



# Market Efficiency

RPPTF  
December 7, 2012

**Existing Market Efficiency Production Costs definition:** *Estimated total annual fuel costs, variable O&M costs, and emission costs of the dispatched resources in the PJM Region.*

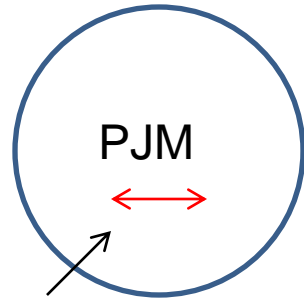
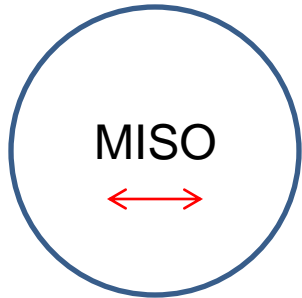
- Does not allow for capturing impact of PJM sale and purchase transactions with outside areas.
  - Language developed before Market to Market became a factor.
  - Congestion on borders accounted for 33% of congested hours in 2011.
- PJM and MISO have independent commitment and dispatch in existing Market Efficiency runs.
  - Flow from MISO area does create loop flow on PJM area but actual purchases and sales are not represented.
  - Approach results in good representation of congestion but could be better.

**Proposed Market Efficiency Production Costs definition:** *Estimated total annual fuel costs, variable O&M costs, and emission costs of the dispatched resources in the PJM Region. **Costs for purchases from outside of the PJM area and sales to outside the PJM area will be captured if appropriate. Purchases will be valued at the Load Weighted LMP and sales will be valued at the Generation Weighted LMP.***

- Allows for a better representation of actual conditions.
  - Congestion on borders accounted for 33% of congested hours in 2011.
- Aligns with Interregional Planning and joint PJM/MISO analysis.
- Transactions will only be modeled with external areas if it gives best representation in base line analysis.

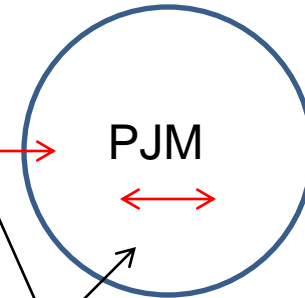
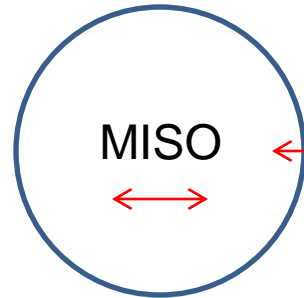
# Market Efficiency Modeling (PJM/MISO)

Existing



Production Costs =  
Production costs from PJM  
dispatched resources only

Proposed



Production Costs =  
Production costs from PJM  
dispatched resources and  
pool to pool transactions (if modeled)



# Market Efficiency Design Matrix

Design Criteria		Current	Package 1 - Status Quo	Package 2 - Same as Package 1 but with regional for zones with decreased net load/capacity payments	Package 3	Package 4	Package 5 - Same as Package 4 but with regional for zones with decreased net load/capacity payments	Package 6 - Benefit determination use Production/Capacity costs only (MISO method)
1	Benefit Determination: Regional Project	Total Benefit= Energy + Capacity Benefit						
		Energy Benefit: 70% change in production costs + 30% change in net load payments all zones	Energy Benefit: 70% change in production costs + 30% change in net load payments(only zones with decrease in net load payments)	Energy Benefit: 70% change in production costs + 15% change in net load payments all zones +15% change in net load payments (only zones with decrease in net load payments)	Energy Benefit: 50% change in production costs + 50% change in net load payments	Energy Benefit: 50% change in production costs + 50% change in net load payments (only zones with decrease in net load payments)	Energy Benefit: 100% change in production costs	
		Capacity Benefit: 70% change in capacity costs + 30% change in net capacity payments all zones	Capacity Benefit: 70% change in capacity costs + 30% change in net capacity payments (only zones with decrease in net capacity payments)	Capacity Benefit: 70% change in capacity costs + 15% change in net capacity payments all zones +15% change in net capacity payments (only zones with decrease in net capacity payments)	Capacity Benefit: 50% change in capacity costs + 50% change in net capacity payments	Capacity Benefit: 50% change in capacity costs + 50% change in net capacity payments (only zones with decrease in net capacity payments)	Capacity Benefit: 100% change in capacity costs	
2	Benefit Determination: Lower Voltage Project	Total Benefit= Energy + Capacity Benefit						
		Energy Benefit: 70% change in production costs + 30% change in net load payments(only zones with decrease in net load payments)			Energy Benefit: 50% change in production costs + 50% change in net load payments(only zones with decrease in net load payments)		Energy Benefit: 100% change in production costs	
		Capacity Benefit: 70% change in capacity costs + 30% change in net capacity payments (only zones with decrease in net capacity payments)			Capacity Benefit: 50% change in capacity costs + 50% change in net capacity payments (only zones with decrease in net capacity payments)		Capacity Benefit: 100% change in capacity costs	
3	Cost Allocation - Regional Project	Load Ratio Share	50% Load Ratio Share and 50% to zones with decreased net load payments					
4	Cost Allocation - Lower Voltage Project	100% to zones with decreased net load payments						

## Other Design Criteria

		Status Quo	B	C	D
5	Generation Expansion	Include all ISA. Scale existing units based on location and technology to meet Reserve Requirement	Include all ISA and FSA. Scale existing units based on location and technology to meet Reserve Requirement	Include all ISA and FSA. Add units on HV system based on location and technology to meet Reserve Requirement.	Include actual transmission upgrades for congestion that arises from scaling assumptions.