



# Joint Common Market

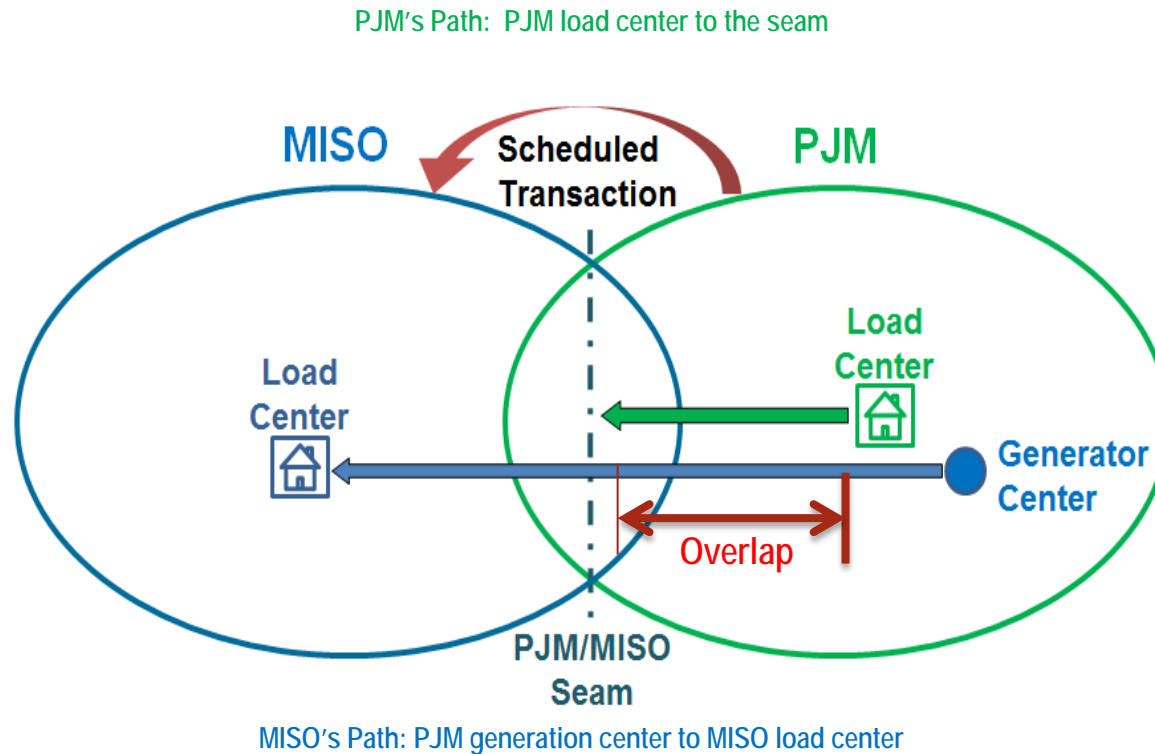
MISO-PJM Interface Pricing Update



# Outline

- Interface Pricing Issue Description
- Key Takeaways
- Solution Options and Analysis Efforts
- Observations
- Next Steps

# Issue Statement



The overlap leads to

- Duplicative congestion incentive for the transaction
- Revenue imbalance leading to uplift costs

# Issue Statement

- This modeling overlap causes two main issues
  - Duplicative settlement with the transaction (over & under payment)
  - Revenue imbalance (congestion collected versus congestion payment)
- There are potential unintended consequences
  - Price volatility on M2M constraints will create uncertainties for Market participants to schedule efficient transactions
  - Price efficiency on Non-M2M constraints

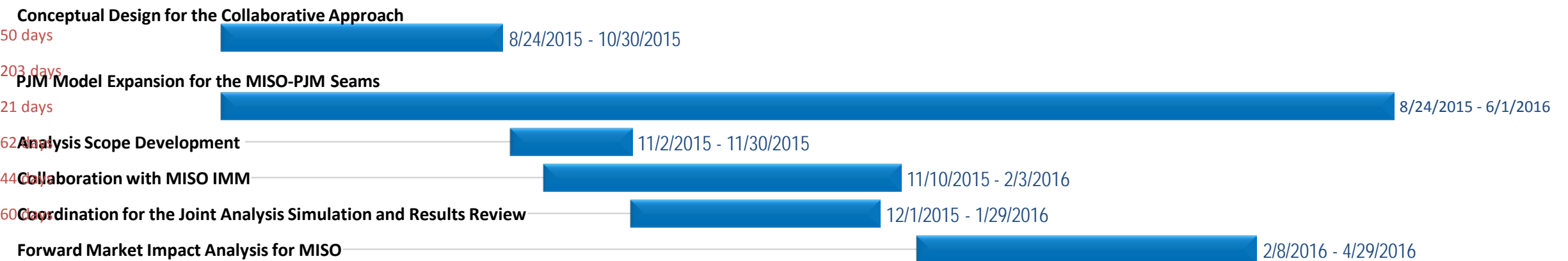
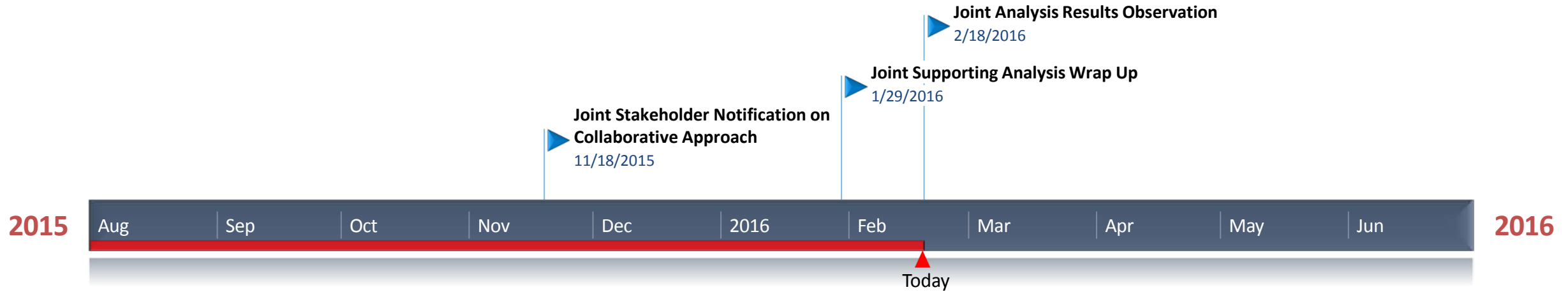
# Key Takeaways

- Since August 2015, MISO and PJM have been working towards a collaborative approach for interface pricing
  - Benchmarked the effectiveness of a collaborative approach using a marginal zone baseline and other possible solutions
  - Results prove that the common interface method has merit to resolve the interface pricing issues
  - MISO IMM's Incremental Approach appears to have adverse impact on PJM M2M constraints
  - Additional analysis is needed for MISO to fully evaluate the impacts to the DA and FTR markets
- MISO and PJM will remain status quo in the short term and will develop long-term recommendation after the analysis is completed

# Interface Pricing Solution Proposals

| Benchmark  | MISO IMM's Original Proposal  | PJM's Original Proposal   | Collaborative Approach  | Modified Collaborative Approach  | MISO IMM's MISO Incremental Proposal  |
|--|---|---|---|--|---|
| <p>Marginal Zone to Marginal Zone approach</p> <p>Weighted shadow prices are used from both MISO and PJM based on historical price convergence statistics</p> <p>See Appendix for Marginal Zone definition</p> | <p>Centroid to Centroid Approach</p> <p>NMRTO excludes transaction's impact on the constraint</p> | <p>10 bus common interface definition</p> <p>Commercial flow proposal</p> | <p>50 bus &amp; 10 bus common interface definition</p> <p>Modify FTR and DA limits, if needed, to reflect transaction's impact</p> <p>PJM's commitment for modeling expansion</p> | <p>10 bus common interface definition for M2M constraints and PJM Non M2M constraints</p> <p>MISO adopts centroid to centroid interface definition for MISO Non M2M constraints</p> <p>Modify FTR and DA limits, if needed, to reflect transaction's impact</p> <p>PJM's commitment for modeling expansion</p> | <p>MISO adopts centroid to centroid interface definition</p> <p>MISO excludes transaction's impact on PJM constraints</p> <p>PJM preserves 10 bus common interface definition</p> |

# MISO-PJM Collaboration Timelines



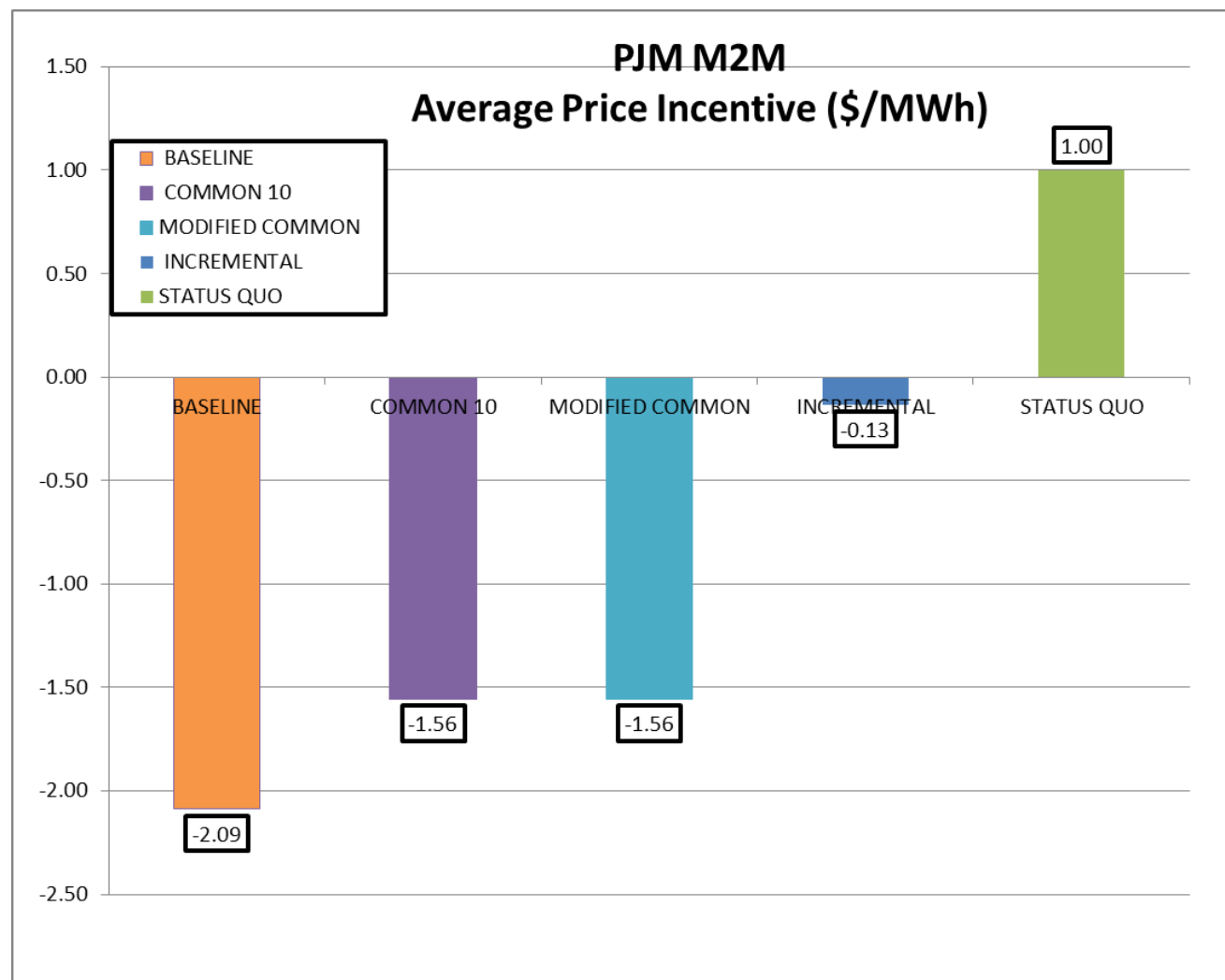
# Overview of the MISO-PJM Coordinated Analysis

- Purpose
  - Establish baseline
  - Accurately evaluate price efficiency for the alternative approaches
  
- Process
  - **Baseline Development**
    - Use December 2015 data to derive baselines for all constraint classes in terms of shift factors and price incentives
    - Used Marginal zone approach; Marginal zone is the weighted group of zones with respect to their contribution to the next marginal MW between MISO and PJM
  - **Shift Factor Evaluation Analysis**
    - Reconstruct shift factor of each solution proposals
    - Evaluate shift factor impact for all MISO and PJM constraints against the shift factor baseline
  - **Price Impact Analysis**
    - Merge historical shadow price data with the reconstructed shift factor data for each solution proposals
    - Evaluate price impact for all MISO and PJM constraints against the price baseline



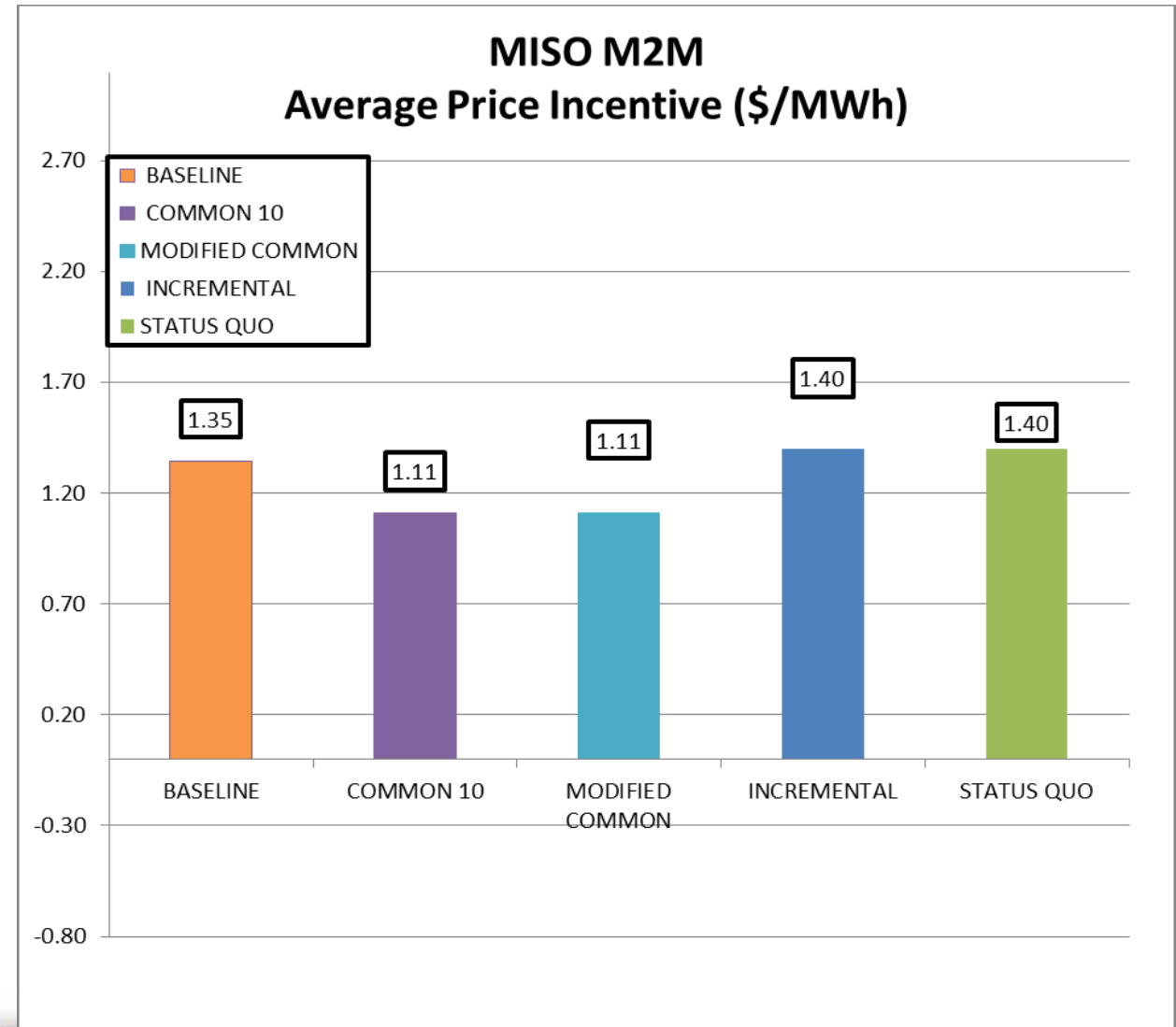
# Price Incentive Performance by Constraint Class

- Status quo is providing incentive in the wrong direction
- MISO Incremental is only accounting for half the incentive
- Collaborative/Modified approaches are providing a close incentive to the baseline



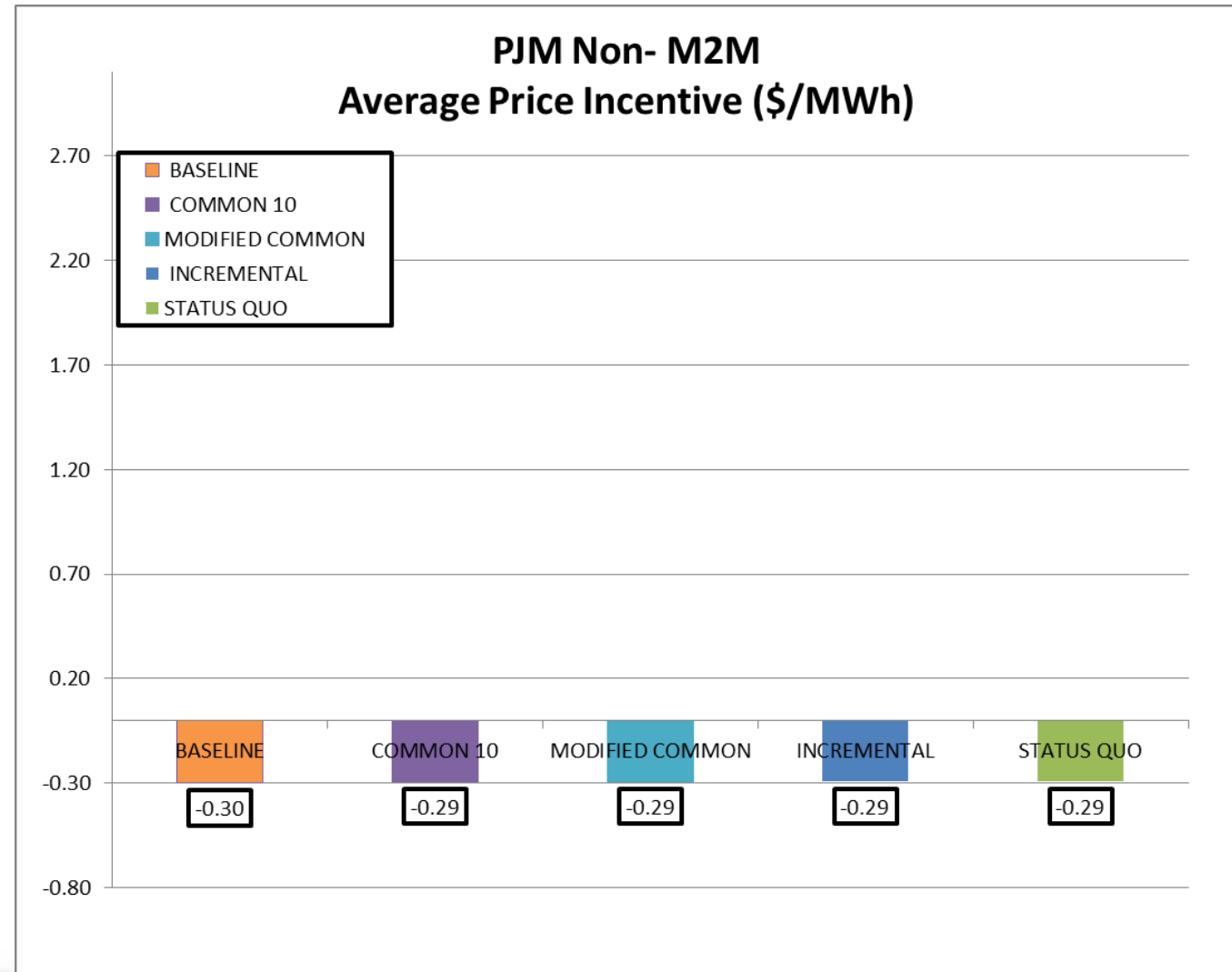
# Price Incentive Performance by Constraint Class

- MISO IMM's Incremental Approach retains the overlap in modeling, and thus does not mitigate the over incentivizing issue



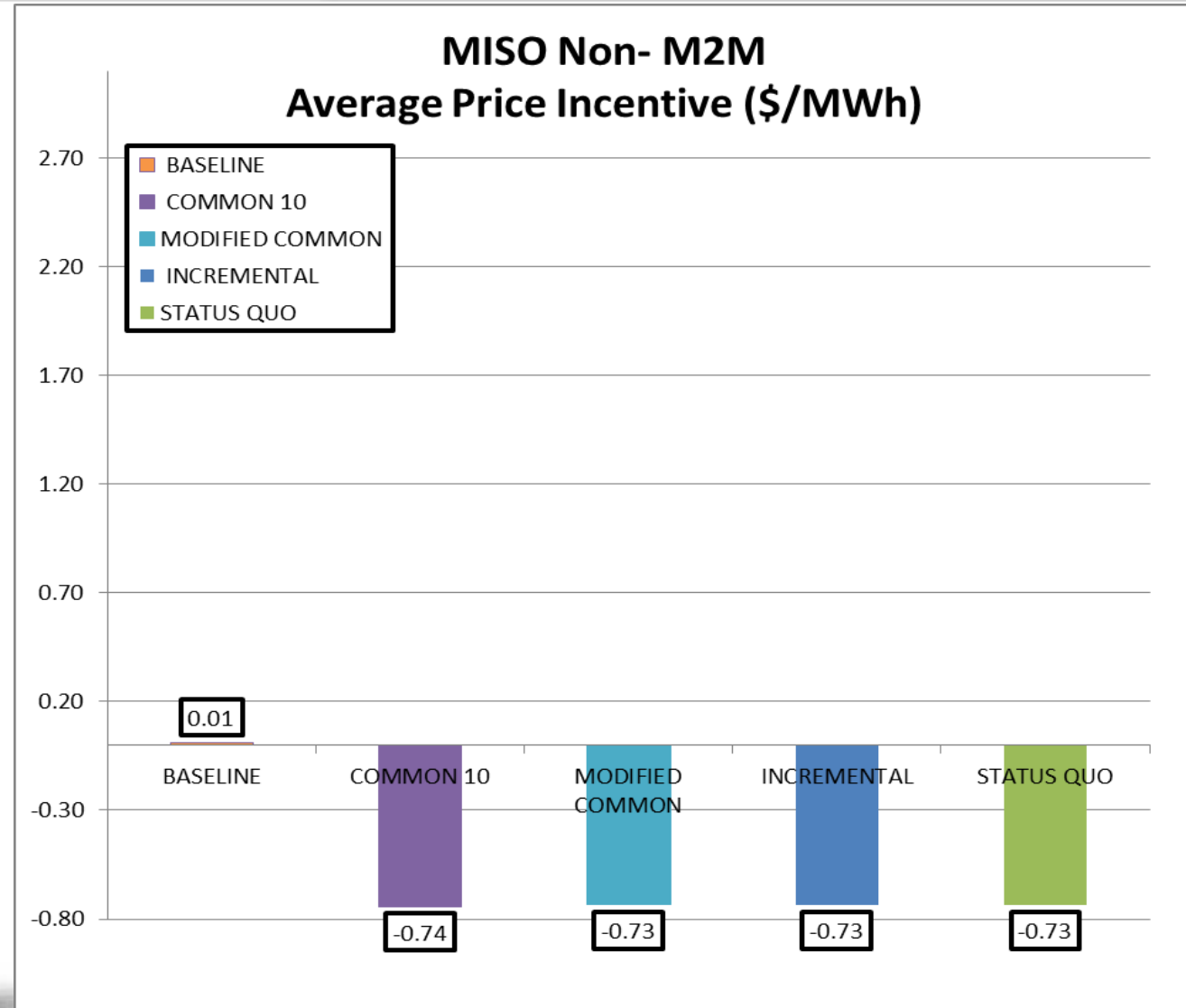
# Price Incentive Performance by Constraint Class

- No proposal shows large price incentives
- All proposed solutions provide similar incentives to the baseline



# Price Incentive Performance by Constraint Class

- All proposed solutions provide similar incentives and deltas from the baseline incentive



# Next Steps

- Perform the additional analysis
  - Expand price incentive analysis to 2015
  - Evaluate additional market impacts
- Coordinate and exchange results with MISO  
IMM
- Develop recommendation and provide update

# Contact Information

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# APPENDIX



# History

