2.2 Definitions.

Any undefined, capitalized terms used in this Agreement shall have the meaning given under industry custom and, where applicable, in accordance with good utility practices.

2.2.1 "a & b multipliers"

"a & b Multipliers" shall mean the multipliers that are applied to TRM in the planning horizon and in the operating horizon to determine non-firm AFC. The "a" multiplier is applied to TRM in the planning horizon to determine non-firm AFC. The "b" multiplier is applied to TRM in the operating horizon to determine non-firm AFC. The "a & b" multipliers can vary between 0 and 1, inclusive. They are determined by individual transmission providers based on network reliability considerations.

2.2.2 "Affected System"

Affected System shall mean the electric system of the Party other than the Party to which a request for interconnection or long-term firm delivery service is made and that may be affected by the proposed service.

2.2.3 "Agreement"

Agreement shall mean this document, as amended from time to time, including all attachments, appendices, and schedules.

2.2.4 "American Electric Power"

American Electric Power shall mean the American Electric Power Company.

2.2.5 "Available Flowgate Capability"

Available Flowgate Capability shall mean the rating of the applicable Flowgate less the projected loading across the applicable Flowgate less TRM and CBM. The firm AFC is calculated with only the appropriate Firm Transmission Service reservations (or interchange schedules) in the model, including recognition of all roll-over Transmission Service rights. Non-firm AFC is determined with appropriate firm and non-firm reservations (or interchange schedules) modeled.

2.2.6 "Balancing Authority"

Balancing Authority shall mean the responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports interconnection frequency in real-time. For MISO references to a BA may be applicable to a BA and/or an LBA.

2.2.7 "Balancing Authority Area"

Balancing Authority Area shall mean the collection of generation, transmission, and loads within the metered boundaries of the BA. The BA maintains load-resource balance within this area. For MISO references to a BAA may be applicable to a BAA and/or an LBAA.

2.2.8 "Bulk Electric System"
Bulk Electric System shall mean the electrical generation resources, transmission lines, interconnections with neighboring systems, and associated equipment, generally operated at voltages of 100 kV or higher. Radial transmission facilities serving load with only one transmission source are generally not included in this definition.

2.2.9 "Commonwealth Edison"
Commonwealth Edison shall mean the Commonwealth Edison Company.

2.2.10 "Confidential Information"
Confidential Information shall have the meaning stated in Section 18.1.1.

2.2.11 "Congestion Management Process"
Congestion Management Process means that document incorporated herein as Attachment 2 to this Agreement hereto as it exists on the Effective Date and as it may be amended or revised from time to time.

2.2.12 "Coordinated Flowgate"
Coordinated Flowgate shall mean a Flowgate impacted by an Operating Entity as determined by one of the ~~four~~ five studies detailed in Section 3 of the attached document entitled "Congestion Management Process." For a Market-Based Operating Entity, these Flowgates will be subject to the requirements under the Congestion Management portion of the Congestion Management Process (Sections 4 and 5). A Coordinated Flowgate may be under the operational control of a Third Party.

2.2.13 "Coordinated Operations"
Coordinated Operations means all activities that will be undertaken by the Parties pursuant to this Agreement.

2.2.14 "Coordinated System Plan"
Coordinated System Plan shall have the meaning stated in Section 9.3.7.

2.2.14.a "Cross-Border Baseline Reliability Project"
Cross-Border baseline Reliability Project shall have the meaning stated in Section 9.4.4.1.1.

2.2.14.b "Cross-Border Market Efficiency Project"
Cross-Border Market Efficiency Project shall have the meaning stated in Section 9.4.4.1.2.

2.2.15 "Cross-Border Grandfathered Projects"
Cross Border Grandfathered Projects shall mean the Cross-Border Grandfathered Projects document incorporated herein as Attachment 4 to this Agreement, hereto as it exists on the Effective Date and as it may be amended or revised from time to time.

2.2.16 "Economic Dispatch"
Economic Dispatch shall mean the sending of dispatch instructions to generation units to minimize the cost of reliably meeting load demands.

2.2.17 "Effective Date"
Effective Date shall have the meaning stated in Section 12.1.

2.2.18 "Emergency Energy Transactions"
Emergency Energy Transactions shall mean the Emergency Energy Transactions document incorporated herein as Attachment 5 to this Agreement, hereto as it exists on the Effective Date and as it may be amended or revised from time to time.

2.2.19 "Extra High Voltage"
Extra High Voltage shall mean 230 kV facilities and above stations with voltage regulating capabilities.

2.2.20 "Facilities Study"
Facilities Study shall mean a study conducted by the Transmission Service Provider, or its agent, for the interconnection customer to determine a list of facilities, the cost of those facilities, and the time required to interconnect a generating facility with the transmission system or enable the sale of firm transmission service.

2.2.21 "Feasibility Study"
Feasibility Study shall mean a preliminary evaluation of the system impact of interconnecting a generating facility to the transmission system or the initial review of a transmission service request.

2.2.22 "Firm Flow"
Firm Flow shall mean the estimated impacts of Firm Transmission Service on a particular Coordinated Flowgate.

2.2.23 "Firm Flow Limit"
Firm Flow Limit shall mean the maximum value of Firm Flows an entity can have on a Coordinated Flowgate, based on procedures defined in Sections 4 and 5 of the Congestion Management Process.

2.2.24 "Flowgate"
Flowgate shall mean a representative modeling of facilities or groups of facilities that may act as significant constraint points on the regional system.

2.2.25 "Hold Harmless Issues"
Hold Harmless Issues shall have the meaning given in Section 4.3.

2.2.26 "Governing Documents"
Governing Documents shall mean the PJM Open Access Transmission Tariff, the PJM Operating Agreement, the PJM Consolidated Transmission Owners Agreement, the PJM Reliability Assurance Agreement, the MISO Open Access Transmission and Energy Markets Tariff, the Agreement of Transmission Facilities Owners To Organize The Midcontinent Independent System Operator, Inc., A Delaware Non-Stock Corporation," or any other applicable agreement approved by the FERC and intended to govern the relationship by and among PJM and MISO and any of their respective members or market participants.

2.2.27 "Intellectual Property"
Intellectual Property shall mean (i) ideas, designs, concepts, techniques, inventions, discoveries, or improvements, regardless of patentability, but including without limitation patents, patent applications, mask works, trade secrets, and know-how; (ii) works of authorship, regardless of copyright ability, including copyrights and any moral rights recognized by law; and (iii) any other similar rights, in each case on a worldwide basis.

2.2.28 "Interconnection Service"
Interconnection Service shall mean the service provided by the Transmission Service Provider associated with interconnecting the generating facility to the transmission system and enabling it to receive electric energy and capacity from the generating facility at the point of interconnection, pursuant to the terms of the generator interconnection agreement and, if applicable, the tariff.

2.2.29 "Interconnection Study"
Interconnection Study shall mean any of the following studies: the interconnection Feasibility Study, the interconnection System Impact Study, and the interconnection Facilities Study, or the restudy of any of the above, described in the generator interconnection procedures.

2.2.30 "Interconnection Reliability Operating Limit"
Interconnection Reliability Operating Limit shall mean a System Operating Limit that, if violated could lead to instability, uncontrolled separation(s) or cascading outages that adversely impact the reliability of the Bulk Electric System.

2.2.31 "Interregional Coordination Process"
Interregional Coordination Process shall mean the market-to-market coordination document incorporated herein as Attachment 3 to this Agreement, hereto as it exists on the Effective Date and as it may be amended or revised from time to time.

2.2.32 "Inter-regional Planning Stakeholder Advisory Committee"
Inter-regional Planning Stakeholder Advisory Committee shall have the meaning given under Section 9.1.2.

2.2.33 "Inter-RTO Steering Committee"
Inter-RTO Steering Committee shall have the meaning given in the Joint and Common Market Agreement.

2.2.34 "Joint and Common Market"
Joint and Common Market shall mean, a group of initiatives that are intended to result in achievement of the following objectives: (i) Provide the highest level of inter-regional reliability; (ii) Deliver the lowest cost energy and ancillary services to load across the combined MISO and PJM Markets; and (iii) Plan, build and operate the combined MISO and PJM transmission facilities for maximum joint benefit across the markets.

2.2.35 "Joint and Common Market Agreement"
Joint and Common Market Agreement shall mean the Agreement Concerning Inter-regional Coordination, Including Development of Joint and Common Market, executed by the Parties on or about February 12, 2003.

2.2.36 "Joint Coordinated System Plan"
Joint Coordinated System Plan shall have the meaning given under Section 9.3.2.

2.2.37 "Local Balancing Authority"
Local Balancing Authority shall mean an operational entity which is: (i) responsible for compliance to NERC for the subset of NERC Balancing Authority Reliability Standards defined for its local area within the MISO Balancing Authority Area, and (ii) a party (other than MISO) to the Balancing Authority Amended Agreement which, among other things, establishes the subset of NERC Balancing Authority Reliability Standards for which the LBA is responsible.

2.2.38 "Local Balancing Authority Area"
Local Balancing Authority Area shall mean the collection of generation, transmission, and loads that are within the metered boundaries of an LBA.

2.2.39 "Locational Marginal Price" or "LMP"
Locational Marginal Price or LMP shall mean the market clearing price for energy at a given location in a Party's RC Area, and "Locational Marginal Pricing" shall mean the processes related to the determination of the LMP.

2.2.40 "LMP Contingency Processor"
LMP Contingency Processor shall mean that Locational Marginal Price pricing computer program referred to in Section 11.2.1.

2.2.41 "Market-Based Operating Entity"
Market-Based Operating Entity shall mean an Operating Entity that operates a security constrained, bid-based economic dispatch bounded by a clearly defined market area.

2.2.42 "Market Flows"
Market Flows shall mean the calculated energy flows on a specified Flowgate as a result of dispatch of generating resources serving market load within a Market-Based Operating Entity's market (excluding tagged transactions).

2.2.43 "Market Monitor"
Market Monitor shall monitor market power and other competitive conditions in the Markets and make reports and recommendations as appropriate.

2.2.44 "MISO"
MISO has the meaning stated in the preamble of this Agreement.

2.2.44a "MOPI M2M Flowgate"
MOPI M2M Flowgate shall mean a Flowgate subject to the requirements in Section 10 of the Interregional Coordination Process.

2.3.45 "NERC Compliance Registry"
NERC Compliance Registry shall mean a listing of all organizations subject to compliance with the approved reliability standards.

2.2.46 "Network Upgrades"
Network Upgrades shall have the meaning as defined in MISO and PJM tariffs.

2.2.47 "Notice"
Notice shall have the meaning stated in Section 18.10.

2.2.48 "Operating Entity"
Operating Entity shall mean an entity that operates and controls a portion of the bulk transmission system with the goal of ensuring reliable energy interchange between generators, loads, and other operating entities.

2.2.49 "Outages"
Outages shall mean the planned unavailability of transmission and/or generation facilities dispatched by PJM or MISO, as described in Article VII of this Agreement.

2.2.50 "Party" or "Parties"
Party or Parties refers to each party to this Agreement or both, as applicable.

2.2.51 "PJM"
PJM has the meaning stated in the preamble of this Agreement.

2.2.51a "Project Cost"
Project Cost shall mean all costs for Network Upgrades, as determined by the RTOs to be a single transmission expansion project, including those costs associated with seeking and obtaining all necessary approvals for the design, engineering, construction, and testing

the Network Upgrades. Project Cost will include costs classified by the Transmission Owners and ITCs as transmission plant using the Uniform System of Accounts or equivalent set of accounts for any Coordinating Owner, where Transmission Owners, ITCs, and Coordinating Owner have the meanings as defined under the PJM and MISO OATTs.

2.2.52 "Purchasing-Selling Entity"
Purchasing Selling Entity shall mean the entity that purchases or sells, and takes title to, energy, capacity, and interconnected operations services.

2.2.53 "Reciprocal Coordination Agreement"
Reciprocal Coordination Agreement shall mean an agreement between Operating Entities to implement the reciprocal coordination procedures defined in the Congestion Management Process.

2.2.54 "Reciprocal Coordinated Flowgate"
Reciprocal Coordinated Flowgate shall mean a Flowgate that is subject to reciprocal coordination by Operating Entities, under either this Agreement (with respect to Parties only) or a Reciprocal Coordination Agreement between one or more Parties and one or more Third Party Operating Entities. An RCF is:

- A Coordinated Flowgate that is (a) (i) within the operational control of a Reciprocal Entity or (ii) may be subject to the supervision of a Reciprocal Entity as a RC, and (b) affected by the transmission of energy by the Parties or by either Party of both Parties and one or more Reciprocal Entities; or
- A Coordinated Flowgate that is (a) affected by the transmission of energy by one or more Parties and one or more Third Party Operating Entities, and (b) expressly made subject to CMP reciprocal coordination procedures under a Reciprocal Coordination Agreement between or among such Parties and Third Party Operating Entities; or
- A Coordinated Flowgate that is designated by agreement of both Parties as a RCF.

2.2.55 "Reciprocal Entity"
Reciprocal Entity shall mean an entity that coordinates the future-looking management of Flowgate capability in accordance with a reciprocal agreement as described in the Congestion Management Process.

2.2.55a "Regionally Beneficial Project"
Regionally Beneficial Project shall have the meaning defined under Attachment FF of the MISO OATT.

2.2.56 "Reliability Coordinator"
Reliability Coordinator shall mean that party approved by NERC to be responsible for reliability of an RC Area.

2.2.57 "Reliability Coordinator Area" or "RC Area"
Reliability Coordinator Area or RC Area shall mean the collection of generation, transmission, and loads within the boundaries of the Reliability Coordinator. Its boundary coincides with one or more Balancing Authority Areas.

2.2.58 "SCADA Data"
SCADA Data shall mean the electric system security data that is used to monitor the electrical state of facilities, as specified in NERC reliability standard TOP-005.

2.2.59 "State Estimator"
State Estimator shall mean that computer model that computes the state (voltage magnitudes and angles) of the transmission system using the network model and real-time measurements. Line flows, transformer flows, and injections at the buses are calculated from the known state and the transmission line parameters. The state estimator has the capability to detect and identify bad measurements.

2.2.60 "System Impact Study"
System Impact Study shall mean an engineering study that evaluates the impact of a proposed interconnection or transmission service request on the safety and reliability of transmission system and, if applicable, an Affected System. The study shall identify and detail the system impacts that would result if the generating facility were interconnected or transmission service commenced without project modifications or system modifications.

2.2.61 "System Operating Limit"
System Operating Limit shall mean the value (such as MW, MVAR, Amperes, Frequency, or Volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria.

2.2.62 "Third Party"
Third Party refers to any entity other than a Party to this Agreement.

2.2.63 "Third Party Operating Entity"
Third Party Operating Entity shall refer to a Third Party entity that operates and controls a portion of the bulk transmission system with the goal of ensuring reliable energy interchange between generators, loads, and other operating entities.

2.2.64 "Total Flowgate Capability"
Total Flowgate Capability shall mean the maximum amount of power that can flow across that interface without overloading (either on an actual or contingency basis) any element of the Flowgate. The Flowgate capability is in units of megawatts. If the Flowgate is voltage or stability limited, a megawatt proxy is determined to ensure adequate voltages and stability conditions.

2.1.65 "Transmission Loading Relief"
Transmission Loading Relief shall mean the procedures used in the Eastern Interconnection as specified in NERC reliability standard IRO-006 and the NAESB business practice WEQ-008.

2.2.66 "Transmission Operator"
Transmission Operator shall mean the entity responsible for the reliability of its "local" transmission system, and that operates or directs the operations of the transmission facilities.

2.2.67 "Transmission Owner"
Transmission Owner shall mean a Transmission Owner as defined under the Parties' respective tariff.

2.2.68 "Transmission Reliability Margin"
Transmission Reliability Margin shall mean that amount of transmission transfer capability necessary to ensure that the interconnected transmission network is secure under a reasonable range of uncertainties in system conditions.

2.2.69 "Transmission Service Provider"
Transmission Service Provider shall mean the entity that administers the transmission tariff and provides transmission service to transmission customers under applicable transmission service agreements.

2.2.70 "Transmission System Emergencies"
Transmission System Emergencies are conditions that have the potential to exceed or would exceed an IROL.

2.2.71 "Unit Dispatch Systems"
Unit Dispatch Systems shall mean those dispatch systems utilized by the Parties to dispatch generation units by calculating the most economic solution while simultaneously ensuring that each of the boundary constraints is resolved reliably.

2.2.72 "Voltage and Reactive Power Coordination Procedures"
Voltage and Reactive Power Coordination Procedures are the procedures under Article XIX for coordination of voltage control and reactive power requirements.

4.1.1 Real-Time and Projected Operating Data.

4.1.1.1 Requirements:
The Parties will exchange two categories of operating data (real-time information and projected information), as follows:

(a) The real–time operating information consists of:
- (i) Generation status of the units in each Party's RC Area;
- (ii) Transmission line status;
- (iii) Real-time loads;
- (iv) Scheduled use of reservations;
- (v) TLR information, including calculation of Market Flows;
- (vi) Redispatch information, including the next most economical generation block to decrement/increment; and
- (vii) List of real-time constraints that are binding in the real-time market solution.

(b) Projected operating information consists of:
- (i) Merit order for generators participating in the Parties' markets;
- (ii) Maintenance schedules for generators and transmission facilities in either of the Parties' RC Area;
- (iii) Transmission Service Reservations reflecting firm purchase and sales;
- (iv) Independent power producer information including current operating level, projected operating levels, Outage start and end dates;
- (v) The planned and actual operational start-up dates for any permanently added, removed or significantly altered transmission segments; ~~and~~
- (vi) Points of interconnection between the two Parties that will be permanently removed or added (this information to be shared by the Party responsible for the action shortly before taking such action); and
- (vii) The planned and actual start-up testing and operational start-up dates for any permanently added, removed or significantly altered generation units.

Effective Date: 9/17/2010 - Docket #: ER10-2746-000

11.2 Additional Provisions Concerning Market-to-Market.

11.2.1 LMP Calculation Consistency.

The Parties agree to ensure that LMP signals meet certain common criteria in order to achieve maximum benefits to competition from the Joint and Common Market. In particular, the Parties agree that dispatch in both markets will be performed under a nodal pricing regime and that settlement will be based, in part, on the resulting LMPs. Given the importance of the individual LMPs, the pricing methodologies employed will result in prices that meet certain common criteria at all relevant physical interfaces between the two markets. The Parties' goal will be that the respective prices calculated by both Parties for these interfaces will be identical. Therefore, to the extent that such prices are not identical, the Parties agree to work in good faith to resolve the reasons for the differences in order to send the most consistent economic signals reasonably possible to all market participants.

The Parties further agree that the LMP formulation will be such that the optimal solution will be very close to the current system operating condition. Inputs into the Locational Marginal Pricing program will be the flexible generating units from the LMP Preprocessor, actual generation, load and system topology from the State Estimator, and binding constraints from the LMP Contingency Processor. The Parties agree to work in good faith to reach resolution on the frequency of the calculation of the prices. Additionally, the Parties agree that any changes to the pricing methodology will be coordinated across the two markets to maintain consistency.

11.2.2 Coordination Processes.

As the MISO market and the PJM market have evolved over time, it has become critical to coordinate the LMP-based congestion management procedures between the two markets. The market-to-market transmission congestion processes and the LMP at the market border points must be coordinated in order to efficiently manage interregional power flows. This coordination process will ensure appropriate LMP values at the market borders and will eliminate potential inefficiencies and gaming opportunities that otherwise could be caused by uncoordinated congestion management between the adjacent markets.

11.2.3 Market-to-Market Coordination Process.

The fundamental philosophy of the market-to-market transmission congestion coordination process is to allow any transmission constraints that are significantly impacted by generation dispatch changes in both markets to be jointly managed in the security-constrained economic dispatch models of both Parties. This joint management of transmission constraints near the market borders will provide a more efficient and lower cost transmission congestion management solution and will also provide coordinated pricing at the market boundaries.

This market-to-market coordination process builds upon the Parties' market-to-non-market coordination process, as described in the "Congestion Management Process" document. The set of transmission Flowgates in each market that can be significantly impacted by the economic dispatch of generation serving load in the adjacent market is identified as the set of RCFs. These RCFs are then monitored to measure the impact of Market Flows and loop flows from adjacent regions. The "Congestion Management Process" document provides a framework for calculating the resulting powerflow impacts resulting from the market-based economic dispatch in one region on the transmission facilities in an adjacent region and vice versa (Market Flow impacts). In addition, the "Congestion Management Process" document describes how the Market Flow impacts will be managed on an interregional basis within the existing IDC to enhance the effectiveness of the NERC interregional congestion management process. Lastly, the "Congestion Management Process" document also describes a process for calculating flow entitlement for network and firm transmission utilization in one region on the RCFs in an adjacent region.

The market-to-market coordination process builds on the processes, as described above, by adapting the coordination, as appropriate, to the conditions that will prevail after the Parties' markets are implemented in the Midwest. In addition, there is a continuing need to define the flow entitlement for network and firm transmission utilization in one region on the RCFs in an adjacent region.

The Parties shall utilize the Interregional Coordination Process on all market-to-market Flowgates that experience congestion. The Party that is responsible for a Flowgate will initiate and terminate the market-to-market process with the other Party. Anytime the Party that is responsible for a Flowgate is binding on that Flowgate to manage congestion, the responsible Party will implement the market-to-market process to utilize the more cost effective generation between the two markets to manage the congestion. The only exception when the market-to-market process is not used will occur when a market-to-market Flowgate is being used as a substitute Flowgate for another limit that is not a market-to-market Flowgate.

The market–to-market process described in the Interregional Coordination Process will normally be performed as needed in the real-time market, however if the need for congestion relief assistance is predictable on a day-ahead basis, the foregoing process will be implemented in the day-ahead market.

The market-to-market settlement process that is applied to both real-time and day-ahead usage is described in the Interregional Coordination Process.

11.2.4 Settlement of Interregional Transactions (via Proxy Buses).

In order for the market-to-market coordination to function properly, the proxy bus models for the Parties must be coordinated to the same level of granularity. The proxy bus modeling approaches must be the same at the market borders.

~~The proxy bus models will be based on using a flow-weighted average pricing model at common tie points at the market borders. In the day-ahead market and in the FTR models, the flow-weighted proxy bus definitions will be used at all times. In the real-time market, if the scheduled flow and actual flow are consistent at the proxy bus location, then the flow-weighted average price will be utilized. If significant loop flows exist at any of the proxy bus border point locations then the proxy bus price will be changed to reflect actual real-time flow patterns.~~Please refer to Attachment 3 to this Agreement for further information regarding the Interregional Coordination Process.

11.2.5 Auction Revenue Rights Allocation and Financial Transmission Rights Auction Coordination.

The allocation ARR and auction of FTR products in each marketplace must recognize the Flowgate entitlement that exists in adjacent markets. The ARR allocation/FTR auction model will essentially contain exactly the same level of detail for adjacent regions as the day-ahead market model and the real-time market model. Each Party will allocate ARRs or auction FTRs to the eligible market participants subject to a clearing process that determines the amount of transmission capability that exists to support the FTRs/ARRs.

The ARR allocation/FTR auction clearing process for each Party will model that Party's flow entitlement on the transmission Flowgates in the adjacent region as the powerflow limit that must be respected in the ARR allocation/FTR auction process. The transmission Flowgates in each Party will be modeled in the clearing process at a capability value equal to the Flowgate rating minus the flow entitlement that exists for flows from the adjacent market. In this way, the ARR allocation/FTR awards across both Parties will recognize the reciprocal transmission utilization that exists for eligible market participants in both markets.

11.2.6 Evolution of the Market-to-Market Coordination Process.

Nothing in this Agreement will preclude the Parties from further evolving their market-to-market coordination process in conjunction with input from their respective market monitors.

11.2.7 Coordinated Emergency Generation Redispatch.

The Parties shall follow a least-cost dispatch protocol in response to system emergencies that will mitigate or stabilize the system emergency in appropriate time to prevent IROL violation, and the costs thereof shall be reflected in, and compensated through, relative LMP values. However, in the event that costs not cognizable under LMP are incurred, the Party within which the affected resources are located shall reimburse such resource for direct incremental cost, subject to

inter-RTO reimbursement in the event that the costs incurred by one Party were caused by a system emergency in the other Party.

Additionally, in the absence of the need to coordinate congestion or address a system emergency, a Party shall be entitled to request that the other Party dispatch a generation unit, subject to the Parties' agreement with respect to compensation for the dispatch.

Change Summary

Generate baseline Congestion Management Process (CMP) document based on CMP documents executed by:

- Manitoba Hydro and Midcontinent Independent System Operator, Inc. (MISO)
- Mid-Continent Area Power Pool (MAPP) and MISO
- MISO and PJM Interconnection, L.L.C. (PJM)
- MISO, PJM and Tennessee Valley Authority (TVA)
- MISO and Southwest Power Pool, Inc. (SPP)

The document also includes subsequent changes agreed upon by a majority of the Congestion Management Process Council (CMPC). For items which are specific to a limited number of agreements, the CMP members have used an approach of documenting these unique items in separate appendices rather than in the base document. The CMPC members reserve all rights with respect to the different options identified in the appendices attached hereto without any obligation to adopt or support such options. The CMPC members reserve the right to oppose any position taken by another CMPC member in a FERC filing or otherwise with respect to the choice of options listed in the appendices. Nothing contained herein shall be construed to indicate the support or agreement by the CMPC members to an option presented in the appendices.

Revision 1.1 (November 30, 2007)

Per FERC Order ER07-1417-000, in the "Forward Coordination Processes" section 6.6 added the word "outage" between "unit" and "scheduling" in the following sentence, "Market-Based Operating Entities will use the Flowgate limit to restrict unit outage scheduling for a Coordinated Flowgate when maintenance outage coordination indicates possible congestion and there is recent TLR activity on a Flowgate."

Revision 1.2 (May 2, 2008)

The Market Flow Threshold is changing from 3% to 5%. The NERC Standards Committee approved changing the Market Flow Threshold for the field test at its April 10, 2008 meeting.

Revision 1.3 (July 16, 2008)

Per FERC Order issued in Docket Nos. ER08-884-000 and ER08-913-000, *Appendix H (Market Flow Threshold Field Test Terms And Conditions)* was added.

Revision 1.4 (October 31, 2008)

The percentages were changed in Sections *4.4 (Firm Market Flow Calculation Rules) and 5.5 (Market-Based Operating Entity Real-time Actions)* to be consistent with changes made under Revision 1.2. *Appendix H – Market Flow Threshold Field Test Terms And Conditions* was updated to reflect the NERC approved Market Flow Threshold Field Test extension to October 31, 2009.

Revision 1.5 (December 18, 2008)

Updated Section 5.2 (*Quantify and Provide Data for Market Flow*) and *Appendix B – Determination of Marginal Zone Participation Factors* to support changes to the manner in which MISO uses marginal zones and submits marginal zone information to the IDC.

Revision 1.6 (February 19, 2009)

Appendix H – Market Flow Threshold Field Test Terms And Conditions was updated to reflect that MISO no longer has a contractual obligation to observe a 0% threshold for MISO Market Flows on Flowgates where both MAPP and MISO are reciprocal.

Revision 1.7 (November 1, 2009)

Applied updates based on the results of the Market Flow Threshold Field Test including clarifications that allocations are calculated down to zero percent. Changes have been applied to the *Executive Summary, Section 4.1 Market Flow Determination, Section 4.4 Firm Market Flow Calculation Rules, Section 5.5 Market-Based Operating Entity Real-time Actions, Section 6.6 Forward Coordination Processes, Section 6.6.3 Limiting Firm Transmission Service, Section 6.7 Sharing or Transferring Unused Allocations, and Appendix H – Application of Market Flow Threshold Field Test Conditions.*

Revision 1.8 (May 31, 2010)

Applied updates to further standardize the "Allocation Adjustment for New Transmission Facilities and/or Designated Network Resources" process. Changes have been made to *Appendix F – FERC Dispute Resolution and Appendix G – Allocation Adjustments for New Transmission Facilities and/or Designated Network Resources.*

Revision 1.9 (January 4, 2011)
Modified to incorporate the revisions to the JOA, including revisions to Attachments 2 and 3, submitted as part of the Settlement Agreement and Offer of Settlement in Docket Nos. EL10-45-000, EL10-46-000, and EL10-60-000.

Revision 1.10 (July 25, 2016)

Generated updated baseline CMP document executed by the following entities:

- Manitoba Hydro and MISO
- Minnkota Power Cooperative, Inc. and MISO
- MISO and PJM
- PJM and TVA
    - Louisville Gas and Electric Company/Kentucky Utilities Company (LG&E/KU) and Associated Electric Cooperative, Inc. (AECI) executed separate agreements with TVA stipulating the CMP provisions executed by PJM and TVA apply to AECI and LG&E/KU as Reciprocal Entities.
- MISO and SPP
- MISO Attachment LL

Section	Revision Description
3.2	Clarified language on inclusion of Coordinated Flowgates in AFC process. Removed consideration of reverse impacts when performing Flowgate studies.
3.2.1	Revised language to better describe how the four Flowgate studies used to identify Coordinated Flowgates are performed.
3.2.6	Added a new section requiring coordination between Parties before making a Flowgate permanent that includes a Tie Line monitored element.
4.1 4.1.1	Revised language to require a Market-Based Operating Entity to consistently account for export and import tagged transactions in the identified calculations using one of the three methodologies set forth in the new Section 4.1.1. Revisions have previously been accepted by FERC in the CMP documents executed between MISO and PJM, MISO and SPP, and PJM and TVA.
6.10	Added a new section listing the requirements that must be satisfied for a Combining Party to incorporate a Non-Reciprocal Entity's load and the associated generation serving that load into the Reciprocal's Entity's Allocation calculations.
Appendix A	Added the following defined terms: Agreement, Combining Party, Non-Reciprocal Entity, Party, Third-Party, and Tie Line.
Appendix B	Revised language addressing how a Market-Based Operating Entity using the Marginal Zone methodology will determine marginal zone participation factors. Revisions have previously been accepted by FERC in the CMP documents executed between MISO and PJM, MISO and SPP, and PJM and TVA.
Appendix C	Clarified in Figure C-1 and Table C-1 the steps on inclusion of Coordinated Flowages in the AFC process.

Revision 1.11 (June 1, 2017)

Per NERC Operating Reliability Subcommittee applied updates necessary for MISO to incorporate External Asynchronous Resources into MISO Market Flows.

Section	Revision Description
3.2	Updated the number of Coordination Flowgate studies from four to five.
3.2.1	Clarified Study 4 applies internal CA/CA permutations and added a new Study 5 specific to External Asynchronous Resources.
3.2.2	Updated the number of Coordination Flowgate studies from four to five.
3.2.5	
4.1	Added how the External Asynchronous Resources will be considered in Market Flow and the exclusion of the related tags from IDC.
6.2	Updated the number of Coordination Flowgate studies from four to five.
6.8	Specified the priority of the Market Flow will correspond to the priority of the tag.
Appendix A	Added a new definition specific to MISO, External Asynchronous Resources. Updated the number of Coordination Flowgate studies from four to five.
Appendix C	Updated the number of Coordination Flowgate studies from four to five in Table C-1.

3.2 Coordinated Flowgates

An Operating Entity will conduct sensitivity studies to determine which Flowgates are significantly impacted by the flows of the Operating Entity's Control Zones (historic Control Areas that existed in the IDC). An Operating Entity identifies these Flowgates by performing the following ~~four~~ five studies to determine which Flowgates the Operating Entity will monitor and help control. As set forth in Appendix C, a Flowgate passing any one of these studies will be considered a Coordinated Flowgate and AFCs shall be computed for these Flowgates, unless mutually agreed otherwise by the Operating Entities and any Reciprocal Entities for the Flowgate. An Operating Entity shall add a Coordinated Flowgate to its AFC process as soon as practical in accordance with the Operating Entity's processes. Nothing in this section precludes an Operating Entity or Reciprocal Entity from calculating AFCs for any Flowgates.

An Operating Entity may also specify additional Flowgates that have not passed any of the ~~four~~ five studies to be Coordinated Flowgates where the Operating Entity expects to utilize the TLR process to manage congestion. For a list of Coordinated Flowgates between Reciprocal Entities, see each Reciprocal Entity's Open Access Same-Time Information System (OASIS) website.

Coordinated Flowgates are identified to determine which Flowgates an entity impacts significantly. This set of Flowgates may then be used in the congestion management processes and/or Reciprocal Operations defined in this document.

When performing the ~~four~~ five Flowgate studies, a 5% threshold will be used based on the positive impact. Use of a 5% threshold in the studies may not capture all Flowgates that experience a significant impact due to operations. The Operating Entities have agreed to adopt a lower threshold at the time NERC and/or NAESB implements the use of a lower threshold in the TLR process.

3.2.1 Flowgate Studies

Study 1) – IDC GLDF

(using the IDC tool)

Upon request by an Operating Entity, a study will be performed using the IDC reflecting the topology of the system from the System Data Exchange (SDX) or any industry-accepted system with similar capabilities. The IDC can provide a list of Flowgates for any user-specified Control Area whose Generator to Load Distribution Factor (GLDF) NNL impact is 5% or greater. Using the historic Control Area representation in the IDC, if any one generator has a GLDF that is 5% or greater as determined by the IDC, this Flowgate will be considered a Coordinated Flowgate.

Study 2) – IDC PSS/E Base Case GLDF

(no transmission outages – offline study)

Upon request by an Operating Entity, the Operating Entity to which the request is made will perform a generator analysis to determine which Flowgates impacted by those CAs will be included in the list of Coordinated Flowgates. To provide better confidence that the

Operating Entity has effectively captured the subset of Flowgates upon which its generators have a significant impact, the Operating Entity will perform an offline study utilizing Managing and Utilizing System Transmission (MUST) or other industry-accepted software with similar capabilities. The Operating Entity will perform off-line studies using the IDC PSS/E base case. If any generator has a GLDF that is 5% or greater as determined by this Study 2, this Flowgate will be considered a Coordinated Flowgate. Study 1 above and this Study 2 are separate studies. There is no requirement that a Flowgate must pass both studies in order to be coordinated.

Study 3) – IDC PSS/E Base Case GLDF

(transmission outage - offline study)

Upon request by an Operating Entity, the Operating Entity to which the request is made will perform a Flowgate analysis to determine which Flowgates impacted by those CAs will be included in the list of Coordinated Flowgates. The Flowgates determined using Study 2 above or Study 4 below that have a 3% to 5% distribution factor will be analyzed in this Study 3 against prior outage conditions. The Operating Entity will perform off-line studies using the IDC PSS/E base case utilizing MUST or other industry accepted software with similar capabilities. The Operating Entity, in consultation with affected operating authorities, will perform a prior outage analysis, including both internal and external outages, by applying one of the following:

1. transmission facilities operated at 100kV and above, in the CA where the Flowgate's monitored facility(ies) is located and in CAs that are first tier to the CA where the Flowgate's monitored facility(ies) is located; or

2. transmission facilities operated at 100kV and above within 10 buses from the monitored facility(s).

If any Flowgates with a 3% to 5% distribution factor from Study 2 or Study 4 are impacted by 5% or more from a prior outage condition (Line Outage Distribution Factor (LODF)) from this Study 3, the Flowgate will be added to the list of Coordinated Flowgates.

Study 4) – IDC Base Case Transfer Distribution Factors

(no transmission outages – offline study)

Upon request by an Operating Entity, the Operating Entity to which the request is made will perform a Flowgate analysis to determine which Flowgates impacted by those CAs will be included in the list of Coordinated Flowgates. The Operating Entity performing this analysis will analyze internal transactions between each CA/CA permutation. OTDF Flowgates will be analyzed with the contingent element out of service. The Operating Entity will perform off-line studies using the IDC PSS/E base case utilizing MUST, or other industry-accepted software with

similar capabilities to determine the Transfer Distribution Factors (TDFs). Flowgates that are impacted by 5% or greater by Study 4 will be considered a Coordinated Flowgate.

Study 5) – External Asynchronous Resource (EAR)

Upon request by an Operating Entity, MISO shall rerun Study 4 (no outage scenario) to determine the flowgates impacted by its EAR. Additionally, a second study will be performed using the IDC reflecting the topology of the system from the System Data Exchange (SDX) or any industry-accepted system with similar capabilities. The source to sink TDF calculation of the EAR shall be evaluated in the same way IDC would evaluate the impacts of the associated tag (e.g., source and sink of the EAR). Any flowgate that is determined to be impacted by the EAR by 5% or greater in Study 5 will be considered a Coordinated Flowgate.

3.2.2 Disputed Flowgates

If a Reciprocal Entity believes that another Reciprocal Entity implementing the congestion management portion of this process has a significant impact on one of their Flowgates, but that Flowgate was not included in the Coordinated Flowgate list, the involved Reciprocal Entities will use the following process.

- If an operating emergency exists involving the candidate Flowgate, the Reciprocal Entities shall treat the facilities as a temporary Coordinated Flowgate prior to the study procedure below. If no operating emergency or imminent danger exists, the study procedure below shall be pursued prior to the candidate Flowgate being designated as a Coordinated Flowgate.
- The Reciprocal Entity conducts studies to determine the conditions under which the other Reciprocal Entity would have a significant impact on the Flowgate in question. The Reciprocal Entity conducting the study then submits these studies to the other Reciprocal Entity implementing this process. The Reciprocal Entity's studies should include each of the ~~four~~ five studies described above; in addition to any other studies they believe illustrate the validity of their request. The other Reciprocal Entity will review the studies and determine if they appear to support the request of the Reciprocal Entity conducting the study. If they do, the Flowgate will be added to the list of Coordinated Flowgates.
- If, following evaluation of the supplied studies, any Reciprocal Entity still disputes another Reciprocal Entity's request, the Reciprocal Entity will submit a formal request to the NERC Operations Reliability Subcommittee (ORS) asking for further review of the situation. The ORS will review the studies of both the requesting Reciprocal Entity and the other Reciprocal Entity, and direct the participating Reciprocal Entities to take appropriate action.

3.2.3 Third Party Request Flowgate Additions

Each Party shall provide opportunities for Third Parties or other entities to propose additional Coordinated Flowgates and procedures for review of relevant non-confidential data in order to

assess the merit of the proposal. The current procedure for the review and maintenance of Coordinated Flowgates is set forth in Appendix C.

3.2.4 Frequency of Coordinated Flowgate Determination

The determination of Coordinated Flowgates will be performed at the initial implementation of the CMP and then on a periodic basis, as described in Appendix C.

3.2.5 Dynamic Creation of Coordinated Flowgates

For temporary Flowgates developed "on the fly," the IDC will utilize the current IDC methodology for determining NNL contribution until the Market-Based Operating Entity has begun reporting data for the new Flowgate. Interchange transactions into, out of, or across the Market-Based Operating Entity will continue to be E-tagged and available for curtailment in TLR 3, 4, or 5. Market-Based Operating Entities will study the Flowgate in a timely manner and begin reporting Flowgate data within no more than two business days (where the Flowgate has already been designated as an AFC Flowgate). This will ensure that the Market-Based Operating Entity has the time necessary to properly study the Flowgate using the ~~four~~ five studies detailed earlier in this document and determine the Flowgate's relationship with the Market-Based Operating Entity's dispatch. For internal Flowgates, the Market-Based Operating Entity will redispatch during a TLR 3 to manage the constraint as necessary until it begins reporting the Firm and Non-Firm Market Flows; during a TLR 5, the IDC will request NNL relief in the same manner as today. Alternatively, for internal and external Flowgates, an Operating Entity may utilize an appropriate substitute Coordinated Flowgate that has similar Market Flows and tag impacts as the temporary Flowgate. In this case, an Operating Entity would have to realize relief through redispatch and TLR 3. An example of an appropriate substitute would be a Flowgate with a monitored element directly in series with a temporary Flowgate's monitored element and with the same contingent element. If the Flowgate meets the necessary criteria, the Market-Based Operating Entity will begin to provide the necessary values to the IDC in the same manner as Market Flow values are provided to the IDC for all other Coordinated Flowgates. The necessary criteria for adding a Flowgate are defined in Appendix C. If in the event of a system emergency (TLR 3b or higher) and the situation requires a response faster than the process may provide, the Market-Based Operating Entities will coordinate respective actions to provide immediate relief until final review.

3.2.6 Coordination of Tie Line Flowgate Additions.

The Parties shall follow the coordination process outlined in this section for Flowgates that include a Tie Line between the Parties as a monitored element. The provisions in this section shall not apply to any temporary Flowgates.

Procedures:

1. Unless otherwise agreed to by the Parties, the managing entity for a Tie Line Flowgate is the Party that has functional control over the most limiting equipment for the Flowgate.

2. The managing entity for a Tie Line Flowgate shall calculate AFCs, post AFCs, process requests for transmission service, manage real-time congestion, and calculate Allocations for the Tie Line Flowgate.

3. Before the creation of a new Tie Line Flowgate in the IDC, the managing entity for the Tie Line Flowgate must notify the other Party no less than sixty (60) days in advance of the addition of the Tie Line Flowgate in the IDC. The new Flowgate will initially be created as a temporary Flowgate in the IDC by the managing entity. If all other requirements outlined in this Section 3.2.6 are completed during the sixty (60) days following notice, the Flowgate can be made permanent before the sixty (60) day deadline by mutual agreement of the Parties.

4. A Party that identifies a new Tie Line Flowgate through a study shall provide the study assumptions, methodology, and all other relevant data to the other Party in a timely manner.

5. AFC Calculation and Posting AFCs:
    a. The managing entity will calculate and post AFCs for Tie Line Flowgates in accordance with the managing entity's processes (i.e., the managing entity will treat the Flowgates as internal Flowgates).
    b. The managing entity will post AFC files for Tie Line Flowgates for use by other transmission providers.
    c. The managing entity will apply AFC factors for Tie Line Flowgates (e.g., TRM, CBM, "a" and "b" multipliers, etc.) using the managing entity's own processes.

6. Upon the completion of items 1 through 5, the managing entity may create a permanent Tie Line Flowgate.

7. The Party that is not the managing entity will replace the temporary Tie Line Flowgate with the permanent Tie Line Flowgate in its applicable operating system(s).

4.1 Market Flow Determination

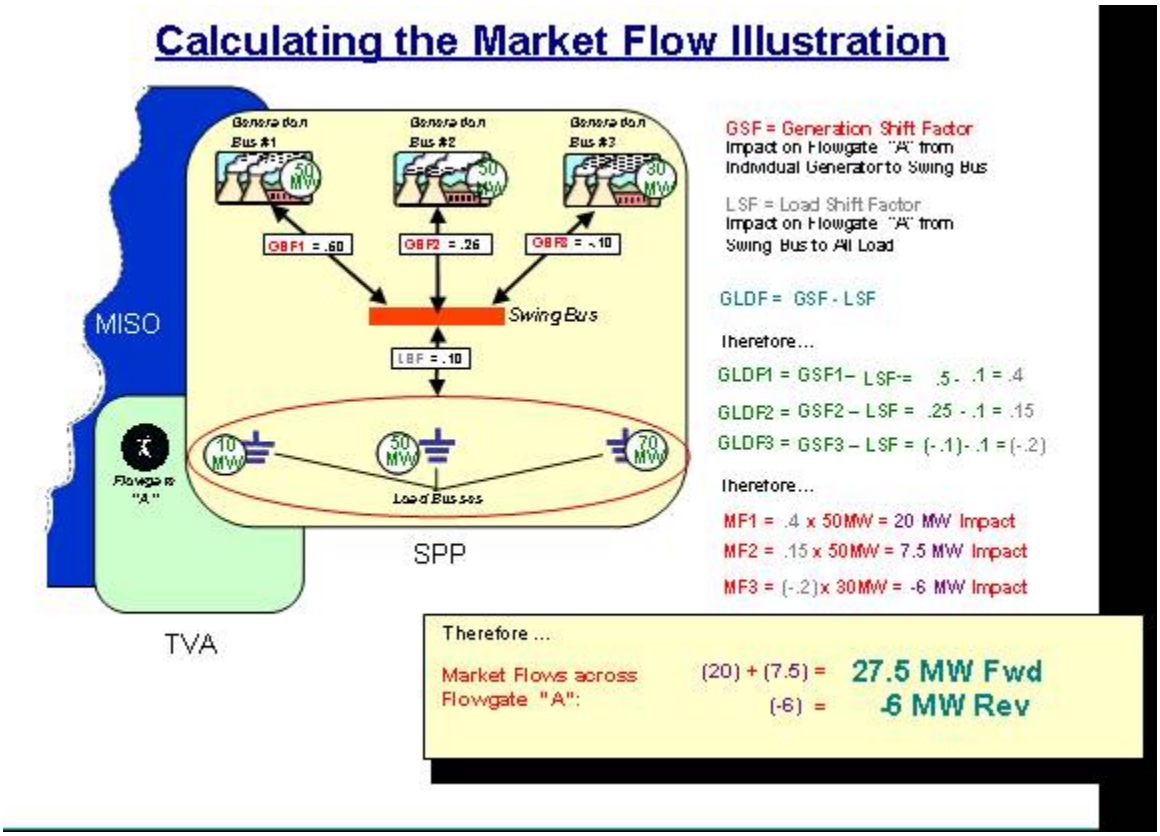
The determination of Market Flows builds on the "Per Generator" methodologies that were developed by the NERC Parallel Flow Task Force. The "Per Generator Method Without Counter Flow" was presented to and approved by both the NERC Security Coordinator Subcommittee (SCS) and the Market Interface Committee (MIC).[1] This methodology is presently used in the IDC to determine NNL contributions.

Similar to the Per Generator Method, the Market Flow calculation method is based on Generator Shift Factors (GSFs) of a market area's assigned generation and the Load Shift Factors (LSFs) of its load on a specific Flowgate, relative to a system swing bus. The GSFs are calculated from a single bus location in the base case (e.g. the terminal bus of each generator) while the LSFs are defined as a general scaling of the market area's load. The Generator to Load Distribution Factor (GLDF) is determined through superposition by subtracting the LSF from the GSF.

The determination of the Market Flow contribution of a unit to a specific Flowgate is the product of the generator's GLDF multiplied by the actual output (in megawatts) of that generator. The total Market Flow on a specific Flowgate is calculated in each direction; forward Market Flows is the sum of the positive Market Flow contributions of each generator within the market area, while reverse Market Flow is the sum of the negative Market Flow contributions of each generator within the market area.

For purposes of the Market Flow determination, the market area may be either: (1) the entire RTO footprint, as in the following illustration; or (2) a subset of the RTO region, such as a pre-integration NERC-recognized Control Area, as necessary to ensure accurate determinations and consistency with pre-integration flow determinations. Each Market-Based Operating Entity shall choose only one of these two options to calculate its Market Flows. With regard to the second option, the total Market Flow of an RTO shall be the sum of the flows from and between such market areas.

[1] "Parallel Flow Calculation Procedure Reference Document," NERC Operating Manual. 11 Feb, 2003. <http://www.nerc.com/~oc/opermanl.html>



The Market Flow calculation differs from the Per Generator Method in the following ways:

- The contribution from all market area generators will be taken into account.
- In the Per Generator Method, only generators having a GLDF 5% or greater are included in the calculation. Additionally, generators are included only when the sum of the maximum generating capacity at a bus is greater than 20 MW. The Market Flow calculations will use all flows, in both directions, down to a 5% threshold for the IDC to assign TLR curtailments and down to a 0% threshold for information purposes. Forward flows and reverse flows are determined as discrete values.
- The contribution of all market area generators is based on the present output level of each individual unit.
- The contribution of the market area load is based on the present demand at each individual bus.

By expanding on the Per Generator Method, the Market Flow calculation evolves into a methodology very similar to the "Per Generator Method," while providing granularity on the order of the most granular method developed by the IDC Granularity Task Force.

Directional flows are required for this process to ensure a Market-Based Operating Entity can effectively select the most effective generation pattern to control the flows on both internal and external constraints, but are considered as distinct directional flows to ensure comparability with existing NERC and/or NAESB TLR processes. Under this process, the use of real-time values in concert with the Market Flow calculation effectively implements one of the more accurate and

detailed methods of the six IDC Granularity Options considered by the NERC IDC Granularity Task Force.

Each Market-Based Operating Entity shall choose one of the three methodologies set forth in Section 4.1.1 (*Methodologies to Account for Tagged Transactions*) below to account for import and export tagged transactions and shall apply it consistently for each of the following calculations:

1. the Market Flow calculation;
2. the Firm Flow Limit calculation;
3. the Firm Flow Entitlement calculation; and
4. the tagged transaction impact calculation which occurs in the IDC.

Market Flows represent the impacts of internal generation (including generators pseudo-tied into the market area and excluding generators pseudo-tied out of the market area) serving internal load (including load pseudo-tied into the market area and excluding load pseudo-tied out of the market area) and tagged grandfathered transactions within the market area. Market Flows shall not include the impacts from import tagged transaction(s) into and export tagged transaction(s) out of the market area where the impacts of the interchange transactions are accounted for by the IDC. A Market-Based Operating Entity shall utilize the IDC to calculate the impacts of import tagged transactions into and export tagged transactions out of the market area that are not captured in the Market Flow calculation. The impact of the EAR shall be included in the Market Flow calculation using the methodology selected in Section 4.1.1 (*Methodologies to Account for Tagged Transactions*); the related tags will be excluded in IDC. For an import EAR, load will be adjusted, and for an export EAR, generation will be adjusted, in accordance with the methodology selected in Section 4.1.1 (*Methodologies to Account for Tagged Transactions*).

Units assigned to serve a market area's load do not need to reside within the market area's footprint to be considered in the Market Flow calculation. Units outside of the market area that are pseudo-tied into the market to serve the market area's load will be included in the Market Flow calculation. However, units outside of the market area will not be considered when those units will have tags associated with their transfers (i.e., where pseudo-tie does not exist).

Additionally, there may be situations where the participation of a generator in the market that is not modeled as a pseudo-tie may be less than 100% (e.g., a unit jointly owned in which not all of the owners are participating in the market). This situation occurs when the generator output controlled by the non-participating parties is represented as interchange with a corresponding tag(s) and not as a pseudo-tie generator internal to each party's Control Area. Except for the generator output represented by qualifying interchange transactions from jointly owned units described in the following paragraph, such situations will be addressed by including the generator output in that Market-Based Operating Entity's Market Flow calculation with the amount of generator output not participating in the market being scaled down within the Market-Based Operating Entity's region or regions in accordance with one of the following three

methodologies described and defined below in Section 4.1.1: the Marginal Zone Method, POR-POD Method, or Slice-of-System Method.

When a jointly owned unit, which is also listed as a Designated Network Resource for the Historic Firm Flow calculation, participates in more than one market (each of which report Market Flow to the IDC), and the generator output from that unit between the two markets is represented as interchange with a corresponding tag(s) that is accounted for by the IDC and not as a pseudo-tie generator internal to each market's Control Area, its modeling in the Market Flow calculation will be aligned with that in the Historic Firm Flow calculation. The amount of generator output from that unit scheduled between the two markets will be treated as a unit specific export tagged transaction in the Market Flow calculation of the Market-Based Operating Entity where the generator is located and will be treated as a load specific import tagged transaction in the Market Flow calculation of the other Market-Based Operating Entity.

- For exports out of one market area associated with the jointly owned unit(s), the generator output of jointly owned unit will be scaled down by an amount which is the lesser of the corresponding export tagged transaction(s) and unit ownership of an owner participating in other market area.

- For imports into the other market area associated with the jointly owned external unit(s), the Control Zone load or bus load(s) will be scaled down by an amount which is the lesser of the corresponding import tagged transaction(s) and unit ownership of an owner participating in the market area.

Import tagged transactions, export tagged transactions, and grandfathered tagged transactions within the market area, must be properly accounted for in the determination of Market Flows.

Below is a summary of the calculations discussed above.

For a specified Flowgate, the Market Flow impact of a market area is given as:

Total Directional "Market Flows" = ∑ (Directional "Market Flow" contribution of each unit in the Market-Based Operating Entity's area), grouped by impact direction

where,

"Market Flow" contribution of each unit in the Market-Based Operating Entity's area =

($GLDF_{Adj}$) (Adjusted Real-Time generator output)

and,

$GLDF_{Adj}$ is the Generator to Load Distribution Factor

Where the generator shift factor (GSF_{Adj}) uses Adjusted Real-Time generator output and the load shift factor (LSF_{Adj}) uses Adjusted Real-Time bus loads.

$GLDF_{Adj} = GSF_{Adj} - LSF_{Adj}$

Adjusted Real-Time generator output is the output of an individual generator as reported by the state estimator solution that has been adjusted for exports associated with joint ownership, if any, and then further adjusted for the remaining exports utilizing the chosen methodology in Section 4.1.1.

Adjusted Real-Time bus load is the sum of all bus loads in the market as reported by the state estimator solution that have been adjusted for imports associated with joint ownership, if any, and then further adjusted for the remaining imports utilizing the chosen methodology in Section 4.1.1.

The real-time and one-hour ahead projected "Market Flows" will be calculated on-line utilizing the Market-Based Operating Entity's state estimator model and solution. This is the same solution presently used to determine real-time market prices as well as providing on-line reliability assessment and the periodicity of the Market Flow calculation will be on the same order. Inputs to the state estimator solution include the topology of the transmission system and actual analog values (e.g., line flows, transformer flows, etc…). This information is provided to the state estimator automatically via SCADA systems such as NERC's ISN link.

Using an on-line state estimator model to calculate "Market Flows" provides a more accurate assessment than using an off-line representation for a number of reasons. The calculation incorporates a significant amount of real-time data, including:

- **Actual real-time and projected generator output.** Off-line models often assume an output level based on a nominal value (such as unit maximum capability), but there is no guarantee that the unit will be operating at that assumed level, or even on-line. Off-line models may not reflect the impact of pumped-storage units when in pumping mode; these units may be represented as a generator even when pumping. Additionally off-line models may not reflect the impact of units such as wind generators. A real-time calculation explicitly represents the actual operating modes of these units.
- **Actual real-time bus loads.** Off-line assessments may not be able to accurately account for changes in load diversity. Off-line models are often based on seasonal winter and summer peak load base cases. While representative of these peak periods, these cases

may not reflect the load diversity that exists during off-peak and shoulder hours as well as off-peak and shoulder months. A real-time calculation explicitly accounts for load diversity. Off-line assessments may also reflect load reduction programs that are only in effect during peak periods.

- **Actual real-time breaker status.** Off-line assessments are often bus models, where individual circuit breakers are not represented. On-line models are typically node models where switching devices are explicitly represented. This allows for the real-time calculation to automatically account for split bus conditions and unusual topology conditions due to circuit breaker outages.

Additionally, the calculation rate of the on-line assessment is much quicker and accurate than an off-line assessment, as the on-line assessment immediately incorporates changes in system topology and generators. Facility outages are automatically incorporated into the real-time assessment.

In order to provide reliable and consistent flow calculations, entities utilizing this process as the basis for coordination must ensure that the modeling data and assumptions used in the calculation process are consistent. Reciprocal Entities will coordinate models to ensure similar computations and analysis. Reciprocal Entities will each utilize real-time ICCP and ISN data for observable areas in each of their respective state estimator models and will utilize NERC data for areas outside the observable areas to ensure their models stay synchronized with each other and the NERC IDC.

4.1.1 Methodologies to Account for Tagged Transactions

A Market-Based Operating Entity shall choose one of the following methodologies to account for export and import tagged transactions in the Market Flow reported to the IDC and utilized for market-to-market, and shall also use the same methodology to account for export and import tagged transactions in the Firm Flow Limit and Firm Flow Entitlement calculations, as well as calculated tag impacts by the IDC:

1. Point-of-receipt (POR) / point-of-delivery (POD) Method (POR-POD Method) - Export tagged transactions, excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to the IDC), shall be accounted for based on the POR of the transmission service reservation, as the transmission service was originally sold, that is listed on the export tagged transaction by proportionally offsetting the MW output of all units (i) in the Market-Based Operating Entity's Control Area, (ii) pre-integration NERC-recognized Control Area(s), or (iii) sub-regions within its Control Area. Import tagged transactions, excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to IDC), shall be accounted for based on the POD of the transmission service reservation, as the transmission service was originally sold, that is listed on the export tagged transaction by proportionally offsetting the MW load of all load buses (i) in the Market Based Operating Entity's Control Area, (ii) pre-integration NERC-recognized Control Area(s), or (iii) sub-regions within the Control Area; or

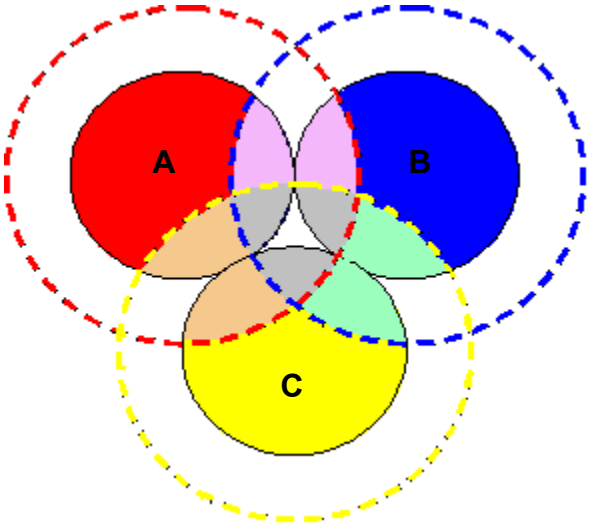
2. Marginal Zone Method – Export tagged transactions, excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to IDC), shall be accounted for by adjusting the MW output of the units in the Market-Based Operating Entity's Control Area, regions, or subregions within its Control Area by the total MW amount of all the Market-Based Operating Entity's export tagged transactions excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to IDC) using: (1) marginal zone participation factors, as defined and calculated in Appendix B (*Determination of Marginal Zone Participation Factors*); and (2) the anticipated availability of a generator to participate in the interchange of the marginal zone. Import tagged transactions, excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to the IDC), shall be accounted for by adjusting the MW load of the load buses in the Market-Based Operating Entity's Control Area, regions or subregions within the Control Area, by the total MW amount of all the Market-Based Operating Entity's import tagged transactions excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to IDC) using marginal zone participation factors, as defined and calculated in Appendix B (*Determination of Marginal Zone Participation Factors*); or
3. Slice of System Method – Export tagged transactions, excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to IDC), shall be accounted for by proportionately adjusting the MW output of each of the units in the Market-Based Operating Entity's Control Area by the total MW amount of all the Market-Based Operating Entity's export tagged transactions excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to the IDC). Import tagged transactions, excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to the IDC), shall be accounted by proportionately adjusting the MW load of each of the load buses in the Market-Based Operating Entity's Control Area by the total MW amount of all the Market-Based Operating Entity's import tagged transactions excluding tagged transactions associated with jointly owned units participating in more than one market (each of which report Market Flow to IDC).

Each Market-Based Operating Entity shall post and maintain a document on its public website that describes calculations and assumptions used in those calculations regarding the chosen methodology and its application to the treatment of import and export transactions to the calculation of Market Flows, Firm Flow Limits, and Firm Flow Entitlements, and tag impacts calculated by the IDC.

6.2 The Relationship Between Coordinated Flowgates and Reciprocal Coordinated Flowgates

Coordinated Flowgates are associated with a specific Operating Entity's operational sphere of influence. Reciprocal Coordinated Flowgates are associated with the implementation of a Reciprocal Coordination Agreement between two Reciprocal Entities. By virtue of having executed such an agreement, a Flowgate Allocation can occur between these two Reciprocal Entities as well as all other Reciprocal Entities that have executed Reciprocal Coordination Agreements with at least one of these two Reciprocal Entities. When considering an implementation between two Reciprocal Entities, it is generally expected that each of the Reciprocal Coordinated Flowgates will meet the following three criteria:

- It will meet the criteria for Coordinated Flowgate status for both the Reciprocal Entities,
- It will be under the functional control of one of the two Reciprocal Entities and
- Both Reciprocal Entities have executed Reciprocal Coordination Agreements either with each other or with a Third Party Reciprocal Entity.



As shown in the illustration above, Operating Entity A, Operating Entity B and Operating Entity C each have their own set of Coordinated Flowgates (represented by the blue, yellow and red dotted-line circles). Where those sets of Coordinated Flowgates overlap AND they are in either Operating Entity A's, Operating Entity B's or Operating Entity C's service territory (the gray area), they will be considered Reciprocal Coordinated Flowgates between all three entities. Where those sets of Coordinated Flowgates overlap AND they are in either Operating Entity A's or Operating Entity B's service territory (the purple area), they will be considered Reciprocal

Coordinated Flowgates between Operating Entity B and Operating Entity A only. Where those sets of Coordinated Flowgates overlap AND they are in either Operating Entity B's or Operating Entity C's service territory (the green area), they will be considered Reciprocal Coordinated Flowgates between Operating Entity B and Operating Entity C only. Where those sets of Coordinated Flowgates overlap AND they are in either Operating Entity A's or Operating Entity C's service territory (the orange area), they will be considered Reciprocal Coordinated Flowgates between Operating Entity A and Operating Entity C only.

To the extent that entities other than Market-Based Operating Entities may enter into a Reciprocal Coordination Agreements, they may offer to coordinate on Flowgates that are Coordinated Flowgates (i.e., have passed one of the ~~four~~ five tests defined within this document or otherwise been deemed to be a Coordinated Flowgate).

6.8 Market-Based Operating Entities Quantify and Provide Data for Market Flow

In addition to the responsibilities described earlier in "Market-Based Operating Entity Congestion Management" Section 5 of this document, Market-Based Operating Entities will have an additional obligation, on Reciprocal Coordinated Flowgates, to further quantify their Non-Firm Flows into two (2) separate priorities: Non-Firm Network (6-NN), and Non-Firm Hourly (2-NH). Priorities will be determined as follows:

1. If the Market Flow exceeds the sum of the Firm Flow Limit and the 6-NN Allocation, then:
   2-NH = Market flow – (Firm Flow Limit + 6-NN Allocation)
   6-NN = 6-NN Allocation
   7-FN = Firm Flow Limit
2. If the Market Flow exceeds the Firm Flow Limit but is less than the 6-NN Allocation, then:
   2-NH = 0
   6-NN = Market Flow – Firm Flow Limit
   7-FN = Firm Flow Limit
3. If the Market Flow does not exceed the Firm Flow Limit, then
   2-NH = 0
   6-NN = 0
   7-FN = Market Flow
4. If the tag associated with EAR is converted to Market Flow MW and excluded by the IDC, the Market Flow MW shall have a priority that is no higher than it would have been if the tagged MW was not excluded by IDC.

All other aspects of this data remain identical to those described in "Market-Based Operating Entity Congestion Management" Section 5.

Effective Date: 9/17/2010 - Docket #: ER13-1158-000

Appendix A – Glossary

Agreement – Agreement shall mean this Joint Operating Agreement Between the Midcontinent Independent System Operator, Inc. and PJM Interconnection, L.L.C., as amended from time to time, including all attachments, appendices, and schedules.

Allocation – A calculated share of capability on a Reciprocal Coordinated Flowgate to be used by Reciprocal Entities when coordinating AFC, transmission sales, and dispatch of generation resources.

Available Flowgate Capability (AFC) – the applicable rating of the applicable Flowgate less the projected loading across the applicable Flowgate less TRM and CBM. The firm AFC is calculated with only the appropriate Firm Transmission Service reservations (or interchange schedules) in the model, including recognition of all roll-over Transmission Service rights. Non-firm AFC is determined with appropriate firm and non-firm reservations (or interchange schedules) modeled.

AFC Flowgate – A Flowgate for which an entity calculates AFC's.

Combining Party – Combining Party shall mean a Reciprocal Entity that is incorporating the load and associated generation serving that load from a Non-Reciprocal Entity into the Reciprocal Entity's Allocations pursuant to Section 6.10 of this CMP.

Control Area – Shall mean an electric power system or combination of electric power systems to which a common automatic generation control scheme is applied.

Control Zones – Within an Operating Entity Control Area that is operating with a common economic dispatch, the Operating Entity footprint is divided into Control Zones to provide specific zonal regulation and operating reserve requirements in order to facilitate reliability and overall load balancing. The zones must be bounded by adequate telemetry to balance generation and load within the zone utilizing automatic generation control.

Coordinated Flowgate (CF) – shall mean a Flowgate impacted by an Operating Entity as determined by one of the ~~four~~ five studies detailed in Section 3 of this document. For a Market-Based Operating Entity, these Flowgates will be subject to the requirements under the Congestion Management portion of this document (Sections 4 and 5). A Coordinated Flowgate may be under the operational control of a Third Party.

Designated Network Resource – A resource that has been identified as a designated network resource pursuant to a transmission provider's Open Access Transmission Tariff.

External Asynchronous Resource[1] – A Resource representing an asynchronous DC tie between the synchronous Eastern Interconnection grid and an asynchronous grid that is supported within

[1] External Asynchronous Resource is specific to the MISO tariff , MISO, FERC Electric Tariff, Module A, § 1.E "External Asynchronous Resource" (33.0.0).

the Transmission Provider Region through Dynamic Interchange Schedules in the Day-Ahead Energy and Operating Reserve Market and/or Real-Time Energy and Operating Reserve Market. External Asynchronous Resources are located where the asynchronous tie terminates in the synchronous Eastern Interconnection grid.

Firm Flow – The estimated impacts of Firm Transmission Service on a particular Coordinated or Reciprocal Coordinated Flowgate.

Firm Flow Limit – The maximum value of Firm Flows an entity can have on a Coordinated or Reciprocal Coordinated Flowgate, based on procedures defined in Sections 4 and 5 of this document.

Firm Market Flow – The portion of Market Flow on a Coordinated or Reciprocal Coordinated Flowgate related to contributions from the native load serving aspects of the dispatch (constrained as appropriate by the Firm Flow Limit).

Firm Transmission Service – The highest quality (priority) service offered to customers under a filed rate schedule that anticipates no planned interruption or similar quality service offered by transmission providers by contract that do not require the filing of a rate schedule. Firm Transmission Service only includes firm point-to-point service, network designated transmission service and grandfather agreements deemed firm by the transmission provider as posted on OASIS.

Flowgate – A representative modeling of facilities or groups of facilities that may act as significant constraint points on the regional system.

Freeze Date – the cutoff date chosen by Reciprocal Entities to be used in the calculation of Historic Firm Flows.

Gen to Load (GTL) – See Network and Native Load.

Generator Shift Factor – A factor to be applied to a generator's expected change in output to determine the amount of flow contribution that change in output will impose on an identified transmission facility or Flowgate, referenced to a swing bus.

Historic Firm Flow – The estimated total impact an entity has on a Reciprocal Coordinated Flowgate when considering the impacts of (1) its historic Designated Network Resources serving native load, and (2) imports and exports, based on Firm Transmission Service reservations that meet the "Freeze Date" criteria.

Historic Firm Gen-to-Load Flow – The flow associated with the native load serving aspects of dispatch that would have occurred if all Control Areas maintained their current configuration and continued to serve their native load with their generation.

Historic Ratio – The ratio of Historic Firm Flow of one Reciprocal Entity compared to the Historic Firm Flow of all Reciprocal Entities on a specific Reciprocal Coordinated Flowgate.

LMP Based System or Market – An LMP based system or market utilizes a physical, flow-based pricing system to price internal energy purchases and sales.

Load Shift Factor – A factor to be applied to a load's expected change in demand to determine the amount of flow contribution that change in demand will impose on an identified transmission facility or Flowgate, referenced to a swing bus.

Locational Marginal Pricing (LMP) – the processes related to the determination of the LMP, which is the market clearing price for energy at a given location in a Market-Based Operating Entity's market area.

Market Flows – The calculated energy flows on a specified Flowgate as a result of dispatch of generating resources serving market load within a Market-Based Operating Entity's market.

Market-Based Operating Entity – An Operating Entity that operates a security constrained, bid-based economic dispatch bounded by a clearly defined market area.

Network and Native Load (NNL) – the impact of generation resources serving internal system load, based on generation the network customer designates for Network Integration Transmission Service (NITS). NNL is also referred to as Gen to Load.

Non-Firm Market Flow – That portion of Market Flow related to a Market-Based Operating Entity's market operations in excess of that entity's Firm Market Flow.

Non-Reciprocal Entity – Non-Reciprocal Entity shall mean an Operating Entity that is not a Reciprocal Entity.

Operating Entity – An entity that operates and controls a portion of the bulk transmission system with the goal of ensuring reliable energy interchange between generators, loads, and other operating entities.

Party or Parties – Party or Parties refers to each party to this Agreement or both, as applicable.

Reciprocal Coordination Agreement – An agreement between Operating Entities to implement the reciprocal coordination procedures defined in the CMP.

Reciprocal Coordinated Flowgate (RCF) – A Flowgate that is subject to reciprocal coordination by Operating Entities, under either this Agreement (with respect to Parties only) or a Reciprocal Coordination Agreement between one or more Parties and one or more Third Party Operating Entities. An RCF is:

1. A CF that is (a) (i) within the operational control of Reciprocal Entity or (ii) may be subject to the supervision of Reciprocal Entity as Reliability Coordinator, and (b) affected by the transmission of energy by two or more Parties; or

2. A CF that is (a) affected by the transmission of energy by one or more Parties and one or more Third Party Operating Entities, and (b) expressly made subject to CMP reciprocal coordination procedures under a Reciprocal Coordination Agreement between or among such Parties and Third Party Operating Entities; or

3. A CF that is designated by agreement of both Parties as an RCF.

Reciprocal Entity – an entity that coordinates the future-looking management of Flowgate capacity in accordance with a Reciprocal Coordination Agreement as developed under Section 6 of this document, or a congestion management process approved by the Federal Energy Regulatory Commission; provided such congestion management process is identical or substantially similar to this CMP.

Security Constrained Economic Dispatch – the utilization of the least cost economic dispatch of generating and demand resources while recognizing and solving transmission constraints over a single Market-Based Operating Entity Market.

Third Party – Third Party refers to any entity other than a Party to this Agreement.

Tie Line – Tie Line shall mean a circuit connecting two Control Areas.

Transfer Distribution Factor – the portion of an interchange transaction, typically expressed in per unit, flowing across a Flowgate.

Transmission Service – services provided to the transmission customer by the transmission service provider to move energy from a point of receipt to a point of delivery.

Appendix C - Flowgate Determination Process

This section is has been added to clarify:

- How initial Flowgates are identified (Figure C-1, Table C-1)
    - Process for Flowgates in the Coordinated Flowgate list
    - Process for Flowgates in the Reciprocal Coordinated Flowgate list
    - Process for Flowgates in the AFC List
- How Flowgates will be added (Figure C-2, Table C-2)
- How often Flowgates are changed (Figure C-2, Table C-2)

Figure C -1
Determine AFC Flowgates,
Coordinated Flowgates, and Reciprocal
Coordinated Flowgates

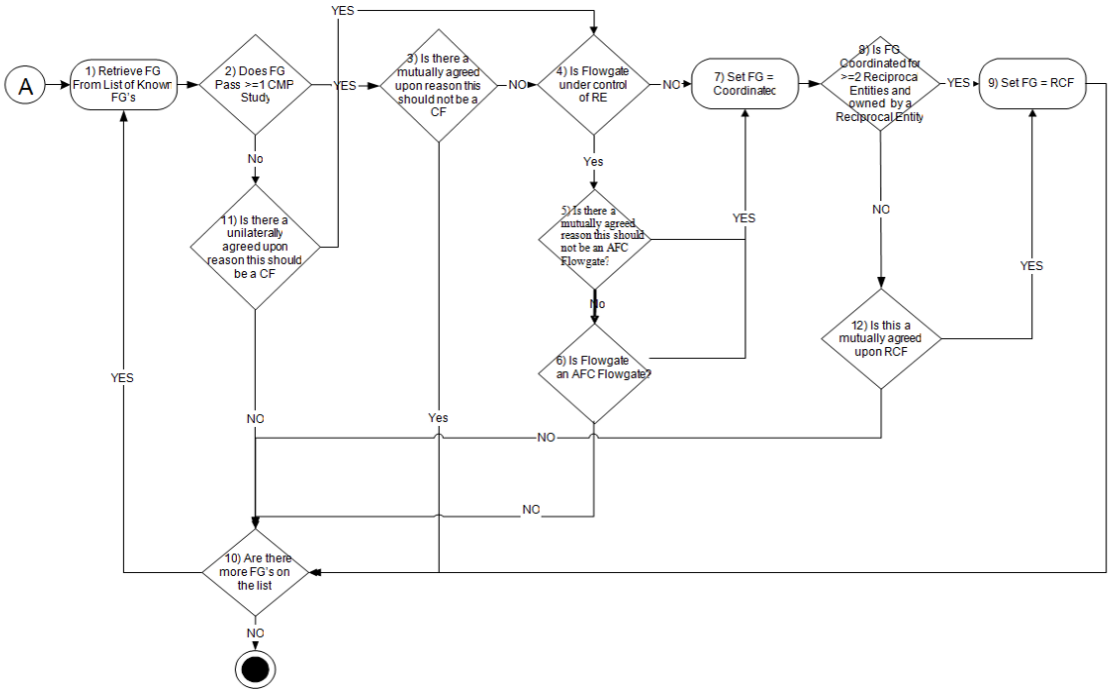


TABLE C-1

Step	Activity	Requirements	Detailed Description	Additional Documentation
1	Retrieve FG From List Of Known FG's	Retrieve FG from AFC list of FGs, NERC Book of FGs, and any other list of FGs.	• Retrieve the FG from the list of FGs. If a Reciprocal Entity wants us to consider a temporary FG it would go through the same process.	
2	Determine if FG passes >= 1 CMP Study	The decision determines if the FG passes at least one of the ~~four~~ five CMP studies	• If the FG passes any of the studies, determine if there is mutually agreed upon reason why this should not be a coordinated FG. • If the FG does not pass any of the studies, it will be determined if there is a unilaterally decided reason for inclusion as a CF.	See Impacted Flowgate Determination - Section 3
3	Is There a Mutually Agreed Upon Reason This Should Not Be A Coordinated Flowgate	Determine if there is a mutually agreed reason, despite passing one of the ~~four~~ five tests, why this FG should not be considered Coordinated.	• If there is no mutually agreed reason why this FG should not be considered coordinated, test whether FG is under control of a Reciprocal Entity. • If there is a mutually agreed reason why this FG should not be considered coordinated, record the reason proceed to Step 10.	
4	Is the Flowgate under control of a Reciprocal Entity	If the Flowgate is under the control of a non-reciprocal entity and the Flowgate passes one of the ~~four~~ five tests it will be treated as a Coordinated Flowgate.	• If the Flowgate is not under control of a Reciprocal Entity proceed to Step 7. • If the Flowgate is under control of a Reciprocal Entity Proceed to Step 5.	

Step	Activity	Requirements	Detailed Description	Additional Documentation
5	Is there a mutually agreed reason this should not be AFC Flowgate?	Determine if there is a mutually agreed reason, despite qualifying as a Coordinated Flowgate, why this Coordinated Flowgate is not included in the AFC process.	• If there is a mutually agreed reason to not include the Coordinated Flowgate in the AFC process proceed to Step 7. • Otherwise proceed to Step 6	
6	Is Flowgate an AFC Flowgate	A check is done to determine if the Flowgate controlled by a Reciprocal Entity is in its AFC process.	• If the Flowgate is in the AFC process or in the process of being added to the AFC process proceed to Step 7. • Otherwise proceed to Step 10	
7	Set FG = Coordinated	The FG would be coordinated for the entity.	• The FG would be considered a CF.	

Step	Activity	Requirements	Detailed Description	Additional Documentation
8	Is FG Coordinated for >= 2 Reciprocal Entities and "owned" by a Reciprocal Entity	Determine whether the FG is coordinated for two or more Reciprocal Entities	• If the FG is coordinated for two or more Reciprocal Entities and it is "owned" by one of the entities, it will be added to the CMP process as a reciprocal coordinated FG. • If it is not coordinated for two or more Reciprocal Entities and "owned" by one of the entities, determine if it is a mutually agreed upon RCF.	CM Process - Section 6
9	Set FG = RCF	Set the Flowgate equal to a Reciprocal Coordinated Flowgate.	• Set the Flowgate equal to a Reciprocal Coordinated Flowgate. • Proceed to Step 10.	
10	Are there more FGs on the list?	Determine if there are any more FGs on the list that need to go through the CMP determination process.	• If there are no more FGs that need to go through the determination process, the process ends. • If there are more FGs that need to go through the determination process, retrieve the next one. • Proceed to Step 1 if another FG requires evaluation. • Otherwise, the process ends.	
11	Is There a Unilateral Decision This Should Be A Coordinated FG	This decision determines if an entity wants to make this a Coordinated FG for a reason other than the ~~four~~ five tests.	• If an entity decides to make this a coordinated FG, proceed to Step 4. • Otherwise, proceed to Step 10.	

12	Is This a Mutually Agreed Upon RCF	Determine if there is a mutually agreed reason this should be considered a Reciprocal Coordinated Flowgate.	• If there is no mutually agreed reason this should be considered an RCF, leave it as coordinated and check for more FGs. • If there is a mutually agreed reason this should be considered an RCF, mark it as such. • If Reciprocal Entities decide to make the Flowgate Reciprocal proceed to Step 9. • Otherwise, proceed to Step 10.	

Figure C-2
Flowgate Review and Customer Flowgate Request

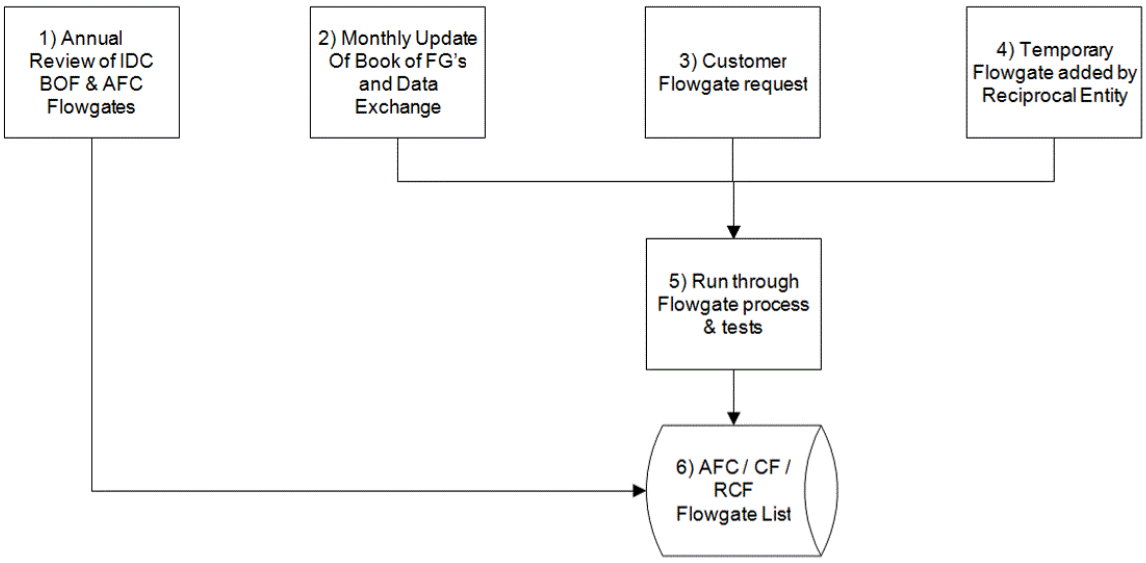


TABLE C-2

Steps	Activity	Requirements	Detailed Description	Additional Documentation
1	Annual Review of the BOFs and AFC FGs	A review will be performed annually or more often as requested by Reciprocal Entities (CMPWG). Retrieve the FG from the list of FGs for the entity running the process. Study 1 in section 3.2.1 of the CMP is not required for this annual review.	• Except for Study 1 in section 3.2.1 of the CMP, the FGs will be run through the process summarized in figure C-1.	
2	Customer FG Requests	Any customer FG requests will also be subject to the tests and process above.	• Any customer FG requests will be run through the process summarized in figure C-1.	
3	Temporary Flowgate added by Reciprocal Entity	Any temporary Flowgate added by a Reciprocal Entity will also be subject to the tests and processes in Step 5.	• Any temporary Flowgates added by a Reciprocal Entity will be run through the process summarized in figure C-1	
4	Run Through FG Process and Tests	Run through FG Determination Process, figure C-1	• Any FGs being reviewed or added will be run through the process summarized in figure C-1.	
5	AFC/CF/RCF List	Any FG additions or modifications would need to be committed to the repository of FGs and their qualifications.	• Any FG additions or modifications would need to be committed to the repository of FGs, along with their qualifications.	

1 Overview of the Market-to-Market Coordination Process

The fundamental philosophy of the PJM/MISO interregional transmission congestion coordination process is to set up procedures to allow any transmission constraints that are significantly impacted by generation dispatch changes in both markets to be jointly managed in the security-constrained economic dispatch models of both RTOs. This joint management of transmission constraints near the market borders will provide the more efficient and lower cost transmission congestion management solution, while providing coordinated pricing at the market boundaries.

The market-to-market coordination process builds upon the PJM/MISO market-to-non-market coordination process, as described in the "Congestion Management Process" document ("CMP") filed as part of the MISO – PJM Joint Operating Agreement. That CMP describes the interregional coordination process between a market region that uses an LMP-based congestion management regime and a non-market region that uses a TLR-based congestion management regime (i.e., a market to non-market interface). As described in the CMP, the set of transmission flowgates in each market that can be significantly impacted by the economic dispatch of generation serving load in the adjacent market is identified as the set of Reciprocal Coordinated Flowgates (RCFs). These RCFs are then monitored to measure the impact of Market Flows and loop flows from adjacent regions. The CMP describes how the Market Flow impacts will be managed on an interregional basis within the existing NERC IDC to enhance the effectiveness of the NERC interregional congestion management process. The CMP also describes a process for calculating flow entitlement for network and firm transmission utilization in one region on the RCFs in an adjacent region.

The market-to-market coordination process builds on the work already completed, as described above, by adapting the coordination, as appropriate, to the conditions that will prevail after both the PJM and MISO markets are implemented in the Midwest. In addition, there is a continuing need to define the flow entitlement for network and firm transmission utilization in one region on the subset of RCFs called M2M Flowgates in an adjacent region.

- **Real-Time Energy Market Coordination** -- The market-to-market coordination focuses primarily on Real-Time market coordination to manage transmission limitations that occur on the M2M Flowgates in a more cost effective manner. This Real-Time coordination will result in a more efficient economic dispatch solution across both markets to manage the Real-Time transmission constraints that impact both markets, focusing on the actual flows in Real-Time to manage constraints. Under this approach, the flow entitlements on the M2M Flowgates do not impact the physical dispatch; the flow entitlements are used in market settlements to ensure appropriate compensation based on comparison of the actual Market Flows to the flow entitlements.

- **Day-Ahead Energy Market Coordination** -- The Day-Ahead market coordination focuses primarily on ensuring that the Day-Ahead scheduled flows on all M2M Flowgates are limited to no more than the Firm Flow entitlements for each RTO.

Under certain conditions, an RTO may request that the Day-Ahead flow limit be raised above its Firm Flow entitlement but this is expected to happen only by exception under abnormal conditions.

ARR Allocation & FTR Auction Coordination -- The Auction Revenue Rights Allocation and Financial Transmission Rights (FTR) auction processes in both RTOs will model the Firm Flow entitlements on all M2M Flowgates.

1.1 Only a subset of all transmission constraints that exist in either market will require coordinated congestion management. This subset of transmission constraints will be identified as M2M Flowgates in a manner similar to the method used in the CMP described above. The list of M2M Flowgates will be limited to only those for which at least one generator in the adjacent market has a significant Generation-to-Load Distribution Factor (GLDF), sometimes called "shift factor," with respect to serving load in that adjacent market. NERC rules currently establish that a significant shift factor is five percent or greater. If NERC adopts a lower shift factor threshold than 5%, the new threshold will be used to determine whether the generator has a significant GLDF for the purpose of this market-to-market ICP. Flowgates eligible for market-to-market coordination are called M2M Flowgates. For the purposes of market-to-market coordination (in addition to the ~~four~~ five studies for RCFs described in section 3.2.1 of the CMP) the following will be used in determining M2M Flowgates.

1.1.1 M2M Flowgates include Reciprocal Coordinated Flowgates and any additional Flowgates that meet the criteria in this section (1.1) of the Interregional Coordination Process.

1.1.2 MISO and PJM will only be performing market-to-market coordination on RCFs that are under the operational control of MISO or PJM. MISO and PJM will not be performing market-to-market coordination on Flowgates that are owned and controlled by third party entities or on Flowgates that are only considered to be coordinated Flowgates.

1.1.3 Where the adjacent market does not have a generator with significant impact (either positive impact or negative impact) on a single-monitored element Flowgate at voltages higher than 138 kV (i.e., shift factor is less than 5%) but its Market Flows are a significant portion of the total flow (greater than 25% of the Flowgate rating), these transmission constraints will be included in the list of M2M Flowgates subject to market-to-market coordination. If the Market Flow impacts of the Non-Monitoring RTO exceed 25% of the Flowgate rating during real-time operations, the Flowgate will be added as a M2M Flowgate at the request of the Monitoring RTO.

Where the adjacent market does not have a generator with significant impact (either positive impact or negative impact) on a single-monitored element Flowgate at voltages of 138 kV or lower (i.e., shift factor is less than 5%) but its Market Flows are a significant portion of the total flow (i.e., greater than 35% of the Flowgate rating), these transmission constraints will be included in the list of M2M Flowgates subject to market-to-market coordination. If the Market Flow

impacts of the Non-Monitoring RTO exceed 35% of the Flowgate rating during real-time operations, the Flowgate will be added as a M2M Flowgate at the request of the Monitoring RTO.

1.1.4 The Parties will lower their generator binding threshold to match the lower generator binding threshold utilized by the other Party. The generator binding threshold will not be set below 1.5% except by mutual consent.(This requirement applies to M2M Flowgates. It is not an additional criteria for determination of M2M Flowgates.)

1.1.5 For the purpose of determining whether a multi-monitored element Flowgate is eligible for market-to-market, a progressive threshold based on the number of monitored elements will be used: a single monitored element Flowgate will use a 5% shift factor threshold; double monitored element Flowgate will use a 7.5% shift factor threshold; and a Flowgate with three monitored elements will use a 10% shift factor threshold. Flowgates with more than three monitored elements will be used only by mutual agreement.

1.1.6 The ~~four~~ five studies for RCFs described in Section 3.2.1 of the CMP will also be performed using a -5% shift factor threshold to identify Flowgates with a significant negative impact due to market operations. Flowgates where a significant negative impact exists as measured by a -5% shift factor or more negative shift factor will be added as M2M Flowgates.

1.2 M2M Flowgate Studies

During the M2M Flowgate Studies, a M2M Flowgate may be added to the systems for operations control using the actual monitored /contingent element pair. Settlements will be implemented using a hold harmless approach as described in the After the Fact Review process set forth in Section 8.4 below.

1.2.1 MISO and PJM will implement a process whereby either RTO may request the other to enter an anticipated M2M Flowgate into the dispatch tools before the completion of the Flowgate studies when a system event requires prompt attention. Binding on the Flowgate may commence as soon as each entity's operators can make the monitored/contingent element pair available in its system. Firm Flow Entitlements shall be applied and settlements calculated after the M2M Flowgate is approved by both entities.

1.2.2 Use of a M2M Flowgate Before Completion of the Studies:
The use of an anticipated Flowgate while the Flowgate is undergoing the M2M Flowgate Studies is described in CMP Section 3.2.5 Dynamic Creation of Coordinated Flowgates. These will typically be limited to forced outages since there should be time to evaluate the potential new M2M Flowgate before the planned outage is taken. However, the need for a new Flowgate is not always identified in advance. The Parties will ensure the time period to run the

coordinated Flowgate test and have these Flowgates ready for the market-to-market process is as short as possible.

1.3 Removal of M2M Flowgates

Removal of M2M Flowgates from the systems may be necessary under certain conditions including the following:

1.3.1 Where Information Technology systems cannot support the operation of a defined M2M Flowgate effectively, the first attempt will be to find a mutually acceptable temporary work-around that will allow the continued use of the market-to-market process. Where a temporary work-around is not available, the market-to-market process will be suspended on that M2M Flowgate until Information Technology system enhancements allow re-establishing the M2M Flowgate. The Party responsible for IT system enhancements will take all practicable steps to minimize the period of the suspension.

1.3.2 A M2M Flowgate is no longer valid when either a temporary M2M Flowgate or a transmission system change is implemented that eliminates significant impacts from either entity's generation such that the Flowgate no longer passes the M2M Flowgate Studies.

a. Once a M2M Flowgate becomes a completely invalid constraint, it will no longer be bound in the monitoring RTO's UDS.
b. A Flowgate that is removed from the M2M Flowgate list but remains a valid constraint may continue to be bound in the Monitoring RTO's UDS, but the market-to-market process will no longer be initiated on it.

1.3.3 The RTOs will collaborate to address specific scenarios where generation is not responding to dispatch signals (e.g., self scheduled) and the generation does, or could, significantly impact an M2M Flowgate and/or resulting market-to-market settlement.

1.3.4 The Parties can mutually agree to add or remove a Flowgate from the market-to-market process whether or not it passes the coordination tests, or whether or not it is a Reciprocal Coordinated Flowgate. A M2M Flowgate may be removed when the Parties agree that the market-to-market process would not be an effective mechanism to manage congestion on that Flowgate.