



MISO states that market participants may update their offers to increase day-ahead Revenue Sufficiency Guarantee (RSG) make-whole payments. Second, MISO states that market participants can update their real-time economic minimum limit or ramp rate, or otherwise not follow dispatch, to increase real-time RSG make-whole payments. Third, MISO states that market participants can use an offer strategy that causes an oscillating day-ahead schedule to increase Day-Ahead Margin Assurance Payments and Real-Time Offer RSG Payments. MISO's October 16 filing proposes several Tariff revisions to address these opportunities for gaming, as discussed below.

## **II. Notice of Filing and Responsive Pleadings**

3. Notice of MISO's October 16, 2013 filing was published in the *Federal Register*, 78 Fed. Reg. 63,174 (2013), with interventions or protests due on or before November 6, 2013. Timely motions to intervene were filed by NRG Companies, Duke Energy Corporation, Exelon Corporation, DTE Electric Company, Ameren Services Company, and Wisconsin Electric Power Company. MidAmerican Energy Company (MidAmerican) filed a timely motion to intervene and protest. Consumers Energy Company (Consumers Energy) filed a timely motion to intervene and comments. Notice of MISO's October 28, 2013 amendment was published in the *Federal Register*, 78 Fed. Reg. 67,352 (2013), with interventions or protests due on or before November 6, 2013. No comments were received. On November 21, 2013, MISO and Potomac Economics, MISO's IMM, filed a joint answer to the protests.

## **III. Discussion**

### **A. Procedural Matters**

4. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2013), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

5. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 213(a)(2) (2013), prohibits an answer to a protest unless otherwise ordered by the decisional authority. We will accept the answer because it provided information that assisted us in our decision-making process.

**B. Substantive Matters****1. Next-Day Offer Updates****a. MISO's Filing**

6. MISO's Tariff provides that, if the production costs and operating reserve costs of a generation resource or demand response resource exceed the revenue received in the Day-Ahead Energy and Operating Reserve Market (Day-Ahead Market)<sup>4</sup> over all the Security Constrained Unit Commitment (SCUC)<sup>5</sup> Instructed Hours of Operation<sup>6</sup> in the day for that resource, then the market participant's revenue from the Day-Ahead Market will be augmented by an additional payment. This payment, the Day-Ahead RSG Credit,<sup>7</sup> will pay the revenue shortfall for that resource. Day-Ahead RSG Credits are intended to ensure that a resource has recovered its production costs and operating reserve costs (including energy, operating reserve, start-up and no-load costs) through the revenue received from the Day-Ahead Market for the hours during the SCUC Instructed Hours of Operation. According to MISO, its current Tariff allows market participants to

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<sup>4</sup> The Tariff defines the Day-Ahead Energy and Operating Reserve Market as "[t]he forward market for purchases and sales of Energy and Operating Reserve conducted by the Transmission Provider the Day prior to the Operating Day." MISO, FERC Electric Tariff, Module A, § 1.D (0.0.0).

<sup>5</sup> The Tariff defines SCUC as "[a]n algorithm capable of committing Resources to supply Energy and/or Operating Reserve on simultaneously co-optimized basis that minimizes Capacity costs while enforcing multiple security constraints." MISO, FERC Electric Tariff, Module A, § 1.S (0.0.0).

<sup>6</sup> The Tariff defines the SCUC Instructed Hours of Operation as "[t]he period beginning when a Resource is synchronized to the Facilities within the [MISO] Balancing Authority Area in response to the Transmission Provider selecting the Resource in the unit commitment portion of the SCUC process and ends at the later of: (i) the time incorporating the sum of the time when the Resource is synchronized and the Resource's Minimum Run Time and (ii) the earlier of the time the Resource is forced out of service or the time when the Transmission Provider notifies the Market Participant that the Resource is no longer needed. The SCUC Instructed Hours of Operation cannot extend beyond the Operating Day." MISO, FERC Electric Tariff, Module A, § 1.S (0.0.0).

<sup>7</sup> *Id.*, Module A, § 1.D (0.0.0).

receive unjustified Day-Ahead RSG Credits in some circumstances when they change their day-ahead offers for the next Operating Day.<sup>8</sup>

7. According to the affidavit of Dr. Patton of Potomac Economics, MISO's IMM, a resource cannot normally change its day-ahead offers after the Day-Ahead Market has closed and commitment decisions have been made for the next 24-hour Operating Day.<sup>9</sup> However, Dr. Patton notes that an issue can arise because commitment decisions in MISO are made on a 36-hour (Operating Day plus 12 hours) basis, even though resources are dispatched and the commitment is financially binding in the Day-Ahead Market on a 24-hour basis.<sup>10</sup> Dr. Patton states that this disparity creates a gaming opportunity for resources with an economic commitment in the Day-Ahead Market that spans more than a single operating day.<sup>11</sup> This exposure, according to Dr. Patton, results from the requirement to honor the as-committed minimum run time of the resource. He states that, for example, if a resource has a minimum run time of 16 hours and MISO commits it to start at noon on an Operating Day (Operating Day 1), the resource would be unable to complete its run time until 4 a.m. on the next Operating Day (Operating Day 2). The market participant could update its offer for the four hours in the Day-Ahead Market for Operating Day 2 at a higher price, and MISO would have to schedule the resource to complete its minimum run time regardless of the resource's revised offer. MISO would be obligated to cover the resource's as-offered costs through Operating Day 2, thereby raising the resource's Day-Ahead RSG Credits.<sup>12</sup>

8. Dr. Patton notes that MISO's rules effectively address this gaming issue in the Real-Time Energy and Operating Reserve Market (Real-Time Market)<sup>13</sup> by limiting RSG

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<sup>8</sup> October 16 Filing, Transmittal at 2. The Tariff defines Operating Day as "[t]he daily twenty four (24) hour period beginning at midnight EST for which transactions in the Energy and Operating Reserve Markets are scheduled." MISO, FERC Electric Tariff, Module A, § 1.0 (0.0.0).

<sup>9</sup> October 16 Filing, Tab C (Patton Affidavit) at 2.

<sup>10</sup> *Id.*

<sup>11</sup> *Id.* at 2-3. A resource's commitment can span operating days if its minimum run time bid in the Day-Ahead Market is not met during a single operating day.

<sup>12</sup> *Id.* at 3.

<sup>13</sup> MISO's Tariff defines the Real-Time Energy and Operating Reserve Market as "[t]he Market for purchases and sales of Energy and Operating Reserve conducted by

(continued...)

make-whole payments to resources committed by MISO to levels that guarantee the receipt of the lesser of the “as-committed” and the “as-dispatched” offers.<sup>14</sup> A resource’s “as-dispatched” offer is in effect during the operating hour, which may differ from its “as-committed” offer – the offer in effect when MISO initially committed the resource. The “as-dispatched” and “as-committed” costs can differ if the resource modifies its offer after it is committed. According to Dr. Patton, this RSG payment limitation ensures that a resource committed in the Real-Time Market cannot game its real-time RSG payment by raising its offers after it has been committed.<sup>15</sup>

9. In order to address this gaming issue in the Day-Ahead Market, MISO proposes to revise section 39.3.2B of its Tariff (Day-Ahead Revenue Sufficiency Guarantee Payments). The changes would modify the Day-Ahead RSG Credit calculation for a resource to use, as the cost recovery to be guaranteed, the lesser of the “as-committed” costs and the “as-dispatched” costs if: (1) the resource is scheduled during the last hour of the prior Operating Day; (2) the resource is scheduled during the first hour of the current Operating Day; and (3) the resource has one or more hours remaining to fulfill the as-committed minimum run time offer. Dr. Patton supports these Tariff changes, stating that they effectively address the gaming opportunity associated with next-day offer updates and that the provision would be comparable to the provision in the Real-Time Market.<sup>16</sup>

**b. Comments**

10. Consumers Energy generally supports the proposed changes to section 39.3.2B of MISO’s Tariff.<sup>17</sup> MidAmerican supports the underlying philosophy reflected in MISO’s October 16 filing, and has no adverse comments to MISO’s proposed changes to section 39.3.2B.<sup>18</sup>

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the Transmission Provider during the Operating Day.” MISO, FERC Electric Tariff, Module A, § 1.R (0.0.0).

<sup>14</sup> October 16 Filing, Tab C (Patton Affidavit) at 3.

<sup>15</sup> *Id.*

<sup>16</sup> *Id.* at 3-4.

<sup>17</sup> Consumers Energy Comments at 3.

<sup>18</sup> MidAmerican Protest at 3.

**c. Commission Determination**

11. We will accept the proposed changes to section 39.3.2B of MISO's Tariff. We find that the proposed changes restrict a resource's ability to profit from this gaming strategy by disallowing Day-Ahead RSG Credits associated with a resource changing the parameters in its day-ahead offer, while at the same time not restricting the resource's general ability to make or change day-ahead offers. Additionally, the proposed changes conform to MISO's current practices in the Real-Time Market.

**2. Post-Reliability Assessment Commitment Updates**

**a. MISO's Filing**

12. MISO's Tariff provides Real-Time RSG Credits in order to ensure the recovery of the production costs and operating reserve costs of a resource that has been committed and scheduled in the Real-Time Market.<sup>19</sup> The Real-Time RSG Credit may be applied when a resource is committed during the Look Ahead Commitment (LAC) or Reliability Assessment Commitment (RAC) processes.<sup>20</sup> MISO will determine, on the basis of the SCUC Instructed Hours of Operation, whether the resource's costs as specified above are greater than the revenues received for energy and operating reserves. If there is a shortfall, MISO will augment the market participant's revenue by providing the Real-Time RSG Credit.<sup>21</sup> In its October 16 filing, MISO states that its current Tariff allows

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<sup>19</sup> MISO, FERC Electric Tariff, Module A, § 1.R (0.0.0).

<sup>20</sup> The RAC is "[a] process conducted prior to the Day-Ahead Energy and Operating Reserve Market, following the posting of results for the Day-Ahead Energy and Operating Reserve Market but prior to the Operating Day, and 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." MISO, FERC Electric Tariff, Module A, § 1.R (0.0.0). The Look-Ahead Commitment contains "procedures the Transmission Provider follows using a security constrained unit commitment algorithm to recommend Resource commitments and decommitments to meet forecast Energy and Operating Reserve requirements in each interval of the LAC process based on Market Participants' Offers submitted in the Real-Time Energy and Operating Reserve Market." *Id.*, Module C, § 40.1.A (0.0.0).

<sup>21</sup> *Id.*, Module C, § 40.2.19 (1.0.0).

for gaming opportunities when a resource that is committed by MISO during any LAC or RAC process forces uneconomic output after being committed.<sup>22</sup>

13. According to Dr. Patton, resources are evaluated during the RAC based on the costs of committing the units (including startup, no load, and incremental energy costs up to the Economic Minimum Dispatch).<sup>23</sup> Under MISO's Tariff, the Economic Minimum Dispatch is the minimum achievable MW level at which a resource may be dispatched for energy in real-time under normal system conditions.<sup>24</sup> Dr. Patton states that resources committed in the RAC process can raise their real-time Hourly Economic Minimum Limit<sup>25</sup> after the commitment. Dr. Patton contends that this action will cause the resource to be dispatched at a higher output level (in MW), which will in turn compel MISO to make a Real-Time RSG Credit payment in order to guarantee energy costs in ranges above the original Economic Minimum Dispatch.<sup>26</sup> Dr. Patton notes that similar problematic outcomes can be achieved by a resource offering a lower ramp rate or going off-control (i.e., no longer following MISO's dispatch instructions).<sup>27</sup> These methods, according to Dr. Patton, allow the resource to generate in excess of its "as-committed" level, resulting in unjustified Real-Time RSG Credits.

14. MISO provides an example to illustrate this gaming strategy in its October 16 filing.<sup>28</sup> In this example, the resource has a real-time Hourly Economic Minimum Limit of 120 MW and a real-time energy offer of \$25 for each MW between zero-120 MW and \$75 for each MW above 120 MW. The example assumes the resource was committed economically in the Real-Time Market and that the clearing price for energy is \$30 per MWh, resulting in an energy dispatch target of 120 MW for that

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<sup>22</sup> October 16 Filing, Transmittal at 4.

<sup>23</sup> *Id.*, Tab C (Patton Affidavit) at 5.

<sup>24</sup> MISO, FERC Electric Tariff, Module A, § 1.E (0.0.0).

<sup>25</sup> In the Day-Ahead and Real-Time Markets, every offer includes an Hourly Economic Minimum Limit and an Hourly Economic Maximum Limit, expressed for each hour in MW. MISO, FERC Electric Tariff, Module C, §§ 39.2.5 (1.0.0) and 40.2.5 (6.0.0).

<sup>26</sup> October 16 Filing, Tab C (Patton Affidavit) at 5.

<sup>27</sup> *Id.* at 6.

<sup>28</sup> *Id.*, Transmittal at 4.

resource. The resource could then update its Hourly Economic Minimum Limit to 150 MW after it is committed and be dispatched at 150 MW. For each MW above 120 MW, the resource would receive a Real-Time RSG Credit of \$45 per MWh (\$75 per MWh energy offer cost minus the \$30 per MWh clearing price). MISO states that a market participant can also reduce its ramp rate or go off-control to achieve a similar result. Dr. Patton notes that he believes that MISO's exposure from such a strategy is very large.<sup>29</sup>

15. MISO proposes to resolve this gaming strategy by revising the Real-Time RSG Credit calculation to prevent the potential updating of the real-time Hourly Economic Minimum Limit, hourly ramp rate, or a market participant otherwise not following dispatch in order to receive undue Real-Time RSG Credits. MISO proposes to modify section 40.3.3.b.vi of its Tariff to add a new term, "Real-Time Revenue Sufficiency Guarantee Full Payment Criteria." The proposed Tariff provisions in section 40.3.3.b.vi.1 provide that a resource will qualify for the full Real-Time RSG Credit if: (1) the resource does not receive an excessive/deficient energy deployment charge during an hour; (2) the resource's real-time Economic Minimum Dispatch is less than or equal to the maximum of (i) the as-committed Hourly Economic Minimum Limit, (ii) the as-committed self-scheduled MW, or (iii) the as-committed hourly regulation minimum;<sup>30</sup> and (3) for resources where all limits used in the Real-Time Market within a specified dispatch interval have a dispatchable range of greater than 1 MW, the resource meets certain ramp rate criteria.<sup>31</sup> In the event that a resource receives an excessive/deficient energy deployment charge in an hour, it will be subject to a Real-Time RSG Credit reduction for that hour and all remaining contiguous hours during the real-time SCUC Instructed Hours of Operation. Similarly, if a resource fails the Real-Time RSG Full Payment Criteria for ramping or Hourly Economic Minimum Limit parameters in four or more consecutive real-time dispatch intervals in an hour, the resource will fail for that hour and all remaining contiguous hours during the real-time

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<sup>29</sup> *Id.*, Tab C (Patton Affidavit) at 6.

<sup>30</sup> For Demand Response Resources Type-I, the real-time dispatch target for energy must be less than or equal to the as-committed targeted demand reduction level.

<sup>31</sup> Under the third criterion, the real-time ramp rate for the Unit Dispatch System must be: (1) greater than 0.5MW per minute; and (2) greater than one half of one percent (0.5 percent) of the real-time Hourly Economic Maximum Limit per minute without decreasing, except where resource output is either greater than or equal to 90 percent of the real-time Hourly Economic Maximum Limit or less than or equal to the real-time Hourly Economic Minimum Limit plus 10 percent of the Hourly Economic Maximum Limit.

SCUC Instructed Hours of Operation and will receive a Real-Time RSG Credit reduction for those hours. According to MISO, the new criteria create an incentive for market participants to keep a resource's physical operating parameters consistent between the time of commitment and the time of dispatch.<sup>32</sup>

16. MISO also proposes to revise section 40.3.3.b.vi.2 of its Tariff to state that a resource that fails the Real-Time RSG Full Payment Criteria will receive a reduced Real-Time RSG Credit for the affected hour(s) based on its "as-committed" offer parameters.<sup>33</sup> In order to avoid increasing the total Real-Time RSG Credit for a resource that fails to meet the full payment criteria, section 40.3.3.b.vi.2.ii provides that the settlement calculation for such a resource would include any additional energy margin that results from the Real-Time RSG Credit reduction.

**b. Comments**

17. Consumers Energy has concerns that, if a resource fails to qualify for the Real-Time RSG Credit for one hour, the resource will be ineligible for all subsequent hours. Consumers Energy argues that, when a resource experiences an event that would cause the resource to not to follow its dispatch for a brief period of time, and then the resource returns to full "as-committed" capabilities in subsequent hours, it should be eligible for all appropriate make-whole payments for the hours after it returned to "as-committed" status. Consumers Energy also contends that MISO has not explained why a resource that "increases its Economic Minimum by 50 MW, but is still within the Economic Minimum of the market," would be judged to have engaged in gaming behavior and would lose its eligibility for the Real-Time RSG Credit.<sup>34</sup>

**c. Answer**

18. MISO and Potomac Economics explain that, when a resource fails to meet the Real-Time RSG Full Payment Criteria in one interval, the resource will continue to be

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<sup>32</sup> October 16 Filing, Transmittal at 6.

<sup>33</sup> MISO's October 28 amendment filing made conforming edits aligning the proposed Tariff language between section 40.3.3.b.vi.(1) (Real-Time Revenue Sufficiency Guarantee Full Payment Criteria) and section 40.3.3.b.vi.(2) (Calculation of Real-Time Revenue Sufficiency Guarantee Credit for Real-Time SCUC Instructed Hours of Operation) of MISO's Tariff.

<sup>34</sup> Consumers Energy Comments at 4.

eligible for Real-Time RSG Credit payments for the remainder of the commitment period.<sup>35</sup> However, they state that the resource will receive a reduced Real-Time RSG Credit for the remainder of the commitment period (a payment tied to “as-committed” costs as opposed to no payment). MISO and Potomac Economics further explain that when a resource fails the criteria in four consecutive five-minute real-time intervals in a given hour, the resource will be ineligible for the full payment in that hour and all remaining contiguous hours in that dispatch instruction.<sup>36</sup> MISO and Potomac Economics state that this approach is important to prevent suppliers from extracting undue make-whole payments in both the hour at issue and the remaining contiguous hours in the dispatch instruction. MISO and Potomac Economics generally note that there is no legitimate reason for MISO to guarantee costs that are the result of changes in offers that are unknown at the time of commitment. They state that had such costs been known to MISO at the time of the commitment, it might have committed a different resource. They also state that the supplier is in the best position to incorporate the risk of increased costs into its offer so that MISO can make the most efficient commitments.<sup>37</sup>

**d. Commission Determination**

19. We will accept the proposed changes to section 40.3.3.b.vi of MISO’s Tariff. We find that the proposed Tariff revisions remove an incentive for market participants to re-offer so as to generate in excess of their as-committed output levels in the Real-Time Market and thus receive unjustified Real-Time RSG Credits. We also accept MISO and Potomac Economics’ explanation that the failure of a resource to meet the Real-Time RSG Full Payment Criteria in one interval could enable it to earn undue payments in subsequent intervals, even if it returns to its as-committed level. Accordingly, we find that it is reasonable to limit a resource to a lower Real-Time RSG Credit based on its as-committed offer for the remainder of the commitment period. We agree with MISO and Potomac Economics that the proposed Tariff revisions will prevent gaming opportunities for suppliers to extract unwarranted Real-Time RSG Credits for output above the as-committed Hourly Economic Minimum Limit, and that the supplier is in the best position to incorporate the risk of increased costs into its offer. Finally, we find that it is reasonable to base Real-Time RSG credits on the offer a resource made to MISO when it was initially committed, under the conditions MISO has proposed. Without the revisions proposed by MISO, a resource may either update its offer after commitment (with respect

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<sup>35</sup> Joint Answer of MISO and Potomac Economics at 11.

<sup>36</sup> *Id.*

<sup>37</sup> *Id.* at 10.

to Hourly Economic Minimum Limits or ramp rates) or no longer follow dispatch instructions, thereby receiving unjust and unreasonable Real-Time RSG Credits.

### 3. Ramp Modeling Changes

#### a. MISO's Filing

20. MISO's Tariff provides for real-time make-whole payments that are intended to address price volatility. The Day-Ahead Margin Assurance Payment (DAMAP) is a real-time make-whole payment provided to protect market participants' margins associated with real-time dispatch instructions that are below their day-ahead schedules.<sup>38</sup> Eligible resources will receive a DAMAP in each eligible hour that the resource's day-ahead margin has been eroded through the following of MISO instructions, taking into account any positive real-time margins in that eligible hour.<sup>39</sup> The Real-Time Offer Revenue Sufficiency Guarantee Payment (RTORSGP) is provided to protect an eligible resource from the financial impact of being dispatched at levels above its day-ahead schedule when the resource is unable to fully recover its incremental energy cost during the 5-minute dispatch process in the Real-Time Market.<sup>40</sup> The RTORSGP calculation determines the amount by which the cost associated with following MISO's dispatch instructions exceeds the value of the payments associated with following such dispatch, independently for each eligible hour.<sup>41</sup> These two payments keep a market participant whole with respect to net profits it receives for energy in the Day-Ahead Market.<sup>42</sup>

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<sup>38</sup> MISO, FERC Electric Tariff, Module C, § 40.3.1 (0.0.0).

<sup>39</sup> *Id.*, Module C, § 40.3.6.5 (0.0.0).

<sup>40</sup> *Id.*, Module C, § 40.3.5.1 (0.0.0). The Tariff defines the RTORSGP as “[t]he real-time make-whole payment provided under Section 40.3.5 of this Tariff to the Resources described therein, when sum of revenue from hourly real-time [Locational Marginal Prices] and hourly real-time [Market Clearing Prices] do not fully cover the incremental Energy Offer costs and Operating Reserve Costs of such Resources.” *Id.*, Module A, § 1.R (0.0.0).

<sup>41</sup> *Id.*, Module C, § 40.3.5.6 (0.0.0).

<sup>42</sup> These payments do not attempt to keep the market participant whole with respect to overall as-offered costs, as do other make-whole payments.

21. In its October 16 filing, MISO states that its current Tariff allows market participants to make hour-to-hour changes in their energy offers in the Day-Ahead Market, which can be used to create an oscillating day-ahead schedule with large changes in output levels from one hour to the next.<sup>43</sup> MISO states that a market participant could also change its day-ahead Hourly Economic Maximum Limit and day-ahead Hourly Economic Minimum Limit from hour to hour in its day-ahead schedule to generate a similar oscillating day-ahead schedule. According to MISO, these strategies may result in undue DAMAP and RTORSGP due to ramp rate modeling differences between the Day-Ahead and Real-Time Markets.<sup>44</sup> MISO states that the opportunity to obtain unjustified DAMAP is based on the concept of infeasible energy, which is the amount of energy a resource is not yet capable of producing while ramping (in the up direction) in the Real-Time Market between the day-ahead schedules.<sup>45</sup> In contrast, the opportunity to obtain unjustified RTORSGP is based on the concept of unavoidable energy, which is the amount of energy a resource cannot avoid producing when ramping (in the down direction) in the Real-Time Market between hourly day-ahead schedules for energy.<sup>46</sup> Thus, MISO notes that, if a market participant makes hour-to-hour changes in its energy offers in order to create an oscillating day-ahead schedule, the resource will be paid DAMAP as it ramps up to meet the output level for the next hour, and it will also be paid RTORSGP as it ramps down to meet the lower output level for the subsequent hour.<sup>47</sup> Dr. Patton notes that these payments are not justified because the Real-Time Market volatility is caused not by changing real-time operating conditions, but entirely by the oscillating offers submitted by the market participant.<sup>48</sup>

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<sup>43</sup> October 16 Filing, Transmittal at 8.

<sup>44</sup> *Id.*

<sup>45</sup> As Dr. Patton explains, the DAMAP payments are made because the real-time output is significantly lower than the day-ahead schedule until the unit finishes ramping up. October 16 Filing, Tab C (Patton Affidavit) at 8.

<sup>46</sup> As Dr. Patton explains, the RTORSGP payments are made when the real-time output is higher than the day-ahead schedule while the resource is ramping down. October 16 Filing, Tab C (Patton Affidavit) at 9.

<sup>47</sup> *Id.* at 8.

<sup>48</sup> *Id.* at 9.

22. MISO provides an example to illustrate this gaming situation in its October 16 filing.<sup>49</sup> In this example, the resource has a day-ahead Hourly Economic Minimum Limit of 100 MW and a 1 MW per minute day-ahead hourly ramp rate. This resource could make an energy offer in the Day-Ahead Market at \$0 per MWh during the even hours of the day and \$250 per MWh during the odd hours. Assuming that the resource is committed, the resource would clear the Day-Ahead Market at its day-ahead Hourly Economic Minimum Limit of 100 MW in the odd hours and at 160 MW for every even hour (because the resource can only ramp up at 1 MW per minute). In the Real-Time Market, the resource would be dispatched at 100 MW in the first hour, and during the second hour the resource would ramp up to 160 MW, resulting in an hourly integrated output of 130 MW. In the third hour, the resource would ramp down from 160 MW to 100 MW, resulting again in an hourly integrated output of 130 MW. This pattern would continue throughout the day. Under the current Tariff, the resource would receive DAMAP in all even hours of the Operating Day in order to compensate for any profit the resource lost from producing less than the 160 MW dictated in the day-ahead schedule. Similarly, the resource would receive RTORSGP in the odd hours of the Operating Day to cover the cost of producing the additional energy beyond the 100 MW of day-ahead scheduled output.

23. In order to address this gaming issue, MISO proposes revisions to section 40.3.5.4 of its Tariff (RTORSGP Eligibility for Committed Hours for Generation Resources, Demand Response Resources Type II and External Asynchronous Resources). MISO proposes to make a resource ineligible for RTORSGP for a given hour unless the day-ahead offer meets the following requirements: (1) there must be a non-zero day-ahead schedule for energy in the prior hour; (2) the price of the day-ahead energy offer must not increase by more than 10 percent from the price of the day-ahead energy offer in the previous hour; and (3) the day-ahead Hourly Economic Maximum Limit in the current hour must not decrease by more than five times the day-ahead hourly ramp rate, from the minimum of (i) the day-ahead schedule for energy in the prior hour; or (ii) the day-ahead Hourly Economic Maximum Limit in the prior hour.

24. MISO also proposes revisions to section 40.3.6.4 of its Tariff (DAMAP Eligibility). MISO proposes to make a resource ineligible for DAMAP for a given hour unless the day-ahead offer meets the following requirements: (1) there must be a non-zero day-ahead schedule for energy in the prior hour; (2) for the day-ahead schedule for energy in the current hour, the price on the day-ahead energy offer in the current hour must not decrease by more than 10 percent from the price on the day-ahead offer in the previous hour; and (3) the maximum of (i) the day-ahead schedule Hourly Economic

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<sup>49</sup> *Id.*, Transmittal at 9.

Minimum Limit in the current hour, (ii) the day-ahead Hourly Economic Minimum Limit in the prior hour, or (iii) the as-committed self-schedule MW in the prior hour may not increase by a level greater than five times the day-ahead hourly ramp rate from the maximum of (a) the day-ahead schedule for energy in the prior hour, or (b) the day-ahead Hourly Economic Minimum Limit in the prior hour, or (c) the as-committed self-schedule MW in the prior hour.

25. Dr. Patton states that Potomac Economics worked closely with MISO to develop the proposed tariff revisions and believes these revisions are reasonable. He states that the 10 percent offer price change criterion is reasonable because it “indicates a material change in the offer price that can cause MISO’s Real-Time Market to issue changes in the dispatch instruction that cause the unit to be ramp constrained for multiple intervals.”<sup>50</sup> Dr. Patton also supports the criterion for identifying quantity changes in Hourly Economic Minimum and Maximum Limits of more than five times the ramp rate. Dr. Patton states that this criterion is reasonable because a change of more than five times the ramp rate will guarantee that the resource will be ramp-constrained for at least one real-time interval, which can result in inappropriate DAMAP or RTORSGP payments.<sup>51</sup>

**b. Comments**

26. Consumers Energy argues that a market participant could have a legitimate reason to change its price curve in a manner that would be in violation of the proposed modifications to section 40.3.5.4.d (RTORSGP Eligibility) and 40.3.6.4.e (DAMAP Eligibility) of MISO’s Tariff.<sup>52</sup> For example, Consumers Energy states that the misalignment of the natural gas and electric days could require many market participants to buy their gas before they receive their day-ahead awards from MISO, and that it is reasonable to expect price curve changes as potential imbalances are worked out. Consumers Energy states that it would not be reasonable to exclude a resource from DAMAP in such a case. Consumers Energy also expresses concern about MISO’s proposal to exclude a resource from DAMAP if it changes its economic maximum or economic minimum by more than five times the ramp rate from hour to hour (i.e. the ramp that can be achieved in five minutes). Moreover, Consumers Energy states that it is unclear from the transmittal letter whether this exclusion from DAMAP would apply only to self-scheduled resources. Consumers Energy argues that opportunities to game MISO

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<sup>50</sup> *Id.*, Tab C (Patton Affidavit) at 11.

<sup>51</sup> *Id.*

<sup>52</sup> Consumers Energy Comments at 5.

markets occur because the Day-Ahead Market gives infeasible resource schedules, and that MISO should focus on eliminating market design flaws rather than applying overly stringent rules on offer parameters.

27. MidAmerican acknowledges the potential for gaming of the DAMAP and the RTORSGP, but believes that MISO's proposed fix would unfairly affect intermittent resources whose volatile day-ahead schedules are the result of legitimate physical constraints rather than attempts to game MISO's markets.<sup>53</sup> For example, MidAmerican says that it often tailors its Hourly Economic Maximum Limit to match day-ahead wind forecasts, which can result in large changes from one hour to another. MidAmerican states that, while its day-ahead Hourly Economic Maximum Limits do not rhythmically oscillate from one hour to the next and thus do not match the exact behavior pattern that MISO is seeking to prevent, MISO's proposed eligibility criteria could still eliminate DAMAP and RTORSGP for sudden, occasional changes in these levels due to a forecast fluctuation in wind.

28. MidAmerican maintains that the problem is exacerbated by MISO's proposed use of the day-ahead hourly ramp rate to detect gaming.<sup>54</sup> It states that, although MidAmerican submits an Hourly Economic Maximum Limit based on forecast changes in wind speed, its hourly ramp rates are based on the rate at which it can respond to MISO dispatch instructions. MidAmerican contends that it must relay dispatch instructions to its wind generation sites and alter the operation of turbine blades, and that the ramp rates it offers in the Day-Ahead Market are accordingly much lower than the ramp rate that would be associated with changes in wind speed. As a result, MidAmerican argues that MISO's changes would have a particularly significant impact on wind generation, because eligibility for DAMAP and RTORSGP would be determined by a combination of volatile changes in Hourly Economic Minimum Limits (reflecting uncontrollable variations in wind), and comparatively low hourly ramp rates (reflecting the ability to respond to MISO dispatch instructions). MidAmerican recommends an exemption for wind generation from the ramp-related criteria in sections 40.3.5.4.d.ii and 40.3.6.4.e.ii of MISO's Tariff. It states that, even in the presence of such an exemption, section 65.3.5 of MISO's Tariff would still allow MISO to eliminate any gaming by wind resources by removing the eligibility "of any Generation Resource that is determined to be manipulating or gaming any of the make-whole payment mechanisms to extract undue payments."

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<sup>53</sup> MidAmerican Protest at 3-4.

<sup>54</sup> *Id.* at 5-6.

c. Answer

29. MISO and Potomac Economics request that the Commission reject MidAmerican's protest. They state that DAMAP and RTORSGP are designed to encourage suppliers to provide dispatch flexibility to MISO, and not to protect intermittent resources from dispatch volatility caused by the variability of the wind resource.<sup>55</sup> MISO and Potomac Economics state that such costs should be borne by the resource itself and that making such payments to intermittent resources would represent a subsidy that would be borne by other MISO customers. MISO and Potomac Economics concede that intermittent resources are not likely to engage in the oscillating offer behavior to game the DAMAP and RTORSGP mechanism, but they assert that any significant change to the Hourly Economic Minimum and Maximum Limits by a market participant allows the potential for undue DAMAP and RTORSGP payments. MISO and Potomac Economics maintain that the proposed revisions are designed to prevent market participants from receiving undue make-whole payments, and are not solely designed to prohibit oscillating offers. MISO and Potomac Economics argue that intermittent resources should not be exempt from the proposed DAMAP and RTORSGP qualification criteria because these resources could employ strategies designed to solicit undue payments.

30. MISO and Potomac Economics also assert that the new eligibility criteria will not have a significant impact on DAMAP or RTORSG payments. MISO and Potomac Economics state that they performed a study to examine the impact that the proposed DAMAP and RTORSGP eligibility criteria would have on payments to all resources. The study re-calculated settlement data during the period between January 1, 2103 and October 15, 2013 using the proposed eligibility criteria. The study found that the changes in DAMAP would have reduced payments during this period by 0.86 percent, from \$32.7 million to \$32.4 million.<sup>56</sup> This reduction represented 2,987 resource-hour failures, which is approximately 0.25 percent of the total resource-hours. The study similarly found that changes to RTORSGP would have reduced payment during the study period (from their actual levels of \$5.2 million) by 0.36 percent.<sup>57</sup> Additionally, the proposed RTORSGP rules would have resulted in just 297 resource-hour failures, which would constitute 0.08 percent of total resource-hours.

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<sup>55</sup> Joint Answer of MISO and Potomac Economics at 3-4.

<sup>56</sup> *Id.* at 7.

<sup>57</sup> *Id.*

31. In response to Consumers Energy's comments, MISO and Potomac Economics state that failure to meet the new eligibility criteria does not imply that the market participant is intentionally gaming the MISO markets.<sup>58</sup> Based on the results of the impact study, MISO and Potomac Economics state that the 10 percent price threshold allows market participants to appropriately modify their offers while allowing MISO to address the risks associated with DAMAP and RTORSGP payments. MISO and Potomac Economics also clarify that the new eligibility criteria for DAMAP do not solely apply to resources that are self-scheduling, and propose to make conforming changes to the Tariff language in a compliance filing to make that clear.<sup>59</sup> MISO and Potomac Economics note that MISO is in discussions with its stakeholders regarding the differences in modeling ramp between the Day-Ahead and Real-Time Markets, but that such additional changes are in a conceptual phase and ultimately would not address these gaming risks.<sup>60</sup>

**d. Commission Determination**

32. We will accept the proposed revisions to section 40.3.5.4.d and 40.3.6.4.e of MISO's Tariff. These make-whole payments are distinguishable from the Day-Ahead and Real-Time RSG Credits because they were not intended to provide an entitlement for commitment cost recovery. The Day-Ahead and Real-Time RSG Credits ensure that a market participant recovers its production costs and operating reserve costs if such costs exceed the revenue received in the Day-Ahead or Real-Time Markets. In contrast, DAMAP and RTORSGP were adopted to give market participants the incentive to remain flexible in their ability to follow MISO dispatch instructions.<sup>61</sup> Resource flexibility should not be construed to reward volatile hourly day-ahead schedules that result from submitted offers for an individual resource, whether intermittent or otherwise. We agree with MISO and Potomac Economics that intermittent resources should not receive DAMAP and RTORSGP payments solely as a result of volatility inherent in their day-ahead offers.

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<sup>58</sup> *Id.* at 12.

<sup>59</sup> *Id.* at 13-14.

<sup>60</sup> *Id.* at 14.

<sup>61</sup> *Midwest Indep. Transmission Sys. Operator, Inc.*, 136 FERC ¶ 61,025, at PP 2, 5-6, 8 (2011); *Midwest Indep. Transmission Sys. Operator, Inc.*, 117 FERC ¶ 61,325, at P 6 (2006).

33. We find that the proposed revisions foreclose gaming opportunities made available under the current Tariff. MISO's study shows that the loss of these payments across resources is not significant and is thus not likely to be unduly burdensome to resources. In light of the incentive nature of these make-whole payments, the gaming strategies they address, and the minor financial impact of the proposed eligibility criteria, we find that the proposed Tariff changes represent a just and reasonable solution to prevent this gaming in the MISO market. We will direct MISO to submit a compliance filing within 30 days of the date of this order to revise section 40.3.6.4.e.i.i of the Tariff to clarify the new eligibility criteria for DAMAP as described in the answer of MISO and Potomac Economics.

34. We agree with Consumers Energy that flaws inherent in MISO's Day-Ahead Market process could allow day-ahead schedules that are infeasible in real-time. These infeasible day-ahead schedules can impose costs on resources that must subsequently be addressed through make-whole payments, such as RTORSGP and DAMAP. Consumers Energy also notes that hourly price differences in day-ahead offers may result from misalignment of the natural gas and electric days. However, MISO and Potomac Economics have shown that these payments could potentially be manipulated. We encourage MISO to work with stakeholders to verify that the new rules are not limiting legitimate DAMAP and RTORSGP payments and to improve the Day-Ahead Market design such that it returns feasible day-ahead schedules more frequently, thereby reducing the need for associated make-whole payments and anti-gaming provisions. More realistic day-ahead schedules would better reflect the costs and physical capabilities of MISO resources, increase efficiency and transparency, reduce complexity in the market process, and reduce the need for make-whole payments for costs that are not reflected in day-ahead and real-time energy prices.

#### **4. Removing Eligibility for RSG Make-Whole Payments**

35. According to Dr. Patton, RSG payments always raise potential gaming concerns because even small flaws in the rules can allow a supplier to alter its conduct in order to increase its payments.<sup>62</sup> Section 65.3.5 of Module D (Market Monitoring and Mitigation Measures) of MISO's Tariff addresses this gaming potential by allowing MISO to remove eligibility for RSG payments, "including MRD MWP, of any Generation Resource that is determined to be manipulating or gaming" the make-whole payment mechanism to extract undue payments.<sup>63</sup> Dr. Patton states that the term "MRD MWP" is

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<sup>62</sup> October 16 Filing, Tab C (Patton Affidavit) at 11.

<sup>63</sup> MISO, FERC Electric Tariff, Module D, § 65.3.5 (1.0.0).

not a defined term in the Tariff, and that it most likely references a predecessor of the current price volatility make-whole payment terms. Accordingly, MISO proposes to remove the undefined term “MRD MWP” and clarify that section 65.3.5 of the Tariff will apply to Real-Time and Day-Ahead RSG Credits, DAMAP, RTORSGP, and Undeployed Regulating Mileage RSG.<sup>64</sup>

36. Consumers Energy supports the proposed changes to section 65.3.5 of MISO’s Tariff.<sup>65</sup>

37. We will accept the changes to section 65.3.5 of MISO’s Tariff. We find that these changes provide clarity and appropriately ensure the use of defined Tariff terms.

## **5. Request for Technical Conference**

### **a. Comments**

38. Consumers Energy states that MISO made its October 16 filing without stakeholder input on the proposed Tariff changes. Consumers Energy points out that the IMM’s assessments and recommendations regarding these gaming practices are contained in the 2012 State of the Market Report for the MISO Electricity Markets. MISO, according to Consumers Energy, ordinarily subjects recommendations of the IMM to several rounds of discussion at various stakeholder groups prior to proposing Tariff changes, yet in this case only presented to stakeholders after the filing had been made.<sup>66</sup> Consumers Energy requests a technical conference because the filing seeks to address hypothetical gaming scenarios and leaves unanswered questions about how some of the proposed changes would be implemented. Consumers Energy also contends that a technical conference will allow for necessary and appropriate stakeholder participation.

### **b. Answer**

39. MISO and Potomac Economics state that a technical conference is not needed because the new eligibility criteria are just and reasonable and MISO has provided

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<sup>64</sup> MISO notes that the Undeployed Regulating Mileage RSG was introduced as a result of the Commission’s order in *Frequency Regulation Compensation in the Organized Wholesale Power Markets*, Order No. 755, FERC Stats. & Regs. ¶ 31,324 (2011).

<sup>65</sup> Consumer Energy Comments at 6.

<sup>66</sup> *Id.*

significant documentation and stakeholder communication regarding the proposed changes.<sup>67</sup> Specifically, MISO and Potomac Economics note that MISO distributed a market-wide notification of the filing on October 17, 2013, with links to the appropriate Business Practice Manuals, followed up by detailed discussion of the proposed Tariff changes in the October 29, 2013 meeting of the Market Subcommittee and the November 5, 2013 meeting of the Market Settlements Working Group. MISO and Potomac Economics state that MISO can continue to respond to stakeholder questions through this process.

**c. Commission Determination**

40. We deny the request made by Consumers Energy for a technical conference. The gaming strategies described in the October 16 filing are not purely hypothetical; a technical conference exploring the strategies in more detail could result in negative consequences for the market.<sup>68</sup> We find that MISO has adequately supported and clarified its proposed changes in the answer submitted November 21, 2013. Finally, we find that MISO is creating opportunities that allow for conversation and education with stakeholders.

**6. Request for Expedited Treatment and Waiver**

41. MISO requests that the Commission waive its prior notice requirements, under 18 C.F.R. § 35.11 (2013), in order to allow a proposed effective date one day from the date of its October 16, 2013 filing.<sup>69</sup> MISO states that effective date and expedited treatment are necessary to avoid the potential for market participants to engage in the gaming strategies disclosed in the filing while the Tariff revisions are pending before the Commission. MISO notes that the Commission has previously granted an effective date of one day after the filing for recent MISO filings involving gaming issues.<sup>70</sup>

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<sup>67</sup> Joint Answer of MISO and Potomac Economics at 15.

<sup>68</sup> We also find that it was reasonable for MISO to limit communications relating to a potential manipulation strategy prior to filing a proposed solution.

<sup>69</sup> October 16 Filing, Transmittal at 13.

<sup>70</sup> *Id.* (citing *Midwest Indep. Transmission Sys. Operator, Inc.*, 136 FERC ¶ 61,025, at P 26 (2011); *Midwest Indep. Transmission Sys. Operator, Inc.*, Docket No. ER13-1004-000 (Mar. 13, 2013) (delegated letter order)).

42. We find good cause to waive the 60-day prior notice requirement. MISO has demonstrated that the current method of calculating the Day-Ahead RSG Credit, the Real-Time RSG Credit, the DAMAP and the RTORSGP could lead to unjustified make-whole payments due to gaming behavior in the Day-Ahead and Real-Time Markets. The requested effective date will ensure that market participants cannot benefit from such gaming behavior after it has been explained in a Tariff filing but before the Commission has issued a decision. In addition, as noted by MISO and Potomac Economics, waiver of the 60-day prior notice requirement is consistent with the Commission's previous practice where gaming is a concern.<sup>71</sup> Therefore, we will accept MISO's proposed revisions to become effective on October 17, 2013.

The Commission orders:

(A) MISO's proposed Tariff revisions are hereby accepted to become effective October 17, 2013, subject to MISO submitting a compliance filing, as discussed in the body of this order.

(B) MISO is hereby directed to submit a compliance filing within 30 days of the date of this order, as discussed in the body of this order.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,  
Deputy Secretary.

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<sup>71</sup> *Midwest Indep. Transmission Sys. Operator, Inc.*, 136 FERC ¶ 61,025, at P 26 (2011).