

138 FERC ¶ 61,227
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;
Philip D. Moeller, John R. Norris,
and Cheryl A. LaFleur.

Midwest Independent Transmission
System Operator, Inc.

Docket No. ER12-923-000

ORDER CONDITIONALLY ACCEPTING TARIFF FILING

(Issued March 29, 2012)

1. On January 27, 2012, the Midwest Independent Transmission System Operator, Inc. (MISO) filed proposed tariff revisions adding a new section 40.1A to Module C of the MISO Open Access Transmission, Energy and Operating Reserve Markets Tariff (Tariff), to establish a Look Ahead Commitment (LAC) process, with a requested effective date of April 1, 2012. In this order, the Commission accepts MISO's proposed tariff revisions, subject to modification, as discussed herein.

I. Background

2. This filing proposes tariff revisions that establish the LAC process which will be the first phase of MISO's Look Ahead Unit Dispatch System initiative.¹ The LAC process will provide an additional tool which MISO can choose to use for resource commitment and provides several improvements over the existing commitment processes.

3. Currently, MISO uses the Day-Ahead Market process and the Reliability Assessment Commitment (RAC) processes to make resource commitment decisions. There are two RAC processes: (1) the Forward RAC that occurs after the Day-Ahead Market closes and prior to the operating day and (2) the Intra-day RAC conducted within each operating day to make incremental commitments, as needed, to accommodate system changes such as unexpected weather or transmission facility outages, and need for additional regulating reserves.² The Intra-day RAC process, which can occur at any

¹ The second phase will be a Look Ahead Dispatch (LAD) tool.

² The RAC process is established in section 40.1 of the MISO Tariff.

point in the operating day, identifies near-term commitment options using Real-Time offers and information on current and future conditions, including system topology.

4. In its filing, MISO states that the Intra-Day RAC process has several limitations that impact the appropriateness of resulting near-term resource commitments. First, the Intra-Day RAC process is an offline manual process. Each Intra-Day RAC study must be built manually to represent current and future conditions. Accordingly, not all inputs and initial conditions are automatically generated, nor is the system topology from the State Estimator³ used. Second, the Intra-Day RAC process provides only hourly granularity, and thus it cannot adequately analyze near-term intra-hour ramp shortages due to changes in Net Scheduled Interchange, or changing load or wind resources. Third, the duration of the Intra-day RAC process is too long to serve as an accurate basis for determining near-term resource commitments, as the resulting commitment recommendations are based on system conditions that often change, and that may no longer support the resulting commitment recommendations. Accordingly, it has been necessary for MISO to rely on manual commitment decisions for near-term purposes, which are operationally and economically less efficient as compared to an automated commitment.⁴ MISO intends that the proposed LAC process will overcome the problems associated with the Intra-day RAC process. MISO states that its Independent Market Monitor (IMM) has consistently identified a look-ahead capability as a means of improving the commitment of fast-start resources such as gas turbines.⁵

II. Description of the Filing

A. Description of Proposed LAC Process

5. MISO's proposed LAC process is a new tool for system operators to commit or decommit resources. MISO proposes to define in Module A of the Tariff the term "Look Ahead Commitment" to be "[a] process performed during the Real-Time Energy and Operating Reserve Market that develops Resource commitment and decommitment options that may be used by the Transmission Provider to ensure sufficient Resources will be available to meet Load Forecast, Operating Reserve, and other demand

³ The State Estimator is a software program used by MISO to create a real time assessment of the condition of the MISO region.

⁴ LAC Filing at 2-3 and Gardner Testimony at 4-5.

⁵ Gardner Testimony at 2.

requirements for the near-term intra-hour intervals.”⁶ MISO will continue to run its existing Forward and Intra-day RAC processes along with the LAC process.⁷

6. In his testimony, Mr. Gardner provides additional detail that is not included in the proposed Tariff provisions. Specifically, he states that the LAC process considers up to three scenarios of near-term future system conditions, and can vary input assumptions for the scenarios, thereby improving MISO’s system operators’ ability to match commitment decisions with actual system conditions.⁸ With the LAC process, MISO’s operators can examine the commitment and decommitment options along with any recent system changes, such as line or generator outages, or late changes to interchange schedules, to choose commitment decisions that are best tailored to the actual system conditions. Because of ever-changing system conditions, LAC recommendations for commitments and decommitments are to be evaluated by the system operators along with other relevant updated system data in determining the proper resource commitments. Mr. Gardner states that the LAC process focuses on the near-term, from Real-Time to approximately three hours into the future, but MISO intends for the LAC study horizon to be flexible so that the focus could be reduced or increased from three hours based on operational experience.⁹ The Intra-day RAC process will continue to be used to provide Real-Time Resource commitment options for future time frames during the operating day.¹⁰

7. MISO proposes a new section 40.1.A to its Tariff, which addresses the LAC process. MISO states that it will “[c]ommit and decommit Resources ... based on, but not limited to, system reliability needs, system operational considerations, and the use of a security constrained unit commitment algorithm to determine the least costly means to serve the Load Forecast, Operating Reserve Requirements, and other demand requirements.”¹¹ MISO provides that it will establish and post on the internet, rules and procedures, including Offer rules, for eligible resources to be committed (or decommitted) in the LAC process. The selection will be communicated either electronically or through other means to Market Participants. Virtual Transactions, and

⁶ Proposed section 1.368a.

⁷ MISO notes that it has been running the LAC as a parallel process since August 18, 2011. LAC Filing at 5.

⁸ Gardner Testimony at 8.

⁹ *Id.* at 5 note 1.

¹⁰ *Id.* at 9.

¹¹ Proposed section 40.1.A.1.ii.

Resources on either planned or Forced Outages, are not allowed to participate in the LAC commitment in the Real-Time market.¹²

8. MISO proposes to conduct the LAC process as necessary during the operating day.¹³ MISO will use a security constrained economic commitment algorithm to recommend resource commitments and decommitments to MISO system operators for each interval (as described below) of the LAC process. MISO will employ an objective function, the total production cost minimization objective function, that minimizes the total production costs while meeting the MISO Load Forecast, Regulating Reserve requirement, Spinning Reserve requirement, Supplemental Reserve requirement, other demand requirements, and enforcing physical and reliability constraints.¹⁴ Proposed section 40.1.A.3.b of the Tariff provides that the production costs to be considered and minimized in the LAC algorithm include all costs based on Start-Up Offers, No-Load Offers, Energy Offer curves, and Operating Reserve Offers for Generation Resources and Demand Response Resources-Type II; all costs based on Energy Offers, Operating Reserve Offers, Shut Down Offers, and Hourly Curtailment Offers for Demand Response Resources-Type I; all costs based on Regulating Reserve Offers for Stored Energy Reserves; and all costs based on Energy Offer curves, and Operating Reserve Offers for External Asynchronous Resources.

9. Instead of using an off-line network model like the Intra-day RAC process, the LAC process uses the latest available State Estimator information to represent the current conditions and system topology and to develop the three cases considered.¹⁵ All inputs and initial conditions for the model are automatically generated, and best represent the current and near-term future conditions for each case.¹⁶ The LAC cases have intra-hour granularity with 15 minute intervals in the immediate near term, and 30 minute intervals beyond the immediate near term. MISO states that these intra-hour intervals position the

¹² Proposed section 40.1.A.1.

¹³ Proposed section 40.1.A.3.a.

¹⁴ Proposed section 40.1.A.3.

¹⁵ The process will use the system topology information from the latest State Estimator solution, which includes the current real-time telemetry status of transmission equipment.

¹⁶ Gardner Testimony at 6.

LAC process to address the intra-hour requirements changes caused by Real-Time Interchange Schedules, load, or wind power availability changes.¹⁷

10. MISO provides that it will use the following data inputs in executing the LAC process: Load Forecasts, Net Scheduled Interchange, Wind Resource forecasts, and Resource information where offers must match the Real-Time Offer specifications.¹⁸ Market Participants must indicate for each hour of the operating day if resources are to be self-committed. Market Participants may, but are not obligated to, submit Offers for any Capacity not selected for a Day-Ahead Schedule and those intending to supply in the LAC process must submit the information required for Real-Time Offers.

11. The LAC process' algorithm minimizes production costs, as opposed to the objective function of the RAC processes that minimizes only commitment costs.¹⁹ Mr. Gardner states that in its 2010 State of the Market Report, the MISO IMM suggested that an objective function that minimizes total production cost is a more appropriate objective function for the LAC process than one that minimizes commitment costs only.²⁰

12. Mr. Gardner states that MISO research indicates that the LAC process, which typically looks ahead a shorter time frame than the RAC processes and thus has less uncertainty about forecasted input conditions, should use total (production) cost minimization in the objective function. The research indicated that using production cost minimization in the LAC objective function did not have any significant impact on the recommendations for mid-term to long-lead resource commitments in the Intra-day RAC process that uses the commitment cost minimization objective function. While MISO states in its Tariff that the LAC process will be conducted as needed, Mr. Gardner notes that the algorithm runs automatically every 15 minutes (or on demand).²¹

13. Proposed section 40.1.A.3.c provides that MISO will notify Market Participants of Resources that have been committed or decommitted sufficiently in advance to enable them to comply with LAC obligations. Proposed section 40.1.A.3.d provides that Resources committed in the RAC must adhere to starting and operating instructions in

¹⁷ *Id.*

¹⁸ Proposed section 40.1.A.2.

¹⁹ In the RAC process the start up, no load and economic minimums offered by resources are considered, rather than the full production offers that are considered in the LAC process.

²⁰ Gardner Testimony at 10.

²¹ *Id.* at 6.

their normal dispatch range, to the extent feasible, and must submit an Energy Offer and applicable Operating Reserve Offers for the Resource's full Capacity in the Real-Time Energy and Operating Reserve Market regardless of whether all or a portion of the Resource's Capacity is or is not designated as a Capacity Resource.

14. MISO has added, within appropriate sections of the Tariff, references to the LAC process, and to the RAC processes, to indicate that operational rules that apply to the RAC processes will be extended to the LAC process, where applicable. For example, it has revised the definition of Real-Time Offers to provide that they are for use in the Real-Time Energy and Operating Reserve Market, the RAC, or the LAC.

B. Stakeholder Process

15. In 2009, MISO began studying development of "look ahead" capabilities to effectively address operational and reliability issues associated with MISO's advance preparations for Resource commitments and dispatch that will be required in Real-Time. These efforts led to the present LAC proposal. MISO first presented the Look Ahead tools initiative to its Market Services stakeholder committee in July 2009. In February 2010, MISO informed the Market Services Committee that the LAC design effort had been completed by the software vendor. MISO also reported that the effort needed to implement LAC was higher than anticipated, and the LAC project was split into two stages.

16. At the Market Services Committee meeting on May 4, 2010, MISO further described the design of the LAC Stage 1 project, discussing in greater detail the input and initial conditions, the rules for identifying system topology for the LAC cases, and features of the optimization algorithm. MISO also posted a 20-page document with technical design details for the LAC as a part of the Market Services Committee meeting materials. At Market Services Committee meetings in June and August 2011, MISO discussed the IMM's preference that MISO use a total production cost minimization objective function in the LAC process, and shared MISO's schedule for evaluation of that approach. On June 7, 2011 MISO announced to the Market Services Committee MISO's plan to study how the LAC would function during parallel operations while using a total production cost minimization function. MISO has been undergoing a period of parallel operations testing of the LAC since mid-August 2011.²² The test period is scheduled to last eight months, and is designed to provide MISO with data and allow it to verify that the results of the LAC are consistent with expectations. During the test period, the LAC software is operational, and the LAC results are considered test data.

²² *Id.* at 13-16.

17. MISO continued to meet with stakeholders and on December 16, 2011, after a presentation and discussion of the study results regarding the minimization of commitment costs versus production costs, the MISO Market Sub Committee passed without dissent a motion supporting the Tariff filing, with LAC designed to minimize total production costs. MISO states that it will continue developing Look Ahead Dispatch (the second phase of its Look Ahead Unit Dispatch System initiative).²³

III. Notice, Interventions, and Comments

18. Notice of MISO's filing was published in the Federal Register, with interventions and protests due on or before February 17, 2012. Timely motions to intervene were filed by The Detroit Edison Co., Exelon Corp., American Municipal Power, Inc., Ameren Services Co., Madison Gas & Electric Co., Constellation Energy Commodities Group, Inc. and Constellation NewEnergy, Inc. Timely motions to intervene and comments were filed by MidAmerican Energy Company (MidAmerican), DC Energy Midwest, LLC (DC Energy), and Wisconsin Electric Power Company (Wisconsin Electric). On February 28, 2012, Consumers Energy Co. filed a motion to intervene out-of-time. No protests were filed. On March 5, 2012, MISO filed an answer to the comments by MidAmerican and Wisconsin Electric.

19. Commenters support MISO's proposal to incorporate the LAC tool in its Tariff and request that the Commission approve it. MidAmerican and Wisconsin Electric seek clarification regarding certain aspects of the LAC tool, and on the appropriateness of specific wording in the proposal.

20. MidAmerican suggests several edits. First it suggests deleting "Market Participants'" from proposed section 40.1.A so that it reads:

[t]his [s]ection contains the 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~~² Offers submitted in the Real-Time Energy and Operating Reserve Market.²⁴

²³ *Id.* at 16.

²⁴ MidAmerican Comments at 3.

MidAmerican states that that use of “Market Participants’ Offers” is redundant since all Offers are by definition submitted by Market Participants.²⁵

21. Second, MidAmerican requests that MISO revise proposed section 40.1.A.2.c, which describes the use of wind resources as a data input for the LAC algorithm, by inserting either “Intermittent Resources” and/or “Dispatchable Intermittent Resources” in place of “wind Resource(s)” in both usages of the term.²⁶

22. Third, MidAmerican flags an apparent inconsistency with the use of “total production costs” and “production costs” in proposed section 40.1.A.3.b with the definition of “Production Costs” as defined at section 1.518 of the Tariff. Proposed section 40.1.A.3 provides for the minimization of production costs, and then defines them to include both energy and operating reserve offers. In contrast, the defined term “Production Costs” in section 1.518 includes Start up, No Load, and Energy offer costs, but not Operating Reserve offer costs. Accordingly, MidAmerican suggests that the phrase “total production costs” could be replaced by “Production Cost and Operating Reserve Cost” and that the second paragraph in proposed section 40.1.A.3.b that details the costs to be considered could be eliminated.

23. MidAmerican also states that existing sections 40.2.20 and 40.2.21 of the Tariff will need to be revised if MISO intends to utilize the new LAC process to address Capacity Shortage Conditions and Capacity Surpluses under Minimum Load Conditions, but not if MISO continues to address shortages and surpluses only via the existing RAC processes.²⁷

24. Wisconsin Electric proposes a clarification that it says will add consistency across Module C of the Tariff.²⁸ Specifically, Wisconsin Electric states that proposed section 40.1.A.2(d) should be revised to replicate the definition of Resource Information for the RAC Data Inputs at Module C, section 40.1.3.c – RAC Data Inputs – Resource Information. It states that the RAC definition of Resource Information includes language to the effect that Market Participants are not obligated to submit offers for any Capacity not selected in the Day-Ahead Schedule or selected in the RAC processes. Accordingly, Wisconsin Electric requests that MISO be required to add the following language in

²⁵ *Id.* at 3.

²⁶ *Id.* at 3-4.

²⁷ *Id.* at 5.

²⁸ Wisconsin Electric Comments at 3.

proposed section 40.1.A.2(d) in order to assure that any commitments selected in a process prior to the LAC process are accounted for in the LAC process:

Market Participants may, but are not obligated to, submit Offers for any Capacity not selected for a Day-Ahead Schedule or selected in the RAC process conducted the day prior to the Operating Day. Market Participants must indicate for each Hour of the Operating Day if Resources are to be self-committed.²⁹

25. On March 5, 2012, MISO filed a response to the suggestions and clarifications requested by MidAmerican and Wisconsin Energy. In response to MidAmerican's request to modify the reference to "Market Participants Offers" in proposed section 40.1.A to read only "Offers," MISO notes that the phrase "Market Participants' Offers" is used in several other provisions of the Tariff (i.e., sections 39.2.10, 39.2.11, 40.1, 40.2.20 and 40.2.21). Therefore, MISO contends that retaining the phrase "Market Participants' Offers" will maintain consistency with existing sections of the Tariff, and that the change recommended by MidAmerican is not necessary at this time.³⁰

26. Second, MISO agrees with MidAmerican that it should replace the phrase "wind Resources" in proposed section 40.1.A.2.c with the defined terms "Intermittent Resources" and "Dispatchable Intermittent Resources" and states that it is willing to make this change as part of a compliance filing.³¹

27. In response to MidAmerican's objection to the use of the terms "production costs" and "operating reserve costs," MISO acknowledges that the Tariff's currently defined terms "Production Cost" and "Operating Reserve Cost" will cover the same types of costs and with that change in terms, the second paragraph of proposed section 40.1.A.3.b would no longer be necessary. Therefore, MISO states that it is willing to make MidAmerican's suggested revision if required to do so in a compliance filing.

28. In response to MidAmerican's request for MISO to revise existing sections 40.2.20 and 40.2.21, MISO confirms that it will continue to utilize the existing RAC process to handle Capacity Shortage Conditions and Capacity Surpluses under Minimum Load Conditions.³² MISO therefore states that the addition of the LAC tool does not

²⁹ *Id.* at 3-4.

³⁰ MISO Answer at 3.

³¹ *Id.* at 3-4.

³² *Id.* at 5-6.

warrant changes to MISO's existing process for addressing capacity shortages and surpluses.

29. Finally, with respect to Wisconsin Electric's concern about consistency across Module C of the Tariff, MISO clarifies that "any Resources selected in RAC or any Real-Time process will automatically be accounted for in LAC."³³ MISO further notes that section 40.2.5.b of the current Tariff allows Real-Time offers to be submitted and/or updated up to 30 minutes before the beginning of the hour. MISO states that, accordingly, Wisconsin Electric's recommended edit is unnecessary.

IV. Discussion

A. Procedural Matters

30. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2011), the timely, unopposed motions to intervene are hereby granted. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d) (2011), the Commission will grant Consumers Energy Co.'s late-filed motion to intervene given its interest in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

31. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2011) prohibits an answer to a protest unless otherwise ordered by the decisional authority. We accept MISO's answer because it has provided information that assisted us in our decision-making process.

B. Determination

32. We find that the LAC process, as proposed, is just and reasonable, and that it will serve as a useful tool for MISO in making resource commitment decisions. As MISO moves from manual processes associated with commitment decisions to automatic processes, we expect there will be gains in operational and economic efficiency for the MISO footprint.

33. However, we also find that the proposed Tariff provisions do not adequately describe how the LAC process operates. Mr. Gardner's testimony provides information on a number of aspects of MISO's proposed implementation of the LAC process that are not included in the proposed Tariff language. For example, the proposed Tariff section establishes that the LAC process will be conducted as necessary during the operating

³³ *Id.* at 5 (citing Testimony of Joseph Gardner at 7).

day,³⁴ but the Tariff does not address the frequency with which the algorithm will be run, the number and type of scenarios to be considered, or the granularity associated with the process. Further, the Tariff does not establish the interaction between the RAC and LAC processes. For example, MISO's answer states that it "clarifies that any Resources selected in RAC or any Real-Time process will be automatically accounted for in LAC,"³⁵ yet this information is not included in the proposed Tariff provisions. Nor does the Tariff convey that the LAC process' study horizon is flexible and is currently set to three hours, while the Intra-day RAC process studies a period beyond that. Without this information, it could be unclear how the commitment process is enacted. Accordingly, we will require MISO, in a compliance filing within 30 days after the date of this order, to revise its Tariff to incorporate this information.

34. In response to MidAmerican's suggestion that the term "Market Participants' Offers" in proposed section 40.1.A be replaced with "Offers," we agree with MISO that this replacement is unnecessary. Given that MISO uses the term "Market Participants' Offers" in other sections of the Tariff, and that the use of "Market Participant" is at most redundant, there is no need for a modification to this section. Accordingly, we will not require the replacement of this language.

35. However, we agree with MidAmerican that the term "wind Resource" in section 40.1.A.2.c is too limiting. Accordingly, we will require MISO to replace that term (in the title and the text of section 40.1.A.2.c) with the defined terms "Intermittent Resources" and/or "Dispatchable Intermittent Resources" as it has indicated it will do as part of a compliance filing. We will require MISO to make these changes in the compliance filing within 30 days after the date of this order.

36. We also agree with MidAmerican that proposed section 40.1.A.3.b uses the terms "total production costs" and "production costs" in a manner that is inconsistent with the definition for "Production Costs" in section 1.518 of the Tariff. Accordingly, we will require MISO to replace the term "total production cost" in section 40.1.A.3.b with "Production and Operating Reserve Cost." With that change, the second paragraph of that section is unnecessary, and we will require MISO to remove it. We will require MISO to make these changes in the compliance filing to be made within 30 days after the date of this order.

37. MidAmerican expresses concern about the potential need for revisions to existing sections 40.2.20 and 40.2.21 of the Tariff if MISO plans to use the LAC process to address capacity shortage conditions and capacity surpluses under minimum load

³⁴ Proposed section 40.1.A.3.a.

³⁵ MISO Answer at 5.

conditions. Given MISO's confirmation that it will continue to utilize the existing RAC process to handle Capacity Shortage Conditions and Capacity Surpluses under Minimum Load Conditions, the addition of the LAC tool does not warrant changes to MISO's existing process for addressing capacity shortages and surpluses. Accordingly, we will not require changes to existing Tariff sections 40.2.20 and 40.2.21.

38. With respect to Wisconsin Energy's concerns about consistency with the description of the LAC process and the RAC processes with respect to resource information, we find MISO's clarification that RAC or any Real-Time schedule is automatically accounted for in the LAC to be helpful. However, we find that this information should be included within the associated Tariff language, and direct MISO to clarify this within the Tariff provisions. We will require MISO to make this change in the compliance filing due within 30 days after the date of this order.

The Commission orders:

(A) MISO's revised tariff sheets to the MISO Tariff are accepted for filing effective April 1, 2012, subject to revision based on a further compliance filing, as discussed in the body of this order.

(B) Within 30 days of the date of this order, MISO must make the compliance filing discussed in the body of this order.

By the Commission.

(S E A L)

Nathaniel J. Davis, Sr.,
Deputy Secretary.