

Energy Imbalance Market Year 1 Enhancements Phase 2

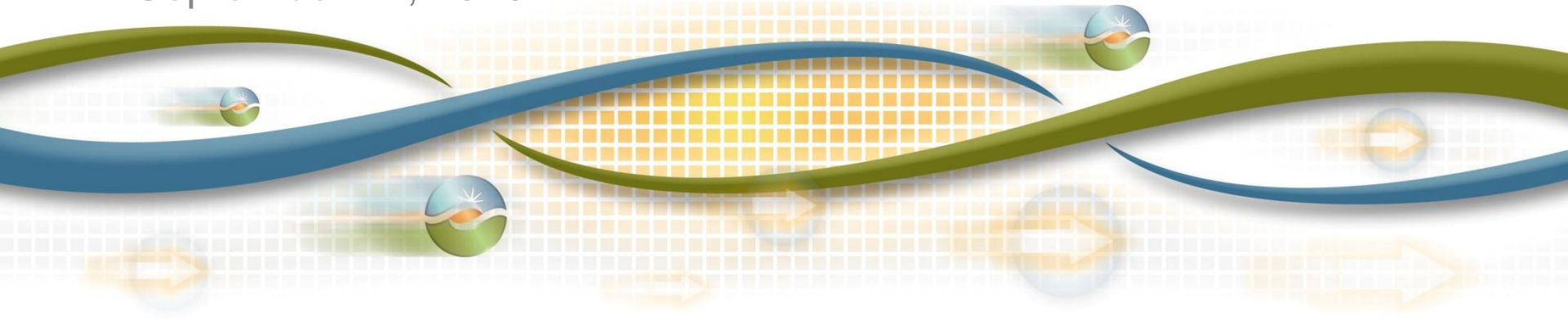
Jim Price

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Sr. Advisor, Market Design and Regulatory Policy

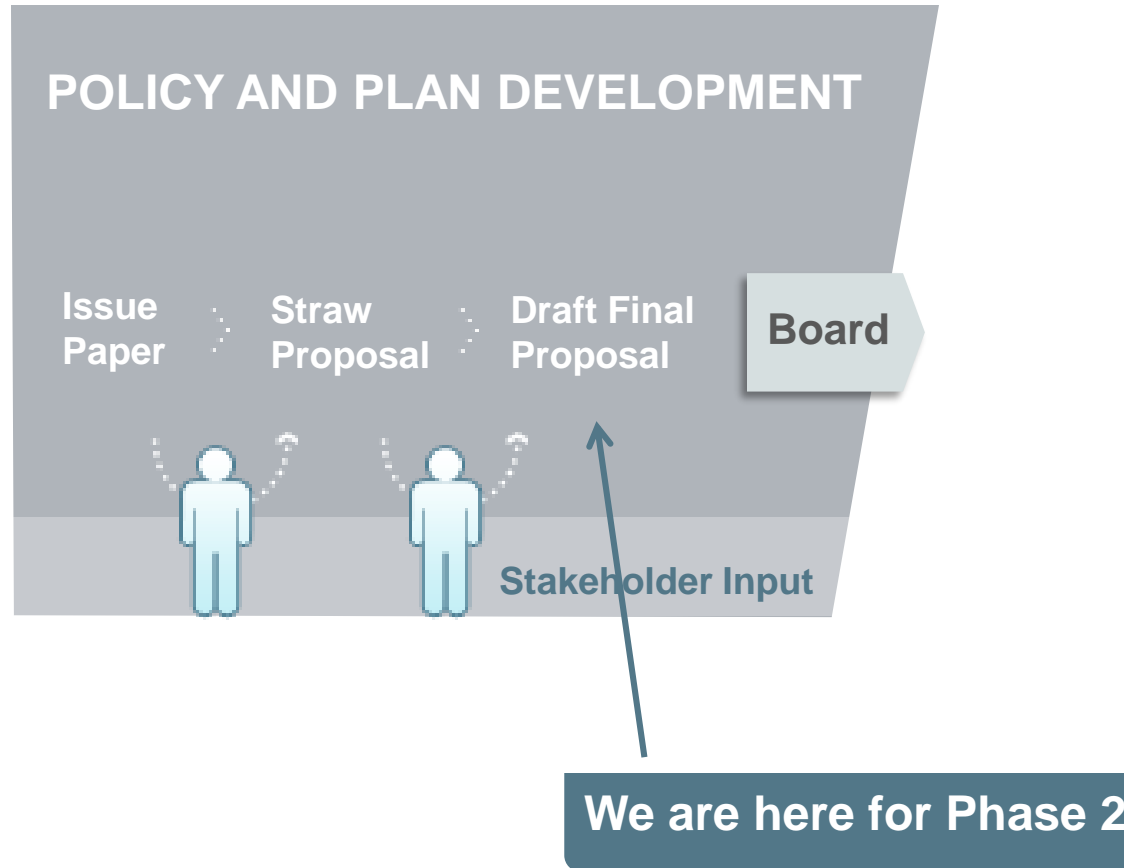
September 14, 2015



Agenda

Time	Topic	Presenter
1:00 – 1:15	Introduction	Kristina Osborne
1:15 – 1:45	November Board meeting topics	Don Tretheway
1:45 – 2:15	Topics to be monitored in Market Performance and Planning Forum	Jim Price Don Tretheway
2:15 – 2:50	Mandatory 15-minute economic bidding on EIM external interties	Don Tretheway
2:50 – 3:00	Next steps	Kristina Osborne

ISO Policy Initiative Stakeholder Process



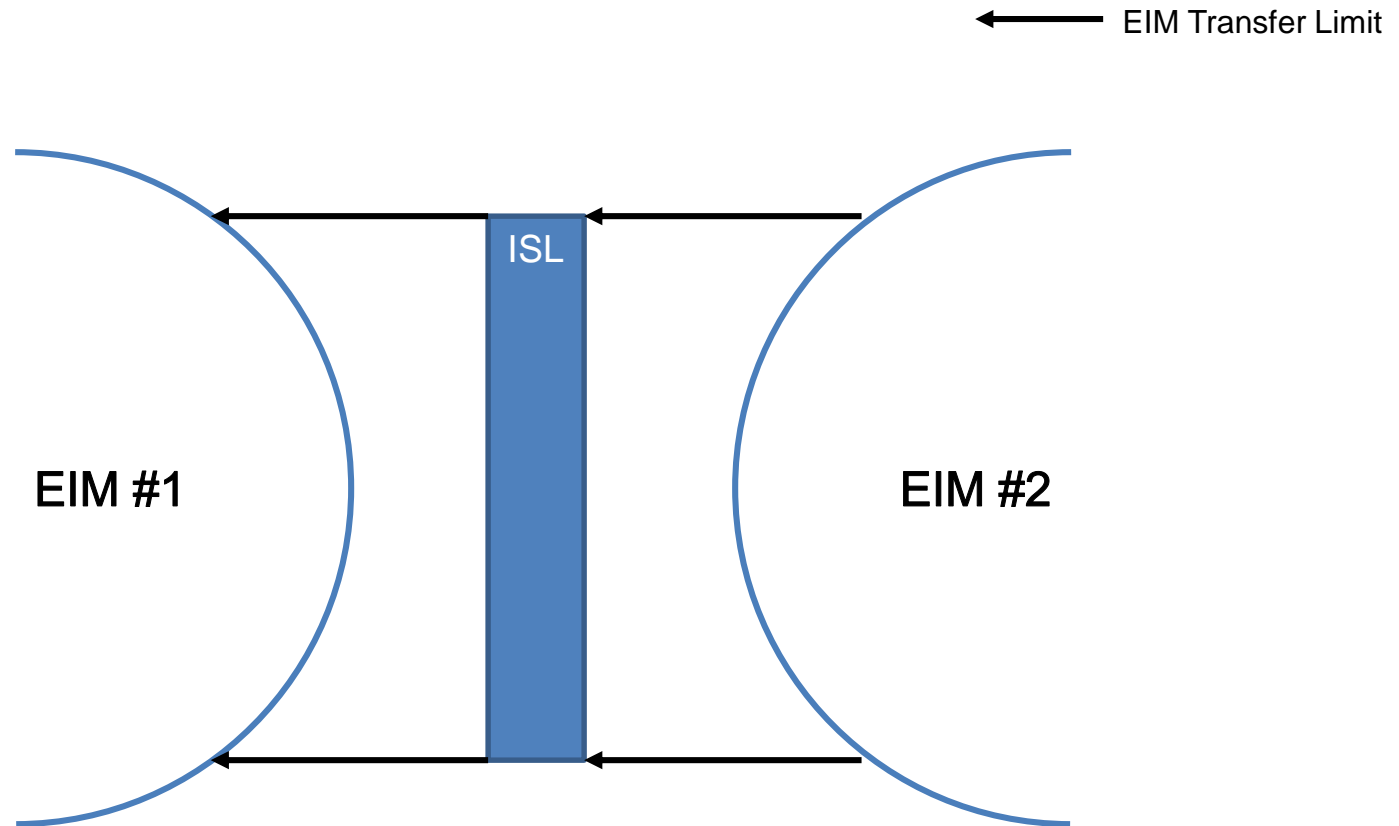
The ISO plans to bring the following items for Board of Governor decision in November

- EIM transfer congestion rent (location of constraint)
- Market power mitigation
- Outage reporting to Peak Reliability Coordinator (RC)
- E-Tags to establish import/export base schedules

Clarify how the location is determined for intertie scheduling limits and EIM transfer limits

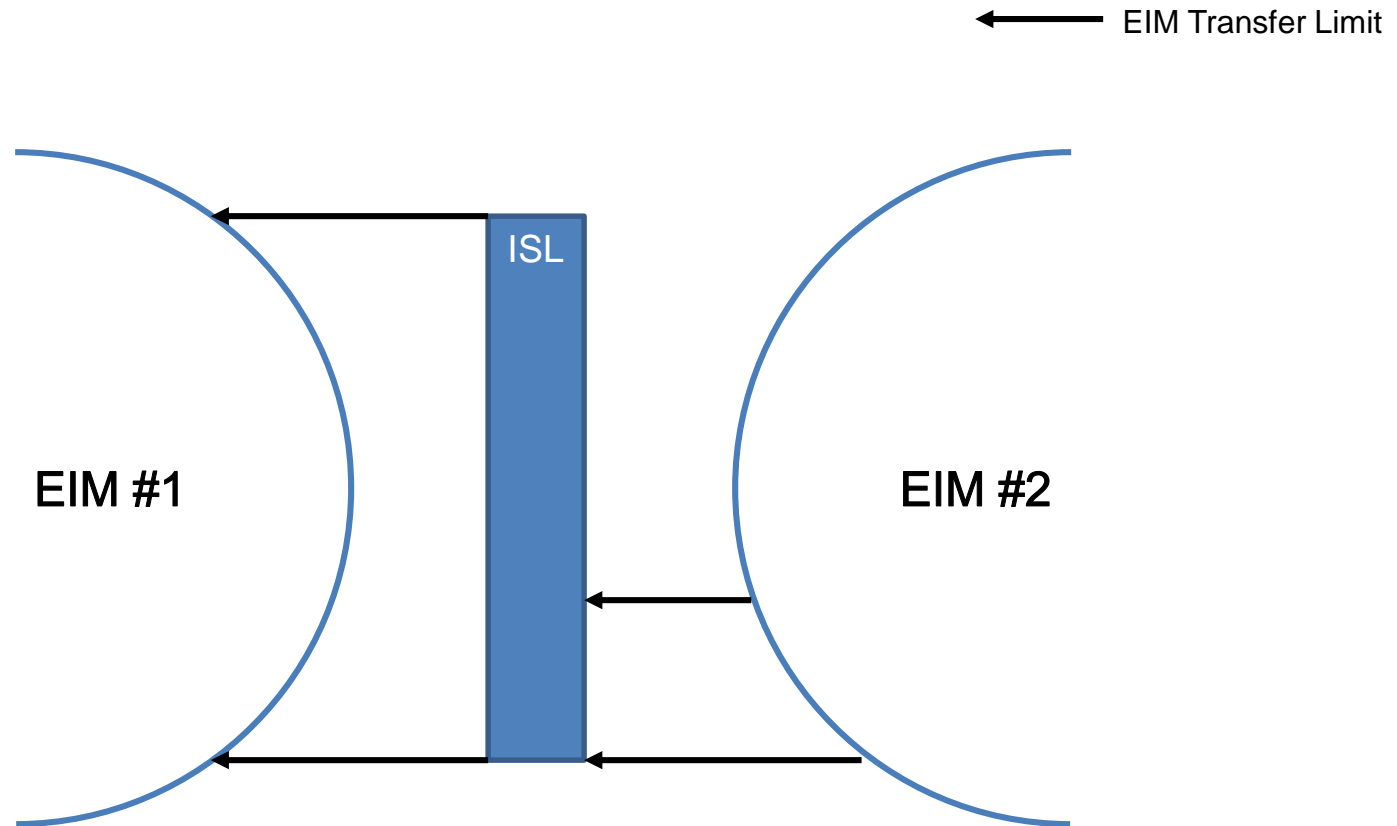
- EIM external intertie:
 - 100% to the EIM BAA with which the intertie scheduling point is interconnected
- EIM internal intertie where intertie scheduling limit is less than or equal to the total EIM transfer limit:
 - 50% to each EIM BAA on each side of the EIM internal intertie
- EIM internal intertie where intertie scheduling limit is greater than the total EIM transfer limit:
 - 100% of EIM transfer limit to the EIM entity which provides transmission to the intertie scheduling point
 - 100% of intertie scheduling limit to the EIM BAA managing the intertie scheduling point

EIM transfer limit = intertie scheduling limit, rights to intertie



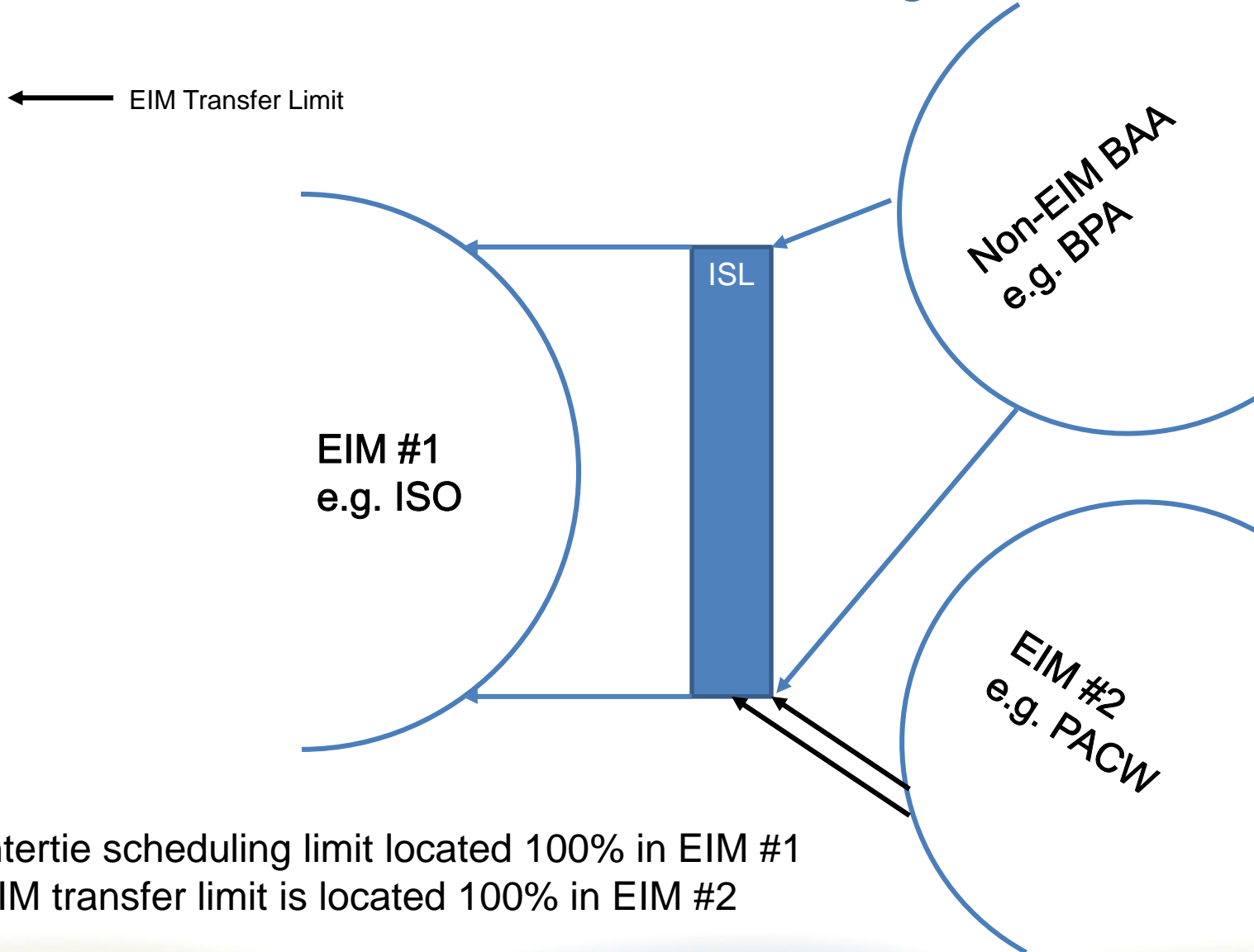
Constraint is located 50% in each BAA

EIM transfer limit cannot be less than intertie scheduling limit



Intertie scheduling limit will be reduced to the maximum EIM transfer limit then constraint is located 50% in each BAA

EIM transfer limit < intertie scheduling limit



Intertie scheduling limit located 100% in EIM #1
EIM transfer limit is located 100% in EIM #2

Use of e-Tags to establish base schedule for imports and exports

- Need all EIM entities to have same approach since an import is another's export
- Following e-Tags must be allowed
 - Approved
 - Pending
 - Adjusted

Market power mitigation of EIM transfers into EIM BAAs

- Currently the ISO performs a structural competitive assessment for each joining EIM to determine if constraint should be mitigated
- As we discussed earlier, an EIM transfer constraint is similar to an internal constraint to the BAA
- Also, EIM transfer can be limited in import direction if resource sufficiency evaluation fails upward tests
- EIM transfers in tested for local market power mitigation in all cases
 - Done by testing the BAA's specific power balance constraint

Provide tariff authority to allow outage reporting to Peak RC by ISO for EIM entity

- EIM entities use ISO outage management system to provide ISO with approved outages
- EIM entity has the option to use OMS for its customers to enter outage date
- By allowing the ISO to forward data to Peak RC, eliminates the need for a redundant application for the EIM entity
- Clarified ISO has no assumption of responsibility for the provision of data

The ISO will monitor the following items in the Market Performance and Planning Forum

- Transmission charge
- Compensation for third party transmission
 - Consider if transmission charge initiative commenced or,
 - Need to support new EIM entity joining
- Flow entitlements

Discussion of Issue Paper and Straw Proposal reviewed alternative transmission proposals and principles for comparison

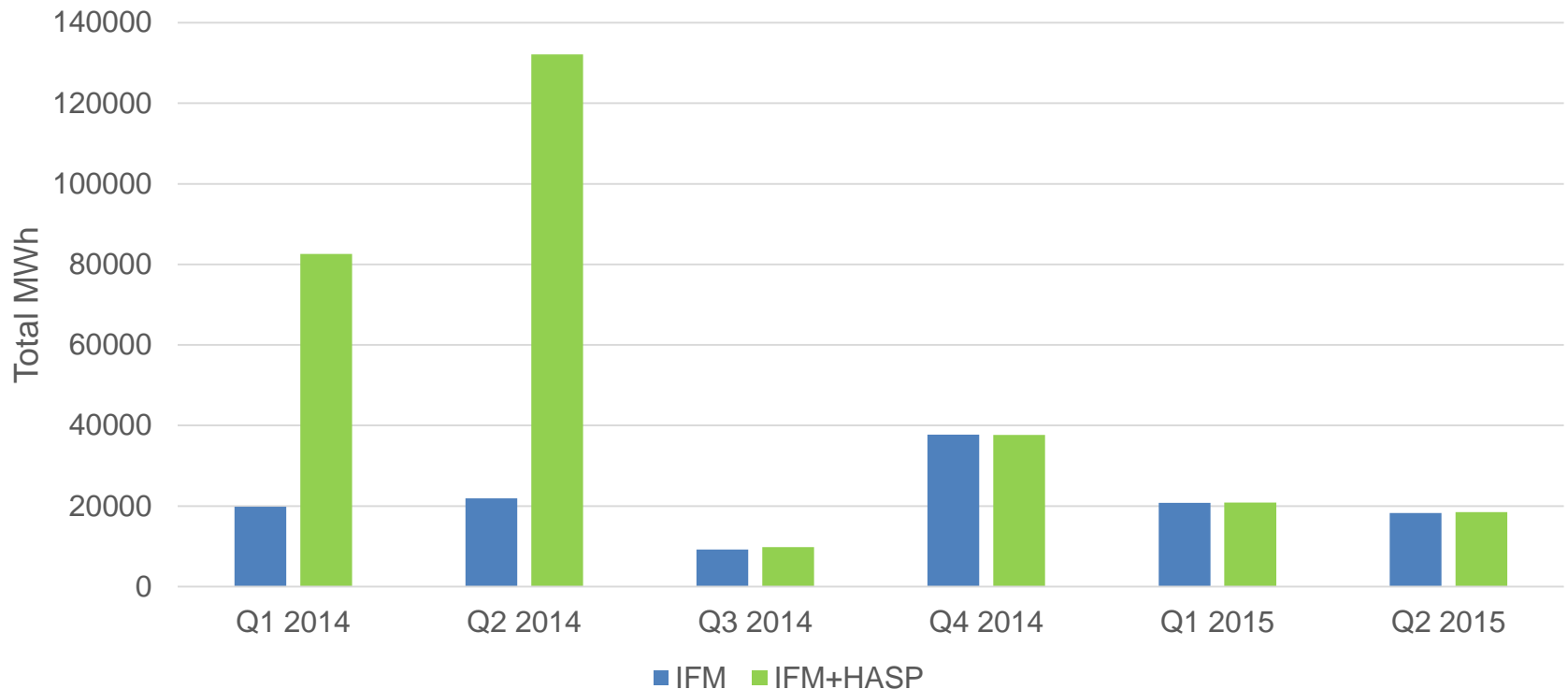
1. No charge for as-available transmission
 - current method, accepted by FERC
2. EIM regional transmission access charge
3. Transfer charge as a minimum shadow price
4. Transmission access charge applicable to load and wheeling
5. Stakeholder comment introduced additional alternative: Calculate hourly non-firm export charge for each EIM entity, and allocate among scheduling coordinators using net EIM purchases

Analysis of EIM operational data will inform transmission charge discussion

- Compare transmission usage between forward markets and real-time market considering net impact of EIM transfers: How much net EIM transfer would be subject to EIM transmission charges?
 - **To date:** EIM has opened significant opportunity for transfers that had not previously happened
- Compare the volume of forward scheduling over time: Is EIM reducing forward scheduling?
 - **To date:** No notable change in forward scheduling, but longer time series is needed
- ISO will consider need and feasibility of broader analyses

Review of 2014 and 2015 YTD forward scheduling shows little change in Integrated Forward Market volume before & after EIM

CAISO – PacifiCorp Interchange (Imports + Exports)
by Calendar Quarter



In general, CAISO market showed significant reduction in HASP activity following Order 764 implementation.

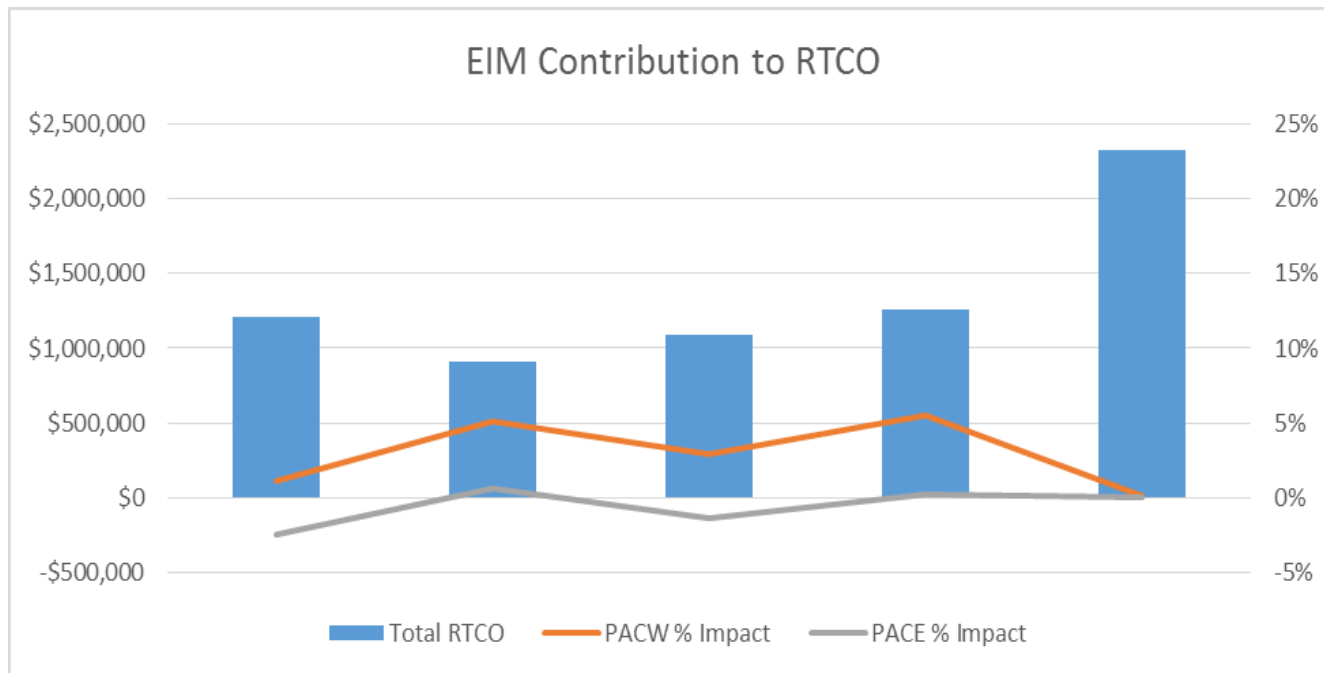
Additional sub-allocation of real-time congestion offset (RTCO) - Flow entitlements

- Base schedules of one EIM entity can cause flows on another EIM entity's BAA
- Currently, the EIM assumes each EIM BAA is responsible for resolving congestion on its own system
- RTCO is calculated for each BAA
- Flow entitlements would allocate base schedule flows above entitlement to the other EIM entity's BAA RTCO

Additional sub-allocation of RTCO (flow entitlements)

- Agreement between two EIM BAAs on base schedule flows allowed on each other's BAA
- If EIM #1 base schedule flows exceed flow entitlement, cost of re-dispatch accrued in EIM #2 RTCO is allocated to EIM #1 RTCO
- Need to evaluate the incremental benefit of added RTCO complexity by including flow entitlements

Impact of PacifiCorp base schedules on ISO real-time congestion offset independent of a flow entitlement



* 5 highest RTCO days

If flow entitlement was established, ISO would limit day-ahead schedules to transmission limit – flow entitlement.

Recommend that mandatory 15-minute economic bidding on EIM external interties not be required at this time

- Benefits of fifteen minute market bidding depends upon liquidity
 - ISO 15-minute liquidity is lower than expectation
 - ISO is scheduling a workshop to discuss causes of low liquidity
- Full network model functionality will be reviewed as part of PacifiCorp integration activities
 - Potential exists for multiple prices per intertie scheduling point on EIM external interties
 - Today, all are modeled such that there is only one price
 - Functionality has not been deployed on ISO interties

Next steps

Item	Date
Post Draft Final Proposal	September 8, 2015
Stakeholder Conference Call	September 14, 2015
Stakeholder Comments Due	September 22, 2015
Board of Governors Decision	November 5-6, 2015

Please submit written comments to EIM@caiso.com by September 22