

MISO/PJM Joint Stakeholder Meeting

**The Westin O'Hare
Rosemont, IL 60018
November 30, 2012**

MISO/PJM CBM Application to Tariff Service

Used

- **Transmission Service**
 - CBM decremented from Flowgate rating including Firm AFC. Not applied to Non-Firm AFC
 - Prevents selling into reliability margin
 - Limited to term where AFCs are calculated

Not Used

- **Gen Interconnection**
 - Counter-intuitive to restrict generation addition to protect margin for generation import
- **Deliverability**
 - Subset of Interconnection tests
 - Same philosophy applies

MISO CBM

- Capacity Benefit Margin – The amount of firm transmission transfer capability preserved by the TSP for LSEs whose loads are located on that TSP’s system to meet firm load obligations during a capacity emergency (*i.e. concurrent loss of multiple generators*)
- CBM updates performed min twice a year (summer & winter)
- Application:
 - MISO uses Flowgate methodology to calculate AFC values and evaluate TSRs.
 - CBM values are calculated in MWs for each Flowgate & decremented from the Total Flowgate Capability used for firm AFC
 - Utilized via declaration of NERC Energy Emergency Alert

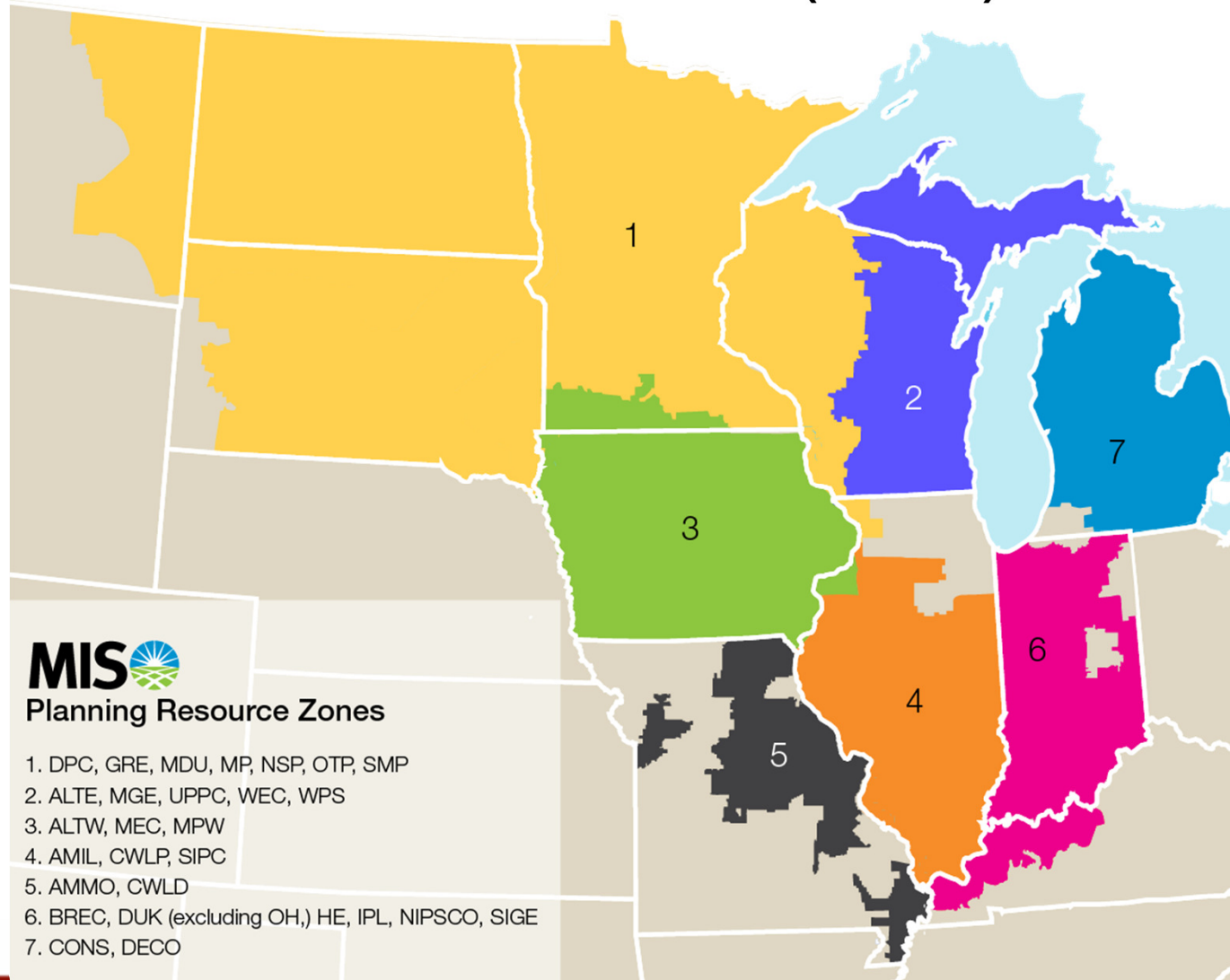
MISO CBM

- CBM established through a LOLE study
 - A Generation Capacity Import Requirement (GCIR) is determined for each MISO CBM study area based on a LOLE study. (*GCIR is the amount of generation capacity from sources external to a CBM study zone to meet its resource adequacy requirements as an alternative to internal resources*)
 - The CBM for each Flowgate is determined by performing a power transfer analysis for each study area that has an import requirement (positive GCIR) to meet its LOLE requirement.
 - The largest incremental impact on a Flowgate from these transfers becomes the initial CBM for this Flowgate
 - The incremental amount of CBM that is needed above the TRM (ARS component) will be preserved as CBM on that Flowgate

Reference MISO Capacity Benefit Margin Implementation Doc TP-PL-003

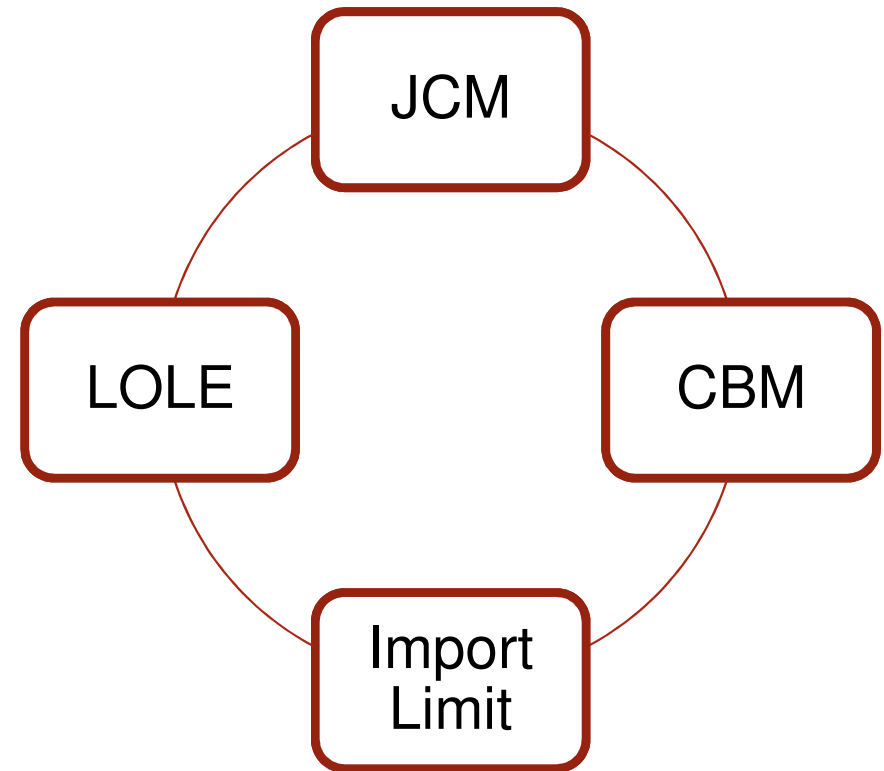
MISO CBM

- Local Resource Zones (LRZ)



LOLE – CBM Link

- CBM is an input to Transmission Service Request process.
- Import Limit is an input to CBM.
- Import Limits are calculated in LOLE process.
- *Next step – MISO ongoing efforts to review LOLE calculations to improve market efficiency in areas of reserve margin & future capacity aspects of JCM*



MISO Models

- Generators and Load
- Treat internal Zones
- Dynamic External Tie Usage
- CBM not a factor in:
 - LOLE
 - Expansion Planning
 - RT market (except for in-out TS)
 - 'End stage' of NERC Emergency Operating Procedures

MISO LOLE Modeling

MISO LOLE model dynamically determines use of external ties, the drivers are:

- Known transfer limits in and out of an RTO from the energy market history
- The level of RTO firm import and export transactions modeled. This is similar to tracking ATC in TSR

Proposed Technical Approach

- Proof of the Concept – MISO to calculate the planning reserve margin (PRM) for MISO & PJM including sensitivities
- Carve out PJM in more detail in MISO's model by modeling systems external to PJM; same dynamic external tie method used to model systems external to MISO
- Model a joint MISO-PJM RTO with an external using the dynamic MISO external modeling method

Next Steps:

- JCM Modeling Diagrams are available for future discussion and explanation
- SME can return and explain similar to that presented at MISO LOLEWG September 12, 2012 Item 06:

<https://www.misoenergy.org/Library/Repository/Meeting%20Material/Stakeholder/LOLEWG/2012/20120912/20120912%20LOLEWG%20Item%2006%20JCM%20Seams.pdf>