

January 20, 2015

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: *Southwest Power Pool, Inc.*, Docket No. ER12-1179-_____
Compliance Filing Revising Tariff to Address Cost Allocation for Manual
Commitments Related to Local Reliability Issues

Dear Secretary Bose:

Pursuant to the Federal Energy Regulatory Commission's ("Commission") December 18, 2014 order in this proceeding,¹ Southwest Power Pool, Inc. ("SPP") submits revisions to its Open Access Transmission Tariff² to clarify cost allocation for manual resource commitments in the Day-Ahead Market related to Local Reliability Issues. SPP requests an effective date of March 1, 2014 for the revisions proposed in this filing.

I. BACKGROUND

On February 29, 2012, as amended through various supplemental and compliance filings,³ SPP proposed Tariff revisions to transition from its Energy Imbalance Service

¹ *Sw. Power Pool, Inc.*, 149 FERC ¶ 61,253 (2014) ("December 18 Order").

² Southwest Power Pool Open Access Transmission Tariff, Sixth Revised Volume No. 1 ("Tariff"). References in this filing to "Tariff" refer to the version of SPP's Tariff currently in effect. "Proposed Tariff" refers to revisions proposed in this filing. Some of the Tariff sections revised in this filing contain language that is pending before or accepted by the Commission in other dockets with future effective dates. SPP will submit a clean-up filing in the future to reconcile the language.

³ Submission of Tariff Revisions to Implement SPP Integrated Marketplace, Docket No. ER12-1179-000 (Feb. 29, 2012); Amending Filing of Tariff Revisions to Implement SPP Integrated Marketplace, Docket No. ER12-1179-001 (dated May 15, 2012); Submission of Tariff Revisions to Implement SPP Integrated Marketplace, Docket No. ER12-1179-003 (Feb. 15, 2013); Submission of Tariff Revisions to Modify SPP Integrated Marketplace, Docket No. ER13-1173-000 (continued . . .)

Market (in effect since February 1, 2007) to its Integrated Marketplace. The Commission accepted the Integrated Marketplace proposal and subsequent compliance and supplemental filings in a series of orders issued October 18, 2012, September 20, 2013, January 29, 2014, and June 19, 2014.⁴ SPP commenced operation of the Integrated Marketplace on March 1, 2014.

One issue receiving significant attention during the two-year regulatory process to obtain Commission approval for the Integrated Marketplace was the issue of manual resource commitments to address reliability issues and the allocation of costs associated with such commitments. SPP submitted a series of revisions in its various compliance and amendatory filings to address the Commission's directive that make whole payments associated with manual commitments for local reliability and voltage issues "be allocated locally rather than regionally, consistent with cost causation."⁵ The Commission

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(Mar. 28, 2013); Compliance Filing of Southwest Power Pool, Inc., Docket No. ER12-1179-005 (Apr. 19, 2013); SPP Integrated Marketplace Compliance Filing, Docket No. ER12-1179-012 (dated Nov. 11, 2013); Submission of Tariff Revisions to Modify SPP Integrated Marketplace, Docket No. ER14-416-000 (Nov. 15, 2013); Compliance Filing Revising Integrated Marketplace Tariff, Docket No. ER14-416-001 (Feb. 25, 2014); SPP Integrated Marketplace Compliance Filing, Docket No. ER12-1179-018 (Feb. 26, 2014).

⁴ *Sw. Power Pool, Inc.*, 141 FERC ¶ 61,048, at P 2 (2012) ("October 2012 Order"), *order on reh'g and clarification*, 142 FERC ¶ 61,205 (2013) ("March 2013 Order"), *appeal dismissed sub nom. Neb. Pub. Power Dist. v. FERC*, No. 13-1181, 2014 U.S. App. LEXIS 10064 (D.C. Cir. Apr. 15, 2014); *Sw. Power Pool, Inc.*, 144 FERC ¶ 61,224 (2013) ("September 2013 Order"); *Sw. Power Pool, Inc.*, 146 FERC ¶ 61,050 (2014) ("January 2014 Order"); *Sw. Power Pool, Inc.*, 147 FERC ¶ 61,212 ("June 2014 Order"), *order on clarification*, December 18 Order. These orders are referred to collectively herein as the "Integrated Marketplace Orders."

⁵ October 2012 Order at P 184; *see also, e.g.*, September 2013 Order at P 129 (directing SPP "to clarify that all commitments to address local reliability issues are excluded from the system-wide [Reliability Unit Commitment ("RUC")] make whole payment distribution"); January 2014 Order at PP 64-65 (directing SPP to modify the definition of "Local Reliability Issue" to make it consistent with the Midcontinent Independent System Operator, Inc.'s definition, to protect against what the Commission perceived to be the potential for "more regional allocation that is not consistent with the October 2012 Order"). In the October 2012 Order, the Commission also directed SPP to adopt a definition for the term "local reliability issue" and to develop a process for determining whether a Resource commitment by a local transmission operator was done in a
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ultimately accepted SPP's compliance with its directives related to Local Reliability Issue cost allocation in the June 2014 Order.⁶

On July 11, 2014, SPP filed a motion for clarification of the June 2014 Order, requesting that the Commission clarify "that the Commission's intent as expressed in the Integrated Marketplace Orders was that the costs associated with manual commitments to address Local Reliability Issues should be allocated locally, regardless of whether the make whole payments are allocated in accordance with" Day-Ahead or RUC make whole payment allocation provisions.⁷ SPP explained that Resources initially committed in SPP's Multi-Day Reliability Assessment process or RUC to address a Local Reliability Issue or Local Emergency Condition could be required to be committed in a subsequent day's Day-Ahead Market run if the issue or condition persists; however, in such a case, make whole payments associated with such commitments would be allocated under SPP's Day-Ahead Make Whole Payment Distribution Amount provisions, which, as adopted by SPP and accepted by the Commission, do not include a mechanism to allocate costs locally.⁸

In the December 18 Order, the Commission granted SPP's clarification request, "reiterat[ing] that the cost of all manual resource commitments implemented to address Local Reliability Issues should be allocated locally, consistent with the principle of cost causation."⁹ The Commission further clarified its intention "that the costs of all manual resource commitments, including those made by SPP and the transmission operators in the day-ahead market, to serve a Local Reliability Issue, would be allocated locally."¹⁰ On that basis, the Commission directed SPP to submit a compliance filing "that revises

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discriminatory manner, making such commitment ineligible for make whole payment compensation. October 2012 Order at P 185.

⁶ June 2014 Order at PP 12-14 (accepting SPP's compliance with directives related to manual commitments and make whole payments, but directing SPP either to explain its reasoning for deleting or to reinstate a provision addressing make whole payment eligibility for units committed by a local transmission operator).

⁷ Motion for Clarification of Southwest Power Pool, Inc., Docket Nos. ER12-1179-019, et al., at 7-11 (July 11, 2014) ("SPP Motion").

⁸ *Id.* at 9-11.

⁹ December 18 Order at P 8.

¹⁰ *Id.*

the Tariff provisions to allocate locally the cost of all manual resource commitments that address a Local Reliability Issue.”¹¹

II. DESCRIPTION OF AND JUSTIFICATION FOR PROPOSED TARIFF REVISIONS

SPP proposes revisions to several sections of Attachment AE of the Tariff to comply with the Commission’s directive “to allocate locally the cost of all manual resource commitments that address a Local Reliability Issue,”¹² including commitments in the Day-Ahead Market related to Resources that were originally committed in the multi-day process or RUC to address local issues. The Tariff revisions proposed in this filing, in large part, are modeled on existing, Commission-accepted Tariff revisions. Under the proposed Tariff revisions, costs associated with such Day-Ahead Market commitments would be allocated under the RUC Make Whole Payment Distribution Amount provisions (Attachment AE Section 8.6.7) rather than the Day-Ahead Make Whole Payment Distribution Amount provisions (Attachment AE Section 8.5.10). This proposal implements the Commission’s compliance directive and is just and reasonable because the manual commitments are related to Local Reliability Issues and Local Emergency Conditions that are identified in the Multi-Day Reliability Assessment or RUC processes, and are merely carried over into the Day-Ahead Market because the condition persists for more than one day.¹³

First, SPP proposes to revise Attachment AE Section 5.1.2 to clarify that manual commitments might be made in the Day-Ahead Market either to address Local Reliability Issues or to address other Transmission System security constraints that cannot be directly addressed in SPP’s Day-Ahead Market Security Constrained Unit Commitment (“SCUC”) algorithm.¹⁴ Specifically, SPP proposes to revise Section 5.1.2(b) to address situations where SPP makes a manual commitment to address security constraints related to the SPP Transmission System and not related to a Local Reliability Issue. In such a

¹¹ *Id.*

¹² *Id.*

¹³ Local Reliability Issues, including Local Emergency Conditions, are real-time events. Accordingly, it is appropriate to allocate the costs to address such issues to real-time withdrawals. Moreover, allocating these costs using the Day-Ahead Make Whole Payment Distribution Amount provisions could act as a disincentive to transact in the Day-Ahead Market for Market Participants located in areas with persistent local reliability issues.

¹⁴ *See* Proposed Tariff, Attachment AE § 5.1.2(b). The current language does not differentiate between regional (i.e., Transmission System) issues and local issues. *See* Tariff, Attachment AE § 5.1.2(b).

case, the costs are properly allocated regionally using the Day-Ahead Make Whole Payment Distribution Amount provisions in Section 8.5.10 of Attachment AE.¹⁵ To ensure consistency with existing Tariff provisions and to comply with the Integrated Marketplace Orders, SPP adopts additional language specifying that make whole payment eligibility for any such manual commitments is subject to the discrimination test set forth in Section 6.1.2.1 of Attachment AE and that any such commitments must be made in a manner aimed at minimizing costs while adhering to security constraints and Resource operating parameters.¹⁶

SPP also proposes a new Section 5.1.2(c) to address Day-Ahead Market manual commitments related to Local Reliability Issues and Local Emergency Conditions. Proposed Section 5.1.2(c) provides that make whole payment costs associated with such commitments will be allocated locally as part of the RUC Make Whole Payment Distribution Amount provisions in Section 8.6.7(B) of Attachment AE, and that such commitments also are subject to the discrimination test set forth in Section 6.1.2.1. This language is modeled largely on language in Section 6.1.2(4) of Attachment AE, which addresses manual commitments for local issues in the RUC process. SPP also proposes a new Section 5.1.2(d), which includes a requirement to establish operating guides for Day-Ahead Market manual commitments related to Local Reliability Issues, consistent with existing Tariff language in the RUC process¹⁷ and the Commission's directive to adopt such a requirement.¹⁸

Together, these revisions are just and reasonable and consistent with the directives in the December 18 Order because, for purposes of assigning cost responsibility, they differentiate between Day-Ahead Market manual commitments related to local issues and those related to regional issues.

¹⁵ See Proposed Tariff, Attachment AE § 5.1.2(b). SPP proposes to move certain language currently in Section 5.1.2(b) related to re-running of the SCUC if time permits to Section 5.1.2(e). See *id.*, Attachment AE § 5.1.2(e).

¹⁶ See Tariff, Attachment AE § 6.1.2(3) (containing similar provisions for manual commitments in the RUC process). The Commission directed SPP to adopt a discrimination screen for manual commitments in the Integrated Marketplace Orders. *E.g.*, October 2012 Order at P 185.

¹⁷ See Tariff, Attachment AE § 6.1.2(4)(e).

¹⁸ September 2013 Order at P 110 (“[W]e direct SPP to revise its Tariff to require SPP, the local transmission operator, and the owner of the generator to establish operating guides to address known and recurring reliability issues that are associated with manual commitments.”).

Second, SPP proposes to revise Attachment AE Sections 8.5.9 (Day-Ahead Make Whole Payment Amount) and 8.5.10 (Day-Ahead Market Make Whole Payment Distribution Amount) to implement the local allocation of Day-Ahead Market manual commitments for local reliability. Specifically, SPP proposes to modify Section 8.5.9 to specify that owners of Resources that were initially committed by local transmission operators to address Local Emergency Conditions but are subsequently committed in the Day-Ahead Market to continue to address a persistent condition are eligible to receive a Day-Ahead Make Whole Payment¹⁹ (unless the Resource commitment fails the discrimination test set forth in Section 6.1.2.1 of Attachment AE and the Resource is affiliated with the local transmission operator).²⁰ SPP also proposes to revise Section 8.5.10 to limit the Day-Ahead Make Whole Payment Distribution Amount to a calculation of a system-wide charge to address manual commitments other than those associated with local issues and to specify that costs associated with make whole payments for local reliability manual commitments will be allocated locally under the RUC make whole payment allocation in Section 8.6.7.

These revisions are just and reasonable and consistent with the directives in the December 18 Order because they clarify that Resources committed in the Day-Ahead Market to address persistent local issues are eligible for make whole payments and they separately account for and allocate costs based on whether a commitment relates to a local issue or a system-wide issue.

Third, SPP proposes to revise Section 8.6.7, which governs the allocation of RUC make whole payment costs, to include costs associated with Day-Ahead Market manual commitments to address Local Reliability Issues and Local Emergency Conditions. These revisions are just and reasonable because they ensure local cost allocation for manual commitments addressing local issues, consistent with the December 18 Order. Moreover, as discussed above, it is appropriate to allocate such costs to real-time withdrawals (as opposed to Day-Ahead withdrawals) because, while the manual commitment occurred in the Day-Ahead Market, the issue was either initially identified

¹⁹ Section 8.5.9 already provides make whole payments for Resources committed by SPP in the Day-Ahead Market or multi-day process. *See* Tariff, Attachment AE § 8.5.9(1).

²⁰ This language is modeled on language in Section 8.6.5 (Reliability Unit Commitment Make Whole Payment Amount), which precludes make whole payments if the Resource fails the discrimination screen and is affiliated with the local transmission operator. *See* Tariff, Attachment AE § 8.6.5(1); *see also id.*, Attachment AE § 8.6.6(1) (specifying that Resources receiving an Out-of-Merit Energy dispatch instruction by a local transmission owner are eligible for a make whole payment unless the commitment fails the discrimination test and the Resource is affiliated with the local operator).

in the RUC to address a real-time Local Reliability Issue or was initially identified in the Day-Ahead Market process to address an anticipated real-time Local Reliability Issue.

Finally, SPP proposes a minor revision to the definition of “Local Reliability Issue Commitment” to clarify that such a commitment can arise in the Day-Ahead Market.²¹

III. ADDITIONAL INFORMATION

A. Information Required by the Commission’s Regulations

(1) Documents submitted with this filing:

In addition to this transmittal letter, SPP includes in this filing clean and redlined versions of the proposed revisions to the Tariff in electronic format.

(2) Effective date:

Consistent with the Commission’s acceptance of SPP’s Integrated Marketplace, SPP requests that the Commission accept the Tariff revisions proposed in this filing effective March 1, 2014.²²

(3) Service:

SPP has served a copy of this filing on all individuals listed on the service lists compiled by the Commission’s Secretary in Docket Nos. ER12-1179 and ER13-1173, as well as SPP members and customers and all affected state commissions in the SPP Region. A complete copy of this filing will be posted on the SPP web site, www.spp.org.

²¹ See Proposed Tariff, Attachment AE § 1.1 (Definitions L).

²² SPP has been tracking the costs associated with make whole payments for Day-Ahead Market local reliability manual commitments and will be able to implement these Tariff revisions with a March 1, 2014 effective date.

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IV. CONCLUSION

For all of the foregoing reasons, SPP respectfully requests that the Commission accept the Tariff revisions proposed in this filing as compliant with the Integrated Marketplace Orders and the December 18 Order.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service lists compiled by the Secretary in Docket Nos. ER12-1179 and ER13-1173.

Dated at Washington, D.C., this 20th day of January, 2015.

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1.1 Definitions L

Local Emergency Condition

A condition or situation determined by the local transmission operator that is imminently likely to cause a material adverse effect on the security of or damage to the local transmission operator's facilities not modeled by the Transmission Provider.

Local Reliability Issue

A local voltage or reliability condition necessitating a Local Reliability Issue Commitment.

Local Reliability Issue Commitment

A Resource commitment in addition to, or in lieu of, commitments resulting from the Security Constrained Unit Commitment in the Day-Ahead Market or any Reliability Unit Commitment, in order to mitigate issues with Transmission System voltage or other local reliability concerns. These Resource commitment requirements are established prior to or during an Operating Day and are based on projected local reliability requirements, operational considerations, and generation and transmission outages. These commitments will be based on Operating Guides for recurring local voltage and reliability requirements, but an Operating Guide is not required prior to a Resource commitment being designated as a Local Reliability Issue Commitment. Resource commitments to relieve a potential or actual Interconnection Reliability Operating Limit violation will not be designated in this category.

Locational Marginal Price ("LMP")

The price for Energy at a given Price Node which is equivalent to the marginal cost of serving demand at the Price Node while meeting the Transmission Provider Operating Reserve requirements.

Loss Pool

A collection of either (i) Settlement Locations within a Settlement Area (a "Settlement Area Loss Pool"), or (ii) all External Interfaces and Market Hubs located throughout the Transmission System, that is used for the purpose of determining an Asset Owner's allocation of over-collected loss revenues in Sections 8.5.16 or 8.6.16 of Attachment AE.

5.1.2 Day-Ahead Market Execution

The Transmission Provider will employ a simultaneous co-optimization methodology to perform the following tasks in order to clear the Day-Ahead Market for each hour of the upcoming Operating Day:

- (1) Commit Offered Resources, Import Interchange Transaction Offers and Virtual Energy Offers using the SCUC algorithm to meet the Demand Bids, Virtual Energy Bids, Export Interchange Transactions Bids, Head-room requirements, Floor-room requirements, and Operating Reserve requirements on a least cost basis for each hour of the upcoming Operating Day.
 - (a) The Day-Ahead Market SCUC algorithm will initially consider commitment of Resources not specified for reliability only use as described in Section 4.1(10)(c) of this Attachment AE, including Resources committed in the Multi-Day Reliability Assessment, up to the Resources' Maximum Economic Capacity Operating Limit or Maximum Regulation Capacity Operating Limit if selected for Regulation-Up and/or Regulation-Down, and down to the Resources' Minimum Economic Capacity Operating Limit or Minimum Regulation Capacity Operating Limit if selected for Regulation-Down and/or Regulation-Up.
 - (i) If this capacity is not sufficient to meet the fixed Demand Bids and fixed Export Interchange Transaction Bids, Head-room requirements, and Operating Reserve requirements on a system-wide basis, the Day-Ahead Market SCUC algorithm will, in priority order: (1) curtail non-firm fixed Export Interchange Transaction Bids until the capacity shortage is eliminated; and (2) incorporate capacity up to Resources' Maximum Emergency Capacity Operating Limits and/or commit Resources designated as reliability only use, as described in Section 4.1(10)(c) of this Attachment AE, on an economic basis until the capacity shortage is eliminated while attempting to maintain the Regulation-Up requirement to the extent possible .

- (ii) If there is a capacity surplus on a system-wide basis calculated as the sum of self-committed capacity at minimum output, fixed Import Interchange Transaction Offers, Floor-room requirement, and the Regulation-Down requirement that is in excess of the sum of fixed Demand Bids and fixed Export Interchange Transaction Bids, the Day-Ahead Market SCUC algorithm will, in priority order: (1) curtail non-firm fixed Import Interchange Transaction Offers until the capacity surplus is eliminated; and (2) incorporate capacity down to Resources' Minimum Emergency Capacity Operating Limits until the capacity surplus is eliminated while attempting to maintain the Regulation-Down requirement.
- (b) To the extent that a particular security constraint impacting only the Transmission System cannot be directly addressed within the Day-Ahead Market SCUC algorithm and is not a Local Reliability Issue, the Transmission Provider may manually commit Resources and/or decommit Resources, including self-committed Resources to alleviate such a Transmission System security constraint in accordance with its authority as Reliability Coordinator. Such manual commitments shall be selected by the Transmission Provider in a non-discriminatory manner, which will be verified by the Market Monitor through the process described under Section 6.1.2.1 of this Attachment AE. Additionally, such manual commitments shall be selected by the Transmission Provider to ensure that commitment costs are minimized while adhering to Transmission System security constraints and the Resource operating parameter constraints submitted as part of the Day-Ahead Market Offers. The recovery of the compensation paid by the Transmission Provider for such committed Resources under Section 8.5.9 of this Attachment AE shall be collected by the Transmission Provider regionally as described under Section 8.5.10 of this Attachment AE.
- (c) A Local Reliability Issue or Local Emergency Condition may need to be addressed during the Day-Ahead Market process. Local Reliability Issues,

either initially recognized directly as part of the Day-Ahead Market process or previously recognized and committed as part of any Reliability Unit Commitment process, may require out of merit commitment or decommitment to one or more Resources in the Day-Ahead Market to recognize or continue to recognize the Local Reliability Issue. A Local Emergency Condition previously recognized and committed as part of any Reliability Unit Commitment process may require out of merit commitment or decommitment to one or more Resources in the Day-Ahead Market to continue to recognize the Local Emergency Condition. In the case where a Local Reliability Issue Commitment is initiated directly as part of the Day-Ahead Market process, the Transmission Provider shall issue or the local transmission operator shall request the Transmission Provider to issue such instructions and any commitment by the Transmission Provider shall be selected by the Transmission Provider in a non-discriminatory manner, which will be verified by the Market Monitor through the process described under Section 6.1.2.1 of this Attachment AE. To the extent that the Transmission Provider, at the request of a local transmission operator, initially issues or continues to issue instructions to a Resource to address a Local Reliability Issue or continues to issue instructions to a Resource to address a Local Emergency Condition, such Resource shall be eligible for compensation in the same manner as any other Resource. The recovery of the compensation paid by the Transmission Provider for such committed Resources under Section 8.5.9 of this Attachment AE shall be collected by the Transmission Provider locally as described under Section 8.6.7(B) of this Attachment AE.

- (d) The Transmission Provider, local transmission operator, and Resource owners shall develop operating guides to be applied to manual commitments made by the Transmission Provider, including such commitments made at the request of the local transmission operator to relieve known and recurring Local Reliability Issues in the Day-Ahead

Market. Such Resources will be compensated in the same manner as any other Resource. The recovery of such compensation paid by the Transmission Provider for such committed Resources under Section 8.5.9 of this Attachment AE shall be collected by the Transmission Provider locally as described under Section 8.6.7(B) of this Attachment AE.

- (e) The Transmission Provider will re-run the Day-Ahead SCUC algorithm after any manual commitments, time permitting, if such manual commitments were not included in the initial run and will notify the Market Participants that units were manually committed.
- (2) Using the Resource commitment results from the SCUC, clear Resource Offers, Virtual Energy Offers and Import Interchange Transaction Offers to meet Demand Bids, Virtual Energy Bids, Export Interchange Transaction Bids and Operating Reserve requirements on a least cost basis for each hour of the upcoming Operating Day using the SCED algorithm.
- (a) The SCED algorithm includes marginal loss sensitivity factors that approximate the change in marginal system losses for a change in Energy dispatch.
 - (b) In certain situations, enforcing constraints may result in a solution that is not feasible at a Shadow Price less than an appropriately priced VRL. In such cases, the Transmission Provider must apply VRLs in SCED as described in Section 8.3.2 of this Attachment AE.
 - (c) The SCED algorithm will include product substitution logic as follows to clear Operating Reserve Offers:
 - (i) Any Regulation-Up Offers remaining once the Regulation-Up Requirement is satisfied may be used to meet Contingency Reserve requirements if Regulation-Up Offer is more economic or is required to meet the overall Operating Reserve requirement;
 - (ii) Any Spinning Reserve Offers remaining once the Spinning Reserve Requirement is satisfied may be used to meet Supplemental Reserve requirements if Spinning Reserve Offer is

more economic or is required to meet the overall Operating Reserve requirement; and

- (iii) The product substitution logic ensures that the MCP for Regulation-Up is always greater than or equal to the Spinning Reserve MCP and that the Spinning Reserve MCP is always greater than or equal to the Supplemental Reserve MCP.
- (d) Use of co-optimization logic will provide, through the Shadow Price calculation, MCPs for Operating Reserve that include any lost opportunity costs incurred as a result of Operating Reserve clearing.

5.1.2.1 Clearing During Capacity Shortage

- (1) In the event of an Operating Reserve shortage in any hour that is not due to ramp limitations, Scarcity Pricing shall be implemented.
- (2) In the event of a capacity shortage to meet the fixed Demand Bids and fixed firm Export Interchange Transactions in any hour, the fixed Demand Bids and fixed firm Export Interchange Transactions will be reduced on a pro-rata reduction basis based on the fixed MW amounts to match the available capacity and Scarcity Pricing shall be implemented.
- (3) The Transmission Provider may implement sharing of ramping capability between Energy and Operating Reserve product clearing to ensure, to the extent possible, that short-term ramping deficiencies from hour to hour do not initiate Scarcity Pricing as described in Section 8.3.4.2(2) of this Attachment AE. To the extent that ramp sharing is implemented, it shall remain in effect in all hours of the Day-Ahead Market, in order to clear sufficient amounts of Energy, Regulation-Up and Spinning Reserve to meet the requirements. The Transmission Provider will not implement ramp sharing that will result in the inability to meet applicable NERC reliability standards and control performance requirements.
- (4) If a transmission constraint cannot be relieved due to a shortage of capacity in any hour, the SCED algorithm will clear the bid-in demands on a pro-rata basis based upon the impact on relieving the constraint.

5.1.2.2 Clearing During Excess Generation Conditions

In the event the sum of the Minimum Emergency Capacity Operating Limits on self-committed Resources plus the Regulation-Down requirement is in excess of the cleared bid-in demands in any hour, the SCED algorithm will reduce Resources on a pro-rata reduction basis such that the resulting sum of minimum limits matches the bid-in demand. LMPs will be set by the Offer prices associated with Energy down to the Minimum Emergency Capacity Operating Limit to the extent that the Regulation-Down requirement can be maintained. If the actions under Section 5.1.2(1)(a)(ii) above create a Regulation-Down shortage during any hour either on a system-wide basis or Reserve Zone basis, the MCPs for Regulation-Down will reflect Scarcity Prices and LMPs will reflect negative Scarcity Prices as set by the Regulation-Down Demand Curve price described under Section 8.3.4.2 of this Attachment AE.

8.5.9 Day-Ahead Make Whole Payment Amount

- (1) The Day-Ahead make whole payment amount is a payment to an Asset Owner and is calculated for each Resource with an associated Day-Ahead Market Commitment Period that was committed by the Transmission Provider with a Day-Ahead Market Resource Offer commitment status as defined under Sections 4.1(10)(b) and (c) of this Attachment AE, or was committed as part of the Multi-Day Reliability Assessment as defined under Section 4.5.3 of this Attachment AE. Asset Owners of Resources previously committed by a local transmission operator to address a Local Emergency Condition are eligible to receive a Day-Ahead Market make whole payment if such commitment is included in the Day-Ahead Market; except that, if the Market Monitor determines such Resources were selected in a discriminatory manner by the local transmission operator, as determined pursuant to Section 6.1.2.1 of this Attachment AE, and such Resources were affiliated with the local transmission operator, then such Resources are not eligible to receive a Day-Ahead Market make whole payment. A payment is made to the Asset Owner when the sum of the Resource's costs is greater than the Day-Ahead Market revenues received for that Resource over the Resource's Day-Ahead Market make whole payment eligibility period. The make whole payment is equal to this difference between these costs and revenues.
- (2) A Resource's Day-Ahead Market make whole payment eligibility period is equal to a Resource's Day-Ahead Market Commitment Period except as defined herein. For Resources with an associated Day-Ahead Market Commitment Period that begins in one Operating Day and ends in the next Operating Day, two (2) Day-Ahead Market make whole payment eligibility periods are created. The first period begins in the first Operating Day in the hour that the Day-Ahead Market Commitment Period begins and ends in the last hour of the first Operating Day. The second period begins in the first hour of the next Operating Day and ends in the last hour of the Day-Ahead Market Commitment Period.
- (3) The following cost recovery rules apply to each Day-Ahead Market make whole payment eligibility period. Offer costs are calculated using the Day-Ahead

Market Offer prices in effect at the time the commitment decision was made except under the situation described under Section (b)(i) below.

- (a) There may be more than one Day-Ahead Market make whole payment eligibility period for a Resource in a single Operating Day for which a charge or payment is calculated. A single Day-Ahead Market make whole payment eligibility period is contained within a single Operating Day.
- (b) A Resource's Day-Ahead Market Start-Up Offer costs are not eligible for recovery in the following Day-Ahead Market make whole payment eligibility periods:
 - (i) For any Day-Ahead Market make whole payment eligibility period that is adjacent to the end of a RUC make whole payment eligibility period except as described under Section 8.6.5(3)(h);
 - (ii) For any Day-Ahead Market make whole payment eligibility period resulting from a Day-Ahead Market Commitment Period that contains a Day-Ahead Market self-commit hour; or
 - (iii) For any Day-Ahead make whole payment eligibility period for which a Resource is a Synchronized Resource prior to this commitment period at a time one (1) hour prior to that Resource's Day-Ahead Market Commit Time less the Resource's Sync-To-MinTime.
- (c) For each Day-Ahead Market make whole payment eligibility period within an Operating Day, a Resource's Day-Ahead Market Start-Up Offer is divided by the lesser of (1) the Resource's Minimum Run Time rounded down to the nearest hour or (2) twenty-four (24) hours, and that portion of the Start-Up Offer is included as a cost in each hour of the Day-Ahead Market make whole payment eligibility period until the sum of these hourly costs are equal to the Day-Ahead Market Start-Up Offer or until the end of the Day-Ahead Market make whole payment eligibility period, whichever occurs first.
- (d) To the extent that the full amount of the Day-Ahead Market Start-Up Offer is not accounted for in the last Day-Ahead Market make whole

payment eligibility period in the Operating Day, any remaining Day-Ahead Market Start-Up Offer costs are carried forward for recovery in the first Day-Ahead Market make whole payment eligibility period of the following Operating Day.

- (4) The payment to each Asset Owner for each eligible Settlement Location for a given Day-Ahead Market make whole payment eligibility period is calculated as follows:

Day-Ahead Make Whole Payment Amount =
Maximum of [Either Zero or Sum of ((Day-Ahead Make Whole Payment Cost Amount in the Day-Ahead Market Make Whole Payment Eligibility Period) + (Day-Ahead Make Whole Payment Revenue Amount in the Day-Ahead Market Make Whole Payment Eligibility Period))] * (-1)

- (a) An Asset Owner's Day-Ahead Make Whole Payment Cost Amount for each eligible Resource is equal the sum for all hours in the Day-Ahead Market Make Whole Payment Eligibility Period of:
- (i) Day-Ahead Market Start-Up Offer,
 - (ii) Day-Ahead Market No-Load Offer,
 - (iii) Energy cost associated with cleared Resource Energy from Resource Energy Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying cleared Resource Energy by the cost of such Energy as calculated from the Resource's Day-Ahead Market Energy Offer Curve,
 - (iv) Regulation-Up cost associated with cleared Regulation-Up from Regulation-Up Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying Regulation-Up by the cost of such Regulation-Up as calculated from the Resource's Day-Ahead Market Regulation-Up Offer,
 - (v) Regulation-Down cost, associated with cleared Regulation-Down from Regulation-Down Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying Regulation-

Down by the cost of such Regulation-Down as calculated from the Resource's Day-Ahead Market Regulation-Down Offer,

(vi) Spinning Reserve cost, associated with cleared Spinning Reserve from Spinning Reserve Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying Spinning Reserve by the cost of such Spinning Reserve as calculated from the Resource's Day-Ahead Market Spinning Reserve Offer, and

(vii) Supplemental Reserve cost, associated with cleared Supplemental Reserve from Supplemental Reserve Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying Supplemental Reserve by the cost of such Supplemental Reserve as calculated from the Resource's Day-Ahead Market Supplemental Reserve Offer

(b) An Asset Owner's Day-Ahead Make Whole Payment Revenue Amount for each eligible Resource is equal to the sum for all hours in the Day-Ahead Market Make Whole Payment Eligibility Period of:

(i) Energy revenue associated with cleared Resource Energy from Resource Energy Offers as described under Section 5.1.3 of this Attachment AE, calculated by multiplying Resource Energy by Day-Ahead LMP at that Resource Settlement Location, and

(ii) The sum of the revenues calculated under Section 8.5.2, 8.5.3 and 8.5.4 for that eligible Resource.

8.5.10 Day-Ahead Make Whole Payment Distribution Amount

A Day-Ahead Market system-wide and local charge will be calculated at each Settlement Location for each Asset Owner for each hour in order to fund the payments made under Section 8.5.9 of this Attachment AE. The system-wide amount will be determined by multiplying an Asset Owner's system-wide distribution volume by a daily system-wide Day-Ahead Market make whole payment rate as described in this Section 8.5.10. The local amount for each Settlement Area impacted by a Local Reliability Issue will be determined as described in Section 8.6.7(B) of this Attachment AE.

The Day-Ahead System-Wide Make Whole Payment Distribution Amount shall be calculated as follows:

Day-Ahead System-Wide Make Whole Payment Distribution Amount =
(Day-Ahead SPP System-Wide Make Whole Payment Distribution Rate) * (Day-Ahead System-Wide Make Whole Payment Distribution Quantity))

- (1) The Day-Ahead SPP System-Wide Make Whole Payment Distribution Rate is the sum of all make whole payments for the Operating Day as calculated under Section 8.5.9, excluding make whole payments made to Resources committed to address a Local Reliability Issue or a Local Emergency Condition, divided by the sum of all Asset Owners' Day-Ahead System-Wide Make Whole Payment Distribution Quantities for all Settlement Locations for the entire Operating Day.
- (2) An Asset Owner's Day-Ahead System-Wide Make Whole Payment Distribution Quantity at a Settlement Location for an hour is equal to that Asset Owner's cleared Energy withdrawals at that Settlement Location for that hour. An Asset Owner's Energy withdrawal at a Settlement Location is calculated as the sum of cleared Demand Bids, Export Interchange Transaction Bids and Virtual Energy Bids at that Settlement Location.

8.6.7 Reliability Unit Commitment Make Whole Payment Distribution Amount

An RTBM system-wide and local charge will be calculated at each Settlement Location for each Asset Owner for each hour in order to fund the payments made under Section 8.6.5 and payments made under Section 8.5.9 of this Attachment AE to Resources committed to address a Local Reliability Issue. The system-wide amount will be determined by multiplying an Asset Owner's system-wide distribution volume by a daily system-wide RUC make whole payment rate as described in Section 8.6.7(A) of this Attachment AE. The local amount for each Settlement Area impacted by a Local Reliability Issue will be determined by multiplying an Asset Owner's local Settlement Area distribution volume by a daily local Settlement Area make whole payment rate as described in Section 8.6.7(B) of this Attachment AE.

A. The RUC System-Wide Make Whole Payment Distribution Amount shall be calculated as follows:

The RUC System-Wide Make Whole Payment Distribution Amount =
[(RUC System-Wide Make Whole Payment Distribution Rate) *
(RUC System-Wide Make Whole Payment Distribution Volume)]

(1) The RUC System-Wide Make Whole Payment Distribution Rate is the sum of all make whole payments for the Operating Day as calculated under Section 8.6.5 excluding make whole payments made to Resources committed to address a Local Reliability Issue by the Transmission Provider at the request of a local transmission operator or committed by a local transmission operator to address a Local Emergency Condition, divided by the sum of Asset Owners' RUC System-Wide Make Whole Payment Distribution Volumes for all Settlement Locations for the entire Operating Day.

(2) An Asset Owner's RUC System-Wide Make Whole Payment Distribution Volume at a Settlement Location for an hour is equal to the sum of following values that are calculated for each Dispatch Interval within the hour:

(a) The absolute value of the sum of actual Real-Time Settlement Location deviations from Day-Ahead Market cleared amounts for

load, virtual offer transactions and interchange transactions except that, during any Dispatch Interval in which the Transmission Provider has declared an Emergency Condition due to a capacity shortage, Real-Time actual load deviations from Day-Ahead Market cleared amounts shall be limited to deviations associated with actual Real-Time load in excess of amounts cleared in the Day-Ahead Market;

- (b) For Resources cleared in the Day-Ahead Market, (a) the positive difference between the RTBM Resource applicable minimum limits and Day-Ahead Market Resource cleared Energy quantity; or (b) if the Resource has cleared regulation in the RTBM and has not cleared regulation in the Day-Ahead Market, the positive difference between (1) the RTBM Resource regulation minimum limit and (2) the greater of the Day-Ahead Market Resource cleared Energy quantity or the Resource's Day-Ahead Market regulation minimum limit, provided that:
 - (i) The applicable RTBM Resource minimum limit is greater than the comparable Day-Ahead Market Resource minimum limit by more than the Resource's Operating Tolerance; and
 - (ii) The applicable RTBM Resource minimum limit is greater than the Day-Ahead Market cleared Energy amount; and
 - (iii) The Resource received a Dispatch Instruction less than or equal to the RTBM applicable minimum limit for at least one Dispatch Interval in the hour.
- (c) For Resources cleared in the Day-Ahead Market, (a) the positive difference between the Resource Day-Ahead Market cleared Energy quantity and the RTBM Resource applicable maximum limit or (b) if the Resource has cleared regulation in the RTBM and has not cleared regulation in the Day-Ahead Market, the positive difference between (1) the lesser of the Resource's RTBM

regulation maximum limit or the Resource's Day-Ahead Market Resource cleared Energy quantity and (2) the Resource's RTBM regulation maximum limit, provided that:

- (i) The applicable RTBM Resource maximum limit is less than the comparable Resource maximum limit submitted for use in the Day-Ahead Market by more than the Resource's Operating Tolerance; and
 - (ii) The applicable RTBM Resource maximum limit is less than the Day-Ahead Market cleared Energy amount; and
 - (iii) The Resource received a Dispatch Instruction greater than or equal to the RTBM applicable maximum limit for at least one Dispatch Interval in the hour.
- (d) For Resources cleared in the Day-Ahead Market, the Resource's Day-Ahead Market cleared amount if that Resource is off-line in the RTBM and if the Resource has not been de-committed by the Transmission Provider;
- (e) For Resources that cleared in the Day-Ahead Market that are not able to follow Dispatch Instructions, the absolute value of the difference between a Resource's actual output and the Resource's economic operating point. The Resource's economic operating point is calculated as described under Section 8.6.5(4)(d);
- (f) For Resources that were not offered in the Day-Ahead Market and that self-committed following the close of the Day-Ahead Market, and for Resources that were offered and not cleared in the Day-Ahead Market and that self-committed following the close of the Day-Ahead RUC, the actual Resource output if the Resource received a Dispatch Instruction less than or equal to the RTBM applicable minimum limit for at least one Dispatch Interval in the hour;
- (g) A Resource's economic operating point, as calculated as described under Section 8.6.5(4)(d), for Resources that were committed

following the close of the Day-Ahead Market if that Resource is off-line in the RTBM and that Resource was not de-committed by the Transmission Provider; and

- (h) The absolute value of a Resource's URD if that Resource operated outside of its Operating Tolerance and the Resource has not been exempted from URD as described under Section 6.4.1.1 of this Attachment AE.

- B. Local Settlement Area Make Whole Payment Distribution Amount shall be calculated as follows:

Local Settlement Area Make Whole Payment Distribution Amount =

[(Local Settlement Area Make Whole Payment Distribution Rate) * (Local Settlement Area Make Whole Payment Distribution Volume)]

- (1) The Local Settlement Area Make Whole Payment Distribution Rate is the sum of all make whole payments for the Operating Day for a Settlement Area as calculated under Sections 8.6.5, 8.6.6, and 8.5.9 of this Attachment AE for Resources committed by the Transmission Provider at the request of a local transmission operator or by a local transmission operator to address a Local Reliability Issue in the Settlement Area, divided by the sum of Asset Owners' Local Settlement Area Make Whole Payment Distribution Volumes within the impacted Settlement Area for the entire Operating Day.
- (2) An Asset Owner's Local Settlement Area Make Whole Payment Distribution Volume for the impacted Settlement Area for an hour is equal to that Asset Owner's Reported Load in that Settlement Area for that hour.

1.1 Definitions L

Local Emergency Condition

A condition or situation determined by the local transmission operator that is imminently likely to cause a material adverse effect on the security of or damage to the local transmission operator's facilities not modeled by the Transmission Provider.

Local Reliability Issue

A local voltage or reliability condition necessitating a Local Reliability Issue Commitment.

Local Reliability Issue Commitment

A Resource commitment in addition to, or in lieu of, commitments resulting from the Security Constrained Unit Commitment in the Day-Ahead [Market](#) or any Reliability Unit Commitment, in order to mitigate issues with Transmission System voltage or other local reliability concerns. These Resource commitment requirements are established prior to or during an Operating Day and are based on projected local reliability requirements, operational considerations, and generation and transmission outages. These commitments will be based on Operating Guides for recurring local voltage and reliability requirements, but an Operating Guide is not required prior to a Resource commitment being designated as a Local Reliability Issue Commitment. Resource commitments to relieve a potential or actual Interconnection Reliability Operating Limit violation will not be designated in this category.

Locational Marginal Price ("LMP")

The price for Energy at a given Price Node which is equivalent to the marginal cost of serving demand at the Price Node while meeting the Transmission Provider Operating Reserve requirements.

Loss Pool

A collection of either (i) Settlement Locations within a Settlement Area (a "Settlement Area Loss Pool"), or (ii) all External Interfaces and Market Hubs located throughout the Transmission System, that is used for the purpose of determining an Asset Owner's allocation of over-collected loss revenues in Sections 8.5.16 or 8.6.16 of Attachment AE.

5.1.2 Day-Ahead Market Execution

The Transmission Provider will employ a simultaneous co-optimization methodology to perform the following tasks in order to clear the Day-Ahead Market for each hour of the upcoming Operating Day:

- (1) Commit Offered Resources, Import Interchange Transaction Offers and Virtual Energy Offers using the SCUC algorithm to meet the Demand Bids, Virtual Energy Bids, Export Interchange Transactions Bids, Head-room requirements, Floor-room requirements, and Operating Reserve requirements on a least cost basis for each hour of the upcoming Operating Day.
 - (a) The Day-Ahead Market SCUC algorithm will initially consider commitment of Resources not specified for reliability only use as described in Section 4.1(10)(c) of this Attachment AE, including Resources committed in the Multi-Day Reliability Assessment, up to the Resources' Maximum Economic Capacity Operating Limit or Maximum Regulation Capacity Operating Limit if selected for Regulation-Up and/or Regulation-Down, and down to the Resources' Minimum Economic Capacity Operating Limit or Minimum Regulation Capacity Operating Limit if selected for Regulation-Down and/or Regulation-Up.
 - (i) If this capacity is not sufficient to meet the fixed Demand Bids and fixed Export Interchange Transaction Bids, Head-room requirements, and Operating Reserve requirements on a system-wide basis, the Day-Ahead Market SCUC algorithm will, in priority order: (1) curtail non-firm fixed Export Interchange Transaction Bids until the capacity shortage is eliminated; and (2) incorporate capacity up to Resources' Maximum Emergency Capacity Operating Limits and/or commit Resources designated as reliability only use, as described in Section 4.1(10)(c) of this Attachment AE, on an economic basis until the capacity shortage is eliminated while attempting to maintain the Regulation-Up requirement to the extent possible .

(ii) If there is a capacity surplus on a system-wide basis calculated as the sum of self-committed capacity at minimum output, fixed Import Interchange Transaction Offers, Floor-room requirement, and the Regulation-Down requirement that is in excess of the sum of fixed Demand Bids and fixed Export Interchange Transaction Bids, the Day-Ahead Market SCUC algorithm will, in priority order: (1) curtail non-firm fixed Import Interchange Transaction Offers until the capacity surplus is eliminated; and (2) incorporate capacity down to Resources' Minimum Emergency Capacity Operating Limits until the capacity surplus is eliminated while attempting to maintain the Regulation-Down requirement.

(b) To the extent that a particular ~~reliability issue~~security constraint impacting only the Transmission System cannot be directly addressed within the Day-Ahead Market SCUC algorithm~~as described under Subsections (i) and (ii) above~~ and is not a Local Reliability Issue, the Transmission Provider may manually commit Resources and/or decommit Resources, including self-committed Resources to alleviate such a Transmission System security constraint in accordance with its authority as Reliability Coordinator to alleviate such reliability issues. Such manual commitments shall be selected by the Transmission Provider in a non-discriminatory manner, which will be verified by the Market Monitor through the process described under Section 6.1.2.1 of this Attachment AE. Additionally, such manual commitments shall be selected by the Transmission Provider to ensure that commitment costs are minimized while adhering to Transmission System security constraints and the Resource operating parameter constraints submitted as part of the Day-Ahead Market Offers. The recovery of the compensation paid by the Transmission Provider for such committed Resources under Section 8.5.9 of this Attachment AE shall be collected by the Transmission Provider regionally as described under Section 8.5.10 of this Attachment AE. The Transmission Provider will re-run the Day Ahead SCUC algorithm after such manual

~~commitments, time permitting, and will notify the Market Participants that units were manually committed.~~

(c) A Local Reliability Issue or Local Emergency Condition may need to be addressed during the Day-Ahead Market process. Local Reliability Issues, either initially recognized directly as part of the Day-Ahead Market process or previously recognized and committed as part of any Reliability Unit Commitment process, may require out of merit commitment or decommitment to one or more Resources in the Day-Ahead Market to recognize or continue to recognize the Local Reliability Issue. A Local Emergency Condition previously recognized and committed as part of any Reliability Unit Commitment process may require out of merit commitment or decommitment to one or more Resources in the Day-Ahead Market to continue to recognize the Local Emergency Condition. In the case where a Local Reliability Issue Commitment is initiated directly as part of the Day-Ahead Market process, the Transmission Provider shall issue or the local transmission operator shall request the Transmission Provider to issue such instructions and any commitment by the Transmission Provider shall be selected by the Transmission Provider in a non-discriminatory manner, which will be verified by the Market Monitor through the process described under Section 6.1.2.1 of this Attachment AE. To the extent that the Transmission Provider, at the request of a local transmission operator, initially issues or continues to issue instructions to a Resource to address a Local Reliability Issue or continues to issue instructions to a Resource to address a Local Emergency Condition, such Resource shall be eligible for compensation in the same manner as any other Resource. The recovery of the compensation paid by the Transmission Provider for such committed Resources under Section 8.5.9 of this Attachment AE shall be collected by the Transmission Provider locally as described under Section 8.6.7(B) of this Attachment AE.

- (d) The Transmission Provider, local transmission operator, and Resource owners shall develop operating guides to be applied to manual commitments made by the Transmission Provider, including such commitments made at the request of the local transmission operator to relieve known and recurring Local Reliability Issues in the Day-Ahead Market. Such Resources will be compensated in the same manner as any other Resource. The recovery of such compensation paid by the Transmission Provider for such committed Resources under Section 8.5.9 of this Attachment AE shall be collected by the Transmission Provider locally as described under Section 8.6.7(B) of this Attachment AE.
- (e) The Transmission Provider will re-run the Day-Ahead SCUC algorithm after any manual commitments, time permitting, if such manual commitments were not included in the initial run and will notify the Market Participants that units were manually committed.

- (2) Using the Resource commitment results from the SCUC, clear Resource Offers, Virtual Energy Offers and Import Interchange Transaction Offers to meet Demand Bids, Virtual Energy Bids, Export Interchange Transaction Bids and Operating Reserve requirements on a least cost basis for each hour of the upcoming Operating Day using the SCED algorithm.

 - (a) The SCED algorithm includes marginal loss sensitivity factors that approximate the change in marginal system losses for a change in Energy dispatch.
 - (b) In certain situations, enforcing constraints may result in a solution that is not feasible at a Shadow Price less than an appropriately priced VRL. In such cases, the Transmission Provider must apply VRLs in SCED as described in Section 8.3.2 of this Attachment AE.
 - (c) The SCED algorithm will include product substitution logic as follows to clear Operating Reserve Offers:

 - (i) Any Regulation-Up Offers remaining once the Regulation-Up Requirement is satisfied may be used to meet Contingency Reserve

- requirements if Regulation-Up Offer is more economic or is required to meet the overall Operating Reserve requirement;
- (ii) Any Spinning Reserve Offers remaining once the Spinning Reserve Requirement is satisfied may be used to meet Supplemental Reserve requirements if Spinning Reserve Offer is more economic or is required to meet the overall Operating Reserve requirement; and
 - (iii) The product substitution logic ensures that the MCP for Regulation-Up is always greater than or equal to the Spinning Reserve MCP and that the Spinning Reserve MCP is always greater than or equal to the Supplemental Reserve MCP.
- (d) Use of co-optimization logic will provide, through the Shadow Price calculation, MCPs for Operating Reserve that include any lost opportunity costs incurred as a result of Operating Reserve clearing.

5.1.2.1 Clearing During Capacity Shortage

- (1) In the event of an Operating Reserve shortage in any hour that is not due to ramp limitations, Scarcity Pricing shall be implemented.
- (2) In the event of a capacity shortage to meet the fixed Demand Bids and fixed firm Export Interchange Transactions in any hour, the fixed Demand Bids and fixed firm Export Interchange Transactions will be reduced on a pro-rata reduction basis based on the fixed MW amounts to match the available capacity and Scarcity Pricing shall be implemented.
- (3) The Transmission Provider may implement sharing of ramping capability between Energy and Operating Reserve product clearing to ensure, to the extent possible, that short-term ramping deficiencies from hour to hour do not initiate Scarcity Pricing as described in Section 8.3.4.2(2) of this Attachment AE. To the extent that ramp sharing is implemented, it shall remain in effect in all hours of the Day-Ahead Market, in order to clear sufficient amounts of Energy, Regulation-Up and Spinning Reserve to meet the requirements. The Transmission Provider will not implement ramp sharing that will result in the

inability to meet applicable NERC reliability standards and control performance requirements.

- (4) If a transmission constraint cannot be relieved due to a shortage of capacity in any hour, the SCED algorithm will clear the bid-in demands on a pro-rata basis based upon the impact on relieving the constraint.

5.1.2.2 Clearing During Excess Generation Conditions

In the event the sum of the Minimum Emergency Capacity Operating Limits on self-committed Resources plus the Regulation-Down requirement is in excess of the cleared bid-in demands in any hour, the SCED algorithm will reduce Resources on a pro-rata reduction basis such that the resulting sum of minimum limits matches the bid-in demand. LMPs will be set by the Offer prices associated with Energy down to the Minimum Emergency Capacity Operating Limit to the extent that the Regulation-Down requirement can be maintained. If the actions under Section 5.1.2(1)(a)(ii) above create a Regulation-Down shortage during any hour either on a system-wide basis or Reserve Zone basis, the MCPs for Regulation-Down will reflect Scarcity Prices and LMPs will reflect negative Scarcity Prices as set by the Regulation-Down Demand Curve price described under Section 8.3.4.2 of this Attachment AE.

8.5.9 Day-Ahead Make Whole Payment Amount

- (1) The Day-Ahead make whole payment amount is a payment to an Asset Owner and is calculated for each Resource with an associated Day-Ahead Market Commitment Period that was committed by the Transmission Provider with a Day-Ahead Market Resource Offer commitment status as defined under Sections 4.1(10)(b) and (c) of this Attachment AE, or was committed as part of the Multi-Day Reliability Assessment as defined under Section 4.5.3 of this Attachment AE. Asset Owners of Resources previously committed by a local transmission operator to address a Local Emergency Condition are eligible to receive a Day-Ahead Market make whole payment if such commitment is included in the Day-Ahead Market; except that, if the Market Monitor determines such Resources were selected in a discriminatory manner by the local transmission operator, as determined pursuant to Section 6.1.2.1 of this Attachment AE, and such Resources were affiliated with the local transmission operator, then such Resources are not eligible to receive a Day-Ahead Market make whole payment.
A payment is made to the Asset Owner when the sum of the Resource's costs is greater than the Day-Ahead Market revenues received for that Resource over the Resource's Day-Ahead Market make whole payment eligibility period. The make whole payment is equal to this difference between these costs and revenues.
- (2) A Resource's Day-Ahead Market make whole payment eligibility period is equal to a Resource's Day-Ahead Market Commitment Period except as defined herein. For Resources with an associated Day-Ahead Market Commitment Period that begins in one Operating Day and ends in the next Operating Day, two (2) Day-Ahead Market make whole payment eligibility periods are created. The first period begins in the first Operating Day in the hour that the Day-Ahead Market Commitment Period begins and ends in the last hour of the first Operating Day. The second period begins in the first hour of the next Operating Day and ends in the last hour of the Day-Ahead Market Commitment Period.
- (3) The following cost recovery rules apply to each Day-Ahead Market make whole payment eligibility period. Offer costs are calculated using the Day-Ahead

Market Offer prices in effect at the time the commitment decision was made except under the situation described under Section (b)(i) below.

- (a) There may be more than one Day-Ahead Market make whole payment eligibility period for a Resource in a single Operating Day for which a charge or payment is calculated. A single Day-Ahead Market make whole payment eligibility period is contained within a single Operating Day.
- (b) A Resource's Day-Ahead Market Start-Up Offer costs are not eligible for recovery in the following Day-Ahead Market make whole payment eligibility periods:
 - (i) For any Day-Ahead Market make whole payment eligibility period that is adjacent to the end of a RUC make whole payment eligibility period except as described under Section 8.6.5(3)(h);
 - (ii) For any Day-Ahead Market make whole payment eligibility period resulting from a Day-Ahead Market Commitment Period that contains a Day-Ahead Market self-commit hour; or
 - (iii) For any Day-Ahead make whole payment eligibility period for which a Resource is a Synchronized Resource prior to this commitment period at a time one (1) hour prior to that Resource's Day-Ahead Market Commit Time less the Resource's Sync-To-MinTime.
- (c) For each Day-Ahead Market make whole payment eligibility period within an Operating Day, a Resource's Day-Ahead Market Start-Up Offer is divided by the lesser of (1) the Resource's Minimum Run Time rounded down to the nearest hour or (2) twenty-four (24) hours, and that portion of the Start-Up Offer is included as a cost in each hour of the Day-Ahead Market make whole payment eligibility period until the sum of these hourly costs are equal to the Day-Ahead Market Start-Up Offer or until the end of the Day-Ahead Market make whole payment eligibility period, whichever occurs first.
- (d) To the extent that the full amount of the Day-Ahead Market Start-Up Offer is not accounted for in the last Day-Ahead Market make whole

payment eligibility period in the Operating Day, any remaining Day-Ahead Market Start-Up Offer costs are carried forward for recovery in the first Day-Ahead Market make whole payment eligibility period of the following Operating Day.

- (4) The payment to each Asset Owner for each eligible Settlement Location for a given Day-Ahead Market make whole payment eligibility period is calculated as follows:

Day-Ahead Make Whole Payment Amount =
Maximum of [Either Zero or Sum of ((Day-Ahead Make Whole Payment Cost Amount in the Day-Ahead Market Make Whole Payment Eligibility Period) + (Day-Ahead Make Whole Payment Revenue Amount in the Day-Ahead Market Make Whole Payment Eligibility Period))] * (-1)

- (a) An Asset Owner's Day-Ahead Make Whole Payment Cost Amount for each eligible Resource is equal the sum for all hours in the Day-Ahead Market Make Whole Payment Eligibility Period of:
- (i) Day-Ahead Market Start-Up Offer,
 - (ii) Day-Ahead Market No-Load Offer,
 - (iii) Energy cost associated with cleared Resource Energy from Resource Energy Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying cleared Resource Energy by the cost of such Energy as calculated from the Resource's Day-Ahead Market Energy Offer Curve,
 - (iv) Regulation-Up cost associated with cleared Regulation-Up from Regulation-Up Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying Regulation-Up by the cost of such Regulation-Up as calculated from the Resource's Day-Ahead Market Regulation-Up Offer,
 - (v) Regulation-Down cost, associated with cleared Regulation-Down from Regulation-Down Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying Regulation-

- Down by the cost of such Regulation-Down as calculated from the Resource's Day-Ahead Market Regulation-Down Offer,
- (vi) Spinning Reserve cost, associated with cleared Spinning Reserve from Spinning Reserve Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying Spinning Reserve by the cost of such Spinning Reserve as calculated from the Resource's Day-Ahead Market Spinning Reserve Offer, and
 - (vii) Supplemental Reserve cost, associated with cleared Supplemental Reserve from Supplemental Reserve Offers as described under Section 5.1.3 of this Attachment AE, as calculated by multiplying Supplemental Reserve by the cost of such Supplemental Reserve as calculated from the Resource's Day-Ahead Market Supplemental Reserve Offer
- (b) An Asset Owner's Day-Ahead Make Whole Payment Revenue Amount for each eligible Resource is equal to the sum for all hours in the Day-Ahead Market Make Whole Payment Eligibility Period of:
- (i) Energy revenue associated with cleared Resource Energy from Resource Energy Offers as described under Section 5.1.3 of this Attachment AE, calculated by multiplying Resource Energy by Day-Ahead LMP at that Resource Settlement Location, and
 - (ii) The sum of the revenues calculated under Section 8.5.2, 8.5.3 and 8.5.4 for that eligible Resource.

8.5.10 Day-Ahead Make Whole Payment Distribution Amount

A Day-Ahead Market system-wide and local charge will be calculated at each Settlement Location for each Asset Owner for each hour in order to fund the payments made under Section 8.5.9 of this Attachment AE. The system-wide amount will be determined by multiplying an Asset Owner's system-wide distribution volume by a daily system-wide Day-Ahead Market make whole payment rate as described in this Section 8.5.10. The local amount for each Settlement Area impacted by a Local Reliability Issue will be determined as described in Section 8.6.7(B) of this Attachment AE.

The Day-Ahead System-Wide Make Whole Payment Distribution Amount shall be calculated as follows:

~~The Day Ahead make whole payment distribution amount is an hourly charge to Asset Owners at each Settlement Location to recover the sum of the make whole payments made under Section 8.5.9 and is calculated as:~~

Day-Ahead System-Wide Make Whole Payment Distribution Amount =
(Day-Ahead SPP System-Wide Make Whole Payment Distribution Rate) * (Day-Ahead System-Wide Make Whole Payment Distribution Quantity))

- (1) The Day-Ahead SPP System-Wide Make Whole Payment Distribution Rate is the sum of all make whole payments for the Operating Day as calculated under Section 8.5.9, excluding make whole payments made to Resources committed to address a Local Reliability Issue or a Local Emergency Condition, divided by the sum of all Asset Owners' Day-Ahead System-Wide Make Whole Payment Distribution Quantities for all Settlement Locations for the entire Operating Day.
- (2) An Asset Owner's Day-Ahead System-Wide Make Whole Payment Distribution Quantity at a Settlement Location for an hour is equal to that Asset Owner's cleared Energy withdrawals at that Settlement Location for that hour. An Asset Owner's Energy withdrawal at a Settlement Location is calculated as the sum of cleared Demand Bids, Export Interchange Transaction Bids and Virtual Energy Bids at that Settlement Location.

8.6.7 Reliability Unit Commitment Make Whole Payment Distribution Amount

An RTBM system-wide and local charge will be calculated at each Settlement Location for each Asset Owner for each hour in order to fund the payments made under Section 8.6.5 and payments made under Section 8.5.9 of this Attachment AE to Resources committed to address a Local Reliability Issue. The system-wide amount will be determined by multiplying an Asset Owner's system-wide distribution volume by a daily system-wide RUC make whole payment rate as described in Section 8.6.7(A) of this Attachment AE. The local amount for each Settlement Area impacted by a Local Reliability Issue will be determined by multiplying an Asset Owner's local Settlement Area distribution volume by a daily local Settlement Area ~~RUC~~ make whole payment rate as described in Section 8.6.7(B) of this Attachment AE.

A. The RUC System-Wide Make Whole Payment Distribution Amount shall be calculated as follows:

The RUC System-Wide Make Whole Payment Distribution Amount =
[(RUC System-Wide Make Whole Payment Distribution Rate) *
(RUC System-Wide Make Whole Payment Distribution Volume)]

(1) The RUC System-Wide Make Whole Payment Distribution Rate is the sum of all make whole payments for the Operating Day as calculated under Section 8.6.5 excluding make whole payments made to Resources committed to address a Local Reliability Issue by the Transmission Provider at the request of a local transmission operator or committed by a local transmission operator to address a Local Emergency Condition, divided by the sum of Asset Owners' RUC System-Wide Make Whole Payment Distribution Volumes for all Settlement Locations for the entire Operating Day.

(2) An Asset Owner's RUC System-Wide Make Whole Payment Distribution Volume at a Settlement Location for an hour is equal to the sum of following values that are calculated for each Dispatch Interval within the hour:

(a) The absolute value of the sum of actual Real-Time Settlement Location deviations from Day-Ahead Market cleared amounts for

load, virtual offer transactions and interchange transactions except that, during any Dispatch Interval in which the Transmission Provider has declared an Emergency Condition due to a capacity shortage, Real-Time actual load deviations from Day-Ahead Market cleared amounts shall be limited to deviations associated with actual Real-Time load in excess of amounts cleared in the Day-Ahead Market;

- (b) For Resources cleared in the Day-Ahead Market, (a) the positive difference between the RTBM Resource applicable minimum limits and Day-Ahead Market Resource cleared Energy quantity; or (b) if the Resource has cleared regulation in the RTBM and has not cleared regulation in the Day-Ahead Market, the positive difference between (1) the RTBM Resource regulation minimum limit and (2) the greater of the Day-Ahead Market Resource cleared Energy quantity or the Resource's Day-Ahead Market regulation minimum limit, provided that:
 - (i) The applicable RTBM Resource minimum limit is greater than the comparable Day-Ahead Market Resource minimum limit by more than the Resource's Operating Tolerance; and
 - (ii) The applicable RTBM Resource minimum limit is greater than the Day-Ahead Market cleared Energy amount; and
 - (iii) The Resource received a Dispatch Instruction less than or equal to the RTBM applicable minimum limit for at least one Dispatch Interval in the hour.
- (c) For Resources cleared in the Day-Ahead Market, (a) the positive difference between the Resource Day-Ahead Market cleared Energy quantity and the RTBM Resource applicable maximum limit or (b) if the Resource has cleared regulation in the RTBM and has not cleared regulation in the Day-Ahead Market, the positive difference between (1) the lesser of the Resource's RTBM

regulation maximum limit or the Resource's Day-Ahead Market Resource cleared Energy quantity and (2) the Resource's RTBM regulation maximum limit, provided that:

- (i) The applicable RTBM Resource maximum limit is less than the comparable Resource maximum limit submitted for use in the Day-Ahead Market by more than the Resource's Operating Tolerance; and
 - (ii) The applicable RTBM Resource maximum limit is less than the Day-Ahead Market cleared Energy amount; and
 - (iii) The Resource received a Dispatch Instruction greater than or equal to the RTBM applicable maximum limit for at least one Dispatch Interval in the hour.
- (d) For Resources cleared in the Day-Ahead Market, the Resource's Day-Ahead Market cleared amount if that Resource is off-line in the RTBM and if the Resource has not been de-committed by the Transmission Provider;
- (e) For Resources that cleared in the Day-Ahead Market that are not able to follow Dispatch Instructions, the absolute value of the difference between a Resource's actual output and the Resource's economic operating point. The Resource's economic operating point is calculated as described under Section 8.6.5(4)(d);
- (f) For Resources that were not offered in the Day-Ahead Market and that self-committed following the close of the Day-Ahead Market, and for Resources that were offered and not cleared in the Day-Ahead Market and that self-committed following the close of the Day-Ahead RUC, the actual Resource output if the Resource received a Dispatch Instruction less than or equal to the RTBM applicable minimum limit for at least one Dispatch Interval in the hour;
- (g) A Resource's economic operating point, as calculated as described under Section 8.6.5(4)(d), for Resources that were committed

following the close of the Day-Ahead Market if that Resource is off-line in the RTBM and that Resource was not de-committed by the Transmission Provider; and

- (h) The absolute value of a Resource's URD if that Resource operated outside of its Operating Tolerance and the Resource has not been exempted from URD as described under Section 6.4.1.1 of this Attachment AE.

B. ~~RUC~~ Local Settlement Area Make Whole Payment Distribution Amount shall be calculated as follows:

$$\begin{aligned} &\text{~~RUC~~ Local Settlement Area Make Whole Payment Distribution Amount} = \\ &[(\text{~~RUC~~ Local Settlement Area Make Whole Payment Distribution Rate}) * (\text{~~RUC~~ Local Settlement Area Make Whole Payment Distribution Volume)] \end{aligned}$$

- (1) The ~~RUC~~ Local Settlement Area Make Whole Payment Distribution Rate is the sum of all make whole payments for the Operating Day for a Settlement Area as calculated under Sections 8.6.5, ~~and~~ 8.6.6, ~~and~~ 8.5.9 of this Attachment AE for Resources committed by the Transmission Provider at the request of a local transmission operator or by a local transmission operator to address a Local Reliability Issue in the Settlement Area, divided by the sum of Asset Owners' ~~RUC~~ Local Settlement Area Make Whole Payment Distribution Volumes within the impacted Settlement Area for the entire Operating Day.
- (2) An Asset Owner's ~~RUC~~ Local Settlement Area Make Whole Payment Distribution Volume for the impacted Settlement Area for an hour is equal to that Asset Owner's Reported Load in that Settlement Area for that hour.