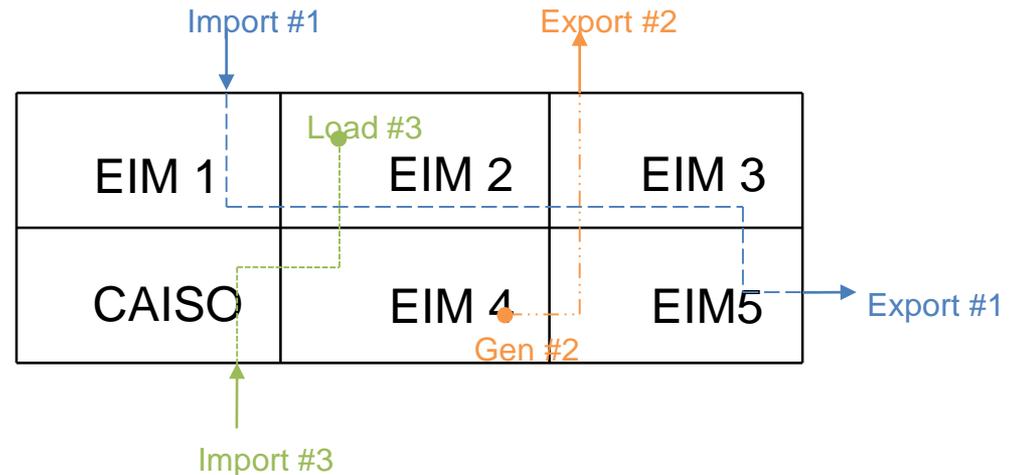
Management of Bilateral Schedule Changes



Background - No economic discretion over bilateral schedule changes sourcing or sinking in EIM

- When bilateral schedule changes are made after hourly base schedules are submitted:
 - Schedule changes are exposed to real-time imbalance settlement
 - Schedule changes are effectively price takers
- Settlement can result in charge or payment
 - No ability to know the \$\$ magnitude ahead of time

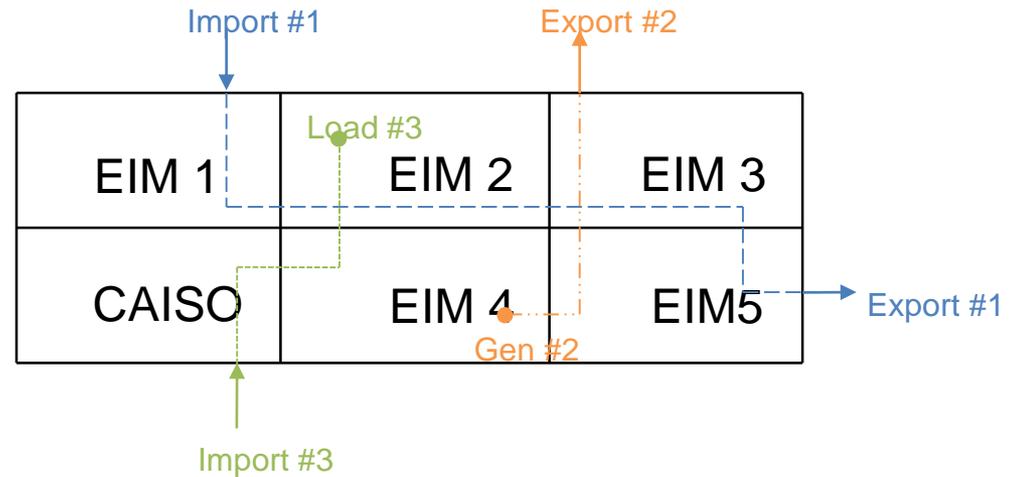
Definitions of EIM Wheeling (2 of 4)



- Import #1 to Export #1: Wheel Through

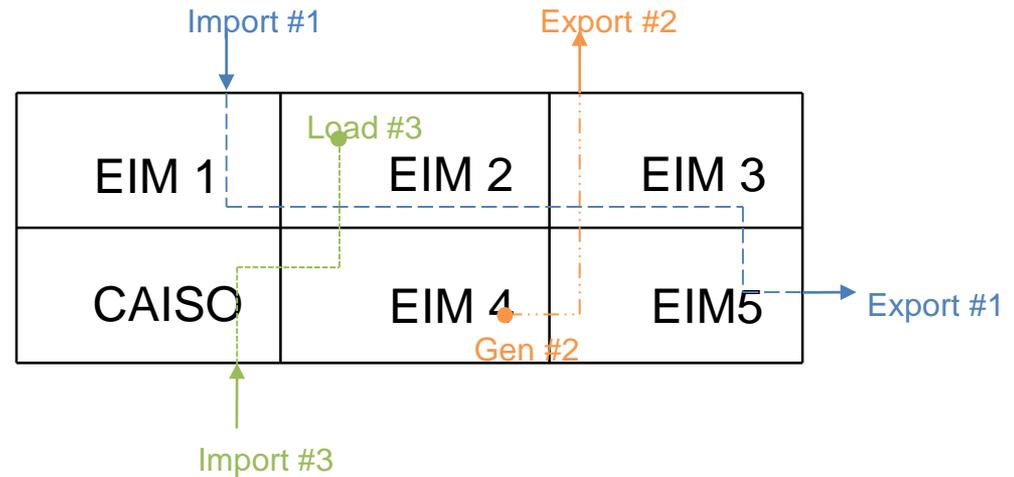
- Pairing of two bids into a wheeling equality constraint
- Will clear the market when equality constraint $>$ LMP difference between sink and source
- Limited exposure to imbalance energy charges

Definitions of EIM Wheeling (3 of 4)



- **Gen #2 to Export #2: Wheel Out**
 - Bilateral transaction sourcing in EIM footprint
 - Generator must be EIM participating resource

Definitions of EIM Wheeling (4 of 4)



- **Import #3 to Load #3: Wheel In**

- Bilateral transaction sinking in EIM footprint
- Not supported because loads don't bid in the real time market
 - Impossible to apply equality constraint

Extend existing ISO wheeling bid functionality to EIM

- Market participants can manage exposure to imbalance settlement
 - Current functionality supports wheel through and wheel out
 - Wheel in is not supported

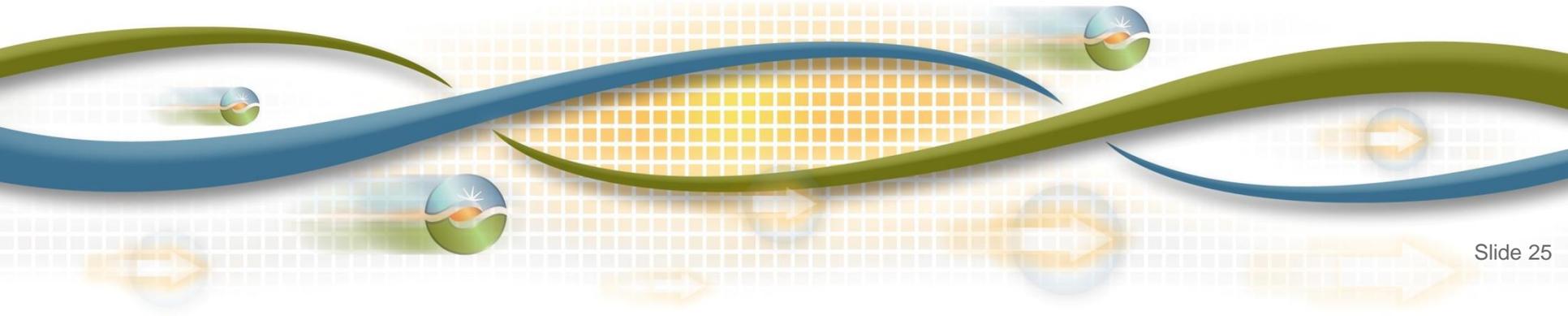
Can current markets and eTagging be utilized to allow bilateral transactions to express bid price?

- ISO will need access to and ability to update EIM Wheeling eTag energy profiles
 - Similar to 15-minute and single-change schedules
- Bilateral transactions result in transmission charge
- Transmission will need to be procured
 - ISO market will not schedule above the eTag's transmission profile

Management of Bilateral Scheduling Changes

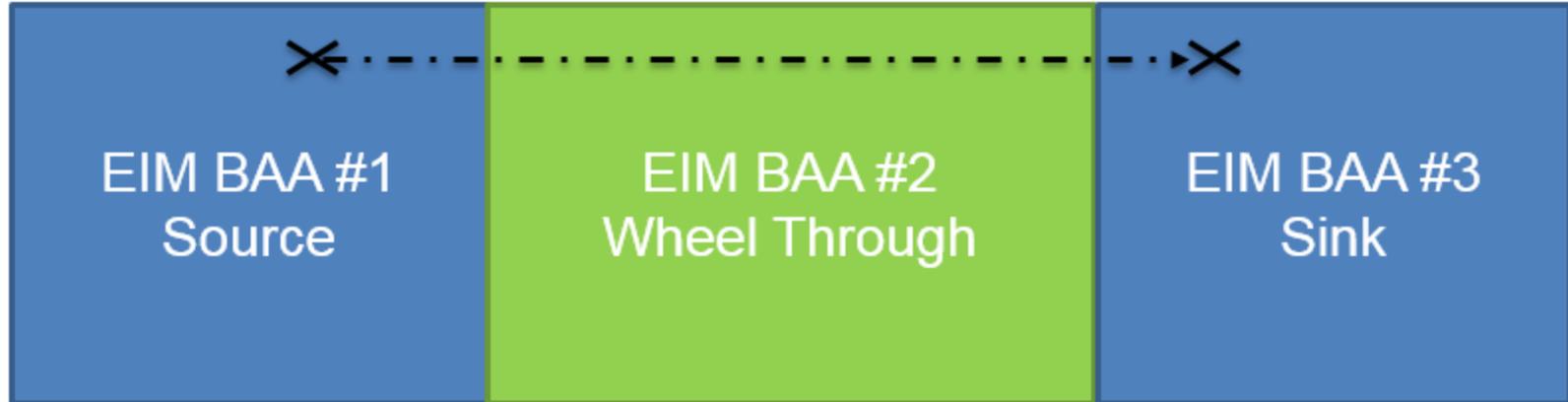
Additional comments and/or
questions?

Net Wheeling Charge



Background – Net Wheeling

- Currently, source and sink EIM BAAs accrue benefits when a wheel through transfer occurs.
- Wheel through transfers without congestion provide no incremental benefit for EIM BAA #2.



As the EIM area expands, more EIM BAAs will be “in the middle” and experience net wheeling

ISO and FERC have found reciprocity outweighs transmission revenues

- Reciprocity principles:
 - EIM participants pay transmission rates of transmission provider based on location

The ISO *“concluded that the greater efficiency of an energy imbalance market easily outweighs any lost transmission revenues [when a wheel through transaction occurs]”* (FERC Filing).

See FERC Filing for the Energy Imbalance Market, Section VI Transmission Charges:
http://www.caiso.com/Documents/Feb28_2014_TariffAmendment_EnergyImbalanceMarket_ER14-1386-000.pdf

Difference between recovering transmission revenue and equitable sharing of benefits

1. Transmission revenue

For example, change in bilateral scheduling practices could affect transmission revenue

2. Equitable sharing of EIM benefits

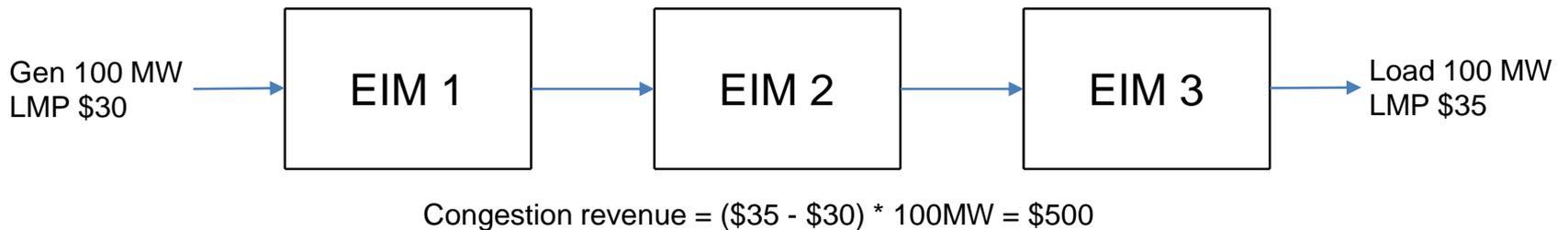
Under current design:

- When congestion occurs in wheeled through BAA, BAA receives some compensation from congestion revenues
- When congestion does not occur, there is no incremental benefit to the EIM wheel through BAA for facilitating the EIM transfer

This initiative focuses on equitable sharing of EIM benefits

Policy Discussion – Equitable Sharing of Benefits (1 of 2)

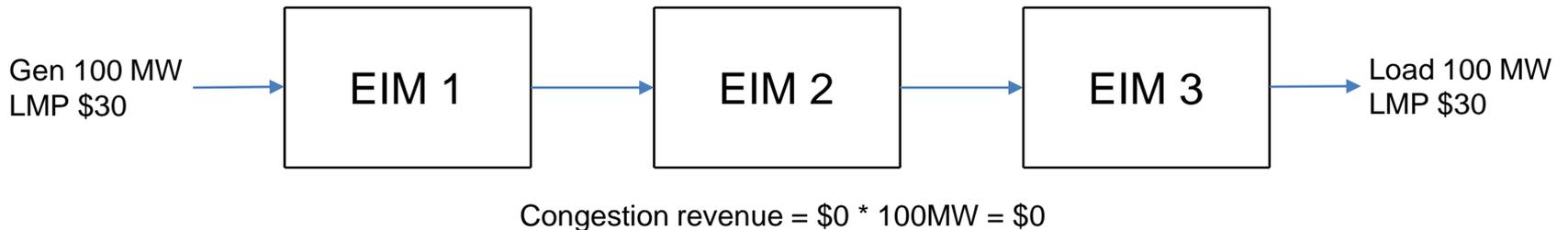
Net Wheeling with Congestion



- When congestion occurs, wheel through EIM BAA receives some compensation via congestion revenues.

Policy Discussion – Equitable Sharing of Benefits (2 of 2)

Net Wheeling without Congestion



- When congestion does not occur, wheeling through EIM BAA is not compensated.

Potential issues to address equitable sharing of EIM benefits

- How should we quantify the benefits of providing EIM transfers through an EIM BAA?
 - Limited to just congestion revenue or should there be general charge representing some minimum benefit provided
- How should the general charge be calculated?
- Should a general charge be applied always or only when congestion does not occur?

Net Wheeling Charge

Additional comments and/or
questions?

ISO requests written comments by June 30th 2017

- Stakeholders should submit written comments by June 30th to InitiativeComments@caiso.com.



Milestone	Date
Post Issue Paper	June 13, 2017
Stakeholder Conference Call	June 20, 2017
Stakeholder Written Comments Due	June 30, 2017
Post Straw Proposal	July 27, 2017
Stakeholder Meeting	August 3, 2017
Stakeholder Written Comments Due	August 15, 2017
Post Draft Final Proposal	August 29, 2017
Stakeholder Conference Call	September 5, 2017
Stakeholder Written Comments Due	September 12, 2017
EIM Governing Body Meeting	October 10, 2017
Board of Governors Meeting*	November 1-2, 2017

*November 2017 is the target date for the Board of Governors Meeting. It is not a requirement for all 3 initiatives in this consolidated effort to go to the board at the same time.