



MISO

Capacity Deliverability
Fact Finding 2 Update
MISO-PJM JCM
March 21st, 2014

Executive Summary

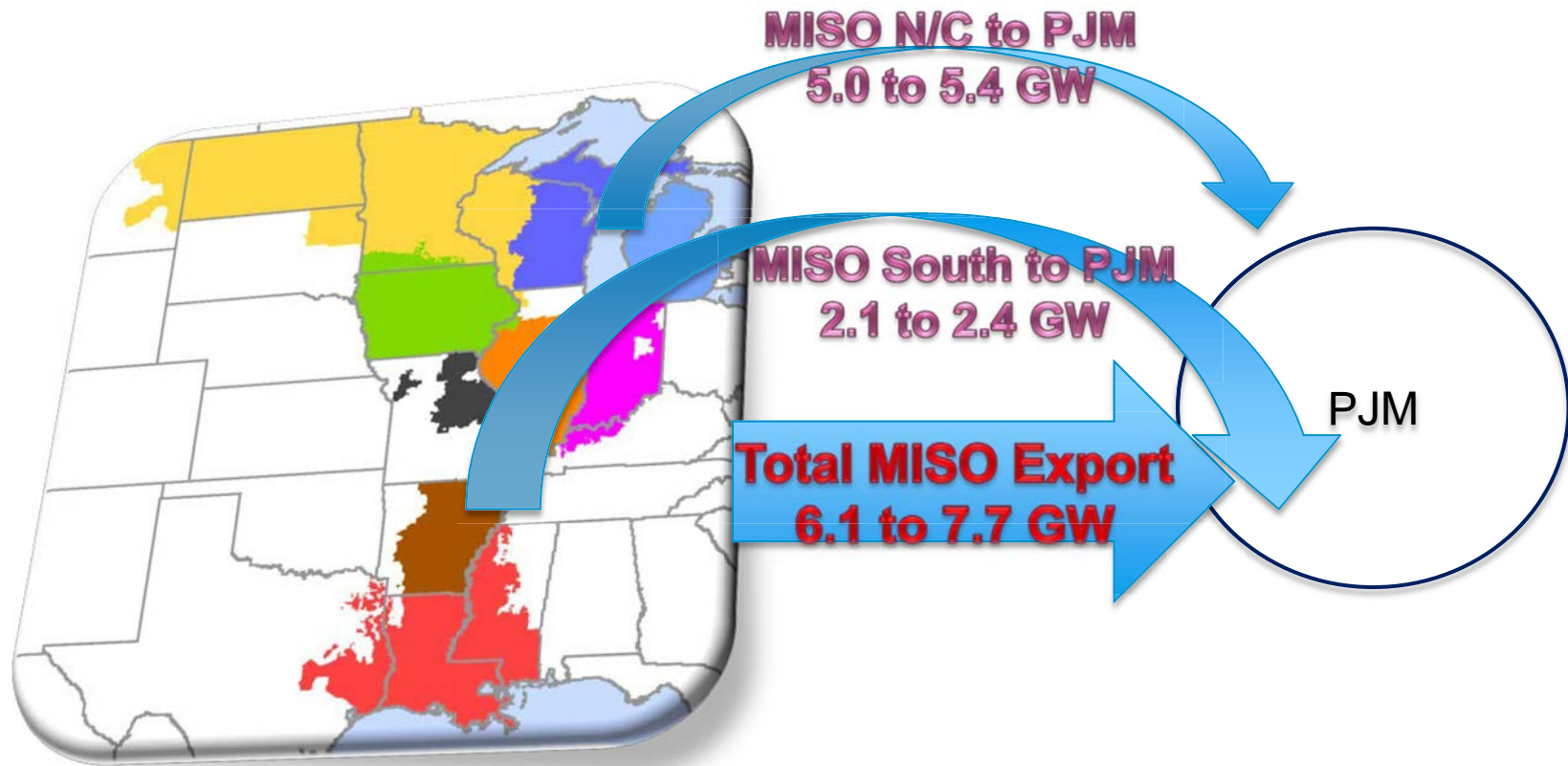
- MISO is on schedule to complete Fact Finding 2 as filed with FERC
- Results show: 6.1 to 7.7 GW export capability from MISO to PJM and 10.2 to 14.3 imports into MISO from PJM.
 - PJM Import limits from MISO calculated by PJM currently higher than MISO calculated Export Limits
 - Higher limits primarily driven by updated PJM load modeling
 - MISO in process of coordinating with PJM on modeling updates and will be conducting sensitivity transfer analysis with updated models
 - MISO expects export capability to increase with PJM modeling update from non-diversified to diversified peak load.
- Results are encouraging for Resource Adequacy – informs additional transmission availability between two RTOs
- Results targeted for completion by end of March

Background

- Scope of Fact Findings:
 - Fact Finding 1 - Determine MISO-PJM Joint Deliverability
 - Fact Finding 2 – Determine Transmission Import and Export Limits
- Generation and transmission limits, as determined in Fact Findings 1 and 2 are intended to be used in conjunction to:
 - Inform potential import and export capability between the two systems
 - Qualify as Planning Resources in Resource Adequacy Auction
- Overall mission to identify pros and cons of improving current construct – additional process step evaluating transmission availability through point to point TSR analysis conducted in both RTOs
- The final report being delivered will include findings as well as whether additional work is needed

MISO Exports

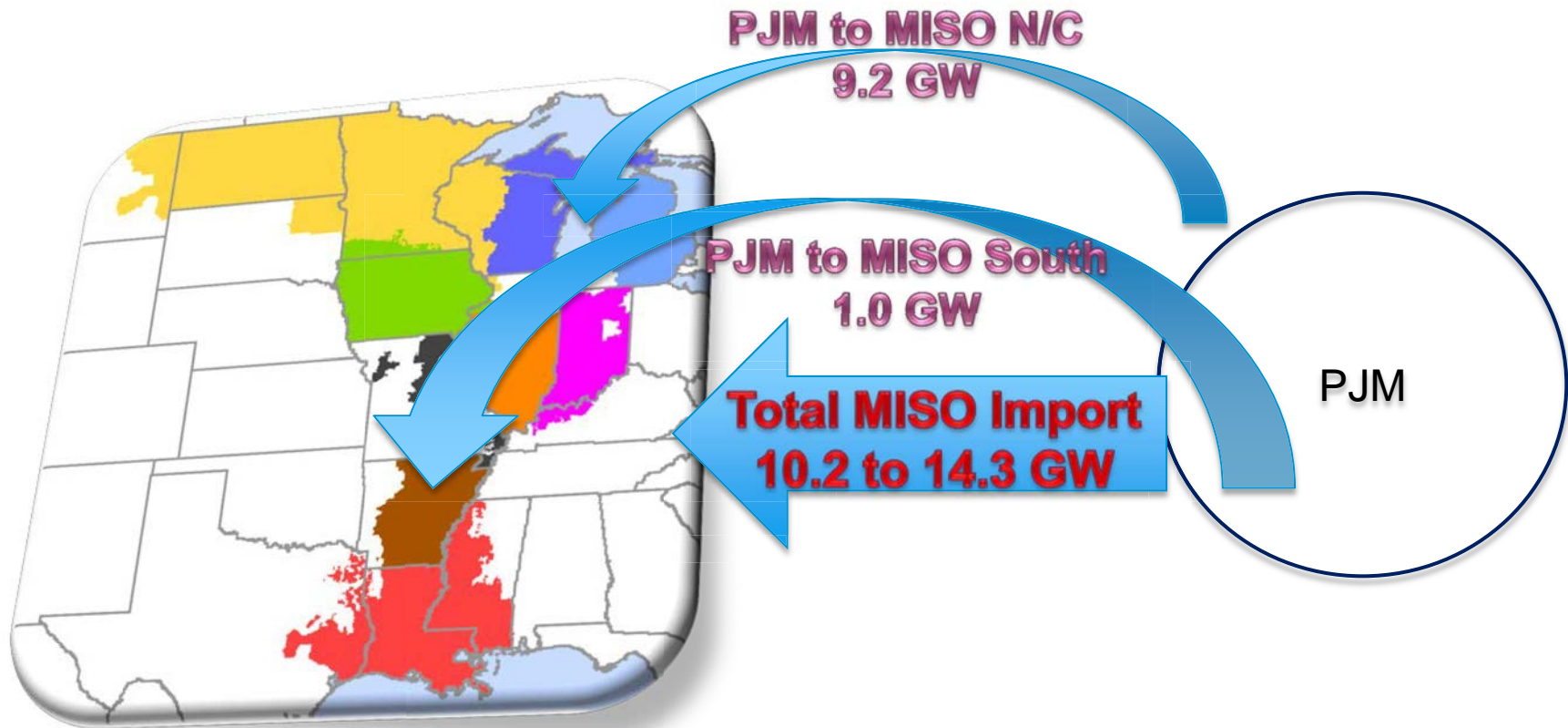
- The range of limits under multiple scenarios, all indicate export availability above current firm sales
- These results correspond to PJM Import Limits from MISO



Note: These export limit calculations based on FF1 models contains PJM “non-diversified” load representation. (PJM’s internal analysis of CILs contains “diversified” loads – net PJM load reduction of over 11 GWs). It is expected that MISO-calculated Export Limits would increase with the same modeling changes applied to this study.

MISO Imports

The range of limits under multiple scenarios, all indicate import availability above current firm purchases

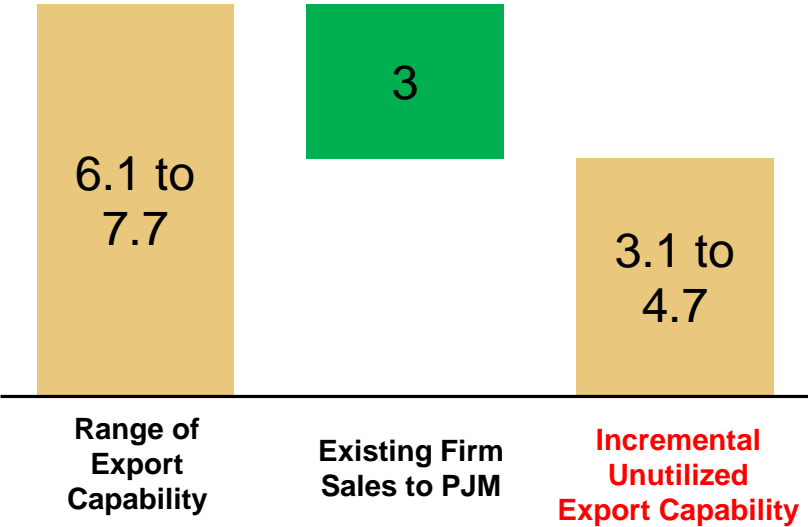


Method used to Establish Limits

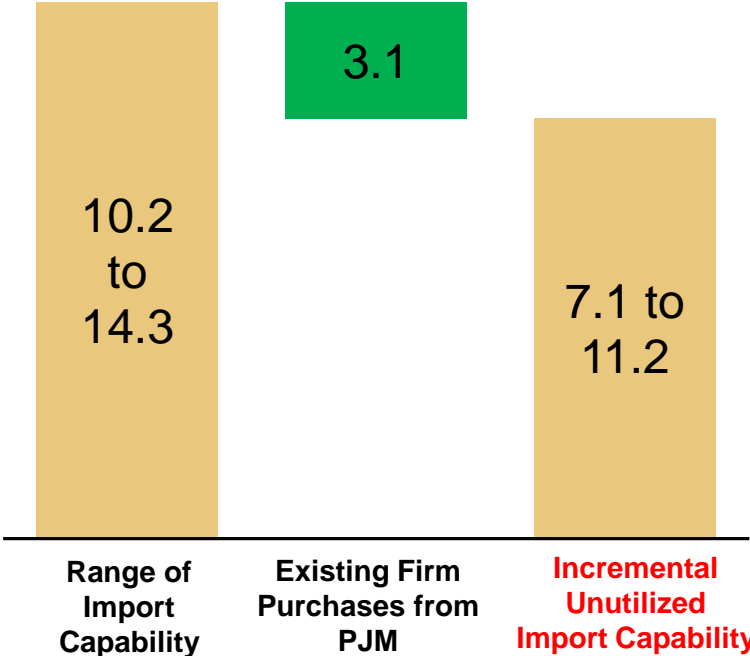
- Import and Export transfer calculations establish “total” limits - all transactions between MISO and PJM removed from Fact Finding 1 base case
- Range is a consequence of transfer modeling between either aggregate MISO or individual MISO Local Resource Zones to either aggregate PJM or to PJM Western Deliverability Area
 - MISO export limits:
 - Highest limit is derived from exporting to PJM Western Region Local Deliverability Area (LDA) from individual MISO Local Resource Zones with tie lines with PJM
 - Lowest MISO export limit is derived from exporting to aggregate PJM system from aggregate MISO system
 - MISO import limits:
 - Highest MISO import limit is derived from importing from aggregate PJM region into individual MISO Local Resource Zones with tie lines with PJM
 - Lowest MISO import limit is derived from importing from aggregate PJM system into aggregate MISO system

Transmission availability above firm levels is materially significant

Exports above existing firm (GW)



Imports above existing firm (GW)

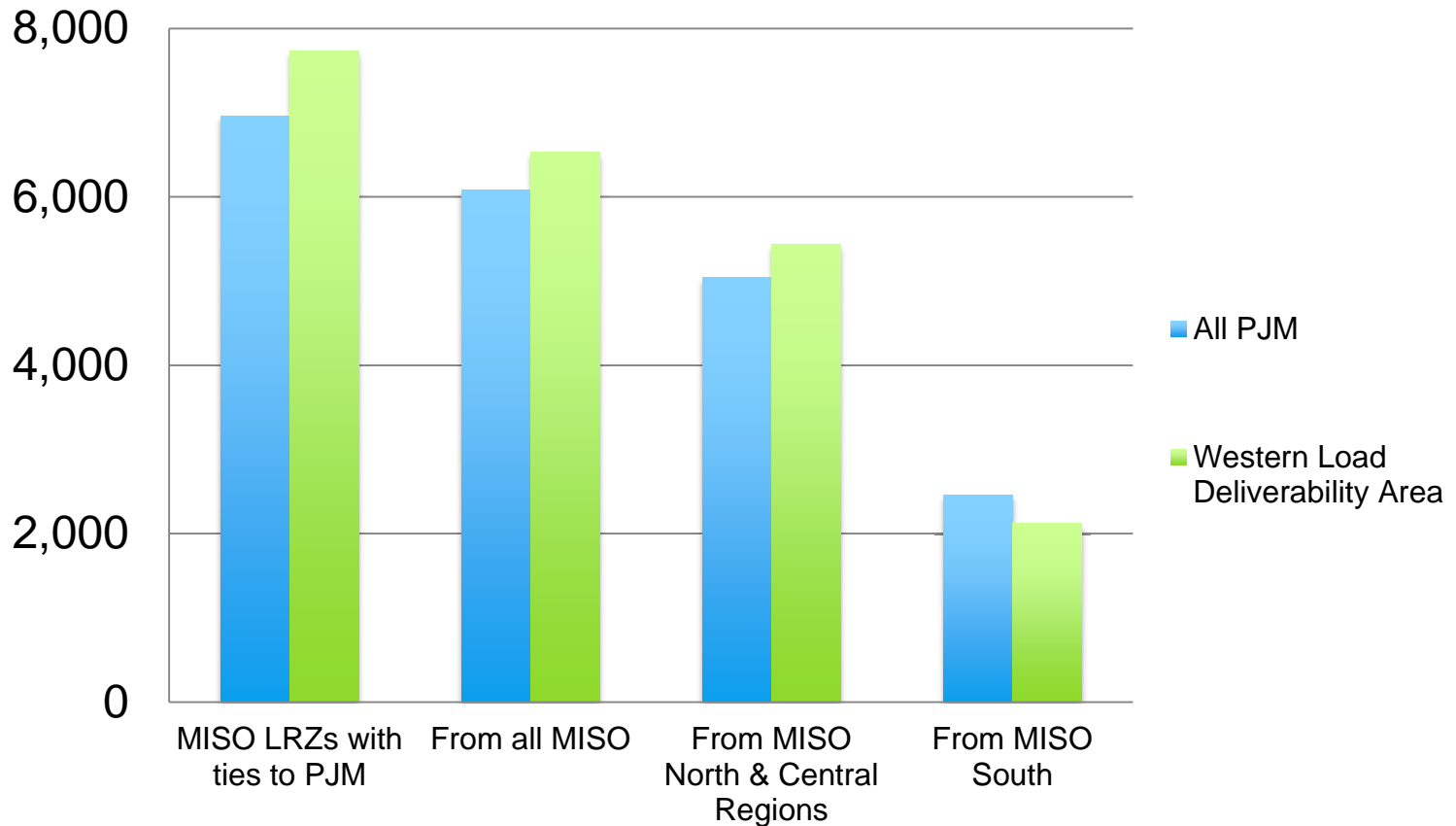


Potential MISO's Resource Adequacy Construct Improvements

- MISO will engage stakeholders to consider potential improvements to its resource adequacy construct to consider the results of this analysis
- Potential Improvements include:
 - Creating an External Local Resource Zone
 - Establishing a Capacity Export Limit out of the zone
 - Considering existing Firm reservations amongst External Zone Resource qualification
 - Using calculated Capacity Export transmission limit as an input into Loss of Load Expectation studies to derive Capacity Benefit Margin (CBM) in establishing Planning Reserve Requirement
- MISO is targeting improvements for 2015/16 Planning Year

Appendix

MISO Export Capability Range - Details



MISO Import Capability Range - Details

