



Joint and Common Market

4. B – APPLICATION OF FIRM FLOW ENTITLEMENTS AND TRANSMISSION OUTAGES IN FORWARD PROCESSES

FFE IN FORWARD PROCESSES

- Both the Financial Transmission Right (FTR) and Day-Ahead (DA) Market use Entitlement based limits
 - Market limits based upon FFE estimate in DA and FTR
- Real-Time (RT) Market approach is based upon economic dispatch (Market-to-Market) or relief obligations from the IDC
 - DA uses an estimate of the Firm Flow Entitlements that are ultimately settled based upon RT dispatch/binding
 - Joint Operating Agreement (JOA) settlement based upon difference between FFE and calculated Market Flow (MF)
 - Both Credits and Charges impact Revenue Neutrality Uplift (RNU) charge type

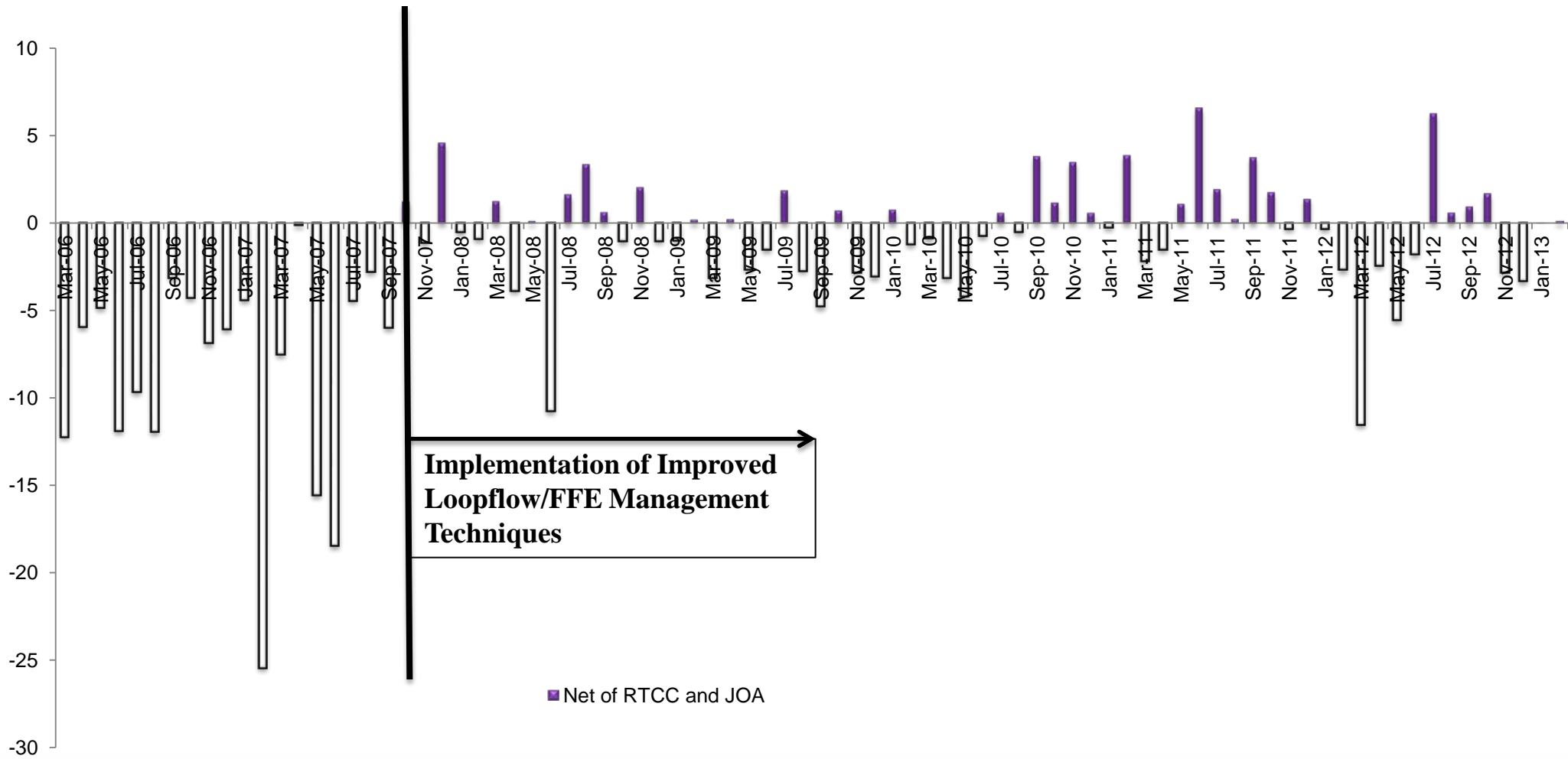
FORWARD MARKET LIMITS FOR M2M FLOWGATES

- Limit approach prescribed in E & OR tariff - Rate Schedule No. 5
 - Attachment 3 – Interregional Coordination Process, Section 4 - Day-Ahead Energy Market Coordination
- External M2M constraints limits
 - $FFE_{\text{Non-Monitoring RTO (NMRTO)}}$
- Internal M2M constraints limits
 - $FG \text{ Limit } \textit{minus} FFE_{\text{NMRTO}} \textit{ minus} LoopFlow_{\text{Non-JOA-parties}}$

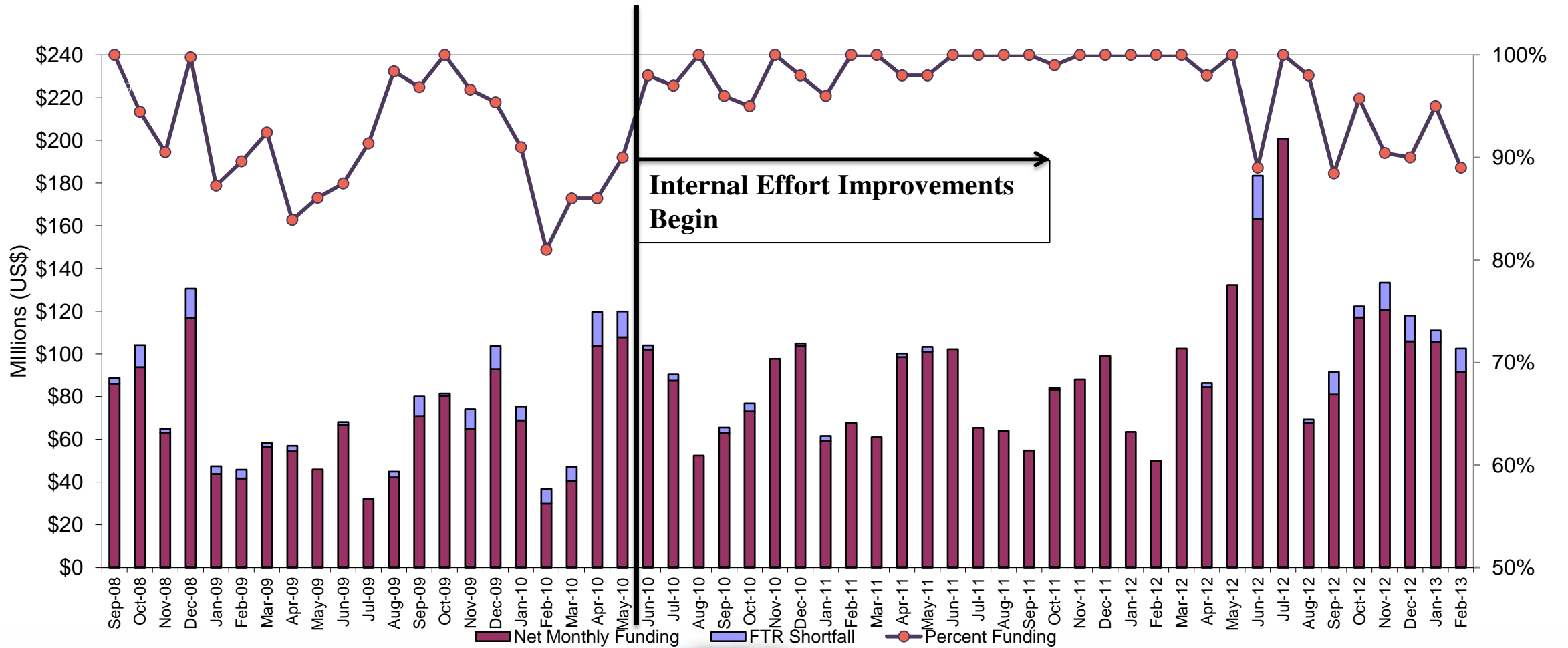
FTR, DA AND RT MARKETS

- RT Excess Congestion Fund (ECF)
 - Results from the differences between DA and RT positions when RT is binding
- FTR Funding shortfall
 - Results from the difference between FTR and DA positions when DA is binding
- Flow differences between markets are due to:
 - Topology Differences (planned vs. actual outages)
 - Sensitivity Cutoff differences (FTR = 0%, DA = 1.5%)
 - Constraint modeling (Limits, monitored elements, FFEs)
 - Loop flow modeling/assumption differences

Excess Congestion Fund Performance (MISO)



FTR Funding Performance (MISO)



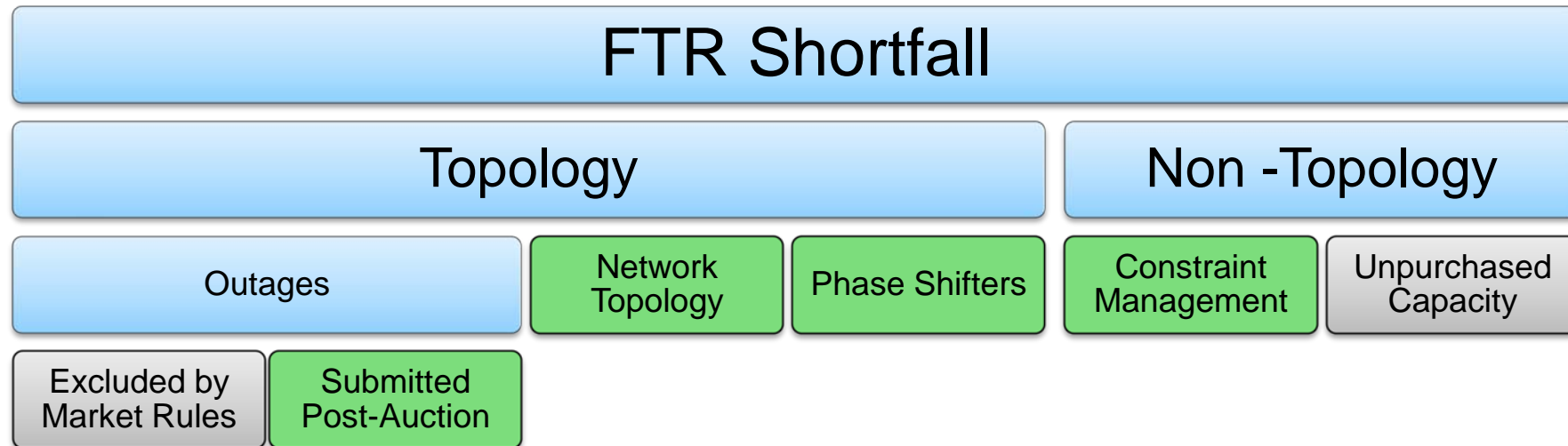
FTR FUNDING (MISO)

- MISO's FTR Market funding was less than 90% between 2008 and mid- 2010
- Several actions led to improvements of FTR Shortfall:
 - Modeling of Real Time and Day Ahead Transmission constraints into FTR Market
 - Improved modeling assumptions
 - Transmission outage inclusion criteria
- Process improvements/efficiencies implemented

Internal Analysis Improvements (MISO)

Actionable vs. Market Bias

Determined which categories could be directly improved without market changes



Lessons Learned

- Forward markets should strive to converge with the real-time market
- High level of communication and coordination between the FTR, DA, and RT groups is required
- Investing time on internal analysis and process improvement was essential

Questions



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