Extended Day-Ahead Market (EDAM) Congestion Revenue Allocation Discussion

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Market Surveillance Committee Meeting
General Session
March 28, 2025

Background

- In December 2023, the FERC approved the EDAM policy design which included provisions related to congestion revenue allocation accruing across the system between EDAM balancing area.

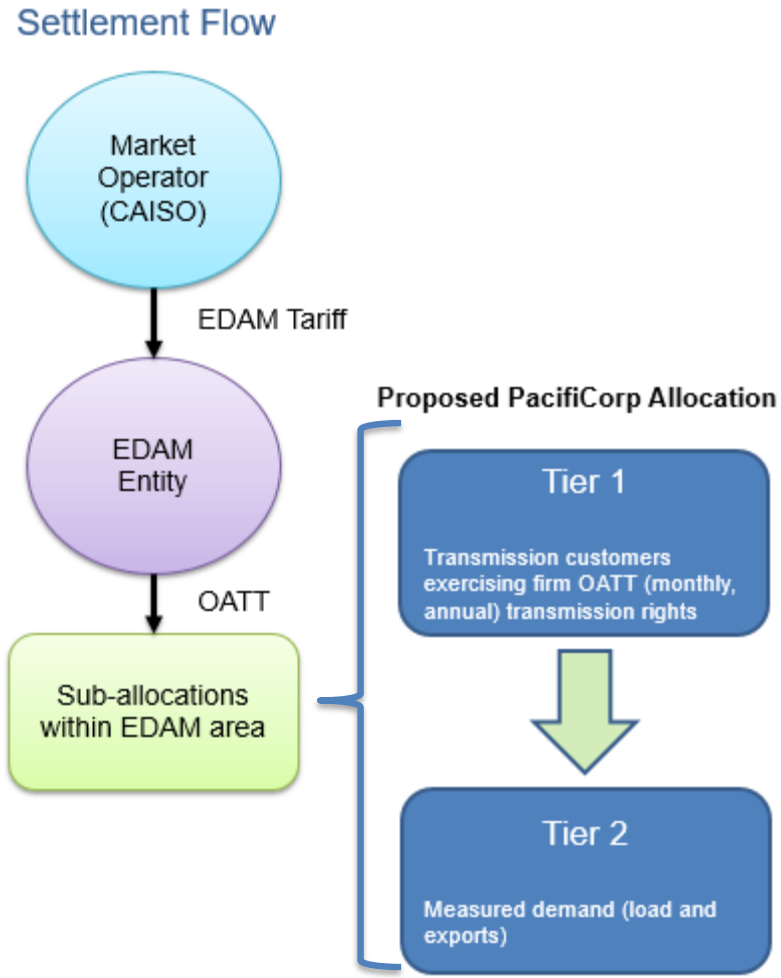
- PacifiCorp, as the first EDAM participant, developed revisions to its Open Access Transmission Tariff (OATT) to support EDAM go-live May 2026.
  - PacifiCorp filed its OATT revision in January 2025.

- As part of the FERC proceeding on the PacifiCorp OATT revisions, concerns were raised with the EDAM mechanism for allocation of congestion revenues from the market operator to participating balancing areas.

- In response to these concerns, the ISO committed to launching an expedited stakeholder initiative to evaluate potential transitional mechanisms for allocation of congestion revenues.

Policy Initiative Development

- Current, FERC-approved, design allocates congestion revenues to the EDAM balancing area in which the internal transmission constraint is located.
  - Consistent with WEIM design of congestion revenue allocation
- The EDAM balancing area has the discretion to establish how these revenues are sub-allocated with its transmission customers under its OATT.
- PacifiCorp proposed OATT revisions seeking to provide a level of congestion hedge for transmission customers exercising firm OATT rights.
  - Based on congestion revenues received from the market operator



Initiative Scope

- The initiative is narrowly focused on congestion revenue allocation arising as a result of parallel flow effects across the EDAM footprint based on flow-based transmission constraints that may be binding in an EDAM balancing area.
  - How those revenues should be distributed by market operator

- Congestion revenues allocated by the market operator affect the amount of revenues that the EDAM entity can sub-allocate under the terms of its OATT.

- The initiative discusses the current FERC-approved design for EDAM congestion revenue allocation and considers potential transitional alternate approaches.

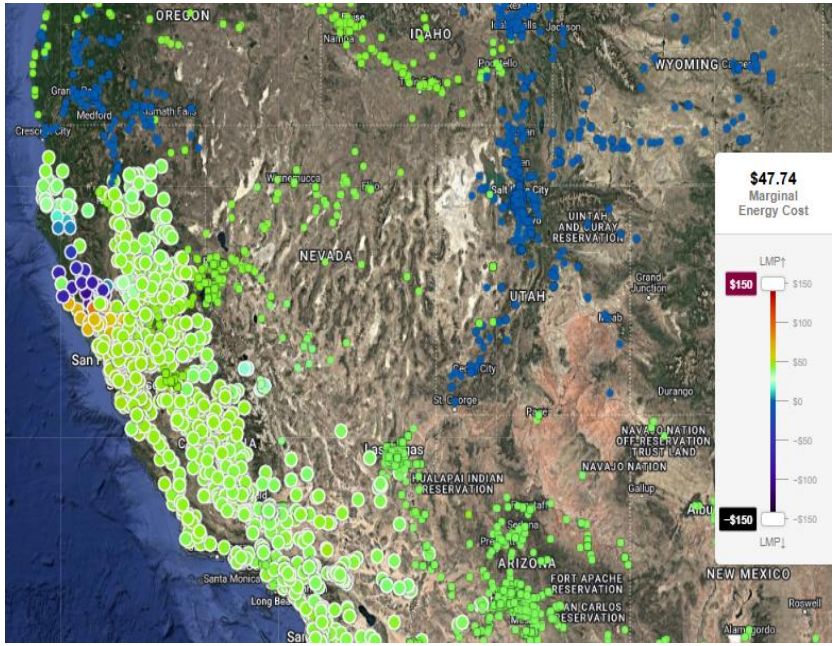
- The initiative does not seek to address or modify allocation of “transfer revenues” (associated with scheduling constraints at EDAM intertie/transfer points).

Transmission System and Constraint Modeling

- The ISO market utilizes the full network model (FNM) to model the entire transmission system in a balancing area and associated transmission system constraints (i.e., flow based limits and other constraints).

- The FNM supports the calculation of LMPs at each pricing location within the model across the market footprint.

- The marginal congestion component (MCC) of the LMP at a pricing location is sensitive to transmission constraints across the modeled market footprint.
  - Based on the power transfer distribution factor effect in relation to the transmission constraints



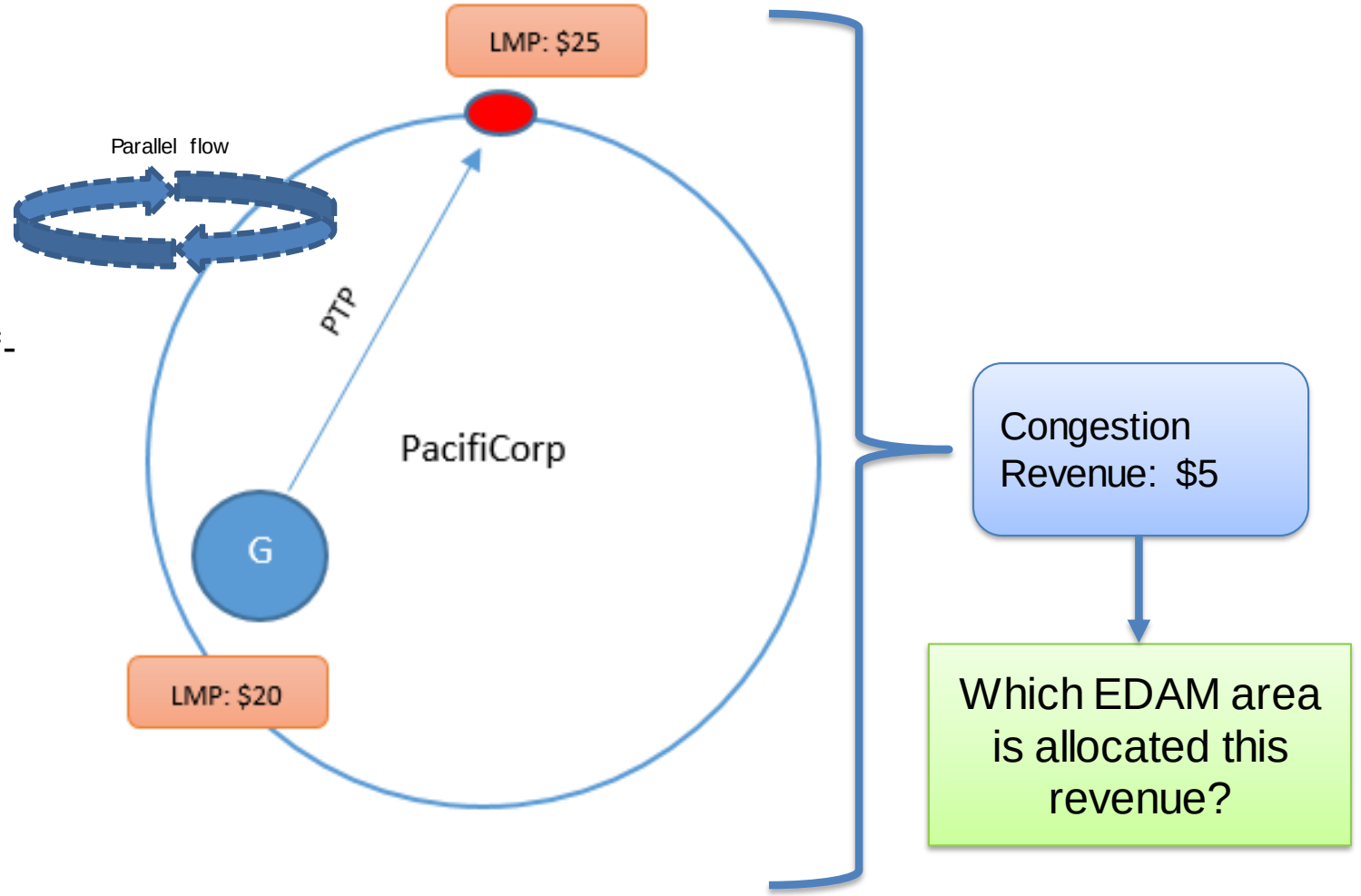
Illustrating the Issue – Congestion cost exposure due to parallel flow effects

- Transmission constraint in neighboring EDAM balancing area affects the congestion component of the LMP in PacifiCorp.
- Transmission customer seeks to exercise their PTP rights to export from PacifiCorp area through a balanced source to sink self-schedule.

Transmission customer settlement:
- Paid the LMP at generator of $20
- Charged the LMP at export location of $25

Transmission customer thus is exposed to a $5 net cost difference due to parallel flow congestion effect.

Market operator collects the $5 net difference as congestion revenue for distribution between EDAM balancing areas.

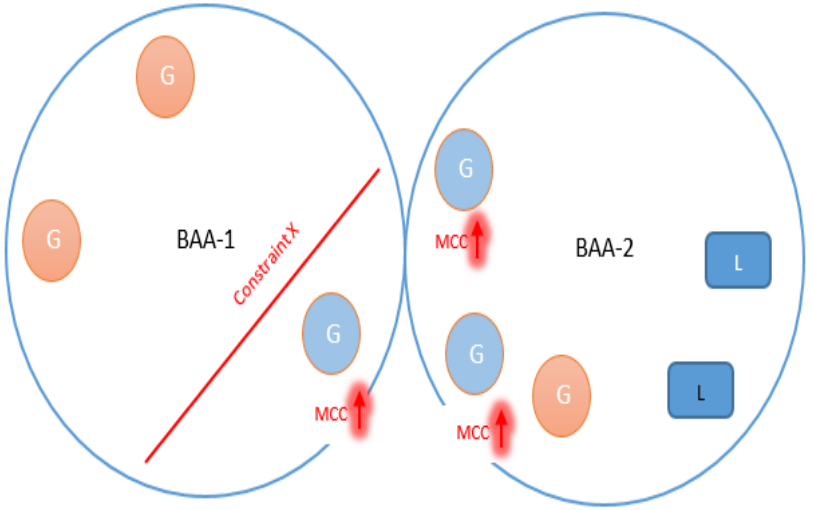


Current design for EDAM congestion revenue allocation

- The EDAM design allocates congestion revenues to the EDAM balancing area in which the internal transmission **constraint is located**.
  - Consistent with WEIM design in place today

- This includes allocation of congestion revenues materializing in a neighboring balancing area as a result of that BAA's impact on parallel flows.
  - A transmission constraint can impact MCC at LMP pricing locations in adjacent EDAM area

- *Rationale*: supports allocation of congestion revenues to the balancing area where the constraint is located since the area bears effects of redispatch and managing the reliability effects in its area.



Potential transitional alternative approach to congestion revenue allocation

- ***Transitional alternative****:* congestion revenue associated with parallel flow effects would be allocated to the EDAM balancing area where the **revenue is collected**.
  - Not allocated to the balancing area where the constraint is located

- Under this approach:
  - congestion revenues would be allocated to the balancing area in which they are collected irrespective of the location of the internal transmission constraint
  - the EDAM entity would be allocated congestion revenues to support a greater congestion hedge for transmission customers exercising firm transmission rights

- There is no impact on resource dispatch or how the market solves congestion, but addresses the settlement distribution of congestion revenues.

Concept Illustration – Allocation of Congestion Revenue Comparison

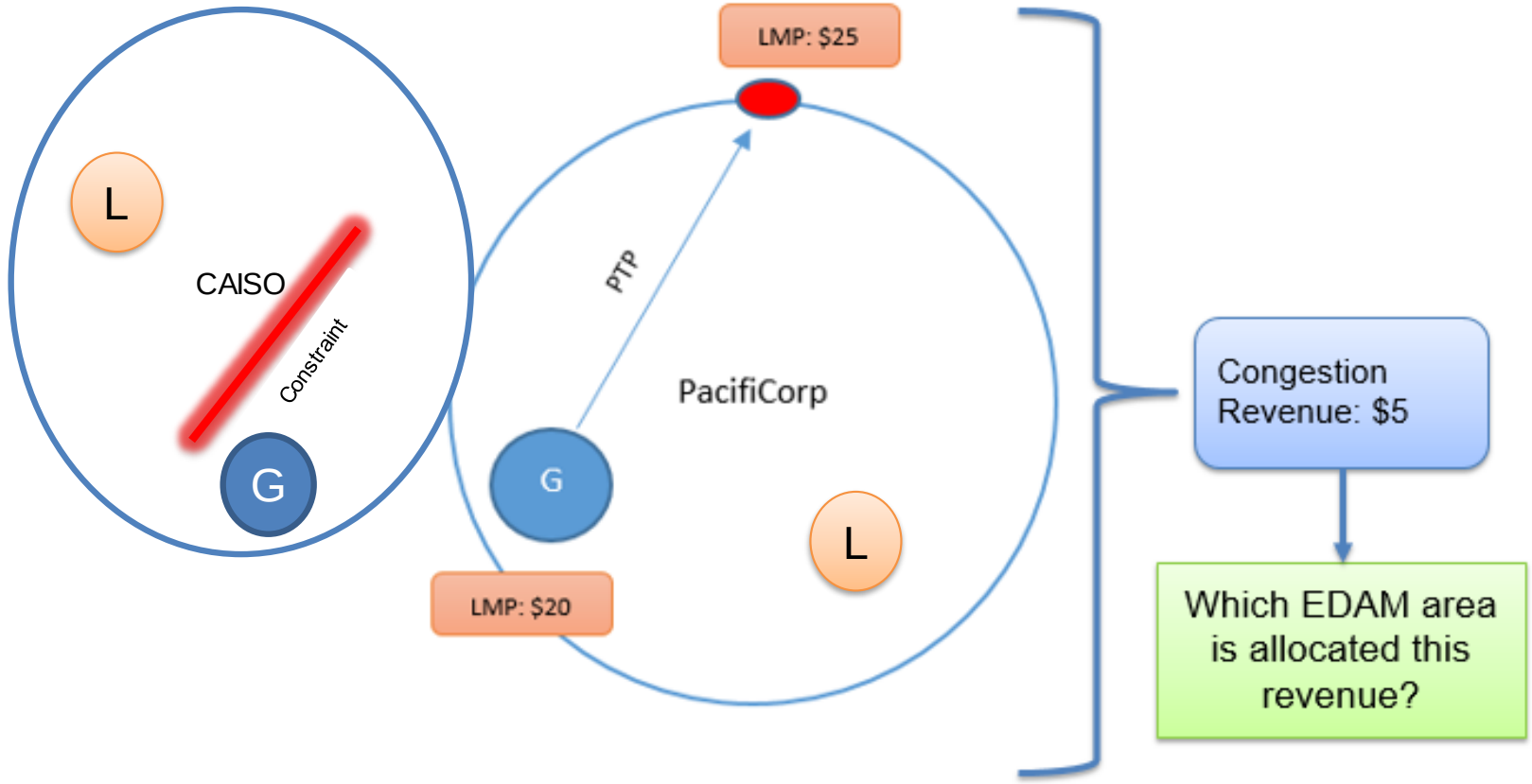
Current design:

$5 congestion revenue flows to area where constraint is located (CAISO).

Transitional alternative:

$5 congestion revenue flows to area where revenue is collected (PacifiCorp).

Allows PacifiCorp to sub-allocate the $5 to PTP customer to offset their congestion cost exposure.



Application in the Day-Ahead Market v. Real-Time Market

- The transitional alternative approach would be applied in the day-ahead market, and not the real-time market.
  - Real-time market would retain the congestion revenue allocation in effect today in the WEIM (allocated to area where constraint is located)

- Extending the transitional alternate design to the real-time market would change congestion revenue allocation across the WEIM upon launch of EDAM.

- Congestion hedge mechanisms traditionally apply in ISO/RTO day ahead markets and do not extend to real-time.
  - WEIM is a real-time market managing deviations from day ahead to real time
  - WEIM supports base scheduling that is not settled through market

Why is the alternative design transitional?

- EDAM design on congestion revenue allocation will continue to evolve along with other design elements based on operational market experience.
- Recognition that the congestion revenue allocation may provide a congestion hedge for parallel flow on other systems where OATT service may not have been reserved.
- Important to consider evolving to future designs that seek to accommodate and manage the impacts of the ability in EDAM to continue to sell transmission service under the OATT.
- Seeking to evolve to a long-term market design providing more direct access to market hedging mechanisms.

Transitioning to a long-term design

- The ISO would monitor and benchmark parallel flow effects across a growing EDAM footprint, including monitoring of congestion revenue distribution effects.

- Monitoring can provide important data on where and how congestion is materializing across an incrementally growing market footprint with each new entrant, tracking the cost impacts and informing future design.
  - Analysis during the first 1-2 years of market operations

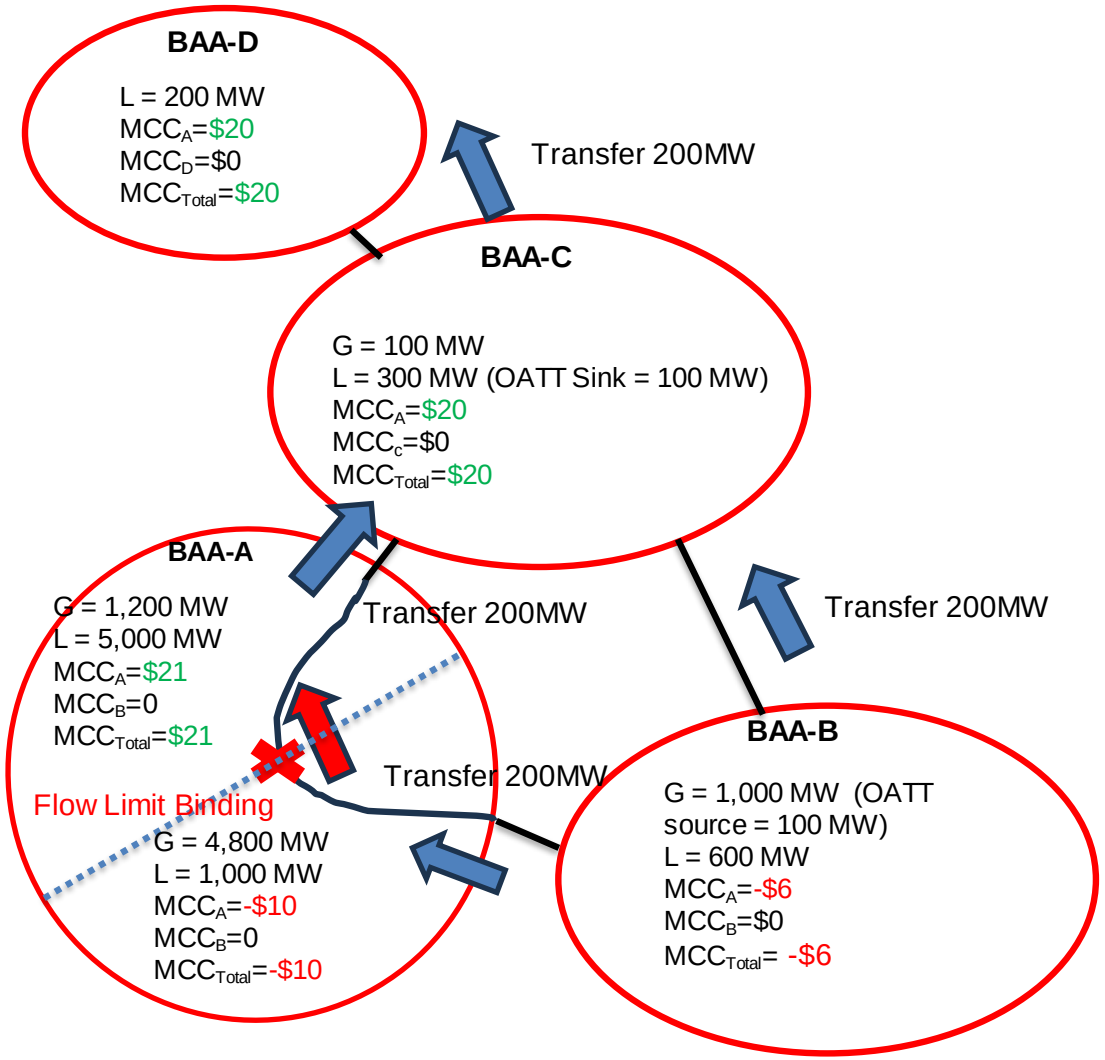
- Informed by market operational experience, the ISO would launch a stakeholder initiative to evaluate design evolution across a spectrum of congestion hedging designs.
  - Initiative can start exploring spectrum of designs in parallel to data collection

COMPARATIVE EXAMPLES

Illustrative examples with four Balancing Authority Areas

- Market footprint consists of four Balancing Authority Areas (BAA)
- Each BAA passed the resource sufficiency tests
  - Adequate supply bid into market
- Each BAA transfer constraint is not constrained
  - Marginal Energy Cost (MEC) is consistent across the footprint at $20/MWh
- Single constraint in BAA A is binding in South to North direction
  - The shadow price of constraint impacts the LMP across the market
- In the “prevailing flow” example, the energy is dispatched in the dominant direction of the constraint
- In counterflow example, the energy dispatched in the counter flow direction of the constraint

Prevailing Flow Market Awards and Settlement



		LMP	MEC	MCC$_A$	MCC$_B$	MCC$_C$	MCC$_D$
BAA A	G_N	$49,200	$24,000	$25,200	$ -	$ -	$ -
	L_N	$(205,000)	$(100,000)	$(105,000)	$ -	$ -	$ -
	G_S	$48,000	$96,000	$(48,000)	$ -	$ -	$ -
	L_S	$(10,000)	$(20,000)	$10,000	$ -	$ -	$ -
	T_{AB}	$4,000	$4,000	$ -	$ -	$ -	$ -
	T_{AC}	$(4,000)	$(4,000)	$ -	$ -	$ -	$ -
BAA A STLMT		**$(117,800)**	**$ -**	**$(117,800)**	**$ -**	**$ -**	**$ -**
BAA B	G_{OATT}	$1,400	$2,000	$ (600)	$ -	$ -	$ -
	G	$ 12,600	$18,000	$ (5,400)	$ -	$ -	$ -
	L	$(8,400)	$(12,000)	$ 3,600	$ -	$ -	$ -
	T_{AB}	$(4,000)	$(4,000)	$ -	$ -	$ -	$ -
	$T_{BC(OATT)}$	$(2,000)	$(2,000)	$ -	$ -	$ -	$ -
	T_{BC}	$(6,000)	$(6,000)	$ -	$ -	$ -	$ -
BAA B STLMT		**$(2,400)**	**$ -**	**$(2,400)**	**$ -**	**$ -**	**$ -**
BAA C	G	$4,000	$2,000	$2,000	$ -	$ -	$ -
	L_{OATT}	$(4,000)	$(2,000)	$(2,000)	$ -	$ -	$ -
	L	$(8,000)	$(4,000)	$(4,000)	$ -	$ -	$ -
	T_{AC}	$4,000	$4,000	$ -	$ -	$ -	$ -
	$T_{BC(OATT)}$	$2,000	$2,000	$ -	$ -	$ -	$ -
	T_{BC}	$2,000	$2,000	$ -	$ -	$ -	$ -
	T_{CD}	$(4,000)	$(4,000)	$ -	$ -	$ -	$ -
BAA C STLMT		**$(4,000)**	**$ -**	**$ (4,000)**	**$ -**	**$ -**	**$ -**
BAA D	G	$ -	$ -	$ -	$ -	$ -	$ -
	L	$(8,000)	$(4,000)	$(4,000)	$ -	$ -	$ -
	T_{CD}	$4,000	$4,000	$ -	$ -	$ -	$ -
BAA D STLMT		**$(4,000)**	**$ -**	**$ (4,000)**	**$ -**	**$ -**	**$ -**

Prevailing Flow Marginal Cost Of Congestion Distribution Comparison

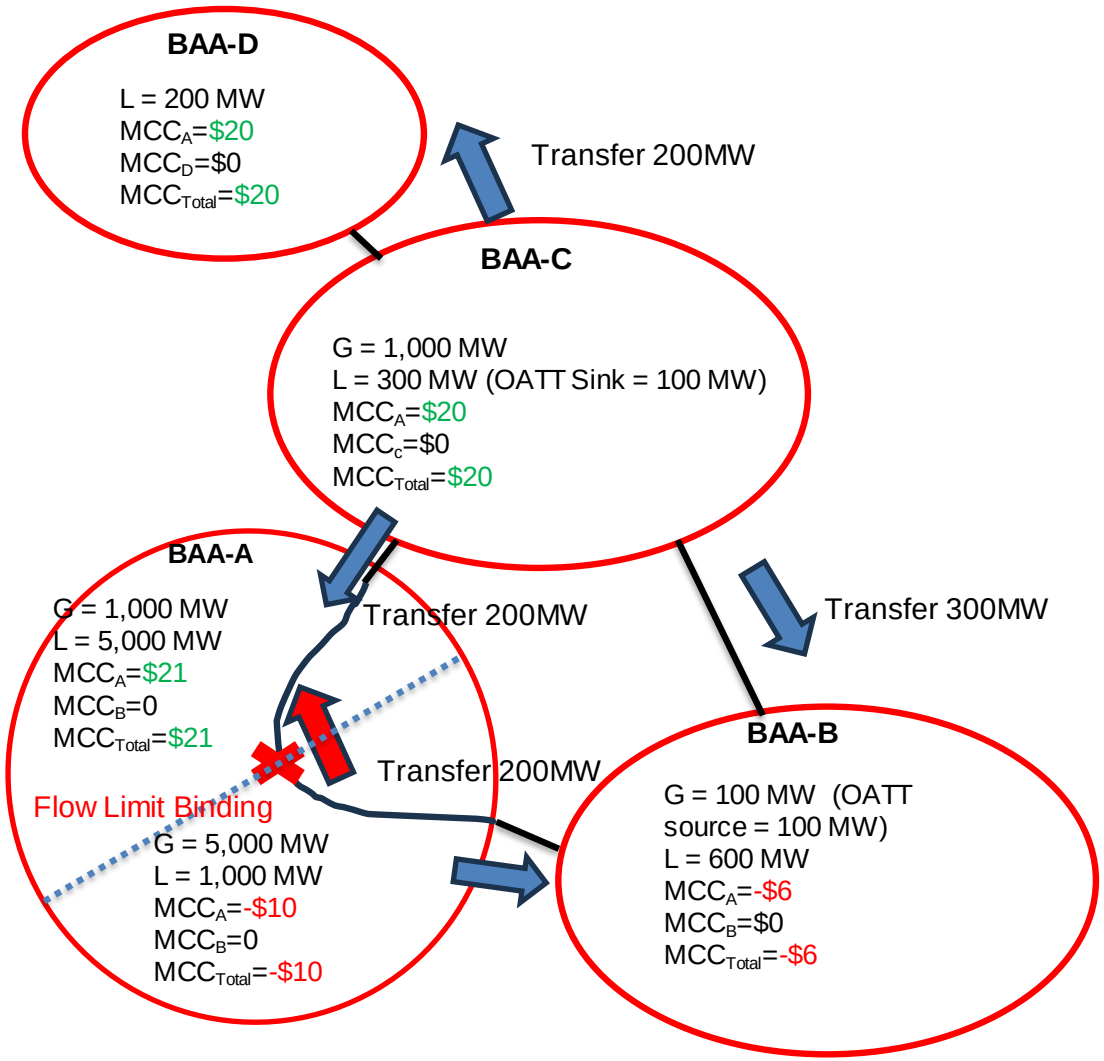
Current Approach Marginal Cost of Congestion Distribution

MCC OFFSET	MCC_T	MCC_A OFFSET by Breakdown	MCC_B OFFSET by Breakdown	MCC_C OFFSET by Breakdown	MCC_D OFFSET by Breakdown
BAA_A MCC Total	$(117,800)	$(117,800)	$ -	$ -	$ -
BAA_B MCC Total	$(2,400)	$(2,400)	$ -	$ -	$ -
BAA_C MCC Total	$(4,000)	$(4,000)	$ -	$ -	$ -
BAA_D MCC Total	$(4,000)	$(4,000)	$ -	$ -	$ -
Overall STLMT	($128,200)	($128,200)	$ -	$ -	$ -
Congestion Allocation	$128,200	$128,200	$ -	$ -	$ -

Transitional Alternate Approach of Marginal Cost of Congestion Distribution

MCC OFFSET	MCC_T	MCC_A OFFSET by Breakdown	MCC_B OFFSET by Breakdown	MCC_C OFFSET by Breakdown	MCC_D OFFSET by Breakdown
BAA_A MCC Total	$(117,800)	$(117,800)	$ -	$ -	$ -
BAA_B MCC Total	$(2,400)	$ -	$(2,400)	$ -	$ -
BAA_C MCC Total	$(4,000)	$ -	$ -	$(4,000)	$ -
BAA_D MCC Total	$(4,000)	$ -	$ -	$ -	$(4,000)
Overall STLMT	($128,200)	$(117,800)	$(2,400)	$(4,000)	$(4,000)
Congestion Allocation	$128,200	$117,800	$2,400	$4,000	$4,000

Counterflow Market Awards and Settlement



		LMP	MEC	MCC$_A$	MCC$_B$	MCC$_C$	MCC$_D$
BAA A	G_N	$41,000	$20,000	$21,000	$ -	$ -	$ -
	L_N	$(205,000)	$(100,000)	$(105,000)	$ -	$ -	$ -
	G_S	$50,000	$100,000	$(50,000)	$ -	$ -	$ -
	L_S	$(10,000)	$(20,000)	$10,000	$ -	$ -	$ -
	T_{AB}	$ -	$ -	$ -	$ -	$ -	$ -
	T_{AC}	$ -	$ -	$ -	$ -	$ -	$ -
BAA A STLMT		**$(124,000)**	**$ -**	**$(124,000)**	**$ -**	**$ -**	**$ -**
BAA B	G_{OATT}	$1,400	$2,000	$ (600)	$ -	$ -	$ -
	G	$ -	$ -	$ -	$ -	$ -	$ -
	L	$(8,400)	$(12,000)	$ 3,600	$ -	$ -	$ -
	T_{AB}	$4,000	$4,000	$ -	$ -	$ -	$ -
	$T_{BC(OATT)}$	$(2,000)	$(2,000)	$ -	$ -	$ -	$ -
	T_{BC}	$8,000	$8,000	$ -	$ -	$ -	$ -
BAA B STLMT		**$3,000**	**$ -**	**$3,000**	**$ -**	**$ -**	**$ -**
BAA C	G	$40,000	$20,000	$20,000	$ -	$ -	$ -
	L_{OATT}	$(4,000)	$(2,000)	$(2,000)	$ -	$ -	$ -
	L	$(8,000)	$(4,000)	$(4,000)	$ -	$ -	$ -
	T_{AC}	$(4,000)	$(4,000)	$ -	$ -	$ -	$ -
	$T_{BC(OATT)}$	$2,000	$2,000	$ -	$ -	$ -	$ -
	T_{BC}	$(8,000)	$(8,000)	$ -	$ -	$ -	$ -
	T_{CD}	$(4,000)	$(4,000)	$ -	$ -	$ -	$ -
BAA C STLMT		**$14,000**	**$ -**	**$ 14,000**	**$ -**	**$ -**	**$ -**
BAA D	G	$ -	$ -	$ -	$ -	$ -	$ -
	L	$(8,000)	$(4,000)	$(4,000)	$ -	$ -	$ -
	T_{CD}	$4,000	$4,000	$ -	$ -	$ -	$ -
BAA D STLMT		**$(4,000)**	**$ -**	**$(4,000)**	**$ -**	**$ -**	**$ -**

Counter Flow Marginal Cost Of Congestion Distribution Comparison

Current Approach to Marginal Cost of Congestion Distribution

MCC OFFSET	MCC_T	MCC_A OFFSET by Breakdown	MCC_B OFFSET by Breakdown	MCC_C OFFSET by Breakdown	MCC_D OFFSET by Breakdown
BAA_A MCC Total	$(124,000)	$(124,000)	$ -	$ -	$ -
BAA_B MCC Total	$3,000	$3,000	$ -	$ -	$ -
BAA_C MCC Total	$14,000	$14,000	$ -	$ -	$ -
BAA_D MCC Total	$(4,000)	$(4,000)	$ -	$ -	$ -
Overall STLMT	($117,000)	($117,000)	$ -	$ -	$ -
Congestion Allocation	$117,000	$117,000	$ -	$ -	$ -

Transitional Alternate Approach to Marginal Cost of Congestion Distribution

MCC OFFSET	MCC_T	MCC_A OFFSET by Breakdown	MCC_B OFFSET by Breakdown	MCC_C OFFSET by Breakdown	MCC_D OFFSET by Breakdown
BAA_A MCC Total	$(124,000)	$(124,000)	$ -	$ -	$ -
BAA_B MCC Total	$3,000	$ -	$3,000	$ -	$ -
BAA_C MCC Total	$14,000	$ -	$ -	$14,000	$ -
BAA_D MCC Total	$(4,000)	$ -	$ -	$ -	$(4,000)
Overall STLMT	($117,000)	$(124,000)	$3,000	$14,000	$(4,000)
Congestion Allocation	$117,000	$124,000	$(3,000)	$(14,000)	$4,000

Milestones and Next Steps

- Issue paper published on March 17th
- Stakeholder workshop held on March 24th
- Stakeholder comments are requested by April 7th
- Proposal targeted for publication on April 14th
- Stakeholder workshops targeted for week of April 21st
- Final proposal targeted for week of May 5th
- Presentation to Board of Governors and Western Energy Markets Governing Body at May 20-22 session.