DuaneMorris®

MICHAEL L. KESSLER
DIRECT DIAL: 202.776.7808
PERSONAL FAX: 202.776.7801

www.duanemorris.com

April 25, 2008

VIA HAND-DELIVERY

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20246

Re: Compliance Filing of Midwest Independent Transmission System Operator, Inc., Regarding Ancillary Services Markets Provisions FERC Docket No. ER07-1372-00_

Dear Secretary Bose:

Pursuant to section 205 of the Federal Power Act ("FPA"), 16 U.S.C. § 824d, and Part 35 of the regulations of the Federal Energy Regulatory Commission ("FERC" or "Commission"), 18 C.F.R. § 35, *et seq.*, the Midwest Independent Transmission System Operator, Inc. ("Midwest ISO") submits an original and five (5) copies of proposed clarifications and revisions to the Midwest ISO's Open Access Transmission, Energy and Operating Reserve Markets Tariff ("ASM Tariff" or "Tariff") to comply with the 60-day compliance filing directives set forth in the Commission's February 25, 2008 Order, as more fully described below.[1]

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[1] *Midwest Independent Transmission System Operator, Inc.*, 112 FERC ¶ 61,172 (2008) ("February 25 Order" or "ASM Order"). As described in Section IV of this filing, the Midwest ISO will be filing the ASM Tariff in an entirely new volume in the near future.

I. BACKGROUND

On September 14, 2007, as amended on September 19, 2007,[2] the Midwest ISO submitted for Commission approval revisions and amendments to its currently-effective Open Access Transmission and Energy Markets Tariff ("EMT") to implement a centralized and co-optimized Energy and Ancillary Services Market ("ASM")[3] within the Midwest ISO region. The Commission's February 25 Order conditionally accepted the Midwest ISO's ASM proposal and required two compliance filings: (1) within thirty (30) days;[4] and (2) within sixty (60) days of the February 25 Order, respectively. In addition, the Commission directed certain additional filings be submitted, including certain reporting requirements to be submitted 60 and 180 days following ASM start, and informational and certification filings to be submitted 90 and 45 days before ASM start.[5] The Midwest ISO herein responds to the Commission's 60-day compliance requirements.

II. DESCRIPTION OF COMPLIANCE FILING

The subject filing complies with the Commission's 60-day compliance directives as set forth in the February 25 Order by providing a plan for implementing automated mitigation in the ASM. In addition, the Midwest ISO is proposing ASM Tariff provisions designed to remove barriers to the treatment of certain new technologies in the Regulating Reserve markets.[6] Consistent with the Commission's compliance directives, these proposed Tariff revisions result from a series of discussions with representatives of Beacon Power.[7] The Midwest ISO is

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2 *See* Midwest Independent Transmission System Operator, Inc. Electric Tariff Filing To Reflect Ancillary Services Markets, Docket No. ER07-1372-000 (filed Sept. 14, 2007) and Midwest Independent Transmission System Operator, Inc. Amendment To Tariff Filing Regarding Ancillary Services Markets, Docket No. ER07-1372-001 (filed Sept. 19, 2007). The September 14 and September 19 filings shall be collectively referred to herein as the ASM proposal.

3 The Midwest ISO will use the term "Ancillary Services Markets" to refer to the market for Operating Reserves established in the Tariff. All terms not otherwise defined herein are used as defined in proposed Module A to the Tariff.

4 On March 26, 2008, the Midwest ISO submitted its 30-day compliance filing in the instant proceeding, addressing all of the Commission's 30-day requested Tariff revisions and clarifications as set forth in the February 25 Order.

5 On February 29, 2008, the Midwest ISO submitted its Readiness Advisor Benchmark Report and Reversion Plan in compliance with the February 25 Order, approving the Midwest ISO's proposal to file the ASM readiness metrics and reversion plan no less than 90 days prior to ASM launch. *See* February 25 Order at PP 448, 459. Note that the Midwest ISO's readiness metrics and reversion plan compliance filing was made in anticipation of an ASM launch date of June 1, 2008. The ASM launch date has since been changed to September 9, 2008 as discussed below.

6 *See* February 25 Order at Appendix C.

7 *Id.* at P 365 and fn. 134.

authorized to state that Beacon Power has reviewed and supports the proposed Tariff modifications relating to Stored Energy Resources, described below.[8]

A. AUTOMATED MITIGATION PROCEDURES ("AMP")[9]

In the February 25 Order, the Commission found that the Midwest ISO's proposal to implement manual mitigation will appropriately mitigate the exercise of market power during the initial start of the ASM. However, the Commission directed that the Midwest ISO implement automated mitigation in the ASM as soon as possible in the ninety (90) days following the start of the market. Accordingly, the Commission ordered the Midwest ISO to submit a plan to implement AMP. The Commission also required that the IMM monitor market behavior and submit a report to the Commission in the event it determines that manual mitigation is not effectively working.

The Midwest ISO notes that current software and hardware specifications for the Midwest ISO's implementation of mitigation in the Energy and ASM markets requires that new systems support both manual and automated mitigation of both Energy and Operating Reserves. Specifically, the software currently being developed for implementation of the ASM markets will be configurable to perform conduct and impact tests for both the Energy and ASM markets. The software will have the capability to support either automated or manual mitigation of the ASM markets.

Extra hardware and market model licenses have been procured by the Midwest ISO to support both the manual and automated ASM mitigation functionality. Both manual and automated mitigation of ASM will be tested during the Midwest ISO's Parallel Operations 2 ASM testing scheduled for early June.

To provide further assurance that the automated software is designed to mitigate ASM Offers only when called for under the ASM Tariff, however, the current plan is to implement the ASM markets with the market power mitigation applied only manually. The plan to implement the automated mitigation following the commencement of the ASM markets is as follows:

Day 1 – Day 60:	Run automated conduct and impact testing software for the ASM markets and impose mitigation manually with respect to Operating Reserves.
Day 60:	Activate the AMP software for the ASM markets subject to a determination by the IMM that the automated testing produced reliable mitigation indicators during the first 30 days of operation.

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[8] Such support, however, is without prejudice to Beacon Power's right to file comments in this proceeding with respect to the proposed Tariff changes.

[9] *Id.* at PP 168-178.

The Midwest ISO automated mitigation software can be implemented sooner, however, if the Commission determines that the proposed transition period should be shorter.

B. PARTICIPATION OF DEMAND RESPONSE RESOURCES AND NEW TECHNOLOGIES IN THE ASM[10]

The Commission ordered the Midwest ISO to evaluate, through stakeholder discussions, and specifically through discussions with Beacon Power, possible adjustments to the operating requirements and ASM procedures that may remove barriers to comparable treatment of new technologies in the Regulating Reserve markets, and to provide a report on its efforts to incorporate these resources into the markets.[11] The Commission also required the Midwest ISO to submit revised Tariff sheets, if adjustments are proposed.[12]

In an effort to incorporate energy storage technologies into the Midwest ISO Energy and Operating Reserve Markets, the Midwest ISO is submitting proposed Tariff sheets for implementation on June 1, 2009, to incorporate energy storage technologies into the markets. In these Tariff sheets, the Midwest ISO specifically is proposing the creation of a new Resource type, to be designated a Stored Energy Resource[13] (also referred to herein as a "SER"). The Stored Energy Resource will be able to offer and supply Regulating Reserve, Spinning Reserve and Supplemental Reserve. The Tariff sheets include a set of Offer parameters that aligns with this new energy storage technology, and allows the Midwest ISO SCUC and SCED algorithms to properly model the dynamics of Storage Energy Resources in a manner that permits them to participate in the simultaneously co-optimized Day-Ahead Energy and Operating Reserve Market[14] and Real-Time Energy and Operating Reserve Market.[15] While these Resources are not able to offer or supply Energy, the Midwest ISO will be able to dispatch energy into and out of these Resources in the Real-Time Energy and Operating Reserve Market to ensure the energy charge level is maintained, as needed, to allow these Resources to deploy Operating Reserve when required. In order to do so, the Midwest ISO has developed the following set of proposed operating parameters that are unique to this new Resource type: Hourly Energy Storage Loss Rate, Hourly Full Charge Energy Withdrawal Rate, Hourly Maximum Energy Charge Rate, Hourly Maximum Energy Discharge Rate and Hourly Maximum Energy Storage Level.[16]

Because the Stored Energy Resource technology is unique, there are two operational provisions in the Midwest ISO markets that are specific to these Resources. First, the requirements imposed on other Resources to be able to deploy Operating Reserves for a

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[10] *Id.* at PP 363-365.
[11] *Id.* at P 365 and fn. 134.
[12] *Id.*
[13] *See* proposed new definition, Section 1.294b.
[14] *See* proposed new Section 39.2.5C.
[15] *See* proposed new Sections 40.2.7A.
[16] *See* proposed new Sections 39.2.5C.b and 40.2.7A.b.

continuous period of 60 minutes or more have been removed for Stored Energy Resources.[17] Eliminating this requirement as it may apply to SERs is necessary in order to allow these Resources to participate in the market and provide Operating Reserves in amounts that can be supported by the physical characteristics of these Resources. In addition, eliminating this requirement for SERs will allow these Resources to adequately contribute to the Midwest ISO's compliance with applicable ERO reliability standards, including the Control Performance Standards and the Disturbance Control Standards. Stored Energy Resources, however, must continue to meet the Regulation qualification requirement that they be available to supply Regulating Reserve for sixty (60) minutes, subject to energy storage limitations that may be caused by unbalanced Regulating Reserve Deployment within an Hour.[18]

Second, the Midwest ISO is proposing a provision where the maximum amount of Operating Reserve (which includes Regulating Reserve, Spinning Reserve, and Supplemental Reserve) that may be supplied by Stored Energy Resources during a specific hour in the Day-Ahead Energy and Operating Reserve Market, or a specific Dispatch Interval in the Real-Time Energy and Operating Reserve Market, will be limited to a MW level equal to the Regulating Reserve requirement for that Hour.[19] In this regard, it is important to note that the sixty (60) minute requirement regarding the deployment of Contingency Reserve imposed on Resources other than Stored Energy Resources plays a key role in addressing contingencies by ensuring that Energy from reserve capacity can continue to be used to displace capacity lost due to a contingency until it can be restored. If all Operating Reserve were provided by short-term resources, such as Stored Energy Resources, there is no guarantee that sufficient capacity would be available to replace the loss of the largest supply Resource providing Energy to the Midwest ISO. This proposed limitation will, therefore, ensure that an amount of Operating Reserve greater than or equal to the Contingency Reserve requirement will be carried on Resources with the capability to provide reserve deployment for a sustained 60 minute period of time.

Settlement associated with Stored Energy Resources will be performed in same manner as other Resources except that Excessive Energy associated with Stored Energy Resources within an Hour will be settled at applicable Hourly Ex Post LMP.[20] Additionally, Stored Energy Resources will not be subject to the Regulation Deployment Adjustment.[21] The Midwest ISO submits that this settlement treatment is appropriate because SERs are not participating in the provision of Energy, only Operating Reserve. SERs will be subject to Tolerance Bands,[22] Excessive/Deficient Energy Deployment Charges,[23] Contingency Reserve Deployment Failure

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17 *See* proposed changes to Sections 39.2.1.B.a, 39.2.1B.b, 39.2.1B.c, 40.2.4.b and 40.2.4.c.
18 *See* proposed changes to Sections 39.2.1B.a and 40.2.4.a.
19 *See* proposed changes to Sections 39.2.1.A.g and 40.2.3.d.
20 *See* proposed changes to Section 40.3.3.b.ii.
21 *See* proposed change to Section 40.3.3.a.i.
22 *See* proposed change to Section 40.3.4.a.iii.
23 *See* proposed change to Section 40.3.4.b.

Charges, and RSG charges resulting from Excessive Energy[24] and/or Deficient Energy[25] on the same basis as other Resources.

In addition, the Midwest ISO is proposing to modify Module A of the Tariff to include a number of new definitions required for SERs, as well as conforming changes to definitions. Specifically, conforming changes to the definitions for Deficient Energy, Deficient Energy Threshold, Excessive Energy, Excessive Energy Price, Non-Excessive Energy, Offer, Regulating Reserve, Regulation Qualified Resource, Spin Qualified Resource, Supplemental Qualified Resource, and Resources were required.

In addition to the above-described specific modifications to the ASM Tariff that are proposed in the instant compliance filing, the Midwest ISO and Beacon Power also discussed potential enhancements to the ASM Tariff design that, once implemented, would encourage Resources with fast response times to participate in the market for Operating Reserves.[26] Such Resources may provide the benefit of helping to minimize the detrimental affects to traditional Generation Resources resulting from the constant need to respond to changes in the regulation control signal.

The Midwest ISO has committed to working with Beacon Power to further explore such market enhancements and to assist Beacon in vetting any specific proposals through the normal stakeholder process. Upon completion of the stakeholder process, the Midwest ISO would submit proposed market enhancements resulting from that process for Commission approval.

III. DOCUMENTS SUBMITTED

Below is a list of the documents being submitted with this filing:

Tab A – Redlined Tariff sheets

Tab B – Clean Tariff sheets

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[24] *See* proposed change to Section 40.3.4.a.iv.

[25] *See* proposed change to Section 40.3.4.a.vii.

[26] For example, the Midwest ISO and Beacon Power discussed whether different types of Regulating Reserves products should be created (such as "Fast Response Regulating Reserves," that would be capable of responding to a control signal and reach full output within 4 to 30 seconds, and "Traditional Regulating Reserves," that would capable of responding to a control signal and reach full output in greater than 30 seconds, yet within five minutes or less). Further, the Midwest ISO and Beacon have discussed whether additional financial incentives should be provided to Resources that have fast Regulation response times.

IV. PROPOSED EFFECTIVE DATE

On March 21, 2008, the Midwest ISO submitted to the Commission a Notice of Change in Ancillary Services Markets Launch Date, notifying the Commission that the Midwest ISO announced that the ASM launch date would be moved to September 9, 2008, in order to ensure market readiness. With respect to the proposed ASM Tariff provisions relating to Stored Energy Resources, however, the Midwest ISO requests that these provisions be made effective June 1, 2009. This later proposed effective date is necessary in order for the Midwest ISO to develop, test, and integrate the additional software and systems required to accommodate the Tariff revisions relating to this new type of Resource. Given these necessary modifications, the Midwest ISO is authorized to state that Beacon Power believes that the June 1, 2009 effective date is reasonable and will not unduly impede the participation of its flywheel technology from participating in the Midwest ISO ASM. The Midwest ISO will continue to evaluate whether these software and system changes can be implemented at an earlier date and, if so, the Midwest ISO will submit revised Tariff sheets reflecting the proposed earlier effective date.

V. NOTICE AND REQUEST FOR WAIVER

A. NOTICE

Please place the following persons on the official service list in this proceeding:

Arthur W. Iler*
Midwest Independent Transmission
System Operator, Inc.
701 City Center Drive
Carmel, Indiana 46032
Telephone: (202) 624-7305
Fax: (317) 249-5912
ailer@midwestiso.org

Michael L. Kessler*
Sejal C. Shah
Duane Morris, LLP
505 9th Street, N.W.
Suite 1000
Washington, D.C. 20004
Telephone: (202) 776-7808
Fax: (202) 776-7801
mlkessler@duanemorris.com

* Persons designated to receive official service.

B. SERVICE

The Midwest ISO has served all parties provided in the Commission's eService list for the above-referenced docket. In addition, the Midwest ISO notes that it has served a copy of this filing electronically, including attachments, upon all Tariff Customers under the EMT, Midwest ISO Members, Member representatives of Transmission Owners and Non-Transmission Owners, the Midwest ISO Advisory Committee participants, as well as all state commissions within the Region. In addition, the filing has been posted electronically on the Midwest ISO's website at

www.midwestmarket.org under the heading "Filings to FERC" for other interested parties in this matter.

VI. CONCLUSION

For the foregoing reasons, the Midwest ISO respectfully requests the Commission to accept this 60-day compliance filing in accordance with the directives set forth in the February 25 Order.

Respectfully submitted,

Michael L. Kessler

Attachments

Cc: Jennifer Amerkhail, FERC
Susan J. Court, FERC
Patrick Clarey, FERC
Christopher Miller, FERC
Penny Murrell, FERC
Melissa Lord, FERC
Michael Donnini, FERC
John Rogers, FERC

TAB A

1.118c GAAP 78A
1.118d Generation Interconnection Projects 78A
1.119 Generation Offer 79
1.120 Generation Owner 79
1.121 Generation Resource 80
1.122 Generation Shift Factors 80
1.122a Generator 80
1.123 Generator Forced Outage 81
1.124 Generator Planned Outage 81
1.124a GFA Schedule Delivery Point 81
1.124b GFA Schedule Receipt Point 81
1.125 Good Utility Practice 82
1.125a Governmental Authority 82
1.126 Grandfathered Agreement(s) (GFA) 82A
1.127 Grandfathered Agreement (GFA) Responsible Entity 83
1.127a Grandfathered Agreement (GFA) Schedule 83
1.128 Grandfathered Agreement (GFA) Scheduling Entity 83
1.129 Guarantor 83
1.130 Hour 83
1.130a Hourly Bi-Directional Ramp Rate 83
1.130b Hourly Curtailment Offer 83A
1.131 Hourly Economic Maximum Limit 83A
1.132 Hourly Economic Minimum Limit 83A
1.133 Hourly Emergency Maximum Limit 83A
1.134 Hourly Emergency Minimum Limit 84
1.134a Hourly Energy Storage Loss Rate 84
1.134~~a~~b ..... Hourly Excessive Energy Price 84
1.135 Hourly Ex Post LMP 84

1.135a Hourly Ex Post MCP 84

1.135b Hourly Full Charge Energy Withdrawal Rate 84a

1.135c Hourly Maximum Limit.....84a

1.135d Hourly Maximum Energy Charge Rate 84a

1.135e Hourly Maximum Energy Discharge Rate 84a

1.135f Hourly Maximum Energy Storage Level.....84a

1.135g Hourly Minimum Limit 84a

1.135~~b~~h.....Hourly Ramp Rates 84.01

1.135~~c~~i Hourly Regulation Maximum Limit 84.01

1.135~~d~~j .....Hourly Regulation Minimum Limit 84.01

1.135~~e~~k.....Hourly Single-Directional-Down Ramp Rate 84.01

1.135~~f~~l Hourly Single-Directional-Up Ramp Rate.....84A

1.136 Hourly Transmission Congestion Charges Collection.....84

1.137 Hub.....84

1.138 Hub LMP 84

1.294a State Estimator MWs 125B
1.294b Stored Energy Resource 125B
1.294c Stored Energy Resource Offer 125B
1.295 Station Power 126
1.295a Supplemental Qualified Resource 126
1.295b Supplemental Reserve 126
1.295c Supplemental Reserve Offer 126
1.296 Synchronous Condensor Unit (SCU) 126
1.296a System Firm Capacity Purchases 126
1.296b System Firm Capacity Sales 126
1.297 System Impact Study 127
1.298 System Losses 127
1.298a System Purchase Contracts 127
1.299 System Support Resource (SSR) 127
1.300 SSR Agreement 128
1.301 SSR Notification 128
1.302 SSR Unit 128

tenth Business Day after the Tariff Customer receives written notice to cure with respect to defaults described in Section 7.13.a.

1.63 Default Offer: A mitigation measure imposed by the Independent Market Monitor pursuant to Section 65.2 of this Tariff.

1.63a Deferred Schedule 16 Costs: Any deferred pre-operating costs to be recovered under Schedule 16 of this Tariff.

1.63b Deferred Schedule 17 Costs: Any deferred pre-operating costs to be recovered under Schedule 17 of this Tariff.

1.63c Deficient Energy: The amount of a Generation Resource's, Stored Energy Resource's or External Asynchronous Resource's Actual Energy Injection, or the amount of a Stored Energy Resource's Actual Energy Withdrawal if that Stored Energy Resource's Deficient Energy Threshold is a negative value, at a Commercial Pricing Node in the Real-Time Energy and Operating Reserve Market in a Dispatch Interval that is less than that Resource's Deficient Energy Threshold or, the amount of a Demand Response Resource's Type I Calculated DRR-Type-I Output, as adjusted for Actual Energy Injection or Demand Response Resource's Type II Calculated DRR-Type-II Output, as adjusted for Actual Energy Injection at a Commercial Pricing Node in the Real-Time Energy and Operating Reserve Market in a Dispatch Interval that is less than that Resource's Deficient Energy Threshold.

1.63d Deficient Energy Threshold: The minimum value of the Tolerance Band of a ~~Generation~~ Resource~~, an External Asynchronous Resource, a Demand Response Resource Type I or a Demand Response Resource Type II~~.

1.64 Delivering Party: The entity supplying Energy to be transmitted at Point(s) of Receipt.

1.64a Delivery Point: The Commercial Pricing Node used to determine the point of transfer between the buyer and the seller of the Energy specified in a Financial Schedule**.**

1.90 Excess Congestion Charge Fund: A fund established by the Transmission Provider representing, in aggregate, the difference between the total of all Transmission Congestion Payments for a given Hour and the hourly transmission congestion charges.

1.90a Excessive/Deficient Charge Rate: The rate used to determine a Resource's Excessive/Deficient Energy Deployment Charge as calculated pursuant to Section 40.3.4.b.

1.90b Excessive/Deficient Energy Deployment Charge: A charge assessed to any Resource in an Hour with Excessive Energy and/or Deficient Energy in three (3) or more consecutive Dispatch Intervals within the Hour.

1.90c Excessive Energy: The amount of a Generation Resource's, Stored Energy Resource's or External Asynchronous Resource's Actual Energy Injection at a Commercial Pricing Node in the Real-Time Energy and Operating Reserve Market in a Dispatch Interval that is greater than that Resource's Excessive Energy Threshold or, the amount of a Demand Response Resource's-Type I Calculated DRR-Type I Output, as adjusted for Actual Energy Injection or Demand Response Resource's-Type II Calculated DRR-Type II Output, as adjusted for Actual Energy Injection at a Commercial Pricing Node in the Real-Time Energy and Operating Reserve Market in a Dispatch Interval that is greater than that Resource's Excessive Energy Threshold.

1.90d Excessive Energy Price: The price used to calculate a Market Participant's credit for Excessive Energy that is equal to the Energy Offer price associated with a Generation Resource's, Demand Response Resource's – Type I, Demand Response Resource's – Type II or External Asynchronous Resource's Excessive Energy.

1.91 Excessive Energy Threshold: The maximum value of a Resource's Tolerance Band.

1.92 Export Schedule: An Interchange Schedule in which the Interchange Schedule Receipt Point lies within the Midwest ISO Balancing Authority Area and the Interchange Schedule Delivery Point lies outside the Midwest ISO Balancing Authority Area.

1.92a Exporting Entity: A Market Participant that is not a Load Serving Entity with a cleared Export Schedule in the Day-Ahead Energy and Operating Reserve Market or an Export Schedule in the Real-Time Energy and Operating Reserve Market.

1.134 Hourly Emergency Minimum Limit: The minimum MW level at which a Generation Resource or Demand Response Resource-Type II may operate under Emergency conditions that may be submitted to override the default value submitted during the asset registration process.

1.134a Hourly Energy Storage Loss Rate: The amount of energy consumed in MWh over a five-minute time period to maintain a Stored Energy Resource at its maximum energy storage level assuming no Operating Reserve deployments.

1.134~~a~~b Hourly Excessive Energy Price: The weighted average of the Dispatch Interval Energy Offer Price where the weighting factors are determined by normalizing the Excessive Energy in each Dispatch Interval in the hour. The Dispatch Interval Energy Offer Price is the Energy Offer price at the Dispatch Target for Energy.

1.135 Hourly Ex Post LMP: The LMP derived through mathematical integration of the Dispatch Interval Ex Post LMPs over the Hour.

1.135a Hourly Ex Post MCP: The average MCPs for Regulating Reserve, Spinning Reserve and Supplemental Reserve applicable to a specific Resource derived through time and quantity weighting of the applicable Ex Post MCPs over the Hour.

1.135b Hourly Full Charge Energy Withdrawal Rate: The amount of additional energy that can be consumed by a Stored Energy Resource over a period of five minutes when under a full charge.

1.135c Hourly Maximum Limit: The maximum MW output of a Stored Energy Resource that may be submitted to override the default value submitted during the asset registration process. This value must be positive.

1.135d Hourly Maximum Energy Charge Rate: The maximum rate at which a Stored Energy Resource may be charged, expressed in MWh per Minute, that may be submitted to override the default value submitted during the asset registration process.

1.135e Hourly Maximum Energy Discharge Rate: The maximum rate at which a Stored Energy Resource may be discharged, expressed in MWh per Minute, that may be submitted to override the default value submitted during the asset registration process.

1.135f Hourly Maximum Energy Storage Level: The maximum amount of energy that may be stored by a Stored Energy Resource on a sustained basis, expressed in MWh, that may be submitted to override the default value submitted during the asset registration process.

1.135g Hourly Minimum Limit: The minimum MW output of a Stored Energy Resource that may be submitted to override the default value submitted during the asset registration process. This value may be positive or negative.

1.135~~b~~h Hourly Ramp Rate: The MW/minute response rate for a Generation Resource, External Asynchronous Resource or Demand Response Resource Type-II that is utilized in the clearing of the Day-Ahead Energy and Operating Reserve Market and all Reliability Assessment Commitment processes that may be submitted to override the default value submitted during the asset registration process.

1.135~~c~~i Hourly Regulation Maximum Limit: The maximum MW output at which a Generation Resource, Demand Response Resource – Type II or External Asynchronous Resource can respond to automatic control signals that may be submitted to override the default value submitted during the asset registration process.

1.135~~d~~j Hourly Regulation Minimum Limit: The minimum MW output at which a Generation Resource, Demand Response Resource – Type II or External Asynchronous Resource can respond to automatic control signals that may be submitted to override the default value submitted during the asset registration process.

1.135~~e~~k Hourly Single-Directional-Down Ramp Rate: The MW/minute rate at which a Generation Resource, an External Asynchronous Resource or Demand Response Resource-Type II can respond to the Setpoint Instructions in the downward direction only that may be submitted to override the default value submitted during the asset registration process.

1.135~~fl~~ Hourly Single-Directional-Up Ramp Rate: The MW/minute rate at which a Generation Resource, an External Asynchronous Resource or Demand Response Resource-Type II can respond to the Setpoint Instructions in the upward direction only that may be submitted to override the default value submitted during the asset registration process.

1.136 Hourly Transmission Congestion Charges Collection: The aggregate amount of Transmission Usage Charge collected in a given Hour.

1.137 Hub: A Commercial Pricing Node developed for financial and trading purposes.

1.138 Hub LMP: The weighted-averaged LMP for an invariant set of Elemental Pricing Nodes that comprise the Hub. The weights are static over time.

1.139 Import Schedule: An Interchange Schedule in which the Interchange Schedule Delivery Point lies within the Midwest ISO Balancing Authority Area and the Interchange Schedule Receipt Point lies outside of the Midwest ISO Balancing Authority Area.

1.140 Inadvertent Energy: The mathematical time integral deviation of a Balancing Authority's Net Scheduled Interchange subtracted from its Net Actual Interchange where a negative value denotes a condition of undergeneration and a positive value denotes overgeneration.

1.220 Node: A physical location represented in the Network Model.

1.221 No-Load Offer: The compensation request in a Generation Offer or Demand Response Resource-Type II Offer, in dollars, by a Market Participant representing the fees requested by the Market Participant for operating a Generation Resource or Demand Response Resource-Type II at zero (0) MW.

1.221a Non-Binding Settlement Zone: The combination of all Reserve Zones that are not Binding Reserve Zones associated with Regulating Reserve, Spinning Reserve or Supplemental Reserve, as applicable, that are used for the purposes of allocating Operating Reserve costs in accordance with Schedules 3, 5 and 6, respectively.

1.222 Non-Disclosure Agreement: An agreement established between the Transmission Provider and affected parties governing the disclosure of Confidential Information; provided, however, that in the case of such an agreement between an Authorized Requestor and the Transmission Provider pursuant to Section 38.9.4 of the Tariff, the applicable form is appended to the Tariff as Attachment EE, wherein the Authorized Requestor is given access to otherwise restricted Confidential Information.

1.222a Non-Excessive Energy: Energy injected or withdrawn by a Resource at a Commercial Pricing Node in an Hour in the Real-Time Energy and Operating Reserve Market that is within that Resource's Tolerance Band.

Filed to comply with *Midwest Independent Transmission System Operator, Inc.*, 122 FERC ¶ 61, 172 (2008) issued on February 25, 2008 in Docket Nos. ER07-1372-000 and 001.

1.224 North American Electric Reliability Council (NERC): A reliability council, or its successor organization, responsible for the oversight of Regional Reliability Organizations established to ensure the reliability and stability of the regions.

1.225 Offer: An offer, that is duly submitted to the Transmission Provider consistent with this Tariff and the Business Practices Manuals, to (a) sell Energy and Operating Reserve in the Energy and Operating Reserve Markets at a specified price, location, quantity, and time period and shall include (i) Generation Offers, (ii) Demand Response Resource-Type I Offers, (iii) Demand Response Resource-Type II Offers, (iv) External Asynchronous Resource Offers, (v) Stored Energy Resources and (vi) Dispatchable Interchange Schedule Import Schedules and (b) purchase Energy through Fixed Interchange Schedule Import Schedules and Dynamic Interchange Schedule Import Schedules at a specified location, quantity, and time period.

1.262a Regionally Beneficial Projects: Network Upgrades proposed by the Transmission Provider, Transmission Owner(s), ITC(s), Market Participant(s), or regulatory authorities as beneficial to one or more Market Participant(s), but not determined by the Transmission Provider to be Baseline Reliability Projects, or New Transmission Access Projects, or Enhanced Extra High Voltage Projects and provide sufficient benefits as determined by the Transmission Provider to justify inclusion into the MTEP.

1.263 Regulation Capability: The ability of a Resource or Resources to provide and deploy Regulating Reserve.

1.263a Regulating Reserve: Frequency responsive Generation Resource, External Asynchronous Resource, Stored Energy Resource or Demand Response Resource-Type II capacity held in reserve for the purpose of providing Regulating Reserve Deployment in both the up and down direction.

1.263b Regulating Reserve Deployment: The utilization of Regulating Reserve to automatically and continuously adjust Resource output to manage the Midwest ISO Balancing Authority Area in accordance with Applicable Reliability Standards.

1.264 Regulation Qualified Resource: A Generation Resource, External Asynchronous Resource, Stored Energy Resource or a Demand Response Resource-Type II that has met the requirements to be eligible to submit Regulating Reserve Offers into the Energy and Operating Reserve Markets.

1.265 Regulation Response Time: The maximum amount of time allowed for a Resource output to move from zero Regulating Reserve Deployment to the full amount of Regulating Reserve cleared in the up direction or to move from zero Regulating Reserve Deployment to the full amount of Regulating Reserve cleared in the down direction.

1.266 Reliability Assessment Commitment (RAC): A process conducted during the Real-Time Energy and Operating Reserve Market by which the Transmission Provider ensures that sufficient Resources will be available and on-line to meet Load, Operating Reserve, and other demand requirements in the Operating Day.

1.267 Reliability Coordinator: Entities responsible for ensuring the real-time operating reliability of the interconnected bulk electric transmission system within the Reliability Coordinator Area.

1.270a Reserved Source Point(s) (RSP): Resources historically used by a Market Participant to serve Load in an ARR Zone.

1.271 Residual Load: The result of a calculation used to determine the amount of over or under claimed Load in a Local Balancing Authority Area. The calculation determines the difference between: (i) the reported amount of Actual Energy Injections and Net Actual Interchange for the Local Balancing Authority; and (ii) the amount of State Estimator determined Losses and the reported amount of Actual Energy Withdrawals for the Local Balancing Authority Area. Residual Load is then used to reduce or increase the reported volume of the Residual Load Zone for that Local Balancing Authority Area.

1.272 Residual Load Zone: The single Commercial Pricing Node identified by the Transmission Provider in a Local Balancing Authority Area where any calculated Residual Load is allocated for the purpose of Settlements.

1.273 Resource: Either a Generation Resource, a Demand Response Resource-Type I, a Demand Response Resource-Type II, a Stored Energy Resource or an External Asynchronous Resource.

1.291e Spinning Reserve: A specified percentage, based on Applicable Reliability Standards, of Contingency Reserve that must be synchronized to the Transmission System and that meets all Applicable Reliability Standards, and that can be converted to Energy within the Contingency Reserve Deployment Period following a deployment instruction.

1.291f Spinning Reserve Offer: The price at which a Spinning Reserve Qualified Resource has agreed to sell Spinning Reserve in dollars per MW.

1.291g Spin Qualified Resource: A Generation Resource, an External Asynchronous Resource, a Stored Energy Resource, a Demand Response Resource-Type I or a Demand Response Resource-Type II that has met the requirements to be eligible to submit Spinning Reserve Offers into the Energy and Operating Reserve Markets.

1.291h Start-Up Notification Time: The amount of notification time required by a Generation Resource prior to the initiation of start-up procedures or the amount of notification time required for a Demand Response Resource-Type II prior to the initiation of demand reduction procedures.

1.292 Start-Up Offer: The compensation required by a Market Participant for bringing an off-line Generation Resource on-line or for reducing consumption of a Demand Response Resource-Type II.

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1.293 Start-Up Time: The number of hours required to start a Generation Resource or Demand Response Resource – Type II and synchronize with the Transmission Provider Region to Hourly Economic Minimum Limit consistent with the Applicable Reliability Standards.

1.294 State Estimator: A software program used by the Transmission Provider to create a real-time assessment of the condition of the Transmission Provider Region.

1.294a State Estimator MWs: The megawatts that are determined by the State Estimator to be generated at a given location for each Real-Time LMP interval.

1.294b Stored Energy Resource: A Resource capable of supplying one or more types of Operating Reserve, but not Energy, through the short-term storage and discharge of electrical Energy in response to Setpoint Instructions.

1.294c Stored Energy Resource Offer: A Regulating Reserve Offer (if a Regulation Qualified Resource), Spinning Reserve Offer (if a Spin Qualified Resource) and/or a Supplemental Reserve Offer (if not a Spin Qualified Resource) submitted by a Market Participant within the Midwest ISO Balancing Authority Area for the output of a specified Stored Energy Resource to supply Operating Reserve to the Energy and Operating Reserve Markets.

1.295 Station Power: "Station Power" shall mean the energy used for operating the electrical equipment on the site of a Generation Resource and/or for the lighting, heating, air-conditioning and office equipment needs of buildings located on the site of such a Generation Resource that are used in the operation, maintenance, or repair of the facility. Station Power does not include energy (i) used for pumping at a pumped storage facility; (ii) to power synchronous condensers; or (iii) in association with power system restoration or blackstart service. Station Power may only be provided pursuant to Schedule 20 of this Tariff.

1.295a Supplemental Qualified Resource: A Spin Qualified Resource, or a Demand Response Resource-Type I or, a Generation Resource, Demand Response Resource Type-II, Stored Energy Resource or an External Asynchronous Resource that is not a Spin Qualified Resource that has met the requirements to be eligible to submit Supplemental Reserve Offers into the Energy and Operating Reserve Markets.

1.295b Supplemental Reserve: Contingency Reserve that is not considered Spinning Reserve that can be converted to Energy within the Contingency Reserve Deployment Period and that meets all Applicable Reliability Standards.

1.295c Supplemental Reserve Offer: The price at which a Demand Response Resource-Type I or an External Asynchronous Resource that is a Supplemental Reserve Qualified Resource has agreed to sell Supplemental Reserve in dollars per MW.

The Regulation Response Time will be determined and/or adjusted by the Transmission Provider on a periodic basis to comply with Applicable Reliability Standards. The day-ahead Market-Wide Regulating Reserve Requirement will be established each day by the Transmission Provider to comply with Applicable Reliability Standards in an economic manner. The day-ahead Market-Wide Regulating Reserve Requirement may vary on an Hourly basis if permitted by the Applicable Reliability Standards. All Regulating Reserve cleared in the Day-Ahead Energy and Operating Reserve Market must be supplied by Regulation Qualified Resources. The percentage of Regulating Reserve cleared in the Day-Ahead Energy and Operating Reserve Market on any Generation Resource~~s~~, Demand Response Resource~~s~~ – Type II, Stored Energy Resource and/or External Asynchronous Resources shall initially be limited to twenty percent of the hourly day-ahead Market-Wide

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(i) the minimum frequency responsive Contingency Reserve percentage requirement in accordance with Applicable Reliability Standards, if applicable, or (ii) the minimum Spinning Reserve percentage requirement specified by Applicable Reliability Standards. The day-ahead Market-Wide Supplemental Reserve requirement will be equal to the day-ahead Market-Wide Contingency Reserve Requirement minus the day-ahead Market-Wide Spinning Reserve Requirement. The percentage of Spinning Reserve and/or Supplemental Reserve cleared in the Day-Ahead Energy and Operating Reserve Market on any Resource~~s~~ shall initially be limited to twenty percent of the hourly day-ahead Market-Wide Contingency Reserve Requirement to the extent that such limitation does not create scarcity conditions or any other adverse reliability related conditions, and may be further limited on Demand Response Resource – Type I and/or Demand Response Resources – Type II based on Applicable Reliability Standards.

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3) such condition or event has a projected duration of two or more Operating Days and; 4) the Transmission Provider determines such adjustment is necessary to ensure the reliability of the Transmission System. The duration of any such adjustment will coincide with the duration of the condition or event, or until the next quarterly Reserve Zone Configuration Study update, whichever is less. The Transmission Provider will publish notice on OASIS identifying the reasons for any such Reserve Zone adjustment, and the expected duration thereof. In no event shall the Transmission Provider implement an adjustment to a Reserve Zone without a minimum of a forty-eight (48) hour notice prior to the Operating Day for which the Reserve Zone adjustment will apply.

g. Operating Reserve Supply Limitation on Stored Energy Resources.

The maximum amount of Operating Reserve, including Regulating Reserve, Spinning Reserve and/or Supplemental Reserve, that may be supplied by Stored Energy Resources in the Day-Ahead Energy and Operating Reserve Market in an Hour cannot exceed the Market-Wide Regulating Reserve Requirement for the Hour.

the Day-Ahead Energy and Operating Reserve Market must be capable of automatically responding to and alleviating frequency deviations through a speed governor or similar device in accordance with the Applicable Reliability Standards. All Regulation Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of supplying Regulation for a minimum continuous duration of sixty (60) minutes, except with respect to Stored Energy Resources the Regulating Reserve Deployment shall not exceed the energy storage capabilities of such Resource. All Regulation Qualified Resources supplying Regulation in the Day-Ahead Energy and Operating Reserve Market must be capable of receiving and responding to automatic control signals and must provide telemetered output data in accordance with the Business Practices Manuals.

Regulation Qualified Resources in the Day-Ahead Energy and Operating Reserve Market will be limited to (i) committed Generation Resources, (ii) available External Asynchronous Resources, ~~and/or~~ (iii) committed Demand Response Resources - Type II, and/or available Stored Energy Resources. A Market Participant may disqualify a Regulation Qualified Resource from supplying Regulating Reserve on an Hourly basis if physical operating restrictions make the Resource unable to deploy Regulating Reserve in accordance with the product requirements for Regulating Reserve established in Section 39.2.1A.a and the Business Practices Manuals.

b. Spin Qualified Resources.

All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market shall meet all of the requirements for Spin Qualified Resources specified in this Section. Only Spin Qualified Resources will be permitted to supply Spinning Reserve in the Day-Ahead Energy and Operating Reserve Market. All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be registered in the Energy and

Authority Area and must remain Pseudo-tied into the Midwest ISO Balancing Authority Area until the next Network Model update, or the Resource must be an External Asynchronous Resource. All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must comply with the requirements imposed by the Applicable Reliability Standards for Resources supplying Spinning Reserve and if applicable, frequency responsive Contingency Reserve. All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100%) of their cleared Spinning Reserve within the Contingency Reserve Deployment Period. All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of deploying one hundred percent (100%) of their cleared Spinning Reserve for a minimum continuous duration of sixty (60) minutes, except for Stored Energy Resources. All Spin Qualified Resources supplying Spinning Reserve in

Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market will be limited to: (i) committed Generation Resources; (ii) uncommitted Demand Response Resources - Type I; (iii) committed Demand Response Resources – Type II ~~and/or~~; (iv) available External Asynchronous Resources and/or, (v) available Stored Energy Resources. A Market Participant can disqualify a Spin Qualified Resource from supplying Spinning Reserve on an Hourly basis should physical operating restrictions make the Resource unable to deploy Spinning Reserve in accordance with the product requirements for Spinning Reserve established in Section 39.2.1A.b and the Business Practices Manuals. If a Resource is disqualified from providing Spinning Reserve, it is disqualified from providing Regulating Reserve by default.

c. Supplemental Qualified Resources. All Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must meet all of the requirements for Supplemental Qualified Resources specified in this Section. Only Supplemental Qualified Resources will be permitted to supply Supplemental Reserve in the Day-Ahead

All Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be physically located within the Midwest ISO Balancing Authority Area, or the entire Generation Resource must be Pseudo-tied into the Midwest ISO Balancing Authority Area and must remain Pseudo-tied into the Midwest ISO Balancing Authority Area until the next Network Model update, or the Resource must be an External Asynchronous Resource. All Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100%) of their cleared Contingency Reserve within the Contingency Reserve Deployment Period. All Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100%) of their cleared Contingency Reserve for a minimum continuous duration of sixty (60) minutes, except for Stored Energy Resources.

Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market will be limited to: (i) committed Generation Resources; (ii) uncommitted Quick-Start Resources; (iii) uncommitted Demand Response Resources - Type I; (iv) committed Demand Response Resources - Type II; ~~and/or;~~ (v) available External Asynchronous Resources and/or; (vi) available Stored Energy Resources. Uncommitted Quick-Start Resources and uncommitted Demand Response Resources - Type I, must have a Minimum Run Time (or Minimum Interruption Duration, if a Demand Response Resource - Type I) of one-hundred-eighty (180) minutes or less in order to be classified as Supplemental Qualified Resources. A Market Participant can disqualify a Supplemental Qualified Resource from supplying Supplemental Reserve on an Hourly basis should physical operating restrictions make the Resource unable to deploy Supplemental Reserve in accordance with the product requirements for Supplemental Reserve established in Section 39.2.1A.b and the Business Practices Manuals.

d. Day-Ahead Energy and Operating Reserve Market Offer Price Cap. The following Offer Price Caps will apply to External Asynchronous Resources in the Day-Ahead Energy and Operating Reserve Market:

i. Energy Offer Price Cap: $1,000/MWh;

ii. Regulating Reserve Offer Cap: $500/MW for each Hour;

iii. Contingency Reserve Offer Price Cap: $100/MW for each Hour.

39.2.5C Stored Energy Resource Offer Rules in the Day-Ahead Energy and Operating Reserve Market

Market Participants that intend to supply Operating Reserve in the Day-Ahead Energy and Operating Reserve Market shall provide the information specified in this Section. Stored Energy Resource Offers shall be submitted in the Day-Ahead Energy and Operating Reserve Market only for registered Stored Energy Resource. Stored Energy Resources Offers will remain in effect for the Day-Ahead Energy and Operating Reserve Market until specifically superseded by subsequent Stored Energy Resource Offers. Each Market Participant may only submit a single Stored Energy Resoruce Offer for each individual Resource.

a. Eligibility to Supply. Market Particpants may Self-Schedule Energy and/or offer or Self-Schedule Operating Reserve into the Day-Ahead Energy and Operating Reserve Market if the Transmission Provider has (i) certified the Resource is capable of responding to five (5) minute Dispatch Targets for Energy storage, (ii) has the appropriate telemetry installed as set forth in the Business Practices Manuals, (iii) such Resource has been included in the Network Model, and (iv) is qualified to provide the Operating Reserve products offered. A Market Participant's Stored Energy Resources can supply Regulating Reserve, Spinning Reserve, and/or Supplemental Reserve in the Day-Ahead Energy and Operating Reserve Market if the Transmission Provider has certified that the Resource is a Regulation Qualified Resource, Spin Qualified Resource, and/or Supplemental Qualified Resource, respectively. Market Participants that offer to supply Day-Ahead Regulating Reserve, Spinning Reserve, and/or Supplemental Reserve shall provide the Offer information specified below.

b. Required Stored Energy Resource Offer Components.

Market Participants that submit Stored Energy Resource Offers shall include a Regulating Reserve Offer (if a Regulation Qualified Resource), a Spinning Reserve Offer (if a Spin Qualified Resource), and a Supplemental Reserve Offer (if a Supplemental Qualified Resource but not a Spin Qualified Resource). Market Participants can provide Stored Energy Resource Offers for the full energy storage capabilities of their resource pursuant to the requirements outlined in Section 39.2.1B.

Market Participants may submit Stored Energy Resource Offers to the Day-Ahead Energy and Operating Reserve Market up to seven (7) Days prior to the Operating Day, and may modify these Stored Energy Resource Offers up until the time the Day-Ahead Energy and Operating Reserve Market closes, as specified in Section 39.1.1. Any limits on the Offer over the full energy storage capability of the Resource must be consistent with Module D. A single Stored Energy Resource Offer may be submitted in the Day-Ahead Energy and Operating Reserve Market for each Hour of the Operating Day for which the Market Participant is willing to sell Operating Reserve from a given Resource.

The Transmission Provider shall maintain a Day-Ahead Energy and Operating Reserve Market Stored Energy Resource Offer for each Resource. These Offers are standing Offers and are maintained for the Day-Ahead Energy and Operating Reserve Market independent of the Real-Time Energy and Operating Reserve Market. These Offers may be updated prior to the close of the Day-Ahead Energy and Operating Reserve Market. Stored Energy Resource Offer components are as follows:

i. **Regulating Reserve Offer.** The Regulating Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Regulation Qualified Resources. If no hourly Regulating Reserve Offer is submitted, the default Regulating Reserve Offer specified during the asset registration process will be used.

ii. **Spinning Reserve Offer.** The Spinning Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Spin Qualified Resources. If no hourly Spinning Reserve Offer is submitted, the default Spinning Reserve Offer specified during the asset registration process will be used.

iii. **Supplemental Reserve Offer.** The Supplemental Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Supplemental Qualified Resources that are not Spin Qualified Resources. If no hourly Supplemental Reserve Offer is submitted, the default Supplemental Reserve Offer specified during the asset registration process will be used.

iv. **Commercial Pricing Node.** A Commercial Pricing Node shall be specified for the Stored Energy Resource at the time the asset is registered. The Commercial Pricing Node type shall not be a Load Zone, Interface, or Hub.

v. **Hourly Ramp Rate.** An Offer shall include an Hourly Ramp Rate, expressed for each Hour in MW/minute. If no Hourly Ramp Rate is submitted, the default ramp rate specified during the asset registration process will be used.

vi. **Hourly Minimum Limit.** An Offer shall include an Hourly Minimum Limit, expressed for each Hour in MW. If no Hourly Minimum Limit is submitted, the default limit specified during the asset registration process will be used. The Hourly Minimum Limit may be negative.

vii. **Hourly Maximum Limit.** An Offer shall include an Hourly Maximum Limit, expressed for each Hour in MW. If no Hourly Maximum Limit is submitted, the default limit specified during the asset registration process will be used.

viii. **Hourly Maximum Energy Storage Level.** An Offer shall include an Hourly Maximum Energy Storage Level, expressed for each Hour in MWh. The hourly maximum energy storage level represents the maximum amount of energy the Stored Energy Resource can store and maintain. If no Hourly Maximum Energy Storage Level is submitted, the default value specified during the asset registration process will be used.

ix. **Hourly Maximum Energy Charge Rate.** An Offer shall include an Hourly Maximum Energy Charge Rate, expressed for each Hour in MWh / Minute. If no Hourly Maximum Energy Charge Rate is submitted, the default value specified during the asset registration process will be used.

x. **Hourly Maximum Energy Discharge Rate.** An Offer shall include an Hourly Maximum Energy Discharge Rate, expressed for each Hour in MWh / Minute. If no Hourly Maximum Energy Discharge Rate is submitted, the default value specified during the asset registration process will be used.

xi. **Availability Status.** An Offer shall include an Availability Status to indicate if the Stored Energy Resource is available for participation in the Day-Ahead Energy and Operating Reserve Market during the Hour. If the Availability Status is set to Unavailable, then the Stored Energy Resource will be unavailable to provide Operating Reserve in the Day-Ahead Energy and Operating Reserve Market during the Hour. If the Availability Status is set to Available, then the Stored Energy Resource will be available to provide Operating Reserve in the Day-Ahead Energy and Operating Reserve Market during the Hour.

xii. **Regulating Reserve Dispatch Status.** An Offer shall include specification of a Regulating Reserve Dispatch Status for Regulating Reserve for each Hour. Valid Regulating Reserve Dispatch Status specifications include: Economic, Self-Schedule, Not Qualified and Not Participating. An Economic Regulating Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Regulating Reserve on the Resource for the Hour.

A Self-Schedule Regulating Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Regulating Reserve on the Resource for the Hour. A Not Qualified Regulating Reserve Dispatch Status indicates that the Resource is not qualified to provide Regulating Reserve for an Hour. A Not Participating Regulating Reserve Dispatch Status indicates the Market Participant will not provide Regulating Reserve on a Resource that is otherwise qualified to provide Regulating Reserve. The Not Participating Regulating Reserve Dispatch Status will not be available to any Resource that has all or a portion of its capacity designated as a Network Resource for the first 180 days of the Energy and Operating Reserve Market. The Regulating Reserve Dispatch Status only applies to Resources that are i) available for the Hour and ii) registered as Regulation Qualified Resources.

xiii. **Spinning Reserve Dispatch Status.** An Offer shall include specification of a Spinning Reserve Dispatch Status for Spinning Reserve for each Hour. Valid Spinning Reserve Dispatch Status specifications include: Economic, Self-Schedule and Not Qualified. An Economic Spinning Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Spinning Reserve on the Resource for the Hour. A Self-Schedule Spinning Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Spinning Reserve on the Resource for the Hour. A Not Qualified Spinning Reserve Dispatch Status indicates that the Resource is not qualified to provide Spinning Reserve for an Hour. The Spinning Reserve Dispatch Status cannot be set to Not Qualified for a specific Resource in a specific Hour unless the Regulating Reserve Dispatch Status is also set to Not Qualifieid for that Resource in that Hour. The Spinning Reserve Dispatch Status only applies to Resources that are i) available for the Hour and ii) are registered as Spin Qualified Resources.

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xiv. **Supplemental Reserve Dispatch Status.** An Offer shall include specification of a Supplemental Reserve Dispatch Status for Supplemental Reserve for each Hour. Valid Supplemental Reserve Dispatch Status specifications include: Economic, Self-Schedule and Not Qualified. An Economic Supplemental Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Supplemental Reserve on the Resource for the Hour. A Self-Schedule Supplemental Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Supplemental Reserve on the Resource for the Hour. A Not Qualified Supplemental Reserve Dispatch Status indicates that the Resource is not qualified to provide Supplemental Reserve for an Hour. The Supplemental Reserve Dispatch Status cannot be set to Not Qualified for a specific Resource in a specific Hour unless the Regulating Reserve Dispatch Status and the Spinning Reserve Dispatch Status are also set to Not Qualifieid for that Resource in that Hour.

The Supplemental Reserve Dispatch Status only applies to Resources that are (i) available for the Hour, (ii) are registered as Supplemental Qualified Resources and, (iii) are not registered as Spin Qualified Resources or have been disqualified by the Market Participant as Spin Qualified Resources for the Hour.

xv. **Hourly Energy Storage Loss Rate.** An Offer shall include specification of an Hourly Energy Storage Loss Rate for each Hour, expressed in MWh, which is the amount of Energy consumed by the Stored Energy Resource over a five-minute time period to maintain an energy storage level equal to the Hourly Maximum Energy Storage Level assuming no Operating Reserve deployment. If no Hourly Storage Loss Rate is submitted, the default value specified during the asset registration process will be used.

xvi. **Hourly Full Charge Energy Withdrawal Rate.** An Offer shall include specification of an Hourly Full Chage Energy Withdrawal Rate for each Hour, expressed in MWh, which is the amount of additional Energy that can be consumed by the Stored Energy Resource over a five-minute time period under a full charge to provide Regulation down capability. If no Hourly Full Charge Energy Withdrawal Rate is submitted, the default value specified during the asset registration process will be used.

c. Values in Offers. The values in Offers representing the non-price information identified in Section 39.2.5C.b. shall reflect the actual known physical capabilities and characteristics of the Stored Energy Resource on which the Offer is based.

d. Day-Ahead Energy and Operating Reserve Market Offer Price Caps. The following Offer Price Caps will apply to Stored Energy Resources in the Day-Ahead Energy and Operating Reserve Market:

i. Regulating Reserve Offer Price Cap: $500/MW for each Hour

iii. Contingency Reserve Offer Price Cap: $100/MW for each Hour

39.2.6 RESERVED

39.2.7 Specifications for Virtual Offers

a. General Virtual Offers Rules. Market Participants that intend to sell Virtual Energy in the Day-Ahead Energy and Operating Reserve Market shall provide the Offer information specified in this Section 39.2.7. Market Participants may sell Virtual Energy at any Commercial Pricing Node. Virtual Supply Offers shall not be used to supply Operating Reserve.

ii. If the Interface consists of multiple external Elemental Pricing Nodes, the Day-Ahead LMP for the Interface Commercial Pricing Node is set equal to the calculated Day-Ahead LMP for the Aggregate Price Node representing the Interface. The weighting factor for a specific Elemental Pricing Node is equal to a normalized value determined by the Transmission Provider for the Interface.

i. Determining the Day-Ahead Regulating Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Day-Ahead Regulating Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Hour in the Day-Ahead Energy and Operating Reserve Market, based on the SCED algorithm. The Regulating Reserve MCP for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Market-Wide Minimum Regulating and Spinning Reserve Constraint Shadow Price,

(iii) Market-Wide Regulating Reserve Balance Constraint Shadow Price, (iv) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, (v) Zonal Minimum Regulating and Spinning Reserve Constraint Shadow Price, if applicable, (vi) Zonal Regulating Reserve Balance Constraint Shadow Price, if applicable, (vii) Market-Wide Minimum Generation-based Regulating Reserve Constraint Shadow Price, if applicable, (viii) Market-Wide Minimum Generation-based Regulating Reserve plus Spinning Reserve Constraint Shadow Price, if applicable and (ix) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Regulating Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources shall be calculated on a Day-Ahead basis for each Hour of the Day-Ahead Energy and Operating Reserve Market.

Such Regulating Reserve MCPs for Demand Response Resources - Type II shall be calculated on a Day-Ahead basis for each Hour of the Day-Ahead Energy and Operating Reserve Market.

k. Determining the Day-Ahead Spinning Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Day-Ahead Spinning Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Hour in the Day-Ahead Energy and Operating Reserve Market, based on the SCED algorithm. The Spinning Reserve MCP for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Market-Wide Minimum Regulating and Spinning Reserve

Constraint Shadow Price, (iii) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, (iv) Zonal Minimum Regulating and Spinning Reserve Constraint Shadow Price, if applicable, (v) Market-Wide Minimum Generation-based Regulating Reserve plus Spinning Reserve Constraint Shadow Price, if applicable and (vi) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Spinning Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources shall be calculated on a Day-Ahead basis for each Hour of the Day-Ahead Energy and Operating Reserve Market.

m. Determining the Day-Ahead Supplemental Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Day-Ahead Supplemental Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Hour in the Day-Ahead Energy and Operating Reserve Market, based on the SCED algorithm. The Supplemental Reserve MCP for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, and (iii) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Supplemental Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources shall be calculated on a Day-Ahead basis for each Hour of the Day-Ahead Energy and Operating Reserve Market.

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39.3.2A Day-Ahead Operating Reserve Procurement

~~Charges~~Credits

a. Market Participants scheduled to supply Regulating Reserve from Generation Resources, Demand Response Resources – Type II, Stored Energy Resources and/or External Asynchronous Resources in the Day-Ahead Energy and Operating Reserve Market shall be credited for all Regulating Reserve Schedules cleared in the Day-Ahead Energy and Operating Reserve Market at the applicable Day-Ahead Regulating Reserve MCP.

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b. Market Participants scheduled to supply Spinning Reserve in the Day-Ahead Energy and Operating Reserve Market from ~~Generation~~ Resources~~, Demand Response Resources – Type II and/or External Asynchronous Resources~~ shall be credited for all Spinning Reserve Schedules cleared in the Day-Ahead Energy and Operating Reserve Market at the applicable Day-Ahead Spinning Reserve MCP.

c. Market Participants scheduled to supply Supplemental Reserve in the Day-Ahead Energy and Operating Reserve Market from ~~Generation~~ Resources~~, Demand Response Resources – Type II and/or External Asynchronous Resources~~ shall be credited for all Supplemental Reserve Schedules cleared in the Day-Ahead Energy and Operating Reserve Market at the applicable Day-Ahead Supplemental Reserve MCP.

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The percentage of Regulating Reserve cleared in the Real-Time Energy and Operating Reserve Market on any Generation Resource~~s~~, Demand Response Resource~~s~~ – Type II, Stored Energy Resource and/or External Asynchronous Resources shall initially be limited to twenty percent of the hourly Real-Time Market-Wide Regulating Reserve Requirement to the extent that such limitation does not create Regulating Reserve scarcity conditions or any other adverse reliability related conditions, and may be further limited on Demand Response Resources – Type II based on Applicable Reliability Standards.

b. Market-Wide Contingency Reserve Product Requirements

All cleared Contingency Reserve in the Real-Time Energy and Operating Reserve Market must be fully deployable within the Contingency Reserve Deployment Period. The Real-Time Market-Wide Contingency Reserve Requirement shall be equal to the corresponding hourly Market-Wide Contingency Reserve Requirements as established by the Transmission Provider in the Day-Ahead Energy and Operating Reserve Market, but may be adjusted by the Transmission Provider if necessary to comply with Applicable Reliability Standards. The Real-Time Market-Wide Contingency Reserve Requirement may vary on an hourly basis if permitted by Applicable Reliability Standards.

any Resource~~s~~ shall be limited to twenty percent of the hourly Real-Time Market-Wide Contingency Reserve Requirement to the extent that such limitation does not create scarcity conditions or any other adverse reliability related condistions, and may be further limited on Demand Response Resource – Type I and/or Demand Response Resources – Type II specific Resources based on Applicable Reliability Standards.

c. Zonal Operating Reserve Product Requirements

In the Real-Time Energy and Operating Reserve Market, one or more Reserve Zones will be established to ensure Regulating Reserve and Contingency Reserve are dispersed in a manner that prevents adverse operating conditions that affect the reliability of the Transmission System in accordance with Good Utility Practice. The definition and attributes of the Reserve Zones utilized in the Real-Time

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d. Operating Reserve Supply Limitation on Stored Energy Resources.

The maximum amount of Operating Reserve, including Regulating Reserve, Spinning Reserve and/or Supplemental Reserve, that may be supplied by Stored Energy Resources in the Real-Time Energy and Operating Reserve Market during any one Dispatch Interval cannot exceed the Market-Wide Regulating Reserve Requirement for the Hour.

~~**[RESERVED FOR FUTURE USE]**~~

All Regulation Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of automatically responding to and alleviating frequency deviations through a speed governor or similar device in accordance with Applicable Reliability Standards. All Regulation Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of supplying Regulation for a minimum continuous duration of sixty (60) minutes, except with respect to Stored Energy Resources the Regulatory Reserve Deployment shall not exceed the energy storage capabilities of such Resource.

All Regulation Qualified Resources supplying Regulation in the Real-Time Energy and Operating Reserve Market must be capable of receiving and responding to automatic control signals and must provide telemetered output data in accordance with the Business Practices Manuals. Regulation Qualified Resources in the Real-Time Energy and Operating Reserve Market will be limited to (i) on-line and synchronized Generation Resources, (ii) External Asynchronous Resources, ~~and~~ (iii) on-line and synchronized Demand Response Resources - Type II, and/or (iv) available Stored Energy Resources. A Market Participant can disqualify a Regulation Qualified Resource from supplying Regulating Reserve on an Hourly basis should physical operating restrictions make the Resource unable to deploy Regulating Reserve in accordance with the product requirements for Regulating Reserve established in Section 40.2.3 (a) and the Business Practices Manuals.

b. Spin Qualified Resources

All Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market must meet all of the requirements for Spin Qualified Resources specified in this Section. Only Spin Qualified Resources will be permitted to supply Spinning Reserve in the Real-Time Energy and Operating Reserve Market.

into the Midwest ISO Balancing Authority Area and must remain Pseudo-tied into the Midwest ISO Balancing Authority Area until the next Network Model update, or the Resource must be an External Asynchronous Resources. All Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market must comply with the requirements imposed by Applicable Reliability Standards for Resources supplying Spinning Reserve and, if applicable, frequency responsive Contingency Reserve. All Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100%) of their cleared Spinning Reserve within the Contingency Reserve Deployment Period. All Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100 %) of their cleared Spinning Reserve for a minimum continuous duration of sixty (60) minutes, except for Stored Energy Resources, which must be capable of deploying one-hundred percent (100%) of their cleared Spinning Reserve for a minimum continuous duration of five (5) minutes.

All Spin Qualified Resources supplying Spinning Reserve in the Real-Time Energy and Operating Reserve Market must provide telemetered output data or, in the case of a Demand Response Resource – Type I that has been committed for Energy or is available for Contingency Reserve within the Hour, must provide a minimum of one-minute interval demand data within the Hour for the host Load Zone through the appropriate data communications equipment, as set forth in the Business Practices Manuals. Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market will be limited to (i) on-line and synchronized Generation Resources, (ii) uncommitted Demand Response Resources - Type I, (iii) on-line and synchronized Demand Response Resources - Type II, ~~and/or~~ (iv) available External Asynchronous Resources and/or (v) available Stored Energy Resources.

A Market Participant can disqualify a Spin Qualified Resource from supplying Spinning Reserve on an Hourly basis should physical operating restrictions make the Resource unable to deploy Spinning Reserve in accordance with the product requirements for Spinning Reserve established in Section 40.2.3.b and the Business Practices Manuals. If a Resource is disqualified from providing Spinning Reserve, it is disqualified from providing Regulating Reserve by default.

Filed to comply with *Midwest Independent Transmission System Operator, Inc.*, 122 FERC ¶ 61, 172 (2008) issued on February 25, 2008 in Docket Nos. ER07-1372-000 and 001.

All Supplemental Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of deploying one hundred percent (100%) of their cleared Contingency Reserve within the Contingency Reserve Deployment Period. All Supplemental Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of deploying one hundred percent (100%) of their cleared Contingency Reserve for a minimum continuous duration of sixty (60) minutes, except for Stored Energy Resources. All Supplemental Qualified Resources supplying Supplemental Reserve in the Real-Time Energy and Operating Reserve Market must provide telemetered output data or, in the case of a Demand Response Resource – Type I that has been committed for Energy or is available for Contingency Reserve within the Hour, must provide a minimum of one-minute interval demand data within the Hour for the host Load Zone through the appropriate data communications equipment,as set forth in the Business Practices Manual.

Filed to comply with *Midwest Independent Transmission System Operator, Inc.*, 122 FERC ¶ 61, 172 (2008) issued on February 25, 2008 in Docket Nos. ER07-1372-000 and 001.

Supplemental Qualified Resources in the Real-Time Energy and Operating Reserve Market will be limited to (i) on-line and synchronized Generation Resources, (ii) off-line and available Quick-Start Resources, (iii) uncommitted Demand Response Resources - Type I, (iv) on-line and synchronized Demand Response Resources - Type II, ~~and/or~~ (v) available External Asynchronous Resources, and/or (v) available Stored Energy Resources.

40.2.7A Stored Energy Resource Offer Rules in the Real-Time Energy and Operating Reserve Market

Market Participants that intend to supply Operating Reserve from Stored Energy Resources in the Real-Time Energy and Operating Reserve Market shall provide the information specified in this Section. Stored Energy Resource Offers shall be submitted in the Real-Time Energy and Operating Reserve Market only for registered Stored Energy Resources. Stored Energy Resources Offers will remain in effect for the Real-Time Energy and Operating Reserve Market until specifically superseded by subsequent Stored Energy Resource Offers. Each Market Participant may only submit a single Stored Energy Resoruce Offer for each individual Stored Energy Resource. Market Participants may submit new or revised Stored Energy Resource Offers, including Self-Schedules, to the Real-Time Energy and Operating Reserve Market up to thirty (30) minutes prior to the operating Hour.

a. Eligibility to Supply. Market Participants may offer Operating Reserve from Stored Energy Resources into the Real-Time Energy and Operating Reserve Market if the Transmission Provider has (i) certified the Stored Energy Resource is capable of responding to five (5) minute Dispatch Targets for Energy storage, (ii) has the appropriate telemetry installed as set forth in the Business Practices Manuals, (iii) such Stored Energy Resource has been included in the Network Model, and (iv) is qualified to provide the Operating Reserve products offered. A Market Participant's Stored Energy Resources can supply Regulating Reserve, Spinning Reserve, and/or Supplemental Reserve in the Real-Time Energy and Operating Reserve Market if the Transmission Provider has certified that the Stored Energy Resource is a Regulation Qualified Resource, Spin Qualified Resource, and/or Supplemental Qualified Resource, respectively. Market Participants that offer to supply Real-Time Regulating Reserve, Spinning Reserve, and/or Supplemental Reserve shall provide the Offer information specified below.

b. Required Stored Energy Resource Offer Components.

Market Participants that submit Stored Energy Resource Offers shall include a Regulating Reserve Offer (if a Regulation Qualified Resource), a Spinning Reserve Offer (if a Spin Qualified Resource), and a Supplemental Reserve Offer (if a Supplemental Qualified Resource but not a Spin Qualified Resource). Market Participants can provide Stored Energy Resource Offers for the full energy storage capabilities of their Stored Energy Resource pursuant to the requirements outlined in Section 40.2.4.

A single Stored Energy Resource Offer may be submitted in the Real-Time Energy and Operating Reserve Market for each Hour of the Operating Day for which the Market Participant is willing to sell Operating Reserve for a given Stored Energy Resource. The Transmission Provider shall maintain a Real-Time Energy and Operating Reserve Market Offer for each Stored Energy Resource.

These Offers are standing Offers and are maintained for the Real-Time Energy and Operating Reserve Market independent of the Day-Ahead Energy and Operating Reserve Market. These Offers may be updated for a specific Hour up to thirty (30) minutes prior to the beginning of the Hour. Offer components are as follows:

i. **Regulating Reserve Offer.** The Regulating Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Regulation Qualified Resources. If no hourly Regulating Reserve Offer is submitted, the default Regulating Reserve Offer specified during the asset registration process will be used.

ii. **Spinning Reserve Offer.** The Spinning Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Spin Qualified Resources. If no hourly Spinning Reserve Offer is submitted, the default Spinning Reserve Offer specified during the asset registration process will be used.

iii. **Supplemental Reserve Offer.** The Supplemental Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Supplemental Qualified Resources that are not Spin Qualified Resources. If no hourly Supplemental Reserve Offer is submitted, the default Supplemental Reserve Offer specified during the asset registration process will be used.

iv. **Commercial Pricing Node.** A Commercial Pricing Node shall be specified for the Stored Energy Resource at the time the asset is registered. The Commercial Pricing Node type shall not be a Load Zone, Interface, or Hub. The Commercial Pricing Node shall be the same one used for the Resource in the Day-Ahead Energy and Operating Reserve Market.

Filed to comply with *Midwest Independent Transmission System Operator, Inc.*, 122 FERC ¶ 61, 172 (2008) issued on February 25, 2008 in Docket Nos. ER07-1372-000 and 001.

v. **Hourly Ramp Rate.** An Offer shall include an Hourly Ramp Rate, expressed for each Hour in MW/minute. If no Hourly Ramp Rate is submitted, the default ramp rate specified during the asset registration process will be used.

vi. **Hourly Minimum Limit.** An Offer shall include an Hourly Minimum Limit, expressed for each Hour in MW. If no Hourly Minimum Limit is submitted, the default limit specified during the asset registration process will be used. The Hourly Minimum Limit may be negative.

vii. **Hourly Maximum Limit.** An Offer shall include an Hourly Maximum Limit, expressed for each Hour in MW. If no Hourly Maximum Limit is submitted, the default limit specified during the asset registration process will be used.

viii. **Hourly Maximum Energy Storage Level.** An Offer shall include an Hourly Maximum Energy Storage Level, expressed for each Hour in MWh. The hourly maximum energy storage level represents the maximum amount of energy the Stored Energy Resource can store and maintain. If no Hourly Maximum Energy Storage Level is submitted, the default value specified during the asset registration process will be used.

ix. **Hourly Maximum Energy Charge Rate.** An Offer shall include an Hourly Maximum Energy Charge Rate, expressed for each Hour in MWh / Minute. If no Hourly Maximum Energy Charge Rate is submitted, the default value specified during the asset registration process will be used.

x. **Hourly Maximum Energy Discharge Rate.** An Offer shall include an Hourly Maximum Energy Discharge Rate, expressed for each Hour in MWh / Minute. If no Hourly Maximum Energy Discharge Rate is submitted, the default value specified during the asset registration process will be used.

xi. **Availability Status.** An Offer shall include an Availability Status to indicate if the Stored Energy Resource is available for participation in the Real-Time Energy and Operating Reserve Market during the Hour. If the Availability Status is set to Unavailable, then the Stored Energy Resource will be unavailable to provide Operating Reserve in the Real-Time Energy and Operating Reserve Market during the Hour. If the Availability Status is set to Available, then the Stored Energy Resource will be available to provide Operating Reserve in the Day-Ahead Energy and Operating Reserve Market during the Hour.

xii. **Regulating Reserve Dispatch Status.** An Offer shall include specification of a Regulating Reserve Dispatch Status for Regulating Reserve for each Hour. Valid Regulating Reserve Dispatch Status specifications include: Economic, Self-Schedule, Not Qualified and Not Participating. An Economic Regulating Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Regulating Reserve on the Resource for the Hour.

A Self-Schedule Regulating Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Regulating Reserve on the Resource for the Hour. A Not Qualified Regulating Reserve Dispatch Status indicates that the Resource is not qualified to provide Regulating Reserve for an Hour. A Not Participating Regulating Reserve Dispatch Status indicates the Market Participant will not provide Regulating Reserve on a Resource that is otherwise qualified to provide Regulating Reserve. The Not Participating Regulating Reserve Dispatch Status will not be available to any Resource that has all or a portion of its capacity designated as a Network Resource for the first 180 days of the Energy and Operating Reserve Market. The Regulating Reserve Dispatch Status only applies to Resources that are (i) available for the Hour and (ii) registered as Regulation Qualified Resources.

xiii. **Spinning Reserve Dispatch Status.** An Offer shall include specification of a Spinning Reserve Dispatch Status for Spinning Reserve for each Hour. Valid Spinning Reserve Dispatch Status specifications include: Economic, Self-Schedule and Not Qualified. An Economic Spinning Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Spinning Reserve on the Resource for the Hour. A Self-Schedule Spinning Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Spinning Reserve on the Resource for the Hour. A Not Qualified Spinning Reserve Dispatch Status indicates that the Resource is not qualified to provide Spinning Reserve for an Hour. The Spinning Reserve Dispatch Status cannot be set to Not Qualified for a specific Resource in a specific Hour unless the Regulating Reserve Dispatch Status is also set to Not Qualifieid for that Resource in that Hour. The Spinning Reserve Dispatch Status only applies to Resources that are i) available for the Hour and ii) are registered as Spin Qualified Resources.

xiv. **Supplemental Reserve Dispatch Status.** An Offer shall include specification of a Supplemental Reserve Dispatch Status for Supplemental Reserve for each Hour. Valid Supplemental Reserve Dispatch Status specifications include: Economic, Self-Schedule and Not Qualified. An Economic Supplemental Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Supplemental Reserve on the Resource for the Hour. A Self-Schedule Supplemental Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Supplemental Reserve on the Resource for the Hour. A "Not Qualified" Supplemental Reserve Dispatch Status indicates that the Resource is not qualified to provide Supplemental Reserve for an Hour. The Supplemental Reserve Dispatch Status cannot be set to Not Qualified for a specific Resource in a specific Hour unless the Regulating Reserve Dispatch Status and the Spinning Reserve Dispatch Status are also set to Not Qualifieid for that Resource in that Hour.

The Supplemental Reserve Dispatch Status only applies to Resources that are i) available for the Hour, ii) are registered as Supplemental Qualified Resources and, iii) are not registered as Spin Qualified Resources or have been disqualified by the Market Participant as Spin Qualified Resources for the Hour.

xv. **Hourly Energy Storage Loss Rate.** An Offer shall include specification of an Hourly Energy Storage Loss Rate for each Hour, expressed in MWh, which is the amount of Energy consumed by the Stored Energy Resource over a five-minute time period to maintain an energy storage level equal to the Hourly Maximum Energy Storage Level assuming no Operating Reserve deployment. If no Hourly Storage Loss Rate is submitted, the default value specified during the asset registration process will be used.

xvi. **Hourly Full Charge Energy Withdrawal Rate.** An Offer shall include specification of an Hourly Full Chage Energy Withdrawal Rate for each Hour, expressed in MWh, which is the amount of additional Energy that can be consumed by the Stored Energy Resource over a five-minute time period under a full charge to provide Regulation down capability. If no Hourly Full Charge Energy Withdrawal Rate is submitted, the default value specified during the asset registration process will be used.

c. Values in Offers. The values in Offers representing the non-price information identified in Section 40.2.7A.b. shall reflect the actual known physical capabilities and characteristics of the Stored Energy Resource on which the Offer is based.

d. Real-TIme Energy and Operating Reserve Market Offer Price Caps. The following Offer Price Caps will apply to Stored Energy Resources in the Real-Time Energy and Operating Reserve Market:

i. Regulating Reserve Offer Price Cap: $500/MW for each Hour

iii. Contingency Reserve Offer Price Cap: $100/MW for each Hour

40.2.8 Self-Scheduled Resources

Market Participants may submit Self-Schedules for Energy and/or Operating Reserve from their Resources, in whole or in part, in the Real-Time Energy and Operating Reserve Market. Market Participants that submit Self-Schedules for Energy are required to submit a MWh quantity and the applicable time period for each Self-Scheduled Resource.

ii. If the Interface consists of multiple external Elemental Pricing Nodes, the Ex Ante LMP for the Interface Commercial Pricing Node is set equal to the calculated Ex Ante LMP for the Aggregate Price Node representing the Interface. The weighting factor for a specific Elemental Pricing Node is equal to a normalized value determined by the Transmission Provider for the Interface.

i. Determining the Ex Ante Regulating Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Ante Regulating Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market, based on the SCED algorithm.

The Regulating Reserve MCP for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources is equal to the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Market-Wide Minimum Regulating and Spinning Reserve Constraint Shadow Price, (iii) Market-Wide Regulating Reserve Balance Constraint Shadow Price, (iv) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, (v) Zonal Minimum Regulating and Spinning Reserve Constraint Shadow Price, if applicable, (vi) Zonal Regulating Reserve Balance Constraint Shadow Price, if applicable, (vii) Market-Wide Minimum Generation-based Regulation Constraint Shadow Price, if applicable, (viii) Market-Wide Minimum Generation-based Regulating Reserve plus Spinning Reserve Constraint Shadow Price, if applicable, and (ix) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Regulating Reserve MCPs for Generation Resources and External Asynchronous Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

and (vi) Zonal Regulating Reserve Balance Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Regulating Reserve MCPs for Demand Response Resources - Type II shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

k. Determining the Ex Ante Spinning Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Ante Spinning Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market, based on the SCED algorithm. The Spinning Reserve MCP for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Market-Wide Minimum Regulating and Spinning Reserve Constraint Shadow Price, (iii) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable,

(iv) Zonal Minimum Regulating and Spinning Reserve Constraint Shadow Price, if applicable, (v) Market-Wide Minimum Generation-based Regulating Reserve plus Spinning Reserve Constraint Shadow Price, if applicable, and (vi) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Spinning Reserved MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

l. Determining the Ex Ante Spinning Reserve Market Clearing Price for Demand Response Resources – Type I and Demand Response Resources – Type II

The Transmission Provider shall calculate the Ex Ante Spinning Reserve MCPs for Demand Response Resources – Type I and Demand Response Resources – Type II for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market, based on the SCED algorithm.

m. Determining the Ex Ante Supplemental Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Ante Supplemental Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market, based on the SCED algorithm. The Supplemental Reserve MCP for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, and (iii) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Supplemental Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

ii. If the Interface consists of multiple external Elemental Pricing Nodes, the Ex Post LMP for the Interface Commercial Pricing Node is set equal to the calculated Ex Post LMP for the Aggregate Price Node representing the Interface. The weighting factor for a specific Elemental Pricing Node is equal to a normalized value determined by the Transmission Provider for the Interface.

h. Determining the Ex Post Regulating Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Post Regulating Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market.

Such Ex Post Regulating Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

i. Determining the Ex Post Regulation Market Clearing Price for Demand Response Resources - Type II

The Transmission Provider shall calculate the Ex Post Regulating Reserve MCPs for Demand Response Resources - Type II for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market.

Such Regulating Reserve MCPs for Demand Response Resources - Type II shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

j. Determining the Ex Post Spinning Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Post Spinning Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market.

Such Spinning Reserved MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

k. Determining the Ex Post Spinning Reserve Market Clearing Price for Demand Response Resources- Type I and Demand Response Resources – Type II

The Transmission Provider shall calculate the Ex Post Spinning Reserve MCPs for Demand Response Resources – Type I and Demand Response Resources – Type II for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market. Such Spinning Reserved MCPs for Demand Response Resources – Type I and Demand Response Resources – Type II shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

l. Determining the Ex Post Supplemental Reserve Market Clearing Price for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Post Supplemental Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market. Such Supplemental Reserve MCPs for Generation Resources, ~~and~~ External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

m. Determining the Ex Post Supplemental Reserve Market Clearing Price for Demand Response Resources - Type I and Demand Response Resources - Type II

The Transmission Provider shall calculate the Ex Post Supplemental Reserve MCPs for Demand Response Resources - Type I and Demand Response Resources - Type II for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market. Such Supplemental Reserve MCPs for Demand Response Resources - Type I and Demand Response Resources - Type II shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

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and reported MWh values, and applicable Hourly Ex Post MCPs and Dispatch Targets for Operating Reserve. Until Market Participants submit their Metered values to be used for injections and withdrawals at each of their Commercial Pricing Nodes, the Transmission Provider may estimate values based on the best information available at the time of Settlements. A Market Participant's reported values are subject to review and validation by the Transmission Provider for Settlements. For each Hour of the Operating Day, the following charges and credits are determined:

~~c~~a. Charges and Credits for Real-Time Energy and Operating Reserve Market Purchases.

i. **Energy Charges and Credits.** Market Participants shall be charged the applicable Hourly Ex Post LMP for any Actual Energy Withdrawals other than Actual Energy Withdrawals associated with a host Load Zone, net of Real-Time Financial Schedules that exceed their Day-Ahead Scheduled Withdrawals (and are credited for the Actual Energy Withdrawals,

the time-weighted average Regulation Deployment Instruction and the difference between the applicable Resource Offer Price and Ex Post LMP at the average Dispatch Target for Energy during the Dispatch Interval. Stored Energy Resources providing Regulating Reserve Deployment are not subject to the Regulation Deployment Adjustment.

b. Credits for Real-Time Energy and Operating Reserve Market Sales.

i. **Non-Excessive Energy Credits.** Market Participants are credited the applicable Hourly Ex Post LMP for Non-Excessive Energy injection for Generation Resources and External Asynchronous Resources pursuant to Section 40.3.4, net of Real-Time Financial Schedules, that exceeds their Day-Ahead Scheduled Injections (and will be charged for Non-Excessive Energy, net of Real-Time Financial Schedules, deviations below their Day-Ahead Scheduled Injections). The applicable Hourly Ex Post LMP is the LMP at the Commercial Pricing Node at which the injection occurs.

ii. **Excessive Energy Credits.** Market Participants are credited the lesser of the Hourly Ex Post LMP and the Hourly Excessive Energy Price for Excessive Energy associated with Generation Resources, and External Asynchronous Resources where such Excessive Energy is calculated pursuant to Section 40.3.4. Excessive Energy associated with Stored Energy Resources is settled at the Hourly Ex Post LMP.

iii. **Regulating Reserve Credit.** Market Participants are credited the Hourly Ex Post MCP for any positive difference between the time-weighted average of the Real-Time cleared amounts for Regulating Reserve in an Hour and their Day-Ahead Schedule for Regulating Reserve in that Hour (and will be

For Demand Response Resources – Type I that have not been committed for Energy, the Excessive Energy Threshold and Deficient Energy Threshold shall be equal to zero.

iii. **Stored Energy Resource Tolerance Band.** The upper limit of a Stored Energy Resource specific Tolerance Band, or Excessive Energy Threshold, shall be equal to the sum of (a) the Dispatch Target for Energy for the current Dispatch Interval, (b) the average Regulating Reserve Deployment instruction for that Dispatch Interval for that Resource and (c) 4% of the aboslute value of the average Setpoint Instruction for that Dispatch Interval. The lower limit of a Stored Energy Resource specific Tolerance Band, or Deficient Energy Threshold, shall be equal to the sum of (a) the Dispatch Target for Energy for the current Dispatch Interval and (b) the average Regulating Reserve Deployment instruction for that Dispatch Interval for that Resource less 4% of the absolute value of the average Setpoint Instruction for that Dispatch Interval.

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The minimum separation between the upper and lower band of the Stored Energy Resource Tolerance Band will be 12 MW (+/- 6 MW) and the maximum separation between the upper and lower limit of the Stored Energy Resource Tolereance Band will be 40 MW (+/- 20 MW).

iv~~ii~~. **Minimum and Maximum Tolerance Band Thresholds.** The Excessive Energy Threshold as specified above will be adjusted so that it shall be no less than six (6) MW or no greater than twenty (20) MW plus the sum of (a) the average of the Dispatch Targets for Energy for the current Dispatch Interval and the previous Dispatch Interval, and

iv. **Hourly Excessive Energy for Generation Resource, Stored Energy Resource and External Asynchronous Resource.** Hourly Excessive Energy for a Generation Resource or External Asynchronous Resource is equal to the sum of the Excessive Energy amounts in each Dispatch Interval for that Generation Resource or External Asynchronous Resource in a specific Hour. Excessive Energy for a Generation Resource in a Dispatch Interval is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and the difference between the average telemetered output of the Generation Resource, expressed in MW and scaled by Actual Energy Injection, and the Excessive Energy Threshold for that Generation Resource, or (b) zero. Excessive Energy for an External Asynchronous Resource in a Dispatch Interval is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and difference between the average telemetered output of the External Asynchronous Resource, expressed in MW and scaled by Actual Energy Injection, and the Excessive Energy Threshold for that External Asynchronous Resource, or (b) zero.

Excessive Energy for a Stored Energy Resource in a Dispatch Interval is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and difference between the average telemetered output of the Stored Energy, expressed in MW and scaled by Actual Energy Injection, and the Excessive Energy Threshold for that Stored Energy Resource, or (b) zero.

Resource -Type II, expressed in MW, and the Excessive Energy Threshold for that Demand Response Resource -Type II, or (b) zero. The Calculated DRR -Type II Output for a Dispatch Interval, scaled by Actual Energy Injection, is equal to the host Load Zone Dispatch Interval Demand Forecast (positive value) in a Dispatch Interval, expressed in MWh, divided by the duration of the Dispatch Interval, expressed in Hours, minus the host Load Zone average demand amount (withdrawal positive, injection negative) for that Dispatch Interval, expressed in MW. If the Dispatch Interval Demand Forecast is equal to zero or is not submitted to the Transmission Provider, the Calculated DRR-Type II Output shall be equal to zero (0).

vii. **Hourly Deficient Energy for Generation Resource, Stored Energy Resource or External Asynchronous Resource.** Hourly Deficient Energy for a Generation Resource or External Asynchronous Resource is equal to the sum of the Deficient Energy amounts in each Dispatch Interval for that Generation Resource or

External Asynchronous Resource in a specific Hour. Deficient Energy in a Dispatch Interval for a Generation Resource is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and the difference between the Deficient Energy Threshold for the Generation Resource and the average telemetered output for that Generation Resource expressed in MW and scaled by Actual Energy Injection,~~,~~ or (b) zero. Deficient Energy in a Dispatch Interval for an External Asynchronous Resource is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and the difference between the Deficient Energy Threshold for the External Asynchronous Resource and the average telemetered output for that External Asynchronous Resource, expressed in MW and scaled by Actual Energy Injection, or (b) zero (0) MW.

Deficient Energy in a Dispatch Interval for a Stored Energy Resource is equal to (a) the product of the duration of the Dispatch Interval in Hours and the difference between the Deficient Energy Threshold for the Stored Energy Resource and the average telemetered output for that Stored Energy Resource, expressed in MW and scaled by Actual Energy Injection (or Actual Energy Withdrawl if Deficient Energy Threshold is a negative value.

viii. **Hourly Deficient Energy for Demand Response Resource-Type I.** Hourly Deficient Energy for a Demand Response Resource-Type I is equal to the

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Threshold and Deficient Energy Threshold will not apply to that Resource. A Resource is considered to be deploying Contingency Reserve in any Dispatch Interval that overlaps or is within the Disturbance Recovery Period associated with any event that triggered any of the Contingency Reserve Deployment.

b. Excessive/Deficient Energy Deployment Charges and Consequences

If a Market Participant's ~~Generation~~ Resource~~, Demand Response Type – II or External Asynchronous Resource~~ has Excessive Energy, Deficient Energy or any combination thereof in three or more consective Dispatch Intervals in an Hour, that Market Participant shall be subject to an Excessive/~~Energy~~ Deficient Energy Deployment Charge associated with such Resource calculated as follows:

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i A Resource's Excessive/Deficient Energy Deployment Charge shall be equal to: (1) the product of the absolute value of the Resource's Actual Energy Injection (or Actual Energy Withdrawal for a Stored Energy Resources, as the case may be), in MWh, for the Hour and the Excessive/Deficient Charge Rate, in $/MWh; plus (2) the sum of the Regulating Reserve credits calculated pursuant to Sections 39.3.2A.~~b~~a and 40.3.3.b.iii for that Resource for that Hour. The Excessive/Deficient Charge Rate in an Hour is equal to the sum of the Day-Ahead Regulating Reserve credits calculated pursuant to Section 39.3.2A.~~b~~a and the Real

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TAB B

1.118c GAAP 78A
1.118d Generation Interconnection Projects 78A
1.119 Generation Offer 79
1.120 Generation Owner 79
1.121 Generation Resource 80
1.122 Generation Shift Factors 80
1.122a Generator 80
1.123 Generator Forced Outage 81
1.124 Generator Planned Outage 81
1.124a GFA Schedule Delivery Point 81
1.124b GFA Schedule Receipt Point 81
1.125 Good Utility Practice 82
1.125a Governmental Authority 82
1.126 Grandfathered Agreement(s) (GFA) 82A
1.127 Grandfathered Agreement (GFA) Responsible Entity 83
1.127a Grandfathered Agreement (GFA) Schedule 83
1.128 Grandfathered Agreement (GFA) Scheduling Entity 83
1.129 Guarantor 83
1.130 Hour 83
1.130a Hourly Bi-Directional Ramp Rate 83
1.130b Hourly Curtailment Offer 83A
1.131 Hourly Economic Maximum Limit 83A
1.132 Hourly Economic Minimum Limit 83A
1.133 Hourly Emergency Maximum Limit 83A
1.134 Hourly Emergency Minimum Limit 84
1.134a Hourly Energy Storage Loss Rate 84
1.134b Hourly Excessive Energy Price 84
1.135 Hourly Ex Post LMP 84

1.135a Hourly Ex Post MCP 84
1.135b Hourly Full Charge Energy Withdrawal Rate 84a
1.135c Hourly Maximum Limit.....84a
1.135d Hourly Maximum Energy Charge Rate 84a
1.135e Hourly Maximum Energy Discharge Rate 84a
1.135f Hourly Maximum Energy Storage Level.....84a
1.135g Hourly Minimum Limit 84a
1.135h Hourly Ramp Rates.....84.01
1.135i Hourly Regulation Maximum Limit 84.01
1.135j Hourly Regulation Minimum Limit.....84.01
1.135k Hourly Single-Directional-Down Ramp Rate.....84.01
1.135l Hourly Single-Directional-Up Ramp Rate.....84A
1.136 Hourly Transmission Congestion Charges Collection.....84
1.137 Hub.....84
1.138 Hub LMP 84

1.294a State Estimator MWs 125B
1.294b Stored Energy Resource 125B
1.294c Stored Energy Resource Offer 125B
1.295 Station Power 126
1.295a Supplemental Qualified Resource 126
1.295b Supplemental Reserve 126
1.295c Supplemental Reserve Offer 126
1.296 Synchronous Condensor Unit (SCU) 126
1.296a System Firm Capacity Purchases 126
1.296b System Firm Capacity Sales 126
1.297 System Impact Study 127
1.298 System Losses 127
1.298a System Purchase Contracts 127
1.299 System Support Resource (SSR) 127
1.300 SSR Agreement 128
1.301 SSR Notification 128
1.302 SSR Unit 128

tenth Business Day after the Tariff Customer receives written notice to cure with respect to defaults described in Section 7.13.a.

1.63 Default Offer: A mitigation measure imposed by the Independent Market Monitor pursuant to Section 65.2 of this Tariff.

1.63a Deferred Schedule 16 Costs: Any deferred pre-operating costs to be recovered under Schedule 16 of this Tariff.

1.63b Deferred Schedule 17 Costs: Any deferred pre-operating costs to be recovered under Schedule 17 of this Tariff.

1.63c Deficient Energy: The amount of a Generation Resource's, Stored Energy Resource's or External Asynchronous Resource's Actual Energy Injection, or the amount of a Stored Energy Resource's Actual Energy Withdrawal if that Stored Energy Resource's Deficient Energy Threshold is a negative value, at a Commercial Pricing Node in the Real-Time Energy and Operating Reserve Market in a Dispatch Interval that is less than that Resource's Deficient Energy Threshold or, the amount of a Demand Response Resource's Type I Calculated DRR-Type-I Output, as adjusted for Actual Energy Injection or Demand Response Resource's Type II Calculated DRR-Type-II Output, as adjusted for Actual Energy Injection at a Commercial Pricing Node in the Real-Time Energy and Operating Reserve Market in a Dispatch Interval that is less than that Resource's Deficient Energy Threshold.

1.63d Deficient Energy Threshold: The minimum value of the Tolerance Band of a Resource.

1.64 Delivering Party: The entity supplying Energy to be transmitted at Point(s) of Receipt.

1.64a Delivery Point: The Commercial Pricing Node used to determine the point of transfer between the buyer and the seller of the Energy specified in a Financial Schedule**.**

Filed to comply with *Midwest Independent Transmission System Operator, Inc.*, 122 FERC ¶ 61, 172 (2008) issued on February 25, 2008 in Docket Nos. ER07-1372-000 and 001.

1.90 Excess Congestion Charge Fund: A fund established by the Transmission Provider representing, in aggregate, the difference between the total of all Transmission Congestion Payments for a given Hour and the hourly transmission congestion charges.

1.90a Excessive/Deficient Charge Rate: The rate used to determine a Resource's Excessive/Deficient Energy Deployment Charge as calculated pursuant to Section 40.3.4.b.

1.90b Excessive/Deficient Energy Deployment Charge: A charge assessed to any Resource in an Hour with Excessive Energy and/or Deficient Energy in three (3) or more consecutive Dispatch Intervals within the Hour.

1.90c Excessive Energy: The amount of a Generation Resource's, Stored Energy Resource's or External Asynchronous Resource's Actual Energy Injection at a Commercial Pricing Node in the Real-Time Energy and Operating Reserve Market in a Dispatch Interval that is greater than that Resource's Excessive Energy Threshold or, the amount of a Demand Response Resource's-Type I Calculated DRR-Type I Output, as adjusted for Actual Energy Injection or Demand Response Resource's-Type II Calculated DRR-Type II Output, as adjusted for Actual Energy Injection at a Commercial Pricing Node in the Real-Time Energy and Operating Reserve Market in a Dispatch Interval that is greater than that Resource's Excessive Energy Threshold.

1.90d Excessive Energy Price: The price used to calculate a Market Participant's credit for Excessive Energy that is equal to the Energy Offer price associated with a Generation Resource's, Demand Response Resource's – Type I, Demand Response Resource's – Type II or External Asynchronous Resource's Excessive Energy.

1.91 Excessive Energy Threshold: The maximum value of a Resource's Tolerance Band.

1.92 Export Schedule: An Interchange Schedule in which the Interchange Schedule Receipt Point lies within the Midwest ISO Balancing Authority Area and the Interchange Schedule Delivery Point lies outside the Midwest ISO Balancing Authority Area.

1.92a Exporting Entity: A Market Participant that is not a Load Serving Entity with a cleared Export Schedule in the Day-Ahead Energy and Operating Reserve Market or an Export Schedule in the Real-Time Energy and Operating Reserve Market.

1.134 Hourly Emergency Minimum Limit: The minimum MW level at which a Generation Resource or Demand Response Resource-Type II may operate under Emergency conditions that may be submitted to override the default value submitted during the asset registration process.

1.134a Hourly Energy Storage Loss Rate: The amount of energy consumed in MWh over a five-minute time period to maintain a Stored Energy Resource at its maximum energy storage level assuming no Operating Reserve deployments.

1.134b Hourly Excessive Energy Price: The weighted average of the Dispatch Interval Energy Offer Price where the weighting factors are determined by normalizing the Excessive Energy in each Dispatch Interval in the hour. The Dispatch Interval Energy Offer Price is the Energy Offer price at the Dispatch Target for Energy.

1.135 Hourly Ex Post LMP: The LMP derived through mathematical integration of the Dispatch Interval Ex Post LMPs over the Hour.

1.135a Hourly Ex Post MCP: The average MCPs for Regulating Reserve, Spinning Reserve and Supplemental Reserve applicable to a specific Resource derived through time and quantity weighting of the applicable Ex Post MCPs over the Hour.

1.135b Hourly Full Charge Energy Withdrawal Rate: The amount of additional energy that can be consumed by a Stored Energy Resource over a period of five minutes when under a full charge.

1.135c Hourly Maximum Limit: The maximum MW output of a Stored Energy Resource that may be submitted to override the default value submitted during the asset registration process. This value must be positive.

1.135d Hourly Maximum Energy Charge Rate: The maximum rate at which a Stored Energy Resource may be charged, expressed in MWh per Minute, that may be submitted to override the default value submitted during the asset registration process.

1.135e Hourly Maximum Energy Discharge Rate: The maximum rate at which a Stored Energy Resource may be discharged, expressed in MWh per Minute, that may be submitted to override the default value submitted during the asset registration process.

1.135f Hourly Maximum Energy Storage Level: The maximum amount of energy that may be stored by a Stored Energy Resource on a sustained basis, expressed in MWh, that may be submitted to override the default value submitted during the asset registration process.

1.135g Hourly Minimum Limit: The minimum MW output of a Stored Energy Resource that may be submitted to override the default value submitted during the asset registration process. This value may be positive or negative.

1.135h Hourly Ramp Rate: The MW/minute response rate for a Generation Resource, External Asynchronous Resource or Demand Response Resource Type-II that is utilized in the clearing of the Day-Ahead Energy and Operating Reserve Market and all Reliability Assessment Commitment processes that may be submitted to override the default value submitted during the asset registration process.

1.135i Hourly Regulation Maximum Limit: The maximum MW output at which a Generation Resource, Demand Response Resource – Type II or External Asynchronous Resource can respond to automatic control signals that may be submitted to override the default value submitted during the asset registration process.

1.135j Hourly Regulation Minimum Limit: The minimum MW output at which a Generation Resource, Demand Response Resource – Type II or External Asynchronous Resource can respond to automatic control signals that may be submitted to override the default value submitted during the asset registration process.

1.135k Hourly Single-Directional-Down Ramp Rate: The MW/minute rate at which a Generation Resource, an External Asynchronous Resource or Demand Response Resource-Type II can respond to the Setpoint Instructions in the downward direction only that may be submitted to override the default value submitted during the asset registration process.

1.135l Hourly Single-Directional-Up Ramp Rate: The MW/minute rate at which a Generation Resource, an External Asynchronous Resource or Demand Response Resource-Type II can respond to the Setpoint Instructions in the upward direction only that may be submitted to override the default value submitted during the asset registration process.

1.136 Hourly Transmission Congestion Charges Collection: The aggregate amount of Transmission Usage Charge collected in a given Hour.

1.137 Hub: A Commercial Pricing Node developed for financial and trading purposes.

1.138 Hub LMP: The weighted-averaged LMP for an invariant set of Elemental Pricing Nodes that comprise the Hub. The weights are static over time.

1.139 Import Schedule: An Interchange Schedule in which the Interchange Schedule Delivery Point lies within the Midwest ISO Balancing Authority Area and the Interchange Schedule Receipt Point lies outside of the Midwest ISO Balancing Authority Area.

1.140 Inadvertent Energy: The mathematical time integral deviation of a Balancing Authority's Net Scheduled Interchange subtracted from its Net Actual Interchange where a negative value denotes a condition of undergeneration and a positive value denotes overgeneration.

1.220 Node: A physical location represented in the Network Model.

1.221 No-Load Offer: The compensation request in a Generation Offer or Demand Response Resource-Type II Offer, in dollars, by a Market Participant representing the fees requested by the Market Participant for operating a Generation Resource or Demand Response Resource-Type II at zero (0) MW.

1.221a Non-Binding Settlement Zone: The combination of all Reserve Zones that are not Binding Reserve Zones associated with Regulating Reserve, Spinning Reserve or Supplemental Reserve, as applicable, that are used for the purposes of allocating Operating Reserve costs in accordance with Schedules 3, 5 and 6, respectively.

1.222 Non-Disclosure Agreement: An agreement established between the Transmission Provider and affected parties governing the disclosure of Confidential Information; provided, however, that in the case of such an agreement between an Authorized Requestor and the Transmission Provider pursuant to Section 38.9.4 of the Tariff, the applicable form is appended to the Tariff as Attachment EE, wherein the Authorized Requestor is given access to otherwise restricted Confidential Information.

1.222a Non-Excessive Energy: Energy injected or withdrawn by a Resource at a Commercial Pricing Node in an Hour in the Real-Time Energy and Operating Reserve Market that is within that Resource's Tolerance Band.

1.224 North American Electric Reliability Council (NERC): A reliability council, or its successor organization, responsible for the oversight of Regional Reliability Organizations established to ensure the reliability and stability of the regions.

1.225 Offer: An offer, that is duly submitted to the Transmission Provider consistent with this Tariff and the Business Practices Manuals, to (a) sell Energy and Operating Reserve in the Energy and Operating Reserve Markets at a specified price, location, quantity, and time period and shall include (i) Generation Offers, (ii) Demand Response Resource-Type I Offers, (iii) Demand Response Resource-Type II Offers, (iv) External Asynchronous Resource Offers, (v) Stored Energy Resources and (vi) Dispatchable Interchange Schedule Import Schedules and (b) purchase Energy through Fixed Interchange Schedule Import Schedules and Dynamic Interchange Schedule Import Schedules at a specified location, quantity, and time period.

1.262a Regionally Beneficial Projects: Network Upgrades proposed by the Transmission Provider, Transmission Owner(s), ITC(s), Market Participant(s), or regulatory authorities as beneficial to one or more Market Participant(s), but not determined by the Transmission Provider to be Baseline Reliability Projects, or New Transmission Access Projects, or Enhanced Extra High Voltage Projects and provide sufficient benefits as determined by the Transmission Provider to justify inclusion into the MTEP.

1.263 Regulation Capability: The ability of a Resource or Resources to provide and deploy Regulating Reserve.

1.263a Regulating Reserve: Frequency responsive Generation Resource, External Asynchronous Resource, Stored Energy Resource or Demand Response Resource-Type II capacity held in reserve for the purpose of providing Regulating Reserve Deployment in both the up and down direction.

1.263b Regulating Reserve Deployment: The utilization of Regulating Reserve to automatically and continuously adjust Resource output to manage the Midwest ISO Balancing Authority Area in accordance with Applicable Reliability Standards.

Filed to comply with *Midwest Independent Transmission System Operator, Inc.*, 122 FERC ¶ 61, 172 (2008) issued on February 25, 2008 in Docket Nos. ER07-1372-000 and 001.

1.264 Regulation Qualified Resource: A Generation Resource, External Asynchronous Resource, Stored Energy Resource or a Demand Response Resource-Type II that has met the requirements to be eligible to submit Regulating Reserve Offers into the Energy and Operating Reserve Markets.

1.265 Regulation Response Time: The maximum amount of time allowed for a Resource output to move from zero Regulating Reserve Deployment to the full amount of Regulating Reserve cleared in the up direction or to move from zero Regulating Reserve Deployment to the full amount of Regulating Reserve cleared in the down direction.

1.266 Reliability Assessment Commitment (RAC): A process conducted during the Real-Time Energy and Operating Reserve Market by which the Transmission Provider ensures that sufficient Resources will be available and on-line to meet Load, Operating Reserve, and other demand requirements in the Operating Day.

1.267 Reliability Coordinator: Entities responsible for ensuring the real-time operating reliability of the interconnected bulk electric transmission system within the Reliability Coordinator Area.

1.270a Reserved Source Point(s) (RSP): Resources historically used by a Market Participant to serve Load in an ARR Zone.

1.271 Residual Load: The result of a calculation used to determine the amount of over or under claimed Load in a Local Balancing Authority Area. The calculation determines the difference between: (i) the reported amount of Actual Energy Injections and Net Actual Interchange for the Local Balancing Authority; and (ii) the amount of State Estimator determined Losses and the reported amount of Actual Energy Withdrawals for the Local Balancing Authority Area. Residual Load is then used to reduce or increase the reported volume of the Residual Load Zone for that Local Balancing Authority Area.

1.272 Residual Load Zone: The single Commercial Pricing Node identified by the Transmission Provider in a Local Balancing Authority Area where any calculated Residual Load is allocated for the purpose of Settlements.

1.273 Resource: Either a Generation Resource, a Demand Response Resource-Type I, a Demand Response Resource-Type II, a Stored Energy Resource or an External Asynchronous Resource.

1.291e Spinning Reserve: A specified percentage, based on Applicable Reliability Standards, of Contingency Reserve that must be synchronized to the Transmission System and that meets all Applicable Reliability Standards, and that can be converted to Energy within the Contingency Reserve Deployment Period following a deployment instruction.

1.291f Spinning Reserve Offer: The price at which a Spinning Reserve Qualified Resource has agreed to sell Spinning Reserve in dollars per MW.

1.291g Spin Qualified Resource: A Generation Resource, an External Asynchronous Resource, a Stored Energy Resource, a Demand Response Resource-Type I or a Demand Response Resource-Type II that has met the requirements to be eligible to submit Spinning Reserve Offers into the Energy and Operating Reserve Markets.

1.291h Start-Up Notification Time: The amount of notification time required by a Generation Resource prior to the initiation of start-up procedures or the amount of notification time required for a Demand Response Resource-Type II prior to the initiation of demand reduction procedures.

1.292 Start-Up Offer: The compensation required by a Market Participant for bringing an off-line Generation Resource on-line or for reducing consumption of a Demand Response Resource-Type II.

1.293 Start-Up Time: The number of hours required to start a Generation Resource or Demand Response Resource – Type II and synchronize with the Transmission Provider Region to Hourly Economic Minimum Limit consistent with the Applicable Reliability Standards.

1.294 State Estimator: A software program used by the Transmission Provider to create a real-time assessment of the condition of the Transmission Provider Region.

1.294a State Estimator MWs: The megawatts that are determined by the State Estimator to be generated at a given location for each Real-Time LMP interval.

1.294b Stored Energy Resource: A Resource capable of supplying one or more types of Operating Reserve, but not Energy, through the short-term storage and discharge of electrical Energy in response to Setpoint Instructions.

1.294c Stored Energy Resource Offer: A Regulating Reserve Offer (if a Regulation Qualified Resource), Spinning Reserve Offer (if a Spin Qualified Resource) and/or a Supplemental Reserve Offer (if not a Spin Qualified Resource) submitted by a Market Participant within the Midwest ISO Balancing Authority Area for the output of a specified Stored Energy Resource to supply Operating Reserve to the Energy and Operating Reserve Markets.

1.295 Station Power: "Station Power" shall mean the energy used for operating the electrical equipment on the site of a Generation Resource and/or for the lighting, heating, air-conditioning and office equipment needs of buildings located on the site of such a Generation Resource that are used in the operation, maintenance, or repair of the facility. Station Power does not include energy (i) used for pumping at a pumped storage facility; (ii) to power synchronous condensers; or (iii) in association with power system restoration or blackstart service. Station Power may only be provided pursuant to Schedule 20 of this Tariff.

1.295a Supplemental Qualified Resource: A Spin Qualified Resource, or a Demand Response Resource-Type I or, a Generation Resource, Demand Response Resource Type-II, Stored Energy Resource or an External Asynchronous Resource that is not a Spin Qualified Resource that has met the requirements to be eligible to submit Supplemental Reserve Offers into the Energy and Operating Reserve Markets.

1.295b Supplemental Reserve: Contingency Reserve that is not considered Spinning Reserve that can be converted to Energy within the Contingency Reserve Deployment Period and that meets all Applicable Reliability Standards.

1.295c Supplemental Reserve Offer: The price at which a Demand Response Resource-Type I or an External Asynchronous Resource that is a Supplemental Reserve Qualified Resource has agreed to sell Supplemental Reserve in dollars per MW.

The Regulation Response Time will be determined and/or adjusted by the Transmission Provider on a periodic basis to comply with Applicable Reliability Standards. The day-ahead Market-Wide Regulating Reserve Requirement will be established each day by the Transmission Provider to comply with Applicable Reliability Standards in an economic manner. The day-ahead Market-Wide Regulating Reserve Requirement may vary on an Hourly basis if permitted by the Applicable Reliability Standards. All Regulating Reserve cleared in the Day-Ahead Energy and Operating Reserve Market must be supplied by Regulation Qualified Resources. The percentage of Regulating Reserve cleared in the Day-Ahead Energy and Operating Reserve Market on any Generation Resource, Demand Response Resource – Type II, Stored Energy Resource and/or External Asynchronous Resources shall initially be limited to twenty percent of the hourly day-ahead Market-Wide

(i) the minimum frequency responsive Contingency Reserve percentage requirement in accordance with Applicable Reliability Standards, if applicable, or (ii) the minimum Spinning Reserve percentage requirement specified by Applicable Reliability Standards. The day-ahead Market-Wide Supplemental Reserve requirement will be equal to the day-ahead Market-Wide Contingency Reserve Requirement minus the day-ahead Market-Wide Spinning Reserve Requirement. The percentage of Spinning Reserve and/or Supplemental Reserve cleared in the Day-Ahead Energy and Operating Reserve Market on any Resource shall initially be limited to twenty percent of the hourly day-ahead Market-Wide Contingency Reserve Requirement to the extent that such limitation does not create scarcity conditions or any other adverse reliability related conditions, and may be further limited on Demand Response Resource – Type I and/or Demand Response Resources – Type II based on Applicable Reliability Standards.

3) such condition or event has a projected duration of two or more Operating Days and; 4) the Transmission Provider determines such adjustment is necessary to ensure the reliability of the Transmission System. The duration of any such adjustment will coincide with the duration of the condition or event, or until the next quarterly Reserve Zone Configuration Study update, whichever is less. The Transmission Provider will publish notice on OASIS identifying the reasons for any such Reserve Zone adjustment, and the expected duration thereof. In no event shall the Transmission Provider implement an adjustment to a Reserve Zone without a minimum of a forty-eight (48) hour notice prior to the Operating Day for which the Reserve Zone adjustment will apply.

g. Operating Reserve Supply Limitation on Stored Energy Resources.

The maximum amount of Operating Reserve, including Regulating Reserve, Spinning Reserve and/or Supplemental Reserve, that may be supplied by Stored Energy Resources in the Day-Ahead Energy and Operating Reserve Market in an Hour cannot exceed the Market-Wide Regulating Reserve Requirement for the Hour.

the Day-Ahead Energy and Operating Reserve Market must be capable of automatically responding to and alleviating frequency deviations through a speed governor or similar device in accordance with the Applicable Reliability Standards. All Regulation Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of supplying Regulation for a minimum continuous duration of sixty (60) minutes, except with respect to Stored Energy Resources the Regulating Reserve Deployment shall not exceed the energy storage capabilities of such Resource. All Regulation Qualified Resources supplying Regulation in the Day-Ahead Energy and Operating Reserve Market must be capable of receiving and responding to automatic control signals and must provide telemetered output data in accordance with the Business Practices Manuals.

Regulation Qualified Resources in the Day-Ahead Energy and Operating Reserve Market will be limited to (i) committed Generation Resources, (ii) available External Asynchronous Resources, (iii) committed Demand Response Resources - Type II, and/or available Stored Energy Resources. A Market Participant may disqualify a Regulation Qualified Resource from supplying Regulating Reserve on an Hourly basis if physical operating restrictions make the Resource unable to deploy Regulating Reserve in accordance with the product requirements for Regulating Reserve established in Section 39.2.1A.a and the Business Practices Manuals.

b. Spin Qualified Resources.

All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market shall meet all of the requirements for Spin Qualified Resources specified in this Section. Only Spin Qualified Resources will be permitted to supply Spinning Reserve in the Day-Ahead Energy and Operating Reserve Market. All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be registered in the Energy and

Authority Area and must remain Pseudo-tied into the Midwest ISO Balancing Authority Area until the next Network Model update, or the Resource must be an External Asynchronous Resource. All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must comply with the requirements imposed by the Applicable Reliability Standards for Resources supplying Spinning Reserve and if applicable, frequency responsive Contingency Reserve. All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100%) of their cleared Spinning Reserve within the Contingency Reserve Deployment Period. All Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of deploying one hundred percent (100%) of their cleared Spinning Reserve for a minimum continuous duration of sixty (60) minutes, except for Stored Energy Resources. All Spin Qualified Resources supplying Spinning Reserve in

Spin Qualified Resources in the Day-Ahead Energy and Operating Reserve Market will be limited to: (i) committed Generation Resources; (ii) uncommitted Demand Response Resources - Type I; (iii) committed Demand Response Resources – Type II ; (iv) available External Asynchronous Resources and/or, (v) available Stored Energy Resources. A Market Participant can disqualify a Spin Qualified Resource from supplying Spinning Reserve on an Hourly basis should physical operating restrictions make the Resource unable to deploy Spinning Reserve in accordance with the product requirements for Spinning Reserve established in Section 39.2.1A.b and the Business Practices Manuals. If a Resource is disqualified from providing Spinning Reserve, it is disqualified from providing Regulating Reserve by default.

c. Supplemental Qualified Resources. All Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must meet all of the requirements for Supplemental Qualified Resources specified in this Section. Only Supplemental Qualified Resources will be permitted to supply Supplemental Reserve in the Day-Ahead

All Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be physically located within the Midwest ISO Balancing Authority Area, or the entire Generation Resource must be Pseudo-tied into the Midwest ISO Balancing Authority Area and must remain Pseudo-tied into the Midwest ISO Balancing Authority Area until the next Network Model update, or the Resource must be an External Asynchronous Resource. All Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100%) of their cleared Contingency Reserve within the Contingency Reserve Deployment Period. All Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100%) of their cleared Contingency Reserve for a minimum continuous duration of sixty (60) minutes, except for Stored Energy Resources.

Supplemental Qualified Resources in the Day-Ahead Energy and Operating Reserve Market will be limited to: (i) committed Generation Resources; (ii) uncommitted Quick-Start Resources; (iii) uncommitted Demand Response Resources - Type I; (iv) committed Demand Response Resources - Type II; (v) available External Asynchronous Resources and/or; (vi) available Stored Energy Resources. Uncommitted Quick-Start Resources and uncommitted Demand Response Resources - Type I, must have a Minimum Run Time (or Minimum Interruption Duration, if a Demand Response Resource - Type I) of one-hundred-eighty (180) minutes or less in order to be classified as Supplemental Qualified Resources. A Market Participant can disqualify a Supplemental Qualified Resource from supplying Supplemental Reserve on an Hourly basis should physical operating restrictions make the Resource unable to deploy Supplemental Reserve in accordance with the product requirements for Supplemental Reserve established in Section 39.2.1A.b and the Business Practices Manuals.

d. Day-Ahead Energy and Operating Reserve Market Offer Price Cap. The following Offer Price Caps will apply to External Asynchronous Resources in the Day-Ahead Energy and Operating Reserve Market:

i. Energy Offer Price Cap: $1,000/MWh;

ii. Regulating Reserve Offer Cap: $500/MW for each Hour;

iii. Contingency Reserve Offer Price Cap: $100/MW for each Hour.

39.2.5C Stored Energy Resource Offer Rules in the Day-Ahead Energy and Operating Reserve Market

Market Participants that intend to supply Operating Reserve in the Day-Ahead Energy and Operating Reserve Market shall provide the information specified in this Section. Stored Energy Resource Offers shall be submitted in the Day-Ahead Energy and Operating Reserve Market only for registered Stored Energy Resource. Stored Energy Resources Offers will remain in effect for the Day-Ahead Energy and Operating Reserve Market until specifically superseded by subsequent Stored Energy Resource Offers. Each Market Participant may only submit a single Stored Energy Resoruce Offer for each individual Resource.

a. Eligibility to Supply. Market Particpants may Self-Schedule Energy and/or offer or Self-Schedule Operating Reserve into the Day-Ahead Energy and Operating Reserve Market if the Transmission Provider has (i) certified the Resource is capable of responding to five (5) minute Dispatch Targets for Energy storage, (ii) has the appropriate telemetry installed as set forth in the Business Practices Manuals, (iii) such Resource has been included in the Network Model, and (iv) is qualified to provide the Operating Reserve products offered. A Market Participant's Stored Energy Resources can supply Regulating Reserve, Spinning Reserve, and/or Supplemental Reserve in the Day-Ahead Energy and Operating Reserve Market if the Transmission Provider has certified that the Resource is a Regulation Qualified Resource, Spin Qualified Resource, and/or Supplemental Qualified Resource, respectively. Market Participants that offer to supply Day-Ahead Regulating Reserve, Spinning Reserve, and/or Supplemental Reserve shall provide the Offer information specified below.

b. Required Stored Energy Resource Offer Components.

Market Participants that submit Stored Energy Resource Offers shall include a Regulating Reserve Offer (if a Regulation Qualified Resource), a Spinning Reserve Offer (if a Spin Qualified Resource), and a Supplemental Reserve Offer (if a Supplemental Qualified Resource but not a Spin Qualified Resource). Market Participants can provide Stored Energy Resource Offers for the full energy storage capabilities of their resource pursuant to the requirements outlined in Section 39.2.1B.

Market Participants may submit Stored Energy Resource Offers to the Day-Ahead Energy and Operating Reserve Market up to seven (7) Days prior to the Operating Day, and may modify these Stored Energy Resource Offers up until the time the Day-Ahead Energy and Operating Reserve Market closes, as specified in Section 39.1.1. Any limits on the Offer over the full energy storage capability of the Resource must be consistent with Module D. A single Stored Energy Resource Offer may be submitted in the Day-Ahead Energy and Operating Reserve Market for each Hour of the Operating Day for which the Market Participant is willing to sell Operating Reserve from a given Resource.

The Transmission Provider shall maintain a Day-Ahead Energy and Operating Reserve Market Stored Energy Resource Offer for each Resource. These Offers are standing Offers and are maintained for the Day-Ahead Energy and Operating Reserve Market independent of the Real-Time Energy and Operating Reserve Market. These Offers may be updated prior to the close of the Day-Ahead Energy and Operating Reserve Market. Stored Energy Resource Offer components are as follows:

i. **Regulating Reserve Offer.** The Regulating Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Regulation Qualified Resources. If no hourly Regulating Reserve Offer is submitted, the default Regulating Reserve Offer specified during the asset registration process will be used.

ii. **Spinning Reserve Offer.** The Spinning Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Spin Qualified Resources. If no hourly Spinning Reserve Offer is submitted, the default Spinning Reserve Offer specified during the asset registration process will be used.

iii. **Supplemental Reserve Offer.** The Supplemental Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Supplemental Qualified Resources that are not Spin Qualified Resources. If no hourly Supplemental Reserve Offer is submitted, the default Supplemental Reserve Offer specified during the asset registration process will be used.

iv. **Commercial Pricing Node.** A Commercial Pricing Node shall be specified for the Stored Energy Resource at the time the asset is registered. The Commercial Pricing Node type shall not be a Load Zone, Interface, or Hub.

v. **Hourly Ramp Rate.** An Offer shall include an Hourly Ramp Rate, expressed for each Hour in MW/minute. If no Hourly Ramp Rate is submitted, the default ramp rate specified during the asset registration process will be used.

vi. **Hourly Minimum Limit.** An Offer shall include an Hourly Minimum Limit, expressed for each Hour in MW. If no Hourly Minimum Limit is submitted, the default limit specified during the asset registration process will be used. The Hourly Minimum Limit may be negative.

vii. **Hourly Maximum Limit.** An Offer shall include an Hourly Maximum Limit, expressed for each Hour in MW. If no Hourly Maximum Limit is submitted, the default limit specified during the asset registration process will be used.

viii. **Hourly Maximum Energy Storage Level.** An Offer shall include an Hourly Maximum Energy Storage Level, expressed for each Hour in MWh. The hourly maximum energy storage level represents the maximum amount of energy the Stored Energy Resource can store and maintain. If no Hourly Maximum Energy Storage Level is submitted, the default value specified during the asset registration process will be used.

ix. **Hourly Maximum Energy Charge Rate.** An Offer shall include an Hourly Maximum Energy Charge Rate, expressed for each Hour in MWh / Minute. If no Hourly Maximum Energy Charge Rate is submitted, the default value specified during the asset registration process will be used.

x. **Hourly Maximum Energy Discharge Rate.** An Offer shall include an Hourly Maximum Energy Discharge Rate, expressed for each Hour in MWh / Minute. If no Hourly Maximum Energy Discharge Rate is submitted, the default value specified during the asset registration process will be used.

xi. **Availability Status.** An Offer shall include an Availability Status to indicate if the Stored Energy Resource is available for participation in the Day-Ahead Energy and Operating Reserve Market during the Hour. If the Availability Status is set to Unavailable, then the Stored Energy Resource will be unavailable to provide Operating Reserve in the Day-Ahead Energy and Operating Reserve Market during the Hour. If the Availability Status is set to Available, then the Stored Energy Resource will be available to provide Operating Reserve in the Day-Ahead Energy and Operating Reserve Market during the Hour.

xii. **Regulating Reserve Dispatch Status.** An Offer shall include specification of a Regulating Reserve Dispatch Status for Regulating Reserve for each Hour. Valid Regulating Reserve Dispatch Status specifications include: Economic, Self-Schedule, Not Qualified and Not Participating. An Economic Regulating Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Regulating Reserve on the Resource for the Hour.

A Self-Schedule Regulating Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Regulating Reserve on the Resource for the Hour. A Not Qualified Regulating Reserve Dispatch Status indicates that the Resource is not qualified to provide Regulating Reserve for an Hour. A Not Participating Regulating Reserve Dispatch Status indicates the Market Participant will not provide Regulating Reserve on a Resource that is otherwise qualified to provide Regulating Reserve. The Not Participating Regulating Reserve Dispatch Status will not be available to any Resource that has all or a portion of its capacity designated as a Network Resource for the first 180 days of the Energy and Operating Reserve Market. The Regulating Reserve Dispatch Status only applies to Resources that are i) available for the Hour and ii) registered as Regulation Qualified Resources.

xiii. **Spinning Reserve Dispatch Status.** An Offer shall include specification of a Spinning Reserve Dispatch Status for Spinning Reserve for each Hour. Valid Spinning Reserve Dispatch Status specifications include: Economic, Self-Schedule and Not Qualified. An Economic Spinning Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Spinning Reserve on the Resource for the Hour. A Self-Schedule Spinning Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Spinning Reserve on the Resource for the Hour. A Not Qualified Spinning Reserve Dispatch Status indicates that the Resource is not qualified to provide Spinning Reserve for an Hour. The Spinning Reserve Dispatch Status cannot be set to Not Qualified for a specific Resource in a specific Hour unless the Regulating Reserve Dispatch Status is also set to Not Qualifieid for that Resource in that Hour. The Spinning Reserve Dispatch Status only applies to Resources that are i) available for the Hour and ii) are registered as Spin Qualified Resources.

xiv. **Supplemental Reserve Dispatch Status.** An Offer shall include specification of a Supplemental Reserve Dispatch Status for Supplemental Reserve for each Hour. Valid Supplemental Reserve Dispatch Status specifications include: Economic, Self-Schedule and Not Qualified. An Economic Supplemental Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Supplemental Reserve on the Resource for the Hour. A Self-Schedule Supplemental Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Supplemental Reserve on the Resource for the Hour. A Not Qualified Supplemental Reserve Dispatch Status indicates that the Resource is not qualified to provide Supplemental Reserve for an Hour. The Supplemental Reserve Dispatch Status cannot be set to Not Qualified for a specific Resource in a specific Hour unless the Regulating Reserve Dispatch Status and the Spinning Reserve Dispatch Status are also set to Not Qualifieid for that Resource in that Hour.

The Supplemental Reserve Dispatch Status only applies to Resources that are (i) available for the Hour, (ii) are registered as Supplemental Qualified Resources and, (iii) are not registered as Spin Qualified Resources or have been disqualified by the Market Participant as Spin Qualified Resources for the Hour.

xv. **Hourly Energy Storage Loss Rate.** An Offer shall include specification of an Hourly Energy Storage Loss Rate for each Hour, expressed in MWh, which is the amount of Energy consumed by the Stored Energy Resource over a five-minute time period to maintain an energy storage level equal to the Hourly Maximum Energy Storage Level assuming no Operating Reserve deployment. If no Hourly Storage Loss Rate is submitted, the default value specified during the asset registration process will be used.

xvi. **Hourly Full Charge Energy Withdrawal Rate.** An Offer shall include specification of an Hourly Full Chage Energy Withdrawal Rate for each Hour, expressed in MWh, which is the amount of additional Energy that can be consumed by the Stored Energy Resource over a five-minute time period under a full charge to provide Regulation down capability. If no Hourly Full Charge Energy Withdrawal Rate is submitted, the default value specified during the asset registration process will be used.

c. Values in Offers. The values in Offers representing the non-price information identified in Section 39.2.5C.b. shall reflect the actual known physical capabilities and characteristics of the Stored Energy Resource on which the Offer is based.

d. Day-Ahead Energy and Operating Reserve Market Offer Price Caps. The following Offer Price Caps will apply to Stored Energy Resources in the Day-Ahead Energy and Operating Reserve Market:

i. Regulating Reserve Offer Price Cap: $500/MW for each Hour

iii. Contingency Reserve Offer Price Cap: $100/MW for each Hour

39.2.6 RESERVED

39.2.7 Specifications for Virtual Offers

a. General Virtual Offers Rules. Market Participants that intend to sell Virtual Energy in the Day-Ahead Energy and Operating Reserve Market shall provide the Offer information specified in this Section 39.2.7. Market Participants may sell Virtual Energy at any Commercial Pricing Node. Virtual Supply Offers shall not be used to supply Operating Reserve.

ii. If the Interface consists of multiple external Elemental Pricing Nodes, the Day-Ahead LMP for the Interface Commercial Pricing Node is set equal to the calculated Day-Ahead LMP for the Aggregate Price Node representing the Interface. The weighting factor for a specific Elemental Pricing Node is equal to a normalized value determined by the Transmission Provider for the Interface.

i. Determining the Day-Ahead Regulating Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Day-Ahead Regulating Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Hour in the Day-Ahead Energy and Operating Reserve Market, based on the SCED algorithm. The Regulating Reserve MCP for Generation Resources, External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Market-Wide Minimum Regulating and Spinning Reserve Constraint Shadow Price,

(iii) Market-Wide Regulating Reserve Balance Constraint Shadow Price, (iv) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, (v) Zonal Minimum Regulating and Spinning Reserve Constraint Shadow Price, if applicable, (vi) Zonal Regulating Reserve Balance Constraint Shadow Price, if applicable, (vii) Market-Wide Minimum Generation-based Regulating Reserve Constraint Shadow Price, if applicable, (viii) Market-Wide Minimum Generation-based Regulating Reserve plus Spinning Reserve Constraint Shadow Price, if applicable and (ix) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Regulating Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources shall be calculated on a Day-Ahead basis for each Hour of the Day-Ahead Energy and Operating Reserve Market.

Such Regulating Reserve MCPs for Demand Response Resources - Type II shall be calculated on a Day-Ahead basis for each Hour of the Day-Ahead Energy and Operating Reserve Market.

k. Determining the Day-Ahead Spinning Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Day-Ahead Spinning Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Hour in the Day-Ahead Energy and Operating Reserve Market, based on the SCED algorithm. The Spinning Reserve MCP for Generation Resources, External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Market-Wide Minimum Regulating and Spinning Reserve

Constraint Shadow Price, (iii) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, (iv) Zonal Minimum Regulating and Spinning Reserve Constraint Shadow Price, if applicable, (v) Market-Wide Minimum Generation-based Regulating Reserve plus Spinning Reserve Constraint Shadow Price, if applicable and (vi) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Spinning Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources shall be calculated on a Day-Ahead basis for each Hour of the Day-Ahead Energy and Operating Reserve Market.

m. Determining the Day-Ahead Supplemental Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Day-Ahead Supplemental Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Hour in the Day-Ahead Energy and Operating Reserve Market, based on the SCED algorithm. The Supplemental Reserve MCP for Generation Resources, External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, and (iii) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Supplemental Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources shall be calculated on a Day-Ahead basis for each Hour of the Day-Ahead Energy and Operating Reserve Market.

39.3.2A Day-Ahead Operating Reserve Procurement Credits

a. Market Participants scheduled to supply Regulating Reserve from Generation Resources, Demand Response Resources – Type II, Stored Energy Resources and/or External Asynchronous Resources in the Day-Ahead Energy and Operating Reserve Market shall be credited for all Regulating Reserve Schedules cleared in the Day-Ahead Energy and Operating Reserve Market at the applicable Day-Ahead Regulating Reserve MCP.

b. Market Participants scheduled to supply Spinning Reserve in the Day-Ahead Energy and Operating Reserve Market from Resources shall be credited for all Spinning Reserve Schedules cleared in the Day-Ahead Energy and Operating Reserve Market at the applicable Day-Ahead Spinning Reserve MCP.

c. Market Participants scheduled to supply Supplemental Reserve in the Day-Ahead Energy and Operating Reserve Market from Resources shall be credited for all Supplemental Reserve Schedules cleared in the Day-Ahead Energy and Operating Reserve Market at the applicable Day-Ahead Supplemental Reserve MCP.

The percentage of Regulating Reserve cleared in the Real-Time Energy and Operating Reserve Market on any Generation Resource, Demand Response Resource – Type II, Stored Energy Resource and/or External Asynchronous Resources shall initially be limited to twenty percent of the hourly Real-Time Market-Wide Regulating Reserve Requirement to the extent that such limitation does not create Regulating Reserve scarcity conditions or any other adverse reliability related conditions, and may be further limited on Demand Response Resources – Type II based on Applicable Reliability Standards.

b. Market-Wide Contingency Reserve Product Requirements

All cleared Contingency Reserve in the Real-Time Energy and Operating Reserve Market must be fully deployable within the Contingency Reserve Deployment Period. The Real-Time Market-Wide Contingency Reserve Requirement shall be equal to the corresponding hourly Market-Wide Contingency Reserve Requirements as established by the Transmission Provider in the Day-Ahead Energy and Operating Reserve Market, but may be adjusted by the Transmission Provider if necessary to comply with Applicable Reliability Standards. The Real-Time Market-Wide Contingency Reserve Requirement may vary on an hourly basis if permitted by Applicable Reliability Standards.

any Resource shall be limited to twenty percent of the hourly Real-Time Market-Wide Contingency Reserve Requirement to the extent that such limitation does not create scarcity conditions or any other adverse reliability related condistions, and may be further limited on Demand Response Resource – Type I and/or Demand Response Resources – Type II specific Resources based on Applicable Reliability Standards.

c. Zonal Operating Reserve Product Requirements

In the Real-Time Energy and Operating Reserve Market, one or more Reserve Zones will be established to ensure Regulating Reserve and Contingency Reserve are dispersed in a manner that prevents adverse operating conditions that affect the reliability of the Transmission System in accordance with Good Utility Practice. The definition and attributes of the Reserve Zones utilized in the Real-Time

d. Operating Reserve Supply Limitation on Stored Energy Resources.

The maximum amount of Operating Reserve, including Regulating Reserve, Spinning Reserve and/or Supplemental Reserve, that may be supplied by Stored Energy Resources in the Real-Time Energy and Operating Reserve Market during any one Dispatch Interval cannot exceed the Market-Wide Regulating Reserve Requirement for the Hour.

All Regulation Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of automatically responding to and alleviating frequency deviations through a speed governor or similar device in accordance with Applicable Reliability Standards. All Regulation Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of supplying Regulation for a minimum continuous duration of sixty (60) minutes, except with respect to Stored Energy Resources the Regulatory Reserve Deployment shall not exceed the energy storage capabilities of such Resource.

All Regulation Qualified Resources supplying Regulation in the Real-Time Energy and Operating Reserve Market must be capable of receiving and responding to automatic control signals and must provide telemetered output data in accordance with the Business Practices Manuals. Regulation Qualified Resources in the Real-Time Energy and Operating Reserve Market will be limited to (i) on-line and synchronized Generation Resources, (ii) External Asynchronous Resources, (iii) on-line and synchronized Demand Response Resources - Type II, and/or (iv) available Stored Energy Resources. A Market Participant can disqualify a Regulation Qualified Resource from supplying Regulating Reserve on an Hourly basis should physical operating restrictions make the Resource unable to deploy Regulating Reserve in accordance with the product requirements for Regulating Reserve established in Section 40.2.3 (a) and the Business Practices Manuals.

b. Spin Qualified Resources

All Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market must meet all of the requirements for Spin Qualified Resources specified in this Section. Only Spin Qualified Resources will be permitted to supply Spinning Reserve in the Real-Time Energy and Operating Reserve Market.

into the Midwest ISO Balancing Authority Area and must remain Pseudo-tied into the Midwest ISO Balancing Authority Area until the next Network Model update, or the Resource must be an External Asynchronous Resources. All Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market must comply with the requirements imposed by Applicable Reliability Standards for Resources supplying Spinning Reserve and, if applicable, frequency responsive Contingency Reserve. All Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100%) of their cleared Spinning Reserve within the Contingency Reserve Deployment Period. All Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of deploying one-hundred percent (100 %) of their cleared Spinning Reserve for a minimum continuous duration of sixty (60) minutes, except for Stored Energy Resources, which must be capable of deploying one-hundred percent (100%) of their cleared Spinning Reserve for a minimum continuous duration of five (5) minutes.

All Spin Qualified Resources supplying Spinning Reserve in the Real-Time Energy and Operating Reserve Market must provide telemetered output data or, in the case of a Demand Response Resource – Type I that has been committed for Energy or is available for Contingency Reserve within the Hour, must provide a minimum of one-minute interval demand data within the Hour for the host Load Zone through the appropriate data communications equipment, as set forth in the Business Practices Manuals. Spin Qualified Resources in the Real-Time Energy and Operating Reserve Market will be limited to (i) on-line and synchronized Generation Resources, (ii) uncommitted Demand Response Resources - Type I, (iii) on-line and synchronized Demand Response Resources - Type II, (iv) available External Asynchronous Resources and/or (v) available Stored Energy Resources.

A Market Participant can disqualify a Spin Qualified Resource from supplying Spinning Reserve on an Hourly basis should physical operating restrictions make the Resource unable to deploy Spinning Reserve in accordance with the product requirements for Spinning Reserve established in Section 40.2.3.b and the Business Practices Manuals. If a Resource is disqualified from providing Spinning Reserve, it is disqualified from providing Regulating Reserve by default.

All Supplemental Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of deploying one hundred percent (100%) of their cleared Contingency Reserve within the Contingency Reserve Deployment Period. All Supplemental Qualified Resources in the Real-Time Energy and Operating Reserve Market must be capable of deploying one hundred percent (100%) of their cleared Contingency Reserve for a minimum continuous duration of sixty (60) minutes, except for Stored Energy Resources. All Supplemental Qualified Resources supplying Supplemental Reserve in the Real-Time Energy and Operating Reserve Market must provide telemetered output data or, in the case of a Demand Response Resource – Type I that has been committed for Energy or is available for Contingency Reserve within the Hour, must provide a minimum of one-minute interval demand data within the Hour for the host Load Zone through the appropriate data communications equipment,as set forth in the Business Practices Manual.

Supplemental Qualified Resources in the Real-Time Energy and Operating Reserve Market will be limited to (i) on-line and synchronized Generation Resources, (ii) off-line and available Quick-Start Resources, (iii) uncommitted Demand Response Resources - Type I, (iv) on-line and synchronized Demand Response Resources - Type II, (v) available External Asynchronous Resources, and/or (v) available Stored Energy Resources.

40.2.7A Stored Energy Resource Offer Rules in the Real-Time Energy and Operating Reserve Market

Market Participants that intend to supply Operating Reserve from Stored Energy Resources in the Real-Time Energy and Operating Reserve Market shall provide the information specified in this Section. Stored Energy Resource Offers shall be submitted in the Real-Time Energy and Operating Reserve Market only for registered Stored Energy Resources. Stored Energy Resources Offers will remain in effect for the Real-Time Energy and Operating Reserve Market until specifically superseded by subsequent Stored Energy Resource Offers. Each Market Participant may only submit a single Stored Energy Resoruce Offer for each individual Stored Energy Resource. Market Participants may submit new or revised Stored Energy Resource Offers, including Self-Schedules, to the Real-Time Energy and Operating Reserve Market up to thirty (30) minutes prior to the operating Hour.

a. Eligibility to Supply. Market Participants may offer Operating Reserve from Stored Energy Resources into the Real-Time Energy and Operating Reserve Market if the Transmission Provider has (i) certified the Stored Energy Resource is capable of responding to five (5) minute Dispatch Targets for Energy storage, (ii) has the appropriate telemetry installed as set forth in the Business Practices Manuals, (iii) such Stored Energy Resource has been included in the Network Model, and (iv) is qualified to provide the Operating Reserve products offered. A Market Participant's Stored Energy Resources can supply Regulating Reserve, Spinning Reserve, and/or Supplemental Reserve in the Real-Time Energy and Operating Reserve Market if the Transmission Provider has certified that the Stored Energy Resource is a Regulation Qualified Resource, Spin Qualified Resource, and/or Supplemental Qualified Resource, respectively. Market Participants that offer to supply Real-Time Regulating Reserve, Spinning Reserve, and/or Supplemental Reserve shall provide the Offer information specified below.

b. Required Stored Energy Resource Offer Components.

Market Participants that submit Stored Energy Resource Offers shall include a Regulating Reserve Offer (if a Regulation Qualified Resource), a Spinning Reserve Offer (if a Spin Qualified Resource), and a Supplemental Reserve Offer (if a Supplemental Qualified Resource but not a Spin Qualified Resource). Market Participants can provide Stored Energy Resource Offers for the full energy storage capabilities of their Stored Energy Resource pursuant to the requirements outlined in Section 40.2.4.

A single Stored Energy Resource Offer may be submitted in the Real-Time Energy and Operating Reserve Market for each Hour of the Operating Day for which the Market Participant is willing to sell Operating Reserve for a given Stored Energy Resource. The Transmission Provider shall maintain a Real-Time Energy and Operating Reserve Market Offer for each Stored Energy Resource.

These Offers are standing Offers and are maintained for the Real-Time Energy and Operating Reserve Market independent of the Day-Ahead Energy and Operating Reserve Market. These Offers may be updated for a specific Hour up to thirty (30) minutes prior to the beginning of the Hour. Offer components are as follows:

i. **Regulating Reserve Offer.** The Regulating Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Regulation Qualified Resources. If no hourly Regulating Reserve Offer is submitted, the default Regulating Reserve Offer specified during the asset registration process will be used.

ii. **Spinning Reserve Offer.** The Spinning Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Spin Qualified Resources. If no hourly Spinning Reserve Offer is submitted, the default Spinning Reserve Offer specified during the asset registration process will be used.

iii. **Supplemental Reserve Offer.** The Supplemental Reserve Offer shall be a single value expressed for each Hour in $/MW and is only applicable to Supplemental Qualified Resources that are not Spin Qualified Resources. If no hourly Supplemental Reserve Offer is submitted, the default Supplemental Reserve Offer specified during the asset registration process will be used.

iv. **Commercial Pricing Node.** A Commercial Pricing Node shall be specified for the Stored Energy Resource at the time the asset is registered. The Commercial Pricing Node type shall not be a Load Zone, Interface, or Hub. The Commercial Pricing Node shall be the same one used for the Resource in the Day-Ahead Energy and Operating Reserve Market.

v. **Hourly Ramp Rate.** An Offer shall include an Hourly Ramp Rate, expressed for each Hour in MW/minute. If no Hourly Ramp Rate is submitted, the default ramp rate specified during the asset registration process will be used.

vi. **Hourly Minimum Limit.** An Offer shall include an Hourly Minimum Limit, expressed for each Hour in MW. If no Hourly Minimum Limit is submitted, the default limit specified during the asset registration process will be used. The Hourly Minimum Limit may be negative.

vii. **Hourly Maximum Limit.** An Offer shall include an Hourly Maximum Limit, expressed for each Hour in MW. If no Hourly Maximum Limit is submitted, the default limit specified during the asset registration process will be used.

viii. **Hourly Maximum Energy Storage Level.** An Offer shall include an Hourly Maximum Energy Storage Level, expressed for each Hour in MWh. The hourly maximum energy storage level represents the maximum amount of energy the Stored Energy Resource can store and maintain. If no Hourly Maximum Energy Storage Level is submitted, the default value specified during the asset registration process will be used.

ix. **Hourly Maximum Energy Charge Rate.** An Offer shall include an Hourly Maximum Energy Charge Rate, expressed for each Hour in MWh / Minute. If no Hourly Maximum Energy Charge Rate is submitted, the default value specified during the asset registration process will be used.

x. **Hourly Maximum Energy Discharge Rate.** An Offer shall include an Hourly Maximum Energy Discharge Rate, expressed for each Hour in MWh / Minute. If no Hourly Maximum Energy Discharge Rate is submitted, the default value specified during the asset registration process will be used.

xi. **Availability Status.** An Offer shall include an Availability Status to indicate if the Stored Energy Resource is available for participation in the Real-Time Energy and Operating Reserve Market during the Hour. If the Availability Status is set to Unavailable, then the Stored Energy Resource will be unavailable to provide Operating Reserve in the Real-Time Energy and Operating Reserve Market during the Hour. If the Availability Status is set to Available, then the Stored Energy Resource will be available to provide Operating Reserve in the Day-Ahead Energy and Operating Reserve Market during the Hour.

xii. **Regulating Reserve Dispatch Status.** An Offer shall include specification of a Regulating Reserve Dispatch Status for Regulating Reserve for each Hour. Valid Regulating Reserve Dispatch Status specifications include: Economic, Self-Schedule, Not Qualified and Not Participating. An Economic Regulating Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Regulating Reserve on the Resource for the Hour.

A Self-Schedule Regulating Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Regulating Reserve on the Resource for the Hour. A Not Qualified Regulating Reserve Dispatch Status indicates that the Resource is not qualified to provide Regulating Reserve for an Hour. A Not Participating Regulating Reserve Dispatch Status indicates the Market Participant will not provide Regulating Reserve on a Resource that is otherwise qualified to provide Regulating Reserve. The Not Participating Regulating Reserve Dispatch Status will not be available to any Resource that has all or a portion of its capacity designated as a Network Resource for the first 180 days of the Energy and Operating Reserve Market. The Regulating Reserve Dispatch Status only applies to Resources that are (i) available for the Hour and (ii) registered as Regulation Qualified Resources.

xiii. **Spinning Reserve Dispatch Status.** An Offer shall include specification of a Spinning Reserve Dispatch Status for Spinning Reserve for each Hour. Valid Spinning Reserve Dispatch Status specifications include: Economic, Self-Schedule and Not Qualified. An Economic Spinning Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Spinning Reserve on the Resource for the Hour. A Self-Schedule Spinning Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Spinning Reserve on the Resource for the Hour. A Not Qualified Spinning Reserve Dispatch Status indicates that the Resource is not qualified to provide Spinning Reserve for an Hour. The Spinning Reserve Dispatch Status cannot be set to Not Qualified for a specific Resource in a specific Hour unless the Regulating Reserve Dispatch Status is also set to Not Qualifieid for that Resource in that Hour. The Spinning Reserve Dispatch Status only applies to Resources that are i) available for the Hour and ii) are registered as Spin Qualified Resources.

xiv. **Supplemental Reserve Dispatch Status.** An Offer shall include specification of a Supplemental Reserve Dispatch Status for Supplemental Reserve for each Hour. Valid Supplemental Reserve Dispatch Status specifications include: Economic, Self-Schedule and Not Qualified. An Economic Supplemental Reserve Dispatch Status indicates that the Transmission Provider is authorized to economically clear Supplemental Reserve on the Resource for the Hour. A Self-Schedule Supplemental Reserve Dispatch Status indicates that the Market Participant is Self-Scheduling Supplemental Reserve on the Resource for the Hour. A "Not Qualified" Supplemental Reserve Dispatch Status indicates that the Resource is not qualified to provide Supplemental Reserve for an Hour. The Supplemental Reserve Dispatch Status cannot be set to Not Qualified for a specific Resource in a specific Hour unless the Regulating Reserve Dispatch Status and the Spinning Reserve Dispatch Status are also set to Not Qualifieid for that Resource in that Hour.

The Supplemental Reserve Dispatch Status only applies to Resources that are i) available for the Hour, ii) are registered as Supplemental Qualified Resources and, iii) are not registered as Spin Qualified Resources or have been disqualified by the Market Participant as Spin Qualified Resources for the Hour.

xv. **Hourly Energy Storage Loss Rate.** An Offer shall include specification of an Hourly Energy Storage Loss Rate for each Hour, expressed in MWh, which is the amount of Energy consumed by the Stored Energy Resource over a five-minute time period to maintain an energy storage level equal to the Hourly Maximum Energy Storage Level assuming no Operating Reserve deployment. If no Hourly Storage Loss Rate is submitted, the default value specified during the asset registration process will be used.

xvi. **Hourly Full Charge Energy Withdrawal Rate.** An Offer shall include specification of an Hourly Full Chage Energy Withdrawal Rate for each Hour, expressed in MWh, which is the amount of additional Energy that can be consumed by the Stored Energy Resource over a five-minute time period under a full charge to provide Regulation down capability. If no Hourly Full Charge Energy Withdrawal Rate is submitted, the default value specified during the asset registration process will be used.

c. Values in Offers. The values in Offers representing the non-price information identified in Section 40.2.7A.b. shall reflect the actual known physical capabilities and characteristics of the Stored Energy Resource on which the Offer is based.

d. Real-TIme Energy and Operating Reserve Market Offer Price Caps. The following Offer Price Caps will apply to Stored Energy Resources in the Real-Time Energy and Operating Reserve Market:

i. Regulating Reserve Offer Price Cap: $500/MW for each Hour

iii. Contingency Reserve Offer Price Cap: $100/MW for each Hour

40.2.8 Self-Scheduled Resources

Market Participants may submit Self-Schedules for Energy and/or Operating Reserve from their Resources, in whole or in part, in the Real-Time Energy and Operating Reserve Market. Market Participants that submit Self-Schedules for Energy are required to submit a MWh quantity and the applicable time period for each Self-Scheduled Resource.

ii. If the Interface consists of multiple external Elemental Pricing Nodes, the Ex Ante LMP for the Interface Commercial Pricing Node is set equal to the calculated Ex Ante LMP for the Aggregate Price Node representing the Interface. The weighting factor for a specific Elemental Pricing Node is equal to a normalized value determined by the Transmission Provider for the Interface.

i. Determining the Ex Ante Regulating Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Ante Regulating Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market, based on the SCED algorithm.

Filed to comply with *Midwest Independent Transmission System Operator, Inc.*, 122 FERC ¶ 61, 172 (2008) issued on February 25, 2008 in Docket Nos. ER07-1372-000 and 001.

The Regulating Reserve MCP for Generation Resources, External Asynchronous Resources and Stored Energy Resources is equal to the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Market-Wide Minimum Regulating and Spinning Reserve Constraint Shadow Price, (iii) Market-Wide Regulating Reserve Balance Constraint Shadow Price, (iv) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, (v) Zonal Minimum Regulating and Spinning Reserve Constraint Shadow Price, if applicable, (vi) Zonal Regulating Reserve Balance Constraint Shadow Price, if applicable, (vii) Market-Wide Minimum Generation-based Regulation Constraint Shadow Price, if applicable, (viii) Market-Wide Minimum Generation-based Regulating Reserve plus Spinning Reserve Constraint Shadow Price, if applicable, and (ix) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Regulating Reserve MCPs for Generation Resources and External Asynchronous Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

and (vi) Zonal Regulating Reserve Balance Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Regulating Reserve MCPs for Demand Response Resources - Type II shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

k. Determining the Ex Ante Spinning Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Ante Spinning Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market, based on the SCED algorithm. The Spinning Reserve MCP for Generation Resources, External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Market-Wide Minimum Regulating and Spinning Reserve Constraint Shadow Price, (iii) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable,

(iv) Zonal Minimum Regulating and Spinning Reserve Constraint Shadow Price, if applicable, (v) Market-Wide Minimum Generation-based Regulating Reserve plus Spinning Reserve Constraint Shadow Price, if applicable, and (vi) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Spinning Reserved MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

l. Determining the Ex Ante Spinning Reserve Market Clearing Price for Demand Response Resources – Type I and Demand Response Resources – Type II

The Transmission Provider shall calculate the Ex Ante Spinning Reserve MCPs for Demand Response Resources – Type I and Demand Response Resources – Type II for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market, based on the SCED algorithm.

m. Determining the Ex Ante Supplemental Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Ante Supplemental Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market, based on the SCED algorithm. The Supplemental Reserve MCP for Generation Resources, External Asynchronous Resources and Stored Energy Resources is the sum of the (i) Market-Wide Operating Reserve Balance Constraint Shadow Price, (ii) Zonal Operating Reserve Balance Constraint Shadow Price, if applicable, and (iii) Market-Wide Minimum Generation-based Operating Reserve Constraint Shadow Price, if applicable, all as set forth in Schedule 29. Such Supplemental Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

ii. If the Interface consists of multiple external Elemental Pricing Nodes, the Ex Post LMP for the Interface Commercial Pricing Node is set equal to the calculated Ex Post LMP for the Aggregate Price Node representing the Interface. The weighting factor for a specific Elemental Pricing Node is equal to a normalized value determined by the Transmission Provider for the Interface.

h. Determining the Ex Post Regulating Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Post Regulating Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market.

Such Ex Post Regulating Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

i. Determining the Ex Post Regulation Market Clearing Price for Demand Response Resources - Type II

The Transmission Provider shall calculate the Ex Post Regulating Reserve MCPs for Demand Response Resources - Type II for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market.

Such Regulating Reserve MCPs for Demand Response Resources - Type II shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

j. Determining the Ex Post Spinning Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Post Spinning Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market.

Filed to comply with *Midwest Independent Transmission System Operator, Inc.*, 122 FERC ¶ 61, 172 (2008) issued on February 25, 2008 in Docket Nos. ER07-1372-000 and 001.

Such Spinning Reserved MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

k. Determining the Ex Post Spinning Reserve Market Clearing Price for Demand Response Resources- Type I and Demand Response Resources – Type II

The Transmission Provider shall calculate the Ex Post Spinning Reserve MCPs for Demand Response Resources – Type I and Demand Response Resources – Type II for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market. Such Spinning Reserved MCPs for Demand Response Resources – Type I and Demand Response Resources – Type II shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

l. Determining the Ex Post Supplemental Reserve Market Clearing Price for Generation Resources, External Asynchronous Resources and Stored Energy Resources

The Transmission Provider shall calculate the Ex Post Supplemental Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market. Such Supplemental Reserve MCPs for Generation Resources, External Asynchronous Resources and Stored Energy Resources shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

m. Determining the Ex Post Supplemental Reserve Market Clearing Price for Demand Response Resources - Type I and Demand Response Resources - Type II

The Transmission Provider shall calculate the Ex Post Supplemental Reserve MCPs for Demand Response Resources - Type I and Demand Response Resources - Type II for each Dispatch Interval in the Real-Time Energy and Operating Reserve Market. Such Supplemental Reserve MCPs for Demand Response Resources - Type I and Demand Response Resources - Type II shall be calculated on a real-time basis for each Dispatch Interval of the Real-Time Energy and Operating Reserve Market.

and reported MWh values, and applicable Hourly Ex Post MCPs and Dispatch Targets for Operating Reserve. Until Market Participants submit their Metered values to be used for injections and withdrawals at each of their Commercial Pricing Nodes, the Transmission Provider may estimate values based on the best information available at the time of Settlements. A Market Participant's reported values are subject to review and validation by the Transmission Provider for Settlements. For each Hour of the Operating Day, the following charges and credits are determined:

a. Charges and Credits for Real-Time Energy and Operating Reserve Market Purchases.

i. **Energy Charges and Credits.** Market Participants shall be charged the applicable Hourly Ex Post LMP for any Actual Energy Withdrawals other than Actual Energy Withdrawals associated with a host Load Zone, net of Real-Time Financial Schedules that exceed their Day-Ahead Scheduled Withdrawals (and are credited for the Actual Energy Withdrawals,

the time-weighted average Regulation Deployment Instruction and the difference between the applicable Resource Offer Price and Ex Post LMP at the average Dispatch Target for Energy during the Dispatch Interval. Stored Energy Resources providing Regulating Reserve Deployment are not subject to the Regulation Deployment Adjustment.

b. Credits for Real-Time Energy and Operating Reserve Market Sales.

i. **Non-Excessive Energy Credits.** Market Participants are credited the applicable Hourly Ex Post LMP for Non-Excessive Energy injection for Generation Resources and External Asynchronous Resources pursuant to Section 40.3.4, net of Real-Time Financial Schedules, that exceeds their Day-Ahead Scheduled Injections (and will be charged for Non-Excessive Energy, net of Real-Time Financial Schedules, deviations below their Day-Ahead Scheduled Injections). The applicable Hourly Ex Post LMP is the LMP at the Commercial Pricing Node at which the injection occurs.

ii. **Excessive Energy Credits.** Market Participants are credited the lesser of the Hourly Ex Post LMP and the Hourly Excessive Energy Price for Excessive Energy associated with Generation Resources, and External Asynchronous Resources where such Excessive Energy is calculated pursuant to Section 40.3.4. Excessive Energy associated with Stored Energy Resources is settled at the Hourly Ex Post LMP.

iii. **Regulating Reserve Credit.** Market Participants are credited the Hourly Ex Post MCP for any positive difference between the time-weighted average of the Real-Time cleared amounts for Regulating Reserve in an Hour and their Day-Ahead Schedule for Regulating Reserve in that Hour (and will be

For Demand Response Resources – Type I that have not been committed for Energy, the Excessive Energy Threshold and Deficient Energy Threshold shall be equal to zero.

iii. **Stored Energy Resource Tolerance Band.** The upper limit of a Stored Energy Resource specific Tolerance Band, or Excessive Energy Threshold, shall be equal to the sum of (a) the Dispatch Target for Energy for the current Dispatch Interval, (b) the average Regulating Reserve Deployment instruction for that Dispatch Interval for that Resource and (c) 4% of the aboslute value of the average Setpoint Instruction for that Dispatch Interval. The lower limit of a Stored Energy Resource specific Tolerance Band, or Deficient Energy Threshold, shall be equal to the sum of (a) the Dispatch Target for Energy for the current Dispatch Interval and (b) the average Regulating Reserve Deployment instruction for that Dispatch Interval for that Resource less 4% of the absolute value of the average Setpoint Instruction for that Dispatch Interval.

The minimum separation between the upper and lower band of the Stored Energy Resource Tolerance Band will be 12 MW (+/- 6 MW) and the maximum separation between the upper and lower limit of the Stored Energy Resource Tolereance Band will be 40 MW (+/- 20 MW).

iv. **Minimum and Maximum Tolerance Band Thresholds.** The Excessive Energy Threshold as specified above will be adjusted so that it shall be no less than six (6) MW or no greater than twenty (20) MW plus the sum of (a) the average of the Dispatch Targets for Energy for the current Dispatch Interval and the previous Dispatch Interval, and

iv. **Hourly Excessive Energy for Generation Resource, Stored Energy Resource and External Asynchronous Resource.** Hourly Excessive Energy for a Generation Resource or External Asynchronous Resource is equal to the sum of the Excessive Energy amounts in each Dispatch Interval for that Generation Resource or External Asynchronous Resource in a specific Hour. Excessive Energy for a Generation Resource in a Dispatch Interval is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and the difference between the average telemetered output of the Generation Resource, expressed in MW and scaled by Actual Energy Injection, and the Excessive Energy Threshold for that Generation Resource, or (b) zero. Excessive Energy for an External Asynchronous Resource in a Dispatch Interval is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and difference between the average telemetered output of the External Asynchronous Resource, expressed in MW and scaled by Actual Energy Injection, and the Excessive Energy Threshold for that External Asynchronous Resource, or (b) zero.

Excessive Energy for a Stored Energy Resource in a Dispatch Interval is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and difference between the average telemetered output of the Stored Energy, expressed in MW and scaled by Actual Energy Injection, and the Excessive Energy Threshold for that Stored Energy Resource, or (b) zero.

Resource -Type II, expressed in MW, and the Excessive Energy Threshold for that Demand Response Resource -Type II, or (b) zero. The Calculated DRR -Type II Output for a Dispatch Interval, scaled by Actual Energy Injection, is equal to the host Load Zone Dispatch Interval Demand Forecast (positive value) in a Dispatch Interval, expressed in MWh, divided by the duration of the Dispatch Interval, expressed in Hours, minus the host Load Zone average demand amount (withdrawal positive, injection negative) for that Dispatch Interval, expressed in MW. If the Dispatch Interval Demand Forecast is equal to zero or is not submitted to the Transmission Provider, the Calculated DRR-Type II Output shall be equal to zero (0).

vii. **Hourly Deficient Energy for Generation Resource, Stored Energy Resource or External Asynchronous Resource.** Hourly Deficient Energy for a Generation Resource or External Asynchronous Resource is equal to the sum of the Deficient Energy amounts in each Dispatch Interval for that Generation Resource or

External Asynchronous Resource in a specific Hour. Deficient Energy in a Dispatch Interval for a Generation Resource is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and the difference between the Deficient Energy Threshold for the Generation Resource and the average telemetered output for that Generation Resource expressed in MW and scaled by Actual Energy Injection, or (b) zero. Deficient Energy in a Dispatch Interval for an External Asynchronous Resource is equal to the greater of (a) the product of the duration of the Dispatch Interval in Hours and the difference between the Deficient Energy Threshold for the External Asynchronous Resource and the average telemetered output for that External Asynchronous Resource, expressed in MW and scaled by Actual Energy Injection, or (b) zero (0) MW.

Deficient Energy in a Dispatch Interval for a Stored Energy Resource is equal to (a) the product of the duration of the Dispatch Interval in Hours and the difference between the Deficient Energy Threshold for the Stored Energy Resource and the average telemetered output for that Stored Energy Resource, expressed in MW and scaled by Actual Energy Injection (or Actual Energy Withdrawl if Deficient Energy Threshold is a negative value.

viii. **Hourly Deficient Energy for Demand Response Resource-Type I.** Hourly Deficient Energy for a Demand Response Resource-Type I is equal to the

Threshold and Deficient Energy Threshold will not apply to that Resource. A Resource is considered to be deploying Contingency Reserve in any Dispatch Interval that overlaps or is within the Disturbance Recovery Period associated with any event that triggered any of the Contingency Reserve Deployment.

b. Excessive/Deficient Energy Deployment Charges and Consequences

If a Market Participant's Resource has Excessive Energy, Deficient Energy or any combination thereof in three or more consective Dispatch Intervals in an Hour, that Market Participant shall be subject to an Excessive/Deficient Energy Deployment Charge associated with such Resource calculated as follows:

i A Resource's Excessive/Deficient Energy Deployment Charge shall be equal to: (1) the product of the absolute value of the Resource's Actual Energy Injection (or Actual Energy Withdrawal for a Stored Energy Resources, as the case may be), in MWh, for the Hour and the Excessive/Deficient Charge Rate, in $/MWh; plus (2) the sum of the Regulating Reserve credits calculated pursuant to Sections 39.3.2A.a and 40.3.3.b.iii for that Resource for that Hour. The Excessive/Deficient Charge Rate in an Hour is equal to the sum of the Day-Ahead Regulating Reserve credits calculated pursuant to Section 39.3.2A.a and the Real