

July 23, 2012

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-_____*
(Amendment to Attachment AE of the Tariff)

Dear Secretary Bose:

Pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 824d, and Part 35 of the Regulations of the Federal Energy Regulatory Commission (“Commission”), 18 C.F.R. Part 35, Southwest Power Pool, Inc. (“SPP”), as authorized by its Board of Directors, submits amendments to Attachment AE of its Open Access Transmission Tariff¹ to facilitate the systematic rather than manual curtailment of Non-Dispatchable Resources² in the SPP Energy Imbalance Market (“EIS Market”) during periods of congestion. SPP requests an effective date of October 15, 2012 for the amendments, **but requests that the Commission rule on this filing within 60 days so that SPP can**

¹ Southwest Power Pool, Inc., FERC Electric Tariff, Sixth Revised Volume No. 1 (“SPP Tariff”).

² A Non-Dispatchable Resource is a resource (a) operating in Shut-down Mode; (b) operating in Start-up Mode; (c) operating in Testing Mode; (d) operating under Exigent Conditions; (e) is an Intermittent Resource; or (f) is a Qualifying Facility. See SPP Tariff, Attachment AE § 1.1, proposed Definitions N.

complete the design, development, and testing of necessary software to implement the changes on the effective date.

I. DESCRIPTION OF SPP

SPP is a Commission-approved RTO. It is an Arkansas non-profit corporation with its principal place of business in Little Rock, Arkansas. SPP currently has 66 members serving more than 6 million households in a 370,000 square-mile area. Its members include 14 investor-owned utilities, 11 municipal systems, 12 generation and transmission cooperatives, 4 state agencies, 7 independent power producers, 10 power marketers, and 7 independent transmission companies. As an RTO, SPP administers open access transmission service over approximately 48,930 miles of transmission lines covering portions of Arkansas, Kansas, Louisiana, Missouri, Nebraska, New Mexico, Oklahoma, and Texas, across the facilities of the SPP Transmission Owners.³ In addition, since February 1, 2007, SPP has administered the centralized Real-Time EIS Market,⁴ which is governed by Attachment AE of the SPP Tariff.

³ See *Sw. Power Pool, Inc.*, 89 FERC ¶ 61,084 (1999); *Sw. Power Pool, Inc.*, 86 FERC ¶ 61,090 (1999); *Sw. Power Pool, Inc.*, 82 FERC ¶ 61,267, *order on reh'g*, 85 FERC ¶ 61,031 (1998).

⁴ *Sw. Power Pool, Inc.*, 118 FERC ¶ 61,055 (2007) (accepting SPP's Market Readiness Certification and authorizing a February 1, 2007 start date for the EIS Market).

II. CURRENT CURTAILMENT RULES FOR NON-DISPATCHABLE RESOURCES

A. Non-Dispatchable Resources Currently Are Curtailed Through Manual Dispatch

Currently, in the EIS Market certain resources are manually rather than systematically dispatched. These “Non-Dispatchable Resources” traditionally have not been systematically dispatched through SPP’s market software tools (MOS⁵ and CAT⁶) to relieve congestion because of the uncontrollable nature of their output. There are several reasons why a resource would have uncontrollable output and thus be a Non-Dispatchable Resource. The resource may be an Intermittent Resource (e.g., a wind resource) that has output of an uncontrollable nature. A resource may be operating in testing, start up or shut down mode, which results in uncontrollable output due to the mode in which it is operating. For similar reasons, resources that experience “exigent conditions,” such as a sudden change in resource conditions or operating characteristics that prevent predictable operations, also qualify as Non-Dispatchable Resources. In addition, Qualifying Facilities (“QFs”) also are classified as Non-Dispatchable Resources because historically they have exercised their rights under PURPA⁷ to sell their output to their host utilities.⁸ Due to the uncontrollable nature of the output of Non-Dispatchable

⁵ MOS refers to Market Operating System.

⁶ CAT refers to Curtailment Adjustment Tool.

⁷ PURPA refers to the Public Utility Regulatory Policies Act of 1978.

⁸ *See* Exhibit A: Prepared Direct Testimony of Richard Dillon, Director Market Design Southwest Power Pool, Inc., July 18, 2012, at 3:7-18 (“Dillon Testimony”).

Resources, such resources often are unable to comply with a dispatch instruction to ramp up to a specific megawatt (“MW”) level; therefore, systematic dispatch of such resources has not been feasible. However, such resources are capable of reducing output when requested to do so.⁹ Therefore, today, when SPP needs to curtail a Non-Dispatchable Resource to relieve congestion, it issues a manual curtailment instruction to the resource via telephone.¹⁰

B. The Increase In Non-Dispatchable Resources Has Rendered The Current Manual Curtailment Rules Unworkable

When the manual curtailment rules were put in place for Non-Dispatchable Resources, the amount of Non-Dispatchable Resources in the SPP footprint was minimal, and there was little need to curtail such resources. Therefore, manually dispatching such resources was sufficient to manage congestion.¹¹ However, since the inception of the EIS Market, the number of Non-Dispatchable Resources and the megawatts of capacity in the SPP footprint have increased substantially, which has rendered the manual curtailment of Non-Dispatchable Resources unworkable. This increase is illustrated in the table set forth below and in Mr. Dillon’s Testimony in Exhibit A.¹²

⁹ *See id.* at 3:4-7.

¹⁰ *Id.* at 4:9-11.

¹¹ *Id.* at 4:20-24.

¹² *Id.* at 5:Table No. 1.

Year	Non-Dispatchable Capacity (MW)	Number of Non-Dispatchable Resources
2007	1,810	25
2008	3,201	41
2009	3,793	67
2010	4,496	76
2011	5,494	92

SPP expects this trend to continue. Over the next three years, SPP anticipates the addition of over 4000 MW of Non-Dispatchable Resource installed capacity in the SPP footprint.¹³ The significant increase in the amount of Non-Dispatchable Resources has resulted in adverse economic and reliability impacts in the SPP Region related to the manual dispatch of these resources.

Because Non-Dispatchable Resources are not systematically dispatched through the SPP market software tools, they often cannot respond in a timely manner to relieve congestion. Therefore, Non-Dispatchable Resources may or may not be dispatched (i.e. curtailed) to relieve these constraints (and often are not). Rather, other resources and higher priority transmission schedules that are systematically dispatched through SPP market tools routinely are dispatched to resolve constraints that Non-Dispatchable

¹³ *Id.* at 5:1-3.

Resources cause or to which they contribute. As a result of this curtailment approach, to relieve congestion, transmission service customers with higher priority uses of the transmission system are curtailed, resources located far from a constraint subject to automatic dispatch may be dispatched, higher-priced resources may be dispatched, and more megawatts may be uneconomically dispatched than would be necessary had the Non-Dispatchable Resource(s) been included in the dispatch to relieve the constraint.¹⁴

The current manual curtailment of Non-Dispatchable Resources not only impacts the SPP markets, but also the reliability of the transmission system. For example, having to manually dispatch Non-Dispatchable Resources can impede the quick resolution of an Interconnection Reliability Operating Limit exceedance, which must be resolved in thirty minutes or less.¹⁵

Furthermore, because Non-Dispatchable Resources currently are manually dispatched, there is no systematic method for ensuring that *all* Non-Dispatchable Resources that contribute to a constraint are equitably dispatched to resolve congestion. Under the current manual dispatch approach, typically only the Non-Dispatchable Resource that is the largest contributor to a constraint is curtailed. This occurs because there often is insufficient time for SPP to send manual instructions via telephone to each contributing Non-Dispatchable Resource and for each of those resources in turn to respond in a timely fashion to relieve the constraint. Therefore, only the largest

¹⁴ *Id.* at 6:5-15.

¹⁵ *Id.* at 6:17-20.

contributing Non-Dispatchable Resources typically are asked to reduce their output to ensure timely response and relief of the constraint.¹⁶

Simply put, the increase in Non-Dispatchable Resources has exacerbated the impact that manually dispatching these resources has on the SPP market and transmission system reliability, thus necessitating the development of a more efficient and equitable process to manage Non-Dispatchable Resources during congested periods. To that end, the SPP Board of Directors, with input from the stakeholders, approved changes to the SPP Tariff and Market Protocols that would facilitate software changes to the CAT and MOS to enable the calculation of the relief obligation for Non-Dispatchable Resources and automatically send to such resources dispatch instructions to reduce output.¹⁷

III. PROPOSED NEW CURTAILMENT RULES FOR NON-DISPATCHABLE RESOURCES

A. Description Of New Curtailment Rules

To more efficiently dispatch and curtail Non-Dispatchable Resources, SPP intends to modify SPP's MOS and CAT software tools to enable automated and systematic curtailment instructions to be sent to Non-Dispatchable Resources during periods of congestion. These instructions systematically will direct a Non-Dispatchable Resource to curtail its output, rather than sending instructions that merely reflect the resource's actual output at the time the EIS Market solves for the next interval and that do

¹⁶ *Id.* at 6:24-7:8.

¹⁷ *Southwest Power Pool Board of Directors/Member Committee Meeting Minutes*, Southwest Power Pool, Inc. (Jan. 31, 2012), http://www.spp.org/publications/BOD_013112.pdf.

not contemplate or instruct that the resources change the amount of their output as is the case today. To accommodate these software modifications, SPP and its stakeholders developed market rules that will govern the systematic curtailment of Non-Dispatchable Resources. The modified software tools and new rules will provide for more economical, equitable, and reliable operation of the bulk electric system.¹⁸

Under the proposed new rules, during SPP Congestion Management Events,¹⁹ Non-Dispatchable Resources may be directed to operate at or below an adjusted maximum output level (“curtailment level”). When so directed, a Non-Dispatchable Resource will be required to operate at the lower of its (i) curtailment level or (ii) actual net output. To determine the curtailment level of a Non-Dispatchable Resource, SPP will include the unscheduled portion of the output of Non-Dispatchable Resources in the CAT curtailment calculations and assign a pro rata relief obligation in a manner comparable to the obligations assigned to other impacting resources calculated by the CAT and NERC Interchange Distribution Calculator (“IDC”). SPP will determine a maximum output level for each affected Non-Dispatchable Resource based on the pro rata portion of the impacts of scheduled and unscheduled output.²⁰

Non-Dispatchable Resources will be curtailed in accordance with their existing transmission service priority, which is based on whether the resource is: (i) scheduling

¹⁸ Dillon Testimony at 8:2-4.

¹⁹ An SPP Congestion Management Event can be initiated through declaration of Transmission Load Relief (“TLR”) or an activation of a constraint in MOS. *Id.* at 8:17-19.

²⁰ *Id.* at 8:17-9:5.

against a transmission reservation; (ii) a QF exercising its rights under PURPA to deliver its net output to its host utilities; or (iii) using unscheduled service.²¹ For example, if a 150 MW Non-Dispatchable Resource (other than a QF exercising its PURPA rights) schedules 100 MW of its output at an NN6 priority (Non-firm Network), this 100 MW would be treated as any other NN6 priority schedule and curtailed at that level (if necessary). The 50 MW of unscheduled output would have an NH2 priority (Non-firm Hourly), like any other resource with unscheduled output.²²

In the case of QFs exercising their PURPA rights to sell their output to their host utilities, unscheduled output always will be curtailed proportionately, and equivalent to, firm service.²³ Curtailing such QFs equivalent to firm service is consistent with the PURPA regulations. Under the PURPA regulations, unless exempted because a QF has access to competitive markets,²⁴ an electric utility “shall purchase” from a QF any energy and capacity made available directly to the electric utility (i.e., host utility) or indirectly to the electric utility (by transmitting energy to another electric utility other than host utility with the agreement of the QF).²⁵ This obligation is relieved only under limited circumstances, which include a “system emergency,” if the purchases from the QF

²¹ *Id.* at 8:7-12, 9:18-21.

²² *Id.* at 9:23-10:3.

²³ *Id.* at 10:11-12.

²⁴ 16 U.S.C. § 824a-3(m).

²⁵ 18 C.F.R. §§ 292.303(a), 309, 310.

“would contribute to the emergency.”²⁶ SPP only curtails firm service during a TLR level 5 or Congestion Management Event 5 (which is an internal TLR 5 to SPP’s market), and only after all other lower priority service has been curtailed to relieve congestion. Thus, the QF, like firm service, would be curtailed only as a last resort²⁷ when there is a risk of an imminent significant disruption in service (i.e., a system emergency), and would be curtailed in a manner consistent with the PURPA regulations.²⁸

The new curtailment rules also subject Non-Dispatchable Resources, except for certain QFs, to Uninstructed Deviation Charges,²⁹ if they do not comply with the dispatch instruction to curtail. In other words, a Non-Dispatchable Resource (other than certain QFs) only will be subject to Uninstructed Deviation Charges if: (i) the market system curtails the resource’s schedules and as a result sends a dispatch instruction to lower or curtail the resource’s output; and (ii) the Non-Dispatchable Resource fails to follow the instruction to curtail.³⁰ Subjecting Non-Dispatchable Resources to Uninstructed Deviation Charges when they fail to comply with a dispatch instruction to curtail is

²⁶ 18 C.F.R. § 292.307(b).

²⁷ *See Cal. Indep. Sys. Operator Corp.*, 103 FERC ¶ 61,265, at PP 62, 63 (2003), *order on reh’g*, 107 FERC ¶ 61,028 (2004).

²⁸ Dillon Testimony at 10:15-11:17.

²⁹ An “Uninstructed Deviation Charge” is defined in the SPP Tariff as “[a] Market Participant’s charge associated with a Resource that is determined to have operated outside an acceptable operating tolerance relative to dispatch instructions in accordance with procedures set forth in this Tariff.” SPP Tariff, Attachment AE § 1.1, Definitions U.

³⁰ Dillon Testimony at 14:13-18. Unlike dispatchable resources, Non-Dispatchable Resources will be exempt from Uninstructed Deviation Charges in all other circumstances (e.g., dispatchable resources are subject to Uninstructed Deviation Charges in the event they deviate from dispatch instructions to ramp up or down).

appropriate because such instructions to Non-Dispatchable Resources now will be systematic and the Non-Dispatchable Resource's output will be predictable and measurable when it curtails.³¹ Thus, charges can be accurately determined. Moreover, like for fully dispatchable resources today, the risk of being assessed Uninstructed Deviation Charges provides an economic incentive to reach the instructed curtailed level as quickly as possible,³² and thus aids in the management of congestion and maintenance of reliability.

As noted, certain QFs will not be subject to Uninstructed Deviation Charges. Specifically, QFs exercising their rights under PURPA to deliver all of their net output to their host utilities that have refused to register in the EIS Market and therefore have unilaterally been registered by SPP pursuant to Section 1.2.2(g) of Attachment AE of the SPP Tariff will not be subject to Uninstructed Deviation Charges. This is consistent with the Commission's 2008 order in Docket No. ER09-149-000, in which it held that the unilateral registration of a QF may not compel participation in the EIS Market or otherwise trigger deviation charges for QFs exercising their PURPA rights to deliver their power to their host utilities.³³ This exception only applies to QFs not participating in the EIS Market. QFs not exercising their PURPA rights to sell their output to their host

³¹ *Id.* at 14:20-15:1.

³² *Id.* at 15:1-2.

³³ *Id.* at 15:8-11; *see also Sw. Power Pool, Inc.*, 125 FERC ¶ 61,314, at P 38 (2008), *order on compliance*, 127 FERC ¶ 61,041, at PP 4, 21 (2009).

utility and that are participating voluntarily in the EIS Market will be subject to Uninstructed Deviation Charges.³⁴

The proposed new curtailment rules will apply to both existing and future Non-Dispatchable Resources. Because of the significant amount of existing and anticipated new wind and other Non-Dispatchable Resources in the SPP Region, SPP expects that soon there will be more capacity from Non-Dispatchable Resources than can be efficiently and reliably integrated into its sixteen balancing authorities using the current manual curtailment dispatch mechanism (i.e., telephone calls requesting curtailment). Therefore, it is necessary to apply the new Non-Dispatchable Resource curtailment rules to both existing and new Non-Dispatchable Resources to ensure efficient, reliable dispatch during congested periods.³⁵

B. Non-Dispatchable Resources Should Be Capable Of Compliance With The New Rules Promptly Without Undue Cost

SPP anticipates that Non-Dispatchable Resources should be able to comply with the new curtailment rules promptly and without undue expenditures. Non-Dispatchable Resources already receive the type of automated dispatch instructions that will be used to implement the new rules. Therefore, SPP believes that only minimal additional equipment may be required for Non-Dispatchable Resources to respond more systematically to the dispatch instructions under the new curtailment rules. Under the new curtailment process, Non-Dispatchable Resources will receive the same type of

³⁴ Dillon Testimony at 15:12-14.

³⁵ *Id.* at 16:4-15.

automated signal that they do today. The only difference will be that, unlike under the current process, where the automated dispatch instructions sent to Non-Dispatchable Resources echo the resource's telemetered output and do not request that the Non-Dispatchable Resource curtail, under the new process, the automated dispatch instruction may direct the Non-Dispatchable Resource to curtail its output. In such event, the Non-Dispatchable Resource will be required to reduce to or below a requested level. Because Non-Dispatchable Resources already respond to manual curtailment instructions to reduce output, responding to the automated signal rather than a telephone call should not pose a compliance issue.³⁶

Even Non-Dispatchable Resources that have limited ability to reduce output incrementally will be able to comply. Under the new rules, when a Non-Dispatchable Resource is instructed to curtail, it will be required to reduce its output to the lower of its (i) curtailment level *or* (ii) actual net output. If a Non-Dispatchable Resource reduces its output to zero, then its "actual net output" is zero and it has complied with the dispatch instruction. In other words, if a Non-Dispatchable Resource curtails below the instructed level, it has complied with the dispatch instruction and will not be penalized and therefore has complied with the curtailment rules.³⁷ In addition, the telemetering equipment that the Non-Dispatchable Resources currently use meets the needs of the new rules.³⁸ Therefore, SPP anticipates that Non-Dispatchable Resources only will need to

³⁶ *Id.* at 12:18-13:4.

³⁷ *Id.* at 13:6-15.

³⁸ *Id.* at 12:19-22.

install minimal additional equipment, if any, to respond more systematically to the dispatch instructions under the new curtailment rules. Thus, Non-Dispatchable Resources should incur few, if any, costs to be capable of complying with the new curtailment rules.

C. The New Curtailment Rules For Non-Dispatchable Resources Will Enhance SPP Congestion Management and Dispatch And Will Result In More Efficient, Economical and Equitable Curtailment Of All Resources

As discussed, the current manual dispatch of Non-Dispatchable Resources has become unworkable. The increase in Non-Dispatchable Resources has resulted in uneconomic dispatch resulting from the manual dispatch of such resources. It also has exacerbated the inequitable curtailment of Non-Dispatchable Resources, as more Non-Dispatchable Resources that contribute to congestion are not being curtailed due to the time constraints inherent in manual dispatch. The new rules address these issues.

Specifically, by including Non-Dispatchable Resources in the MOS solution during times of congestion, more timely curtailment instructions will be sent to Non-Dispatchable Resources on a pro rata basis, thus allowing all Non-Dispatchable Resources that contribute to a constraint to respond in sufficient time to relieve the congestion. Such dispatch will avoid the use of higher cost fully dispatchable resources to relieve congestion to which they may or may not have contributed, but to which Non-Dispatchable Resources did contribute. It also will result in the more equitable curtailment of Non-Dispatchable Resources because all Non-Dispatchable Resources that

contribute to a constraint, not just the largest contributor, will be curtailed on a pro rata basis in accordance with their transmission priority.³⁹

Furthermore, Non-Dispatchable Resources and available resources will be dispatched simultaneously. The MOS will take the relief obligation calculated by CAT and send out an automated dispatch instruction to the Non-Dispatchable Resources that is adjusted for the relief obligation using transmission priority levels associated with the schedules. This simultaneous dispatch will result in both available resources and Non-Dispatchable Resources contributing to the relief of congestion in a more equitable and reliable fashion.⁴⁰

IV. AMENDMENTS TO ATTACHMENT AE

To implement the new Non-Dispatchable Resource curtailment rules, SPP proposes several amendments to Attachment AE of the SPP Tariff. Attachment AE sets forth the procedures for the dispatch of resources made available to SPP for the provision of Energy Imbalance Service.

SPP proposes three new definitions: “Exigent Conditions,” “Manual Dispatch Instruction,” and “Non-Dispatchable Resource.” SPP further amends the definitions of “Shut-down Mode” and “Start-up Mode” to remove the exemption from Uninstructed Deviation Charges for resources operating in those modes. As explained above, these resources now will be classified as Non-Dispatchable Resources and will be subject to

³⁹ *Id.* at 17:19-26.

⁴⁰ *See id.* at 12:4-13.

Uninstructed Deviation Charges in the event they do not comply with dispatch instructions to curtail during congested intervals.

Similarly, SPP proposes amendments to Sections 4.1 and 5.3 of Attachment AE to specify when Non-Dispatchable Resources will and will not be subject to Uninstructed Deviation Charges. Currently, Section 4.1(e) of Attachment AE provides that such charges are not applicable to resources that are operating in Test Mode or Start-up Mode or are Intermittent Resources. As these resources are now encompassed by a new definition of “Non-Dispatchable Resources,” which under the new rules may be subject to Uninstructed Deviation Charges during congested intervals, Section 4.1(e) is amended to clarify that Non-Dispatchable Resources only will be exempt from Uninstructed Deviation Charges during “uncongested intervals.”⁴¹ Relatedly, Section 5.5 is amended to clarify that Non-Dispatchable Resources, except for certain QFs, will be subject to Uninstructed Deviation Charges during “congested intervals.” In addition, a new Section 5.5(f) specifies that “[t]he Uninstructed Deviation Charge shall be zero for a Qualifying Facility exercising its rights under PURPA to deliver all of its net output to its host utility that refused to register its Resource and has been registered by the Transmission Provider as outlined in Section 1.2.2(g) of this Attachment AE.” As explained earlier, this provision is consistent with the Commission’s holding in *Southwest Power Pool, Inc.*, 125 FERC ¶ 61,314, at P 38 (2008).⁴²

⁴¹ Section 4.1(d) also is slightly revised to indicate that an acceptable operating tolerance will be defined for “Non-Dispatchable Resources.”

⁴² *See supra* 11.

To clarify how the new Non-Dispatchable Curtailment rules will be implemented, SPP proposes to revise Section 4.3 (Coordination of Market Operations under SPP Congestion Management) of Attachment AE. First, Section 4.3(b) is amended to specify that the impact of “Unscheduled output from Non-Dispatchable Resources” is included as part of the Market Flow impact on each Coordinated Flowgate and Reciprocal Flowgate that SPP submits to the NERC IDC, which will be used to determine the curtailment levels for all resources, including Non-Dispatchable Resources.⁴³

Second, a new Section 4.3(i) is added to specify: (i) how Non-Dispatchable Resources will be instructed to curtail; (ii) how they will be required to operate once they receive such instructions; (iii) how the curtailment level is determined; and (iv) when QFs exercising their PURPA rights will be curtailed. More specifically, Section 4.3(i) provides that: (i) Non-Dispatchable Resources shall be instructed to curtail via an XML notification, which will include the resource name, time period of curtailment, and the curtailment level;⁴⁴ (ii) when instructed, a Non-Dispatchable Resource shall operate at the lower of its (1) curtailment level or (2) actual net output; (iii) the output of a QF exercising its rights under PURPA to deliver all of its net output to its host utility will be curtailed proportionately, equivalent to Firm Service; and (iv) the curtailment level of a

⁴³ *See supra* 8.

⁴⁴ Section 4.3(g) also is revised slightly to specify that the notifications to Market Participants of the aggregate curtailments they are required to make will include the *Resource Name and original schedule* as well as the generation shift factor associated with the Resource for the constrained flowgates.

Non-Dispatchable Resource shall be the sum of the curtailed unscheduled and scheduled portion of the output of the Resource as determined by CAT.⁴⁵

These tariff revisions are just and reasonable as they will enhance congestion management and improve dispatch in the SPP Region.

V. EFFECTIVE DATE

SPP requests an effective date of October 15, 2012, for the amendments filed herein. However, SPP requests that the Commission act within 60 days of the date of this filing to provide the necessary certainty to move forward with the software development and implementation.

⁴⁵ Consistent with Commission precedent, additional details regarding the dispatch/curtailment rules for Non-Dispatchable Resources as well as other resources are included in the SPP business practices. The Commission has recognized that “[t]here are many areas where a tariff can deal with general matters and leave the specifics for the application process, the service agreement, or the operating procedures.” *Pennsylvania-New Jersey-Maryland Interconnection*, 81 FERC ¶ 61,257, at 62,242 n.50 (1997); *see also Cal. Indep. Sys. Operator Corp.*, 122 FERC ¶ 61,271, at P 16 (2008) (“It is appropriate for Business Practice Manuals to contain implementation details, such as instructions, guidelines, examples and charts, which guide internal operations and inform market participants of how the CAISO conducts its operations under the MRTU tariff.”); *Midwest Indep. Transmission Sys. Operator, Inc.*, 123 FERC ¶ 61,164, at P 43 (2008) (“[N]ot all rules and practices related to transmission service, or planning activities in particular, need be codified in the transmission provider’s OATT.”). The revisions to the Market Protocols set forth the details of how SPP will instruct market participants (including Non-Dispatchable Resources) with respect to the dispatch of resources during congested intervals and are of the type that are appropriately included in business practices manuals (i.e., the Market Protocols).

VI. ADDITIONAL INFORMATION

A. Information Required By The Commission's Regulations

1. Documents submitted with this filing:

In addition to this transmittal letter, SPP is submitting: (a) Exhibit A: Prepared Direct Testimony of Richard Dillon, Director Market Design Southwest Power Pool, Inc., July 18, 2012, and (b) in electronic format, clean and redlined versions of the proposed Tariff revisions.

2. Effective Date:

SPP requests that the Commission accept the proposed revisions to the SPP Tariff effective October 15, 2012. SPP asks that the Commission act on this filing by September 21, 2012.

3. Service:

SPP has served a copy of this filing on all its members and customers and affected state commissions. A complete copy of this filing will be posted on the SPP web site, www.spp.org.

4. Requisite Agreements:

The SPP Board of Directors approved the proposed revisions to the SPP Tariff on January 31, 2012. The proposed revisions do not require any other agreements.

5. Estimate of transactions and revenues:

Not applicable.

6. Basis of rates:

The basis for the proposed SPP Tariff revisions is explained above.

7. Comparison to rates for similar services:

Not applicable.

8. Specifically assignable facilities installed or modified:

There are none.

B. Communications

Correspondence and communications with respect to this filing should be sent to, and SPP requests the Secretary to include on the official service list, the following:

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The Honorable Kimberly D. Bose
Secretary
July 23, 2012
Page 21

VII. CONCLUSION

For the foregoing reasons, SPP requests that the Commission accept the amendments to Attachment AE of the SPP Tariff as just and reasonable, with an effective date of October 15, 2012, and that the Commission act on this filing by September 21, 2012.

Respectfully submitted,

/s/ Carrie L. Bumgarner

Barry S. Spector

Carrie L. Bumgarner

**Attorneys for
Southwest Power Pool, Inc.**

Exhibit A

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Southwest Power Pool, Inc.)
)
)
) Docket No. ER12-_____
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PREPARED DIRECT TESTIMONY

OF

**RICHARD DILLON
DIRECTOR, MARKET DESIGN
SOUTHWEST POWER POOL, INC.**

ON BEHALF OF SOUTHWEST POWER POOL, INC.

JULY 18, 2012

I. INTRODUCTION

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Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Richard L. Dillon. My business address is 201 Worthen Drive, Little Rock, AR 72223-4936.

Q. BY WHOM AND IN WHAT CAPACITY ARE YOU EMPLOYED?

A. I am employed by Southwest Power Pool, Inc. (“SPP”) as Director, Market Design.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I earned a Bachelor’s Degree in Accounting from the University of West Florida. Since 1999, I have been responsible for wholesale market design at SPP. I also have been involved in various roles in the design of the 2001 Electric Reliability Council of Texas and 2004 Midwest Independent Transmission System Operator, Inc. markets. I am a Certified Public Accountant and Certified Information System Auditor. I formerly was employed by: (i) Entergy Corporation in various roles, including wholesale market design, forecasting, statistical analysis, programming, and auditing; (ii) ParCable (cable television); and (iii) Deloitte, Haskins & Sells.

Q. HAVE YOU PREVIOUSLY FILED TESTIMONY BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION (“FERC” OR “COMMISSION”)?

A. Yes. On February 29, 2012, I submitted testimony in Docket No. ER12-1179-000. In that docket, SPP filed its new Integrated Marketplace rules. The purpose of my testimony in that proceeding was to explain the scope and design of SPP’s new Integrated Marketplace and its components.

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
2 **PROCEEDING?**

3 **A.** In this proceeding, SPP files amendments to Attachment AE of the SPP Open
4 Access Transmission Tariff (“SPP Tariff”) to provide the rules for the automated
5 systematic curtailment of Non-Dispatchable Resources in SPP’s Energy
6 Imbalance Services Market (“EIS Market”). The purpose of my testimony is to
7 describe: (i) the existing curtailment rules; (ii) current issues and impacts under
8 the existing rules; and (iii) the proposed new curtailment rules and how they will
9 address the issues under the current rules and thus benefit SPP and its
10 stakeholders.

11 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

12 **A.** In Part I, I provide my credentials and explain the purpose of my testimony. In
13 Part II, I explain that Non-Dispatchable Resources currently are manually
14 curtailed during periods of congestion and why manual curtailment of such
15 resources is no longer satisfactory. In Parts III and IV, I describe the proposed
16 new automated systematic curtailment rules for Non-Dispatchable Resources and
17 explain how the new curtailment rules will improve congestion management and
18 address the issues arising from the current rules.

19 **II. CURRENT CURTAILMENT RULES FOR**
20 **NON-DISPATCHABLE RESOURCES**

21 **Q. BEFORE YOU EXPLAIN THE CURRENT CURTAILMENT RULES FOR**
22 **NON-DISPATCHABLE RESOURCES, PLEASE DESCRIBE WHAT TYPE**
23 **OF RESOURCES ARE “NON-DISPATCHABLE RESOURCES.”**

24 **A.** Under the current rules, there is no definition of “Non-Dispatchable Resources.”
25 In general, resources that will be classified as Non-Dispatchable Resources under

1 the new curtailment rules are resources that are online but do not follow
2 automated dispatch instructions systematically. These resources traditionally
3 have not been dispatched systematically because of the uncontrollable and
4 unpredictable nature of their output. Such a resource may not be able to comply
5 with a dispatch instruction to ramp up to a specific megawatt (“MW”) level.
6 However, such resources are capable of reducing output per a dispatch
7 instruction. There are several reasons why a resource would have uncontrollable
8 output. The resource may be an Intermittent Resource (e.g., a wind resource) that
9 has output of an uncontrollable nature. A resource may be operating in testing,
10 start up or shut down mode, which also results in uncontrollable output due to the
11 mode in which it is operating. For similar reasons, resources that experience
12 “exigent conditions,” such as a sudden change in resource conditions or operating
13 characteristics that prevent predictable operations also have not been
14 systematically dispatched and will qualify as Non-Dispatchable Resources under
15 the new rules. In addition, Qualifying Facilities (“QFs”) currently are manually
16 dispatched and will be classified as Non-Dispatchable Resources under the new
17 curtailment rules because historically they have exercised their rights under
18 PURPA¹ to sell their output to their host utilities. Therefore, for the purposes of
19 my testimony and the new curtailment rules, “Non-Dispatchable Resources” are
20 resources that are (a) operating in Shut-down Mode; (b) operating in Start-up
21 Mode; (c) operating in Testing Mode; (d) operating under Exigent Conditions; (e)
22 are Intermittent Resources; or (f) are Qualifying Facilities.

¹ PURPA refers to the Public Utility Regulatory Policies Act of 1978.

1 **Q. HOW ARE NON-DISPATCHABLE RESOURCES DISPATCHED IN SPP**
2 **TODAY?**

3 **A.** Currently, Non-Dispatchable Resources are sent automated dispatch instructions,
4 which are always equal to their actual output at the time the EIS Market solves for
5 the next interval and do not contemplate or instruct that the resources change the
6 amount of their output. Therefore, unlike other resources, Non-Dispatchable
7 Resources do not respond to dispatch instructions systematically via SPP's market
8 tools (Market Operating System ("MOS") and Curtailment Adjustment Tool
9 ("CAT")) to relieve congestion. As a result, when SPP needs a Non-Dispatchable
10 Resource to lower its output to relieve congestion, it must issue a manual directive
11 to the resource by telephone.

12 **Q. IS ISSUING MANUAL DISPATCH INSTRUCTIONS TO NON-**
13 **DISPATCHABLE RESOURCES STILL AN EFFECTIVE METHOD OF**
14 **CURTAILING THE OUTPUT OF THESE RESOURCES TO ADDRESS**
15 **CONGESTION?**

16 **A.** No. Because of the increase in Non-Dispatchable Resources in the SPP footprint
17 over the past several years, curtailing Non-Dispatchable Resources through
18 manual dispatch instructions is no longer an effective approach.

19 **Q. PLEASE EXPLAIN.**

20 **A.** When the dispatch rules and software tool were developed at the commencement
21 of the EIS Market the number of Non-Dispatchable Resources in the SPP
22 footprint was minimal, thus it was rarely necessary to curtail such resources to
23 relieve congestion. Therefore, using manual dispatch instructions to curtail them
24 was sufficient to address congestion. However, as illustrated in Table No. 1
25 below, since 2007, the amount of MW capacity and total number of Non-
26 Dispatchable Resources in the SPP footprint has substantially increased.

Table No. 1

Year	Non-Dispatchable Capacity (MW)	Number of Non-Dispatchable Resources
2007	1,810	25
2008	3,201	41
2009	3,793	67
2010	4,496	76
2011	5,494	92

1 SPP fully expects this trend to continue. Indeed, over the next three years, SPP
2 anticipates the addition of over 4000 MW of Non-Dispatchable Resource installed
3 capacity in the SPP footprint. The substantial and continuing increase in capacity
4 and number of installations of Non-Dispatchable Resources has resulted in cost
5 shifting and adverse reliability impacts in the SPP Region during times of
6 congestion related to the manual dispatch of these resources.

7 **Q. WHAT ARE THE COST SHIFTING AND ADVERSE RELIABILITY**
8 **IMPACTS RESULTING FROM THE CURRENT MANUAL DISPATCH**
9 **OF NON-DISPATCHABLE RESOURCES?**

10 **A.** Because today Non-Dispatchable Resources are curtailed through manual
11 dispatch instructions, other resources and higher priority transmission schedules,
12 which are systematically dispatched and curtailed through SPP market tools,
13 routinely are dispatched, rather than Non-Dispatchable Resources, to resolve
14 constraints that Non-Dispatchable Resources cause or to which they contribute.
15 This occurs because under the current manual dispatch approach, Non-

1 Dispatchable Resources may or may not be dispatched (i.e., curtailed) to relieve
2 these constraints. In fact, they often are not.

3 **Q. WHY ARE NON-DISPATCHABLE RESOURCES OFTEN NOT**
4 **CURTAILED?**

5 **A.** Because SPP manually curtails Non-Dispatchable Resources, they often cannot
6 respond in sufficient time to relieve the congestion. As a result, to relieve
7 congestion, transmission service customers with higher priority rights for the use
8 of the transmission system that are systematically dispatched and thus can curtail
9 more swiftly, including potentially higher-cost and remote resources (that may or
10 may not have contributed to the constraint), may be curtailed prior to, or rather
11 than the Non-Dispatchable Resource that actually contributed to the congestion.
12 This also may cause more MWs than necessary to be uneconomically dispatched.
13 Thus, the resulting dispatch may be less economic than would be possible had the
14 Non-Dispatchable Resource(s) been included in the dispatch to relieve the
15 constraint. In addition, the manual dispatch (curtailment) of Non-Dispatchable
16 Resources not only impacts the SPP markets, but also the reliability of the
17 transmission system. For example, having to manually dispatch Non-
18 Dispatchable Resources can impede the quick resolution of an Interconnection
19 Reliability Operating Limit exceedance, which must resolved in thirty minutes or
20 less.

21 **Q. ARE THERE ANY OTHER IMPACTS OF THE CURRENT**
22 **CURTAILMENT APPROACH FOR NON-DISPATCHABLE**
23 **RESOURCES?**

24 **A.** Yes. Because the tools for a systematic evaluation, dispatch, and curtailment
25 currently are not applicable to Non-Dispatchable Resources, not *all* Non-

1 Dispatchable Resources that contribute to a constraint are equitably curtailed to
2 relieve congestion. For example, under the current manual dispatch process,
3 typically only the Non-Dispatchable Resource that is the largest contributor to a
4 constraint is curtailed because of time constraints. There often is insufficient time
5 for SPP to send manual instructions via telephone to each contributing Non-
6 Dispatchable Resource and for each resource in turn to respond in a timely
7 fashion to relieve the constraint; therefore, only the largest contributing Non-
8 Dispatchable Resources are asked to reduce their output. In addition, as more
9 Non-Dispatchable Resources are installed in the SPP Region, the potential for
10 more manual curtailments also will increase, which likely will challenge SPP's
11 ability to take swift and significant steps to resolve the constraint in a timely
12 manner.

13 **III. PROPOSED NEW CURTAILMENT RULES**
14 **FOR NON-DISPATCHABLE RESOURCES**

15 **Q. WHAT CHANGES TO THE CURTAILMENT RULES DOES SPP**
16 **PROPOSE TO ADDRESS THE ADVERSE IMPACTS OF THE CURRENT**
17 **MANUAL CURTAILMENT OF NON-DISPATCHABLE RESOURCES?**

18 **A.** To more efficiently dispatch and curtail Non-Dispatchable Resources, SPP
19 intends to modify SPP's MOS and CAT software tools to enable automated and
20 systematic curtailment instructions to be sent to Non-Dispatchable Resources
21 during periods of congestion. In other words, the software tools will send
22 automated instructions for the Non-Dispatchable Resource to curtail its output,
23 rather than sending instructions that do not instruct or contemplate that the
24 resource change the amount of its output. To accommodate these software

1 modifications, SPP and its stakeholders developed market rules that will govern
2 the systematic curtailment of Non-Dispatchable Resources. The modified
3 software tools and new rules will provide for more economical, equitable, and
4 reliable operation of the bulk electric system.

5 **Q. WHAT IS THE ULTIMATE EFFECT OF THE NEW DISPATCH RULES**
6 **ON CURTAILMENT?**

7 **A.** All resources, including Non-Dispatchable Resources, will be curtailed to relieve
8 congestion in accordance with their transmission service priority. The
9 transmission service priority for a resource is based on whether the resource is:
10 (i) scheduling against a transmission reservation; (ii) a QF exercising its rights
11 under PURPA to deliver their net output to their host utilities; or (iii) using
12 unscheduled service. As I explain more fully later, the new rules ultimately will
13 result in more efficient, economic, and suitable dispatch of all resources to
14 address congestion.

15 **Q. PLEASE DESCRIBE THE NEW CURTAILMENT RULES FOR NON-**
16 **DISPATCHABLE RESOURCES.**

17 **A.** Under the new rules, during SPP Congestion Management Events, which can be
18 initiated either through declaration of Transmission Load Relief (“TLR”) or an
19 activation of a constraint in MOS, Non-Dispatchable Resources may be directed
20 through an automated instruction to operate at or below an adjusted maximum
21 output level (“curtailment level”). When instructed, a Non-Dispatchable
22 Resource will be required to operate at the lower of its (i) curtailment level
23 (adjusted maximum output level) or (ii) actual net output. To determine the
24 curtailment level of a Non-Dispatchable Resource, SPP will include the
25 unscheduled portion of the output of Non-Dispatchable Resources in the CAT

1 curtailment calculations and assign a pro rata relief obligation comparable to the
2 obligations assigned to other impacting resources calculated by the CAT and
3 NERC Interchange Distribution Calculator. SPP will determine a maximum
4 output level for each affected Non-Dispatchable Resource based on the pro rata
5 portion of the impacts of scheduled and unscheduled output. For example, under
6 the new rules, if a Non-Dispatchable Resource is actually producing 100 MW and
7 has a schedule of 25 MW, the CAT will recognize two entries: (i) the 25 MW
8 scheduled amount; and (ii) the 75 MW unscheduled amount. Under the existing
9 manual dispatch system, the CAT does not account for 75 MW unscheduled
10 portion so it has no ability to instruct that it be curtailed. Under the new system,
11 if the CAT determines that the entire 75 MW unscheduled portion should be
12 curtailed, the Non-Dispatchable Resource systematically will receive an
13 automated dispatch instruction of 25 MW and be expected to curtail its output
14 from 100 MW to at or below 25 MW.

15 **Q. ARE THE NEW RULES INTENDED TO CHANGE THE CURTAILMENT**
16 **PRIORITY FOR NON-DISPATCHABLE RESOURCES?**

17
18 **A.** No. As is the case today, Non-Dispatchable Resources will be curtailed based on
19 their transmission service priority. QFs exercising their rights under PURPA to
20 deliver their net output to their host utilities will be curtailed with firm
21 transmission curtailments (which I discuss later).

22 **Q. PLEASE PROVIDE AN EXAMPLE.**

23 **A.** For example, if a 150 MW Non-Dispatchable Resource (other than a QF
24 exercising its PURPA rights) schedules 100 MW of its output at an NN6 priority
25 (Non-firm Network); this 100 MW would be treated as any other NN6 priority

1 schedule and curtailed at that level (if necessary). The 50 MW of unscheduled
2 output would have an NH2 priority (Non-firm Hourly), like any other resource
3 with unscheduled output. Simply stated, the new rules will not change
4 transmission service priorities, the only difference under the new rules will be that
5 the curtailment instructions now will be automated for Non-Dispatchable
6 Resources and *all* Non-Dispatchable and Dispatchable Resources that contribute
7 to a constraint will be equitably dispatched to relieve congestion.

8 **Q. WHAT CURTAILMENT PRIORITY WILL BE APPLIED TO A QF**
9 **EXERCISING ITS RIGHTS UNDER PURPA TO DELIVER ITS NET**
10 **OUTPUT TO ITS HOST UTILITY UNDER THE PROPOSED RULES?**

11 **A.** A QF exercising its rights under PURPA to deliver its net output to its host utility
12 always will be curtailed proportionately, and equivalent to, firm service.

13 **Q. WHY WILL SUCH A QF BE CURTAILED EQUIVALENT TO FIRM**
14 **SERVICE?**

15 **A.** Curtailing a QF that is exercising its PURPA rights equivalent to firm service is
16 consistent with the PURPA regulations. Under the PURPA regulations, unless
17 exempted because a QF has access to competitive markets,² an electric utility
18 “shall purchase” from a QF any energy and capacity made available directly to
19 the electric utility (i.e., host utility) or indirectly to the electric utility (by
20 transmitting energy to another electric utility other than host utility with the
21 agreement of the QF).³ This obligation is relieved only under limited
22 circumstances, which include a “system emergency,” if the purchases from the

² 16 U.S.C. § 824a-3(m).

³ 18 C.F.R. §§ 292.303(a), 309, 310.

1 QF “would contribute to the emergency.”⁴ Under the PURPA regulations, a
2 system emergency is “a condition on a utility’s system which is likely to result in
3 imminent significant disruption of service to customers or is imminently likely to
4 endanger life or property.”⁵ Curtailing QFs that exercise their PURPA rights to
5 deliver their output to their host utilities equivalent to firm service is consistent
6 with the PURPA regulations, because SPP only curtails firm service when system
7 conditions are such that an imminent significant disruption of service could occur
8 without the curtailment.

9 **Q. PLEASE ELABORATE.**

10 **A.** SPP curtails firm service during TLR level 5 or an equivalent priority event (i.e., a
11 Congestion Management Event 5, which is an internal TLR level 5 to SPP’s
12 market) and only after all other lower priority service has been curtailed to relieve
13 congestion. As the Commission has described, TLR level 5 “is the last set of
14 actions taken before entering into a transmission system emergency and includes
15 curtailment of service to avoid entering into a system emergency.”⁶ In other
16 words, a TLR level 5 occurs when there is risk of an imminent significant
17 disruption in service.

18 **Q. WILL NON-DISPATCHABLE RESOURCES OTHER THAN QFs**
19 **EXERCISING THEIR PURPA RIGHTS BE CURTAILED ONLY DURING**
20 **TLR LEVEL 5 CONDITIONS?**

21 **A.** No. Other Non-Dispatchable Resources will be curtailed at their transmission
22 priority level, as I discussed earlier.

⁴ 18 C.F.R. § 292.307(b).

⁵ 18 C.F.R. § 292.101(b)(4).

⁶ *Sw. Power Pool, Inc.*, 136 FERC ¶ 61,097, at P 15 n.9 (2011).

1 **Q. UNDER THE NEW CURTAILMENT RULES, WILL NON-**
2 **DISPATCHABLE RESOURCES BE CURTAILED PRIOR TO**
3 **ECONOMICALLY REDISPATCHING AVAILABLE RESOURCES?**

4 A. No. The new curtailment rules for Non-Dispatchable Resources will be applied
5 simultaneously with the dispatch rules for available resources. The MOS will
6 activate the new flowgate constraint and dispatch available resources without
7 overstepping the flowgate limit. Simultaneously, CAT will calculate the relief
8 obligation for Non-Dispatchable Resources. The MOS will take the relief
9 obligation calculated by CAT and send out an automated dispatch instruction to
10 the Non-Dispatchable Resources that is adjusted for the relief obligation using
11 transmission priority levels associated with the schedules. The end result will be
12 that both available resources and Non-Dispatchable Resources simultaneously,
13 equitably and reliably will contribute to the relief of congestion.

14 **Q. WHAT TELEMETERING OR OTHER REQUIREMENTS WILL NON-**
15 **DISPATCHABLE RESOURCES BE REQUIRED TO MEET TO COMPLY**
16 **WITH THE NEW MARKET RULES AND AUTOMATIC**
17 **CURTAILMENT INSTRUCTIONS?**

18 A. Non-Dispatchable Resources already receive the automated dispatch instructions
19 that will be used to implement the new rules. Therefore, SPP believes that only
20 minimal additional equipment may be required for Non-Dispatchable Resources
21 to respond more systematically to the dispatch instructions under the new
22 curtailment rules. Under the new process, Non-Dispatchable Resources will
23 receive the same type of automated signal under the new process as they do today.
24 The only difference will be that, while under the current process, where the
25 automated dispatch instructions sent to Non-Dispatchable Resources echo the
26 resource's telemetered output and do not request that the Non-Dispatchable

1 Resource curtail, under the new process, the automated dispatch instruction may
2 contain a request that the resource curtail (rather than the Non-Dispatchable
3 Resource waiting for a telephone call). Furthermore, these Non-Dispatchable
4 Resources already respond to manual curtailment instructions to reduce output.
5 Therefore, they should be able to comply with an automated instruction to curtail.
6 Even Non-Dispatchable Resources that have limited ability to reduce output
7 incrementally will be able to comply. Under the new rules, when a Non-
8 Dispatchable Resource is instructed to curtail, it will be required to reduce its
9 output to the lower of its (i) curtailment level or (ii) actual net output. If it
10 reduces its output to zero, then its “actual net output” is zero and it is complying
11 with the dispatch instruction. In other words, if a Non-Dispatchable Resource
12 curtails below the instructed level it will have complied and will not be penalized.
13 Therefore, a Non-Dispatchable Resource will be able to comply with the new
14 rules, even if it cannot incrementally reduce load and must curtail all of its output
15 in response to the curtailment instruction. In addition, the current telemetering
16 equipment used by the Non-Dispatchable Resources meets the needs of the new
17 rules.

18 **Q. IN THE EVENT THAT A NON-DISPATCHABLE RESOURCE DOES**
19 **NOT COMPLY WITH THE AUTOMATED DISPATCH INSTRUCTION**
20 **TO CURTAIL, WILL IT BE ASSESSED ANY CHARGES?**

21 **A.** Yes, under certain circumstances, Non-Dispatchable Resources will be assessed
22 Uninstructed Deviation Charges.

23 **Q. WHAT ARE UNINSTRUCTED DEVIATION CHARGES?**

24 **A.** The SPP Tariff defines an “Uninstructed Deviation Charge” as “[a] Market
25 Participant’s charge associated with a Resource that is determined to have

1 operated outside an acceptable operating tolerance relative to dispatch instructions
2 in accordance with procedures set forth in this Tariff.”⁷ Uninstructed Deviation
3 Charges help pay for the cost of congestion that occurs from a resource’s failure
4 to comply with dispatch instructions.

5 **Q. PLEASE EXPLAIN THE CIRCUMSTANCES IN WHICH A NON-**
6 **DISPATCHABLE RESOURCE WOULD BE ASSESSED UNINSTRUCTED**
7 **DEVIATION CHARGES.**

8 **A.** Non-Dispatchable Resources (except as described below with regard to certain
9 QFs) that fail to follow the automated dispatch instructions during congested
10 intervals will be assessed Uninstructed Deviation Charges. However, Non-
11 Dispatchable Resources only will be subject to Uninstructed Deviation Charges
12 during congested intervals in which they are being curtailed. In other words, a
13 Non-Dispatchable Resource only will be subject to Uninstructed Deviation
14 Charges if: (i) the market system curtails the resource’s schedules and as a result
15 sends a dispatch instruction to lower or curtail the resource’s output; and (ii) the
16 Non-Dispatchable Resource fails to follow the instruction to curtail. In all other
17 circumstances, Non-Dispatchable Resources, unlike other resources, will be
18 exempt from Uninstructed Deviation Charges. The reason for this different
19 treatment is because of the difficulty in predicting a Non-Dispatchable Resource’s
20 actual output for the end of each dispatch interval. Under the new rules, applying
21 Uninstructed Deviation Charges to Non-Dispatchable Resources during congested
22 intervals is appropriate because the resource will be systematically curtailed to
23 relieve congestion and its output will be predictable and measurable, when it

⁷ SPP Tariff, Attachment AE § 1.1, Definitions U.

1 curtails. In addition, being subject to such charges provides an economic
2 incentive to reach the curtailed level as quickly as possible.

3 **Q. WILL QF'S BE SUBJECT TO UNISTRUCTED DEVIATION CHARGES?**

4 **A.** QFs exercising their rights under PURPA to deliver all of their net output to their
5 host utilities, which have refused to register in the EIS Market and therefore
6 unilaterally have been registered by SPP pursuant to Section 1.2.2(g) of
7 Attachment AE, will *not* be subject to Uninstructed Deviation Charges. This
8 exception is consistent with the Commission's holding in Docket No. ER09-149-
9 000 that the EIS Market unilateral registration requirement may not compel
10 participation in the EIS Market or otherwise trigger deviation charges for QFs
11 exercising their PURPA rights to deliver their power to their host utilities.⁸
12 However, QFs not exercising their PURPA rights to deliver their net output to
13 their host utilities and that are participating voluntarily in the EIS Market are
14 subject to Uninstructed Deviation Charges.

15 **Q. ARE OTHER RESOURCES (I.E. DISPATCHABLE RESOURCES)**
16 **SUBJECT TO DEVIATION CHARGES?**

17 **A.** Yes. Under Section 5.5 of Attachment AE, all resources (except for certain QFs
18 as described above) are subject to Uninstructed Deviation Charges.

19 **Q. HOW CAN NON-DISPATCHABLE RESOURCES AVOID THE**
20 **PAYMENT OF UNISTRUCTED DEVIATION CHARGES?**

21 **A.** Like other resources that are dispatchable, Non-Dispatchable Resources can avoid
22 Uninstructed Deviation Charges by complying with the automated dispatch
23 instructions that direct them to curtail output during congested intervals.

⁸ See *Sw. Power Pool, Inc.*, 125 FERC ¶ 61,314, at P 38 (2008), *order on compliance*, 127 FERC ¶ 61,041, at PP 4, 21 (2009).

1 **Q. WILL THE NEW NON-DISPATCHABLE RESOURCE CURTAILMENT**
2 **RULES APPLY TO BOTH EXISTING AND FUTURE NON-**
3 **DISPATCHABLE RESOURCES?**

4 **A.** Yes. The new curtailment rules will apply to both existing and future Non-
5 Dispatchable Resources. Because of the significant amount of existing and
6 anticipated new wind and other Non-Dispatchable Resources in the SPP Region,
7 SPP expects that soon there will be more capacity from Non-Dispatchable
8 Resources than can be efficiently and reliably integrated into its sixteen balancing
9 authorities using the current manual curtailment dispatch mechanism (i.e.,
10 telephone calls requesting curtailment). In addition, the new curtailment rules
11 will ensure the timely and equitable curtailment of all resources both dispatchable
12 and non-dispatchable. Simply put, it is necessary to apply the new Non-
13 Dispatchable Resource curtailment protocols to both existing and new Non-
14 Dispatchable Resources to ensure efficient, reliable dispatch during congested
15 periods. As mentioned earlier, SPP believes there is minimal to no costs
16 associated with accommodating the change for the existing Non-Dispatchable
17 Resources.

18 **Q. WHEN DOES SPP PROPOSE TO IMPLEMENT THE NEW**
19 **CURTAILMENT RULES FOR NON-DISPATCHABLE RESOURCES?**

20 **A.** SPP is requesting an effective date of October 15, 2012 for the new rules. SPP
21 currently is in the process of developing the software changes to implement the
22 new rules, but additional testing will need to be completed on the system to be
23 fully functional. Such testing will occur in late summer or early fall of this year.
24 An October 15, 2012 implementation date will provide both SPP and the Non-
25 Dispatchable Resources sufficient time to comply with the new rules.

1 **Q. CAN A NON-DISPATCHABLE RESOURCE BECOME A**
2 **DISPATCHABLE RESOURCE?**

3 **A.** Yes. The existing EIS Market rules allow Non-Dispatchable Resources to submit
4 as “available” status in the EIS Market and therefore their submitted offer curve is
5 eligible to set the market price. If this option is selected, the Non-Dispatchable
6 Resource must comply with all dispatch instructions applicable to dispatchable
7 resources and must submit ramp rates both up and down that reflect the sustained
8 capabilities of the resource just like a dispatchable resource.

9 **IV. THE NEW CURTAILMENT RULES WILL IMPROVE THE**
10 **RELIABILITY OF THE SPP TRANSMISSION SYSTEM AND RESULT**
11 **IN THE EQUITABLE CURTAILMENT OF NON-DISPATCHABLE**
12 **RESOURCES**

13 **Q. EARLIER YOU DESCRIBED THE PROBLEMS CAUSED BY THE**
14 **CURRENT MANUAL CURTAILMENT OF NON-DISPATCHABLE**
15 **RESOURCES. PLEASE EXPLAIN HOW THE NEW PROPOSED**
16 **CURTAILMENT RULES WILL ADDRESS THESE ISSUES.**

17 **A.** As I explained earlier, the current manual dispatch of Non-Dispatchable
18 Resources results in inefficiencies and inequitable curtailments in relieving
19 congestion. By including Non-Dispatchable Resources in the MOS solution
20 during times of congestion, more timely curtailment instructions will be sent to
21 Non-Dispatchable Resources on a pro rata basis, which will avoid the use of
22 higher cost dispatchable resources that may or may not have contributed to the
23 congestion being relieved. It also will result in the more equitable curtailment of
24 Non-Dispatchable Resources that contribute to a constraint. In short, the changes
25 in the curtailment rules for Non-Dispatchable Resources will result in a more
26 equitable, economic, and reliable resolution of congestion.

1 **Q. IN DOCKET NO. ER12-1179-000, SPP FILED ITS NEW INTEGRATED**
2 **MARKETPLACE RULES, WILL THE NEW CURTAILMENT RULES**
3 **FOR NON-DISPATCHABLE RESOURCES BE REQUIRED ONCE THE**
4 **INTEGRATED MARKETPLACE IS IMPLEMENTED?**

5 **A.** No. The new curtailment rules for Non-Dispatchable Resources proposed in this
6 proceeding will not be used in the Integrated Marketplace (“Marketplace”). The
7 Marketplace rules that will go into effect in 2014 will apply a different
8 methodology for curtailing resources because schedules and CAT no longer will
9 be used in Marketplace.

10 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

11 **A.** Yes.

AFFIDAVIT

STATE OF ARKANSAS)

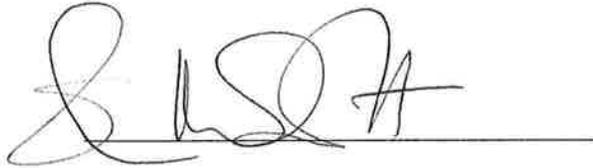
COUNTY OF PULASKI)

I, **Richard L. Dillon**, being duly sworn according to law, state under oath that the matters set forth in my Prepared Direct Testimony in this docket are true and correct to the best of my knowledge, information and belief.



Richard L. Dillon

Subscribed and sworn to before me, a Notary Public, on this 18 day of July, 2012.



Notary Public

My Commission Expires: 19 April 2015

SEAL



1.1 Definitions E

Energy Imbalance Service

The Ancillary Service defined under Schedule 4 to this Tariff.

Energy Imbalance Service Charge/Credit

A Market Participant's hourly charges and credits associated with its Imbalance Energy at a Settlement Location.

Energy Imbalance Service Uplift Charge/Credit

A Market Participant's hourly charge associated with an EIS Market revenue shortfall that is created when the total of all Energy Imbalance Service Credits is greater than the total of all Energy Imbalance Service Charges in an hour or a Market Participant's hourly credit associated with an EIS Market revenue excess that is created when the total of all Energy Imbalance Service Charges is greater than the total of all Energy Imbalance Service Credits in an hour.

Energy Imbalance Service Uplift Obligation

An hourly value in megawatts per hour calculated by the Transmission Provider for each Market Participant that is utilized by the Transmission Provider to determine each Market Participant's Energy Imbalance Service Uplift Charge/Credit.

Energy Obligation Deficiency

A condition created, either at the Market Participant level or Balancing Authority level, when the sum of applicable Resource Maximum Economic Limits in an hour is less than the applicable load forecast as adjusted for third party schedules in that hour.

Energy Obligation Excess

A condition created, either at the Market Participant level or Balancing Authority level, when the sum of applicable Resource Minimum Economic Limits in an hour is greater than the applicable load forecast as adjusted for third party schedules in that hour.

Energy Schedule

A set of hourly energy injection and withdrawal values, in megawatts per hour, submitted by Market Participants, at valid sources and sinks.

Exigent Conditions

Period of time when Resource is online and unable to follow dispatch instructions due to sudden changes in Resource conditions or operating characteristics that prevent predictable Resource operation. This status shall be available only upon request and with Transmission Provider approval.

External Resource

A Resource, other than a Designated Resource, located outside of the SPP Market Footprint that is included in an SPP market Balancing Authority through an External Resource Pseudo-Tie.

External Resource Pseudo-Tie

A non-physical electrical interconnection point between balancing authorities, whereby all or a portion of an External Resource is electronically moved from one Balancing Authority to another Balancing Authority that is in the SPP Market Footprint. Energy delivered from an External Resource to the sink in the SPP Market Footprint is treated as a Balancing Authority interchange from the source Balancing Authority to the sink Balancing Authority.

1.1 Definitions M

Manual Dispatch Instruction

A dispatch instruction issued manually to a Resource by the Transmission Provider to resolve a system reliability condition that cannot be resolved through the process described under Section 4.3 of Attachment AE.

Market Flow

The aggregate megawatt flow on a Coordinated Flowgate or a Reciprocal Coordinated Flowgate caused by Energy Schedules for native load, intra Balancing Authority Area Energy Schedules, inter Balancing Authority Area Energy Schedules that are sourced at Dispatchable Resources or load Settlement Locations and Energy Imbalance Service.

Meter Settlement Location

The effective point at which a Market Participant's registered load and Resources interchange energy with the EIS Market.

1.1 Definitions N

NERC Interchange Distribution Calculator (NERC IDC)

The mechanism used by Reliability Coordinators in the Eastern Interconnection to calculate the distribution of interchange transactions over specific flowgates.

Net Energy Imbalance Service Charge/Credit

The sum of a Market Participant's Settlement Location specific Energy Imbalance Service Charge/Credits in an hour.

Net Actual Interchange

The algebraic sum of all energy flowing into or out of a Settlement Area during a Settlement Interval.

Net Scheduled Interchange

The algebraic sum of all Energy Schedules into or out of a Control Area.

Non-Dispatchable Resource

A Resource meeting any of the following conditions: (a) operating in Shut-down Mode; (b) operating in Start-up Mode; (c) operating in Testing Mode; (d) operating under Exigent Conditions; (e) is an Intermittent Resource; or (f) is a Qualifying Facility.

1.1 Definitions S

Scheduled Generation

The amount of energy scheduled to be injected at a Settlement Location pursuant to submission of an Energy Schedule that is used in the calculation of a Market Participant's Imbalance Energy at a Settlement Location. This value is assumed to be a negative value for settlement purposes.

Scheduled Load

The amount of energy scheduled to be withdrawn at a Settlement Location pursuant to submission of an Energy Schedule that is used in the calculation of a Market Participant's Imbalance Energy at a Settlement Location. This value is assumed to be a positive value for settlement purposes.

Self-Dispatched Resource

A Resource that is not available for economic dispatch by the Transmission Provider to support market operations.

Settlement Area

An area within a single Control Area in the Transmission System for which interval metering can account for the net injections and net interchange associated with that area.

Settlement Area Metered Net Interchange

The algebraic sum of all energy flowing into or out of a Settlement Area during an hour.

Settlement Area Net Load

The sum of, as adjusted to account for Transmission System losses associated with through or out service as specified in Attachment M, (a) net injections at each Settlement Location within the Settlement Area and (b) Settlement Area Metered Net Interchange.

Settlement Location

Locations defined for the purpose of commercial operations and settlement. A Settlement Location can be either a single Meter Settlement Location or, for load, an aggregation of Meter Settlement Locations within one Settlement Area as designated during the asset registration process by a Market Participant serving load.

Shut-down Mode

A period of time after the Resource operates below its Minimum Capacity Operating Limit as indicated in the Resource Plan, but not to exceed one hour before and after the scheduled time for a Resource to be removed from the electrical grid.

SPP Market Footprint

The Loads and Resources that are located within a Balancing Authority Area subject to Attachment AN under this Tariff.

Start-up Mode

The period of time before the Resource reaches its Minimum Capacity Operating Limit as indicated in the Resource Plan, but not to exceed two hours before and after the scheduled time for a Resource to synchronize to the grid.

State Estimator

A standard industry tool that produces a power flow model based on available real-time metering information, information regarding the current status of lines, generators, transformers, and other equipment, bus load distribution factors, and a representation of the electric network, to provide a complete description of system conditions, including conditions at busses for which real-time information is unavailable.

4.1 Dispatch Process

- (a) Throughout the Operating Day, generally every 5 minutes, the Transmission Provider shall:
 - (i) Perform a security constrained economic dispatch (SCED) for the SPP Region utilizing an optimization method to determine the least costly means of obtaining energy to serve the next increment of load based upon submitted Offer Curves, Resource operating data submitted as part of the Resource Plan, binding transmission constraints, forecasted SPP Region load and system conditions from the State Estimator; relaxation of operating limits (Violation Relaxation Limit or VRL).
 - (ii) Communicate to Market Participants dispatch instructions that specify the desired megawatt output of Dispatchable Resources based upon the security constrained economic dispatch solution;
 - (iii) Communicate to Market Participants dispatch instructions that specify the scheduled megawatt output of Self-Dispatched Resources based upon the sum of the Energy Schedules associated with that Self-Dispatched Resource as approved in accordance with Section 3.1(b);
 - (iv) Communicate Manual Dispatch Instructions to Market Participants that specify the desired output of Dispatchable Resources and/or Self Dispatched Resources only in Emergency Conditions where such Emergency Conditions can not be resolved through the process described under Section 4.3 of Attachment AE;
 - (v) Calculate an Adjusted Net Scheduled Interchange for each Control Area in the SPP Region to account for the Dispatchable Resource dispatch instructions, including any Manual Dispatch Instructions, reserve sharing schedules, and inadvertent interchange payback schedules and communicate this Adjusted Net Scheduled Interchange to the Control Areas for implementation.

Procedures for communication of dispatch instructions shall be specified in the Market Protocols.

- (b) In performing the security constrained economic dispatch under Section 4.1, the Transmission Provider shall ensure that the energy dispatch of Dispatchable Resources does not conflict with any specified provision of Schedule 3, Schedule 5 and Schedule 6 Service associated with said Dispatchable Resources. To accomplish this, the Transmission Provider shall limit the dispatchable energy range of Dispatchable Resources to between the Resource's Economic Minimum Limit and Economic Maximum Limit. Details of the Dispatchable Resource dispatchable energy range adjustment shall be specified in the Market Protocols.
- (c) The Transmission Provider shall limit the dispatch instructions to External Resources so that i.) the total dispatch instructions of External Resources does not exceed the SPP Contingency Reserve Requirement for the Operating Day and ii.) the total dispatch instructions of External Resources sinking in an individual SPP Market Balancing Authority Area does not exceed the capacity of the largest Resource within that Balancing Authority Area.
- (d) An acceptable operating tolerance will be defined for Dispatchable and Self-Dispatched Resources and Non-Dispatchable Resources. A Resource shall be considered as following a dispatch instruction in a Dispatch Interval if the actual output of that Resource is within the acceptable operating range. Resources whose actual output falls outside this operating tolerance shall be considered as failing to follow a dispatch instruction. A Resource's acceptable operating range shall be defined by a high and low tolerance level calculated as follows subject to a minimum range of 5 megawatts above or 5 megawatts below the expected output level and a maximum acceptable operating range of 25 megawatts above or 25 megawatts below the expected output level:

$$RH_i = \text{Max}(5 , \text{Min} ((\text{MaxMW}_i * \text{DBP}) , 25)) + \text{REGUP}$$

$$RL_i = \text{Max} (5 , \text{Min} ((\text{MaxMW}_i * \text{DBP}) , 25)) + \text{REGDN}$$

Where:

RH = Resource high operating tolerance or over generation limit
(megawatt)

RL = Resource low operating tolerance or under generation limit
(megawatt)

MaxMW = Maximum Capacity Operating Limit - Resource physical
maximum sustainable output for each Operating Hour from Resource
Plan.

DBP = Dead band percentage for all Resources is initially set to 10
%,

REGUP = Regulation up service being maintained on the Resource as
indicated in the Ancillary Service Plan (MW) for the Operating Hour.

REGDN = Regulation down service being maintained on the Resource as
indicated in the Ancillary Service Plan (MW) for the Operating Hour.

i = Dispatch Interval within Operating Hour.

Resources providing Schedule 5 and Schedule 6 services shall be
considered following dispatch instructions during any Dispatch
Interval in which these Services have been deployed.

- (e) To the extent that a Resource is determined by the Transmission Provider to have failed to follow the Transmission Provider's dispatch instructions, such failure to follow dispatch instruction determination in accordance with the procedures set forth under Section 4.1(d) of this Attachment AE, the Market Participant owner of that Resource shall be subject to an Uninstructed Deviation Charge. Resources shall not be subject to Uninstructed Deviation Charges for any Uninstructed Deviation Megawatts caused by: (1) Manual Dispatch Instructions; (2) redeployment by the Balancing Authority; (3) instances when a Resource trips or is derated after receiving dispatch instructions from the Transmission Provider; (4) Non-Dispatchable Resources during uncongested intervals; or (5) the dispatch instructions issued to a Resource were beyond the reported capabilities in the Resource Plan due to the application of a VRL.

In order to receive an Uninstructed Deviation Charge exemption for a Resource under (3) above, the Market Participant must immediately report the change in its Resource Plan, in accordance with Section 1.2.7 (c) of Attachment AE, specifying the Resource trip or deration and must submit an invoice dispute utilizing the process described under Section 6.3 of Attachment AE prior to Transmission Provider determination of the exemption under the Section 6.3 process.

- (f) The Transmission Provider may also waive Uninstructed Deviation Charges to the extent a Market Participant can demonstrate such deviation was caused solely by events or conditions beyond its control, and without the fault or negligence of the Market Participant. The Market Participant must provide the Transmission Provider with adequate documentation through the invoice dispute process described under Section 6.3 in order for the Market Participant to be eligible to avoid such Uninstructed Deviation Charges. The Transmission Provider shall determine through the Section 6.3 dispute process whether such Uninstructed Deviation Charges should be waived.
- (g) Uninstructed Deviation Charges shall be calculated by the Transmission Provider in accordance with Section 5.5 of this Attachment AE.
- (h) In the event of a system failure related to the SPP EIS Market systems or Market Participant systems providing data to SPP that impact Transmission Provider's ability to calculate dispatch instructions for a Resource or Resources, the Transmission Provider will suspend the calculation of dispatch instructions for such Resources and treat them as Self-Dispatched Resources until the calculations of dispatch instructions can be restored.

4.3 Coordination of Market Operations under SPP Congestion Management

The Transmission Provider shall use the following process to coordinate the operations of the Energy Imbalance Market during times when a Congestion Management and/or TLR event is declared to manage congestion on one or more flowgates:.

- (a) The Transmission Provider shall identify schedules in the NERC IDC that are also included in Market Flows.
- (b) The Transmission Provider shall submit the Market Flow impact on each Coordinated Flowgate and Reciprocal Coordinated Flowgate to the NERC IDC. The Market Flow impact on each flowgate shall include the aggregate MW flow impacts on the identified flowgate including the following:
 - i. Energy Schedules relating to native load for which no tag has been identified;
 - ii. Energy Schedules entirely within a Balancing Authority Area for which a tag has been identified and where the source is either a Dispatchable Resource or Self-Dispatched Resource; and
 - iii. Energy Schedules between Balancing Authority Areas for which a tag has been identified where the source is a Dispatchable Resource or Load Settlement Location and the sink is a Load Settlement Location.
 - iv. Unscheduled output from Non-Dispatchable Resources.
- (c) The Transmission Provider shall assign curtailment priorities to the Energy Schedules causing Market Flow on each flowgate using the identified tags, or for an Energy Schedule associated with native load using an assumed Network Service tag, and in the following priority categories:
 - i. Curtailment priorities for flowgates that have not been defined as a Coordinated Flowgate or a Reciprocal Coordinated Flowgate shall be assigned in accordance with NERC TLR procedures.
 - ii. For Coordinated Flowgates, the Transmission Provider will assign Market Flow in the Firm priority up to the Firm limit with any excess Market Flow assigned as Non-Firm Network.
 - iii. For Reciprocal Coordinated Flowgates, the Transmission Provider will divide its Market Flows into Firm, Non-Firm Network, and Non-Firm

Hourly curtailment priorities. The Transmission Provider will first assign Market Flow in the Firm priority up to the Firm limit, then assign remaining Market Flow in the Non-firm Network priority up to the Non-firm Network limit, and finally assign any excess Market Flow as Non-firm Hourly.

- (d) The Market Flow contribution associated with Energy Imbalance Service shall be determined by the Transmission Provider by subtracting the Market Flow associated with the Energy Schedules defined in Section 4.3(b) within that priority level defined in Section 4.3(c) from the total calculated Market Flow for that priority. For Coordinated Flowgates, any Market Flow contribution of Energy Imbalance Service in excess of that assigned to the Firm priority shall be assigned a Non-Firm Priority. For Reciprocal Coordinated Flowgates, any Market Flow contribution of the Energy Imbalance Service in excess of amounts assigned to Firm or Non-Firm Network priorities shall be assigned a Non-Firm Hourly priority.
- (e) When congestion occurs on a flowgate that requires a TLR event, the NERC IDC will prescribe curtailments for tags of all Physical Schedules and identify the amount of relief required from Market Flows on the Coordinated Flowgate or Reciprocal Coordinated Flowgate.
- (f) The Transmission Provider shall achieve the required reduction in Market Flows provided by the NERC IDC using its security constrained dispatch software and curtailment/adjustment tool (“CAT”), which curtails schedules identified in Sections 4.3(c) and 4.3(d) in the following order until the desired reduction in Market Flows is achieved:
 - i. To the extent that Market Flows are contributing to the constrained condition, the Transmission Provider shall restrict the ability of the market operating system from contributing further to the constrained condition by binding the Coordinated Flowgate or Reciprocal Coordinated Flowgate constraint. The security constrained dispatch of Dispatchable Resources shall continue within each priority level until the Market Flows within that priority level have been reduced to zero or the flowgate constraint is

eliminated, whichever comes first. Any impact on Locational Imbalance Prices will be calculated per Section 4.4 of Attachment AE.

- ii. Simultaneously with the security constrained dispatch of Dispatchable Resources that contribute to Market Flows, the CAT shall determine if sufficient Energy Imbalance Service exists to achieve the desired Market Flow relief. If there is an insufficient amount of Energy Imbalance Service to achieve the desired Market Flow relief, CAT shall curtail the remaining schedules identified in Section 4.3(c) impacting the Coordinated Flowgate or Reciprocal Coordinated Flowgate, using their assigned priority level, starting from lowest priority to highest, until the desired Market Flow reduction is achieved or until all such schedules in that priority have been reduced to zero. During this curtailment process, CAT also adjusts the Scheduled Generation of Resources, to the extent that such Resources need to be dispatched below their scheduled amount to achieve the desired Market Flow relief, and such adjusted Scheduled Generation shall be used for settlement purposes. The impact of schedule curtailments on Locational Imbalance Prices will be realized as soon as the changes to Self-Dispatched Resource schedules resulting from the curtailments are reflected within the EIS Market dispatch software and Locational Imbalance Prices shall continue to be calculated in accordance with Section 4.4.
- (g) The Transmission Provider shall notify each Market Participant of the aggregate curtailments it is required to make, and such notification shall include Resource name, original schedule, and the generation shift factor associated with their Resources for the constrained flowgates.
- (h) The Transmission Provider shall notify each Market Participant if a curtailment is expected to continue into the next Operating Hour. Market Participants may revise their Energy Schedules or operating schedule for Self-Dispatched Resources for the next Operating Hour so long as they maintain the required reduction level in Market Flows required.

- (i) Non-Dispatchable Resources shall be instructed to curtail via an XML notification. Such notification shall include the resource name, time period of curtailment, and the curtailment level. When instructed, a Non-Dispatchable Resource shall operate at the lower of its (1) curtailment level or (2) actual net output. In the case of a Qualifying Facility exercising its rights under PURPA to deliver all of its net output to its host utilities, its output shall be curtailed proportionately, equivalent to Firm Service. The curtailment level of a Non-Dispatchable Resource shall be the sum of the curtailed unscheduled and scheduled portion of the output of Resource as determined by CAT.

5.5 Uninstructed Deviation Charges

The Transmission Provider shall calculate Uninstructed Deviation Charges for each hour in which a Resource has been determined to have failed to follow the Transmission Provider's dispatch instructions. For all Resources, whether a Dispatchable Resource, a Self-Dispatched Resource, or a Non-Dispatchable Resource (during congested intervals) that failed to follow dispatch instructions in accordance with the procedures set forth under Section 4.1(d) of this Attachment AE, the Transmission Provider shall calculate an Uninstructed Deviation Charge as follows:

- (a) For each Dispatch Interval in an Operating Hour, if a Resource's actual output is greater than (MaxMW + RH), then that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to the actual output - (MaxMW + RH), where MaxMW and RH are as defined under Section 4.1(d) of this Attachment AE;
- (b) For each Dispatch Interval in an Operating Hour, if a Resource's actual output is less than (MaxMW - RL), then that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to the actual output - (MaxMW - RL), where EOL and RL are as defined under Section 4.1(d) of this Attachment AE;
- (c) For each Dispatch Interval in the Operating Hour, if a Resource's actual output is within the acceptable operating range as defined in Section 4.1(d) that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to zero;
- (d) For each Operating Hour, the Transmission Provider shall calculate an Hourly Uninstructed Deviation Megawatt for each Resource that is equal to the average of the absolute value of the Uninstructed Deviation Megawatts calculated for each Dispatch Interval for each Resource in that Operating Hour.
- (e) For each Operating Hour and for each Resource, the Transmission Provider shall calculate an Uninstructed Deviation Charge:
$$\text{Uninstructed Deviation Charge} = (\text{Min} (\text{Hourly Uninstructed Deviation Megawatt}, 25) * 10 \% + (\text{Max} (0, \text{Hourly Uninstructed Deviation Megawatt} - 25) * 25 \%)) * \text{the absolute value of the Resource Locational Imbalance Price.}$$
- (f) The Uninstructed Deviation Change shall be zero for a Qualifying Facility exercising its rights under PURPA to deliver all of its net output to its host utility

that refused to register its Resource and has been registered by the Transmission Provider as outlined in Section 1.2.2(g) of this Attachment AE.

- (g) For each Operating Hour, a Market Participant's Uninstructed Deviation Charge shall be equal to the sum of that Market Participant's Resources' related Uninstructed Deviation Charges.

1.1 Definitions E

Energy Imbalance Service

The Ancillary Service defined under Schedule 4 to this Tariff.

Energy Imbalance Service Charge/Credit

A Market Participant's hourly charges and credits associated with its Imbalance Energy at a Settlement Location.

Energy Imbalance Service Uplift Charge/Credit

A Market Participant's hourly charge associated with an EIS Market revenue shortfall that is created when the total of all Energy Imbalance Service Credits is greater than the total of all Energy Imbalance Service Charges in an hour or a Market Participant's hourly credit associated with an EIS Market revenue excess that is created when the total of all Energy Imbalance Service Charges is greater than the total of all Energy Imbalance Service Credits in an hour.

Energy Imbalance Service Uplift Obligation

An hourly value in megawatts per hour calculated by the Transmission Provider for each Market Participant that is utilized by the Transmission Provider to determine each Market Participant's Energy Imbalance Service Uplift Charge/Credit.

Energy Obligation Deficiency

A condition created, either at the Market Participant level or Balancing Authority level, when the sum of applicable Resource Maximum Economic Limits in an hour is less than the applicable load forecast as adjusted for third party schedules in that hour.

Energy Obligation Excess

A condition created, either at the Market Participant level or Balancing Authority level, when the sum of applicable Resource Minimum Economic Limits in an hour is greater than the applicable load forecast as adjusted for third party schedules in that hour.

Energy Schedule

A set of hourly energy injection and withdrawal values, in megawatts per hour, submitted by Market Participants, at valid sources and sinks.

Exigent Conditions

Period of time when Resource is online and unable to follow dispatch instructions due to sudden changes in Resource conditions or operating characteristics that prevent predictable Resource operation. This status shall be available only upon request and with Transmission Provider approval.

External Resource

A Resource, other than a Designated Resource, located outside of the SPP Market Footprint that is included in an SPP market Balancing Authority through an External Resource Pseudo-Tie.

External Resource Pseudo-Tie

A non-physical electrical interconnection point between balancing authorities, whereby all or a portion of an External Resource is electronically moved from one Balancing Authority to another Balancing Authority that is in the SPP Market Footprint. Energy delivered from an External Resource to the sink in the SPP Market Footprint is treated as a Balancing Authority interchange from the source Balancing Authority to the sink Balancing Authority.

1.1 Definitions M

Manual Dispatch Instruction

A dispatch instruction issued manually to a Resource by the Transmission Provider to resolve a system reliability condition that cannot be resolved through the process described under Section 4.3 of Attachment AE.

Market Flow

The aggregate megawatt flow on a Coordinated Flowgate or a Reciprocal Coordinated Flowgate caused by Energy Schedules for native load, intra Balancing Authority Area Energy Schedules, inter Balancing Authority Area Energy Schedules that are sourced at Dispatchable Resources or load Settlement Locations and Energy Imbalance Service.

Meter Settlement Location

The effective point at which a Market Participant's registered load and Resources interchange energy with the EIS Market.

1.1 Definitions N

NERC Interchange Distribution Calculator (NERC IDC)

The mechanism used by Reliability Coordinators in the Eastern Interconnection to calculate the distribution of interchange transactions over specific flowgates.

Net Energy Imbalance Service Charge/Credit

The sum of a Market Participant's Settlement Location specific Energy Imbalance Service Charge/Credits in an hour.

Net Actual Interchange

The algebraic sum of all energy flowing into or out of a Settlement Area during a Settlement Interval.

Net Scheduled Interchange

The algebraic sum of all Energy Schedules into or out of a Control Area.

Non-Dispatchable Resource

A Resource meeting any of the following conditions: (a) operating in Shut-down Mode; (b) operating in Start-up Mode; (c) operating in Testing Mode; (d) operating under Exigent Conditions; (e) is an Intermittent Resource; or (f) is a Qualifying Facility.

1.1 Definitions S

Scheduled Generation

The amount of energy scheduled to be injected at a Settlement Location pursuant to submission of an Energy Schedule that is used in the calculation of a Market Participant's Imbalance Energy at a Settlement Location. This value is assumed to be a negative value for settlement purposes.

Scheduled Load

The amount of energy scheduled to be withdrawn at a Settlement Location pursuant to submission of an Energy Schedule that is used in the calculation of a Market Participant's Imbalance Energy at a Settlement Location. This value is assumed to be a positive value for settlement purposes.

Self-Dispatched Resource

A Resource that is not available for economic dispatch by the Transmission Provider to support market operations.

Settlement Area

An area within a single Control Area in the Transmission System for which interval metering can account for the net injections and net interchange associated with that area.

Settlement Area Metered Net Interchange

The algebraic sum of all energy flowing into or out of a Settlement Area during an hour.

Settlement Area Net Load

The sum of, as adjusted to account for Transmission System losses associated with through or out service as specified in Attachment M, (a) net injections at each Settlement Location within the Settlement Area and (b) Settlement Area Metered Net Interchange.

Settlement Location

Locations defined for the purpose of commercial operations and settlement. A Settlement Location can be either a single Meter Settlement Location or, for load, an aggregation of Meter Settlement Locations within one Settlement Area as designated during the asset registration process by a Market Participant serving load.

Shut-down Mode

A period of time after the Resource operates below its Minimum Capacity Operating Limit as indicated in the Resource Plan, but not to exceed one hour before and after the scheduled time for a Resource to be removed from the electrical grid, ~~during which a Resource will be exempt from Uninstructed Deviation Penalties.~~

SPP Market Footprint

The Loads and Resources that are located within a Balancing Authority Area subject to Attachment AN under this Tariff.

Start-up Mode

The period of time before the Resource reaches its Minimum Capacity Operating Limit as indicated in the Resource Plan, but not to exceed two hours before and after the scheduled time for a Resource to synchronize to the grid, ~~during which a Resource will be exempt from Uninstructed Deviation Penalties.~~

State Estimator

A standard industry tool that produces a power flow model based on available real-time metering information, information regarding the current status of lines, generators, transformers, and other equipment, bus load distribution factors, and a representation of the electric network, to provide a complete description of system conditions, including conditions at busses for which real-time information is unavailable.

4.1 Dispatch Process

- (a) Throughout the Operating Day, generally every 5 minutes, the Transmission Provider shall:
 - (i) Perform a security constrained economic dispatch (SCED) for the SPP Region utilizing an optimization method to determine the least costly means of obtaining energy to serve the next increment of load based upon submitted Offer Curves, Resource operating data submitted as part of the Resource Plan, binding transmission constraints, forecasted SPP Region load and system conditions from the State Estimator; relaxation of operating limits (Violation Relaxation Limit or VRL).
 - (ii) Communicate to Market Participants dispatch instructions that specify the desired megawatt output of Dispatchable Resources based upon the security constrained economic dispatch solution;
 - (iii) Communicate to Market Participants dispatch instructions that specify the scheduled megawatt output of Self-Dispatched Resources based upon the sum of the Energy Schedules associated with that Self-Dispatched Resource as approved in accordance with Section 3.1(b);
 - (iv) Communicate Manual Dispatch Instructions to Market Participants that specify the desired output of Dispatchable Resources and/or Self Dispatched Resources only in Emergency Conditions where such Emergency Conditions can not be resolved through the process described under Section 4.3 of Attachment AE;
 - (v) Calculate an Adjusted Net Scheduled Interchange for each Control Area in the SPP Region to account for the Dispatchable Resource dispatch instructions, including any Manual Dispatch Instructions, reserve sharing schedules, and inadvertent interchange payback schedules and communicate this Adjusted Net Scheduled Interchange to the Control Areas for implementation.

Procedures for communication of dispatch instructions shall be specified in the Market Protocols.

- (b) In performing the security constrained economic dispatch under Section 4.1, the Transmission Provider shall ensure that the energy dispatch of Dispatchable Resources does not conflict with any specified provision of Schedule 3, Schedule 5 and Schedule 6 Service associated with said Dispatchable Resources. To accomplish this, the Transmission Provider shall limit the dispatchable energy range of Dispatchable Resources to between the Resource's Economic Minimum Limit and Economic Maximum Limit. Details of the Dispatchable Resource dispatchable energy range adjustment shall be specified in the Market Protocols.
- (c) The Transmission Provider shall limit the dispatch instructions to External Resources so that i.) the total dispatch instructions of External Resources does not exceed the SPP Contingency Reserve Requirement for the Operating Day and ii.) the total dispatch instructions of External Resources sinking in an individual SPP Market Balancing Authority Area does not exceed the capacity of the largest Resource within that Balancing Authority Area.
- (d) An acceptable operating tolerance will be defined for Dispatchable and Self-Dispatched Resources and Non-Dispatchable Resources. A Resource shall be considered as following a dispatch instruction in a Dispatch Interval if the actual output of that Resource is within the acceptable operating range. Resources whose actual output falls outside this operating tolerance shall be considered as failing to follow a dispatch instruction. A Resource's acceptable operating range shall be defined by a high and low tolerance level calculated as follows subject to a minimum range of 5 megawatts above or 5 megawatts below the expected output level and a maximum acceptable operating range of 25 megawatts above or 25 megawatts below the expected output level:

$$RH_i = \text{Max}(5 , \text{Min} ((\text{MaxMW}_i * \text{DBP}) , 25)) + \text{REGUP}$$

$$RL_i = \text{Max} (5 , \text{Min} ((\text{MaxMW}_i * \text{DBP}) , 25)) + \text{REGDN}$$

Where:

RH = Resource high operating tolerance or over generation limit (megawatt)

RL = Resource low operating tolerance or under generation limit (megawatt)

MaxMW = Maximum Capacity Operating Limit - Resource physical maximum sustainable output for each Operating Hour from Resource Plan.

DBP = Dead band percentage for all Resources is initially set to 10 %,

REGUP = Regulation up service being maintained on the Resource as indicated in the Ancillary Service Plan (MW) for the Operating Hour.

REGDN = Regulation down service being maintained on the Resource as indicated in the Ancillary Service Plan (MW) for the Operating Hour.

i = Dispatch Interval within Operating Hour.

Resources providing Schedule 5 and Schedule 6 services shall be considered following dispatch instructions during any Dispatch Interval in which these Services have been deployed.

- (e) To the extent that a Resource is determined by the Transmission Provider to have failed to follow the Transmission Provider's dispatch instructions, such failure to follow dispatch instruction determination in accordance with the procedures set forth under Section 4.1(d) of this Attachment AE, the Market Participant owner of that Resource shall be subject to an Uninstructed Deviation Charge. Resources shall not be subject to Uninstructed Deviation Charges for any Uninstructed Deviation Megawatts caused by: (1) Manual Dispatch Instructions; (2) redeployment by the Balancing Authority; (3) ~~operating a Resource in Test Mode; (4) operation of a Resource in Start-up Mode or Shut-down Mode, or of each generating unit individually if multiple generating units are registered collectively as a single Resource, as indicated in the Resource Plan; (5)~~ instances when a Resource trips or is derated after receiving dispatch

instructions from the Transmission Provider; ~~(64) Non-Dispatchable Resources during uncongested intervals; the Resource is an Intermittent Resource;~~ or (75) the dispatch instructions issued to a Resource were beyond the reported capabilities in the Resource Plan due to the application of a VRL. In order to receive an Uninstructed Deviation Charge exemption for a Resource under (53) above, the Market Participant must immediately report the change in its Resource Plan, in accordance with Section 1.2.7 (c) of Attachment AE, specifying the Resource trip or deration and must submit an invoice dispute utilizing the process described under Section 6.3 of Attachment AE prior to Transmission Provider determination of the exemption under the Section 6.3 process.

- (f) The Transmission Provider may also waive Uninstructed Deviation Charges to the extent a Market Participant can demonstrate such deviation was caused solely by events or conditions beyond its control, and without the fault or negligence of the Market Participant. The Market Participant must provide the Transmission Provider with adequate documentation through the invoice dispute process described under Section 6.3 in order for the Market Participant to be eligible to avoid such Uninstructed Deviation Charges. The Transmission Provider shall determine through the Section 6.3 dispute process whether such Uninstructed Deviation Charges should be waived.
- (g) Uninstructed Deviation Charges shall be calculated by the Transmission Provider in accordance with Section 5.5 of this Attachment AE.
- (h) In the event of a system failure related to the SPP EIS Market systems or Market Participant systems providing data to SPP that impact Transmission Provider's ability to calculate dispatch instructions for a Resource or Resources, the Transmission Provider will suspend the calculation of dispatch instructions for such Resources and treat them as Self-Dispatched Resources until the calculations of dispatch instructions can be restored.

4.3 Coordination of Market Operations under SPP Congestion Management

The Transmission Provider shall use the following process to coordinate the operations of the Energy Imbalance Market during times when a Congestion Management and/or TLR event is declared to manage congestion on one or more flowgates:.

- (a) The Transmission Provider shall identify schedules in the NERC IDC that are also included in Market Flows.
- (b) The Transmission Provider shall submit the Market Flow impact on each Coordinated Flowgate and Reciprocal Coordinated Flowgate to the NERC IDC.
The Market Flow impact on each flowgate shall include the aggregate MW flow impacts on the identified flowgate including the following:~~The Market Flow impact on each flowgate shall include the aggregate MW flow impacts of the following schedules on the identified flowgate:~~
 - i. Energy Schedules relating to native load for which no tag has been identified;
 - ii. Energy Schedules entirely within a Balancing Authority Area for which a tag has been identified and where the source is either a Dispatchable Resource or Self-Dispatched Resource; and
 - iii. Energy Schedules between Balancing Authority Areas for which a tag has been identified where the source is a Dispatchable Resource or Load Settlement Location and the sink is a Load Settlement Location.
 - iv. ~~Unscheduled output from Non-Dispatchable Resources.~~
- (c) The Transmission Provider shall assign curtailment priorities to the Energy Schedules causing Market Flow on each flowgate using the identified tags, or for an Energy Schedule associated with native load using an assumed Network Service tag, and in the following priority categories:
 - i. Curtailment priorities for flowgates that have not been defined as a Coordinated Flowgate or a Reciprocal Coordinated Flowgate shall be assigned in accordance with NERC TLR procedures.
 - ii. For Coordinated Flowgates, the Transmission Provider will assign Market Flow in the Firm priority up to the Firm limit with any excess Market Flow assigned as Non-Firm Network.

- iii. For Reciprocal Coordinated Flowgates, the Transmission Provider will divide its Market Flows into Firm, Non-Firm Network, and Non-Firm Hourly curtailment priorities. The Transmission Provider will first assign Market Flow in the Firm priority up to the Firm limit, then assign remaining Market Flow in the Non-firm Network priority up to the Non-firm Network limit, and finally assign any excess Market Flow as Non-firm Hourly.
- (d) The Market Flow contribution associated with Energy Imbalance Service shall be determined by the Transmission Provider by subtracting the Market Flow associated with the Energy Schedules defined in Section 4.3(b) within that priority level defined in Section 4.3(c) from the total calculated Market Flow for that priority. For Coordinated Flowgates, any Market Flow contribution of Energy Imbalance Service in excess of that assigned to the Firm priority shall be assigned a Non-Firm Priority. For Reciprocal Coordinated Flowgates, any Market Flow contribution of the Energy Imbalance Service in excess of amounts assigned to Firm or Non-Firm Network priorities shall be assigned a Non-Firm Hourly priority.
- (e) When congestion occurs on a flowgate that requires a TLR event, the NERC IDC will prescribe curtailments for tags of all Physical Schedules and identify the amount of relief required from Market Flows on the Coordinated Flowgate or Reciprocal Coordinated Flowgate.
- (f) The Transmission Provider shall achieve the required reduction in Market Flows provided by the NERC IDC using its security constrained dispatch software and curtailment/adjustment tool (“CAT”), which curtails schedules identified in Sections 4.3(c) and 4.3(d) in the following order until the desired reduction in Market Flows is achieved:
 - i. To the extent that Market Flows are contributing to the constrained condition, the Transmission Provider shall restrict the ability of the market operating system from contributing further to the constrained condition by binding the Coordinated Flowgate or Reciprocal Coordinated Flowgate constraint. The security constrained dispatch of Dispatchable Resources

shall continue within each priority level until the Market Flows within that priority level have been reduced to zero or the flowgate constraint is eliminated, whichever comes first. Any impact on Locational Imbalance Prices will be calculated per Section 4.4 of Attachment AE.

ii. Simultaneously with the security constrained dispatch of Dispatchable Resources that contribute to Market Flows, the CAT shall determine if sufficient Energy Imbalance Service exists to achieve the desired Market Flow relief. If there is an insufficient amount of Energy Imbalance Service to achieve the desired Market Flow relief, CAT shall curtail the remaining schedules identified in Section 4.3(c) impacting the Coordinated Flowgate or Reciprocal Coordinated Flowgate, using their assigned priority level, starting from lowest priority to highest, until the desired Market Flow reduction is achieved or until all such schedules in that priority have been reduced to zero. During this curtailment process, CAT also adjusts the Scheduled Generation of Resources, to the extent that such Resources need to be dispatched below their scheduled amount to achieve the desired Market Flow relief, and such adjusted Scheduled Generation shall be used for settlement purposes. The impact of schedule curtailments on Locational Imbalance Prices will be realized as soon as the changes to Self-Dispatched Resource schedules resulting from the curtailments are reflected within the EIS Market dispatch software and Locational Imbalance Prices shall continue to be calculated in accordance with Section 4.4.

(g) The Transmission Provider shall notify each Market Participant of the aggregate curtailments it is required to make, and such notification shall include Resource name, original schedule, and the generation shift factor associated with their Resources for the constrained flowgates.

(h) The Transmission Provider shall notify each Market Participant if a curtailment is expected to continue into the next Operating Hour. Market Participants may revise their Energy Schedules or operating schedule for Self-Dispatched

Resources for the next Operating Hour so long as they maintain the required reduction level in Market Flows required.

- (i) Non-Dispatchable Resources shall be instructed to curtail via an XML notification. Such notification shall include the resource name, time period of curtailment, and the curtailment level. When instructed, a Non-Dispatchable Resource shall operate at the lower of its (1) curtailment level or (2) actual net output. In the case of a Qualifying Facility exercising its rights under PURPA to deliver all of its net output to its host utilities, its output shall be curtailed proportionately, equivalent to Firm Service. The curtailment level of a Non-Dispatchable Resource shall be the sum of the curtailed unscheduled and scheduled portion of the output of Resource as determined by CAT.

5.5 Uninstructed Deviation Charges

The Transmission Provider shall calculate Uninstructed Deviation Charges for each hour in which a Resource has been determined to have failed to follow the Transmission Provider's dispatch instructions. For ~~each~~ Resources, whether a Dispatchable Resource, ~~or a~~ Self-Dispatched Resource, or a Non-Dispatchable Resource (during congested intervals) that failed to follow dispatch instructions in accordance with the procedures set forth under Section 4.1(d) of this Attachment AE, the Transmission Provider shall calculate an Uninstructed Deviation Charge as follows:

- (a) For each Dispatch Interval in an Operating Hour, if a Resource's actual output is greater than (MaxMW + RH), then that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to the actual output - (MaxMW + RH), where MaxMW and RH are as defined under Section 4.1(d) of this Attachment AE;
- (b) For each Dispatch Interval in an Operating Hour, if a Resource's actual output is less than (MaxMW - RL), then that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to the actual output - (MaxMW - RL), where EOL and RL are as defined under Section 4.1(d) of this Attachment AE;
- (c) For each Dispatch Interval in the Operating Hour, if a Resource's actual output is within the acceptable operating range as defined in Section 4.1(d) that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to zero;
- (d) For each Operating Hour, the Transmission Provider shall calculate an Hourly Uninstructed Deviation Megawatt for each Resource that is equal to the average of the absolute value of the Uninstructed Deviation Megawatts calculated for each Dispatch Interval for each Resource in that Operating Hour.
- (e) For each Operating Hour and for each Resource, the Transmission Provider shall calculate an Uninstructed Deviation Charge:
$$\text{Uninstructed Deviation Charge} = (\text{Min} (\text{Hourly Uninstructed Deviation Megawatt}, 25) * 10 \% + (\text{Max} (0, \text{Hourly Uninstructed Deviation Megawatt} - 25) * 25 \%)) * \text{the absolute value of the Resource Locational Imbalance Price.}$$
- (f) The Uninstructed Deviation Change shall be zero for a Qualifying Facility exercising its rights under PURPA to deliver all of its net output to its host utility

that refused to register its Resource and has been registered by the Transmission Provider as outlined in Section 1.2.2(g) of this Attachment AE.

- (fg) For each Operating Hour, a Market Participant's Uninstructed Deviation Charge shall be equal to the sum of that Market Participant's Resources' related Uninstructed Deviation Charges.