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

James Lynn
Principal, Market Settlement Design

George Angelidis
Executive Principal, Power Systems

Market Surveillance Committee Meeting
General Session
May 2, 2025

Initiative Scope

- The initiative focuses on congestion revenue allocation, specifically congestion revenue/rent arising as a result of parallel flow effects from flow-based transmission constraints that may be binding in an EDAM balancing area.
  - How those revenues should be distributed by market operator

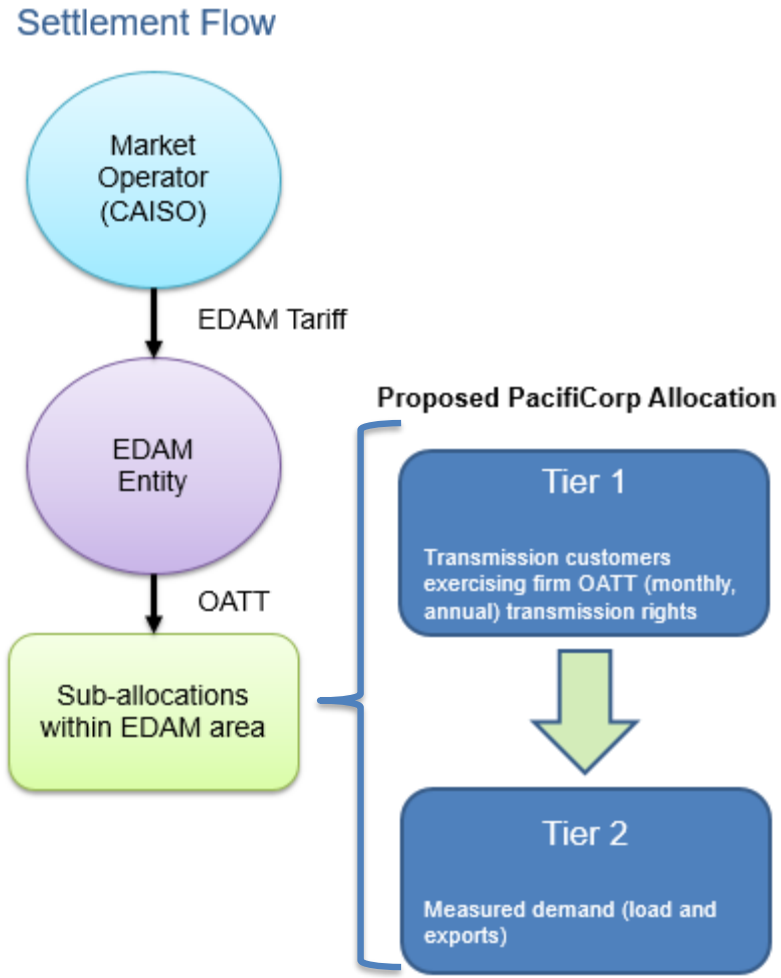
- Congestion revenues allocated by the market operator affect the amount of revenues that the EDAM entity can sub-allocate under the terms of its OATT.

- 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).

Congestion Revenue Allocation Processes

- 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, and recently filed Portland General Electric, proposed OATT revisions seek to provide a level of congestion hedge for transmission customers exercising firm OATT rights.



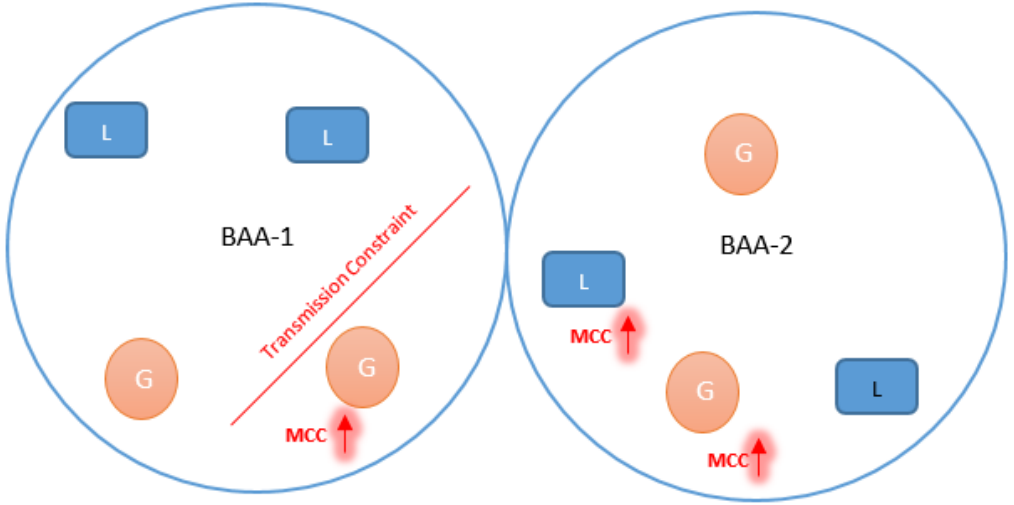
Overview of stakeholder comments on March 17th Issue Paper

- Key themes across the stakeholder comments on transitional alternative:
  - *Defining a transition to a long-term design*: interest in further definition on the steps toward a long-term design and continued engagement.
  - *Allocation of congestion revenue beyond the exercise of OATT rights:* concerns that allocation of all parallel flow congestion revenues goes beyond what is needed to manage congestion cost exposure for exercise of firm OATT rights.
  - *Counter flow congestion allocation scenario:* concern that a balancing area may bear the costs associated with a generator in its area providing counter flow effect benefit in relation to direction of transmission constraint.
  - *Self-schedule incentives:* concern of potential incentive to self-schedule load/resources to obtain greater protection from congestion cost exposure.

Draft Final Proposal design to parallel flow congestion revenue allocation

- Parallel flow congestion revenue is allocated to the balancing area where it is collected associated with the exercise of firm OATT transmission rights.
  - Long-term and monthly firm point-to-point (PTP) and network integration transmission service (NITS), consistent with OATT terms and conditions.
  - Exercise of transmission rights through a balanced source/sink self-schedule

- Remaining parallel flow congestion revenues are allocated to the balancing area where the transmission constraint is located.



Transmission constraint located in BAA-1 affects MCC at locations in BAA-1 and BAA-2.

BAA-2 receives:
- Parallel flow congestion revenues materializing in BAA-2 (as result of constraint in BAA-1) for exercise of firm OATT rights

BAA-1 receives:
- Internal congestion revenues materializing in BAA-1
- Remaining parallel flow congestion revenue materializing in BAA-2 (as a result of constraint in BAA-1)

Draft final proposal design – key considerations

- Design introduces a more targeted and refined allocation of parallel flow congestion revenues (resulting from a constraint in another EDAM balancing area).
- It allocates parallel flow congestion revenues to the EDAM balancing area where these are collected/paid to support the ability of EDAM entity to provide congestion cost protection for transmission customers exercising firm OATT rights.
- Remaining parallel flow congestion revenues – beyond what is needed to support congestion cost protections for exercise of firm OATT rights – are allocated to the EDAM balancing area where constraint is located.
- Addresses the concern associated with a balancing area being exposed to congestion costs when providing counter flow effect in relation to constraint.
  - Consistent with current EDAM design as congestion revenues (positive or negative) are allocated to EDAM area where constraint is located.

Registering PTP and NITS transmission rights

- Transmission rights holders on the EDAM balancing area transmission system will register their firm OATT transmission rights: Point-to-Point (PTP) and Network Integration Transmission Service (NITS).
  - Registrations will receive a contract reference number (CRN) which supports the exercise of those transmission rights.

- Point-to-Point transmission rights are associated with specifically identified source and sink registered with the market operator.

- NITS transmission rights are based on designated network resources and loads. The definition of sources and sinks associated with these transmission rights can reflect the different ways that these rights may be defined by the EDAM entities today.
  - For example, one source to one sink or otherwise multiple sources to a sink, or otherwise depending on the defined nature and terms of transmission rights granted.

Design evolution: monitoring, near term and long term design

- The ISO will monitor the binding transmission constraints, their frequency, and the resulting price effects and congestion revenue allocation, which will inform further near-term enhancements and long-term design evolution.
  - During Year 1 and Year 2 of EDAM operations

- Within Year 3 of EDAM operations, the ISO will present a long-term solution emerging from the stakeholder process to the governing entity for consideration.

- ISO and stakeholders will also consider near-term enhancements to the design which could be implemented in Year 1 of EDAM operations.
  - One such enhancement for consideration will be to support parallel flow congestion revenue allocation based on cleared day-ahead, economically bid, balanced source/sink schedules associated with eligible firm OATT transmission rights.

Initiative Milestones

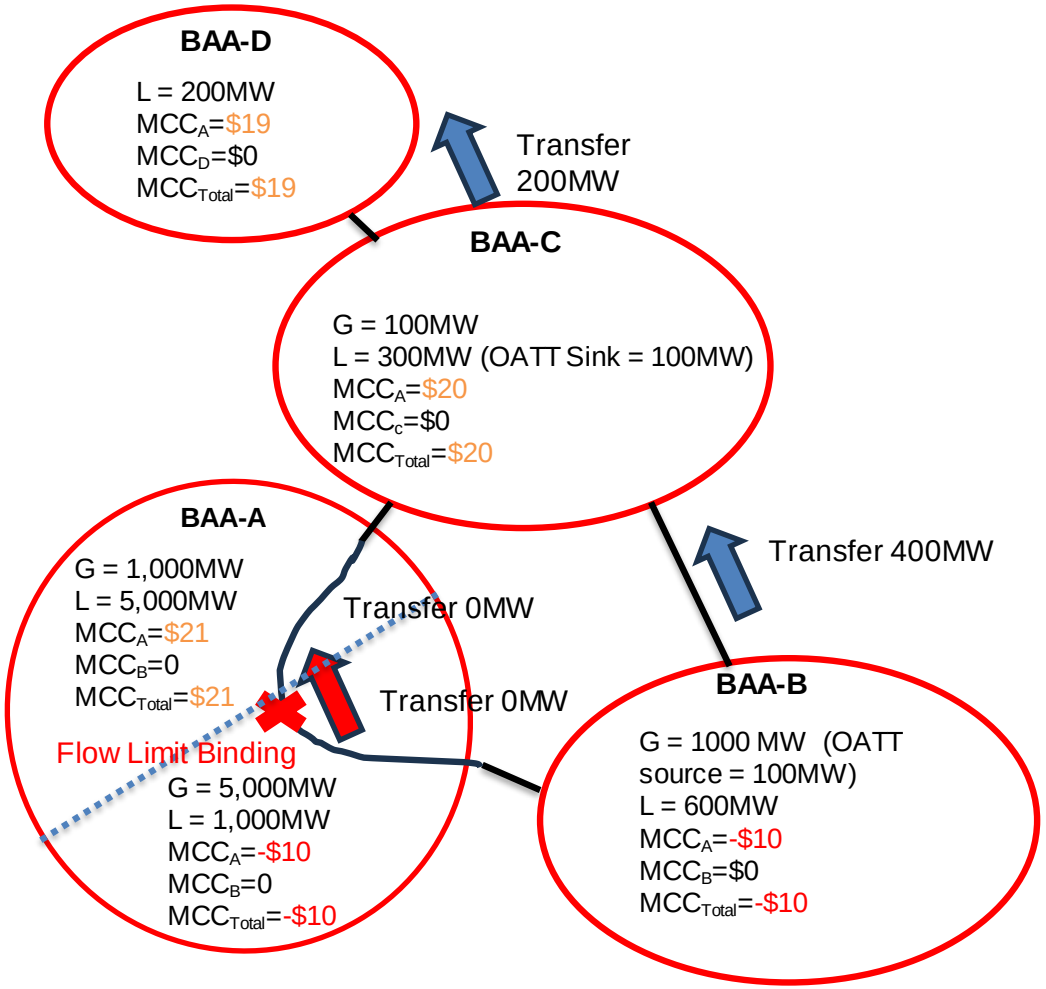
- ✓ March 17th – Publication of EDAM Congestion Revenue Allocation issue paper.
- ✓ March 24th – Stakeholder workshop on published issue paper
- ✓ April 7th – Comment deadline for Issue Paper and workshop
- ✓ April 16th – Publication of draft final proposal on EDAM Congestion Revenue Allocation
- ✓ April 23rd – Stakeholder workshop on the published draft final proposal
- May 5th – Comment deadline on Draft Final Proposal and workshop
- May 12th – Publication of final proposal on EDAM Congestion Revenue Allocation
- May 20-22nd – Presentation for decision to ISO Board of Governors and WEM Governing Body

FURTHER 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
- Illustrates the consistent treatment of congestion revenue/rent collected from energy is dispatched in the “prevailing flow” or “counter flow” direction of the binding constraint

Prevailing Flow 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_N	$(10,000)	$(20,000)	$10,000	$ -	$ -	$ -
	T_{AB}	$ -	$ -	$ -	$ -	$ -	$ -
	T_{AC}	$ -	$ -	$ -	$ -	$ -	$ -
BAA A STLMT		**$(124,000)**	**$ -**	**$(124,000)**	**$ -**	**$ -**	**$ -**
BAA B	G_{OATT}	$1,000	$2,000	$ (1,000)	$ -	$ -	$ -
	G	$ 9,000	$18,000	$ (9,000)	$ -	$ -	$ -
	L	$(6,000)	$(12,000)	$ 6,000	$ -	$ -	$ -
	T_{AB}	$ -	$ -	$ -	$ -	$ -	$ -
	$T_{BC(OATT)}$	$(2,000)	$(2,000)	$ -	$ -	$ -	$ -
	T_{BC}	$(6,000)	$(6,000)	$ -	$ -	$ -	$ -
BAA B STLMT		**$(4,000)**	**$ -**	**$(4,000)**	**$ -**	**$ -**	**$ -**
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}	$ -	$ -	$ -	$ -	$ -	$ -
	$T_{BC(OATT)}$	$2,000	$2,000	$ -	$ -	$ -	$ -
	T_{BC}	$6,000	$6,000	$ -	$ -	$ -	$ -
	T_{CD}	$(4,000)	$(4,000)	$ -	$ -	$ -	$ -
BAA C STLMT		**$(4,000)**	**$ -**	**$ (4,000)**	**$ -**	**$ -**	**$ -**
BAA D	G	$ -	$ -	$ -	$ -	$ -	$ -
	L	$(7,800)	$(4,000)	$(3,800)	$ -	$ -	$ -
	T_{CD}	$4,000	$4,000	$ -	$ -	$ -	$ -
BAA D STLMT		**$(3,800)**	**$ -**	**$(3,800)**	**$ -**	**$ -**	**$ -**

Congestion Revenue Summary – Prevailing Flow

Congestion Revenue Collection

- A single constraint binding in BAA A causes physical congestion across footprint
- 4000 MWs of BAA A generation south of the binding constraint is scheduled to serve 4,000 MWs of BAA A load north of the constraint
  - Generates $(124,000) in net Congestion revenue
- 200 MWs of BAA B Generation was schedule to serve 200 MWs BAA C Load
  - Generates $(6,000) in net Congestion Revenue
    - Includes $(3,000) for 100 MWs of balanced OATT self-schedule energy
- Additional, 200 MWs of BAA B Generation schedule to serve 200 MWS BAA D Load
  - Generates $(5,800) in net Congestion Revenue

Congestion Revenue Distribution Summary – Prevailing Flow

- Distribution of $(135,800) of collected Congestion Revenue
  - Current MCC Distribution Approach:
    - BAA where constraint is modeled
  - Revised Transitional Approach:
    - OATT Congestion is distributed to EDAM Entity of BAA where balanced schedules congestion materialized
      - BAA B receives $1,000 congestion revenue
      - BAA C receives $2,000 congestion revenue
    - Remaining Congestion, $132,800 congestion revenue is distributed to EDAM Entity of BAA where constraint is modeled

Prevailing Flow Marginal Cost Of Congestion Distribution Comparison

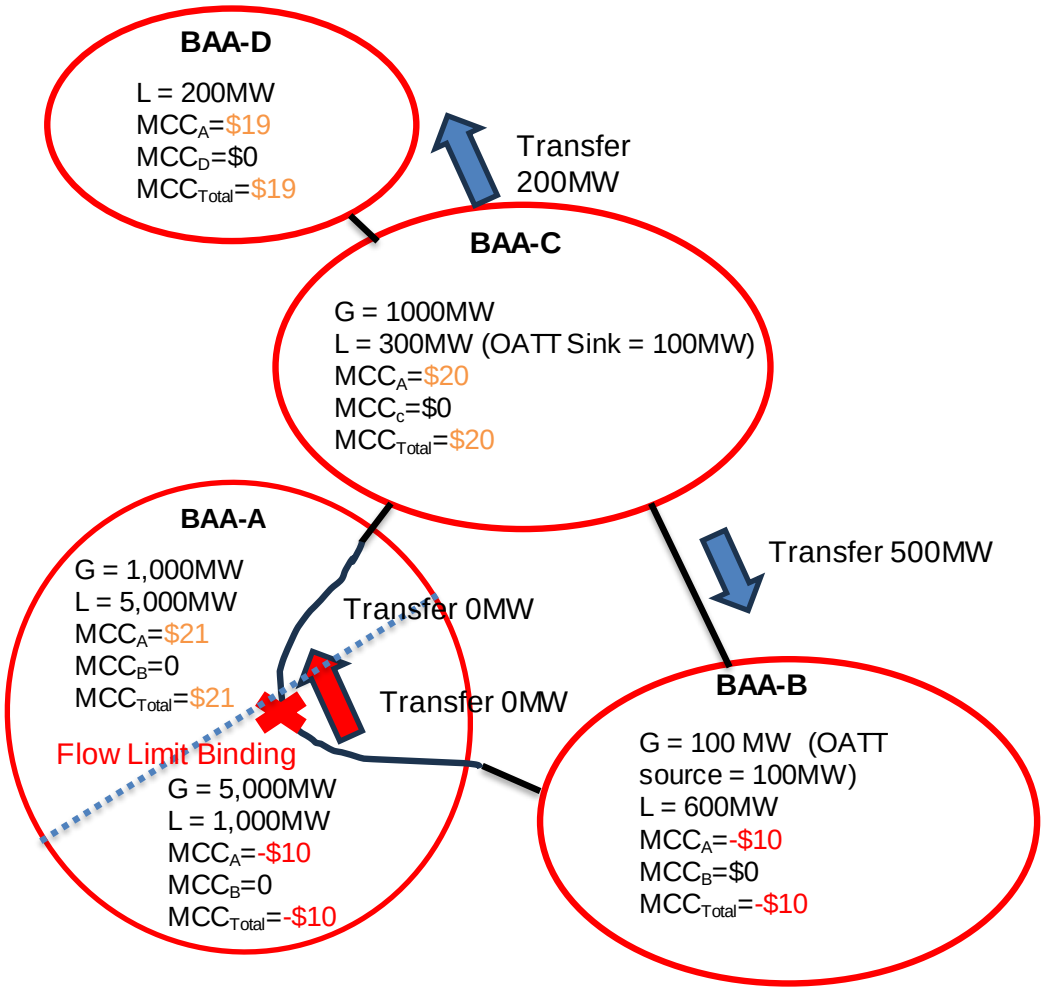
Current EDAM Design Marginal Cost of Congestion Distribution

MCC OFFSET	MCC_T	MCC_A OFFSET	MCC_B OFFSET	MCC_C OFFSET	MCC_D OFFSET
BAA_A MCC Total	$(124,000)	$(124,000)	$ -	$ -	$ -
BAA_B MCC Total	$(4,000)	$(4,000)	$ -	$ -	$ -
BAA_C MCC Total	$(4,000)	$(4,000)	$ -	$ -	$ -
BAA_D MCC Total	$(3,800)	$(3,800)	$ -	$ -	$ -
Overall STLMT	($135,800)	($135,800)	$ -	$ -	$ -
Congestion Allocation	$135,800	$135,800	$ -	$ -	$ -

Refined Alternative Marginal Cost of Congestion Distribution (Draft Final Proposal)

MCC OFFSET	MCC_T	MCC_A OFFSET	MCC_B OFFSET	MCC_C OFFSET	MCC_D OFFSET
BAA_A MCC Total	$(124,000)	$(124,000)	$ -	$ -	$ -
BAA_B MCC Total	$(4,000)	$(3,000)	$(1,000)	$ -	$ -
BAA_C MCC Total	$(4,000)	$(2,000)	$ -	$(2,000)	$ -
BAA_D MCC Total	$(3,800)	$(3,800)	$ -	$ -	$ -
Overall STLMT	($135,800)	($132,800)	$ (1,000)	$(2,000)	$ -
Congestion Allocation	$135,800	$132,800	$1,000	$2,000	$ -

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_N	$(10,000)	$(20,000)	$10,000	$ -	$ -	$ -
	T_{AB}	$ -	$ -	$ -	$ -	$ -	$ -
	T_{AC}	$ -	$ -	$ -	$ -	$ -	$ -
BAA A STLMT		**$(124,000)**	**$ -**	**$(124,000)**	**$ -**	**$ -**	**$ -**
BAA B	G_{OATT}	$1,000	$2,000	$ (1,000)	$ -	$ -	$ -
	G	$ -	$ -	$ -	$ -	$ -	$ -
	L	$(6,000)	$(12,000)	$ 6,000	$ -	$ -	$ -
	T_{AB}	$ -	$ -	$ -	$ -	$ -	$ -
	$T_{BC(OATT)}$	$(2,000)	$(2,000)	$ -	$ -	$ -	$ -
	T_{BC}	$12,000	$12,000	$ -	$ -	$ -	$ -
BAA B STLMT		**$5,000**	**$ -**	**$5,000**	**$ -**	**$ -**	**$ -**
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}	$ -	$ -	$ -	$ -	$ -	$ -
	$T_{BC(OATT)}$	$2,000	$2,000	$ -	$ -	$ -	$ -
	T_{BC}	$(12,000)	$(12,000)	$ -	$ -	$ -	$ -
	T_{CD}	$(4,000)	$(4,000)	$ -	$ -	$ -	$ -
BAA C STLMT		**$14,000**	**$ -**	**$ 14,000**	**$ -**	**$ -**	**$ -**
BAA D	G	$ -	$ -	$ -	$ -	$ -	$ -
	L	$(7,800)	$(4,000)	$(3,800)	$ -	$ -	$ -
	T_{CD}	$4,000	$4,000	$ -	$ -	$ -	$ -
BAA D STLMT		**$(3,800)**	**$ -**	**$(3,800)**	**$ -**	**$ -**	**$ -**

Congestion Revenue Summary – Counter flow

Congestion Revenue Collection

- A single constraint binding in BAA A causes physical congestion across footprint
- 4000 MWs of BAA A Generation in South schedule to serve 4,000 MWs of BAA A Load North
  - Generates $(124,000) in net Congestion revenue
- 100 MWs of BAA B OATT Generation schedule to serve 100 MWs BAA C Load
  - Generates $(3,000) in net Congestion Revenue
- 600 MWs of BAA C Generation schedule to serve 600 MWs BAA B Load
  - Generates $18,000 in net Congestion Rent/Charge
- 200 MWs of BAA C Generation schedule to serve 200 MWs BAA D Load
  - Generates $200 in net Congestion Rent/Charge

Congestion Revenue Distribution Summary – Counter flow

- Distribution of the net $(108,800) collected Congestion Revenue
  - Current MCC Distribution Approach:
    - BAA where constraint is modeled
  - Revised Transitional Approach:
    - OATT Congestion is distributed to EDAM Entity of BAA where balanced schedules congestion materialized:
      - BAA B receives $1,000 congestion revenue
      - BAA C receives $2,000 congestion revenue
    - Remaining Congestion, $105,800 congestion revenue is distributed to EDAM Entity of BAA where constraint is modeled

Congestion Distribution Comparison - Counter flow

Current EDAM Design Marginal Cost of Congestion Distribution

MCC OFFSET	MCC_T	MCC_A OFFSET	MCC_B OFFSET	MCC_C OFFSET	MCC_D OFFSET
BAA_A MCC Total	$(124,000)	$(124,000)	$ -	$ -	$ -
BAA_B MCC Total	$5,000	$5,000	$ -	$ -	$ -
BAA_C MCC Total	$14,000	$14,000	$ -	$ -	$ -
BAA_D MCC Total	$(3,800)	$(3,800)	$ -	$ -	$ -
Overall STLMT	($108,800)	$(108,800)	$ -	$ -	$ -
Congestion Allocation	$108,800	$108,800	$ -	$ -	$ -

Refined Alternative Marginal Cost of Congestion Distribution (Draft Final Proposal)

MCC OFFSET	MCC_T	MCC_A OFFSET	MCC_B OFFSET	MCC_C OFFSET	MCC_D OFFSET
BAA_A MCC Total	$(124,000)	$(124,000)	$ -	$ -	$ -
BAA_B MCC Total	$5,000	$6,000	$(1,000)	$ -	$ -
BAA_C MCC Total	$14,000	$16,000	$ -	$(2,000)	$ -
BAA_D MCC Total	$(3,800)	$(3,800)	$ -	$ -	$ -
Overall STLMT	($108,800)	$(108,800)	$(1,000)	$(2,000)	$ -
Congestion Allocation	$108,800	$105,800	$1,000	$2,000	$ -