

172 FERC ¶ 61,038  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;  
Richard Glick, Bernard L. McNamee,  
and James P. Danly.

Southwest Power Pool, Inc.

Docket No. ER20-644-000

ORDER ON COMPLIANCE

(Issued July 16, 2020)

1. On December 19, 2019, Southwest Power Pool, Inc. (SPP) submitted revisions to its Open Access Transmission Tariff (Tariff) in compliance with the Commission’s Order on Paper Hearing in Docket No. EL18-35-000.<sup>1</sup> In this order, we accept SPP’s proposed Tariff revisions, and direct SPP to submit a further compliance filing, within 60 days of the date of this order, as discussed in the body of this order.<sup>2</sup>

**I. Background**

2. In the Order on Paper Hearing, the Commission found that SPP’s fast-start pricing practices are unjust and unreasonable because they do not allow prices to reflect the marginal cost of serving load.<sup>3</sup> The Commission directed SPP to revise its Tariff to: (1) modify its real-time energy market clearing process to execute the cost-minimizing dispatch solution followed by a pricing run, remove its screening run, and remove an option for enhanced energy offers that incorporate amortized commitment costs in the incremental cost curves of fast-start resources used during the dispatch run; (2) allow commitment costs of fast-start resources to be reflected in day-ahead and real-time prices; (3) require a minimum run time of one hour or less for fast-start resources; (4) allow

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<sup>1</sup> *Sw. Power Pool, Inc.*, 167 FERC ¶ 61,217 (2019) (Order on Paper Hearing).

<sup>2</sup> SPP’s existing Tariff refers to “quick-start resources,” as did the Order on Paper Hearing. SPP’s proposed Tariff revisions change the terminology to “fast-start resources,” consistent with the terminology used in other regional transmission organizations (RTO) and independent system operators (ISO). For simplicity, in this order we use the term “fast-start resources” throughout.

<sup>3</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at P 12.

relaxation of all fast-start resources' economic minimum operating limits by up to 100 percent, such that they are considered dispatchable from zero to their economic maximum operating limit for pricing purposes; (5) apply fast-start pricing treatment to both registered and unregistered fast-start resources; and (6) include its fast-start pricing practices in its Tariff.<sup>4</sup>

## **II. SPP Filing**

3. As described in more detail below, SPP proposes revisions to Attachment AE (Integrated Marketplace) of its Tariff that set forth its proposed fast-start pricing practices. SPP states that the proposed revisions comply with the Commission's directives in the Order on Paper Hearing.<sup>5</sup>

## **III. Notice and Responsive Pleadings**

4. Notice of SPP's filing was published in the *Federal Register*, 84 Fed. Reg. 71,403 (Dec. 19, 2019), with interventions and protests due on or before January 9, 2020. On January 2, 2020, the Commission's Secretary granted a motion filed by Golden Spread Electric Cooperative, Inc. (Golden Spread) requesting an extension of time to file comments until January 21, 2020.

5. Timely motions to intervene were submitted by Midwest Energy, Inc., Mid-Kansas Electric Company, Inc., Sunflower Electric Power Corporation, and Omaha Public Power District. Timely motions to intervene and protests were filed by the SPP Market Monitoring Unit (SPP Market Monitor) and Golden Spread.

6. On February 5, 2020, SPP filed separate answers to the SPP Market Monitor's protest and Golden Spread's protest. On February 20, 2020, the SPP Market Monitor filed an answer to SPP's answer.

## **IV. Discussion**

### **A. Procedural Matters**

7. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2019), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

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<sup>4</sup> *Id.*

<sup>5</sup> Transmittal at 5.

8. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2019), prohibits an answer to a protest or answer unless otherwise ordered by the decisional authority. We accept SPP's answers and the SPP Market Monitor's answer because they have provided information that assisted us in our decision-making process.

**B. Substantive Matters**

9. As discussed below, we accept SPP's proposed Tariff revisions, and direct SPP to submit a further compliance filing within 60 days of the date of this order.

**1. Order on Paper Hearing Directives and SPP's Compliance Filing**

**a. Separate Pricing and Dispatch Runs, Remove Screening Run, and Remove Option for Enhanced Energy Offers**

10. The Commission directed SPP to revise its Tariff to modify its real-time energy market clearing process to execute the cost-minimizing dispatch solution, which will produce the dispatch instructions that are sent to supply resources, and then perform a subsequent pricing run to determine prices that would not impact the dispatch instructions sent to supply resources.<sup>6</sup> Additionally, the Commission directed SPP to remove its screening run, and to remove the option for enhanced energy offers that incorporate amortized commitment costs in the incremental cost curves of quick-start resources used during the dispatch run.<sup>7</sup>

11. SPP proposes to comply with this directive by adding a new section 3.3.1 to Attachment AE of its Tariff. SPP explains that current section 3.3 of Attachment AE provides that SPP will commit resources on a least-cost, security-constrained basis and clear energy and operating reserves based on a security constrained economic dispatch (SCED).<sup>8</sup> SPP states that proposed section 3.3.1 provides that the SCED used in the day-ahead and real-time markets will produce separate dispatch and pricing solutions that are executed independently of the other, and that the pricing run will take place after the dispatch run.<sup>9</sup> SPP proposes to express the prices resulting from the pricing run using the existing Tariff terms Locational Marginal Price (LMP) and Market Clearing Price

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<sup>6</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at PP 12, 47.

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

<sup>8</sup> Transmittal at 7-8.

<sup>9</sup> *Id.* at 8; Proposed SPP Tariff, Attach. AE, § 3.3.1.

(MCP),<sup>10</sup> and to express the prices resulting from the dispatch run with the new Tariff term Dispatch Locational Marginal Price (DLMP).<sup>11</sup> SPP also proposes to apply violation relaxation limits independently.<sup>12</sup>

12. SPP states that, generally speaking, the difference between the dispatch and pricing solutions is that the pricing solution involves relaxation of fast-start resources' minimum operating limits and incorporation of fast-start resources' commitment costs into their energy offer curves.<sup>13</sup> SPP states that the proposed dispatch run will continue to solve on the basis of least production cost and is unchanged from current practices, with two exceptions. First, SPP proposes to remove the current screening run,<sup>14</sup> which SPP states allowed fast-start resources to be dispatched from an offline state to an online state and from an online state to an offline state in real-time.<sup>15</sup> Second, SPP proposes to remove the current ability for resources to submit enhanced energy offers.<sup>16</sup>

**b. Reflect Commitment Costs in Prices**

13. The Commission directed SPP to revise its Tariff to allow the commitment costs of fast-start resources to be reflected in day-ahead and real-time prices.<sup>17</sup> The Commission stated that SPP should include fast-start resources' commitment costs in energy offers in the pricing run.<sup>18</sup> Additionally, the Commission stated that SPP would have flexibility in proposing an amortization method on compliance, but noted that a method that amortizes commitment costs over the fast-start resource's economic maximum operating limit and its minimum run time is a reasonable approach.<sup>19</sup>

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<sup>10</sup> Proposed SPP Tariff, Attach. AE, § 3.3.1.

<sup>11</sup> *Id.* § 1.1 (Definitions D).

<sup>12</sup> *Id.* § 8.3.3.

<sup>13</sup> Transmittal at 8.

<sup>14</sup> Proposed SPP Tariff, Attach. AE, § 6.2.2.

<sup>15</sup> Transmittal at 8-9.

<sup>16</sup> SPP Integrated Marketplace Protocols, Appendix G, § 6.4.

<sup>17</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at PP 12, 58, 64.

<sup>18</sup> *Id.* P 61.

<sup>19</sup> *Id.* P 62.

14. Proposed section 3.3.1 of Attachment AE provides that for fast-start resources, SPP will calculate a composite energy offer for use in the co-optimization of energy and operating reserves by adding the resource's amortized start-up and no-load costs to its energy offer curve. SPP proposes to amortize commitment costs over the fast-start resource's economic maximum operating limit and its minimum run time over one hour. SPP proposes that for fast-start resources that are market storage resources, the composite energy offer will only apply to the discharge portion of the resource's energy offer curve.<sup>20</sup> SPP further proposes that composite offers will be subject to the energy offer cap described under current section 4.1.1 of Attachment AE.<sup>21</sup>

**c. Minimum Run-Time**

15. The Commission directed SPP to revise its Tariff to require a minimum run time of one hour or less for fast-start resources.<sup>22</sup> SPP proposes to remove the definition of "Quick-Start Resource" from its Tariff and to add the following definition for a "Fast-Start Resource":<sup>23</sup>

A Resource with the following submitted offer parameters for a Day-Ahead Market or Real-Time Balancing Market interval: a Start-Up Time offer of ten (10) minutes or less and a Minimum Run Time offer of sixty (60) minutes or less. [Market storage resources] must also have a Minimum Discharge Time offer of sixty (60) minutes or less to qualify as a Fast-Start Resource. [Multi-configuration resources] must also have a Group Minimum Run Time offer of sixty (60) minutes or less to qualify as a Fast-Start Resource.

**d. Economic Minimum Operating Limit Relaxation**

16. The Commission directed SPP to relax the economic minimum operating limits of fast-start resources by up to 100 percent, such that they are considered dispatchable from zero to their economic maximum operating limit for pricing purposes in both the day-ahead and real-time markets.<sup>24</sup> SPP proposes to relax the minimum operating limit

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<sup>20</sup> Transmittal at 11-12; Proposed SPP Tariff, Attach. AE, § 3.3.1(2)(b)(i).

<sup>21</sup> Proposed SPP Tariff, Attach. AE, § 3.3.1.

<sup>22</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at PP 12, 71.

<sup>23</sup> Proposed SPP Tariff, Attach. AE, § 1.1 (Definitions F).

<sup>24</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at PP 12, 83.

of all fast-start resources committed by SPP, including those committed at the request of a local transmission operator, to zero MW during the pricing run.<sup>25</sup> SPP states that the term “minimum operating limit” refers generally to the minimum operating limit in effect at the time of the dispatch, which may be the Minimum Economic Operating Limit, the Minimum Regulation Capacity Operating Limit, or the Minimum Emergency Capacity Operating Limit. SPP states that these limits, though not strictly economic in nature, must be relaxed for a fast-start resource to set price from zero. SPP requests clarification to the extent the Commission did not intend any operating limits other than the Minimum Economic Operating limit to be relaxed.<sup>26</sup>

**e. Applicability to Registered and Unregistered Resources**

17. The Commission directed SPP to apply fast-start pricing treatment to all resources that meet the fast-start resource capability qualifications (i.e., can start up in 10 minutes or less and have a minimum run time of one hour or less), and not only to registered fast-start resources.<sup>27</sup> SPP states that its proposed definition of a fast-start resource will apply to any resource whose submitted offer parameters meet the requirements for fast-start treatment, with no requirement to register specifically for such treatment.<sup>28</sup>

**f. Tariff**

18. The Commission directed SPP to include its fast-start pricing practices in its Tariff.<sup>29</sup> SPP proposes to comply by adding section 3.3.1 of Attachment AE to its Tariff, which describes how SPP will conduct fast-start pricing, as well as by revising various other sections in Attachment AE and Attachment AF (Market Power Mitigation Plan) of its Tariff.

**g. Commission Determination**

19. We find that SPP’s proposed revisions partially comply with the directives in the Order on Paper Hearing. Proposed section 3.3.1 of Attachment AE of the Tariff describes how SPP will conduct day-ahead and real-time dispatch and pricing, and

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<sup>25</sup> Proposed SPP Tariff, Attach. AE, § 3.3.1(2)(c).

<sup>26</sup> Transmittal at 9.

<sup>27</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at PP 12, 95, 98.

<sup>28</sup> Transmittal at 7.

<sup>29</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at PP 12, 101.

provides for separate dispatch and pricing runs.<sup>30</sup> Under the proposed process, SPP will first execute the cost-minimizing dispatch solution, which will produce the dispatch instructions that are sent to supply resources, and then perform a subsequent pricing run to determine prices that do not impact the dispatch instructions sent to supply resources.<sup>31</sup> The proposed process does not include a screening run or an option for enhanced energy offers that incorporate amortized commitment costs in the incremental cost curves of fast-start resources used during the dispatch run.

20. In addition, SPP's proposed revisions allow fast-start resource commitment costs to be reflected in prices by including fast-start resources' commitment costs in energy offers in the pricing run.<sup>32</sup> We find SPP's proposal to amortize commitment costs over the fast-start resource's economic maximum operating limit and its minimum run time to be just and reasonable because it will ensure that fast-start resource commitment costs are reflected in prices without resulting in overcompensation for fast-start resources, and because it is consistent with the Commission's finding in the Order on Paper Hearing.<sup>33</sup>

21. Consistent with the Commission's directive in the Order on Paper Hearing, the proposed revisions require fast-start resources to have a minimum run time of one hour or less.<sup>34</sup>

22. We also find that SPP's proposal to relax the minimum operating limit in effect at the time of dispatch is a just and reasonable means of complying with the Commission's directive in the Order on Paper Hearing that fast-start resources be dispatchable in the

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<sup>30</sup> Proposed SPP Tariff, Attach. AE, § 3.3.1 ("The SCED used in the Day-Ahead Market and RTBM produces both a dispatch solution and a pricing solution. The dispatch solution and pricing solution are executed independent of each other.").

<sup>31</sup> *Id.*; Transmittal at 8-11.

<sup>32</sup> Proposed SPP Tariff, Attach. AE, § 3.3.1(2)(b)(i) ("The Transmission Provider calculates a composite Energy Offer for [a fast-start resource] by modifying each price point on the Energy Offer Curve for each market interval of the Minimum Run Time by adding amortized start-up and no-load costs.").

<sup>33</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at P 62 (finding that "a method that amortizes commitment costs over the [fast-]start resource's economic maximum operating limit and its minimum run time is a reasonable approach").

<sup>34</sup> Proposed SPP Tariff, Attach. AE, § 1.1 (Definitions F).

pricing run from zero to their economic maximum operating limit.<sup>35</sup> Consistent with the Commission's directive in the Order on Paper Hearing, SPP's proposal relaxes fast-start resources' minimum operating limits in both the day-ahead and real-time markets.

23. Additionally, SPP's proposed fast-start pricing Tariff provisions apply to any resource whose submitted offer parameters meet the requirements for fast-start pricing treatment, with no requirement to register for such treatment. Finally, the proposed revisions ensure that SPP's fast-start pricing practices are clearly specified in its Tariff.<sup>36</sup>

24. However, we find that two aspects of SPP's proposal require further revisions. First, as discussed in more detail below, we find that SPP's proposal to reflect in prices fast-start resources' commitment costs *as updated* in the current offer is not just and reasonable, and we direct SPP to submit a further compliance filing to provide that, for pricing purposes, fast-start resources' composite offers will be calculated with *as-committed* commitment costs, regardless of the current offer.

25. Second, SPP states in its transmittal that it will amortize commitment costs over the fast-start resource's economic maximum operating limit and its minimum run time,<sup>37</sup> but SPP's proposed Tariff language does not specifically provide for this. SPP also states in its transmittal that it will calculate the no-load cost added to each breakpoint of a fast-start resource's energy offer curve by dividing the no-load offer by the economic maximum operating limit and by the ratio of the number of intervals needed to meet the minimum run time to the number of intervals in an hour.<sup>38</sup> However, SPP's proposed Tariff language only provides that commitment costs will be amortized by the resource's minimum runtime "over an hour."<sup>39</sup> We find that this language, which includes two timing elements, does not explain with sufficient precision SPP's proposed amortization method. Because these details may significantly affect rates, terms, and conditions of

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<sup>35</sup> *Id.* § 3.3.1(2)(c) ("[fast-start resources] committed by the Transmission Provider . . . will have their minimum operating limit relaxed to 0 MW.").

<sup>36</sup> SPP proposes other Tariff revisions that were not specifically directed in the Order on Paper Hearing, including new defined terms, changing the Tariff terminology from "quick-start resources" to "fast-start resources," and various revisions to reflect and cross-reference the fast-start pricing changes. We find that these Tariff revisions are reasonable to reflect and implement the fast-start pricing changes the Commission required in the Order on Paper Hearing.

<sup>37</sup> Transmittal at n.41.

<sup>38</sup> *Id.*

<sup>39</sup> Proposed SPP Tariff, Attach. AE, § 3.3.1(2)(b)(i)(1).



service, they must be included in SPP's Tariff.<sup>40</sup> Accordingly, we direct SPP to submit a further compliance filing to revise its Tariff to provide that a fast-start resource's commitment costs will be amortized over its economic maximum operating limit and its minimum run time; this tariff language should not include the phrase "over an hour." In addition, SPP's revisions should provide that SPP will calculate the no-load cost added to each breakpoint of a fast-start resource's energy offer curve by dividing the resource's no-load offer by its economic maximum operating limit and by the ratio of the number of intervals needed to meet the resource's minimum run time to the number of intervals in an hour.

## 2. **Market Power Mitigation**

### a. **SPP Filing**

26. SPP states that it currently applies market power mitigation measures in its unified pricing and dispatch solution when a resource offers above a conduct threshold, has local market power, and is either manually committed or fails a market impact test. Now that SPP will have separate dispatch and pricing runs, SPP proposes to apply these mitigation measures in the pricing run only. SPP explains that it considered mitigation in both runs but determined that this could result in over-mitigation of resources that may fail the local market power and market impact tests in the dispatch run yet pass those tests in the financially binding pricing run. SPP also states that it determined that mitigating in both runs is not a viable option because the additional computational burden would increase the day-ahead and real-time market solution times and likely negatively impact these markets' timelines. SPP states that it proposes mitigation in the pricing run because mitigating in the dispatch run only could allow for the exercise of market power through competitive start-up and no-load offers that would not be evaluated in setting LMP.<sup>41</sup>

### b. **SPP Market Monitor Protest**

27. The SPP Market Monitor contends that SPP's proposal could lead to unmitigated economic withholding in the dispatch run, potentially resulting in unrelieved congestion

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<sup>40</sup> 16 U.S.C. § 824d(c); *Demand Response Coalition v. PJM Interconnection, L.L.C.*, 143 FERC ¶ 61,061, at P 17 (2013); *Cargill Power Markets, LLC v. Public Service Company of New Mexico*, 141 FERC ¶ 61,141, at P 14 (2012); see generally *Prior Notice and Filing Requirements Under Part II of the FPA*, 64 FERC ¶ 61,139 (1993) (explaining Commission jurisdiction with respect to all rates and charges that are "for or connected with" and all agreements that "affect or relate to" jurisdictional activities).

<sup>41</sup> Transmittal at 11-12; Proposed SPP Tariff, Attach. AE, § 3.3.1.

and reduced reliability.<sup>42</sup> Specifically, the SPP Market Monitor argues by way of example that SPP's proposal to only mitigate in the pricing run could allow resources on the relieving side of a transmission constraint to offer above their costs in the dispatch run, which would result in a physical dispatch that would exacerbate the impact of the constraint. According to the SPP Market Monitor, this amounts to allowing a market participant to exercise market power by engaging in economic withholding. The SPP Market Monitor also argues that SPP's proposal could result in a resource being dispatched at the same level that it would run under SPP's current unified pricing and dispatch design as if there was no mitigation at all, and thus concludes that SPP's proposal represents a step backward from its current design.<sup>43</sup> The SPP Market Monitor provides various examples that it claims demonstrate that SPP's proposal presents gaming opportunities for a fast-start resource to leverage its offer differences in the two runs, depending on the runs in which it has market power, and argues that these opportunities may be more enticing for owners of multiple units.<sup>44</sup>

**c. SPP Answer**

28. SPP asserts that the SPP Market Monitor's proposed approach could cause over-mitigation that would depress LMP and increase make-whole payments.<sup>45</sup> SPP contends that the optimal mitigation approach would be to feed results from the mitigated pricing run into the dispatch run, but that this approach is prohibited by the Commission's directives in the Order on Paper Hearing that the dispatch run should occur before the pricing run and that the dispatch solution should not be affected by the pricing run.<sup>46</sup> SPP provides counterexamples of what it considers unnecessary mitigation, wherein a resource is mitigated in the dispatch run even though its dispatch instructions remain unchanged and it has no ability to manipulate price in the pricing run.<sup>47</sup> SPP argues that pricing uncertainty, differing sets of binding constraints between the two runs, and

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<sup>42</sup> SPP Market Monitor Protest at 5.

<sup>43</sup> *Id.* at 6-10.

<sup>44</sup> *Id.* at 11-13.

<sup>45</sup> *Id.* at 5.

<sup>46</sup> SPP Answer to SPP Market Monitor Protest at 4-5 (citing Order on Paper Hearing, 167 FERC ¶ 61,217 at P 12).

<sup>47</sup> *Id.* at 6-9.

the SPP Market Monitor's Tariff obligation to monitor for economic withholding are collectively sufficient to deter market manipulation.<sup>48</sup>

**d. SPP Market Monitor Answer**

29. The SPP Market Monitor avers that SPP's views of what constitutes market power and over-mitigation are too narrow, and that reducing make-whole payments should not come at the cost of allowing market manipulation. In addition, the SPP Market Monitor argues by way of example that SPP's example actually demonstrates that failing to mitigate in both runs leads to economic withholding rather than over-mitigation because the mitigated resource in the example would be able to impact price by raising its offer in the dispatch run despite not having market power in the pricing run.<sup>49</sup>

30. The SPP Market Monitor disagrees that the factors listed by SPP are collectively sufficient to prevent market manipulation. According to the SPP Market Monitor, pricing uncertainty is insufficient because a market participant can reduce this uncertainty by owning multiple resources in a region. Similarly, the SPP Market Monitor argues that different constraints in the two runs is what allows for market manipulation, particularly when a market participant owns multiple resources. The SPP Market Monitor also asserts that its Tariff obligation to monitor for economic withholding is insufficient because referrals for manipulative behavior are more subjective and less structured than clearly defined Tariff rules, and because monitoring without immediate consequences could allow manipulative behavior to persist at length before a referral resolves the manipulative behavior.<sup>50</sup>

**e. Commission Determination**

31. We find SPP's proposal to mitigate market power only in the pricing run to be just and reasonable. We find that there is insufficient evidence in the record to demonstrate that the instances of economic withholding contemplated by the SPP Market Monitor would occur frequently enough under SPP's proposal to warrant additional mitigation in the dispatch run, particularly in light of the significant computational burden associated with mitigating in both runs. In addition, we agree with SPP that pricing uncertainty and the complexity involved in attempting to exploit different sets of binding constraints between the pricing and dispatch runs should deter most market participants from engaging in manipulative bidding behavior. We note that SPP and the SPP Market Monitor may address any future observed issues regarding inadequate market power

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

<sup>49</sup> SPP Market Monitor Answer at 3-8.

<sup>50</sup> *Id.* at 8-10.

mitigation through the SPP stakeholder process or in an FPA section 205 proceeding at the Commission.

### **3. Commitment Offer Updates**

#### **a. SPP Market Monitor Protest**

32. The SPP Market Monitor states that SPP's proposal uses a resource's most recently submitted commitment offer, rather than its as-committed offer, in the pricing run.<sup>51</sup> The SPP Market Monitor explains that the current SPP Tariff allows all market participants, including fast-start resources, to revise their offers after the commitment decision has been made but before the resource is directed to provide energy.<sup>52</sup> However, the SPP Market Monitor argues that under SPP's proposal, a fast-start resource would have the unique ability to inflate its commitment offer after being committed but prior to being dispatched in order to raise prices for itself and any other units in its owner's portfolio. According to the SPP Market Monitor, this ability represents an uncompetitive advantage because fast-start resources are the only resources that may set price based on their composite offers, i.e., their incremental energy offers plus their commitment offers.<sup>53</sup>

33. The SPP Market Monitor contends that this could happen either prior to or during dispatch, and asserts that the latter scenario is more egregious because the price would be set based on an offer that was inflated after the commitment costs have already been incurred.<sup>54</sup> The SPP Market Monitor contends that setting price with inflated commitment costs that were not evaluated during the commitment process is inconsistent with the Commission's objectives in the Order on Paper Hearing because it will lead to inaccurate price formation and distort investment decisions.<sup>55</sup>

34. The SPP Market Monitor further asserts that a fast-start resource would be able to inflate its composite offer significantly before mitigation is applied because the conduct threshold is based on a percentage above cost-based offers, which are higher for fast-start

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<sup>51</sup> SPP Market Monitor Protest at 15 (citing Proposed SPP Tariff, Attach. AE, § 3.3.1(2)(b)(i)).

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Id.* at 15-16.

<sup>55</sup> *Id.* at 17-18.

resources by definition.<sup>56</sup> The SPP Market Monitor avers that the worst-case scenario for such a fast-start resource is that it is either mitigated or is priced out of the market, and that in either case the resource would still receive a make-whole payment amount no less than it would have been paid had it not revised its commitment offer.<sup>57</sup>

**b. SPP Answer**

35. SPP argues that allowing fast-start resources to update their composite offers after being committed is consistent with SPP's current practice of allowing non-fast-start resources to update their incremental energy offers on an intra-day basis. SPP contends that not reflecting changes in fuel prices in start-up and no-load costs after the commitment decision would be inconsistent with the Commission's price formation objectives in the Order on Paper Hearing.<sup>58</sup>

**c. SPP Market Monitor Answer**

36. The SPP Market Monitor asserts that SPP incorrectly assumes that energy offers and composite offers are analogous because fast-start resources are the only resources that can manipulate differences between the pricing and dispatch runs. The SPP Market Monitor argues that the SPP Tariff currently acknowledges the gaming opportunity created by updating start-up and no-load offers by limiting make-whole payment to as-committed offers.<sup>59</sup> The SPP Market Monitor adds that any benefit of having offers that represent up-to-date start-up and no-load costs is overshadowed by "a known gaming opportunity."<sup>60</sup>

**d. Commission Determination**

37. We find that SPP's proposal to reflect fast-start resources' updated commitment costs in prices is not just and reasonable. We agree with the SPP Market Monitor that SPP's proposal presents a gaming opportunity for fast-start resources because under SPP's proposal a fast-start resource will have the unique ability to hold its energy offer

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<sup>56</sup> *Id.* at 19. SPP's mitigation thresholds are detailed in Attachment AF section 3.2(A) of its Tariff.

<sup>57</sup> SPP Market Monitor Protest at 18-19.

<sup>58</sup> SPP Answer to SPP Market Monitor Protest at 11.

<sup>59</sup> SPP Market Monitor Answer at 10 (citing SPP Tariff, Attach. AE, §§ 8.5.9(3), 8.6.5(3)).

<sup>60</sup> *Id.* at 10-11.

constant while changing its start-up and no-load offers, and therefore, its composite offer. If a fast-start resource exercised this ability, the economic order that determines the quantity awarded to a resource in the dispatch run would remain constant while the economic order of the pricing run would change due to the change in the price-forming composite offer. Because fast-start resources are the only resources that may set price based on their composite offers under SPP's proposal, fast-start resources thus have the unique ability to inflate their commitment offers after being committed but prior to being dispatched in order to raise prices. We find that, on balance, eliminating this potential gaming opportunity outweighs the smaller potential for improved price formation associated with allowing fast-start resources to update their commitment offers after being committed by the market and set price for legitimate reasons in order to recover costs not otherwise recoverable in incremental energy offers. Accordingly, we direct SPP to submit a further compliance filing to provide that, for pricing purposes, fast-start resources' composite offers will be calculated with *as-committed* start-up and no-load offers, regardless of the current offer.

38. In addition, we agree with the SPP Market Monitor that allowing fast-start resources to update their commitment costs after the commitment decision has been made is not analogous to allowing all resources to update their incremental energy offers on an intra-day basis to reflect current costs, as SPP contends. Under SPP's proposal, only fast-start resources are permitted to set price with their composite offers, while the quantities they are awarded depend only on their incremental energy offers used in the dispatch run. Said another way, non-fast-start resources are unable to set price with commitment cost offers that are updated after commitment.

39. We encourage SPP to consider proposing revised make-whole payments or other mechanisms if it experiences instances when fast-start resources that want to update their commitment offers post-commitment are unable to recover their commitment costs.

#### **4. Multi-Configuration Resources**

##### **a. SPP Market Monitor Protest**

40. The SPP Market Monitor states that SPP's proposed definition of a fast-start resource<sup>61</sup> does not include multi-configuration resources<sup>62</sup> that can transition between

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<sup>61</sup> SPP's proposed definition requires a start-up time offer of 10 minutes or less and a minimum runtime offer of 60 minutes or less. Energy storage resources must also have a minimum discharge time offer of 60 minutes or less, while multi-configuration resources must also have a group minimum runtime offer of 60 minutes or less.

<sup>62</sup> Multi-configuration resources are combined cycle resources that can submit offers with different configurations that have distinct physical operating characteristics.

different configurations in 10 minutes or less. The SPP Market Monitor argues that it may be unduly discriminatory to not apply fast-start pricing to multi-configuration resources because their transitions may consist of starting up a unit within 10 minutes.<sup>63</sup>

**b. SPP Answer**

41. SPP states that the SPP Market Monitor's comments are beyond the scope of this proceeding. Further, SPP states that it is not clear that multi-configuration resource transitions are similar to fast-start resource start-ups or that the costs of each are comparable. SPP states that the multi-configuration resource transition process is already extremely complex and time-consuming, and that layering on fast-start pricing logic could impair SPP's multi-configuration resource design.<sup>64</sup>

**c. Commission Determination**

42. We find that SPP's proposal complies with the Order on Paper Hearing because, under SPP's proposed fast-start resource definition, SPP will apply fast-start pricing treatment to multi-configuration resources that meet the fast-start resource requirements (i.e., they can start up in 10 minutes or less and have group minimum run times<sup>65</sup> of 60 minutes or less). We find that the question of whether the transitions of multi-configuration resource should be treated similarly to the start-ups of resources for the purposes of the definition of a fast-start resource is beyond the scope of the instant proceeding because the Order on Paper Hearing did not contain any directives related to multi-configuration resource transitions.

**5. Electric Storage Resources**

**a. SPP Market Monitor Protest**

43. The SPP Market Monitor notes that although SPP's proposed definition of a fast-start resource includes electric storage resources that discharge onto the grid, it does not also specifically include electric storage resources that operate in charging mode. The SPP Market Monitor argues that electric storage resources that can be dispatched to charge in under 10 minutes operate like definitional fast-start resources;

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<sup>63</sup> SPP Market Monitor Protest at 6-7.

<sup>64</sup> SPP Answer to SPP Market Monitor Protest at 11-12.

<sup>65</sup> A group minimum run time for a multi-configuration resource is the minimum length of time a defined group of configurations must run from the time the group is put online to the time the group is shut down. SPP Tariff, Attach. AE, § 1.1 (Definitions G).

therefore, it may be unduly discriminatory to not apply fast-start pricing to charging electric storage resources.<sup>66</sup>

**b. SPP Answer**

44. SPP argues that the SPP Market Monitor's comments are beyond the scope of the instant proceeding. SPP notes that adding commitment costs to offers to charge could force electric storage resources to pay more for charging energy than intended. SPP also questions whether start-up and no-load values should be negative when offers to charge are negative. Further, SPP states that the SPP Market Monitor's comment raises the question of whether demand response resources should similarly be allowed to set a fast-start price when the load is reinstated.<sup>67</sup>

**c. Commission Determination**

45. We find that issues related to electric storage resources operating in charging mode are beyond the scope of the instant proceeding because the Commission did not direct SPP in the Order on Paper Hearing to apply its fast-start pricing practices to electric storage resources operating in charging mode.

**6. Ramp Rate Relaxation**

**a. SPP Market Monitor Protest**

46. The SPP Market Monitor states that a resource that is constrained by ramp rate cannot set price, and notes that SPP does not propose Tariff revisions regarding ramp rate. The SPP Market Monitor argues that under SPP's proposal a fast-start resource that is dispatched at its maximum ramp rate in the upward or downward direction will therefore not be able to set price. The SPP Market Monitor also asserts that a resource whose ramp rate limits it to a dispatch level below its economic minimum operating limit in the pricing run will not be able to set price, and therefore will continue to run at a loss.<sup>68</sup>

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<sup>66</sup> SPP Market Monitor Protest at 27.

<sup>67</sup> SPP Answer to SPP Market Monitor Protest at 12-13.

<sup>68</sup> SPP Market Monitor Protest at 21.



**b. Commission Determination**

47. We find that the issue of ramp rate relaxation is beyond the scope of the instant proceeding because the Order on Paper Hearing did not contain any directives related to ramp rate relaxation.

**7. Short-term Economic Commitment**

**a. Golden Spread Protest**

48. Golden Spread states that SPP currently lacks an automated approach to economically committing and decommitting fast-start resources close to real-time market operations, and argues that under SPP's proposal this will prevent the market engine from fully utilizing fast-start resources to address unforeseen or transient needs in order to reduce production costs. Golden Spread requests that the Commission direct SPP to revise its proposal to include an automated security-constrained unit commitment optimization that is run close to real-time.<sup>69</sup>

49. Golden Spread contends that SPP's proposal to eliminate the screening run without replacing it with another mechanism for economically committing and decommitting fast-start resources after the day-ahead market closes will result in over-supply in real-time because SPP's SCED can only ramp resources down and cannot turn them off. Golden Spread also argues that SPP's proposal will lead to distorted prices in real-time because SPP operators can only make short-term commitments based on reliability needs rather than economic ones.<sup>70</sup> Golden Spread asserts that one potential solution is for SPP to run its current short-term reliability unit commitment process every 15 minutes in order to allow for incremental unit commitments prior to the next real-time dispatch interval.<sup>71</sup> Golden Spread argues that absent such a solution, SPP will continue to over-rely on manual and reliability-based commitments that could affect price formation and transparency as well as exacerbate reliability issues in the future.<sup>72</sup>

**b. SPP Market Monitor Protest**

50. The SPP Market Monitor notes that only committed fast-start resources may set prices, that SPP's current intra-day reliability unit commitment runs only every four

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<sup>69</sup> Golden Spread Protest at 1-2.

<sup>70</sup> *Id.* at 4.

<sup>71</sup> *Id.* at 4-5.

<sup>72</sup> *Id.* at 5.

hours, and that SPP's proposal will require further revisions if the Commission expects fast-start resources to be dispatched and set price to resolve price spikes outside of the commitment process.<sup>73</sup>

**c. SPP Answer to Golden Spread Protest**

51. SPP contends that it has fully complied with the Commission's directives in the Order on Paper Hearing and that Golden Spread's comments are beyond the scope of the instant proceeding. SPP states that it is unaware of a market design in an RTO/ISO that decommits for economic reasons. SPP also asserts that Golden Spread previously raised the same concerns in unrelated proceedings, and that Golden Spread's comments in this proceeding are an attempt to circumvent ongoing SPP stakeholder discussions on commitment practices.<sup>74</sup> SPP contends that the issue of automated economic decommitment is particularly challenging and raises numerous complex questions that require careful stakeholder consideration.<sup>75</sup>

52. SPP maintains that Golden Spread's claim that SPP over-relies on its reliability unit commitment processes is inaccurate because these processes result in a small percentage of commitments.<sup>76</sup> SPP also argues that its commitment process is based on more than operator experience alone and uses both economic and reliability functions despite not being based on production cost.<sup>77</sup> SPP also claims that Golden Spread's suggestion that only fast-start resources should be eligible for short-term economic decommitment may be unduly discriminatory against non-fast-start-resources, and that running SPP's current short-term unit commitment more frequently than every fifteen minutes may yield premature commitment decisions regarding resources that are uneconomic in the immediate future yet may be economic beyond the commit study's horizon.<sup>78</sup>

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<sup>73</sup> SPP Market Monitor Protest at 23-24.

<sup>74</sup> SPP Answer to Golden Spread Protest at 3-4.

<sup>75</sup> *Id.* at 7-9.

<sup>76</sup> *Id.* at 5.

<sup>77</sup> *Id.* at 6.

<sup>78</sup> *Id.* at 9.

**d. Commission Determination**

53. We find that Golden Spread's and the SPP Market Monitor's protests are beyond the scope of the instant proceeding, because the Order on Paper Hearing did not contain any directives related to automated or short-term commitment processes.

**8. Operating Reserves and Reserves Scarcity Pricing**

**a. SPP Market Monitor Protest**

54. The SPP Market Monitor argues that different sets of operating reserves may be cleared in the pricing and dispatch runs, such that the price may be set by a resource that is not producing or unable to provide the next increment of a given product. The SPP Market Monitor contends that this may result in prices that do not reflect the marginal cost of production and that send ambiguous signals to the market.<sup>79</sup> Further, the SPP Market Monitor notes that a scarcity event could be triggered in the pricing run during a shortage of operating reserves whenever a fast-start resource's composite offer exceeds the applicable operating reserves demand curve value, even if there is no physical shortage of reserves in the dispatch run and regardless of whether additional fast-start resource capacity is available in the pricing run. The SPP Market Monitor argues that this could send a non-transparent price signal that ignores available reserve capability from fast-start resources and disincentivizes investment in fast-start resources.<sup>80</sup>

**b. Commission Determination**

55. We find that the SPP Market Monitor's comments are beyond the scope of the instant proceeding because the Order on Paper Hearing did not contain any directives regarding operating reserves. We note that SPP's proposal is consistent with the Commission's directive in Order No. 825 that RTOs/ISOs trigger shortage pricing for any interval in which a shortage of energy or operating reserves is indicated during the pricing of resources for that interval.<sup>81</sup> While we acknowledge that the Commission's directive that SPP perform separate pricing and dispatch runs may result in different solutions when fast-start resources set price, we note the proposed dispatch run will continue to co-optimize energy and operating reserves such that the system remains physically balanced. However, we encourage SPP to consider revising its contingency

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<sup>79</sup> SPP Market Monitor Protest at 25-26.

<sup>80</sup> *Id.* at 20-21.

<sup>81</sup> *Settlement Intervals and Shortage Pricing in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 825, 155 FERC ¶ 61,276, at P 1 (2016).

reserve scarcity factors to more fully utilize available fast-start resource capability in the pricing run, as necessary.

**9. Day-Ahead Commitment Issues**

**a. SPP Market Monitor Protest**

56. The SPP Market Monitor argues that SPP's proposal will lead to divergent day-ahead and real-time prices that undermine the purpose of the day-ahead market. Specifically, the SPP Market Monitor contends that day-ahead composite offers will be amortized over one hour while real-time composite offers will be amortized over the resource's minimum run-time rounded to the nearest five-minute interval. The SPP Market Monitor contends that a fast-start resource with a sub-hourly run time will nonetheless be committed to run for the entire hour in real time under SPP's proposal because the day-ahead market commitment is based on one-hour intervals, even though the pricing run will amortize the resource's commitment costs over its shorter minimum run time.<sup>82</sup>

57. The SPP Market Monitor also contends that SPP's proposal to only apply fast-start pricing to the first hour of a fast-start resource's commitment period may lead to price spikes for fast-start resources that are committed for multiple consecutive hours in the day-ahead market. According to the SPP Market Monitor, this price spike represents an ambiguous market signal.<sup>83</sup>

**b. Commission Determination**

58. We disagree with the SPP Market Monitor that any divergence between day-ahead and real-time prices that results from SPP's proposal will undermine the purpose of SPP's day-ahead market. We find that SPP's proposal is consistent with the requirements of Order No. 825, in which the Commission required RTOs/ISOs to settle energy transactions in real-time markets at the same time interval as the dispatch of energy<sup>84</sup> and did not require RTOs/ISOs to align their day-ahead and real-time market intervals.

59. We also disagree with the SPP Market Monitor that SPP's proposal will result in ambiguous price signals for fast-start resources that are committed for multiple consecutive hours. We find that such price spikes will reveal the interval in which a fast-start resource's commitment costs are actually incurred, and that this is consistent

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<sup>82</sup> SPP Market Monitor Protest at 22-23.

<sup>83</sup> *Id.* at 23.

<sup>84</sup> Order No. 825, 155 FERC ¶ 61,276 at P 53.

with the Commission's objective that prices more accurately reflect the marginal cost of serving load.

**10. Effective Date**

**a. SPP Filing**

60. SPP requests an effective date of December 31, 9998, and requests a Commission order as soon as practicable in order to allow SPP sufficient time to test and implement the associated required software changes. SPP commits to submit a filing with the Commission specifying an effective date prior to implementation.

**b. Commission Determination**

61. We find that SPP has failed to propose an effective date for its proposed Tariff revisions, as required in the Order on Paper Hearing.<sup>85</sup> We find SPP's request to submit a filing with the Commission specifying a precise effective date at a later time is unreasonable because it creates uncertainty for prospective and existing market participants. Accordingly, we direct SPP to submit in its further compliance filing, due within 60 days of the date of this order, a specific proposed effective date. The effective date should reflect SPP's estimate of when development, testing, and implementation of the software system changes will be complete.

The Commission orders:

(A) SPP's compliance filing is hereby accepted, subject to a further compliance filing, as discussed in the body of this order.

(B) SPP is hereby directed to submit a further compliance filing within 60 days of the date of this order, as discussed in the body of this order.

By the Commission.

( S E A L )

Kimberly D. Bose,  
Secretary.

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<sup>85</sup> Order on Paper Hearing, 167 FERC ¶ 61,217 at P 13.