



955 Jefferson Avenue  
Valley Forge Corporate Center  
Norristown, PA 19403-2497

Jacquelyn B. Huges  
Assistant General Counsel  
610.666.8208 Telephone | 610.666.8211 Fax

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Honorable Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426-0001

**Re: *PJM Interconnection, L.L.C.*, Docket No. ER11-2074-000  
Compliance Filing Incorporating Revisions Required by  
the Commission's August 12, 2010 Order in  
*PJM Interconnection, L.L.C.*, Docket No. ER09-1063-003**

Dear Secretary Bose:

In compliance with the Federal Energy Regulatory Commission's ("Commission") Order on Compliance Filing issued on August 12, 2010 in Docket No. ER09-1063-003 ("August Order"), PJM Interconnection, L.L.C. ("PJM") hereby submits revisions to Sections 1.10.8(b), 1.10.8(f), 3.3A.3 and 3.3A.7(a)(v)(3) of Attachment K-Appendix of its Open Access Transmission Tariff ("Tariff") and the parallel provisions of Schedule 1 of the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. ("Operating Agreement"), Sections IV.I.1 and XI.B.10 of Attachment M – Appendix of the Tariff, and Sections 5.11(e) and 6.6(g) of Attachment DD of the Tariff. PJM requests an effective date of November 11, 2010 for the proposed revisions.<sup>1</sup>

## **I. Introduction and Background**

On October 17, 2008, the Commission issued its Final Rule in Docket Nos. RM07-17-000 and AD-07-7-000 ("Order No. 719"),<sup>2</sup> requiring among other things, that independent system operators and regional transmission organizations (collectively, "RTOs") submit a compliance filing to modify and improve the operation of wholesale electric markets, specifically in the substantive areas of demand response, RTO responsiveness, long term power contracting and market monitoring policies to the extent necessary to comply with the mandates and recommendations of the order. To comply with Order No. 719, PJM proposed modifications to its Tariff and Operating

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<sup>1</sup> PJM proposes to make these changes effective the day after this filing because the particular changes at issue in this compliance filing have no practical retrospective impact. PJM clarifies, however, that the change in Section 5.11 of Attachment DD of the Tariff concerning the posting of Base Residual Auction results applies to the posting of the results of the Base Residual Auction that was conducted in May 2010, which will occur after submittal of this filing. That posting will occur either in June 2011, i.e., 13 months after the auction was held, or immediately after the issuance of the Commission's order on this filing, if the Commission grants PJM's request for waiver of the 13-month delay requirement.

<sup>2</sup> *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, III FERC Stats. & Regs., Regs. Preambles ¶ 31,281 (2008), *as amended*, 126 FERC ¶ 61,261, *order on reh'g*, Order No. 719-A, III FERC Stats. & Regs., Regs. Preambles ¶ 31,292, *reh'g denied*, Order No. 719-B, 129 FERC ¶ 61,252 (2009).

Agreement, consistent with the mandates of Order No. 719, on April 29, 2009, and amended on May 1, 2009 (“Initial Compliance Filing”). In its December 18, 2009 Order (“December Order”), the Commission accepted PJM’s Initial Compliance Filing, subject to conditions, effective as of June 29, 2009, but directed PJM to make a compliance filing to address certain issues.<sup>3</sup> On March 18, 2010, PJM submitted a second compliance filing as directed in the December Order (“March Compliance Filing”). The Commission accepted the majority of the proposed revisions, but directed that further revisions be made in a compliance filing within ninety (90) days of the date of the order, i.e. by November 10, 2010, as fully discussed below.<sup>4</sup>

## **II. Stakeholder Review**

In preparation for this compliance filing, PJM made presentations to its stakeholders and solicited their input at meetings of the PJM Markets and Reliability Committee<sup>5</sup> (“MRC”) on September 15, 2010 and October 20, 2010 and the PJM Market Implementation Committee (“MIC”) on September 14, 2010 and October 12, 2010 with respect to PJM’s proposed approach to addressing the compliance requirements addressing market data posting and referrals to the Commission of violations of PJM market rules. PJM also had additional discussions with Monitoring Analytics, LLC (“IMM”), PJM’s independent market monitor, regarding the same. As a result of these discussions, PJM revised its RPM data posting methodology as further discussed below. PJM further advises that no stakeholders, including the IMM, objected to the proposed RPM data posting methodology or the revisions to Section IV.I.1 of Attachment M of the Tariff to specifically list the “traffic ticket” infractions that do not require an IMM referral to the Commission.

## **III. Description of Proposed Revisions**

### **A. Load Reduction – Uneconomic Hours**

The December Order required, among other things, that PJM revise its Tariff and Operating Agreement to reflect the “normal operations review criteria” as posted on PJM’s Web site.<sup>6</sup> In accordance with the Commission’s directive, PJM’s March Compliance Filing contained revisions incorporating the normal operations review criteria used by PJM in determining whether to deny an Economic Load Response Participant’s daily settlement submission. In response to protests concerning a lack of specificity with regard to supporting materials required in a normal operations review, PJM’s May 4<sup>th</sup> Answer reiterated the criteria used by PJM to deny a settlement, and specifically quoted PJM’s March Compliance Filing which provided, in relevant part,

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<sup>3</sup> December 18 Order, 129 FERC ¶ 61,250 at 76.

<sup>4</sup> August Order at 25.

<sup>5</sup> Capitalized terms used and not otherwise defined herein have the meaning set forth in the Tariff, Operating Agreement and the Reliability Assurance Agreement Among Load Serving Entities in the PJM Region (“RAA”).

<sup>6</sup> December Order at P 92.

that: “A settlement will be denied by PJM based on the following criteria: (a) . . . or (c) daily settlement has a significant number of uneconomic hours.”<sup>7</sup> PJM’s May 4th Answer further clarified that “[u]neconomic hours refer to settlement hours in which the Locational Marginal Price (“LMP”) is less than or equal to the generation plus the transmission portion of the end-use customer’s retail rate or price.”<sup>8</sup> The August Order required PJM to revise its Tariff and Operating Agreement to include the clarification for “uneconomic hours” provided by PJM in its May 4<sup>th</sup> Answer.<sup>9</sup>

Accordingly, as directed by the August Order, PJM is revising Section 3.3A.7 of Schedule 1 (“Schedule 1”) of the Operating Agreement, as well as the parallel provisions of Attachment K - Appendix of the Tariff,<sup>10</sup> to clarify the meaning of “uneconomic hours.” Specifically, Section 3.3A.7, in relevant part, is revised as follows:

3) Daily settlement has a significant number of uneconomic hours where the Locational Marginal Price is less than or equal to the generation plus the transmission portion of an end-use customer’s retail rate or price.

## **B. Must-Offer Requirement**

The December Order also required PJM to revise its Tariff to specify the standards that must be applied in determining if a resource is subject to the Reliability Pricing Model (“RPM”) must-offer requirement.<sup>11</sup> In compliance with the Commission’s directive, PJM proposed revisions to Attachment M – Appendix, Section II.C.4 to clarify the circumstances in which a resource would qualify for an exception to the must-offer requirement because it is “reasonably expected to be physically unable to participate in the relevant auction”<sup>12</sup> in its March Compliance Filing. The Commission accepted the revisions to Section II.C.4, but directed PJM to update the Tariff to also reflect the same changes in Section 6.6 of Attachment DD of the Tariff.<sup>13</sup> Accordingly, PJM provides herewith revisions to Section 6.6 of Attachment DD to incorporate the exact same revisions to Section II. C. 4. of Attachment M – Appendix that the Commission accepted in its August Order.

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<sup>7</sup> PJM Interconnection, L.L.C., Answer of PJM Interconnection, L.L.C. to Comments and Protests at 7, Docket Nos. ER09-1063-000, -003 (May 4, 2010) (“May 4<sup>th</sup> Answer”).

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

<sup>9</sup> August Order at P 36.

<sup>10</sup> Schedule 1 of the Operating Agreement and Attachment K-Appendix of the PJM Tariff contain identical provisions.

<sup>11</sup> December Order at PP 180, 181.

<sup>12</sup> Tariff, Attachment M – Appendix, Section II.C.4.

<sup>13</sup> August Order at P 45.

### **C. Market Monitoring Unit Code of Ethics**

In Order No. 719, the Commission required that RTOs incorporate into their tariffs ethics standards, codified in 18 C.F.R. § 35.28(g)(3)(vi), with which market monitoring units and their employees must comply.<sup>14</sup> The Commission determined that the revisions proposed by PJM in its Initial Compliance Filing did not fully address the requirements of 18 C.F.R. § 35.28(g)(3)(vi)(B), (D), (E) and (G), therefore it required that PJM submit additional Tariff revisions consistent therewith.<sup>15</sup> In its March Compliance Filing, PJM proposed additional revisions to Attachment M, Section VI.E of the Tariff as required. The Commission accepted PJM's proposed revisions subject to PJM making a clarifying change to "strike the word 'other' as it appears before the term 'commercial services'" in Section XI.B of Attachment M of the Tariff.<sup>16</sup> For that reason, PJM revised Section XI. B of Attachment M of the Tariff as follows:

Neither the Market Monitoring Unit or its employees shall be compensated, other than by PJM, for any expert witness testimony or ~~other~~ commercial services, either to PJM or to any other party, in connection with legal or regulatory proceeding or commercial transaction relating to PJM or to PJM's markets.

### **D. Posting Market Data**

In the various orders issued in Docket Nos. RM07-17-000, AD-07-7-000 and ER09-1063, the Commission has also directed PJM to make changes to the manner in which it posts data for its energy markets and RPM capacity market, and to specify in its Tariff the rules addressing the same. Specifically, Order No. 719 required that all RTOs release market participants' bid and offer data no later than three months after it has been submitted to the RTO, but gave RTOs the discretion to propose a lag period of four months if the RTO can demonstrate a potential collusion concern.<sup>17</sup> In its December Order, in response to the request of certain intervenors, the Commission mandated that PJM establish a four month "lag period or some other mechanism to delay the release of the data to prevent releases from occurring in the same season as reflected in the data."<sup>18</sup> In compliance therewith, PJM proposed to revise Section 18.17.1 of the PJM Operating Agreement to incorporate a new subsection (e) that established a four month lag in the release of bid and offer data.

PJM also proposed, and received broad stakeholder support, to revise Manual 33, effective as of March 18, 2010, to incorporate a clear policy for posting aggregated

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<sup>14</sup> Order No. 719 at PP 383-387.

<sup>15</sup> December Order at P 189.

<sup>16</sup> August Order at PP 49, 50.

<sup>17</sup> Order No. 719 at PP 398, 421.

<sup>18</sup> December Order at P 201.

market data, based on a bright-line test pursuant to which PJM would only post aggregated market data to the extent that (a) more than three Market Participants' data in a particular category is being aggregated for posting, and (b) the data to be posted is aggregated over a geographic area no smaller than a PJM transmission zone.<sup>19</sup> PJM explained that the two referenced criteria were appropriate because they ensured that the identity of the Market Participant who submitted the bid or offer remains masked and also protected small, localized, constrained regions of the market from potential abuse.<sup>20</sup> PJM further advised that it would "encourage continued discussion on the issue" of whether its "bright line" criteria should be further refined based on a "market concentration" criteria as recommended by the IMM and a small number of stakeholders.<sup>21</sup>

PJM implemented its proposed approach to data posting as of March 18, 2010 and on March 19, 2010, PJM posted aggregated, masked RPM supply curve data in tabular form on its Web site for certain of its Locational Deliverability Areas for the 2007/2008 through 2012/2013 Delivery Years. On March 24, 2010, the IMM filed a Motion to Cease and Desist and For Shortened Answer Period objecting to PJM's posting of the RPM supply curve data.<sup>22</sup> The IMM argued that PJM's data posting methodology didn't sufficiently mask Market Participant data and therefore PJM should be precluded from posting the supply curve data until the Commission addressed PJM's March Compliance Filing.<sup>23</sup> Constellation Energy Commodities Group, Inc., Constellation NewEnergy, Inc. and Constellation Power Source Generation, Inc. filed joint comments on April 8, 2010, averring that PJM's data posting policy didn't mask offers in certain LDAs.<sup>24</sup> To alleviate unnecessary controversy, PJM agreed to refrain from posting the aggregate bid and offer data from its May 2010 Base Residual Auction and to keep the data non-public until November 2010 or until such time as the Commission directed otherwise.<sup>25</sup>

Thereafter, in the August Order, the Commission determined that PJM's posting methodology for energy market bid and offer data, in tabular form with a four month data lag, is compliant with Order No. 719 and the December Order.<sup>26</sup> On the other

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<sup>19</sup> See PJM Manual 33 (Administrative Services for the PJM Interconnection Operating Agreement), Section 3.6 (Market Data Postings) at 22, on PJM's Web site at <http://www.pjm.com/-/media/documents/manuals/m33.ashx>.

<sup>20</sup> March Compliance Filing at 20.

<sup>21</sup> *Id.*

<sup>22</sup> Motion to Cease and Desist and for Shortened Answer Period of the Independent Market Monitor for PJM at 1-2, filed in Docket No. ER09-1063-000, -003 (March 24, 2010).

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

<sup>24</sup> Comments of Constellation Energy Commodities Group, Inc., Constellation NewEnergy, Inc. and Constellation Power Source Generation, Inc., filed in Docket No. ER09-1063-000, -003 (April 8, 2010).

<sup>25</sup> Supplemental Answer of PJM Interconnection, L.L.C. Rendering Moot Motion to Cease and Desist of PJM's Independent Market Monitor at 1-2, filed in Docket No. ER09-1063-000, -003 (April 6, 2010).

<sup>26</sup> August Order at P 75.

hand, it determined that the posting of RPM supply curve data, in tabular form with a four month data lag, was not reasonable “because the use of the tabular format creates the ability to identify suppliers.”<sup>27</sup> However, the Commission concluded that the IMM’s formulaic proposal for masking RPM data pursuant to which “price and MW pairs would correspond to points on the line segments that make up the actual base residual auction curve and are spaced to prevent the calculation of specific slope inflection points (which correspond to actual offers) in the line segments of the supply curve”<sup>28</sup> did sufficiently “ensure that participant-specific information is masked, while still providing information consistent with actual supply, which promotes the market transparency that Order No. 719 requires.”<sup>29</sup>

Consequently, the Commission required that PJM adopt the IMM’s recommended posting methodology<sup>30</sup> and remove the tabular RPM data that PJM had posted on its public Web site on March 19, 2010.<sup>31</sup> The Commission further required that PJM’s posting methodology include a 13 month delay in posting RPM data “to limit the market sensitivity of these data,”<sup>32</sup> or “develop and propose an alternative methodology under section 205 if they believe that such a methodology will provide more accurate data without unmasking the bid data of individual participants.”<sup>33</sup> Finally, the Commission made clear that “given the different methods of posting approved here for the energy and capacity markets, we direct PJM to revise its tariff to describe explicitly the posting methodology for energy and capacity bids and offers, consistent with this order. Specifically, we direct PJM to incorporate into its tariff the market data posting provisions adopted herein within 90 days of the date of this order.”<sup>34</sup>

## 1. Posting Energy Market Data

The Commission accepted PJM’s revisions to Section 18.17.1 of the Operating Agreement in which PJM incorporated its market rules for posting energy market bid and offer data in tabular form with a four month lag.<sup>35</sup> Consistent therewith, and in response to its mandate that PJM explicitly describe in the Tariff the posting methodology for energy data, PJM revised Section 1.10.8 of Schedule 1 of the Operating Agreement and the parallel provision of Attachment K – Appendix of the Tariff, to incorporate the following new provision:

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

<sup>28</sup> *Id.* at P 77, *citing* Comments of the Independent Market Monitor for PJM at 14-16, filed in Docket No. ER09-1063-000, -003 (April 8, 2010).

<sup>29</sup> *Id.*

<sup>30</sup> *Id.* at P 78.

<sup>31</sup> *Id.* at P 56, n. 38.

<sup>32</sup> *Id.* at P 78.

<sup>33</sup> *Id.*

<sup>34</sup> *Id.* at P 79.

<sup>35</sup> *Id.* at P 75.

(f) Consistent with Section 18.17.1 of the PJM Operating Agreement, and notwithstanding anything to the contrary in the Operating Agreement or in the PJM Tariff, to allow the tracking of Market Participants' non-aggregated bids and offers over time as required by FERC Order No. 719, the Office of the Interconnection shall post on its Web site the non-aggregated bid data and Offer Data submitted by Market Participants (for participation in the PJM Interchange Energy Market) approximately four months after the bid or offer was submitted to the Office of the Interconnection.

## 2. Posting RPM Data

Further in compliance with the August Order, PJM removed the tabular RPM data from its Web site on August 17, 2010 and adopted a "formulaic" posting methodology for RPM data consistent with the methodology recommended by the IMM.<sup>36</sup> PJM also initiated discussions of alternative data posting methodologies with stakeholders at the September 15, 2010 and October 20, 2010 MRC meetings and the September 14, 2010 and October 12, 2010 MIC meetings. Stakeholders agreed that the IMM's formulaic methodology for masking capacity bid data was appropriate. However, they also determined that this methodology sufficiently masked their market sensitive data such that no 13 month posting delay was necessary. In fact, they specifically requested that PJM revise its Tariff to incorporate a data posting methodology consistent with that which was recommended by the IMM, but which does not include any data posting delay whatsoever.<sup>37</sup> Accordingly, they directed PJM to seek a waiver of the August Order's 13 month data posting delay requirement.

Based on the foregoing, under guidance of its stakeholders and as directed in the August Order, PJM proposes to revise Section 5.11 of Attachment DD of the Tariff to explicitly describe the data posting methodology for capacity bids, as follows:

e) After conducting the Reliability Pricing Model Auctions, PJM will post the results of each auction as soon thereafter as possible. The posted results shall according to the timeline set forth in the PJM Manuals. include graphical supply curves that are (a) provided for the entire PJM Region, (b) provided for any Locational Deliverability Area for which there are four (4) or more suppliers, and (c) developed using a formulaic approach to smooth the curves using a

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<sup>36</sup> See *Id.* at P 56, footnote 38.

<sup>37</sup> See September 14, 2010 MIC Meeting Minutes at 6-7. (The Committee requested PJM work with Monitoring Analytics to amend the data posting approach to provide more timely data without releasing proprietary data.) On PJM's website at: <http://pjm.com/-/media/committees-groups/committees/mic/20101012/20101012-mic-draft-minutes-20100914.ashx>

statistical technique that fits a smooth curve to the underlying supply curve data while ensuring that the point of intersection between supply and demand curves is at the market clearing price.

Moreover, at the direction of PJM stakeholders, PJM has not incorporated 13 month delay into its data posting methodology. Rather, PJM hereby seeks a waiver of the Commission's 13 month data posting delay requirement for the reasons set forth above, and requests that the Commission grant it the authority to publish the smooth RPM supply curve data for the Base Residual Auction held in May 2010 immediately in conjunction with the issuance of a Commission order approving the requested waiver. Further to this issue, certain stakeholders also asked PJM to request that the Commission issue its order addressing this particular issue as soon as possible to allow the immediate posting of the most recent supply data from the May 2010 RPM Base Residual Auction to facilitate their price forecasting and thereby enable asset commitment decisions and bilateral trading in advance of the May 2011 RPM Base Residual Auction.

#### **E. Commission Referrals**

The final compliance directive addressed herein is the clarification of the Attachment M, Section IV.I exception to the requirement that the IMM refer all market violations to the Commission.<sup>38</sup> In that regard, the Commission's December Order required PJM to update the Tariff to align with 18 C.F.R. § 35.28(g)(3)(iv) regarding protocols for referrals of suspected market violations to the Commission. While the Commission accepted PJM's proposed Tariff revisions related to such referrals,<sup>39</sup> with respect to PJM's Attachment M, Section IV.I exception to the referral requirement it also required PJM to "provide additional guidance in its OATT regarding specific types of 'traffic ticket' behavior that would be subject to correction by PJM without a referral by the MMU to the Commission."<sup>40</sup> Therefore, in the August Order the Commission required "that PJM either add a new provision in its OATT listing the specific existing provisions that qualify for correction by PJM without a referral by the MMU to the Commission, or add a new provision stating that referrals to the Commission must be made in accordance with section IV.I.1 of Attachment M in all instances where the MMU has reason to believe that market violation has occurred, in a compliance filing within 90 days of the date of this order."<sup>41</sup> Further, the Commission stated that if PJM chose to list the specific Tariff provisions that can be excepted from the referral requirement, then

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<sup>38</sup> *Id.* The exception to the IMM referral requirement set forth in Section IV.I of Attachment M of the Tariff states: "The foregoing notwithstanding, a clear, objectively identifiable violation of a PJM Market Rule, where such rule provides for an explicit remedy that has been accepted by the Commission and can be administered by PJM, shall not be subject to the provisions of this section IV.I.1." (emphasis added)

<sup>39</sup> August Order at P 82.

<sup>40</sup> *Id.*

<sup>41</sup> *Id.* at P 84.



PJM must establish that each such “traffic ticket” behavior satisfies the following requirements: the activity in question (i) is expressly set forth in the tariff; (ii) involves objectively identifiable behavior; and (iii) does not subject the actor to sanctions or consequences other than those expressly approved by the Commission and set forth in the tariff, with the right of appeal to the Commission.<sup>42</sup>

In light of this mandate, PJM closely reviewed its Tariff, Operating Agreement and Reliability Assurance Agreement (“RAA”) to identify any “traffic ticket” infractions that satisfy the Commission’s three criteria, and then reviewed the results of that analysis with its stakeholders.

In preparing its list, PJM considered the three criteria set forth above, as well as the guidance the Commission provided earlier this year in its order on a “traffic ticket” list filed by the New York Independent System Operator Inc. in similar circumstances. In that order, in addition to applying essentially the same three criteria as above, the Commission also clarified that the list should not include a “matter of ordinary tariff administration” that is “not a sanction,”<sup>43</sup> such as a developer’s loss of queue position if it fails to meet interconnection process deadlines; or market power mitigation measures that are “not intended to function as ‘punishment’ for a tariff violation,” but instead to serve as a “market design mechanism to ensure competitive offers.”<sup>44</sup>

Accordingly, while the Tariff and other filed agreements contain numerous provisions specifying consequences for a wide variety of actions (or failures to act) by customers or market participants, many of these are best viewed as “matter[s] of ordinary tariff administration,” or that are “not a sanction” or “not intended to function as ‘punishment’ for a tariff violation” and PJM therefore has excluded them from the “traffic ticket” list. Examples of these provisions include unreserved use penalties and similar charges on transmission customers that take more service, or service at different points, than previously arranged pursuant to their service agreements;<sup>45</sup> loss of queue position for interconnection request customers that fail to meet various interconnect process obligations or deadlines;<sup>46</sup> loss of capacity or deliverability rights when customers fail to meet operational standards on which the grant of such rights was premised;<sup>47</sup> loss or forfeiture of revenues by black-start units that fail to honor their black-start service commitments;<sup>48</sup> and failures of market participants to meet their obligations with respect

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<sup>42</sup> *Id.*

<sup>43</sup> New York Independent System Operator Inc., 131 FERC ¶ 61,225, at P 18 (2010) (“NYISO”).

<sup>44</sup> *Id.* at P 23.

<sup>45</sup> See e.g., Tariff, Sections 13.7(c) and 14.5.

<sup>46</sup> See e.g., Tariff, Sections 201, 204.2 and 204.3.

<sup>47</sup> See e.g., Tariff, Sections 230.3.2 and 232.7.2.

<sup>48</sup> See e.g., Tariff, Schedule 6A, § 5.

to providing energy, regulation, or reserves resulting in charges based on the cost of obtaining replacement energy, regulation, or reserves.<sup>49</sup>

The Tariff also includes several compliance charges related to the Reliability Pricing Model.<sup>50</sup> These provisions typically prescribe that if a party that committed generation or demand resources to meet PJM's capacity needs fails to honor its forward commitment (through a failure to timely deliver or successfully test the resource, or through a failure to perform when called upon), it will pay a charge that offsets its associated RPM revenues, plus an additional charge of approximately 20% that serves as an incentive to honor capacity commitments.<sup>51</sup> These compliance charges might arguably meet the three criteria listed above, but the actions or inactions they address are not suggestive, standing alone, of a market violation. Parties can incur these charges simply due to delays in installing a new generator or completing arrangements for a demand response program, or because their generator has forced outage experience that is worse than expected at the time the resource was originally committed. Accordingly, with one exception, PJM has excluded these items from the "traffic ticket" list. The exception, as discussed below, is the RPM provision that assesses a penalty on a resource provider that committed its generator to PJM as capacity, and then takes a maintenance or scheduled outage on that generator during the peak season, when capacity is most needed, without PJM's prior approval, and without arranging replacement capacity.<sup>52</sup> Such conduct in the specified circumstances is willful and inexcusable, and thus the specified penalty rises above mere tariff administration. However, as the proscribed conduct and resultant consequences are clearly and specifically set forth in the Tariff, no referral to the Commission is needed, and so this provision is properly included on the "traffic ticket" list.

Consistent with the three criteria and the Commission's guidance in *NYISO*, PJM also excluded provisions under which PJM "may" impose a sanction or penalty, or which already provide for referrals to the Commission.<sup>53</sup>

Upon conclusion of the review of its agreements and the stakeholder process, PJM ultimately identified five provisions that meet the Commission's criteria and guidance for "traffic ticket" violations. In compliance with the August Order's directive that PJM set forth in this filing how any particular "traffic ticket" infraction meets the three criteria,<sup>54</sup> PJM provides a table as Attachment A hereto that lists each of these "traffic ticket" infractions and provides the supporting justification for each.

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<sup>49</sup> See e.g., Operating Agreement, Schedule 1, Sections 1.10.4(k), 1.10.5(a), 3.2.2(a), 3.2.3A(a).

<sup>50</sup> The Reliability Pricing Model is the set of rules by which resources commit three years in advance to meet the region's capacity needs and receive compensation for those commitments.

<sup>51</sup> See, e.g., Tariff, Attachment DD, Sections 7, 8, 10, 11, and 11A.

<sup>52</sup> *Id.* at Attachment DD, Section 9(b).

<sup>53</sup> See, e.g., Operating Agreement, Schedule 1, Section 3.3A.7(a).

<sup>54</sup> *Id.* at P 83.

Accordingly, consistent with the above, PJM proposes the following revisions to Section IV.I.1 of Attachment M of the Tariff to specify the particular “traffic ticket” infractions that qualify for correction by PJM without referral by the IMM to the Commission, each of which meets the Commission’s three criteria and Commission guidance in *NYISO*:

**I. Corrective Actions**

**1. Required Notice and Referral to Commission of Suspected Market Violations:**

Immediately upon determining that it has identified a significant market problem or a potential Market Violation by a Market Participant or PJM that may require (a) further inquiry by the Market Monitoring Unit, (b) referral for investigation by the Commission and/or (c) action by the Commission, the Market Monitoring Unit shall notify the Commission’s Office of Enforcement (or any successor), either orally or in writing. Nothing in this Section IV.I.1 shall limit the ability of the Market Monitoring Unit to engage in discussions with any such Market Participant as provided in Section IV.J.1.

In addition to the notification requirement above, where the Market Monitoring Unit has reason to believe, based on sufficient credible information, that the behavior of a Market Participant or PJM may require investigation, including but not limited to suspected Market Violations, the Market Monitoring Unit will refer the matter to the Commission’s Office of Enforcement (or any successor) in the manner described below. ~~The foregoing notwithstanding, a clear, objectively identifiable violation of a PJM Market Rule, where such rule provides for an explicit remedy that has been accepted by the Commission and can be administered by PJM, shall not be subject to the provisions of this section IV.I.1.~~

Such a referral shall be in writing, non-public, addressed to the Commission’s Director of the Office of Enforcement, with a copy directed to the Commission’s Director of the Office of Energy Market Regulation and the General Counsel, and should include, but need not be limited to, the following sufficient credible information to warrant further investigation by the Commission:

a. The name(s) of and, if possible, the contact information for, the Market Participants that allegedly took the action(s) that constitute that alleged Market Violation(s);

b. The date(s) or time period during which the alleged Market Violation(s) occurred and whether the alleged wrongful conduct is ongoing;

c. The specific rule, regulation, and/or tariff provision(s) that were allegedly violated or the nature of any inappropriate dispatch that may have occurred;

d. The specific act(s) or conduct that allegedly constituted the Market Violation;

e. The consequences to the market resulting from the act(s) or conduct, including, if known, an estimate of economic impact on the market;

f. If the Market Monitoring Unit believes that the act(s) or conduct constituted a violation of the anti-manipulation rule of 18 C.F.R. § 1c.2, a description of the alleged manipulative effect on market prices, market conditions, or market rules; and

g. Any other information that the Market Monitoring Unit believes is relevant and may be helpful to the Commission.

The referral may be transmitted to the Commission electronically, by fax, by mail or by courier. The Market Monitoring Unit may also provide the Commission with oral notice of the alleged Market Violation in advance of the submission of a written, non-public referral. Following the submission of such a referral, the Market Monitoring Unit will continue to inform the Commission staff of any information relating to the referral that it discovers within the scope of its regular monitoring function, but it shall desist from, and not independently undertake any investigative steps regarding, the alleged Market Violation or referral except at the express direction of the Commission or Commission staff. The Market Monitoring Unit must also respond to requests of the Commission for additional information in connection with the alleged Market Violation that it has referred. The Market Monitoring Unit is not precluded from continuing to monitor for any repeated instances of the activity in question by the

same or other Market Participants, which activity would constitute new Market Violations.

The foregoing notwithstanding, a clear, objectively identifiable violation of the following PJM Market Rules, which provide for an explicit remedy that has been accepted by the Commission and can be administered by PJM, shall not be subject to the provisions of this Section IV.1.1:

a. Default in obligations to the Office of the Interconnection by a Market Participant in violation of Section 1.7.10(a)(v) of Attachment K – Appendix of the PJM Tariff.

b. Default in obligations to the Office of the Interconnection by a Market Participant in violation of Section 1.7.19B(e) of Attachment K – Appendix of the PJM Tariff.

c. Failure of a Capacity Market Seller or Locational UCAP Seller to obtain replacement Unforced Capacity to the extent a Generation Capacity Resource that it committed for a Delivery Year is unavailable due to a planned or maintenance outage that occurs during the Peak Season without approval of the Office of the Interconnection, in violation of Section 9(b) of Attachment DD of the PJM Tariff.

d. Failure of an Electric Distributor to maintain the required underfrequency relays in violation of Schedule 7, Section 2 of the PJM Operating Agreement.

e. Failure to submit data to the Office of the Interconnection in conformance with Schedule 11 (Data Submittals) of the Reliability Assurance Agreement.

Nevertheless, the Market Monitoring Unit retains the right to refer a matter to the Commission's Office of Enforcement (or any successor) in the manner described above for a violation of the referenced PJM Market Rules.

Notwithstanding the foregoing, however, and to be clear with respect to PJM's ability to administer its Tariff, Operating Agreement and RAA consistent with the Commission's prior orders in various dockets, PJM hereby advises that it will continue to perform its administration function and will continue to exercise any and all explicit remedies and apply any and all sanctions and remedies specifically permitted by the

provisions of its Tariff, Operating Agreement and RAA to address the non-performance of Members and Market Participants as well as violations of its market rules, all of which have previously been accepted by the Commission.

#### **F. Correction of Minor Clerical Errors**

PJM also proposes revisions to correct several minor clerical errors in the enclosed sections.

The first such revision is to correct a spelling error in Section 3.3A.3 of Attachment K – Appendix of the Tariff and the parallel provision of Schedule 1 of the Operating Agreement, changing the word “pervious” to “previous” therein.

Second, PJM proposes to correct a grammatical error in Section 1.10.8(b) of Attachment M – Appendix of the Tariff and the parallel provision of Schedule 1 of the Operating Agreement, to add the word “results” to complete the sentence in question so that it will read as follows: “(b) Not later than 4:00 p.m. of the day before each Operating Day, or such earlier deadline as may be specified by the Office of the Interconnection in the PJM Manuals, the Office of the Interconnection shall: (i) post the aggregate Day-ahead Energy Market results; (ii) post the Day-ahead Prices; and (iii) inform the Market Sellers, Market Buyers, and Economic Load Response Participants of their scheduled injections, withdrawals, and demand reductions respectively.”

Finally, PJM proposes to correct a grammatical error in Section XI.B of Attachment M of the Tariff to change the word “or” to “nor” in the eight sentences that currently begin with the following words: “Neither the Market Monitoring Unit or its employees ....” Therefore, if this correction is accepted, the sentences will then read: “Neither the Market Monitoring Unit nor its employees ....”

#### **IV. Conclusion**

The Commission should accept the enclosed Tariff revisions as fully complying with the Commission’s directives in the Commission’s August Order.

## V. Correspondence

The following individuals are designated for inclusion on the official service list in this proceeding and for receipt of any communications regarding this filing:

Jacquelynn B. Hugee  
Assistant General Counsel, Markets  
PJM Interconnection, L.L.C.  
955 Jefferson Avenue  
Norristown, Pennsylvania 19403  
(610) 666-8208  
*hugeej@pjm.com*

Frederick S. Bresler III  
Vice President, Market Operations &  
Demand Resources  
PJM Interconnection, L.L.C.  
955 Jefferson Avenue  
Norristown, Pennsylvania 19403  
(610) 666-8942  
*bresler@pjm.com*

Craig Glazer  
Vice President, Federal Government Policy  
PJM Interconnection, L.L.C.  
1200 G Street, N.W, Suite 600  
Washington, D.C. 20005  
(202) 423-4743  
*glazec@pjm.com*

Jeanine Schleiden  
Counsel  
PJM Interconnection, L.L.C.  
955 Jefferson Avenue  
Norristown, Pennsylvania 19403  
(610) 666-4438  
*schlej@pjm.com*

## VI. Service

PJM has served a copy of this filing on all PJM Members and on all state utility regulatory commissions in the PJM Region by posting this filing electronically, and requests waiver of the requirement to post by mailing paper copies. Waiver of paper service is consistent with Commission's decision to establish electronic service as the default method of service on service lists maintained by the Commission Secretary for Commission proceedings.<sup>55</sup> While Order No. 653 did not amend the posting requirements, application of its rules to initial tariff filings would be consistent with the Commission's "efforts to reduce the use of paper in compliance with the Government Paperwork Elimination Act."<sup>56</sup> Applying amended Rule 385.2010(f) to this filing, PJM will post this filing today to the FERC filings section of its internet site, <http://www.pjm.com/documents/ferc.html>, and send an e-mail to all PJM members and all state utility regulatory commissions in the PJM Region notifying them that the filing is

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<sup>55</sup> See Electronic Notification of Commission Issuances, Order No. 653, 110 FERC ¶ 61,110 (2005).

<sup>56</sup> *Id.* at P 2, *citing* 44 U.S.C. § 3504.

available by following such link.<sup>57</sup> PJM also is serving electronic copies of this filing on all persons listed on the Commission's official service list for these proceedings.

Respectfully submitted,

*/s/ Jacquelynn B. Hugee*

Craig Glazer  
Vice President, Federal Government Policy  
PJM Interconnection, L.L.C.  
1200 G Street, N.W, Suite 600  
Washington, D.C. 20005  
(202) 423-4743  
[glazec@pjm.com](mailto:glazec@pjm.com)

Jacquelynn B. Hugee  
Assistant General Counsel, Markets  
PJM Interconnection, L.L.C.  
955 Jefferson Avenue  
Norristown, Pennsylvania 19403  
(610) 666-8208  
[hugeej@pjm.com](mailto:hugeej@pjm.com)

Jeanine Schleiden  
Counsel  
PJM Interconnection, L.L.C.  
955 Jefferson Avenue  
Norristown, Pennsylvania 19403  
(610) 666-4438  
[schlej@pjm.com](mailto:schlej@pjm.com)

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<sup>57</sup> PJM already maintains, updates, and regularly uses e-mail lists for all Members and affected commissions.



# **ATTACHMENT A**

<p><b>Criteria #1:</b>  <b>“Traffic Ticket” infraction is expressly set forth in Tariff, RAA or Operating Agreement</b></p>	<p><b>Criteria #2:</b>  <b>“Traffic Ticket” infraction involves objectively identifiable behavior</b></p>	<p><b>Criteria #3:</b>  <b>“Traffic Ticket” infraction doesn’t subject actor to sanctions/consequences other than those expressly approved by Commission and set forth in agreement, with right of appeal to Commission</b></p>
<p>OATT Attachment K-Appendix §1.7.10(a)(v) and the parallel provision of Schedule 1 of the Operating Agreement state: “A buyer under a bilateral contract shall guarantee and indemnify the LLC and the Members for the costs of any Spot Market Backup used to meet the bilateral contract seller’s obligation to deliver energy under the bilateral contract and for which payment is not made to the LLC by the seller under the bilateral contract, as determined by the Office of the Interconnection.”</p>	<p>Whether a Market Participant defaults on its obligations to PJM is an objectively identifiable behavior because with respect to market rules, the Market Participant has either met the requirements of the particular agreement in question (paid invoices timely, provided required data, etc.) or not.</p>	<p>OATT Attachment K-Appendix §1.7.10(a)(v) and the parallel provision of Schedule 1 of the Operating Agreement specify the consequence of a Market Participant’s default on obligations owed to PJM as follows: “Upon any default in obligations to the LLC by a Market Participant, the Office of the Interconnection shall (i) not accept any new eSchedules or Enhanced Energy Scheduler reporting by the Market Participant and (ii) terminate all of the Market Participant’s eSchedules and Enhanced Energy Schedules associated with its bilateral contracts previously reported to the Office of the Interconnection for all days where delivery has not yet occurred.”</p>
<p>OATT Attachment K-Appendix §1.7.19B(e) and the parallel provision of Schedule 1 of the Operating Agreement state: “(e) A buyer under a bilateral contract shall guarantee and indemnify the LLC and the Members for the costs of any purchases by the seller under the bilateral contract in the markets for Regulation, Synchronized Reserve, or Day-ahead Scheduling Reserves used to meet the bilateral contract seller’s obligation to deliver Regulation, Synchronized Reserve, or Day-ahead Scheduling Reserves under the bilateral contract and for which payment is not made to by the seller under the bilateral contract, as determined by the Office of the Interconnection. Upon any default in obligations to the LLC by a Market Participant, the Office of the Interconnection shall (i) not accept any new eMarket</p>	<p>Whether a Market Participant defaults on its obligations to PJM is an objectively identifiable behavior because with respect to market rules, the Market Participant has either met the requirements of the particular agreement in question (paid invoices timely, provided required data, etc.) or not.</p>	<p>OATT Attachment K-Appendix §1.7.19B(e) and the parallel provision of Schedule 1 of the Operating Agreement specify the consequence of a Market Participant’s default on obligations owed to PJM as follows: “Upon any default in obligations to the LLC by a Market Participant, the Office of the Interconnection shall (i) not accept any new eMarket reporting by the Market Participant and (ii) terminate all of the Market Participant’s reporting of eMarkets schedules associated with its bilateral contracts previously reported to the Office of the Interconnection for all days where delivery has not yet occurred.”</p>

<p>reporting by the Market Participant and (ii) terminate all of the Market Participant's reporting of eMarkets schedules associated with its bilateral contracts previously reported to the Office of the Interconnection for all days where delivery has not yet occurred. All claims regarding a buyer's default to a seller under a bilateral contract shall be resolved solely between the buyer and the seller. In such circumstances, the seller may instruct the Office of the Interconnection to terminate all of the reported eMarkets schedules associated with bilateral contracts between buyer and seller previously reported to the Office of the Interconnection."</p>		
<p>OATT Attachment DD, § 9(a) requires that "each Capacity Market Seller that commits a Generation Capacity Resource for a Delivery Year, and each Locational UCAP Seller that sells Locational UCAP from a Generation Capacity Resource for a Delivery Year, must ensure that such Generation Capacity Resource has available sufficient Unforced Capacity during the Peak Season to satisfy the megawatt amount committed from such resource as a result of all Sell Offers by such seller based on such resource in any RPM Auctions for such Delivery Year the reduction in any such commitment for such resource to the extent and for the time period of any replacement capacity committed in lieu of such resource, and the increase in any such commitment for such resource to the extent and for the time period that such resource is committed as replacement capacity for any other resource."</p>	<p>The determination of whether a Capacity Market Seller or of the Locational UCAP has obtained Replacement Capacity for planned or maintenance outages not cleared by PJM is objectively identifiable behavior because PJM has objective knowledge of both generator availability and PJM approval of a generator outage which trigger action by PJM. Additionally, Attachment DD §9(c) requires PJM to "adopt and maintain rules and procedures for determining the allowable Peak Season planned and maintenance outages.</p>	<p>Failure to the Capacity Market Seller or of the Locational UCAP to obtain Replacement Capacity for planned or maintenance outages not cleared by PJM in violation of OATT Attachment DD, §9(b) will result in that Seller being charged a Peak Season Maintenance Compliance Penalty Charge described in OATT Attachment DD, § 9(d), which "shall equal the Daily Deficiency Rate (as defined in section 7) multiplied by the unforced value of a positive shortfall calculated for the capacity committed for each day during the Peak Season that such resource is out-of-service on a maintenance outage that is not authorized by the Office of the Interconnection. The shortfall shall equal (i) the annual average of the installed capacity committed for each day of such Delivery Year as a result of all cleared Sell Offers in all RPM Auctions for such Delivery Year relying on such resource, reduction in any such commitment for such resource to the extent and for the time period of any replacement capacity committed in lieu of such resource, and increase in any such commitment for such resource to the extent and for the time period that such resource is committed as replacement capacity for any other resource, minus (ii) the summer net dependable rating minus the amount of capacity out-of-service on unapproved planned or maintenance outage on a</p>

	These rules and procedures guide the determination of violations.	peak season day."
<p>OA Schedule 7, Section 1.2 requires Electric Distributors to maintain required underfrequency relays as follows:</p> <p>"(a) Each Electric Distributor in the MAAC Control Zone shall install or contractually arrange for underfrequency relays to interrupt at least 30 percent of its peak load with 10 percent of the load interrupted at each of three frequency levels: 59.3 Hz, 58.9 Hz and 58.5 Hz. .</p> <p>(b) Each Electric Distributor in the PJM West Region shall install or contractually arrange for underfrequency relays to interrupt at least 25 percent of its peak load with 5 percent of the load interrupted at each of five frequency levels: 59.5 Hz, 59.3 Hz, 59.1 Hz, 58.9 Hz, and 58.7 Hz; provided, however, that each Electric Distributor in the MAIN Control Zone shall install or contractually arrange for underfrequency relays to interrupt at least 30 percent of its peak load with 10 percent of the load interrupted at each of three frequency levels: 59.3 Hz, 59.0 Hz, and 58.7 Hz. . .</p> <p>(c) Each Electric Distributor in the PJM South Region shall install or contractually arrange for underfrequency relays to interrupt at least 30 percent of its peak load with 10 percent of the load interrupted at each of 3 frequency levels: 59.3 Hz, 59.0 Hz, 58.5 Hz. . ."</p>	Failure of an Electric Distributor to install and maintain the required underfrequency relays is objectively identifiable.	<p>OA Schedule 7, Section 2 provides that an Electric Distributor's failure to maintain the required underfrequency relays will pay an underfrequency relay charge equal to <math>D \times R \times 365</math>, where</p> <p>D = the amount, in megawatts, the Electric Distributor is deficient; and</p> <p>R = the daily rate per megawatt, which shall be based on the annual carrying charges for a new combustion turbine generator, installed and connected to the transmission system, which daily deficiency rate as of the Effective Date shall be \$58.400/per kilowatt-year or \$160 per megawatt-day.</p>
RAA Schedule 11 requires each Party to the RAA or other owner of a Capacity Resource to submit data to PJM to utilize in the performance of studies required to determine the Forecast Pool Requirement and Daily Unforced	If a Market Participant fails to submit data pursuant to the requirements of RAA Schedule 11, this can be	RAA Schedule 12 provides that a data submission charge of \$500 will be imposed "for each working day of delay in the submittal of information required to be submitted under this Agreement."

<p>Capacity Obligations under the RAA. Specifically, Schedule 11 states:</p> <p>"To perform the studies required to determine the Forecast Pool Requirement and Daily Unforced Capacity Obligations under this Agreement and to determine compliance with the obligations imposed by this Agreement, each Party and other owner of a Capacity Resource shall submit data to the Office of the Interconnection in conformance with the following minimum requirements:</p> <ol style="list-style-type: none"> <li>1. All data submitted shall satisfy the requirements, as they may change from time to time, of any procedures adopted by the Members Committee.</li> <li>2. Data shall be submitted in an electronic format, or as otherwise specified by the Markets and Reliability Committee and approved by the PJM Board.</li> <li>3. Actual outage data for each month for Generator Forced Outages, Generator Maintenance Outages and Generator Planned Outages shall be submitted so that it is received by such date specified in the PJM Manuals.</li> <li>4. On or before the date specified in the PJM Manuals, planned and maintenance outage data for all Generation Resources and load forecasts (including seasonal and average weekly peaks) shall be submitted.</li> <li>5. On or before the date specified in the PJM Manuals, adjustments to forecasts shall be submitted.</li> </ol>	<p>objectively determined if PJM did not receive the information, did not receive it when due, etc. because PJM has knowledge of both the deadline for submission and date of submission to make an objective determination of delays.</p>	
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<p>6. On or before the date or schedule for updates specified in the PJM Manuals, revisions to capacity and load forecasts (including the plans for satisfying the Daily Unforced Capacity Obligation of the Party) shall be submitted.</p> <p>7. Capacity plans or revisions to previously submitted capacity plans, required under Schedule 6.</p> <p>8. As desired by a Party, revisions to monthly peak load forecasts may be submitted."</p>		
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## **1.10 Scheduling.**

### **1.10.1 General.**

(a) The Office of the Interconnection shall administer scheduling processes to implement a Day-ahead Energy Market and a Real-time Energy Market.

(b) The Day-ahead Energy Market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at Day-ahead Prices and enable Transmission Customers to reserve transmission service with Transmission Congestion Charges and Transmission Loss Charges based on locational differences in Day-ahead Prices. Up-To Congestion transactions submitted in the Day-ahead Energy Market shall not require transmission service and Transmission Customers shall not reserve transmission service for such transactions. Market Participants whose purchases and sales, and Transmission Customers whose transmission uses are scheduled in the Day-ahead Energy Market, shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges and Transmission Loss Charges, at the applicable Day-ahead Prices for the amounts scheduled.

(c) In the Real-time Energy Market, Market Participants that deviate from the amounts of energy purchases or sales, or Transmission Customers that deviate from the transmission uses, scheduled in the Day-ahead Energy Market shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges and Transmission Loss Charges, for the amount of the deviations at the applicable Real-time Prices or price differences, unless otherwise specified by this Schedule.

(d) The following scheduling procedures and principles shall govern the commitment of resources to the Day-ahead Energy Market and the Real-time Energy Market over a period extending from one week to one hour prior to the real-time dispatch. Scheduling encompasses the day-ahead and hourly scheduling process, through which the Office of the Interconnection determines the Day-ahead Energy Market and determines, based on changing forecasts of conditions and actions by Market Participants and system constraints, a plan to serve the hourly energy and reserve requirements of the Internal Market Buyers and the purchase requests of the External Market Buyers in the least costly manner, subject to maintaining the reliability of the PJM Region. Scheduling shall be conducted as specified below, subject to the following condition. If the Office of the Interconnection's forecast for the next seven days projects a likelihood of Emergency conditions, the Office of the Interconnection may commit, for all or part of such seven day period, to the use of generation resources with notification or start-up times greater than one day as necessary in order to alleviate or mitigate such Emergency, in accordance with the Market Sellers' offers for such units for such periods and the specifications in the PJM Manuals.

#### **1.10.1A Day-Ahead Energy Market Scheduling.**

The following actions shall occur not later than 12:00 noon on the day before the Operating Day for which transactions are being scheduled, or such other deadline as may be specified by the

Office of the Interconnection in order to comply with the practical requirements and the economic and efficiency objectives of the scheduling process specified in this Schedule.

(a) Each Market Participant may submit to the Office of the Interconnection specifications of the amount and location of its customer loads and/or energy purchases to be included in the Day-ahead Energy Market for each hour of the next Operating Day, such specifications to comply with the requirements set forth in the PJM Manuals. Each Market Buyer shall inform the Office of the Interconnection of the prices, if any, at which it desires not to include its load in the Day-ahead Energy Market rather than pay the Day-ahead Price.

(b) Each Generating Market Buyer shall submit to the Office of the Interconnection: (i) hourly schedules for resource increments, including hydropower units, self-scheduled by the Market Buyer to meet its Equivalent Load; and (ii) the Dispatch Rate at which each such self-scheduled resource will disconnect or reduce output, or confirmation of the Market Buyer's intent not to reduce output.

(c) All Market Participants shall submit to the Office of the Interconnection schedules for any bilateral transactions involving use of generation or Transmission Facilities as specified below, and shall inform the Office of the Interconnection whether the transaction is to be included in the Day-ahead Energy Market. Any Market Participant that elects to include a bilateral transaction in the Day-ahead Energy Market may specify the price (such price not to exceed the maximum price that may be specified in the PJM Manuals), if any, at which it will be wholly or partially curtailed rather than pay Transmission Congestion Charges. The foregoing price specification shall apply to the price difference between the specified bilateral transaction source and sink points in the day-ahead scheduling process only. Any Market Participant that elects not to include its bilateral transaction in the Day-ahead Energy Market shall inform the Office of the Interconnection if the parties to the transaction are not willing to incur Transmission Congestion Charges in the Real-time Energy Market in order to complete any such scheduled bilateral transaction. Scheduling of bilateral transactions shall be conducted in accordance with the specifications in the PJM Manuals and the following requirements:

i) Internal Market Buyers shall submit schedules for all bilateral purchases for delivery within the PJM Region, whether from generation resources inside or outside the PJM Region;

ii) Market Sellers shall submit schedules for bilateral sales to entities outside the PJM Region from generation within the PJM Region that is not dynamically scheduled to such entities pursuant to Section 1.12; and

iii) In addition to the foregoing schedules for bilateral transactions, Market Participants shall submit confirmations of each scheduled bilateral transaction from each other party to the transaction in addition to the party submitting the schedule, or the adjacent Control Area.

(d) Market Sellers wishing to sell into the Day-ahead Energy Market shall submit offers for the supply of energy (including energy from hydropower units), demand reductions,



Regulation, Operating Reserves or other services for the following Operating Day. Offers shall be submitted to the Office of the Interconnection in the form specified by the Office of the Interconnection and shall contain the information specified in the Office of the Interconnection's Offer Data specification, this Section 1.10.1A(d), Schedule 2 to this Agreement, and the PJM Manuals, as applicable. Market Sellers owning or controlling the output of a Generation Capacity Resource that was committed in an FRR Capacity Plan, self-supplied, offered and cleared in a Base Residual Auction or Incremental Auction, or designated as replacement capacity, as specified in Attachment DD of the PJM Tariff, and that has not been rendered unavailable by a Generator Planned Outage, a Generator Maintenance Outage, or a Generator Forced Outage shall submit offers for the available capacity of such Generation Capacity Resource, including any portion that is self-scheduled by the Generating Market Buyer. The submission of offers for resource increments that have not cleared in a Base Residual Auction or an Incremental Auction, were not committed in an FRR Capacity Plan, and were not designated as replacement capacity under Attachment DD of the PJM Tariff shall be optional, but any such offers must contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Energy offered from generation resources that have not cleared a Base Residual Auction or an Incremental Auction, were not committed in an FRR Capacity Plan, and were not designated as replacement capacity under Attachment DD of the PJM Tariff shall not be supplied from resources that are included in or otherwise committed to supply the Operating Reserves of a Control Area outside the PJM Region. The foregoing offers:

- i) Shall specify the Generation Capacity Resource or Demand Resource and energy or demand reduction amount, respectively, for each hour in the offer period, and the minimum run time for generation resources and minimum down time for Demand Resources;
- ii) Shall specify the amounts and prices for the entire Operating Day for each resource component offered by the Market Seller to the Office of the Interconnection;
- iii) If based on energy from a specific generating unit, may specify start-up and no-load fees equal to the specification of such fees for such unit on file with the Office of the Interconnection, if based on reductions in demand from a Demand Resource may specify shutdown costs;
- iv) Shall set forth any special conditions upon which the Market Seller proposes to supply a resource increment, including any curtailment rate specified in a bilateral contract for the output of the resource, or any cancellation fees;
- v) May include a schedule of offers for prices and operating data contingent on acceptance by the deadline specified in this Schedule, with a second schedule applicable if accepted after the foregoing deadline;
- vi) Shall constitute an offer to submit the resource increment to the Office of the Interconnection for scheduling and dispatch in accordance with the terms of the offer, which offer shall remain open through the Operating Day for which the offer is submitted;

vii) Shall be final as to the price or prices at which the Market Seller proposes to supply energy or other services to the PJM Interchange Energy Market, such price or prices being guaranteed by the Market Seller for the period extending through the end of the following Operating Day; and

viii) Shall not exceed an energy offer price of \$1,000/megawatt-hour.

(e) A Market Seller that wishes to make a resource available to sell Regulation service shall submit an offer for Regulation that shall specify the megawatt of Regulation being offered, which must equal or exceed 0.5 megawatts, the Regulation Zone for which such regulation is offered, the price of the offer in dollars per MWh, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the resource's opportunity costs. The price of the offer shall not exceed \$100 per MWh in the case of Regulation offered for all Regulation Zones. In addition to any market-based offer for Regulation, the Market Seller also shall submit a cost-based offer. A cost-based offer must be in the form specified in the PJM Manuals and consist of the following components as well as any other components specified in the PJM Manuals:

i. The costs (in \$/MW) of the fuel cost increase due to the heat rate increase resulting from operating a unit at lower megawatt output incurred from the provision of Regulation;

ii. The cost increase (in \$/MW) in variable operating and maintenance costs resulting from operating the unit at lower megawatt output incurred from the provision of Regulation; and

iii. An adder of up to \$12.00 per megawatt of Regulation provided.

Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

(f) Each Market Seller owning or controlling the output of a Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative shall submit a forecast of the availability of each such Generation Capacity Resource for the next seven days. A Market Seller (i) may submit a non-binding forecast of the price at which it expects to offer a generation resource increment to the Office of the Interconnection over the next seven days, and (ii) shall submit a binding offer for energy, along with start-up and no-load fees, if any, for the next seven days or part thereof, for any generation resource with minimum notification or start-up requirement greater than 24 hours.

(g) Each offer by a Market Seller of a Generation Capacity Resource shall remain in effect for subsequent Operating Days until superseded or canceled.

(h) The Office of the Interconnection shall post on the PJM Open Access Same-time Information System the total hourly loads scheduled in the Day-ahead Energy Market, as well as,

its estimate of the combined hourly load of the Market Buyers for the next four days, and peak load forecasts for an additional three days.

(i) Except for Economic Load Response Participants, all Market Participants may submit Increment Bids and/or Decrement Bids that apply to the Day-ahead Energy Market only. Such bids must comply with the requirements set forth in the PJM Manuals and must specify amount, location and price, if any, at which the Market Participant desires to purchase or sell energy in the Day-ahead Energy Market. The Office of the Interconnection may require that a market participant shall not submit in excess of 3000 bid/offer segments in the Day-ahead Energy Market, when the Office of the Interconnection determines that such limit is required to avoid or mitigate significant system performance problems related to bid/offer volume. Notice of the need to impose such limit shall be provided prior to 10:00 a.m. EPT on the day that the Day-ahead Energy Market will clear. For purposes of this provision, a bid/offer segment is each pairing of price and megawatt quantity submitted as part of an Increment Bid or Decrement Bid.

(j) A Market Seller that wishes to make a generation resource or Demand Resource available to sell Synchronized Reserve shall submit an offer for Synchronized Reserve that shall specify the megawatts of Synchronized Reserve being offered, which must equal or exceed 0.5 megawatts, the price of the offer in dollars per megawatt hour, and such other information specified by the Office of Interconnection as may be necessary to evaluate the offer and the energy used by the generation resource to provide the Synchronized Reserve and the generation resource's unit specific opportunity costs. The price of the offer shall not exceed the variable operating and maintenance costs for providing Synchronized Reserve plus seven dollars and fifty cents.

(k) An Economic Load Response Participant that wishes to participate in the Day-ahead Energy Market by reducing demand shall submit an offer to reduce demand to the Office of the Interconnection. The offer must equal or exceed 0.1 megawatts, and the offer shall specify: (i) the amount of the offered curtailment in minimum increments of .1 megawatts; (ii) the Day-ahead Locational Marginal Price above which the end-use customer will reduce load; and (iii) at the Economic Load Response Participant's option, start-up costs associated with reducing load, including direct labor and equipment costs, opportunity costs, and/or a minimum of number of contiguous hours for which the load reduction must be committed. Economic Load Response Participants submitting offers to reduce demand in the Day-ahead Energy Market may establish an incremental offer curve, provided that such offer curve shall be limited to ten price pairs (in MWs).

(l) Market Sellers owning or controlling the output of a Demand Resource that was committed in an FRR Capacity Plan, self-supplied or offered and cleared in the Base Residual Auction or one of the Incremental Auctions, or owning or controlling the output of an ILR resource which was certified as specified in Attachment DD of the PJM Tariff, may submit demand reduction bids for the available load reduction capability of the Demand Resource or ILR resource. The submission of demand reduction bids for resource increments that have not cleared in the Base Residual Auction or in one of the Incremental Auctions, or for ILR resources that were not certified, or were not committed in an FRR Capacity Plan, shall be optional, but any such bids must contain the information specified in the PJM Economic Load Response

Program to be included in such bids. A Demand Resource that was committed in an FRR Capacity plan, self-supplied or offered and cleared in a Base Residual Auction or an Incremental Auction may submit a demand reduction bid in the Day-ahead Energy Market as specified in the Economic Load Response Program, provided however, that in the event of an Emergency, PJM shall require Demand Resources and ILR resources to reduce load notwithstanding that the Zonal LMP at the time such Emergency is declared is below the price identified in the demand reduction bid.

(m) Market Sellers that wish to make Day-ahead Scheduling Reserves Resources available to sell Day-ahead Scheduling Reserves shall submit offers, each of which must equal or exceed 0.5 megawatts, in the Day-ahead Scheduling Reserves Market specifying: 1) the price of the offer in dollars per megawatt hour; and 2) such other information specified by the Office of the Interconnection as may be necessary to determine any relevant opportunity costs for the resource(s). The foregoing notwithstanding, to qualify to submit offers pursuant to this section, the Day-ahead Scheduling Reserves Resources shall submit energy offers in the Day-ahead Energy Market including start-up and shut-down costs for generation resource and Demand Resources, respectively, and all generation resources that are capable of providing Day-ahead Scheduling Reserves that a particular resource can provide that service. The MW quantity of Day-Ahead Scheduling Reserves that a particular resource can provide in a given hour will be determined based on the energy Offer Data submitted in the Day-ahead Energy Market, as detailed in the PJM Manuals.

### **1.10.2 Pool-Scheduled Resources.**

Pool-scheduled resources are those resources for which Market Participants submitted offers to sell energy in the Day-ahead Energy Market and offers to reduce demand in the Day-ahead Energy Market, which the Office of the Interconnection scheduled in the Day-ahead Energy Market as well as generators committed by the Office of the Interconnection subsequent to the Day-ahead Energy Market. Such resources shall be committed to provide energy in the real-time dispatch unless the schedules for such units are revised pursuant to Sections 1.10.9 or 1.11. Pool-scheduled resources shall be governed by the following principles and procedures.

(a) Pool-scheduled resources shall be selected by the Office of the Interconnection on the basis of the prices offered for energy and demand reductions and related services, start-up, no-load and cancellation fees, and the specified operating characteristics, offered by Market Sellers to the Office of the Interconnection by the offer deadline specified in Section 1.10.1A.

(b) A resource that is scheduled by a Market Participant to support a bilateral sale, or that is self-scheduled by a Generating Market Buyer, shall not be selected by the Office of the Interconnection as a pool-scheduled resource except in an Emergency.

(c) Market Sellers offering energy from hydropower or other facilities with fuel or environmental limitations may submit data to the Office of the Interconnection that is sufficient to enable the Office of the Interconnection to determine the available operating hours of such facilities.

(d) The Market Seller of a resource selected as a pool-scheduled resource shall receive payments or credits for energy, demand reductions or related services, or for start-up and no-load fees, from the Office of the Interconnection on behalf of the Market Buyers in accordance with Section 3 of this Schedule 1. Alternatively, the Market Seller shall receive, in lieu of start-up and no-load fees, its actual costs incurred, if any, up to a cap of the resource's start-up cost, if the Office of the Interconnection cancels its selection of the resource as a pool-scheduled resource and so notifies the Market Seller before the resource is synchronized.

(e) Market Participants shall make available their pool-scheduled resources to the Office of the Interconnection for coordinated operation to supply the Operating Reserves needs of the applicable Control Zone.

(f) Economic Load Response Participants offering to reduce demand shall specify: (i) the amount of the offered curtailment, which offer must equal or exceed 0.1 megawatts, in minimum increments of .1 megawatts; (ii) the real-time Locational Marginal Price above which the end-use customer will reduce load; and (iii) at the Economic Load Response Participant's option, shut-down costs associated with reducing load, including direct labor and equipment costs, opportunity costs, and/or a minimum number of contiguous hours for which the load reduction must be committed. Economic Load Response Participants submitting offers to reduce demand in the Real-time Energy Market may establish an incremental offer curve, provided that such offer curve shall be limited to ten price pairs (in MWs). Economic Load Response Participants offering to reduce demand shall also indicate the hours that the demand reduction is not available.

### **1.10.3 Self-scheduled Resources.**

Self-scheduled resources shall be governed by the following principles and procedures.

(a) Each Generating Market Buyer shall use all reasonable efforts, consistent with Good Utility Practice, not to self-schedule resources in excess of its Equivalent Load.

(b) The offered prices of resources that are self-scheduled, or otherwise not following the dispatch orders of the Office of the Interconnection, shall not be considered by the Office of the Interconnection in determining Locational Marginal Prices.

(c) Market Participants shall make available their self-scheduled resources to the Office of the Interconnection for coordinated operation to supply the Operating Reserves needs of the applicable Control Zone, by submitting an offer as to such resources.

(d) A Market Participant self-scheduling a resource in the Day-ahead Energy Market that does not deliver the energy in the Real-time Energy Market, shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

### **1.10.4 Capacity Resources.**

(a) A Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative that is selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection. Such a Generation Capacity Resource that does not deliver energy as scheduled shall be deemed to have experienced a Generator Forced Outage to the extent of such energy not delivered. A Market Participant offering such Generation Capacity Resource in the Day-ahead Energy Market shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Energy from a Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative that has not been scheduled in the Day-ahead Energy Market may be sold on a bilateral basis by the Market Seller, may be self-scheduled, or may be offered for dispatch during the Operating Day in accordance with the procedures specified in this Schedule. Such a Generation Capacity Resource that has not been scheduled in the Day-ahead Energy Market and that has been sold on a bilateral basis must be made available upon request to the Office of the Interconnection for scheduling and dispatch during the Operating Day if the

Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable Real-time Price for energy delivered.

(c) A resource that has been self-scheduled shall not receive payments or credits for start-up or no-load fees.

#### **1.10.5 External Resources.**

(a) External Resources may submit offers to the PJM Interchange Energy Market, in accordance with the day-ahead and real-time scheduling processes specified above. An External Resource selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection, and except as specified below shall be compensated on the same basis as other pool-scheduled resources. External Resources that are not capable of dynamic dispatch shall, if selected by the Office of the Interconnection on the basis of the Market Seller's Offer Data, be block loaded on an hourly scheduled basis. Market Sellers shall offer External Resources to the PJM Interchange Energy Market on either a resource-specific or an aggregated resource basis. A Market Participant whose pool-scheduled resource does not deliver the energy scheduled in the Day-ahead Energy Market shall replace such energy not delivered as scheduled in the Day-ahead Energy Market with energy from the PJM Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Offers for External Resources from an aggregation of two or more generating units shall so indicate, and shall specify, in accordance with the Offer Data requirements specified by the Office of the Interconnection: (i) energy prices; (ii) hours of energy availability; (iii) a minimum dispatch level; (iv) a maximum dispatch level; and (v) unless such information has previously been made available to the Office of the Interconnection, sufficient information, as specified in the PJM Manuals, to enable the Office of the Interconnection to model the flow into the PJM Region of any energy from the External Resources scheduled in accordance with

the Offer Data. If a Market Seller submits more than one offer on an aggregated resource basis, the withdrawal of any such offer shall be deemed a withdrawal of all higher priced offers for the same period.

(c) Offers for External Resources on a resource-specific basis shall specify the resource being offered, along with the information specified in the Offer Data as applicable.

#### **1.10.6 External Market Buyers.**

(a) Deliveries to an External Market Buyer not subject to dynamic dispatch by the Office of the Interconnection shall be delivered on a block loaded basis to the load bus or busses at the electrical boundaries of the PJM Region, or in such area with respect to an External Market Buyer's load within such area not served by Network Service, at which the energy is delivered to or for the External Market Buyer. External Market Buyers shall be charged or credited at either the Day-ahead Prices or Real-time Prices, whichever is applicable, for energy at the foregoing load bus or busses.

(b) An External Market Buyer's hourly schedules for energy purchased from the PJM Interchange Energy Market shall conform to the ramping and other applicable requirements of the interconnection agreement between the PJM Region and the Control Area to which, whether as an intermediate or final point of delivery, the purchased energy will initially be delivered.

(c) The Office of the Interconnection shall curtail deliveries to an External Market Buyer if necessary to maintain appropriate reserve levels for a Control Zone as defined in the PJM Manuals, or to avoid shedding load in such Control Zone.

#### **1.10.6A Transmission Loading Relief Customers.**

(a) An entity that desires to elect to pay Transmission Congestion Charges in order to continue its energy schedules during an Operating Day over contract paths outside the PJM Region in the event that PJM initiates Transmission Loading Relief that otherwise would cause PJM to request security coordinators to curtail such Member's energy schedules shall:

(i) enter its election on OASIS by 12:00 p.m. of the day before the Operating Day, in accordance with procedures established by PJM, which election shall be applicable for the entire Operating Day; and

(ii) if PJM initiates Transmission Loading Relief, provide to PJM, at such time and in accordance with procedures established by PJM, the hourly integrated energy schedules that impacted the PJM Region (as indicated from the NERC Interchange Distribution Calculator) during the Transmission Loading Relief.

(b) If an entity has made the election specified in Section (a), then PJM shall not request security coordinators to curtail such entity's energy transactions, except as may be necessary to respond to Emergencies.

(c) In order to make elections under this Section 1.10.6A, an entity must (i) have met the creditworthiness standards established by the Office of the Interconnection or provided a letter of credit or other form of security acceptable to the Office of the Interconnection, and (ii) have executed either the Agreement, a Service Agreement under the PJM Tariff, or other agreement committing to pay all Transmission Congestion Charges incurred under this Section.

#### **1.10.7 Bilateral Transactions.**

Bilateral transactions as to which the parties have notified the Office of the Interconnection by the deadline specified in Section 1.10.1A that they elect not to be included in the Day-ahead Energy Market and that they are not willing to incur Transmission Congestion Charges in the Real-time Energy Market shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions that were not included in the Day-ahead Energy Market and that are willing to incur congestion charges and bilateral transactions that were accepted in the Day-ahead Energy Market shall continue to be implemented during periods of congestion, except as may be necessary to respond to Emergencies.

#### **1.10.8 Office of the Interconnection Responsibilities.**

(a) The Office of the Interconnection shall use its best efforts to determine (i) the least-cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers, including the reliability requirements of the PJM Region, of the Day-ahead Energy Market, and (ii) the least-cost means of satisfying the Operating Reserve and other ancillary service requirements for any portion of the load forecast of the Office of the Interconnection for the Operating Day in excess of that scheduled in the Day-ahead Energy Market. In making these determinations, the Office of the Interconnection shall take into account: (i) the Office of the Interconnection's forecasts of PJM Interchange Energy Market and PJM Region energy requirements, giving due consideration to the energy requirement forecasts and purchase requests submitted by Market Buyers; (ii) the offers submitted by Market Sellers; (iii) the availability of limited energy resources; (iv) the capacity, location, and other relevant characteristics of self-scheduled resources; (v) the objectives of each Control Zone for Operating Reserves, as specified in the PJM Manuals; (vi) the requirements of each Regulation Zone for Regulation and other ancillary services, as specified in the PJM Manuals; (vii) the benefits of avoiding or minimizing transmission constraint control operations, as specified in the PJM Manuals; and (viii) such other factors as the Office of the Interconnection reasonably concludes are relevant to the foregoing determination, including, without limitation, transmission constraints on external coordinated flowgates to the extent provided by section 1.7.6. The Office of the Interconnection shall develop a Day-ahead Energy Market based on the foregoing determination, and shall determine the Day-ahead Prices resulting from such schedule. The Office of the Interconnection shall report the planned schedule for a hydropower resource to the operator of that resource as necessary for plant safety and security, and legal limitations on pond elevations.

(b) Not later than 4:00 p.m. of the day before each Operating Day, or such earlier deadline as may be specified by the Office of the Interconnection in the PJM Manuals, the Office



of the Interconnection shall: (i) post the aggregate Day-ahead Energy Market results; (ii) post the Day-ahead Prices; and (iii) inform the Market Sellers, Market Buyers, and Economic Load Response Participants of their scheduled injections, withdrawals, and demand reductions respectively.

(c) Following posting of the information specified in Section 1.10.8(b), the Office of the Interconnection shall revise its schedule of generation resources to reflect updated projections of load, conditions affecting electric system operations in the PJM Region, the availability of and constraints on limited energy and other resources, transmission constraints, and other relevant factors. The Office of the Interconnection shall post on the PJM Open Access Same-time Information System at times specified in the PJM Manuals a revised forecast of the location and duration of any expected transmission congestion, and of the range of differences in Locational Marginal Prices between major subareas of the PJM Region expected to result from such transmission congestion.

(d) Market Buyers shall pay and Market Sellers shall be paid for the quantities of energy scheduled in the Day-ahead Energy Market at the Day-ahead Prices. Economic Load Response Participants shall be paid for scheduled demand reductions pursuant to Section 3.3A of this Schedule.

(e) If the Office of the Interconnection discovers an error in prices and/or cleared quantities in the Day-ahead Energy Market, Real-time Energy Market, Ancillary Services Markets or Day Ahead Scheduling Reserve Market after it has posted the results for these markets on its Web site, the Office of the Interconnection shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 12:00 p.m. of the second business day following the Operating Day for the Ancillary Services Markets and Real-time Energy Market, and no later than 5:00 p.m. of the second business day following the initial publication of the results for the Day-ahead Scheduling Reserve Market and Day-ahead Energy Market.

After this initial notification, if the Office of the Interconnection determines it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the fifth business day following the Operating Day for the Ancillary Services Markets and Real-time Energy Market, and no later than 5:00 p.m. of the fifth business day following the initial publication of the results in the Day-ahead Scheduling Reserve Market and the Day-ahead Energy Market. Thereafter, the Office of the Interconnection must post on its Web site the corrected results by no later than 5:00 p.m. of the tenth calendar day following the Operating Day for the Ancillary Services Markets, Day-ahead Energy Market and Real-time Energy Market, and no later than 5:00 p.m. of the tenth calendar day following the initial publication of the results in the Day-ahead Scheduling Reserve Market. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced market results are under publicly noticed review by the FERC.

(f) Consistent with Section 18.17.1 of the PJM Operating Agreement, and notwithstanding anything to the contrary in the Operating Agreement or in the PJM Tariff, to allow the tracking of Market Participants' non-aggregated bids and offers over time as required by FERC Order No. 719, the Office of the Interconnection shall post on its Web site the non-aggregated bid data and Offer Data submitted by Market Participants (for participation in the PJM Interchange Energy Market) approximately four months after the bid or offer was submitted to the Office of the Interconnection.

### **1.10.9 Hourly Scheduling.**

(a) Following the initial posting by the Office of the Interconnection of the Locational Marginal Prices resulting from the Day-ahead Energy Market, and subject to the right of the Office of the Interconnection to schedule and dispatch pool-scheduled resources and to direct that schedules be changed in an Emergency, a generation rebidding period shall exist from 4:00 p.m. to 6:00 p.m. on the day before each Operating Day. During the rebidding period, Market Participants may submit revisions to generation Offer Data for any generation resource that was not selected as a pool-scheduled resource in the Day-ahead Energy Market. Adjustments to Day-ahead Energy Markets shall be settled at the applicable Real-time Prices, and shall not affect the obligation to pay or receive payment for the quantities of energy scheduled in the Day-ahead Energy Market at the applicable Day-ahead Prices.

(b) A Market Participant may adjust the schedule of a resource under its dispatch control on an hour-to-hour basis beginning at 10:00 p.m. of the day before each Operating Day, provided that the Office of the Interconnection is notified not later than 60 minutes prior to the hour in which the adjustment is to take effect, as follows:

i) A Generating Market Buyer may self-schedule any of its resource increments, including hydropower resources, not previously designated as self-scheduled and not selected as a pool-scheduled resource in the Day-ahead Energy Market;

ii) A Market Participant may request the scheduling of a non-firm bilateral transaction; or

iii) A Market Participant may request the scheduling of deliveries or receipts of Spot Market Energy; or

iv) A Generating Market Buyer may remove from service a resource increment, including a hydropower resource, that it had previously designated as self-scheduled, provided that the Office of the Interconnection shall have the option to schedule energy from any such resource increment that is a Capacity Resource at the price offered in the scheduling process, with no obligation to pay any start-up fee.

(c) With respect to a pool-scheduled resource that is included in the Day-ahead Energy Market, a Market Seller may not change or otherwise modify its offer to sell energy.

(d) An External Market Buyer may refuse delivery of some or all of the energy it requested to purchase in the Day-ahead Energy Market by notifying the Office of the Interconnection of the adjustment in deliveries not later than 60 minutes prior to the hour in which the adjustment is to take effect, but any such adjustment shall not affect the obligation of the External Market Buyer to pay for energy scheduled on its behalf in the Day-ahead Energy Market at the applicable Day-ahead Prices.

(e) For each hour in the Operating Day, as soon as practicable after the deadlines specified in the foregoing subsection of this Section 1.10, the Office of the Interconnection shall provide External Market Buyers and External Market Sellers and parties to bilateral transactions with any revisions to their schedules for the hour.

### **3.3A Economic Load Response Participants.**

#### **3.3A.1 Compensation.**

Economic Load Response Participants shall be compensated pursuant to Sections 3.3A.4 and/or 3.3A.5 of this Schedule, for demand reductions measured by: 1) comparing actual metered load to an end-use customer's Customer Baseline Load or alternative CBL determined in accordance with the provisions of Section 3.3A.2 or 3.3A.2.01, respectively; or 2) by the MWs produced by on-Site Generators pursuant to the provisions of Section 3.3A.2.02.

#### **3.3A.2 Customer Baseline Load.**

For Economic Load Response Participants that choose to measure demand reductions using an end-use customer's Customer Baseline Load ("CBL"), the CBL shall be determined using the following formula:

(a) The CBL for weekdays shall be the average of the highest 4 out of the 5 most recent highest load weekdays in the 45 calendar day period preceding the relevant load reduction event.

i. For the purposes of calculating the CBL for weekdays, weekdays shall not include:

1. NERC holidays;
2. Weekend days;
3. Event days. For the purposes of this section an event day shall be any weekday that an Economic Load Response Participant submits a settlement pursuant to Section 3.3A.4 or 3.3A.5, provided that Event Days shall exclude such days if the settlement is denied by the relevant LSE or electric distribution company or is disallowed by the Office of the Interconnection;
4. Any weekday where the average daily event period usage is less than 25% of the average event period usage for the five days.

ii. For the purposes of calculating the CBL for weekdays, the 45-day period shall be extended one day for each of the following days that occur within the relevant period, provided that extensions pursuant to this section shall not exceed 15 days (i.e. 60 days total including the relevant 45-day period):

1. NERC holidays;
2. Event day(s), as defined in subsection (a)(i)(3) above, in which the hourly LMP exceeds the annual threshold in at least 4 hours, where the annual

threshold will be effective from June 1 through May 31 and will be determined based on the load weighted average PJM real time LMP for the 99th percentile for the calendar year prior to May 31;

3. Weekdays the relevant end-use customer site responds to the dispatch instructions of the Office of the Interconnection;
4. Any weekday the event period usage is less than 25% of the average event period usage for the five days.

iii. If a 45-day period does not include 5 weekdays that meet the conditions in subsection (a)(i) of this section, provided there are 4 weekdays that meet the conditions in subsection (a)(i) of this section, the CBL shall be based on the average of those 4 weekdays. If there are not 4 eligible weekdays, the CBL shall be determined in accordance with subsection (iv) of this section.

iv. Section 3.3A.2(a)(i)(3) notwithstanding, if a 45-day period does not include 4 weekdays that meet the conditions in subsection (a)(i) of this section, event days will be used as necessary to meet the 4 day requirement to calculate the CBL, provided that any such event days shall be the highest load event days within the relevant 45-day period.

(b) The CBL for weekend days and NERC holidays shall be determined in accordance with the following provisions:

i. The CBL for Saturdays and Sundays/NERC holidays shall be the average of the highest 2 load days out of the 3 most recent Saturdays or Sundays/NERC holidays, respectively, in the 45 calendar day period preceding the relevant load reduction event, provided that the following days shall not be used to calculate a Saturday or Sunday/NERC holiday CBL:

1. Event days. For the purposes of this section an event day shall be any Saturday and Sunday/NERC holiday that an Economic Load Response Participant submits a settlement pursuant to Section 3.3A.4 or 3.3A.5, provided that Event Days shall exclude such days if the settlement is denied by the relevant LSE or electric distribution company or is disallowed by the Office of the Interconnection;
2. Any Saturday or Sunday/NERC holiday where the average daily event period usage is less than 25% of the average event period usage level for the three days;
3. Any Saturday or Sunday/NERC holiday that corresponds to the beginning or end of daylight savings.

ii. For the purposes of calculating the CBL for Saturdays or Sundays/NERC holidays, the 45-day period shall be extended one day for each of the following days that occur

within the relevant period, provided that extensions pursuant to this section shall not exceed 15 days (i.e. 60 days total including the relevant 45 day period):

1. Event day(s), as defined in subsection (b)(i)(1) above, in which the hourly LMP exceeds the annual threshold in at least 4 hours, where the annual threshold will be effective from June 1 through May 31 and will be determined based on the load weighted average PJM real time LMP for the 99th percentile for the calendar year prior to May 31;
2. Saturday or Sundays/NERC holidays where the relevant end-use customer site responds to the dispatch instructions of the Office of the Interconnection.

iii. If a 45-day period does not include 3 Saturdays or 3 Sundays/NERC holidays, respectively, that meet the conditions in subsection (b)(i) of this section, provided there are 2 Saturdays or Sundays/NERC holidays that meet the conditions in subsection (b)(i) of this section, the CBL will be based on the average of those 2 Saturdays or Sundays/NERC holidays. If there are not 2 eligible Saturdays or Sundays/NERC holidays, the CBL shall be determined in accordance with subsection (iv) of this section.

iv. Section 3.3A.2(b)(i)(1) notwithstanding, if a 45-day period does not include 2 Saturdays or Sundays/NERC holidays, respectively, that meet the conditions in subsection (b)(i) of this section, event days will be used as necessary to meet the 2 day requirement to calculate the CBL, provided that any such event days shall be the highest load event days within the relevant 45-day period.

(c) CBLs established pursuant to this section shall represent end-use customers' actual load patterns. If the Office of the Interconnection determines that a CBL or alternative CBL does not accurately represent a customer's actual load patterns, the CBL shall be revised accordingly pursuant to Section 3.3A.2.01. Consistent with this requirement, if an Economic Load Response Participant chooses to measure load reductions using a Customer Baseline Load, the Economic Load Response Participant shall inform the Office of the Interconnection of a change in its operations or the operations of the end-use customer upon whose behalf it is acting that would result in the adjustment of more than half the hours in the affected party's Customer Baseline Load by twenty percent or more for more than twenty days.

### **3.3A.2.01 Alternative Customer Baseline Methodologies.**

(a) During the Economic Load Response Participant registration process pursuant to Section 1.5A.3 of this Schedule, the relevant Economic Load Response Participant, Load Serving Entity, electric distribution company, and/or the Office of the Interconnection ("Interested Parties") may propose an alternative CBL calculation that more accurately reflects the relevant end-use customer's consumption pattern relative to the CBL determined pursuant to Section 3.3A.2. Any proposal made pursuant to this section shall be provided to all other Interested Parties.

(b) The Interested Parties shall have 30 days to agree on a proposal issued pursuant to subsection (a) of this section. The 30-day period shall start the day the proposal is received by all Interested Parties. If all Interested Parties agree on a proposal issued pursuant to this section, that alternative CBL calculation methodology shall be effective consistent with the date of the relevant Economic Load Response Participant registration.

(c) If agreement is not reached pursuant to subsection (b) of this section, the Office of the Interconnection shall determine a CBL methodology within 20 days from the expiration of the 30-day period established by subsection (b). A CBL established by the Office of the Interconnection pursuant to this subsection (c) shall be binding upon all Interested Parties unless the Interested Parties reach agreement on an alternative CBL methodology prior to the expiration of the 20-day period established by this subsection (c).

(d) Operation of this Section 3.3A.2.01 shall not delay Economic Load Response Participant registrations pursuant to Section 1.5A.3, provided that the alternative CBL established pursuant to this section shall be used for all related energy settlements made pursuant to Sections 3.3A.4 and 3.3A.5.

(e) The Office of the Interconnection shall periodically publish alternative CBL methodologies established pursuant to this section in the PJM Manuals.

### **3.3A.2.02 On-Site Generators.**

On-Site Generators used as the basis for Economic Load Response Participant status pursuant to Section 1.5A shall be subject to the following provisions:

i. The On-Site Generator shall be used solely to enable an Economic Load Response Participant to provide demand reductions in response to the Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market;

ii. If subsection (i) does not apply, the amount of energy from an On-Site Generator used to enable an Economic Load Response Participant to provide demand reductions in response to the Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market shall be capable of being quantified in a manner that is acceptable to the Office of the Interconnection.

### **3.3A.3 Weather-Sensitive and Symmetric Additive Adjustment.**

(a) Concurrent with submitting a Economic Load Response Registration Form to the Office of the Interconnection and annually thereafter, the Economic Load Response Participant shall notify the Office of the Interconnection whether it elects to apply the Weather-Sensitive Adjustment (or “WSA”) or Symmetric Additive Adjustment for the summer period (May-October) or the winter period (November-April). The Weather-Sensitive Adjustment either will decrease or increase Customer Baseline Load values. The Weather-Sensitive Adjustment may apply to measure load reductions in both the Real-time Energy Market and Day-ahead Energy Market, except that the simplified analysis for the summer period cannot be used with regard to

the Day-ahead Energy Market. Unless an alternative formula is approved by the Office of the Interconnection and agreed upon by all relevant parties, including any Curtailment Service Provider, Load Serving Entity and end-use customer, the Weather-Sensitive Adjustment and Symmetric Additive Adjustment shall be calculated using the following applicable formula:

**Regression Analysis (available for the summer and winter period.)**

Step 1: Perform a regression analysis in Excel using the slope & intercept functions between the end-use customer's on-peak (8 AM to 8 PM), non-holiday, weekday hourly loads and the temperature-humidity index ("THI") on a seasonal basis for the period the WSA is being applied.

The Office of the Interconnection will post on the Office of the Interconnection website a spreadsheet of the THI values for all relevant weather stations located within the PJM region.

The regression analysis will produce a slope (m), expressing in kW/THI, and an intercept (b), expressed in kW, that describes the sensitivity of the end-use customer's load to weather.

Step 2: Determine the average THI for the on-peak hours for the five days used in the weekday CBL calculation.

Step 3: Determine the average THI for the on-peak hours of the event day.

Step 4: Calculate the WSA based on the following formula:

$$WSA = [(m \times THIEVENT DAY) + b] / [(m \times THICBL DAYS) + b]$$

**Simplified Analysis (available only for the summer period and for the Real-time Energy Market)**

Step 1: Determine that the load is weather sensitive by agreement of the end-use customer, the Curtailment Service Provider, and the Load Serving Entity or by the Office of the Interconnection if there is no agreement. Weather adjustments could be negative or positive.

Step 2: Show that the hourly temperature reading at the nearest airport that provides weather information to the Office of the Interconnection equaled or exceeded 85 degrees Fahrenheit during each hour of the reduction event. The hourly temperature reading of another major airport nearby the end-use customer's location may be used if it can be shown that the temperature at the end-use customer's location correlates more closely.

Step 3: Calculate the average hourly load over two full hours beginning three hours prior to the Load Reduction Event.

Step 4: Calculate the average hourly load for the same hours using the values given by the CBL calculation.

Step 5: Compare the resulting average two hour loads from Steps 3 and 4.



Step 6: Determine if the difference from Step 5 expressed as a percentage is greater than 5 percent. If the difference is greater than 5 percent then the percentage will be the WSA for the reduction event.

Step 7: Submit an Excel spreadsheet to the Office of the Interconnection documenting the weather adjustment.

- The WSA, expressed in percentage terms, shall be applied to each hour of the CBL during the event period in order to establish a weather-adjusted CBL.
- For end-use customers without interval data from the previous summer that select the regression analysis, the WSA shall initially be set at 100 percent. After one month of actual program response, a regression analysis shall be performed and the WSA shall be adjusted in accordance with Steps 1-4 above.
- In no event shall application of the WSA produce a weather-adjusted CBL that exceeds the end-use customer's historical, seasonal, on-peak non-coincident peak load.

### **Symmetric Additive Adjustment**

Step 1: Calculate the average usage over the 3 hour period ending 1 hour prior to the start of event.

Step 2: Calculate the average usage over the 3 hour period in the CBL that corresponds to the 3 hour period described in Step 1.

Step 3: Subtract the results of Step 2 from the results of Step 1 to determine the symmetric additive adjustment (this may be positive or negative).

Step 4: Add the symmetric additive adjustment (i.e. the results of Step 3) to each hour in the CBL that corresponds to each event hour.

(b) Following a Load Reduction Event that is submitted to the Office of the Interconnection for compensation, the Office of the Interconnection shall provide the Notification window(s), if applicable, directly metered data and Customer Baseline Load and Weather-Sensitive Adjustment calculations to the appropriate electric distribution company or Load Serving Entity for optional review. The electric distribution company or Load Serving Entity will have ten business days to provide the Office of the Interconnection with notification of any issues related to the metered data or calculations.

### **3.3A.4 Market Settlements in Real-time Energy Market.**

(a) Economic Load Response Participants participating in the Real-time Energy Market shall be compensated for reducing demand based on the actual kWh relief provided in excess of committed day-ahead load reductions. The Economic Load Response Participant that

curtails or causes the curtailment of demand in real-time will be compensated by the Office of the Interconnection the real-time Locational Market Price less an amount equal to the applicable generation and transmission charges. The applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction.

(b) In cases where the demand reduction is dispatched by the Office of the Interconnection, payment will not be less than the total value of the demand reduction bid less an amount equal to the applicable generation and transmission charges. For the purposes of this section, the applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction, and the total value of a demand reduction bid shall include any submitted start-up costs associated with reducing demand, including direct labor and equipment costs and opportunity costs and any costs associated with a minimum number of contiguous hours for which the demand reduction must be committed.

Any shortfall will be made up through normal, real-time operating reserves. In all cases, the applicable zonal or aggregate (including nodal) Locational Marginal Price is used as appropriate for the individual end-use customer.

(c) An Economic Load Response Participant shall accumulate credits for energy reductions in those hours when the energy delivered to the end-use customer is less than the end-use customer's Customer Baseline Load at the corresponding hourly rate. In the event the end-use customer's hourly energy consumption is greater than the Customer Baseline Load, the Economic Load Response Participant will accumulate debits at the corresponding hourly rate for the amount the end-use customer's hourly energy consumption is greater than the Customer Baseline Load. However, in no event will the Economic Load Response Participant credit be reduced below zero on a daily basis.

(d) Economic Load Response Participants that have Locational Marginal Price based contracts pursuant to which they have agreed to pay their Load Serving Entity for the physical delivery of energy according to the hour value of the real-time Locational Marginal Price as calculated by the Office of the Interconnection, may choose to reduce demand and be compensated for the reduction in the Real-time Energy Market under the following circumstances. The Economic Load Response Participant shall provide the Office of the Interconnection with a strike price for the end-use customer's zonal Locational Marginal Price at which the end-use customer will reduce demand, as well as any start-up costs associated with reducing load, including direct labor and equipment costs and opportunity costs and costs associated with the minimum number of contiguous hours for which the demand reduction must be committed. In cases where the Economic Load Response Participant's zonal Locational Marginal Price reaches the strike price and the demand reduction is dispatched by the Office of the Interconnection, the Office of the Interconnection shall pay such Economic Load Response Participant the difference between the actual savings achieved based on zonal Locational Marginal Price and the total value of the end-use customer's demand reduction bid. For purposes of this provision the total value of the demand reduction bid will be the sum of the strike price times the MW of reduction achieved during each hour of the time period the demand

reduction was dispatched by the Office of the Interconnection or the minimum down-time whichever is greater, plus the submitted start-up costs. Demand reductions hereunder will not be eligible to set real-time Locational Marginal Price.

### **3.3A.5 Market Settlements in the Day-ahead Energy Market.**

(a) Economic Load Response Participants participating in the Day-ahead Energy Market shall be compensated for reducing demand based on the reductions of kWh committed in the Day-ahead Energy Market. An Economic Load Response Participant that submits a demand reduction bid day ahead that is accepted by the Office of the Interconnection shall be paid the day-ahead Locational Marginal Price

less an amount equal to the applicable generation and transmission charges. The applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction.

(b) Total payments to Economic Load Response Participants for accepted day-ahead demand reduction bids will not be less than the total value of the demand reduction bid less an amount equal to the applicable generation and transmission charges. For the purposes of this section, the applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction, and the total value of a demand reduction bid shall include any submitted start-up costs associated with reducing load, including direct labor and equipment costs and opportunity costs and any costs associated with a minimum number of contiguous hours for which the load reduction must be committed. Any shortfall will be made up through normal, day-ahead operating reserves. In all cases, the applicable zonal or aggregate (including nodal) Locational Marginal Price is used as appropriate for the individual end-use customer.

(c) Economic Load Response Participants that have demand reductions committed in the Day-ahead Energy Market that deviate from the day-ahead schedule in real time shall be charged or credited for such variance at the real time LMP plus or minus an amount equal to the applicable balancing operating reserve charge. Load Serving Entities that otherwise would have load that was reduced shall receive any associated operating reserve credit plus, if the real-time Locational Marginal Price is higher than the day-ahead Locational Marginal Price during the shortfall, the difference between the day-ahead and the real-time Locational Marginal Price times the shortfall.

(d) Economic Load Response Participants that have real-time Locational Marginal Price-based contracts may not participate in the Day-ahead Energy Market.

### **3.3A.6 Prohibited Economic Load Response Participant Market Settlements.**

(a) Settlements pursuant to Sections 3.3A.4 and 3.3A.5 shall be limited to demand reductions executed in response to the Locational Marginal Price in the Real-time Energy Market and/or the Day-ahead Energy Market.

(b) Demand reductions that do not meet the requirements of Section 3.3A.6(a) shall not be eligible for settlement pursuant to Sections 3.3A.4 and 3.3A.5. Examples of settlements prohibited pursuant to this Section 3.3A.6(b) include, but are not limited to, the following:

i. Settlements based on variable demand where the timing of the demand reduction supporting the settlement did not change in direct response to Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market;

ii. Consecutive daily settlements that are the result of a change in normal demand patterns that are submitted to maintain a CBL that no longer reflects the relevant end-use customer's demand;

iii. Settlements based on On-Site Generator data if the On Site Generation is not supporting demand reductions executed in response to the Locational Marginal Price in the Real-time Energy Market and/or the Day-ahead Energy Market;

iv. Settlements based on demand reductions that are the result of operational changes between multiple end-use customer sites in the PJM footprint, provided that, the foregoing notwithstanding, settlements based on such demand reduction shall be allowed if the demand reduction alleviates congestion.

(c) The Office of the Interconnection shall disallow settlements for demand reductions that do not meet the requirements of Section 3.3A.6(a). If the Economic Load Response Participant continues to submit settlements for demand reductions that do not meet the requirements of Section 3.3A.6(a), then the Office of the Interconnection shall suspend the Economic Load Response Participant's PJM Interchange Energy Market activity and refer the matter to the FERC Office of Enforcement.

### **3.3A.7 Economic Load Response Participant Review Process.**

(a) The Office of the Interconnection shall review the participation of an Economic Load Response Participant in the PJM Interchange Energy Market under the following circumstances:

i. An Economic Load Response Participant's registrations submitted pursuant to Section 1.5A.3 are disputed more than 10% of the time by any relevant electric distribution company(ies) or Load Serving Entity(ies).

ii. An Economic Load Response Participant's settlements pursuant to Sections 3.3A.4 and 3.3A.5 are disputed more than 10% of the time by any relevant electric distribution company(ies) or Load Serving Entity(ies).

iii. An Economic Load Response Participant's settlements pursuant to Sections 3.3A.4 and 3.3A.5 are denied by the Office of the Interconnection more than 10% of the time.

iv. An Economic Load Response Participant's registration will be reviewed when settlements are frequently submitted. PJM will notify the Participant when their registration is under review. While the Participant's registration is under review by PJM, the Participant may continue economic load reductions but all settlements will be denied by PJM until the registration review is resolved pursuant to subsection (i) or (ii) below. PJM will require the Participant to provide information within 30 days to support that the settlements were submitted for load reduction activity done in response to price and not submitted based on the End-Use Customer's normal operations.

i) If the Participant is unable to provide adequate supporting information to substantiate the load reductions submitted for settlement, PJM will terminate the registration and may refer the Participant to either the Market Monitoring Unit or the Federal Energy Regulatory Commission for further investigation.

ii) If the Participant does provide adequate supporting information, the settlements denied by PJM will be resubmitted by the Participant for review according to existing PJM market rules. Further, PJM may introduce an alternative Customer Baseline Load if the existing Customer Baseline Load does not adequately reflect what the customer load would have been absent a load reduction.

v. An Economic Load Response Participant's daily settlement will be denied by PJM based on the following criteria:

1) Submission of settlement for self schedule energy in the Real-time Energy Market where only some of the self scheduled hours have been included in the daily settlement submission; or

2) Daily settlement with an estimated value less than Five U.S. Dollars (\$5.00); or

3) Daily settlement has a significant number of uneconomic hours where the Locational Marginal Price is less than or equal to the generation plus the transmission portion of an end-use customer's retail rate or price.

vi. The electric distribution company and the Load Serving Entity may only deny settlements during the normal settlement review process for inaccurate data including, but not limited to: meter data, line loss factor, Customer Baseline Load calculation, retail rate, interval meter owner and a known recurring End-Use Customer outage or holiday.

(b) The Office of the Interconnection shall have thirty days to conduct a review pursuant to this Section 3.3A.7. The Office of the Interconnection may refer the matter to the PJM MMU and/or the FERC Office of Enforcement if the review indicates the relevant Economic Load Response Participant and/or relevant electric distribution company or LSE is engaging in activity that is inconsistent with the PJM Interchange Energy Market rules governing Economic Load Response Participants.

**ATTACHMENT M**  
**PJM MARKET MONITORING PLAN**

References to section numbers in this Attachment M refer to sections of this Attachment M, unless otherwise specified.

**I. OBJECTIVES**

The objectives of this PJM Market Monitoring Plan are to maintain an independent Market Monitoring Unit that will objectively monitor, investigate, evaluate and report on the PJM Markets, including, but not limited to, structural, design or operational flaws in the PJM Markets or the exercise of market power or manipulation in the PJM Markets. The Market Monitoring Unit shall have responsibility for implementing the Plan. In the event of any conflict between a provision in the Plan and a provision of the PJM Market Rules, the provision of the Plan shall control.

**II. DEFINITIONS**

Unless the context otherwise requires, for purposes of this Plan, capitalized terms shall have the meanings given below or in Section I of the PJM Tariff.

(a) **“Authorized Government Agency”** means a regulatory body or government agency, with jurisdiction over PJM, the PJM Market, or any entity doing business in the PJM Market, including, but not limited to, the Commission, State Commissions, and state and federal attorneys general.

(b) **“Commission”** means the Federal Energy Regulatory Commission.

(c) **“Corrective Action”** means an action set forth in section IV.I of this Plan.

(d) **“FERC Market Rules”** mean the market behavior rules and the prohibition against electric energy market manipulation codified by the Commission in its Rules and Regulations at 18 CFR §§ 1c.2 and 35.37, respectively; the Commission-approved PJM Market Rules and any related proscriptions or any successor rules that the Commission from time to time may issue, approve or otherwise establish.

(e) **“Market Monitor”** means the head of the Market Monitoring Unit.

(f) **“Market Monitoring Unit”** or **“MMU”** means the organization that is responsible for implementing this Plan, including the Market Monitor.

(g) **“Market Monitoring Unit Advisory Committee”** or **“MMU Advisory Committee”** means the committee established under Section III.H.

(h) **“Market Participant”** means an entity that generates, transmits, distributes, purchases, or sells electricity, ancillary services, or any other product or service provided under

the PJM Tariff or Operating Agreement within, into, out of, or through the PJM Region. “Market Participant” shall not include an Authorized Government Agency that consumes energy for its own use but does not purchase or sell energy at wholesale.

(h-1) **“Market Violation”** means a tariff violation, violation of a Commission-approved order, rule or regulation, market manipulation, or inappropriate dispatch that creates substantial concerns regarding unnecessary market inefficiencies, as defined in 18 C.F.R. § 35.28(b)(8).

(i) **“OPSI Advisory Committee”** means the committee established under Section III.G.

(j) **“PJM”** means PJM Interconnection, L.L.C., including the Office of the Interconnection as referenced in the PJM Operating Agreement.

(k) **“PJM Board”** means the Board of Managers of PJM or its designated representative, exclusive of any members of PJM Management.

(l) **“PJM Entities”** mean PJM, including the Market Monitoring Unit, the PJM Board, and PJM’s officers, employees, representatives, advisors, contractors, and consultants.

(m) **“PJM Liaison”** means the liaison established under Section III.I.

(n) **“PJM Management”** means the officers, executives, supervisors and employee managers of PJM.

(o) **“PJM Manuals”** mean those documents, including business rules, produced by PJM that describe detailed PJM operating and accounting procedures that are made publicly available in hard copy and on the Internet.

(p) **“PJM Markets”** mean the PJM Interchange Energy and Capacity Markets, including the RPM auctions, together with all bilateral or other wholesale electric power and energy transactions, capacity transactions, ancillary services transactions (including black start service), transmission transactions and any other market operated under the PJM Tariff or Operating Agreement within the PJM Region.

(q) **“PJM Market Rules”** mean the rules, standards, procedures, and practices of the PJM Markets set forth in the PJM Tariff, the PJM Operating Agreement, the PJM Reliability Assurance Agreement, the PJM Consolidated Transmission Owners Agreement, the PJM Manuals, the PJM Regional Practices Document, the PJM-Midwest Independent Transmission System Operator Joint Operating Agreement or any other document setting forth market rules.

(r) **“PJM Operating Agreement”** means the Amended and Restated Operating Agreement of PJM on file with the Commission.

(s) **“PJM Regional Practices Document”** means the document of that title that compiles and describes the practices in the PJM Markets and that is made available in hard copy and on the Internet.

(t) **“PJM Reliability Assurance Agreement”** means the Reliability Assurance Agreement among Load Serving Entities in the PJM Region on file with the Commission.

(u) **“PJM Tariff”** means the Open Access Transmission Tariff of PJM on file with the Commission.

(v) **“PJM Transmission Owners Agreement”** means the PJM Consolidated Transmission Owners Agreement on file with the Commission.

(w) **“Plan”** means the PJM market monitoring plan set forth in this Attachment M.

(x) **“State”** means the District of Columbia and any state or commonwealth in the PJM Region.

(y) **“State Commission”** means any state regulatory agency having jurisdiction over retail electricity sales in any State in the PJM Region.

### **III. MARKET MONITORING UNIT**

**A. Establishment:** PJM shall establish or retain a Market Monitoring Unit to perform the functions set forth in this Plan.

**B. Composition:** The Market Monitoring Unit shall be comprised of personnel having the experience and qualifications necessary to implement this Plan. In carrying out its responsibilities, the Market Monitoring Unit may retain such consultants, attorneys and experts as it deems necessary.

**C. Independence:** The Market Monitoring Unit shall be independent from, and not subject to, the direction or supervision of any person or entity, with the exception of the PJM Board as specified in Section III.D, and the Commission. No person or entity shall have the right to preview, screen, alter, delete, or otherwise exercise editorial control over or delay Market Monitoring Unit actions or investigations or the findings, conclusions, and recommendations developed by the Market Monitoring Unit that fall within the scope of market monitoring responsibilities contained in this Plan. Nothing in this section shall be interpreted to exempt the Market Monitoring Unit from any applicable provision of state or federal law.

**D. Role of PJM Board:**

1. The PJM Board shall have the authority and responsibility:

a. To review the budget of the Market Monitoring Unit, consistent with the budget processes and requirements set forth in Section III.E.



b. To propose to terminate, retain by contract renewal or replace the Market Monitoring Unit, consistent with the requirements of Section III.F.

2. The PJM Board and the Market Monitor shall meet and confer from time to time on matters relevant to the discharge of the PJM Board's and the Market Monitoring Unit's duties under this Plan.

3. Other than the matters set forth in Sections III.D.1 and D.2, the PJM Board shall have no responsibility for, or authority over, the Market Monitoring Unit.

**E. Budget:**

1. **Preparation:** The Market Monitor shall prepare a budget each year of its expenses on an accrual basis in accordance with generally accepted accounting principles that is sufficient to cover the anticipated actual costs to perform the services under this Plan, including, but not limited to, salary and benefits, rent and utilities, interest, depreciation and other operating expenses.

2. **Review:** The Market Monitor shall, not later than September 15, submit a draft budget to the Finance Committee, OPSI Advisory Committee, and PJM Board for review and comment. The draft budget shall include total labor compensation, non-employee labor expense, current full-time employee and contractor head count, depreciation expense, interest expense, technology expense, other expense and capital spending, including a level of supporting detail consistent with that provided by PJM in its annual budget review to the Finance Committee. The draft budget shall also be made available for inspection by the PJM members. The Finance Committee, OPSI Advisory Committee, and PJM Board shall have until October 15 to request changes in the budget. The Market Monitor shall consider those requests and, if they are not accepted by the Market Monitor, it shall provide, in writing, to the foregoing and to PJM members, an explanation of the reasons they are not acceptable. If, after discussing requested changes with such entities, there is no remaining dispute over such requested changes, the mutually agreeable budget shall go into effect on January 1 of the subsequent year.

3. **Commission Action:** If despite the foregoing process, there remains a dispute regarding the budget, PJM shall, not later than November 1, file the Market Monitor's proposed budget with the Commission for resolution of the dispute. PJM shall accompany such filing with an explanation of the nature of the dispute and any position of the PJM Board on such dispute. Any interested person may also file comments on such dispute. The fact that PJM is submitting the dispute for Commission review shall not be deemed to provide the views of the PJM Board any special weight, nor subject them to any special burden of proof. If the Commission has not taken action by December 31, the Market Monitor's proposed budget, filed by PJM, shall take effect, subject to any subsequent Commission order.

4. **Intra-year Amendments to the Budget:** If the Market Monitor requires an intra-year amendment to the budget to perform its functions under the Plan, it shall provide the proposed amendment, the reasons for the proposed amendment and reasonable supporting

detail to the Finance Committee, OPSI Advisory Committee and the PJM Board for review and comment, and if any dispute regarding such proposed amendment remains 30 days thereafter, PJM shall file the proposed budget amendment with the Commission for resolution of the dispute. The proposed budget amendment and supporting explanation shall also be made available for inspection by the PJM members.

5. **Rates:** The Market Monitor's approved budget shall be collected pursuant to Schedule 9-MMU of the PJM Tariff.

**F. Term and Termination:**

1. **Term:** Upon the effective date of this revised Attachment M, there shall be a contract between PJM and the Market Monitoring Unit that has an initial term of six (6) years. Upon the expiration of that initial six (6) year term, the contract may be renewed for subsequent term(s) of three (3) years if both parties agree. If the PJM Board does not agree to renew the contract at the end of its term, it may propose to terminate the contract pursuant to the standards and processes set forth below.

2. **Standards for Proposed Termination:**

a. **Termination During Contract Term.** During the term of any contract with the Market Monitoring Unit, the PJM Board may propose to terminate the contract as follows:

(1) During the first three (3) years following the effective date of this revised Attachment M, the PJM Board may propose to terminate the contract with the Market Monitoring Unit upon a determination of willful misconduct or gross negligence by the Market Monitoring Unit.

(2) Following the expiration of this initial three (3) year period, the PJM Board may, during the term of any contract with the Market Monitoring Unit (or any successor Market Monitoring Unit), propose to terminate the contract with the Market Monitoring Unit upon a determination that the Market Monitoring Unit has not adequately performed its functions set forth in this Plan.

b. **Termination at End of Contract Term.** At the end of the term of any contract with the Market Monitoring Unit, the PJM Board may propose to terminate the contract with the Market Monitoring Unit (or any successor Market Monitoring Unit) (1) upon a determination that the Market Monitoring Unit has not adequately performed the functions set forth in this Plan, or (2) pursuant to an open, nondiscriminatory and transparent request for proposals.

3. **Process for Proposed Termination and Replacement:**

a. Notice. If the PJM Board proposes to terminate the contract with the Market Monitoring Unit pursuant to the standards set forth in Section III.F.2, it shall provide one hundred twenty (120) days prior notice to the Market Monitoring Unit, the OPSI Advisory Committee, MMU Advisory Committee and the PJM members.

b. Contents of Notice. The notice shall include the following information:

(1) If the PJM Board proposes to terminate the contract with the Market Monitoring Unit based on willful misconduct or gross negligence, it shall set forth in detail the conduct that supports such determination and shall propose an open and transparent process (such as a request for proposals) for selecting a new Market Monitoring Unit.

(2) If the PJM Board proposes to terminate the contract with the Market Monitoring Unit because it has not adequately performed its functions under this Plan, it shall set forth in detail the performance deficiencies that support that determination and shall propose an open and transparent process (such as a request for proposals) for selecting a new Market Monitoring Unit.

(3) If the PJM Board proposes to conduct a request for proposals to determine whether to replace the Market Monitoring Unit at the end of a contract term, it shall propose an open, nondiscriminatory and transparent request for proposals and shall allow the existing Market Monitoring Unit to submit a bid or proposal in that process. Any such notice shall set forth in detail the criteria applicable to such request for proposals. Such criteria shall be subject to comment as provided in Section III.F.3.c and subject to approval by the Commission.

c. Comments on the Notice. Within forty-five (45) days of any such notice, the Market Monitoring Unit, the OPSI Advisory Committee, MMU Advisory Committee, any PJM member or any stakeholder may provide advice or comment to the PJM Board regarding the proposed termination and/or the proposed process for selecting a new Market Monitoring Unit. The PJM Board shall take such advice or comment into account in reaching a final determination as to whether to propose to terminate the contract with the Market Monitoring Unit and, if so, the process for selecting a new Market Monitoring Unit.

d. FERC Filing. Upon the expiration of the one hundred twenty (120) day prior notice period, the PJM Board may, after considering the advice and comment provided pursuant to Section III.F.3.c, propose in a filing to FERC that the contract with the Market Monitoring Unit be terminated. Any such proposal shall include a detailed explanation of the reasons therefor, including an explanation of why the standards set forth in Section III.F.2 have been satisfied, and an open, nondiscriminatory and transparent process for selecting a new Market Monitoring Unit. The Market Monitoring Unit, OPSI Advisory Committee and any interested stakeholder may submit to FERC such comments, protests or other documents and advice as appropriate on such filing.

e. Termination. The contract with the Market Monitoring Unit shall not be terminated until (1) FERC has reviewed a termination proposal by the PJM Board and any comments or protests submitted by interested parties thereon (including the OPSI Advisory Committee), (2) FERC has made a finding that the PJM Board has demonstrated that termination is justified pursuant to the standards set forth in Section III.F.2 above, (3) FERC has approved a process for selecting a new Market Monitoring Unit, and (4) a new Market Monitoring Unit has been selected pursuant to such FERC-approved process.

**G. OPSI Advisory Committee:** There shall be an OPSI Advisory Committee comprised of five (5) representatives appointed by the Organization of PJM States, Inc. The OPSI Advisory Committee shall meet with the Market Monitoring Unit on a regular basis and as otherwise necessary to receive and discuss information relevant to this Plan. In addition to the specific responsibilities regarding budget and termination set forth in Sections III.E and III.F, the OPSI Advisory Committee may provide advice to the Commission, Market Monitor, the PJM Board, stakeholder committees, and stakeholder working groups regarding any matter concerning the Market Monitor, Market Monitoring Unit or Market Monitoring Plan. Any formal advice shall be in writing and, subject to confidentiality provisions, shall be made publicly available.

**H. Market Monitoring Unit Advisory Committee:** There shall be an MMU Advisory Committee, chaired by the Market Monitor, that is open to all stakeholders and representatives of Authorized Government Agencies. The MMU Advisory Committee shall act as a liaison between stakeholders and the MMU and shall provide advice from time to time on matters relevant to the MMU's responsibilities under this Plan. The MMU Advisory Committee shall have no authority to direct, supervise, review, or otherwise interfere with the functions of the MMU under this Plan, nor any authority to terminate or propose to terminate the Market Monitor.

**I. PJM Liaison:** PJM may appoint an employee to act as liaison with the Market Monitoring Unit. The function of the liaison will be to facilitate communications between PJM employees and the Market Monitoring Unit, as defined in Section V.E.

#### **IV. MARKET MONITORING UNIT FUNCTIONS AND RESPONSIBILITIES**

**A. General:** The Market Monitoring Unit shall objectively monitor the competitiveness of PJM Markets, investigate violations of FERC or PJM Market Rules, recommend changes to PJM Market Rules, prepare reports for the Authorized Government Agencies and take such other actions as are specified in this Plan.

**B. Monitored Activities:** The Market Monitoring Unit shall be responsible for monitoring the following:

1. Compliance with the PJM Market Rules.
2. Actual or potential design flaws in the PJM Market Rules.
3. Structural problems in the PJM Markets that may inhibit a robust and competitive market.
4. The potential for a Market Participant to exercise market power or violate any of the PJM or FERC Market Rules or the actual exercise of market power or violation of the PJM or FERC Market Rules.
5. PJM's implementation of the PJM Market Rules or operation of the PJM Markets, as further set forth in Section IV.C.
6. Such matters as are necessary to prepare the reports set forth in Section

VI.

**C. Monitoring of PJM:** The Market Monitoring Unit shall monitor PJM's implementation of the PJM Market Rules and operation of the PJM Markets. If the Market Monitoring Unit disagrees with the implementation of the PJM Market Rules or the operation of the PJM Markets, the Market Monitoring Unit may so advise PJM. Excepting matters governed by Section IV.I, if the disagreement cannot be resolved informally, the Market Monitoring Unit may inform the Commission, Authorized Government Agencies, or the PJM members. The Market Monitoring Unit shall have no authority to direct PJM to modify its operation of the PJM Markets or implementation of the PJM Market Rules.

**C-1. Monitoring of ITCs:** The Market Monitoring Unit shall monitor the services provided by the independent transmission companies (ITCs), and the ITC-PJM relationship, to detect any problems that may inhibit a robust and competitive market. Transactions utilizing the ITC Transmission Facilities shall be subject to the authority of the Market Monitoring Unit on the same basis as transactions involving any other Market Participant using other portions of the Transmission System. This provision is also found in Section 12.1 of Attachment U of the PJM Tariff.

**D. Monitoring of PJM Market Rules, PJM Tariff and Market Design:** PJM is responsible for proposing for approval by the Commission, consistent with tariff procedures and

applicable law, changes to the PJM Market Rules, PJM Tariff and design of the PJM Markets. The Market Monitoring Unit shall evaluate and monitor existing and proposed PJM Market Rules, PJM Tariff provisions, and the design of the PJM Markets. However, if the Market Monitoring Unit detects a design flaw or other problem with the PJM Markets, the Market Monitoring Unit shall not effectuate its proposed market design since that is the responsibility of the Office of the Interconnection. The Market Monitoring Unit may initiate and propose, through the appropriate stakeholder processes, changes to the design of such markets, as well as changes to the PJM Market Rules and PJM Tariff. In support of this function, the Market Monitoring Unit may engage in discussions with stakeholders, State Commissions, PJM Management, or the PJM Board; participate in PJM stakeholder meetings or working groups regarding market design matters; publish proposals, reports or studies on such market design issues; and make filings with the Commission on market design issues. The Market Monitoring Unit may also recommend changes to the PJM Market Rules and PJM Tariff provisions to the staff of the Commission's Office of Energy Market Regulation, State Commissions, and the PJM Board.

**E. Mitigation:** The Market Monitoring Unit may, consistent with the PJM Market Rules, recommend to PJM that it take specific mitigation action that PJM is authorized to take under the PJM Market Rules to address market behavior or conditions. The Market Monitoring Unit shall not, however, have authority to require modification of PJM operational decisions, including dispatch instructions. If PJM does not accept the Market Monitoring Unit's recommendations regarding mitigation actions, the Market Monitoring Unit may report its mitigation recommendation to the Authorized Government Agencies, Commission staff, State Commissions or the PJM members, as the Market Monitoring Unit deems appropriate. Nothing in this Plan shall be deemed to supersede any authority the Market Monitoring Unit may have under the PJM Market Rules, nor shall anything in this Plan preclude any person or entity from seeking to modify such authority in a filing with the Commission.

**F. Studies or Reports for State Commissions:** Upon request in writing by the OPSI Advisory Committee, the Market Monitoring Unit may, in its discretion, provide such studies or reports on wholesale market issues, including wholesale market transactions occurring under a state-administered auction process, as may affect one or more states within the PJM area. Any such request for such a study or report, as well as any resulting study or report, shall be made simultaneously available to the public, with simultaneous notice to PJM members, subject to the protection of confidential information.

**G. Participation in Stakeholder Processes:** The Market Monitoring Unit may, as it deems appropriate or necessary to perform its functions under this Plan, participate (consistent with the rules applicable to all PJM stakeholders) in stakeholder working groups, committees or other PJM stakeholder processes.

**H. Referrals to State Commissions:** If during the ordinary course of its activities the Market Monitoring Unit discovers evidence of wrongdoing (other than minor misconduct) that the Market Monitor reasonably believes to be within a State Commission's jurisdiction, the Market Monitoring Unit shall report such information to the State Commission(s).

## I. Corrective Actions

1. **Required Notice and Referral to Commission of Suspected Market Violations:** Immediately upon determining that it has identified a significant market problem or a potential Market Violation by a Market Participant or PJM that may require (a) further inquiry by the Market Monitoring Unit, (b) referral for investigation by the Commission and/or (c) action by the Commission, the Market Monitoring Unit shall notify the Commission's Office of Enforcement (or any successor), either orally or in writing. Nothing in this Section IV.I.1 shall limit the ability of the Market Monitoring Unit to engage in discussions with any such Market Participant as provided in Section IV.J.1.

In addition to the notification requirement above, where the Market Monitoring Unit has reason to believe, based on sufficient credible information, that the behavior of a Market Participant or PJM may require investigation, including but not limited to suspected Market Violations, the Market Monitoring Unit will refer the matter to the Commission's Office of Enforcement (or any successor) in the manner described below. ~~The foregoing notwithstanding, a clear, objectively identifiable violation of a PJM Market Rule, where such rule provides for an explicit remedy that has been accepted by the Commission and can be administered by PJM, shall not be subject to the provisions of this section IV.I.1.~~

Such a referral shall be in writing, non-public, addressed to the Commission's Director of the Office of Enforcement, with a copy directed to the Commission's Director of the Office of Energy Market Regulation and the General Counsel, and should include, but need not be limited to, the following sufficient credible information to warrant further investigation by the Commission:

- a. The name(s) of and, if possible, the contact information for, the Market Participants that allegedly took the action(s) that constitute that alleged Market Violation(s);
- b. The date(s) or time period during which the alleged Market Violation(s) occurred and whether the alleged wrongful conduct is ongoing;
- c. The specific rule, regulation, and/or tariff provision(s) that were allegedly violated or the nature of any inappropriate dispatch that may have occurred;
- d. The specific act(s) or conduct that allegedly constituted the Market Violation;
- e. The consequences to the market resulting from the act(s) or conduct, including, if known, an estimate of economic impact on the market;
- f. If the Market Monitoring Unit believes that the act(s) or conduct constituted a violation of the anti-manipulation rule of 18 C.F.R. § 1c.2, a description of the alleged manipulative effect on market prices, market conditions, or market rules; and

g. Any other information that the Market Monitoring Unit believes is relevant and may be helpful to the Commission.

The referral may be transmitted to the Commission electronically, by fax, by mail or by courier. The Market Monitoring Unit may also provide the Commission with oral notice of the alleged Market Violation in advance of the submission of a written, non-public referral. Following the submission of such a referral, the Market Monitoring Unit will continue to inform the Commission staff of any information relating to the referral that it discovers within the scope of its regular monitoring function, but it shall desist from, and not independently undertake any investigative steps regarding, the alleged Market Violation or referral except at the express direction of the Commission or Commission staff. The Market Monitoring Unit must also respond to requests of the Commission for additional information in connection with the alleged Market Violation that it has referred. The Market Monitoring Unit is not precluded from continuing to monitor for any repeated instances of the activity in question by the same or other Market Participants, which activity would constitute new Market Violations.

The foregoing notwithstanding, a clear, objectively identifiable violation of the following PJM Market Rules, which provide for an explicit remedy that has been accepted by the Commission and can be administered by PJM, shall not be subject to the provisions of this Section IV.I.1:

a. Default in obligations to the Office of the Interconnection by a Market Participant in violation of Section 1.7.10(a)(v) of Attachment K – Appendix of the PJM Tariff.

b. Default in obligations to the Office of the Interconnection by a Market Participant in violation of Section 1.7.19B(e) of Attachment K – Appendix of the PJM Tariff.

c. Failure of a Capacity Market Seller or Locational UCAP Seller to obtain replacement Unforced Capacity to the extent a Generation Capacity Resource that it committed for a Delivery Year is unavailable due to a planned or maintenance outage that occurs during the Peak Season without approval of the Office of the Interconnection, in violation of Section 9(b) of Attachment DD of the PJM Tariff.

d. Failure of an Electric Distributor to maintain the required underfrequency relays in violation of Schedule 7, Section 2 of the PJM Operating Agreement.

e. Failure to submit data to the Office of the Interconnection in conformance with Schedule 11 (Data Submittals) of the Reliability Assurance Agreement.

Nevertheless, the Market Monitoring Unit retains the right to refer a matter to the Commission's Office of Enforcement (or any successor) in the manner described above for a violation of the referenced PJM Market Rules.

## **2. Required Referral to Commission of Perceived Market Design Flaws and Recommended Tariff Changes:**



The Market Monitoring Unit is to make a referral to the Commission in all instances where the Market Monitoring Unit has reason to believe market design flaws exist that it believes could effectively be remedied by rule or PJM Tariff changes. The Market Monitoring Unit must limit distribution of its identifications and recommendations to PJM and to the Commission in the event it believes broader dissemination could lead to exploitation, with an explanation of why further dissemination should be avoided at that time.

All referrals to the Commission relating to perceived market design flaws and recommended PJM Tariff changes related thereto are to be in writing, whether transmitted electronically, by fax, mail, or courier. The Market Monitoring Unit may alert the Commission orally in advance of the written referral.

The referral should be addressed to the Commission's Director of the Office of Energy Market Regulation, with copies directed to both the Director of the Office of Enforcement and the General Counsel.

The referral must include, but need not be limited to, the following information:

- a. A detailed narrative describing the perceived market design flaw[s];
- b. The consequences of the perceived market design flaws, including, if known, an estimate of economic impact on the market;
- c. The rule or PJM Tariff revisions that the Market Monitoring Unit believes could remedy the perceived market design flaw; and
- d. Any other information the Market Monitoring Unit believes is relevant and may be helpful to the Commission.

Following a referral to the Commission, the Market Monitoring Unit must continue to notify and inform the Commission of any additional information regarding the perceived market design flaw, its effects on the market, any additional or modified observations concerning the rule or PJM Tariff changes that could remedy the perceived design flaw. The Market Monitoring Unit must also notify and inform the Commission of any recommendations made by the Market Monitoring Unit to PJM, stakeholders, Market Participants or State Commissions regarding the perceived design flaw, and any actions taken by PJM regarding the perceived design flaw.

**J. Additional Market Monitoring Unit Authority:** In addition to notifications and referrals under Sections IV.I.1 and IV.I.2, respectively, the Market Monitoring Unit shall have the additional authority described in this section, as follows:

1. Engage in discussions regarding issues relating to the PJM Market Rules or FERC Market Rules, in order to understand such issues and to attempt to resolve informally such issues or other issues.

2. Excepting matters governed by Section IV.I, file reports and make appropriate regulatory filings with Authorized Government Agencies to address design flaws, structural problems, compliance, market power, or other issues, and seek such appropriate action or make such recommendations as the Market Monitoring Unit shall deem appropriate. The Market Monitoring Unit shall make such filings or reports publicly available and provide simultaneous notice of the existence of reports to the PJM members and PJM, subject to protection of confidential information.

3. Consult with Authorized Government Agencies concerning the need for specific investigations or monitoring activities.

4. Consider and evaluate a broad range of additional enforcement mechanisms that may be necessary to assure compliance with the PJM Market Rules. As part of this evaluation process, the Market Monitoring Unit shall consult with Authorized Government Agencies and other interested parties.

5. Report directly to the Commission staff on any matter.

**K. Confidentiality:**

1. All discussions between the Market Monitoring Unit and Market Participants concerning the informal resolution of compliance issues initially shall remain confidential, subject to the provisions in subsection IV.K.3.

2. Except as provided in subsection IV.K.3, in exercising its authority to take Corrective Actions, the Market Monitoring Unit shall observe the confidentiality provisions of the PJM Operating Agreement and Attachment M - Appendix.

3. Notwithstanding anything to the contrary in this Plan or the PJM Operating Agreement and Attachment M - Appendix, the Market Monitoring Unit: (a) may disclose any information to the Commission in connection with the reporting required under Sections IV.I.1 and IV.I.2 of this Plan, provided that any written submission to the Commission that includes information that is confidential under the PJM Operating Agreement or Attachment M - Appendix shall be accompanied by a request that the information be maintained as confidential, and (b) may make reports or other regulatory filings pursuant to Section IV.J or V of this Plan if accompanied by a request that information that is confidential under the PJM Operating Agreement or Attachment M - Appendix be maintained as confidential.

**V. INFORMATION AND DATA**

A. **Primary Information Sources:** The Market Monitoring Unit shall rely primarily upon data and information that are customarily gathered in the normal course of business of PJM and such publicly available data and information that may be helpful to accomplish the objectives of the Plan, including, but not limited to, (1) information gathered or generated by PJM in connection with its scheduling and dispatch functions, its operation of the transmission grid in the PJM Region or its determination of Locational Marginal Prices, (2) information

required to be provided to PJM in accordance with the PJM Market Rules and (3) any other information that is generated by, provided to, or in the possession of PJM. The foregoing information shall be provided to the Market Monitoring Unit as soon as practicable, including, but not limited to, real-time access to scheduling, dispatch and other operational data.

B. **Other Information Requests:** If other information is required from a Market Participant, the Market Monitoring Unit shall comply with the following procedures:

1. **Request for Additional Data:** If the Market Monitoring Unit determines that additional information is required to accomplish the objectives of the Plan, the Market Monitoring Unit may make reasonable requests of the entities possessing such information to provide the information. Any such request for additional information will be accompanied by an explanation of the need for the information and the Market Monitoring Unit's inability to acquire the information from alternate sources.

2. **Failure to Comply with Request:** The information request recipient shall provide the Market Monitoring Unit with all information that is reasonably requested. If an information request recipient does not provide requested information within a reasonable time, the Market Monitoring Unit may initiate such regulatory or judicial proceedings to compel the production of such information as may be available and deemed appropriate by the Market Monitoring Unit, including petitioning the Commission for an order that the information is necessary and directing its production. An information request recipient shall have the right to respond to any such petitions and participate in the proceedings thereon.

3. **Information Concerning Possible Undue Preference:** Notwithstanding subsection V.B.1, if the Market Monitoring Unit requests information relating to possible undue preference between Transmission Owners and their affiliates, Transmission Owners and their affiliates must provide requested information to the Market Monitoring Unit within a reasonable time, as specified by the Market Monitoring Unit; provided, however, that an information request recipient may petition the Commission for an order limiting all or part of the information request, in which event the Commission's order on the petition shall determine the extent of the information request recipient's obligation to comply with the disputed portion of the information request.

4. **Confidentiality:** Except as provided in Section IV.K.3 of this Plan, the Market Monitoring Unit shall observe the confidentiality provisions of the PJM Operating Agreement and Attachment M - Appendix with respect to information provided under this section if an entity providing the information designates it as confidential.

C. **Complaints:** Any Market Participant or other interested entity may at any time submit information to the Market Monitoring Unit concerning any matter relevant to the Market Monitoring Unit's responsibilities under the Plan, or may request the Market Monitoring Unit to make inquiry or take any action contemplated by the Plan. Such submissions or requests may be made on a confidential basis. The Market Monitoring Unit may request further information from such Market Participant or other entity and make such inquiry as the Market Monitoring Unit

considers appropriate. The Market Monitoring Unit shall not be required to act with respect to any specific complaint unless the Market Monitoring Unit determines action to be warranted.

D. **Collection and Availability of Information:** The Market Monitoring Unit shall regularly collect and maintain under its sole control the information that it deems necessary for implementing the Plan. A Market Participant shall have sole responsibility to make available to the Market Monitoring Unit any information that the Market Monitoring Unit deems reasonably necessary to document, verify or investigate a claim or request by such Market Participant. All load reduction data are subject to audit by the Market Monitoring Unit. The Market Monitoring Unit shall make publicly available a detailed description of the categories of data collected by the Market Monitoring Unit. To the extent it deems appropriate and upon specific request, the Market Monitoring Unit may release other data to the public, consistent with the obligations of the Market Monitoring Unit and PJM to protect confidential, proprietary, or commercially sensitive information as provided in Attachment M - Appendix and the PJM Operating Agreement.

E. **Access to Personnel and Facilities:** The Market Monitoring Unit shall have access to PJM personnel and facilities as necessary to perform the functions set forth in this Plan. If the Market Monitoring Unit seeks data or other information from PJM personnel, it may contact the appropriate personnel that may be in possession of such data or information. If the Market Monitoring Unit seeks a formal opinion or position on a matter from PJM, it shall contact the PJM Liaison or appropriate senior management official to provide such opinion or position.

F. **Market Monitoring Indices:** The Market Monitoring Unit shall develop, and shall refine on the basis of experience, indices or other standards to evaluate the information that it collects and maintains. Prior to using any such index or standard, the Market Monitoring Unit shall provide PJM members, Authorized Government Agencies, and other interested parties an opportunity to comment on the appropriateness of such index or standard. Following such opportunity for comments, the decision to use any index or standard shall be solely that of the Market Monitoring Unit.

G. **Evaluation of Information:** The Market Monitoring Unit shall evaluate, and shall refine on the basis of experience, the information it collects and maintains, or that it receives from other sources, regarding the operation of the PJM Markets or other matters relevant to the Plan. As so evaluated, such information shall provide the basis for reports or other actions of the Market Monitoring Unit under this Plan.

## **VI. REPORTS**

A. **Reports:** The Market Monitoring Unit shall prepare and submit contemporaneously to the Commission, the State Commissions, the PJM Board, PJM Management and to the PJM Members Committee, annual state-of-the-market reports on the state of competition within, and the efficiency of, the PJM Markets, and quarterly reports that update selected portions of the annual report and which may focus on certain topics of particular interest to the Market Monitoring Unit. The quarterly reports shall not be as extensive as the annual reports. In its annual, quarterly and other reports, the Market Monitoring Unit may make

recommendations regarding any matter within its purview. The annual reports shall, and the quarterly reports may, address, among other things, the extent to which prices in the PJM Markets reflect competitive outcomes, the structural competitiveness of the PJM Markets, the effectiveness of bid mitigation rules, and the effectiveness of the PJM Markets in signaling infrastructure investment. These annual reports shall, and the quarterly reports may include recommendations as to whether changes to the Market Monitoring Unit or the Plan are required. In addition, the Market Monitoring Unit shall provide to the PJM Board, in a timely manner, copies of any reports submitted to Authorized Government Agencies pursuant to Section VI.B. The Market Monitoring Unit may from time-to-time prepare and submit additional reports to the Commission, the PJM Board and PJM Members Committee as the Market Monitoring Unit may deem appropriate in the discharge of its responsibilities under the Plan.

B. **Reports to Authorized Government Agencies:** The Market Monitoring Unit shall contemporaneously submit to the Authorized Government Agencies the reports provided to the PJM Board pursuant to Section VI.A. Subject to applicable law and regulation and any other applicable provisions of the PJM Operating Agreement or PJM Tariff, the Market Monitoring Unit shall, to the extent practicable, respond to reasonable requests by Authorized Government Agencies other than the Commission for reports, subject to protection of confidential, proprietary and commercially sensitive information, the protection of the confidentiality of ongoing inquiries and monitoring activities, and the availability of resources.

C. **Public Reports:** The Market Monitoring Unit shall prepare a detailed public annual report about the Market Monitoring Unit's activities, subject to protection of confidential, proprietary, and commercially sensitive information and the protection of the confidentiality of ongoing investigations and monitoring activities. The Market Monitoring Unit may, instead of filing a separate report, include the referenced material in a report filed pursuant to Section VI.A hereof.

D. **State Commission Tailored Requests for Information:** Subject to the confidentiality restrictions of Attachment M – Appendix, Section I.D. of the PJM Tariff and Section 18.17.4 of the PJM Operating Agreement, the Market Monitoring Unit may provide, at its discretion, information regarding general market trends and the performance of the PJM Markets in response to a State Commission's tailored request for information unless the requested information is designed to aid state enforcement actions or impinges upon the confidentiality rules of the Federal Energy Regulatory Commission with regard to referrals.

The Market Monitoring Unit shall provide to any Market Participant whose information has been requested, or who may be affected by the release of the requested information, written notice, which shall include electronic communication, of a State Commission's tailored request for information as soon as possible, but not later than two (2) business days after the receipt of the request. If the request for tailored information seeks to obtain Confidential Information, the requirements and limitations of Section I.D. of Attachment M – Appendix shall apply. If the request for tailored information seeks to obtain information that is not Confidential Information, if the Market Participant whose information has been requested or who may be affected by the release of the requested information objects to the request or any portion thereof, it shall be given the opportunity to contest the request and to provide a contextual explanation to supplement the

information produced by the Market Monitoring Unit so long as the providing of the contextual explanation does not unduly delay the release of the information to the State Commission. To register its objection, the Market Participant must request, in writing, within four (4) business days following the Market Monitoring Unit's receipt of the request, a conference with the State Commission to resolve differences concerning the scope or timing of the tailored request for information; provided, however, nothing herein shall require the State Commission to participate in any conference. Any party to the conference may seek assistance from FERC staff in resolution of the dispute or terminate the conference process at any time. Should such conference be refused or terminated by any participant or should such conference not resolve the dispute, then the Market Participant whose information has been requested or who may be affected by the release of the requested information, may file a complaint with the FERC pursuant to Rule 206 objecting to the request for tailored information within ten (10) business days following receipt of written notice from any conference participant terminating such conference. Any complaints filed at the FERC objecting to a particular request for tailored information shall be designated by the party as a "fast track" complaint and each party shall bear its own costs in connection with such FERC proceeding.

If no complaint challenging the request for tailored information is filed within the ten (10) business day period defined above, the Market Monitoring Unit shall utilize its best efforts to respond to the request for tailored information promptly. If a complaint is filed, and the Commission does not act on that complaint within ninety (90) days, the complaint shall be deemed denied and the Market Monitoring Unit shall use its best efforts to respond to the request for tailored information promptly. Notwithstanding the foregoing, if the Market Monitoring Unit determines, in its discretion, that responding to the State Commission's request for tailored information is unreasonably burdensome and/or will interfere with the Market Monitoring Unit's ability to carry out its core functions based on time and resource availability of its staff, the Market Monitoring Unit may decline such a request.

E. **IMM Staff Availability:** The Market Monitoring Unit shall make one or more staff members available for regular conference calls, which may be attended telephonically or in person, by FERC Commission staff, State Commission staff, representatives of PJM, and Market Participants.

## **VII. AUDIT**

The Market Monitoring Unit shall annually (a) document, and advise PJM of, Market Monitoring Unit's actual expenses for the prior year by no later than March 15, and provide a copy of such documentation to the Finance Committee, and (b) provide audited financial statements of the Market Monitoring Unit of revenues and expenses related solely to the services provided to PJM, audited by a nationally recognized independent third party auditor selected by the Market Monitor, by no later than May 15. The audit report shall include, but not be limited to, a review of whether MMU expenditures were for purposes consistent with the functions set forth in this Plan and shall include documentation at a level of supporting detail consistent with that required in Section III.E above. The audit report shall be provided to the PJM Board, Finance Committee, Market Monitoring Unit, OPSI, OPSI Advisory Committee, PJM and PJM members subject to the protection of confidential information. The requirement that the Market

Monitoring Unit annually document and advise PJM of its expenses for the prior year is also found in subsection (e) of Schedule 9-MMU.

### **VIII. LIMITATION OF LIABILITY**

Any liability of PJM arising under or in relation to this Plan shall be subject to this Section VIII. The PJM Entities shall not be liable to any Market Participant, any party to the PJM Operating Agreement, any customer under the PJM Tariff, or any other person subject to this Plan in respect of any matter described in or contemplated by this Plan, as the same may be amended or supplemented from time to time, including but not limited to liability for any financial loss, loss of economic advantage, opportunity cost, or actual or consequential damages of any kind resulting from or attributable to any act or omission of any of the PJM Entities under this Plan. Neither the OPSI Advisory Committee nor any State Commission (including commissioners and staff persons) shall be liable to any person under this Plan for any financial loss, loss of economic advantage, opportunity cost, or actual or consequential damages associated with performing any of its functions or duties under this Plan.

### **IX. ALTERNATIVE DISPUTE RESOLUTION**

Notwithstanding any provision of the PJM Tariff or the PJM Operating Agreement, PJM and the Market Monitoring Unit shall not be required to use the dispute resolution procedures in the PJM Tariff or the PJM Operating Agreement in carrying out its duties and responsibilities under this Plan. However, nothing herein shall prevent PJM or any other person from requesting the use of the dispute resolution procedure set forth in the PJM Tariff or the PJM Operating Agreement, as applicable.

### **X. EFFECTIVE DATE**

This Plan shall be effective as of August 1, 2008.

### **XI. CODE OF ETHICS**

The Market Monitoring Unit and its employees, as applicable, shall adhere to the following Code of Ethics, which is reproduced from Section 17 of PJM Rate Schedule No. 46, Market Monitoring Services Agreement By And Between PJM Interconnection, L.L.C. And Monitoring Analytics, LLC entered into on December 18, 2007, and filed with the Commission to comply with order of the Federal Energy Regulatory Commission, Docket Nos. EL07-56 and EL07-58 et al., issued March 21, 2008, 122 FERC ¶ 61,257.

#### **A. Conflicts of Interest:**

1. The Market Monitoring Unit will use its best efforts to assure that all of its employees comply with this Code of Ethics and shall take appropriate disciplinary actions against employees who violate the policy.

2. The Market Monitoring Unit and its employees assisting on market monitoring matters for PJM, and their spouses and dependent children, may not have a direct equity or other financial interest in a Market Participant or in a parent, subsidiary, or affiliate of a Market Participant. (The term “direct” is meant to exclude investments such as mutual funds in which a person has no direct control, with the exception of sector-specific mutual funds.)

3. The Market Monitoring Unit and its employees assisting on market monitoring matters for PJM, may not undertake a matter for a third party where such representation would require disclosure of market-sensitive or proprietary information of PJM.

**B. Prohibited Engagements and Conduct by the Market Monitoring Unit:**

1. Neither the Market Monitoring Unit nor its employees will be engaged to provide advice to, or undertake a matter for or on behalf of, any entity on any entity’s participation in the PJM Markets, except as otherwise authorized under subparagraphs 3 and 5 below.

2. Neither the Market Monitoring Unit nor its employees will be engaged by any entity in any litigation, open regulatory docket, alternative dispute resolution procedure, or arbitration with PJM, except as otherwise authorized under subparagraphs 3 and 5 below.

3. Neither the Market Monitoring Unit nor its employees will be engaged to appear on behalf of or against any entity before a state regulatory commission within the PJM Region in any new engagement in the electricity business except as authorized under the PJM Tariff, as requested by a state regulatory commission, or as otherwise required by law.

4. Neither the Market Monitoring Unit nor its employees shall accept any engagement by any market participant outside of the PJM Region that would require the Market Monitoring Unit to take a position adverse to any PJM member or inconsistent with any position taken by the Market Monitoring Unit in the PJM Region.

5. Neither the Market Monitoring Unit nor its employees will be engaged to appear on behalf of or against any entity before the Commission on any matter within the PJM Region in any new engagement in the electricity business except as authorized under the PJM Tariff, as requested by the Commission, or as otherwise required by law.

6. Before the Market Monitoring Unit accepts any engagement on behalf of or against an Interested Party, it must inform the PJM General Counsel and the PJM Board of such potential engagement and provide the PJM Board with an opportunity to state its objection to such representation on the ground the engagement would present a conflict of interest or result in the material appearance of conflict. At the discretion of the Market Monitoring Unit, the Market Monitoring Unit may notify the PJM General Counsel that the proposed engagement is confidential and request that the General Counsel disclose the proposed engagement only to a PJM Board subcommittee in a manner which limits the disclosure of nonpublic information. Within seven (7) business days of being informed of the potential engagement by the Market Monitoring Unit, the PJM Board shall state any objection to such potential engagement. If the



Market Monitoring Unit disagrees with the PJM Board's determination regarding the potential engagement by the Market Monitoring Unit, the Parties shall jointly engage the Commission's Dispute Resolution Service to determine whether the engagement would present a conflict of interest or result in the material appearance of a conflict. Unless the Commission's Dispute Resolution Service finds no conflict of interest the Market Monitoring Unit shall be precluded from accepting the challenged engagement. For these purposes, the term "Interested Party" means (x) a Market Participant; (v) a state regulatory commission within the PJM Region; or (z) a person or entity with a significant direct financial interest in the organization, governance or operation of PJM but shall not include PJM itself.

7. Employees of the Market Monitoring Unit shall not accept gifts, payments, favors, meals, transportation, entertainment, or services (individually, "Gift," and collectively, "Gifts"), of other than nominal value within a calendar year from PJM, Authorized Government Agencies, any market participant, contractor, supplier or vendor to the Market Monitoring Unit. Except that "Gifts" shall not include any of the foregoing that is generally provided to the attendees of business meetings (e.g. PJM stakeholder meetings). Gifts not exceeding One Hundred Fifty Dollars (\$150) shall be deemed to be of "nominal value." Similarly, neither the Market Monitoring Unit nor any employee of the Market Monitoring Unit shall offer any Gift to any public official or Market Participant unless such Gifts: are legal; not offered for specific gain or reciprocal action; follow generally accepted ethical standards; and are of nominal value.

8. Neither the Market Monitoring Unit nor its employees shall serve as an officer, employee or partner of a Market Participant.

9. Neither the Market Monitoring Unit nor its employees shall engage in any transactions in the PJM markets other than the performance of their duties under the PJM Tariff.

10. Neither the Market Monitoring Unit nor its employees shall be compensated, other than by PJM, for any expert witness testimony or ~~other~~ commercial services, either to PJM or to any other party, in connection with legal or regulatory proceeding or commercial transaction relating to PJM or to PJM's markets.

11. Employees of the Market Monitoring Unit must advise their supervisor(s) in the event they seek employment with a Market Participant, and must disqualify themselves from participating in any matter that would have an effect on the financial interest of the Market Participant while still in the employ of the Market Monitoring Unit.

C. **Compliance with All Applicable Laws:** The Market Monitoring Unit will use its best efforts to assure the compliance of the Market Monitoring Unit and its employees with all applicable laws, including but not limited to those referenced in the PJM Code of Conduct.

## 5.11 Posting of Information Relevant to the RPM Auctions

a) In accordance with the schedule provided in the PJM Manuals, PJM will post the following information for a Delivery Year prior to conducting the Base Residual Auction for such Delivery Year:

i) The Preliminary PJM Region Peak Load Forecast (for the PJM Region, and allocated to each Zone) and, for Delivery Years through May 31, 2012, the ILR Forecast by Locational Deliverability Area;

ii) The PJM Region Installed Reserve Margin, the Pool-wide average EFORd, and the Forecast Pool Requirement;

iii) The Demand Resource Factor;

iv) The PJM Region Reliability Requirement, and the Variable Resource Requirement Curve for the PJM Region;

v) The Locational Deliverability Area Reliability Requirement and the Variable Resource Requirement Curve for each Locational Deliverability Area for which a separate Variable Resource Requirement Curve has been established for such Base Residual Auction, and the CETO and CETL values for all Locational Deliverability Areas;

vi) Any Transmission Upgrades that are expected to be in service for such Delivery Year, provided that a Transmission Upgrade that is Backbone Transmission satisfies the project development milestones set forth in section 5.11A;

vii) The bidding window time schedule for each auction to be conducted for such Delivery Year

viii) The Net Energy and Ancillary Services Revenue Offset values for the PJM Region for use in the Variable Resource Requirement Curves for the PJM Region and each Locational Deliverability Area for which a separate Variable Resource Requirement Curve has been established for such Base Residual Auction; and

ix) The results of the Preliminary Market Structure Screen in accordance with section 6.2(a).

b) The information listed in (a) will be posted and applicable for the First, Second, Third, and Conditional Incremental Auctions for such Delivery Year, except to the extent updated as required by other provisions of this Tariff.

c) In accordance with the schedule provided in the PJM Manuals, PJM will post the Final PJM Region Peak Load Forecast and the allocation to each zone of the obligation resulting from such final forecast, following the completion of the final Incremental Auction (including any Conditional Incremental Auction) conducted for such Delivery Year;

d) In accordance with the schedule provided in the PJM Manuals, PJM will advise owners of Generation Capacity Resources of the updated EFORD values for such Generation Capacity Resources prior to the conduct of the Third Incremental Auction for such Delivery Year.

e) After conducting the Reliability Pricing Model Auctions, PJM will post the results of each auction as soon thereafter as possible. The posted results shall according to the timeline set forth in the PJM Manuals include graphical supply curves that are (a) provided for the entire PJM Region, (b) provided for any Locational Deliverability Area for which there are four (4) or more suppliers, and (c) developed using a formulaic approach to smooth the curves using a statistical technique that fits a smooth curve to the underlying supply curve data while ensuring that the point of intersection between supply and demand curves is at the market clearing price.

If PJM discovers an error in the initial posting of auction results for a particular Reliability Pricing Model Auction, it shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 5:00 p.m. of the fifth business day following the initial publication of the results of the auction. After this initial notification, if PJM determines it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the seventh business day following the initial publication of the results of the auction. Thereafter, PJM must post on its Web site any corrected auction results by no later than 5:00 p.m. of the tenth business day following the initial publication of the results of the auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

## **6. MARKET POWER MITIGATION**

### **6.1 Applicability**

The provisions of the Market Monitoring Plan (in Attachment M and Attachment - M Appendix to this Tariff and this section 6) shall apply to the Reliability Pricing Model Auctions.

### **6.2 Process**

(a) By no later than 90 days (or such other time period as established for purposes of the Transition Period) prior to the conduct of the Base Residual Auction and each Incremental Auction for such Delivery Year, the Office of the Interconnection shall post or continue to post the results of the Market Monitoring Unit's application of the Preliminary Market Structure Screen determined pursuant to section II.D of Attachment M - Appendix.

(b) In accordance with the schedule specified in the PJM Manuals, following PJM's conduct of a Base Residual Auction or Incremental Auction pursuant to section 5.12, but prior to the Office of the Interconnection's final determination of clearing prices and charges pursuant to section 5.14, the Office of the Interconnection shall: (i) apply the Market Structure Test to any LDA having a Locational Price Adder greater than zero and to the entire PJM region; (ii) apply Market Seller Offer Caps, if required under this section 6; and (iii) recompute the optimization algorithm to clear the auction with the Market Seller Offer Caps in place.

(c) Within seven days after the deadline for submission of Sell Offers in a Base Residual Auction or Incremental Auction, the Office of the Interconnection shall file with FERC a report of any determination made pursuant to sections 5.14(h), 6.5(a)(ii), or 6.7(c) identified in such sections as subject to the procedures of this section. Such report shall list each such determination, the information considered in making each such determination, and an explanation of each such determination. Any entity that objects to any such determination may file a written objection with FERC no later than seven days after the filing of the report. Any such objection must not merely allege that the determination was in error, and must provide support for the objection, demonstrating that the determination overlooked or failed to consider relevant evidence. In the event that no objection is filed, the determination shall be final. In the event that an objection is filed, FERC shall issue any decision modifying the determination no later than 60 days after the filing of such report; otherwise, the determination shall be final. Final auction results shall reflect any decision made by FERC regarding the report.

### **6.3 Market Structure Tests**

(a) Preliminary Market Structure Screen.

The Market Monitoring Unit shall apply the Preliminary Market Structure Screen pursuant to section II.D of Attachment M - Appendix. Potential Capacity Market Sellers owning or controlling any existing Generation Capacity Resources in the PJM Region shall be required to provide to the Market Monitoring Unit the additional information specified in section II.D of Attachment M - Appendix if such Generation Capacity is located in an LDA, "Unconstrained

LDA Group” (as defined in Attachment M - Appendix), or the entire PJM Region that fails the Preliminary Market Structure Screen, as applied pursuant to section II.D below.

(b) Market Structure Test.

A constrained LDA or the PJM Region shall fail the Market Structure Test, and mitigation shall be applied to all jointly pivotal suppliers (including all Affiliates of such suppliers, and all third-party supply in the relevant LDA controlled by such suppliers by contract), if, as to the Sell Offers that comprise the incremental supply determined pursuant to section 6.3(c) that are based on Generation Capacity Resources, there are not more than three jointly pivotal suppliers. The Office of the Interconnection shall apply the Market Structure Test. The Office of the Interconnection shall confirm the results of the Market Structure Test with the Market Monitoring Unit.

(c) Determination of Incremental Supply

In applying the Market Structure Test, the Office of the Interconnection shall consider all (i) incremental supply (provided, however, that the Office of the Interconnection shall consider only such supply available from Generation Capacity Resources) available to solve the constraint applicable to a constrained LDA offered at less than or equal to 150% of the cost-based clearing price; or (ii) supply for the PJM Region, offered at less than or equal to 150% of the cost-based clearing price, provided that supply in this section includes only the lower of cost-based or priced based offers from Generation Capacity Resources. Cost-based clearing prices are the prices resulting from the RPM auction algorithm using the lower of cost-based or price-based offers for all Capacity Resources.

#### **6.4 Market Seller Offer Caps**

(a) The Market Seller Offer Cap, stated in dollars per MW-day of installed capacity, applicable to price-quantity offers within the Base Offer Segment for an existing Generation Capacity Resource shall be the Avoidable Cost Rate for such resource, less the Projected PJM Market Revenues for such resource, stated in dollars per MW of unforced capacity. During the first three Delivery Years of the Transition Period, the Market Seller Offer Cap shall be increased for Sell Offers submitted by eligible Capacity Market Sellers in any Unconstrained LDA Group by the Transition Adder set forth in section 17.5 of this Attachment. The Market Seller Offer Cap for an existing Generation Capacity Resource shall be the Opportunity Cost for such resource, if applicable, as determined in accordance with section 6.7. Nothing herein shall preclude any Capacity Market Seller and the Market Monitoring Unit from agreeing to, nor require either such entity to agree to, an alternative market seller offer cap determined on a mutually agreeable basis. Any such alternative offer cap shall be filed with the Commission for its approval. This provision is duplicated in section II.E.3 of Attachment M- Appendix.

(b) For each existing Generation Capacity Resource, a potential Capacity Market Seller must timely provide to the Market Monitoring Unit data and documentation required under section 6.6 to establish the level of the Market Seller Offer Cap applicable to each resource. The Capacity Market Seller must promptly address any concerns identified by the Market Monitoring Unit regarding the data and documentation provided, review the proposed

Market Seller Offer Cap, and attempt to reach agreement with the Market Monitoring Unit on the level of the Market Seller Offer Cap.

(c) If the Market Monitoring Unit informs the Office of the Interconnection that a Capacity Market Seller has failed to submit costs consistent with section 6.7, it shall be required to submit any Sell Offer in the applicable auction as Self-Supply. If such Capacity Market Seller submits a Sell Offer that is not Self-Supply, the Market Monitoring Unit may seek relief from the Commission pursuant to section 6.4(d) below.

(d) In the event that a Capacity Market Seller and the Market Monitoring Unit cannot agree on the level of a Market Seller Offer Cap, the Office of the Interconnection shall make its own determination of the level of the Market Seller Offer Cap based on the requirements of the Tariff and the PJM Manuals. If the Capacity Market Seller submits a Sell Offer that the Office of the Interconnection determines would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction compared to the Office of the Interconnection's determination of the level of the Market Seller Offer Cap, the Office of the Interconnection shall apply to FERC for an order, on an expedited basis, directing such Capacity Market Seller to submit a Sell Offer consistent with the Market Monitoring Unit's determination, or for other appropriate relief, and PJM shall postpone clearing the auction pending FERC's decision on the matter. Should the Market Monitoring Unit exercise its powers to inform Commission staff of its concerns and request a determination, on an expedited basis, directing a Capacity Market Seller to submit a Sell Offer consistent with the Market Monitoring Unit's determination, or for other appropriate relief, pursuant to section II.E of Attachment M - Appendix, PJM may postpone clearing the auction pending FERC's decision on the matter.

(e) Nothing in this section precludes the Capacity Market Seller from filing a petition with FERC seeking a determination of whether the Sell Offer complies with the requirements of the Tariff.

(f) Notwithstanding the foregoing, a Capacity Market Seller may submit a Sell Offer that it chooses, provided that (i) it has participated in good faith with the process described in this section 6.4 and in section II.E of Attachment M - Appendix, (ii) the offer is no higher than the level defined in any agreement reached by the Capacity Market Seller and the Market Monitoring Unit that resulted from the foregoing process, and (iii) the offer is accepted by the Office of the Interconnection subject to the criteria set forth in the Tariff and the PJM Manuals.

(g) For any Third Incremental Auction, the Market Seller Offer Cap for an existing Generation Capacity Resource shall be determined pursuant to paragraph (a) of this Section 6.4, or if elected by the Capacity Market Seller, shall be equal to 1.1 times the Capacity Resource Clearing Price in the Base Residual Auction for the relevant LDA and Delivery Year.

## **6.5 Mitigation**

The Office of the Interconnection shall apply market power mitigation measures in any Base Residual Auction or Incremental Auction for any LDA, Unconstrained LDA Group, or the PJM Region that fails the Market Structure Test.

(a) Mitigation for Generation Capacity Resources.

i) Existing Generation Resource

Mitigation will be applied on a unit-specific basis and only if the Sell Offer of Unforced Capacity from a Generation Capacity Resource: (1) is greater than the Market Seller Offer Cap applicable to such resource; and (2) would, absent mitigation, increase the Capacity Resource Clearing Price in the relevant auction. If such conditions are met, such Sell Offer shall be set equal to the Market Seller Offer Cap.

ii) Planned Generation Capacity Resources

(A) Sell Offers based on Planned Generation Capacity Resources (including External Planned Generation Capacity Resources) shall be presumed to be competitive and shall not be subject to market power mitigation in the Base Residual Auction or Incremental Auction for adjustment of committed capacity for the first Delivery Year for which such resource qualifies as a Planned Generation Capacity Resource, but any such Sell Offer shall be rejected if it meets the criteria set forth in subsection (C) below, unless the Capacity Market Seller obtains approval from FERC for use of such offer prior to the deadline for submission of such offers in the applicable auction. Such resources shall be treated as Existing Generation Capacity Resources in the auctions for any subsequent Delivery Year; provided, however, that such resources may receive certain price assurances for the two Delivery Years immediately following the first Delivery Year of service under certain conditions as set forth in section 5.14 of this Attachment.

(B) Sell Offers based on Planned Generation Capacity Resources (including External Planned Generation Capacity Resources) submitted for the first year in which such resources qualify as Planned Generation Capacity Resources shall be deemed competitive and not be subject to mitigation if: (1) collectively all such Sell Offers provide Unforced Capacity in an amount equal to or greater than two times the incremental quantity of new entry required to meet the LDA Reliability Requirement; and (2) at least two unaffiliated suppliers have submitted Sell Offers for Planned Generation Capacity Resources in such LDA. Notwithstanding the foregoing, any Capacity Market Seller, together with Affiliates, whose Sell Offers based on Planned Generation Capacity Resources in that LDA are pivotal, shall be subject to mitigation.

(C) Where the two conditions stated in subsection (B) are not met, or the Sell Offer is pivotal, the Sell Offer shall be rejected if it exceeds 140 percent of: 1) the average of location-adjusted Sell Offers for Planned Generation Capacity Resources from the same asset class as such Sell Offer, submitted (and not rejected) (Asset-Class New Plant Offers) for such Delivery Year; or 2) if there are no Asset-Class New Plant Offers for such Delivery Year, the average of Asset-Class New Plant Offers for all

prior Delivery Years; or 3) if there are no Asset-Class New Plant Offers for any prior Delivery Year, the Net CONE applicable for such Delivery Year in the LDA for which such offer was submitted. For purposes of this section, asset classes shall be as stated in section 6.7(c) as effective for such Delivery Year, and Asset-Class New Plant Offers shall be location-adjusted by the ratio between the Net CONE effective for such Delivery Year for the LDA in which the Sell Offer subject to this section was submitted and the average, weighted by installed capacity, of the Net CONEs for all LDAs in which the units underlying such Asset Class New Plant Offers are located. Following the conduct of the applicable auction and before the final determination of clearing prices, in accordance with Section 6.2(b) above, each Capacity Market Seller whose Sell Offer is so rejected shall be notified and allowed an opportunity to submit a revised Sell Offer that does not exceed such threshold. The Office of the Interconnection then shall clear the auction with such revised Sell Offer in place.

(b) Mitigation for Demand Resources

The Market Seller Offer Cap shall not be applied to Sell Offers of Demand Resources or Energy Efficiency Resources.

## **6.6 Offer Requirement for Capacity Resources**

(a) To avoid application of subsection (h), all Unforced Capacity of all existing Generation Capacity Resources located in the PJM Region shall be offered (which may include submission as Self-Supply) in the Base Residual Auction for each Delivery Year, where Unforced Capacity is determined using an EFORD less than or equal to the greater of (i) the annual average EFORD for the five consecutive years ending on the September 30 that last precedes the submission of such offers or (ii) the EFORD for the 12 months ending on the September 30 that last precedes the submission of such offers.

(b) For each existing Generation Capacity Resource, a potential Capacity Market Seller must timely provide to the Market Monitoring Unit data and documentation required under section 6.6 to establish the EFORD applicable to each resource. The Generation Market Seller must promptly address any concerns identified by the Market Monitoring Unit regarding the data and documentation provided, review the proposed EFORD, and attempt to reach agreement with the Market Monitoring Unit on the level of the EFORD

(c) If the Market Monitoring Unit informs the Office of the Interconnection that a Capacity Market Seller has failed to submit costs consistent with section 6.7, it shall be required to submit any Sell Offer in the applicable auction as Self-Supply. If such Capacity Market Seller submits a Sell Offer that is not Self-Supply, the Market Monitoring Unit may seek relief from the Commission pursuant to section 6.4(d) below and section II.C of Attachment M - Appendix.

(d) In the event that a Capacity Market Seller and the Market Monitoring Unit cannot agree on the level of the EFORD, the Office of the Interconnection shall make its own



determination of the level of the EFORd based on the requirements of the Tariff and the PJM Manuals. If the Capacity Market Seller submits an EFORd that the Office of the Interconnection determines would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction compared to the Office of the Interconnection's determination of the level of the EFORd, the Office of the Interconnection shall apply to FERC for an order, on an expedited basis, directing such Capacity Market Seller to submit an EFORd consistent with the Market Monitoring Unit's determination, or for other appropriate relief, and PJM shall postpone clearing the auction pending FERC's decision on the matter. Should the Market Monitoring Unit exercise its powers to inform Commission staff of its concerns and request a determination, on an expedited basis, directing a Capacity Market Seller to submit an EFORd consistent with the Market Monitoring Unit's determination, or for other appropriate relief, pursuant to section II.C of Attachment M - Appendix, PJM may postpone clearing the auction pending FERC's decision on the matter.

(e) Nothing in this section precludes the Capacity Market Seller from filing a petition with FERC seeking a determination of whether the EFORd complies with the requirements of the Tariff.

(f) Notwithstanding the foregoing, a Capacity Market Seller may submit an EFORd that it chooses, provided that (i) it has participated in good faith with the process described in this section 6.6 and in section II.C of Attachment M - Appendix, (ii) the offer is no higher than the level defined in any agreement reached by the Capacity Market Seller and the Market Monitoring Unit that resulted from the foregoing process, and (iii) the offer is accepted by the Office of the Interconnection subject to the criteria set forth in the Tariff and the PJM Manuals.

(g) Existing generation resources in the PJM Region capable of qualifying as a Generation Capacity Resource may not avoid the rule in subsection (a) by failing to qualify as a Generation Capacity Resource, or by attempting to remove a unit previously qualified as a Generation Capacity Resource from classification as a Capacity Resource, excepting only generation resources that, as shown by appropriate documentation: (i) are reasonably expected to be physically unable to participate in the relevant Delivery Year; (ii) have a financially and physically firm commitment to an external sale of its capacity, or (iii) were interconnected to the Transmission System as Energy Resources and not subsequently converted to a Capacity Resource. A Generation Capacity Resource that does not qualify for submission into an RPM Auction because it is not owned or controlled by the Capacity Market Seller for a full Delivery Year is not subject to the offer requirement hereunder; provided, however, that a Capacity Market Seller planning to transfer ownership or control of a Generation Capacity Resource during a Delivery Year pursuant to a sale or transfer agreement entered into after March 26, 2009 shall be required to satisfy the offer requirement hereunder for the entirety of such Delivery Year and may satisfy such requirement by providing for the assumption of this requirement by the transferee of ownership or control under such agreement.

In order to establish that a resource is reasonably expected to be physically unable to participate in the relevant auction as set forth in (i) above, the Capacity Market Seller must demonstrate that:

A. It has a documented plan in place to retire the resource prior to or during the Delivery Year, and has submitted a notice of Deactivation to the Office of the Interconnection consistent with Section 113.1 of the PJM Tariff;

B. Significant physical operational restrictions that cause long term or permanent changes to the installed capacity value of the resource, or the resource is under major repair that will extend into the applicable Delivery Year, that will result in the imposition of RPM performance penalties pursuant to Attachment DD of the PJM Tariff; or,

C. The Market Seller is involved in an ongoing regulatory proceeding (e.g. – regarding potential environmental restrictions) specific to the resource and has received an order, decision, final rule, opinion or other final directive from the regulatory authority that will result in the retirement of the resource.

(h) Any existing generation resource located in the PJM Region that is not offered into the Base Residual Auction for a Delivery Year, and that does not meet any of the exceptions stated in the prior subsection (g): (i) may not participate in any subsequent auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year; and (iii) shall not be permitted to satisfy any LSE's Unforced Capacity Obligation, or any entity's obligation to obtain the commitment of Capacity Resources, for such Delivery Year.

(i) To avoid application of subsection (j), any existing Generation Capacity Resource located in the PJM Region that is offered into the Base Residual Auction for a Delivery Year, but that does not clear in such auction, shall be offered in the First, Second, and Third Incremental Auctions (and any Conditional Incremental Auction) for such Delivery Year, unless such Generation Capacity Resource, as shown by appropriate documentation, (i) is reasonably expected to be physically unable to participate in the relevant auction; (ii) has a financially and physically firm commitment to an external sale of its capacity; or (iii) was interconnected to the Transmission System as an Energy Resource and not subsequently converted to a Capacity Resource.

(j) Any existing Generation Capacity Resource located in the PJM Region that is offered into the Base Residual Auction for a particular Delivery Year, does not clear in such auction, is not offered into the First, Second, Third, and Conditional Incremental Auctions for such Delivery Year, and does not meet any of the exceptions stated in subsection (g): (i) may not participate in any subsequent auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year; (iii) shall not be permitted to satisfy any LSE's Unforced Capacity Obligation, or any entity's obligation to obtain the commitment of Capacity Resources, for such Delivery Year, and (iv) may be subject to further action by the Market Monitoring Unit under Attachment M and Attachment M - Appendix.

(k) In addition to the remedies set forth in subsections (g), (h), (i), and (j), if the Market Monitoring Unit determines that one or more Capacity Market Sellers' failure to offer part or all of one or more existing generation resources into an auction would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction, the Office of the Interconnection shall apply to FERC for an order, on an expedited

basis, directing such Capacity Market Seller to participate in the auction, or for other appropriate relief, and PJM will postpone clearing the auction pending FERC's decision on the matter.

## **6.7 Data Submission**

(a) Potential participants in any PJM Reliability Pricing Model Auction shall submit, together with supporting documentation for each item, to the Market Monitoring Unit no later than four months prior to the posted date for the conduct of such auction, a list of owned or controlled generation resources by PJM transmission zone for the specified Delivery Year, including the amount of gross capacity, the EFORD and the net (unforced) capacity.

(b) Except as provided in subsection (c) below, potential participants in any PJM Reliability Pricing Model Auction in any LDA or Unconstrained LDA Group that fails the Preliminary Market Structure Screen (or, if such region fails the screen, potential auction participants in the entire PJM Region) shall, in addition, submit the following data, together with supporting documentation for each item, to the Market Monitoring Unit no later than two months prior to the conduct of such auction:

i. If the Capacity Market Seller intends to submit a non-zero price in its Sell Offer in any such auction, the Capacity Market Seller shall submit a calculation of the Avoidable Cost Rate and Projected PJM Market Revenues, as defined in subsection (d) below, together with detailed supporting documentation.

ii. If the Capacity Market Seller intends to submit a Sell Offer based on opportunity cost, the Capacity Market Seller shall also submit a calculation of Opportunity Cost, as defined in subsection (d), with detailed supporting documentation.

(c) Potential auction participants identified in subsection (b) above need not submit the data specified in that subsection for any Generation Capacity Resource:

i. that is in an Unconstrained LDA Group or, if this is the relevant market, the entire PJM Region, and is in a resource class identified in the table below as not likely to include the marginal price-setting resources in such auction; or

ii. for which the potential participant commits that any Sell Offer it submits as to such resource shall not include any price above: (1) the level identified below for the relevant resource class, less (2) the Projected PJM Market Revenues for such resource, as determined in accordance with this Tariff.

Nothing herein precludes the Market Monitoring Unit from requesting additional information from any potential auction participant as deemed necessary by the Market Monitoring Unit, including, without limitation, additional cost data on resources in a class that is not otherwise expected to include the marginal price setting resource; and compliance with such request shall be a condition of participation in any auction. Any Sell Offer submitted in any auction that is inconsistent with any commitment made pursuant to this subsection shall be rejected, and the Capacity Market Seller shall be required promptly to resubmit a Sell Offer that complies with such commitments. If the Capacity Market Seller does not timely resubmit its Sell Offer, it shall

be deemed to have submitted a Sell Offer that complies with the commitments made under this subsection, with a default price equal to the maximum price for the class of resource determined under section (c)(ii) above. The obligation imposed under section 6.6(a) shall not be satisfied unless and until the Capacity Market Seller submits (or is deemed to have submitted) a Sell Offer that conforms to its commitments made pursuant to this subsection or subject to the procedures set forth in section 6.4 and section II.H of Attachment M - Appendix. The default Avoidable Cost Rates referenced in section (c)(ii) above are as set forth in the tables below for any auction conducted after September 1, 2009 for any Delivery Year through the 2012-2013 Delivery Year. To determine the default ACR values for the 2013-2014 and subsequent Delivery Years, the Office of the Interconnection shall multiply the ACR values for the immediately preceding Delivery Year by a factor equal to the most recent ten-calendar-year annual average rate of change in the applicable Handy-Whitman Index of Public Utility Construction Costs or a comparable index approved by the Commission, as calculated by the Office of the Interconnection and posted to its Web site; provided, however, that after the Handy-Whitman indexing methodology has been employed to determine the default ACR values for the RPM Auctions for three consecutive Delivery Years, the Office of the Interconnection shall: i) review the default ACR values to determine whether any changes other than those produced by such methodology are warranted for subsequent Delivery Years (including seeking the analysis and advice of the Market Monitoring Unit on such matter) and report its conclusions to the Members in writing no later than four months after the Base Residual Auction for the third such Delivery Year; and ii) file with FERC resulting changes, if any, to this section no later than seven months after such Base Residual Auction, to be effective for the Base Residual Auction for the following Delivery Year; provided further, that nothing herein precludes the Office of the Interconnection from filing with FERC changes to the default ACR values or any other provision of this section prior to the deadline stated in the previous clause, or at any other time. Capacity Market Sellers shall use the one-year mothball Avoidable Cost Rate shown below, unless such Capacity Market Seller satisfies the criteria set forth in section 6.7(e), in which case the Capacity Market Seller may use the retirement Avoidable Cost Rate. PJM shall also publish on its Web site the number of Generation Capacity Resources and megawatts per LDA that use the retirement Avoidable Cost Rates.

Technology	Technology Classes Not Likely to be the Marginal Price Setting Resource					
	2010-2011 Mothball Avoidable Cost Rate (\$/MW- Day)	2010-2011 Retirement Avoidable Cost Rate (\$/MW- Day)	2011-2012 Mothball Avoidable Cost Rate (\$/MW- Day)	2011-2012 Retirement Avoidable Cost Rate (\$/MW-Day)	2012-2013 Mothball Avoidable Cost Rate (\$/MW- Day)	2012 -2013 Retirement Avoidable Cost Rate (\$/MW- Day)
Nuclear	N/a	N/a	N/a	N/a	N/a	N/a
Pumped Storage	\$20.77	\$29.17	\$21.72	\$30.50	\$22.71	\$31.89
Hydro	\$71.01	\$92.87	\$74.24	\$97.10	\$77.62	\$101.52
Sub-Critical Coal	\$170.48	\$188.98	\$178.24	\$197.58	\$186.35	\$206.57
Super Critical Coal	\$176.13	\$192.65	\$184.15	\$201.42	\$192.53	\$210.59
Waste Coal - Small	\$224.83	\$272.31	\$235.06	\$284.70	\$245.75	\$297.65
Waste Coal – Large	\$83.15	\$100.45	\$86.94	\$105.02	\$90.89	\$109.80
Wind	N/a	N/a	N/a	N/a	N/a	N/a

<b>Maximum Avoidable Cost Rates by Technology Class</b>						
<b>Technology</b>	<b>2010-2011 Mothball Avoidable Cost Rate (\$/MW- Day)</b>	<b>2010-2011 Retirement Avoidable Cost Rate (\$/MW- Day)</b>	<b>2011-2012 Mothball Avoidable Cost Rate (\$/MW- Day)</b>	<b>2011-2012 Retirement Avoidable Cost Rate (\$/MW-Day)</b>	<b>2012-2013 Mothball Avoidable Cost Rate (\$/MW- Day)</b>	<b>2012-2013 Retirement Avoidable Cost Rate (\$/MW- Day)</b>
CC- 2 on 1 Frame F	\$30.92	\$43.86	\$32.33	\$45.85	\$33.80	\$47.94
CC- 3 on 1 Frame E/Siemens	\$34.33	\$46.48	\$35.89	\$48.60	\$37.52	\$50.81
CC – 3 or More on 1 or More Frame F	\$26.76	\$37.16	\$27.98	\$38.85	\$29.26	\$40.62
CC-NUG Cogen. Frame B or E Technology	\$114.93	\$154.43	\$120.16	\$161.45	\$125.62	\$168.80
CT - 1st & 2nd Gen. Aero (P&W FT 4)	\$24.57	\$32.68	\$25.69	\$34.17	\$26.86	\$35.73
CT - 1st & Gen. Frame B	\$24.28	\$32.41	\$25.38	\$33.87	\$26.54	\$35.42
CT - 2nd Gen. Frame E	\$23.08	\$30.89	\$24.13	\$32.29	\$25.23	\$33.76
CT - 3rd Gen. Aero (GE LM 6000)	\$55.87	\$82.36	\$58.42	\$86.10	\$61.07	\$90.02
CT - 3rd Gen. Aero (P&W FT - 8 TwinPak)	\$29.30	\$43.20	\$30.64	\$45.17	\$32.03	\$47.23
CT - 3rd Gen. Frame F	\$23.69	\$34.12	\$24.77	\$35.68	\$25.90	\$37.30
Diesel	\$26.29	\$33.39	\$27.49	\$34.91	\$28.74	\$36.49
Oil and Gas Steam	\$65.21	\$79.39	\$68.18	\$83.01	\$71.28	\$86.78

After the Market Monitoring Unit conducts its annual review of the table of default Avoided Cost Rates included in section 6.7(c) above in accordance with the procedure specified in section II.H of Attachment M – Appendix, it will provide updated values or notice of its determination that updated values are not needed to Office of the Interconnection. In the event that the Office of the Interconnection disagrees with the values proposed for revising the matrix, the Office of the Interconnection shall file its values.

(d) In order for costs to qualify for inclusion in the Market Seller Offer Cap, the Capacity Market Seller must provide to the Market Monitoring Unit relevant cost data concerning each data item specified as set forth in section 6. If cost data is not available at the time of submission for the time periods specified in section 6.8, costs may be estimated for such period based on the most recent data available, with an explanation of and basis for the estimate used. Based on the data and calculations submitted by the Capacity Market Sellers for each existing generation resource and the formulas specified below, the Market Monitoring Unit shall calculate the Market Seller Offer Cap for each such resource, and notify the Capacity Market Seller one month prior to the auction of its determination.

i. **Avoidable Cost Rate:** The Avoidable Cost Rate for an existing generation resource shall be determined using the formula below and applied to the unit's Base Offer Segment.

ii. **Opportunity Cost:** Opportunity Cost shall be the documented price available to an existing generation resource in a market external to PJM. In the event that the total MW of existing generation resources submitting opportunity cost offers in any auction for a Delivery Year exceeds the firm export capability of the PJM system for such Delivery Year, or the capability of external markets to import capacity in such year, the Office of the Interconnection will accept such offers on a competitive basis. PJM will construct a supply curve of opportunity cost offers, ordered by opportunity cost, and accept such offers to export starting with the highest opportunity cost, until the maximum level of such exports is reached. The maximum level of such exports is the lesser of the Office of the Interconnection's ability to permit firm exports or the ability of the importing area(s) to accept firm imports or imports of capacity, taking account of relevant export limitations by location. If, as a result, an opportunity cost offer is not accepted from an existing generation resource, the Market Seller Offer Cap applicable to Sell Offers relying on such generation resource shall be the Avoidable Cost Rate. The default Avoidable Cost Rate shall be the one year mothball Avoidable Cost Rate set forth in the tables in section 6.7(c) above unless Capacity Market Seller satisfies the criteria delineated in section 6.7(c) below.

iii. **Projected PJM Market Revenues,** as defined by section 6.8(d), for any Generation Capacity Resource to which the Avoidable Cost Rate is applied.

(e) In order for the retirement Avoidable Cost Rate set forth in the table in section 6.7(c) to apply, a Capacity Market Seller must timely submit to the Office of the Interconnection and the Market Monitoring Unit a written sworn, notarized statement of a corporate officer representing that the Capacity Market Seller will retire the Generation Capacity Resource if it does not receive during the relevant Delivery Year at least the applicable retirement Avoidable Cost Rate because it would be uneconomic to continue to operate the Generation Capacity Resource in the Delivery Year without the retirement Avoidable Cost Rate, and specifying the date the Generation Capacity Resource would otherwise be retired.

## **6.8 Avoidable Cost Definition**

### **(a) Avoidable Cost Rate:**

The Avoidable Cost Rate for a Generation Capacity Resource that is the subject of a Sell Offer shall be determined using the following formula, expressed in dollars per MW-year:

$$\text{Avoidable Cost Rate} = [\text{Adjustment Factor} * (\text{AOML} + \text{AAE} + \text{AME} + \text{AVE} + \text{ATFI} + \text{ACC} + \text{ACLE}) + \text{ARPIR} + \text{APIR}]$$

Where:

- **Adjustment Factor** equals 1.10 (to provide a margin of error for understatement of costs) plus an additional adjustment referencing the 10-year average Handy-Whitman Index in order to account for expected inflation from the time interval between the submission of the Sell Offer and the commencement of the Delivery Year.
- **AOML (Avoidable Operations and Maintenance Labor)** consists of the avoidable labor expenses related directly to operations and maintenance of the generating unit for the twelve months preceding the month in which the data must be provided. The categories of expenses included in AOML are those incurred for: (a) on-site based labor engaged in operations and maintenance activities; (b) off-site based labor engaged in on-site operations and maintenance activities directly related to the generating unit; and (c) off-site based labor engaged in off-site operations and maintenance activities directly related to generating unit equipment removed from the generating unit site.
- **AAE (Avoidable Administrative Expenses)** consists of the avoidable administrative expenses related directly to employees at the generating unit for twelve months preceding the month in which the data must be provided. The categories of expenses included in AAE are those incurred for: (a) employee expenses (except employee expenses included in AOML); (b) environmental fees; (c) safety and operator training; (d) office supplies; (e) communications; and (f) annual plant test, inspection and analysis.
- **AME (Avoidable Maintenance Expenses)** consists of avoidable maintenance expenses (other than expenses included in AOML) related directly to the generating unit for the twelve months preceding the month in which the data must be provided. The categories of expenses included in AME are those incurred for: (a) chemical and materials consumed during maintenance of the generating unit; and (b) rented maintenance equipment used to maintain the generating unit.
- **AVE (Avoidable Variable Expenses)** consists of avoidable variable expenses related directly to the generating unit incurred in the twelve months preceding the month in which the data must be provided. The categories of expenses included in AVE are those incurred for: (a) water treatment chemicals and lubricants; (b) water, gas, and electric service (not for power generation); and (c) waste water treatment.
- **ATFI (Avoidable Taxes, Fees and Insurance)** consists of avoidable expenses related directly to the generating unit incurred in the twelve months preceding the month in which the data must be provided. The categories of expenses included in AFTI are those incurred for: (a) insurance, (b) permits and licensing fees, (c) site security and utilities for maintaining security at the site; and (d) property taxes.

- **ACC (Avoidable Carrying Charges)** consists of avoidable short-term carrying charges related directly to the generating unit in the twelve months preceding the month in which the data must be provided. Avoidable short-term carrying charges shall include short term carrying charges for maintaining reasonable levels of inventories of fuel and spare parts that result from short-term operational unit decisions as measured by industry best practice standards. For the purpose of determining ACC, short term is the time period in which a reasonable replacement of inventory for normal, expected operations can occur.
- **ACLE (Avoidable Corporate Level Expenses)** consists of avoidable corporate level expenses directly related to the generating unit incurred in the twelve months preceding the month in which the data must be provided. Avoidable corporate level expenses shall include only such expenses that are directly linked to providing tangible services required for the operation of the generating unit proposed for Deactivation. The categories of avoidable expenses included in ACLE are those incurred for: (a) legal services, (b) environmental reporting; and (c) procurement expenses.
- **APIR (Avoidable Project Investment Recovery Rate) = PI \* CRF**

Where:

- **PI** is the amount of project investment completed prior to June 1 of the Delivery Year, except for Mandatory Capital Expenditures (“CapEx”) for which the project investment must be completed during the Delivery Year, that is reasonably required to enable a Generation Capacity Resource that is the subject of a Sell Offer to continue operating or improve availability during Peak-Hour Periods during the Delivery Year.
- **CRF** is the annual capital recovery factor from the following table, applied in accordance with the terms specified below.

Age of Existing Units (Years)	Remaining Life of Plant (Years)	Levelized CRF
1 to 5	30	0.107
6 to 10	25	0.114
11 to 15	20	0.125
16 to 20	15	0.146
21 to 25	10	0.198
25 Plus	5	0.363
Mandatory CapEx	4	0.450
40 Plus Alternative	1	1.100



Unless otherwise stated, Age of Existing Unit shall be equal to the number of years since the Unit commenced commercial operation, up to and through the relevant Delivery Year.

Remaining Life of Plant defines the amortization schedule (i.e., the maximum number of years over which the Project Investment may be included in the Avoidable Cost Rate.)

### **Capital Expenditures and Project Investment**

For any given Project Investment, a Capacity Market Seller may make a one-time election to recover such investment using: (i) the highest CRF and associated recovery schedule to which it is entitled; or (ii) the next highest CRF and associated recovery schedule. For these purposes, the CRF and recovery schedule for the 16 Plus category is the next highest CRF and recovery schedule for both the Mandatory CapEx and the 40 Plus Alternative categories. The Capacity Market Seller using the above table must provide the Market Monitoring Unit with information, identifying and supporting such election, including but not limited to the age of the unit, the amount of the Project Investment, the purpose of the investment, evidence of corporate commitment (e.g., an SEC filing, a press release, or a letter from a duly authorized corporate officer indicating intent to make such investment), and detailed information concerning the governmental requirement (if applicable). Absent other written notification, such election shall be deemed based on the CRF such Seller employs for the first Sell Offer reflecting recovery of any portion of such Project Investment. A Sell Offer submitted in the BRA for either or both of the 2007-2008 and 2008-2009 Delivery Years for which the “16 Plus” CRF and recovery schedule is selected may not exceed an offer price equal to the then-current Net CONE (on an unforced-equivalent basis).

For any resource using the CRF and associated recovery schedule from the CRF table that set the Capacity Resource Clearing Price in any Delivery Year, such Capacity Market Seller must also provide to the Market Monitoring Unit, for informational purposes only, evidence of the actual expenditure of the Project Investment, when such information becomes available.

If the project associated with a Project Investment that was included in a Sell Offer using a CRF and associated recovery schedule from the above table has not entered into commercial operation prior to the end of the relevant Delivery Year, and the resource’s Sell Offer sets the clearing price for the relevant LDA, the Capacity Market Seller shall be required to elect to either (i) pay a charge that is equal to the difference between the Capacity Resource Clearing Price for such LDA for the relevant Delivery Year and what the clearing price would have been absent the APIR component of the Avoidable Cost Rate, this difference to be multiplied by the cleared MW volume from such Resource (“rebate payment”); (ii) hold such rebate payment in escrow, to be released to the Capacity Market Seller in the event that the project enters into commercial operation during the subsequent Delivery Year or rebated to LSEs in the relevant LDA if the project has not entered into commercial operation during the subsequent Delivery Year; or (iii) make a reasonable investment in the amount of the PI in other existing Generation Capacity Resources owned or controlled by the Capacity Market Seller or its Affiliates in the relevant LDA. The revenue from such rebate payments shall be allocated pro rata to LSEs in the relevant LDA(s) that were charged a Locational Reliability Charge for such Delivery Year, based on their

Daily Unforced Capacity Obligation in the relevant LDA(s). If the Sell Offer from the Generation Capacity Resource did not set the Capacity Resource Clearing Price in the relevant LDA, no alternative investment or rebate payment is required. If the difference between the Capacity Resource Clearing Price for such LDA for the relevant Delivery Year and what the clearing price would have been absent the APIR amount does not exceed the greater of \$10 per MW-day or a 10% increase in the clearing price, no alternative investment or rebate payment is required.

### **Mandatory CapEx Option**

The Mandatory CapEx CRF and recovery schedule is an option available, beginning in the third BRA (Delivery Year 2009-10), to a resource that must make a Project Investment to comply with a governmental requirement that would otherwise materially impact operating levels during the Delivery Year, where: (i) such resource is a coal, oil or gas-fired resource that began commercial operation no fewer than fifteen years prior to the start of the first Delivery Year for which such recovery is sought, and such Project Investment is equal to or exceeds \$200/kW of capitalized project cost; or (ii) such resource is a coal-fired resource located in an LDA for which a separate VRR Curve has been established for the relevant Delivery Years, and began commercial operation at least 50 years prior to the conduct of the relevant BRA.

A Capacity Market Seller that wishes to elect the Mandatory CapEx option for a Project Investment must do so beginning with the Base Residual Auction for the Delivery Year in which such project is expected to enter commercial operation. A Sell Offer submitted in any Base Residual Auction for which the Mandatory CapEx option is selected may not exceed an offer price equivalent to 0.90 times the then-current Net CONE (on an unforced-equivalent basis).

### **40 Year Plus Alternative Option**

The 40 Plus Alternative CRF and recovery schedule is an option available, beginning in the third BRA (Delivery Year 2009-10), for a resource that is a gas- or oil-fired resource that began commercial operation no less than 40 years prior to the conduct of the relevant BRA (excluding, however, any resource in any Delivery Year for which the resource is receiving a payment under Part V of the PJM Tariff. Generation Capacity Resources electing this 40 Plus Alternative CRF shall be treated as At Risk Generation for purposes of the sensitivity runs in the RTEP process). Resources electing the 40 Year Plus Option will be modeled in the RTEP process as “at-risk” at the end of the one-year amortization period.

A Capacity Market Seller that wishes to elect the 40 Plus Alternative option for a Project Investment must provide written notice of such election to the Office of the Interconnection no later than six months prior to the Base Residual Auction for which such election is sought; provided however that shorter notice may be provided if unforeseen circumstances give rise to the need to make such election and such seller gives notice as soon as practicable.

The Office of the Interconnection shall give market participants reasonable notice of such election, subject to satisfaction of requirements under the PJM Operating Agreement for protection of confidential and commercially sensitive information. A Sell Offer submitted in any

Base Residual Auction for which the 40 Plus Alternative option is selected may not exceed an offer price equivalent to the then-current Net CONE (on an unforced-equivalent basis).

### **Multi-Year Pricing Option**

A Seller submitting a Sell Offer with an APIR component that is based on a Project Investment of at least \$450/kW may elect this Multi-Year Pricing Option by providing written notice to such effect the first time it submits a Sell Offer that includes an APIR component for such Project Investment. Such option shall be available on the same terms, and under the same conditions, as are available to Planned Generation Capacity Resources under section 5.14(c) of this Attachment.

- ARPIR (Avoidable Refunds of Project Investment Reimbursements) consists of avoidable refund amounts of Project Investment Reimbursements payable by a Generation Owner to PJM under Part V, Section 118 of this Tariff or avoidable refund amounts of project investment reimbursements payable by a Generation Owner to PJM under a Cost of Service Recovery Rate filed under Part V, Section 119 of the Tariff and approved by the Commission.

(b) For the purpose of determining an Avoidable Cost Rate, avoidable expenses are incremental expenses directly required to operate a Generation Capacity Resource that a Generation Owner would not incur if such generating unit did not operate in the Delivery Year or meet Availability criteria during Peak-Hour Periods during the Delivery Year.

(c) For the purpose of determining an Avoidable Cost Rate, avoidable expenses shall exclude variable costs recoverable under cost-based offers to sell energy from operating capacity on the PJM Interchange Energy Market under the Operating Agreement.

(d) Projected PJM Market Revenues for any Generation Capacity Resource to which the Avoidable Cost Rate is applied shall include all actual unit-specific revenues from PJM energy markets, ancillary services, and unit-specific bilateral contracts from such Generation Capacity Resource, net of marginal costs for providing such energy (i.e., costs allowed under cost-based offers pursuant to Section 6.4 of Schedule 1 of the Operating Agreement) and ancillary services from such resource.

(i) For the first three BRAs (for Delivery Years 2007-08, 2008-09, 2009-10), the calculation of Projected PJM Market Revenues shall be equal to the simple average of such net revenues as described above for calendar years 2001-2006; and

(ii) For the fourth BRA (delivery year 2010-11) and thereafter, the calculation of Projected PJM Market Revenues shall be equal to the rolling simple average of such net revenues as described above from the three most recent whole calendar years prior to the year in which the BRA is conducted.

If a Generation Capacity Resource did not receive PJM market revenues during the entire relevant time period because the Generation Capacity Resource was not integrated into PJM during the full period, then the Projected PJM Market Revenues shall be calculated using only those whole calendar years within the full period in which such Resource received PJM market revenues.

If a Generation Capacity Resource did not receive PJM market revenues during the entire relevant time period because it was not in commercial operation during the entire period, or if data is not available to the Capacity Market Seller for the entire period, despite the good faith efforts of such seller to obtain such data, then the Projected PJM Market Revenues shall be calculated based upon net revenues received over the entire period by comparable units, to be developed by the MMU and the Capacity Market Seller.

## **1.10 Scheduling.**

### **1.10.1 General.**

- (a) The Office of the Interconnection shall administer scheduling processes to implement a Day-ahead Energy Market and a Real-time Energy Market.
- (b) The Day-ahead Energy Market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at Day-ahead Prices and enable Transmission Customers to reserve transmission service with Transmission Congestion Charges and Transmission Loss Charges based on locational differences in Day-ahead Prices. Up-To Congestion transactions submitted in the Day-ahead Energy Market shall not require transmission service and Transmission Customers shall not reserve transmission service for such transactions. Market Participants whose purchases and sales, and Transmission Customers whose transmission uses are scheduled in the Day-ahead Energy Market, shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges and Transmission Loss Charges, at the applicable Day-ahead Prices for the amounts scheduled.
- (c) In the Real-time Energy Market, Market Participants that deviate from the amounts of energy purchases or sales, or Transmission Customers that deviate from the transmission uses, scheduled in the Day-ahead Energy Market shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges and Transmission Loss Charges, for the amount of the deviations at the applicable Real-time Prices or price differences, unless otherwise specified by this Schedule.
- (d) The following scheduling procedures and principles shall govern the commitment of resources to the Day-ahead Energy Market and the Real-time Energy Market over a period extending from one week to one hour prior to the real-time dispatch. Scheduling encompasses the day-ahead and hourly scheduling process, through which the Office of the Interconnection determines the Day-ahead Energy Market and determines, based on changing forecasts of conditions and actions by Market Participants and system constraints, a plan to serve the hourly energy and reserve requirements of the Internal Market Buyers and the purchase requests of the External Market Buyers in the least costly manner, subject to maintaining the reliability of the PJM Region. Scheduling shall be conducted as specified below, subject to the following condition. If the Office of the Interconnection's forecast for the next seven days projects a likelihood of Emergency conditions, the Office of the Interconnection may commit, for all or part of such seven day period, to the use of generation resources with notification or start-up times greater than one day as necessary in order to alleviate or mitigate such Emergency, in accordance with the Market Sellers' offers for such units for such periods and the specifications in the PJM Manuals.

#### **1.10.1A Day-ahead Energy Market Scheduling.**

The following actions shall occur not later than 12:00 noon on the day before the Operating Day for which transactions are being scheduled, or such other deadline as may be specified by the

Office of the Interconnection in order to comply with the practical requirements and the economic and efficiency objectives of the scheduling process specified in this Schedule.

(a) Each Market Participant may submit to the Office of the Interconnection specifications of the amount and location of its customer loads and/or energy purchases to be included in the Day-ahead Energy Market for each hour of the next Operating Day, such specifications to comply with the requirements set forth in the PJM Manuals. Each Market Buyer shall inform the Office of the Interconnection of the prices, if any, at which it desires not to include its load in the Day-ahead Energy Market rather than pay the Day-ahead Price.

(b) Each Generating Market Buyer shall submit to the Office of the Interconnection: (i) hourly schedules for resource increments, including hydropower units, self-scheduled by the Market Buyer to meet its Equivalent Load; and (ii) the Dispatch Rate at which each such self-scheduled resource will disconnect or reduce output, or confirmation of the Market Buyer's intent not to reduce output.

(c) All Market Participants shall submit to the Office of the Interconnection schedules for any bilateral transactions involving use of generation or Transmission Facilities as specified below, and shall inform the Office of the Interconnection whether the transaction is to be included in the Day-ahead Energy Market. Any Market Participant that elects to include a bilateral transaction in the Day-ahead Energy Market may specify the price (such price not to exceed the maximum price that may be specified in the PJM Manuals), if any, at which it will be wholly or partially curtailed rather than pay Transmission Congestion Charges. The foregoing price specification shall apply to the price difference between the specified bilateral transaction source and sink points in the day-ahead scheduling process only. Any Market Participant that elects not to include its bilateral transaction in the Day-ahead Energy Market shall inform the Office of the Interconnection if the parties to the transaction are not willing to incur Transmission Congestion Charges in the Real-time Energy Market in order to complete any such scheduled bilateral transaction. Scheduling of bilateral transactions shall be conducted in accordance with the specifications in the PJM Manuals and the following requirements:

- i) Internal Market Buyers shall submit schedules for all bilateral purchases for delivery within the PJM Region, whether from generation resources inside or outside the PJM Region;
- ii) Market Sellers shall submit schedules for bilateral sales to entities outside the PJM Region from generation within the PJM Region that is not dynamically scheduled to such entities pursuant to Section 1.12; and
- iii) In addition to the foregoing schedules for bilateral transactions, Market Participants shall submit confirmations of each scheduled bilateral transaction from each other party to the transaction in addition to the party submitting the schedule, or the adjacent Control Area.

(d) Market Sellers wishing to sell into the Day-ahead Energy Market shall submit offers for the supply of energy (including energy from hydropower units), demand reductions, Regulation,

Operating Reserves or other services for the following Operating Day. Offers shall be submitted to the Office of the Interconnection in the form specified by the Office of the Interconnection and shall contain the information specified in the Office of the Interconnection's Offer Data specification, this Section 1.10.1A(d), Schedule 2 to this Agreement, and the PJM Manuals, as applicable. Market Sellers owning or controlling the output of a Generation Capacity Resource that was committed in an FRR Capacity Plan, self-supplied, offered and cleared in a Base Residual Auction or Incremental Auction, or designated as replacement capacity, as specified in Attachment DD of the PJM Tariff, and that has not been rendered unavailable by a Generator Planned Outage, a Generator Maintenance Outage, or a Generator Forced Outage shall submit offers for the available capacity of such Generation Capacity Resource, including any portion that is self-scheduled by the Generating Market Buyer. The submission of offers for resource increments that have not cleared in a Base Residual Auction or an Incremental Auction, were not committed in an FRR Capacity Plan, and were not designated as replacement capacity under Attachment DD of the PJM Tariff shall be optional, but any such offers must contain the information specified in the Office of the Interconnection's Offer Data specification, this Section 1.10.1A(d), Schedule 2 to this Agreement, and the PJM Manuals, as applicable. Energy offered from generation resources that have not cleared a Base Residual Auction or an Incremental Auction, were not committed in an FRR Capacity Plan, and were not designated as replacement capacity under Attachment DD of the PJM Tariff shall not be supplied from resources that are included in or otherwise committed to supply the Operating Reserves of a Control Area outside the PJM Region. The foregoing offers:

- i) Shall specify the Generation Capacity Resource or Demand Resource and energy or demand reduction, amount, respectively, for each hour in the offer period, and the minimum run time for generation resources and minimum down time for Demand Resources;
- ii) Shall specify the amounts and prices for the entire Operating Day for each resource component offered by the Market Seller to the Office of the Interconnection;
- iii) If based on energy from a specific generating unit, may specify start-up and no-load fees equal to the specification of such fees for such unit on file with the Office of the Interconnection, if based on reductions in demand from a Demand Resource may specify shutdown costs;
- iv) Shall set forth any special conditions upon which the Market Seller proposes to supply a resource increment, including any curtailment rate specified in a bilateral contract for the output of the resource, or any cancellation fees;
- v) May include a schedule of offers for prices and operating data contingent on acceptance by the deadline specified in this Schedule, with a second schedule applicable if accepted after the foregoing deadline;

- vi) Shall constitute an offer to submit the resource increment to the Office of the Interconnection for scheduling and dispatch in accordance with the terms of the offer, which offer shall remain open through the Operating Day for which the offer is submitted;
- vii) Shall be final as to the price or prices at which the Market Seller proposes to supply energy or other services to the PJM Interchange Energy Market, such price or prices being guaranteed by the Market Seller for the period extending through the end of the following Operating Day; and
- viii) Shall not exceed an energy offer price of \$1,000/megawatt-hour.

(e) A Market Seller that wishes to make a resource available to sell Regulation service shall submit an offer for Regulation that shall specify the megawatt of Regulation being offered, which must equal or exceed 0.5 megawatts, the Regulation Zone for which such regulation is offered, the price of the offer in dollars per MWh, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the resource's opportunity costs. The price of the offer shall not exceed \$100 per MWh in the case of Regulation offered for all Regulation Zones. In addition to any market-based offer for Regulation, the Market Seller also shall submit a cost-based offer. A cost-based offer must be in the form specified in the PJM Manuals and consist of the following components as well as any other components specified in the PJM Manuals:

- i. The costs (in \$/MW) of the fuel cost increase due to the heat rate increase resulting from operating the unit at lower megawatt output incurred from the provision of Regulation;
- ii. The cost increase (in \$/MW) in variable operating and maintenance costs resulting from operating the unit at lower megawatt output incurred from the provision of Regulation; and
- iii. An adder of up to \$12.00 per megawatt of Regulation provided.

Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

(f) Each Market Seller owning or controlling the output of a Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative shall submit a forecast of the availability of each such Generation Capacity Resource for the next seven days. A Market Seller (i) may submit a non-binding forecast of the price at which it expects to offer a generation resource increment to the Office of the Interconnection over the next seven days, and (ii) shall submit a binding offer for energy, along with start-up and no-load fees, if any, for the next seven days or part thereof, for any generation resource with minimum notification or start-up requirement greater than 24 hours.

(g) Each offer by a Market Seller of a Generation Capacity Resource shall remain in effect for subsequent Operating Days until superseded or canceled.



(h) The Office of the Interconnection shall post on the PJM Open Access Same-time Information System the total hourly loads scheduled in the Day-ahead Energy Market, as well as, its estimate of the combined hourly load of the Market Buyers for the next four days, and peak load forecasts for an additional three days.

(i) Except for Economic Load Response Participants, all Market Participants may submit Increment Bids and/or Decrement Bids that apply to the Day-ahead Energy Market only. Such bids must comply with the requirements set forth in the PJM Manuals and must specify amount, location and price, if any, at which the Market Participant desires to purchase or sell energy in the Day-ahead Energy Market. The Office of the Interconnection may require that a market participant shall not submit in excess of 3000 bid/offer segments in the Day-ahead Energy Market, when the Office of the Interconnection determines that such limit is required to avoid or mitigate significant system performance problems related to bid/offer volume. Notice of the need to impose such limit shall be provided prior to 10:00 a.m. EPT on the day that the Day-ahead Energy Market will clear. For purposes of this provision, a bid/offer segment is each pairing of price and megawatt quantity submitted as part of an Increment Bid or Decrement Bid.

(j) A Market Seller that wishes to make a generation resource or Demand Resource available to sell Synchronized Reserve shall submit an offer for Synchronized Reserve that shall specify the megawatts of Synchronized Reserve being offered, which must equal or exceed 0.5 megawatts, the price of the offer in dollars per megawatt hour, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the energy used by the generation resource to provide the Synchronized Reserve and the generation resource's unit specific opportunity costs. The price of the offer shall not exceed the variable operating and maintenance costs for providing Synchronized Reserve plus seven dollars and fifty cents.

(k) An Economic Load Response Participant that wishes to participate in the Day-ahead Energy Market by reducing demand shall submit an offer to reduce demand to the Office of the Interconnection. The offer must equal or exceed 0.1 megawatts, and the offer shall specify: (i) the amount of the offered curtailment in minimum increments of .1 megawatts; (ii) the Day-ahead Locational Marginal Price above which the end-use customer will reduce load; and (iii) at the Economic Load Response Participant's option, start-up costs associated with reducing load, including direct labor and equipment costs, opportunity costs, and/or a minimum of number of contiguous hours for which the load reduction must be committed. Economic Load Response Participants submitting offers to reduce demand in the Day-ahead Energy Market may establish an incremental offer curve, provided that such offer curve shall be limited to ten price pairs (in MWs).

(l) Market Sellers owning or controlling the output of a Demand Resource that was committed in an FRR Capacity Plan, self-supplied or offered and cleared in the Base Residual Auction or one of the Incremental Auctions, or owning or controlling the output of an ILR resource which was certified as specified in Attachment DD of the PJM Tariff, may submit demand reduction bids for the available load reduction capability of the Demand Resource or ILR resource. The submission of demand reduction bids for resource increments that have not

cleared in the Base Residual Auction or in one of the Incremental Auctions, or for ILR resources that were not certified, or were not committed in an FRR Capacity Plan, shall be optional, but any such bids must contain the information specified in the PJM Economic Load Response Program to be included in such bids. A Demand Resource that was committed in an FRR Capacity Plan, self-supplied or offered and cleared in a Base Residual Auction or an Incremental Auction may submit a demand reduction bid in the Day-ahead Energy Market as specified in the Economic Load Response Program, provided however, that in the event of an Emergency, PJM shall require Demand Resources and ILR resources to reduce load notwithstanding that the Zonal LMP at the time such Emergency is declared is below the price identified in the demand reduction bid.

(m) Market Sellers that wish to make Day-ahead Scheduling Reserves Resources available to sell Day-ahead Scheduling Reserves shall submit offers, each of which must equal or exceed 0.5 megawatts, in the Day-ahead Scheduling Reserves Market specifying: 1) the price of the offer in dollars per megawatt hour; and 2) such other information specified by the Office of the Interconnection as may be necessary to determine any relevant opportunity costs for the resource(s). The foregoing notwithstanding, to qualify to submit offers pursuant to this section, the Day-ahead Scheduling Reserves Resources shall submit energy offers in the Day-ahead Energy Market including start-up and shut-down costs for generation resource and Demand Resources, respectively, and all generation resources that are capable of providing Day-ahead Scheduling Reserves that a particular resource can provide that service. The MW quantity of Day-ahead Scheduling Reserves that a particular resource can provide in a given hour will be determined based on the energy offer data submitted in the Day-ahead Energy Market, as detailed in the PJM Manuals.

### **1.10.2 Pool-scheduled Resources.**

Pool-scheduled resources are those resources for which Market Participants submitted offers to sell energy in the Day-ahead Energy Market and offers to reduce demand in the Day-ahead Energy Market, which the Office of the Interconnection scheduled in the Day-ahead Energy Market as well as generators committed by the Office of the Interconnection subsequent to the Day-ahead Energy Market. Such resources shall be committed to provide energy in the real-time dispatch unless the schedules for such units are revised pursuant to Sections 1.10.9 or 1.11. Pool-scheduled resources shall be governed by the following principles and procedures.

(a) Pool-scheduled resources shall be selected by the Office of the Interconnection on the basis of the prices offered for energy and demand reductions and related services, start-up, no-load and cancellation fees, and the specified operating characteristics, offered by Market Sellers to the Office of the Interconnection by the offer deadline specified in Section 1.10.1A.

(b) A resource that is scheduled by a Market Participant to support a bilateral sale, or that is self-scheduled by a Generating Market Buyer, shall not be selected by the Office of the Interconnection as a pool-scheduled resource except in an Emergency.

(c) Market Sellers offering energy from hydropower or other facilities with fuel or environmental limitations may submit data to the Office of the Interconnection that is sufficient

to enable the Office of the Interconnection to determine the available operating hours of such facilities.

(d) The Market Seller of a resource selected as a pool-scheduled resource shall receive payments or credits for energy, demand reductions or related services, or for start-up and no-load fees, from the Office of the Interconnection on behalf of the Market Buyers in accordance with Section 3 of this Schedule 1. Alternatively, the Market Seller shall receive, in lieu of start-up and no-load fees, its actual costs incurred, if any, up to a cap of the resource's start-up cost, if the Office of the Interconnection cancels its selection of the resource as a pool-scheduled resource and so notifies the Market Seller before the resource is synchronized.

(e) Market Participants shall make available their pool-scheduled resources to the Office of the Interconnection for coordinated operation to supply the Operating Reserves needs of the applicable Control Zone.

(f) Economic Load Response Participants offering to reduce demand shall specify: (i) the amount of the offered curtailment, which offer must equal or exceed 0.1 megawatts, in minimum increments of .1 megawatts; (ii) the real-time Locational Marginal Price above which the end-use customer will reduce load; and (iii) at the Economic Load Response Participant's option, shut-down costs associated with reducing load, including direct labor and equipment costs, opportunity costs, and/or a minimum number of contiguous hours for which the load reduction must be committed. Economic Load Response Participants submitting offers to reduce demand in the Real-time Energy Market may establish an incremental offer curve, provided that such offer curve shall be limited to ten price pairs (in MWs). Economic Load Response Participants offering to reduce demand shall also indicate the hours that the demand reduction is not available.

### **1.10.3 Self-scheduled Resources.**

Self-scheduled resources shall be governed by the following principles and procedures.

(a) Each Generating Market Buyer shall use all reasonable efforts, consistent with Good Utility Practice, not to self-schedule resources in excess of its Equivalent Load.

(b) The offered prices of resources that are self-scheduled, or otherwise not following the dispatch orders of the Office of the Interconnection, shall not be considered by the Office of the Interconnection in determining Locational Marginal Prices.

(c) Market Participants shall make available their self-scheduled resources to the Office of the Interconnection for coordinated operation to supply the Operating Reserves needs of the applicable Control Zone, by submitting an offer as to such resources.

(d) A Market Participant self-scheduling a resource in the Day-ahead Energy Market that does not deliver the energy in the Real-time Energy Market, shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

#### **1.10.4 Capacity Resources.**

(a) A Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative that is selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection. Such a Generation Capacity Resource that does not deliver energy as scheduled shall be deemed to have experienced a Generator Forced Outage to the extent of such energy not delivered. A Market Participant offering such Generation Capacity Resource in the Day-ahead Energy Market shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Energy from a Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative that has not been scheduled in the Day-ahead Energy Market may be sold on a bilateral basis by the Market Seller, may be self-scheduled, or may be offered for dispatch during the Operating Day in accordance with the procedures specified in this Schedule. Such a Generation Capacity Resource that has not been scheduled in the Day-ahead Energy Market and that has been sold on a bilateral basis must be made available upon request to the Office of the Interconnection for scheduling and dispatch during the Operating Day if the Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable Real-time Price for energy delivered.

(c) A resource that has been self-scheduled shall not receive payments or credits for start-up or no-load fees.

#### **1.10.5 External Resources.**

(a) External Resources may submit offers to the PJM Interchange Energy Market, in accordance with the day-ahead and real-time scheduling processes specified above. An External Resource selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection, and except as specified below shall be compensated on the same basis as other pool-scheduled resources. External Resources that are not capable of dynamic dispatch shall, if selected by the Office of the Interconnection on the basis of the Market Seller's Offer Data, be block loaded on an hourly scheduled basis. Market Sellers shall offer External Resources to the PJM Interchange Energy Market on either a resource-specific or an aggregated resource basis. A Market Participant whose pool-scheduled resource does not deliver the energy scheduled in the Day-ahead Energy Market shall replace such energy not delivered as scheduled in the Day-ahead Energy Market with energy from the PJM Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Offers for External Resources from an aggregation of two or more generating units shall so indicate, and shall specify, in accordance with the Offer Data requirements specified by the Office of the Interconnection: (i) energy prices; (ii) hours of energy availability; (iii) a minimum

dispatch level; (iv) a maximum dispatch level; and (v) unless such information has previously been made available to the Office of the Interconnection, sufficient information, as specified in the PJM Manuals, to enable the Office of the Interconnection to model the flow into the PJM Region of any energy from the External Resources scheduled in accordance with the Offer Data. If a Market Seller submits more than one offer on an aggregated resource basis, the withdrawal of any such offer shall be deemed a withdrawal of all higher priced offers for the same period.

(c) Offers for External Resources on a resource-specific basis shall specify the resource being offered, along with the information specified in the Offer Data as applicable.

#### **1.10.6 External Market Buyers.**

(a) Deliveries to an External Market Buyer not subject to dynamic dispatch by the Office of the Interconnection shall be delivered on a block loaded basis to the load bus or buses at the electrical boundaries of the PJM Region, or in such area with respect to an External Market Buyer's load within such area not served by Network Service, at which the energy is delivered to or for the External Market Buyer. External Market Buyers shall be charged or credited at either the Day-ahead Prices or Real-time Prices, whichever is applicable, for energy at the foregoing load bus or buses.

(b) An External Market Buyer's hourly schedules for energy purchased from the PJM Interchange Energy Market shall conform to the ramping and other applicable requirements of the interconnection agreement between the PJM Region and the Control Area to which, whether as an intermediate or final point of delivery, the purchased energy will initially be delivered.

(c) The Office of the Interconnection shall curtail deliveries to an External Market Buyer if necessary to maintain appropriate reserve levels for a Control Zone as defined in the PJM Manuals, or to avoid shedding load in such Control Zone.

#### **1.10.6A Transmission Loading Relief Customers.**

(a) An entity that desires to elect to pay Transmission Congestion Charges in order to continue its energy schedules during an Operating Day over contract paths outside the PJM Region in the event that PJM initiates Transmission Loading Relief that otherwise would cause PJM to request security coordinators to curtail such Member's energy schedules shall:

- (i) enter its election on OASIS by 12:00 p.m. of the day before the Operating Day, in accordance with procedures established by PJM, which election shall be applicable for the entire Operating Day; and
- (ii) if PJM initiates Transmission Loading Relief, provide to PJM, at such time and in accordance with procedures established by PJM, the hourly integrated energy schedules that impacted the PJM Region (as indicated from the NERC Interchange Distribution Calculator) during the Transmission Loading Relief.

(b) If an entity has made the election specified in Section (a), then PJM shall not request security coordinators to curtail such entity's energy transactions, except as may be necessary to respond to Emergencies.

(c) In order to make elections under this Section 1.10.6A, an entity must (i) have met the creditworthiness standards established by the Office of the Interconnection or provided a letter of credit or other form of security acceptable to the Office of the Interconnection, and (ii) have executed either the Agreement, a Service Agreement under the PJM Tariff, or other agreement committing to pay all Transmission Congestion Charges incurred under this Section.

### **1.10.7 Bilateral Transactions.**

Bilateral transactions as to which the parties have notified the Office of the Interconnection by the deadline specified in Section 1.10.1A that they elect not to be included in the Day-ahead Energy Market and that they are not willing to incur Transmission Congestion Charges in the Real-time Energy Market shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions that were not included in the Day-ahead Energy Market and that are willing to incur congestion charges and bilateral transactions that were accepted in the Day-ahead Energy Market shall continue to be implemented during periods of congestion, except as may be necessary to respond to Emergencies.

### **1.10.8 Office of the Interconnection Responsibilities.**

(a) The Office of the Interconnection shall use its best efforts to determine (i) the least-cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers, including the reliability requirements of the PJM Region, of the Day-ahead Energy Market, and (ii) the least-cost means of satisfying the Operating Reserve and other ancillary service requirements for any portion of the load forecast of the Office of the Interconnection for the Operating Day in excess of that scheduled in the Day-ahead Energy Market. In making these determinations, the Office of the Interconnection shall take into account: (i) the Office of the Interconnection's forecasts of PJM Interchange Energy Market and PJM Region energy requirements, giving due consideration to the energy requirement forecasts and purchase requests submitted by Market Buyers; (ii) the offers submitted by Market Sellers; (iii) the availability of limited energy resources; (iv) the capacity, location, and other relevant characteristics of self-scheduled resources; (v) the objectives of each Control Zone for Operating Reserves, as specified in the PJM Manuals; (vi) the requirements of each Regulation Zone for Regulation and other ancillary services, as specified in the PJM Manuals; (vii) the benefits of avoiding or minimizing transmission constraint control operations, as specified in the PJM Manuals; and (viii) such other factors as the Office of the Interconnection reasonably concludes are relevant to the foregoing determination, including, without limitation, transmission constraints on external coordinated flowgates to the extent provided by section 1.7.6. The Office of the Interconnection shall develop a Day-ahead Energy Market based on the foregoing determination, and shall determine the Day-ahead Prices resulting from such schedule. The Office of the Interconnection shall report the planned schedule for a hydropower resource to

the operator of that resource as necessary for plant safety and security, and legal limitations on pond elevations.

(b) Not later than 4:00 p.m. of the day before each Operating Day, or such earlier deadline as may be specified by the Office of the Interconnection in the PJM Manuals, the Office of the Interconnection shall: (i) post the aggregate Day-ahead Energy Market results; (ii) post the Day-ahead Prices; and (iii) inform the Market Sellers, Market Buyers, and Economic Load Response Participants of their scheduled injections, withdrawals, and demand reductions respectively.

(c) Following posting of the information specified in Section 1.10.8(b), the Office of the Interconnection shall revise its schedule of generation resources to reflect updated projections of load, conditions affecting electric system operations in the PJM Region, the availability of and constraints on limited energy and other resources, transmission constraints, and other relevant factors. The Office of the Interconnection shall post on the PJM Open Access Same-time Information System at times specified in the PJM Manuals a revised forecast of the location and duration of any expected transmission congestion, and of the range of differences in Locational Marginal Prices between major subareas of the PJM Region expected to result from such transmission congestion.

(d) Market Buyers shall pay and Market Sellers shall be paid for the quantities of energy scheduled in the Day-ahead Energy Market at the Day-ahead Prices. Economic Load Response Participants shall be paid for scheduled demand reductions pursuant to Section 3.3A of this Schedule.

(e) If the Office of the Interconnection discovers an error in prices and/or cleared quantities in the Day-ahead Energy Market, Real-time Energy Market, Ancillary Services Markets or Day Ahead Scheduling Reserve Market after it has posted the results for these markets on its Web site, the Office of the Interconnection shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 12:00 p.m. of the second business day following the Operating Day for the Ancillary Services Markets and Real-time Energy Market, and no later than 5:00 p.m. of the second business day following the initial publication of the results for the Day-ahead Scheduling Reserve Market and Day-ahead Energy Market. After this initial notification, if the Office of the Interconnection determines it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the fifth business day following the Operating Day for the Ancillary Services Markets and Real-time Energy Market, and no later than 5:00 p.m. of the fifth business day following the initial publication of the results in the Day-ahead Scheduling Reserve Market and the Day-ahead Energy Market. Thereafter, the Office of the Interconnection must post on its Web site the corrected results by no later than 5:00 p.m. of the tenth calendar day following the Operating Day for the Ancillary Services Markets, Day-ahead Energy Market and Real-time Energy Market, and no later than 5:00 p.m. of the tenth calendar day following the initial publication of the results in the Day-ahead Scheduling Reserve Market. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced market results are under publicly noticed review by the FERC.

(f) Consistent with Section 18.17.1 of the PJM Operating Agreement, and notwithstanding anything to the contrary in the Operating Agreement or in the PJM Tariff, to allow the tracking of Market Participants' non-aggregated bids and offers over time as required by FERC Order No. 719, the Office of the Interconnection shall post on its Web site the non-aggregated bid data and Offer Data submitted by Market Participants (for participation in the PJM Interchange Energy Market) approximately four months after the bid or offer was submitted to the Office of the Interconnection.

### **1.10.9 Hourly Scheduling.**

(a) Following the initial posting by the Office of the Interconnection of the Locational Marginal Prices resulting from the Day-ahead Energy Market, and subject to the right of the Office of the Interconnection to schedule and dispatch pool-scheduled resources and to direct that schedules be changed in an Emergency, a generation rebidding period shall exist from 4:00 p.m. to 6:00 p.m. on the day before each Operating Day. During the rebidding period, Market Participants may submit revisions to generation Offer Data for any generation resource that was not selected as a pool-scheduled resource in the Day-ahead Energy Market. Adjustments to Day-ahead Energy Markets shall be settled at the applicable Real-time Prices, and shall not affect the obligation to pay or receive payment for the quantities of energy scheduled in the Day-ahead Energy market at the applicable Day-ahead Prices.

(b) A Market Participant may adjust the schedule of a resource under its dispatch control on an hour-to-hour basis beginning at 10:00 p.m. of the day before each Operating Day, provided that the Office of the Interconnection is notified not later than 60 minutes prior to the hour in which the adjustment is to take effect, as follows:

- i) A Generating Market Buyer may self-schedule any of its resource increments, including hydropower resources, not previously designated as self-scheduled and not selected as a pool-scheduled resource in the Day-ahead Energy Market;
- ii) A Market Participant may request the scheduling of a non-firm bilateral transaction; or
- iii) A Market Participant may request the scheduling of deliveries or receipts of Spot Market Energy; or
- iv) A Generating Market Buyer may remove from service a resource increment, including a hydropower resource, that it had previously designated as self-scheduled, provided that the Office of the Interconnection shall have the option to schedule energy from any such resource increment that is a Capacity Resource at the price offered in the scheduling process, with no obligation to pay any start-up fee.



(c) With respect to a pool-scheduled resource that is included in the Day-ahead Energy Market, a Market Seller may not change or otherwise modify its offer to sell energy.

(d) An External Market Buyer may refuse delivery of some or all of the energy it requested to purchase in the Day-ahead Energy Market by notifying the Office of the Interconnection of the adjustment in deliveries not later than 60 minutes prior to the hour in which the adjustment is to take effect, but any such adjustment shall not affect the obligation of the External Market Buyer to pay for energy scheduled on its behalf in the Day-ahead Energy Market at the applicable Day-ahead Prices.

(e) For each hour in the Operating Day, as soon as practicable after the deadlines specified in the foregoing subsection of this Section 1.10, the Office of the Interconnection shall provide External Market Buyers and External Market Sellers and parties to bilateral transactions with any revisions to their schedules for the hour.

### **3.3A Economic Load Response Participants.**

#### **3.3A.1 Compensation.**

Economic Load Response Participants shall be compensated pursuant to Sections 3.3A.4 and/or 3.3A.5 of this Schedule, for demand reductions measured by: 1) comparing actual metered load to an end-use customer's Customer Baseline Load or alternative CBL determined in accordance with the provisions of Section 3.3A.2 or 3.3A.2.01, respectively; or 2) by the MWs produced by On-Site Generators pursuant to the provisions of Section 3.3A.2.02.

#### **3.3A.2 Customer Baseline Load.**

For Economic Load Response Participants that choose to measure demand reductions using an end-use customer's Customer Baseline Load ("CBL"), the CBL shall be determined using the following formula:

(a) The CBL for weekdays shall be the average of the highest 4 out of the 5 most recent highest load weekdays in the 45 calendar day period preceding the relevant load reduction event.

- i. For the purposes of calculating the CBL for weekdays, weekdays shall not include:
  1. NERC holidays;
  2. Weekend days;
  3. Event days. For the purposes of this section an event day shall be any weekday that an Economic Load Response Participant submits a settlement pursuant to Section 3.3A.4 or 3.3A.5, provided that Event Days shall exclude such days if the settlement is denied by the relevant LSE or electric distribution company or is disallowed by the Office of the Interconnection;
  4. Any weekday where the average daily event period usage is less than 25% of the average event period usage for the five days.
- ii. For the purposes of calculating the CBL for weekdays, the 45-day period shall be extended one day for each of the following days that occur within the relevant period, provided that extensions pursuant to this section shall not exceed 15 days (i.e. 60 days total including the relevant 45-day period):
  1. NERC holidays;

2. Event day(s), as defined in subsection (a)(i)(3) above, in which the hourly LMP exceeds the annual threshold in at least 4 hours, where the annual threshold will be effective from June 1 through May 31 and will be determined based on the load weighted average PJM real time LMP for the 99th percentile for the calendar year prior to May 31;
  3. Weekdays the relevant end-use customer site responds to the dispatch instructions of the Office of the Interconnection;
  4. Any weekday the event period usage is less than 25% of the average event period usage for the five days.
- iii. If a 45-day period does not include 5 weekdays that meet the conditions in subsection (a)(i) of this section, provided there are 4 weekdays that meet the conditions in subsection (a)(i) of this section, the CBL shall be based on the average of those 4 weekdays. If there are not 4 eligible weekdays, the CBL shall be determined in accordance with subsection (iv) of this section.
  - iv. Section 3.3A.2(a)(i)(3) notwithstanding, if a 45-day period does not include 4 weekdays that meet the conditions in subsection (a)(i) of this section, event days will be used as necessary to meet the 4 day requirement to calculate the CBL, provided that any such event days shall be the highest load event days within the relevant 45-day period.

(b) The CBL for weekend days and NERC holidays shall be determined in accordance with the following provisions:

- i. The CBL for Saturdays and Sundays/NERC holidays shall be the average of the highest 2 load days out of the 3 most recent Saturdays or Sundays/NERC holidays, respectively, in the 45 calendar day period preceding the relevant load reduction event, provided that the following days shall not be used to calculate a Saturday or Sunday/NERC holiday CBL:
  1. Event days. For the purposes of this section an event day shall be any Saturday and Sunday/NERC holiday that an Economic Load Response Participant submits a settlement pursuant to Section 3.3A.4 or 3.3A.5, provided that Event Days shall exclude such days if the settlement is denied by the relevant LSE or electric distribution company or is disallowed by the Office of the Interconnection;
  2. Any Saturday or Sunday/NERC holiday where the average daily event period usage is less than 25% of the average event period usage level for the three days;

3. Any Saturday or Sunday/NERC holiday that corresponds to the beginning or end of daylight savings.
- ii. For the purposes of calculating the CBL for Saturdays or Sundays/NERC holidays, the 45-day period shall be extended one day for each of the following days that occur within the relevant period, provided that extensions pursuant to this section shall not exceed 15 days (i.e. 60 days total including the relevant 45-day period):
    1. Event day(s), as defined in subsection (b)(i)(1) above, in which the hourly LMP exceeds the annual threshold in at least 4 hours, where the annual threshold will be effective from June 1 through May 31 and will be determined based on the load weighted average PJM real time LMP for the 99th percentile for the calendar year prior to May 31;
    2. Saturday or Sundays/NERC holidays where the relevant end-use customer site responds to the dispatch instructions of the Office of the Interconnection.
  - iii. If a 45-day period does not include 3 Saturdays or 3 Sundays/NERC holidays, respectively, that meet the conditions in subsection (b)(i) of this section, provided there are 2 Saturdays or Sundays/NERC holidays that meet the conditions in subsection (b)(i) of this section, the CBL will be based on the average of those 2 Saturdays or Sundays/NERC holidays. If there are not 2 eligible Saturdays or Sundays/NERC holidays, the CBL shall be determined in accordance with subsection (iv) of this section.
  - iv. Section 3.3A.2(b)(i)(1) notwithstanding, if a 45-day period does not include 2 Saturdays or Sundays/NERC holidays, respectively, that meet the conditions in subsection (b)(i) of this section, event days will be used as necessary to meet the 2 day requirement to calculate the CBL, provided that any such event days shall be the highest load event days within the relevant 45-day period.

(c) CBLs established pursuant to this section shall represent end-use customers' actual load patterns. If the Office of the Interconnection determines that a CBL or alternative CBL does not accurately represent a customer's actual load patterns, the CBL shall be revised accordingly pursuant to Section 3.3A.2.01. Consistent with this requirement, if an Economic Load Response Participant chooses to measure load reductions using a Customer Baseline Load, the Economic Load Response Participant shall inform the Office of the Interconnection of a change in its operations or the operations of the end-use customer upon whose behalf it is acting that would result in the adjustment of more than half the hours in the affected party's Customer Baseline Load by twenty percent or more for more than twenty days.

### **3.3A.2.01 Alternative Customer Baseline Methodologies.**

(a) During the Economic Load Response Participant registration process pursuant to Section 1.5A.3 of this Schedule, the relevant Economic Load Response Participant, Load Serving Entity, electric distribution company, and/or the Office of the Interconnection (“Interested Parties”) may propose an alternative CBL calculation that more accurately reflects the relevant end-use customer’s consumption pattern relative to the CBL determined pursuant to Section 3.3A.2. Any proposal made pursuant to this section shall be provided to all other Interested Parties.

(b) The Interested Parties shall have 30 days to agree on a proposal issued pursuant to subsection (a) of this section. The 30-day period shall start the day the proposal is received by all Interested Parties. If all Interested Parties agree on a proposal issued pursuant to this section, that alternative CBL calculation methodology shall be effective consistent with the date of the relevant Economic Load Response Participant registration.

(c) If agreement is not reached pursuant to subsection (b) of this section, the Office of the Interconnection shall determine a CBL methodology within 20 days from the expiration of the 30-day period established by subsection (b). A CBL established by the Office of the Interconnection pursuant to this subsection (c) shall be binding upon all Interested Parties unless the Interested Parties reach agreement on an alternative CBL methodology prior to the expiration of the 20-day period established by this subsection (c).

(d) Operation of this Section 3.3A.2.01 shall not delay Economic Load Response Participant registrations pursuant to Section 1.5A.3, provided that the alternative CBL established pursuant to this section shall be used for all related energy settlements made pursuant to Sections 3.3A.4 and 3.3A.5.

(e) The Office of the Interconnection shall periodically publish alternative CBL methodologies established pursuant to this section in the PJM Manuals.

### **3.3A.2.02 On-Site Generators.**

On-Site Generators used as the basis for Economic Load Response Participant status pursuant to Section 1.5A shall be subject to the following provisions:

- i. The On-Site Generator shall be used solely to enable an Economic Load Response Participant to provide demand reductions in response to the Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market;
- ii. If subsection (i) does not apply, the amount of energy from an On-Site Generator used to enable an Economic Load Response Participant to provide demand reductions in response to the Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market shall be capable of being quantified in a manner that is acceptable to the Office of the Interconnection.

### **3.3A.3 Weather-Sensitive and Symmetric Additive Adjustment.**

(a) Concurrent with submitting a Economic Load Response Registration Form to the Office of the Interconnection and annually thereafter, the Economic Load Response Participant shall notify the Office of the Interconnection whether it elects to apply the Weather-Sensitive Adjustment (or “WSA”) or Symmetric Additive Adjustment for the summer period (May-October) or the winter period (November-April). The Weather-Sensitive Adjustment either will decrease or increase Customer Baseline Load values. The Weather-Sensitive Adjustment may apply to measure load reductions in both the Real-time Energy Market and Day-ahead Energy Market, except that the simplified analysis for the summer period cannot be used with regard to the Day-ahead Energy Market. Unless an alternative formula is approved by the Office of the Interconnection and agreed upon by all relevant parties, including any Curtailment Service Provider, Load Serving Entity and end-use customer, the Weather-Sensitive Adjustment and Symmetric Additive Adjustment shall be calculated using the following applicable formula:

#### **Regression Analysis (available for the summer and winter period.)**

Step 1: Perform a regression analysis in Excel using the slope & intercept functions between the end-use customer’s on-peak (8 AM to 8 PM), non-holiday, weekday hourly loads and the temperature-humidity index (“THI”) on a seasonal basis for the period the WSA is being applied.

The Office of the Interconnection will post on the Office of the Interconnection website a spreadsheet of the THI values for all relevant weather stations located within the PJM region.

The regression analysis will produce a slope (m), expressed in kW/THI, and an intercept (b), expressed in kW, that describes the sensitivity of the end-use customer’s load to weather.

Step 2: Determine the average THI for the on-peak hours for the five days used in the weekday CBL calculation.

Step 3: Determine the average THI for the on-peak hours of the event day.

Step 4: Calculate the WSA based on the following formula:

$$\text{WSA} = [(m \times \text{THI}_{\text{EVENT DAY}}) + b] / [(m \times \text{THI}_{\text{CBL DAYS}}) + b]$$

#### **Simplified Analysis (available only for the summer period and for the Real-time Energy Market)**

Step 1: Determine that the load is weather sensitive by agreement of the end-use customer, the Curtailment Service Provider, and the Load Serving Entity or by the

Office of the Interconnection if there is no agreement. Weather adjustments could be negative or positive.

Step 2: Show that the hourly temperature reading at the nearest airport that provides weather information to the Office of the Interconnection equaled or exceeded 85 degrees Fahrenheit during each hour of the reduction event. The hourly temperature reading of another major airport nearby the end-use customer's location may be used if it can be shown that the temperature at the end-use customer's location correlates more closely.

Step 3: Calculate the average hourly load over two full hours beginning three hours prior to the Load Reduction Event.

Step 4: Calculate the average hourly load for the same hours using the values given by the CBL calculation.

Step 5: Compare the resulting average two hour loads from Steps 3 and 4.

Step 6: Determine if the difference from Step 5 expressed as a percentage is greater than 5 percent. If the difference is greater than 5 percent then the percentage will be the WSA for the reduction event.

Step 7: Submit an Excel spreadsheet to the Office of the Interconnection documenting the weather adjustment.

- The WSA, expressed in percentage terms, shall be applied to each hour of the CBL during the event period in order to establish a weather-adjusted CBL.
- For end-use customers without interval data from the previous summer that select the regression analysis, the WSA shall initially be set at 100 percent. After one month of actual program response, a regression analysis shall be performed and the WSA shall be adjusted in accordance with Steps 1-4 above.
- In no event shall application of the WSA produce a weather-adjusted CBL that exceeds the end-use customer's historical, seasonal, on-peak non-coincident peak load.

### **Symmetric Additive Adjustment**

Step 1: Calculate the average usage over the 3 hour period ending 1 hour prior to the start of event.

Step 2: Calculate the average usage over the 3 hour period in the CBL that corresponds to the 3 hour period described in Step 1.

Step 3: Subtract the results of Step 2 from the results of Step 1 to determine the symmetric additive adjustment (this may be positive or negative).

Step 4: Add the symmetric additive adjustment (i.e. the results of Step 3) to each hour in the CBL that corresponds to each event hour.

(b) Following a Load Reduction Event that is submitted to the Office of the Interconnection for compensation, the Office of the Interconnection shall provide the Notification window(s), if applicable, directly metered data and Customer Baseline Load and Weather-Sensitive Adjustment calculations to the appropriate electric distribution company or Load Serving Entity for optional review. The electric distribution company or Load Serving Entity will have ten business days to provide the Office of the Interconnection with notification of any issues related to the metered data or calculations.

#### **3.3A.4 Market Settlements in Real-time Energy Market.**

(a) Economic Load Response Participants participating in the Real-time Energy Market shall be compensated for reducing demand based on the actual kWh relief provided in excess of committed day-ahead load reductions. The Economic Load Response Participant that curtails or causes the curtailment of demand in real-time will be compensated by the Office of the Interconnection the real-time Locational Market Price less an amount equal to the applicable generation and transmission charges. The applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction.

(b) In cases where the demand reduction is dispatched by the Office of the Interconnection, payment will not be less than the total value of the demand reduction bid less an amount equal to the applicable generation and transmission charges. For the purposes of this section, the applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction, and the total value of a demand reduction bid shall include any submitted start-up costs associated with reducing demand, including direct labor and equipment costs and opportunity costs and any costs associated with a minimum number of contiguous hours for which the demand reduction must be committed.

Any shortfall will be made up through normal, real-time operating reserves. In all cases, the applicable zonal or aggregate (including nodal) Locational Marginal Price is used as appropriate for the individual end-use customer.

(c) An Economic Load Response Participant shall accumulate credits for energy reductions in those hours when the energy delivered to the end-use customer is less than the end-use customer's Customer Baseline Load at the corresponding hourly rate. In the event the end-use customer's hourly energy consumption is greater than the Customer Baseline Load, the Economic Load Response Participant will accumulate debits at the corresponding hourly rate for the amount the end-use customer's hourly energy consumption is greater than the Customer



Baseline Load. However, in no event will the Economic Load Response Participant credit be reduced below zero on a daily basis.

(d) Economic Load Response Participants that have Locational Marginal Price based contracts pursuant to which they have agreed to pay their Load Serving Entity for the physical delivery of energy according to the hour value of the real-time Locational Marginal Price as calculated by the Office of the Interconnection, may choose to reduce demand and be compensated for the reduction in the Real-time Energy Market under the following circumstances. The Economic Load Response Participant shall provide the Office of the Interconnection with a strike price for the end-use customer's zonal Locational Marginal Price at which the end-use customer will reduce demand, as well as any start-up costs associated with reducing load, including direct labor and equipment costs and opportunity costs and costs associated with the minimum number of contiguous hours for which the demand reduction must be committed. In cases where the Economic Load Response Participant's zonal Locational Marginal Price reaches the strike price and the demand reduction is dispatched by the Office of the Interconnection, the Office of the Interconnection shall pay such Economic Load Response Participant the difference between the actual savings achieved based on zonal Locational Marginal Price and the total value of the end-use customer's demand reduction bid. For purposes of this provision the total value of the demand reduction bid will be the sum of the strike price times the MW of reduction achieved during each hour of the time period the demand reduction was dispatched by the Office of the Interconnection or the minimum down-time whichever is greater, plus the submitted start-up costs. Demand reductions hereunder will not be eligible to set real-time Locational Marginal Price.

### **3.3A.5 Market Settlements in the Day-ahead Energy Market.**

(a) Economic Load Response Participants participating in the Day-ahead Energy Market shall be compensated for reducing demand based on the reductions of kWh committed in the Day-ahead Energy Market. An Economic Load Response Participant that submits a demand reduction bid day ahead that is accepted by the Office of the Interconnection shall be paid the day-ahead Locational Marginal Price less an amount equal to the applicable generation and transmission charges. The applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction.

(b) Total payments to Economic Load Response Participants for accepted day-ahead demand reduction bids will not be less than the total value of the demand reduction bid less an amount equal to the applicable generation and transmission charges. For the purposes of this section, the applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction, and the total value of a demand reduction bid shall include any submitted start-up costs associated with reducing load, including direct labor and equipment costs and opportunity costs and any costs associated with a minimum number of contiguous hours for which the load reduction must be committed. Any shortfall will be made up through normal, day-ahead operating reserves. In all cases, the applicable zonal or aggregate (including nodal) Locational Marginal Price is used as appropriate for the individual end-use customer.

(c) Economic Load Response Participants that have demand reductions committed in the Day-ahead Energy Market that deviate from the day-ahead schedule in real time shall be charged or credited for such variance at the real time LMP plus or minus an amount equal to the applicable balancing operating reserve charge. Load Serving Entities that otherwise would have load that was reduced shall receive any associated operating reserve credit plus, if the real-time Locational Marginal Price is higher than the day-ahead Locational Marginal Price during the shortfall, the difference between the day-ahead and the real-time Locational Marginal Price times the shortfall.

(d) Economic Load Response Participants that have real-time Locational Marginal Price-based contracts may not participate in the Day-ahead Energy Market.

### **3.3A.6 Prohibited Economic Load Response Participant Market Settlements.**

(a) Settlements pursuant to Sections 3.3A.4 and 3.3A.5 shall be limited to demand reductions executed in response to the Locational Marginal Price in the Real-time Energy Market and/or the Day-ahead Energy Market.

(b) Demand reductions that do not meet the requirements of Section 3.3A.6(a) shall not be eligible for settlement pursuant to Sections 3.3A.4 and 3.3A.5. Examples of settlements prohibited pursuant to this Section 3.3A.6(b) include, but are not limited to, the following:

- i. Settlements based on variable demand where the timing of the demand reduction supporting the settlement did not change in direct response to Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market;
- ii. Consecutive daily settlements that are the result of a change in normal demand patterns that are submitted to maintain a CBL that no longer reflects the relevant end-use customer's demand;
- iii. Settlements based on On-Site Generator data if the On Site Generation is not supporting demand reductions executed in response to the Locational Marginal Price in the Real-time Energy Market and/or the Day-ahead Energy Market;
- iv. Settlements based on demand reductions that are the result of operational changes between multiple end-use customer sites in the PJM footprint, provided that, the foregoing notwithstanding, settlements based on such demand reduction shall be allowed if the demand reduction alleviates congestion.

(c) The Office of the Interconnection shall disallow settlements for demand reductions that do not meet the requirements of Section 3.3A.6(a). If the Economic Load Response Participant continues to submit settlements for demand reductions that do not meet the requirements of Section 3.3A.6(a), then the Office of the Interconnection shall suspend the Economic Load Response

Participant's PJM Interchange Energy Market activity and refer the matter to the FERC Office of Enforcement.

### **3.3A.7 Economic Load Response Participant Review Process.**

(a) The Office of the Interconnection shall review the participation of an Economic Load Response Participant in the PJM Interchange Energy Market under the following circumstances:

- i. An Economic Load Response Participant's registrations submitted pursuant to Section 1.5A.3 are disputed more than 10% of the time by any relevant electric distribution company(ies) or Load Serving Entity(ies).
- ii. An Economic Load Response Participant's settlements pursuant to 3.3A.4 and 3.3A.5 are disputed more than 10% of the time by any relevant electric distribution company(ies) or Load Serving Entity(ies).
- iii. An Economic Load Response Participant's settlements pursuant to Sections 3.3A.4 and 3.3A.5 are denied by the Office of the Interconnection more than 10% of the time.
- iv. An Economic Load Response Participant's registration will be reviewed when settlements are frequently submitted. PJM will notify the Participant when their registration is under review. While the Participant's registration is under review by PJM, the Participant may continue economic load reductions but all settlements will be denied by PJM until the registration review is resolved pursuant to subsection (i) or (ii) below. PJM will require the Participant to provide information within 30 days to support that the settlements were submitted for load reduction activity done in response to price and not submitted based on the End-Use Customer's normal operations.
  - i) If the Participant is unable to provide adequate supporting information to substantiate the load reductions submitted for settlement, PJM will terminate the registration and may refer the Participant to either the Market Monitoring Unit or the Federal Energy Regulatory Commission for further investigation.
  - ii) If the Participant does provide adequate supporting information, the settlements denied by PJM will be resubmitted by the Participant for review according to existing PJM market rules. Further, PJM may introduce an alternative Customer Baseline Load if the existing Customer Baseline Load does not adequately reflect what the customer load would have been absent a load reduction.

- v. An Economic Load Response Participant's daily settlement will be denied by PJM based on the following criteria:
  - 1) Submission of settlement for self schedule energy in the Real-time Energy Market where only some of the self scheduled hours have been included in the daily settlement submission; or
  - 2) Daily settlement with an estimated value less than Five U.S. Dollars (\$5.00); or
  - 3) Daily settlement has a significant number of uneconomic hours where the Locational Marginal Price is less than or equal to the generation plus the transmission portion of an end-use customer's retail rate or price.
  
- vi. The electric distribution company and the Load Serving Entity may only deny settlements during the normal settlement review process for inaccurate data including, but not limited to: meter data, line loss factor, Customer Baseline Load calculation, retail rate, interval meter owner and a known recurring End-Use Customer outage or holiday.

(b) The Office of the Interconnection shall have thirty days to conduct a review pursuant to this Section 3.3A.7. The Office of the Interconnection may refer the matter to the PJM MMU and/or the FERC Office of Enforcement if the review indicates the relevant Economic Load Response Participant and/or relevant electric distribution company or LSE is engaging in activity that is inconsistent with the PJM Interchange Energy Market rules governing Economic Load Response Participants.

## **1.10 Scheduling.**

### **1.10.1 General.**

(a) The Office of the Interconnection shall administer scheduling processes to implement a Day-ahead Energy Market and a Real-time Energy Market.

(b) The Day-ahead Energy Market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at Day-ahead Prices and enable Transmission Customers to reserve transmission service with Transmission Congestion Charges and Transmission Loss Charges based on locational differences in Day-ahead Prices. Up-To Congestion transactions submitted in the Day-ahead Energy Market shall not require transmission service and Transmission Customers shall not reserve transmission service for such transactions. Market Participants whose purchases and sales, and Transmission Customers whose transmission uses are scheduled in the Day-ahead Energy Market, shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges and Transmission Loss Charges, at the applicable Day-ahead Prices for the amounts scheduled.

(c) In the Real-time Energy Market, Market Participants that deviate from the amounts of energy purchases or sales, or Transmission Customers that deviate from the transmission uses, scheduled in the Day-ahead Energy Market shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges and Transmission Loss Charges, for the amount of the deviations at the applicable Real-time Prices or price differences, unless otherwise specified by this Schedule.

(d) The following scheduling procedures and principles shall govern the commitment of resources to the Day-ahead Energy Market and the Real-time Energy Market over a period extending from one week to one hour prior to the real-time dispatch. Scheduling encompasses the day-ahead and hourly scheduling process, through which the Office of the Interconnection determines the Day-ahead Energy Market and determines, based on changing forecasts of conditions and actions by Market Participants and system constraints, a plan to serve the hourly energy and reserve requirements of the Internal Market Buyers and the purchase requests of the External Market Buyers in the least costly manner, subject to maintaining the reliability of the PJM Region. Scheduling shall be conducted as specified below, subject to the following condition. If the Office of the Interconnection's forecast for the next seven days projects a likelihood of Emergency conditions, the Office of the Interconnection may commit, for all or part of such seven day period, to the use of generation resources with notification or start-up times greater than one day as necessary in order to alleviate or mitigate such Emergency, in accordance with the Market Sellers' offers for such units for such periods and the specifications in the PJM Manuals.

#### **1.10.1A Day-Ahead Energy Market Scheduling.**

The following actions shall occur not later than 12:00 noon on the day before the Operating Day for which transactions are being scheduled, or such other deadline as may be specified by the

Office of the Interconnection in order to comply with the practical requirements and the economic and efficiency objectives of the scheduling process specified in this Schedule.

(a) Each Market Participant may submit to the Office of the Interconnection specifications of the amount and location of its customer loads and/or energy purchases to be included in the Day-ahead Energy Market for each hour of the next Operating Day, such specifications to comply with the requirements set forth in the PJM Manuals. Each Market Buyer shall inform the Office of the Interconnection of the prices, if any, at which it desires not to include its load in the Day-ahead Energy Market rather than pay the Day-ahead Price.

(b) Each Generating Market Buyer shall submit to the Office of the Interconnection: (i) hourly schedules for resource increments, including hydropower units, self-scheduled by the Market Buyer to meet its Equivalent Load; and (ii) the Dispatch Rate at which each such self-scheduled resource will disconnect or reduce output, or confirmation of the Market Buyer's intent not to reduce output.

(c) All Market Participants shall submit to the Office of the Interconnection schedules for any bilateral transactions involving use of generation or Transmission Facilities as specified below, and shall inform the Office of the Interconnection whether the transaction is to be included in the Day-ahead Energy Market. Any Market Participant that elects to include a bilateral transaction in the Day-ahead Energy Market may specify the price (such price not to exceed the maximum price that may be specified in the PJM Manuals), if any, at which it will be wholly or partially curtailed rather than pay Transmission Congestion Charges. The foregoing price specification shall apply to the price difference between the specified bilateral transaction source and sink points in the day-ahead scheduling process only. Any Market Participant that elects not to include its bilateral transaction in the Day-ahead Energy Market shall inform the Office of the Interconnection if the parties to the transaction are not willing to incur Transmission Congestion Charges in the Real-time Energy Market in order to complete any such scheduled bilateral transaction. Scheduling of bilateral transactions shall be conducted in accordance with the specifications in the PJM Manuals and the following requirements:

i) Internal Market Buyers shall submit schedules for all bilateral purchases for delivery within the PJM Region, whether from generation resources inside or outside the PJM Region;

ii) Market Sellers shall submit schedules for bilateral sales to entities outside the PJM Region from generation within the PJM Region that is not dynamically scheduled to such entities pursuant to Section 1.12; and

iii) In addition to the foregoing schedules for bilateral transactions, Market Participants shall submit confirmations of each scheduled bilateral transaction from each other party to the transaction in addition to the party submitting the schedule, or the adjacent Control Area.

(d) Market Sellers wishing to sell into the Day-ahead Energy Market shall submit offers for the supply of energy (including energy from hydropower units), demand reductions,

Regulation, Operating Reserves or other services for the following Operating Day. Offers shall be submitted to the Office of the Interconnection in the form specified by the Office of the Interconnection and shall contain the information specified in the Office of the Interconnection's Offer Data specification, this Section 1.10.1A(d), Schedule 2 to this Agreement, and the PJM Manuals, as applicable. Market Sellers owning or controlling the output of a Generation Capacity Resource that was committed in an FRR Capacity Plan, self-supplied, offered and cleared in a Base Residual Auction or Incremental Auction, or designated as replacement capacity, as specified in Attachment DD of the PJM Tariff, and that has not been rendered unavailable by a Generator Planned Outage, a Generator Maintenance Outage, or a Generator Forced Outage shall submit offers for the available capacity of such Generation Capacity Resource, including any portion that is self-scheduled by the Generating Market Buyer. The submission of offers for resource increments that have not cleared in a Base Residual Auction or an Incremental Auction, were not committed in an FRR Capacity Plan, and were not designated as replacement capacity under Attachment DD of the PJM Tariff shall be optional, but any such offers must contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Energy offered from generation resources that have not cleared a Base Residual Auction or an Incremental Auction, were not committed in an FRR Capacity Plan, and were not designated as replacement capacity under Attachment DD of the PJM Tariff shall not be supplied from resources that are included in or otherwise committed to supply the Operating Reserves of a Control Area outside the PJM Region. The foregoing offers:

- i) Shall specify the Generation Capacity Resource or Demand Resource and energy or demand reduction amount, respectively, for each hour in the offer period, and the minimum run time for generation resources and minimum down time for Demand Resources;
- ii) Shall specify the amounts and prices for the entire Operating Day for each resource component offered by the Market Seller to the Office of the Interconnection;
- iii) If based on energy from a specific generating unit, may specify start-up and no-load fees equal to the specification of such fees for such unit on file with the Office of the Interconnection, if based on reductions in demand from a Demand Resource may specify shutdown costs;
- iv) Shall set forth any special conditions upon which the Market Seller proposes to supply a resource increment, including any curtailment rate specified in a bilateral contract for the output of the resource, or any cancellation fees;
- v) May include a schedule of offers for prices and operating data contingent on acceptance by the deadline specified in this Schedule, with a second schedule applicable if accepted after the foregoing deadline;
- vi) Shall constitute an offer to submit the resource increment to the Office of the Interconnection for scheduling and dispatch in accordance with the terms of the offer, which offer shall remain open through the Operating Day for which the offer is submitted;

vii) Shall be final as to the price or prices at which the Market Seller proposes to supply energy or other services to the PJM Interchange Energy Market, such price or prices being guaranteed by the Market Seller for the period extending through the end of the following Operating Day; and

viii) Shall not exceed an energy offer price of \$1,000/megawatt-hour.

(e) A Market Seller that wishes to make a resource available to sell Regulation service shall submit an offer for Regulation that shall specify the megawatt of Regulation being offered, which must equal or exceed 0.5 megawatts, the Regulation Zone for which such regulation is offered, the price of the offer in dollars per MWh, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the resource's opportunity costs. The price of the offer shall not exceed \$100 per MWh in the case of Regulation offered for all Regulation Zones. In addition to any market-based offer for Regulation, the Market Seller also shall submit a cost-based offer. A cost-based offer must be in the form specified in the PJM Manuals and consist of the following components as well as any other components specified in the PJM Manuals:

i. The costs (in \$/MW) of the fuel cost increase due to the heat rate increase resulting from operating a unit at lower megawatt output incurred from the provision of Regulation;

ii. The cost increase (in \$/MW) in variable operating and maintenance costs resulting from operating the unit at lower megawatt output incurred from the provision of Regulation; and

iii. An adder of up to \$12.00 per megawatt of Regulation provided.

Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

(f) Each Market Seller owning or controlling the output of a Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative shall submit a forecast of the availability of each such Generation Capacity Resource for the next seven days. A Market Seller (i) may submit a non-binding forecast of the price at which it expects to offer a generation resource increment to the Office of the Interconnection over the next seven days, and (ii) shall submit a binding offer for energy, along with start-up and no-load fees, if any, for the next seven days or part thereof, for any generation resource with minimum notification or start-up requirement greater than 24 hours.

(g) Each offer by a Market Seller of a Generation Capacity Resource shall remain in effect for subsequent Operating Days until superseded or canceled.

(h) The Office of the Interconnection shall post on the PJM Open Access Same-time Information System the total hourly loads scheduled in the Day-ahead Energy Market, as well as,



its estimate of the combined hourly load of the Market Buyers for the next four days, and peak load forecasts for an additional three days.

(i) Except for Economic Load Response Participants, all Market Participants may submit Increment Bids and/or Decrement Bids that apply to the Day-ahead Energy Market only. Such bids must comply with the requirements set forth in the PJM Manuals and must specify amount, location and price, if any, at which the Market Participant desires to purchase or sell energy in the Day-ahead Energy Market. The Office of the Interconnection may require that a market participant shall not submit in excess of 3000 bid/offer segments in the Day-ahead Energy Market, when the Office of the Interconnection determines that such limit is required to avoid or mitigate significant system performance problems related to bid/offer volume. Notice of the need to impose such limit shall be provided prior to 10:00 a.m. EPT on the day that the Day-ahead Energy Market will clear. For purposes of this provision, a bid/offer segment is each pairing of price and megawatt quantity submitted as part of an Increment Bid or Decrement Bid.

(j) A Market Seller that wishes to make a generation resource or Demand Resource available to sell Synchronized Reserve shall submit an offer for Synchronized Reserve that shall specify the megawatts of Synchronized Reserve being offered, which must equal or exceed 0.5 megawatts, the price of the offer in dollars per megawatt hour, and such other information specified by the Office of Interconnection as may be necessary to evaluate the offer and the energy used by the generation resource to provide the Synchronized Reserve and the generation resource's unit specific opportunity costs. The price of the offer shall not exceed the variable operating and maintenance costs for providing Synchronized Reserve plus seven dollars and fifty cents.

(k) An Economic Load Response Participant that wishes to participate in the Day-ahead Energy Market by reducing demand shall submit an offer to reduce demand to the Office of the Interconnection. The offer must equal or exceed 0.1 megawatts, and the offer shall specify: (i) the amount of the offered curtailment in minimum increments of .1 megawatts; (ii) the Day-ahead Locational Marginal Price above which the end-use customer will reduce load; and (iii) at the Economic Load Response Participant's option, start-up costs associated with reducing load, including direct labor and equipment costs, opportunity costs, and/or a minimum of number of contiguous hours for which the load reduction must be committed. Economic Load Response Participants submitting offers to reduce demand in the Day-ahead Energy Market may establish an incremental offer curve, provided that such offer curve shall be limited to ten price pairs (in MWs).

(l) Market Sellers owning or controlling the output of a Demand Resource that was committed in an FRR Capacity Plan, self-supplied or offered and cleared in the Base Residual Auction or one of the Incremental Auctions, or owning or controlling the output of an ILR resource which was certified as specified in Attachment DD of the PJM Tariff, may submit demand reduction bids for the available load reduction capability of the Demand Resource or ILR resource. The submission of demand reduction bids for resource increments that have not cleared in the Base Residual Auction or in one of the Incremental Auctions, or for ILR resources that were not certified, or were not committed in an FRR Capacity Plan, shall be optional, but any such bids must contain the information specified in the PJM Economic Load Response

Program to be included in such bids. A Demand Resource that was committed in an FRR Capacity plan, self-supplied or offered and cleared in a Base Residual Auction or an Incremental Auction may submit a demand reduction bid in the Day-ahead Energy Market as specified in the Economic Load Response Program, provided however, that in the event of an Emergency, PJM shall require Demand Resources and ILR resources to reduce load notwithstanding that the Zonal LMP at the time such Emergency is declared is below the price identified in the demand reduction bid.

(m) Market Sellers that wish to make Day-ahead Scheduling Reserves Resources available to sell Day-ahead Scheduling Reserves shall submit offers, each of which must equal or exceed 0.5 megawatts, in the Day-ahead Scheduling Reserves Market specifying: 1) the price of the offer in dollars per megawatt hour; and 2) such other information specified by the Office of the Interconnection as may be necessary to determine any relevant opportunity costs for the resource(s). The foregoing notwithstanding, to qualify to submit offers pursuant to this section, the Day-ahead Scheduling Reserves Resources shall submit energy offers in the Day-ahead Energy Market including start-up and shut-down costs for generation resource and Demand Resources, respectively, and all generation resources that are capable of providing Day-ahead Scheduling Reserves that a particular resource can provide that service. The MW quantity of Day-Ahead Scheduling Reserves that a particular resource can provide in a given hour will be determined based on the energy Offer Data submitted in the Day-ahead Energy Market, as detailed in the PJM Manuals.

### **1.10.2 Pool-Scheduled Resources.**

Pool-scheduled resources are those resources for which Market Participants submitted offers to sell energy in the Day-ahead Energy Market and offers to reduce demand in the Day-ahead Energy Market, which the Office of the Interconnection scheduled in the Day-ahead Energy Market as well as generators committed by the Office of the Interconnection subsequent to the Day-ahead Energy Market. Such resources shall be committed to provide energy in the real-time dispatch unless the schedules for such units are revised pursuant to Sections 1.10.9 or 1.11. Pool-scheduled resources shall be governed by the following principles and procedures.

(a) Pool-scheduled resources shall be selected by the Office of the Interconnection on the basis of the prices offered for energy and demand reductions and related services, start-up, no-load and cancellation fees, and the specified operating characteristics, offered by Market Sellers to the Office of the Interconnection by the offer deadline specified in Section 1.10.1A.

(b) A resource that is scheduled by a Market Participant to support a bilateral sale, or that is self-scheduled by a Generating Market Buyer, shall not be selected by the Office of the Interconnection as a pool-scheduled resource except in an Emergency.

(c) Market Sellers offering energy from hydropower or other facilities with fuel or environmental limitations may submit data to the Office of the Interconnection that is sufficient to enable the Office of the Interconnection to determine the available operating hours of such facilities.

(d) The Market Seller of a resource selected as a pool-scheduled resource shall receive payments or credits for energy, demand reductions or related services, or for start-up and no-load fees, from the Office of the Interconnection on behalf of the Market Buyers in accordance with Section 3 of this Schedule 1. Alternatively, the Market Seller shall receive, in lieu of start-up and no-load fees, its actual costs incurred, if any, up to a cap of the resource's start-up cost, if the Office of the Interconnection cancels its selection of the resource as a pool-scheduled resource and so notifies the Market Seller before the resource is synchronized.

(e) Market Participants shall make available their pool-scheduled resources to the Office of the Interconnection for coordinated operation to supply the Operating Reserves needs of the applicable Control Zone.

(f) Economic Load Response Participants offering to reduce demand shall specify: (i) the amount of the offered curtailment, which offer must equal or exceed 0.1 megawatts, in minimum increments of .1 megawatts; (ii) the real-time Locational Marginal Price above which the end-use customer will reduce load; and (iii) at the Economic Load Response Participant's option, shut-down costs associated with reducing load, including direct labor and equipment costs, opportunity costs, and/or a minimum number of contiguous hours for which the load reduction must be committed. Economic Load Response Participants submitting offers to reduce demand in the Real-time Energy Market may establish an incremental offer curve, provided that such offer curve shall be limited to ten price pairs (in MWs). Economic Load Response Participants offering to reduce demand shall also indicate the hours that the demand reduction is not available.

### **1.10.3 Self-scheduled Resources.**

Self-scheduled resources shall be governed by the following principles and procedures.

(a) Each Generating Market Buyer shall use all reasonable efforts, consistent with Good Utility Practice, not to self-schedule resources in excess of its Equivalent Load.

(b) The offered prices of resources that are self-scheduled, or otherwise not following the dispatch orders of the Office of the Interconnection, shall not be considered by the Office of the Interconnection in determining Locational Marginal Prices.

(c) Market Participants shall make available their self-scheduled resources to the Office of the Interconnection for coordinated operation to supply the Operating Reserves needs of the applicable Control Zone, by submitting an offer as to such resources.

(d) A Market Participant self-scheduling a resource in the Day-ahead Energy Market that does not deliver the energy in the Real-time Energy Market, shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

### **1.10.4 Capacity Resources.**

(a) A Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative that is selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection. Such a Generation Capacity Resource that does not deliver energy as scheduled shall be deemed to have experienced a Generator Forced Outage to the extent of such energy not delivered. A Market Participant offering such Generation Capacity Resource in the Day-ahead Energy Market shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Energy from a Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative that has not been scheduled in the Day-ahead Energy Market may be sold on a bilateral basis by the Market Seller, may be self-scheduled, or may be offered for dispatch during the Operating Day in accordance with the procedures specified in this Schedule. Such a Generation Capacity Resource that has not been scheduled in the Day-ahead Energy Market and that has been sold on a bilateral basis must be made available upon request to the Office of the Interconnection for scheduling and dispatch during the Operating Day if the

Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable Real-time Price for energy delivered.

(c) A resource that has been self-scheduled shall not receive payments or credits for start-up or no-load fees.

#### **1.10.5 External Resources.**

(a) External Resources may submit offers to the PJM Interchange Energy Market, in accordance with the day-ahead and real-time scheduling processes specified above. An External Resource selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection, and except as specified below shall be compensated on the same basis as other pool-scheduled resources. External Resources that are not capable of dynamic dispatch shall, if selected by the Office of the Interconnection on the basis of the Market Seller's Offer Data, be block loaded on an hourly scheduled basis. Market Sellers shall offer External Resources to the PJM Interchange Energy Market on either a resource-specific or an aggregated resource basis. A Market Participant whose pool-scheduled resource does not deliver the energy scheduled in the Day-ahead Energy Market shall replace such energy not delivered as scheduled in the Day-ahead Energy Market with energy from the PJM Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Offers for External Resources from an aggregation of two or more generating units shall so indicate, and shall specify, in accordance with the Offer Data requirements specified by the Office of the Interconnection: (i) energy prices; (ii) hours of energy availability; (iii) a minimum dispatch level; (iv) a maximum dispatch level; and (v) unless such information has previously been made available to the Office of the Interconnection, sufficient information, as specified in the PJM Manuals, to enable the Office of the Interconnection to model the flow into the PJM Region of any energy from the External Resources scheduled in accordance with

the Offer Data. If a Market Seller submits more than one offer on an aggregated resource basis, the withdrawal of any such offer shall be deemed a withdrawal of all higher priced offers for the same period.

(c) Offers for External Resources on a resource-specific basis shall specify the resource being offered, along with the information specified in the Offer Data as applicable.

#### **1.10.6 External Market Buyers.**

(a) Deliveries to an External Market Buyer not subject to dynamic dispatch by the Office of the Interconnection shall be delivered on a block loaded basis to the load bus or busses at the electrical boundaries of the PJM Region, or in such area with respect to an External Market Buyer's load within such area not served by Network Service, at which the energy is delivered to or for the External Market Buyer. External Market Buyers shall be charged or credited at either the Day-ahead Prices or Real-time Prices, whichever is applicable, for energy at the foregoing load bus or busses.

(b) An External Market Buyer's hourly schedules for energy purchased from the PJM Interchange Energy Market shall conform to the ramping and other applicable requirements of the interconnection agreement between the PJM Region and the Control Area to which, whether as an intermediate or final point of delivery, the purchased energy will initially be delivered.

(c) The Office of the Interconnection shall curtail deliveries to an External Market Buyer if necessary to maintain appropriate reserve levels for a Control Zone as defined in the PJM Manuals, or to avoid shedding load in such Control Zone.

#### **1.10.6A Transmission Loading Relief Customers.**

(a) An entity that desires to elect to pay Transmission Congestion Charges in order to continue its energy schedules during an Operating Day over contract paths outside the PJM Region in the event that PJM initiates Transmission Loading Relief that otherwise would cause PJM to request security coordinators to curtail such Member's energy schedules shall:

(i) enter its election on OASIS by 12:00 p.m. of the day before the Operating Day, in accordance with procedures established by PJM, which election shall be applicable for the entire Operating Day; and

(ii) if PJM initiates Transmission Loading Relief, provide to PJM, at such time and in accordance with procedures established by PJM, the hourly integrated energy schedules that impacted the PJM Region (as indicated from the NERC Interchange Distribution Calculator) during the Transmission Loading Relief.

(b) If an entity has made the election specified in Section (a), then PJM shall not request security coordinators to curtail such entity's energy transactions, except as may be necessary to respond to Emergencies.

(c) In order to make elections under this Section 1.10.6A, an entity must (i) have met the creditworthiness standards established by the Office of the Interconnection or provided a letter of credit or other form of security acceptable to the Office of the Interconnection, and (ii) have executed either the Agreement, a Service Agreement under the PJM Tariff, or other agreement committing to pay all Transmission Congestion Charges incurred under this Section.

#### **1.10.7 Bilateral Transactions.**

Bilateral transactions as to which the parties have notified the Office of the Interconnection by the deadline specified in Section 1.10.1A that they elect not to be included in the Day-ahead Energy Market and that they are not willing to incur Transmission Congestion Charges in the Real-time Energy Market shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions that were not included in the Day-ahead Energy Market and that are willing to incur congestion charges and bilateral transactions that were accepted in the Day-ahead Energy Market shall continue to be implemented during periods of congestion, except as may be necessary to respond to Emergencies.

#### **1.10.8 Office of the Interconnection Responsibilities.**

(a) The Office of the Interconnection shall use its best efforts to determine (i) the least-cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers, including the reliability requirements of the PJM Region, of the Day-ahead Energy Market, and (ii) the least-cost means of satisfying the Operating Reserve and other ancillary service requirements for any portion of the load forecast of the Office of the Interconnection for the Operating Day in excess of that scheduled in the Day-ahead Energy Market. In making these determinations, the Office of the Interconnection shall take into account: (i) the Office of the Interconnection's forecasts of PJM Interchange Energy Market and PJM Region energy requirements, giving due consideration to the energy requirement forecasts and purchase requests submitted by Market Buyers; (ii) the offers submitted by Market Sellers; (iii) the availability of limited energy resources; (iv) the capacity, location, and other relevant characteristics of self-scheduled resources; (v) the objectives of each Control Zone for Operating Reserves, as specified in the PJM Manuals; (vi) the requirements of each Regulation Zone for Regulation and other ancillary services, as specified in the PJM Manuals; (vii) the benefits of avoiding or minimizing transmission constraint control operations, as specified in the PJM Manuals; and (viii) such other factors as the Office of the Interconnection reasonably concludes are relevant to the foregoing determination, including, without limitation, transmission constraints on external coordinated flowgates to the extent provided by section 1.7.6. The Office of the Interconnection shall develop a Day-ahead Energy Market based on the foregoing determination, and shall determine the Day-ahead Prices resulting from such schedule. The Office of the Interconnection shall report the planned schedule for a hydropower resource to the operator of that resource as necessary for plant safety and security, and legal limitations on pond elevations.

(b) Not later than 4:00 p.m. of the day before each Operating Day, or such earlier deadline as may be specified by the Office of the Interconnection in the PJM Manuals, the Office

of the Interconnection shall: (i) post the aggregate Day-ahead Energy Market results; (ii) post the Day-ahead Prices; and (iii) inform the Market Sellers, Market Buyers, and Economic Load Response Participants of their scheduled injections, withdrawals, and demand reductions respectively.

(c) Following posting of the information specified in Section 1.10.8(b), the Office of the Interconnection shall revise its schedule of generation resources to reflect updated projections of load, conditions affecting electric system operations in the PJM Region, the availability of and constraints on limited energy and other resources, transmission constraints, and other relevant factors. The Office of the Interconnection shall post on the PJM Open Access Same-time Information System at times specified in the PJM Manuals a revised forecast of the location and duration of any expected transmission congestion, and of the range of differences in Locational Marginal Prices between major subareas of the PJM Region expected to result from such transmission congestion.

(d) Market Buyers shall pay and Market Sellers shall be paid for the quantities of energy scheduled in the Day-ahead Energy Market at the Day-ahead Prices. Economic Load Response Participants shall be paid for scheduled demand reductions pursuant to Section 3.3A of this Schedule.

(e) If the Office of the Interconnection discovers an error in prices and/or cleared quantities in the Day-ahead Energy Market, Real-time Energy Market, Ancillary Services Markets or Day Ahead Scheduling Reserve Market after it has posted the results for these markets on its Web site, the Office of the Interconnection shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 12:00 p.m. of the second business day following the Operating Day for the Ancillary Services Markets and Real-time Energy Market, and no later than 5:00 p.m. of the second business day following the initial publication of the results for the Day-ahead Scheduling Reserve Market and Day-ahead Energy Market.

After this initial notification, if the Office of the Interconnection determines it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the fifth business day following the Operating Day for the Ancillary Services Markets and Real-time Energy Market, and no later than 5:00 p.m. of the fifth business day following the initial publication of the results in the Day-ahead Scheduling Reserve Market and the Day-ahead Energy Market. Thereafter, the Office of the Interconnection must post on its Web site the corrected results by no later than 5:00 p.m. of the tenth calendar day following the Operating Day for the Ancillary Services Markets, Day-ahead Energy Market and Real-time Energy Market, and no later than 5:00 p.m. of the tenth calendar day following the initial publication of the results in the Day-ahead Scheduling Reserve Market. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced market results are under publicly noticed review by the FERC.

(f) Consistent with Section 18.17.1 of the PJM Operating Agreement, and notwithstanding anything to the contrary in the Operating Agreement or in the PJM Tariff, to allow the tracking of Market Participants' non-aggregated bids and offers over time as required by FERC Order No. 719, the Office of the Interconnection shall post on its Web site the non-aggregated bid data and Offer Data submitted by Market Participants (for participation in the PJM Interchange Energy Market) approximately four months after the bid or offer was submitted to the Office of the Interconnection.

#### **1.10.9 Hourly Scheduling.**

(a) Following the initial posting by the Office of the Interconnection of the Locational Marginal Prices resulting from the Day-ahead Energy Market, and subject to the right of the Office of the Interconnection to schedule and dispatch pool-scheduled resources and to direct that schedules be changed in an Emergency, a generation rebidding period shall exist from 4:00 p.m. to 6:00 p.m. on the day before each Operating Day. During the rebidding period, Market Participants may submit revisions to generation Offer Data for any generation resource that was not selected as a pool-scheduled resource in the Day-ahead Energy Market. Adjustments to Day-ahead Energy Markets shall be settled at the applicable Real-time Prices, and shall not affect the obligation to pay or receive payment for the quantities of energy scheduled in the Day-ahead Energy Market at the applicable Day-ahead Prices.

(b) A Market Participant may adjust the schedule of a resource under its dispatch control on an hour-to-hour basis beginning at 10:00 p.m. of the day before each Operating Day, provided that the Office of the Interconnection is notified not later than 60 minutes prior to the hour in which the adjustment is to take effect, as follows:

i) A Generating Market Buyer may self-schedule any of its resource increments, including hydropower resources, not previously designated as self-scheduled and not selected as a pool-scheduled resource in the Day-ahead Energy Market;

ii) A Market Participant may request the scheduling of a non-firm bilateral transaction; or

iii) A Market Participant may request the scheduling of deliveries or receipts of Spot Market Energy; or

iv) A Generating Market Buyer may remove from service a resource increment, including a hydropower resource, that it had previously designated as self-scheduled, provided that the Office of the Interconnection shall have the option to schedule energy from any such resource increment that is a Capacity Resource at the price offered in the scheduling process, with no obligation to pay any start-up fee.

(c) With respect to a pool-scheduled resource that is included in the Day-ahead Energy Market, a Market Seller may not change or otherwise modify its offer to sell energy.



(d) An External Market Buyer may refuse delivery of some or all of the energy it requested to purchase in the Day-ahead Energy Market by notifying the Office of the Interconnection of the adjustment in deliveries not later than 60 minutes prior to the hour in which the adjustment is to take effect, but any such adjustment shall not affect the obligation of the External Market Buyer to pay for energy scheduled on its behalf in the Day-ahead Energy Market at the applicable Day-ahead Prices.

(e) For each hour in the Operating Day, as soon as practicable after the deadlines specified in the foregoing subsection of this Section 1.10, the Office of the Interconnection shall provide External Market Buyers and External Market Sellers and parties to bilateral transactions with any revisions to their schedules for the hour.

### **3.3A Economic Load Response Participants.**

#### **3.3A.1 Compensation.**

Economic Load Response Participants shall be compensated pursuant to Sections 3.3A.4 and/or 3.3A.5 of this Schedule, for demand reductions measured by: 1) comparing actual metered load to an end-use customer's Customer Baseline Load or alternative CBL determined in accordance with the provisions of Section 3.3A.2 or 3.3A.2.01, respectively; or 2) by the MWs produced by on-Site Generators pursuant to the provisions of Section 3.3A.2.02.

#### **3.3A.2 Customer Baseline Load.**

For Economic Load Response Participants that choose to measure demand reductions using an end-use customer's Customer Baseline Load ("CBL"), the CBL shall be determined using the following formula:

(a) The CBL for weekdays shall be the average of the highest 4 out of the 5 most recent highest load weekdays in the 45 calendar day period preceding the relevant load reduction event.

i. For the purposes of calculating the CBL for weekdays, weekdays shall not include:

1. NERC holidays;
2. Weekend days;
3. Event days. For the purposes of this section an event day shall be any weekday that an Economic Load Response Participant submits a settlement pursuant to Section 3.3A.4 or 3.3A.5, provided that Event Days shall exclude such days if the settlement is denied by the relevant LSE or electric distribution company or is disallowed by the Office of the Interconnection;
4. Any weekday where the average daily event period usage is less than 25% of the average event period usage for the five days.

ii. For the purposes of calculating the CBL for weekdays, the 45-day period shall be extended one day for each of the following days that occur within the relevant period, provided that extensions pursuant to this section shall not exceed 15 days (i.e. 60 days total including the relevant 45-day period):

1. NERC holidays;
2. Event day(s), as defined in subsection (a)(i)(3) above, in which the hourly LMP exceeds the annual threshold in at least 4 hours, where the annual

threshold will be effective from June 1 through May 31 and will be determined based on the load weighted average PJM real time LMP for the 99th percentile for the calendar year prior to May 31;

3. Weekdays the relevant end-use customer site responds to the dispatch instructions of the Office of the Interconnection;
4. Any weekday the event period usage is less than 25% of the average event period usage for the five days.

iii. If a 45-day period does not include 5 weekdays that meet the conditions in subsection (a)(i) of this section, provided there are 4 weekdays that meet the conditions in subsection (a)(i) of this section, the CBL shall be based on the average of those 4 weekdays. If there are not 4 eligible weekdays, the CBL shall be determined in accordance with subsection (iv) of this section.

iv. Section 3.3A.2(a)(i)(3) notwithstanding, if a 45-day period does not include 4 weekdays that meet the conditions in subsection (a)(i) of this section, event days will be used as necessary to meet the 4 day requirement to calculate the CBL, provided that any such event days shall be the highest load event days within the relevant 45-day period.

(b) The CBL for weekend days and NERC holidays shall be determined in accordance with the following provisions:

i. The CBL for Saturdays and Sundays/NERC holidays shall be the average of the highest 2 load days out of the 3 most recent Saturdays or Sundays/NERC holidays, respectively, in the 45 calendar day period preceding the relevant load reduction event, provided that the following days shall not be used to calculate a Saturday or Sunday/NERC holiday CBL:

1. Event days. For the purposes of this section an event day shall be any Saturday and Sunday/NERC holiday that an Economic Load Response Participant submits a settlement pursuant to Section 3.3A.4 or 3.3A.5, provided that Event Days shall exclude such days if the settlement is denied by the relevant LSE or electric distribution company or is disallowed by the Office of the Interconnection;
2. Any Saturday or Sunday/NERC holiday where the average daily event period usage is less than 25% of the average event period usage level for the three days;
3. Any Saturday or Sunday/NERC holiday that corresponds to the beginning or end of daylight savings.

ii. For the purposes of calculating the CBL for Saturdays or Sundays/NERC holidays, the 45-day period shall be extended one day for each of the following days that occur

within the relevant period, provided that extensions pursuant to this section shall not exceed 15 days (i.e. 60 days total including the relevant 45 day period):

1. Event day(s), as defined in subsection (b)(i)(1) above, in which the hourly LMP exceeds the annual threshold in at least 4 hours, where the annual threshold will be effective from June 1 through May 31 and will be determined based on the load weighted average PJM real time LMP for the 99th percentile for the calendar year prior to May 31;
2. Saturday or Sundays/NERC holidays where the relevant end-use customer site responds to the dispatch instructions of the Office of the Interconnection.

iii. If a 45-day period does not include 3 Saturdays or 3 Sundays/NERC holidays, respectively, that meet the conditions in subsection (b)(i) of this section, provided there are 2 Saturdays or Sundays/NERC holidays that meet the conditions in subsection (b)(i) of this section, the CBL will be based on the average of those 2 Saturdays or Sundays/NERC holidays. If there are not 2 eligible Saturdays or Sundays/NERC holidays, the CBL shall be determined in accordance with subsection (iv) of this section.

iv. Section 3.3A.2(b)(i)(1) notwithstanding, if a 45-day period does not include 2 Saturdays or Sundays/NERC holidays, respectively, that meet the conditions in subsection (b)(i) of this section, event days will be used as necessary to meet the 2 day requirement to calculate the CBL, provided that any such event days shall be the highest load event days within the relevant 45-day period.

(c) CBLs established pursuant to this section shall represent end-use customers' actual load patterns. If the Office of the Interconnection determines that a CBL or alternative CBL does not accurately represent a customer's actual load patterns, the CBL shall be revised accordingly pursuant to Section 3.3A.2.01. Consistent with this requirement, if an Economic Load Response Participant chooses to measure load reductions using a Customer Baseline Load, the Economic Load Response Participant shall inform the Office of the Interconnection of a change in its operations or the operations of the end-use customer upon whose behalf it is acting that would result in the adjustment of more than half the hours in the affected party's Customer Baseline Load by twenty percent or more for more than twenty days.

### **3.3A.2.01 Alternative Customer Baseline Methodologies.**

(a) During the Economic Load Response Participant registration process pursuant to Section 1.5A.3 of this Schedule, the relevant Economic Load Response Participant, Load Serving Entity, electric distribution company, and/or the Office of the Interconnection ("Interested Parties") may propose an alternative CBL calculation that more accurately reflects the relevant end-use customer's consumption pattern relative to the CBL determined pursuant to Section 3.3A.2. Any proposal made pursuant to this section shall be provided to all other Interested Parties.

(b) The Interested Parties shall have 30 days to agree on a proposal issued pursuant to subsection (a) of this section. The 30-day period shall start the day the proposal is received by all Interested Parties. If all Interested Parties agree on a proposal issued pursuant to this section, that alternative CBL calculation methodology shall be effective consistent with the date of the relevant Economic Load Response Participant registration.

(c) If agreement is not reached pursuant to subsection (b) of this section, the Office of the Interconnection shall determine a CBL methodology within 20 days from the expiration of the 30-day period established by subsection (b). A CBL established by the Office of the Interconnection pursuant to this subsection (c) shall be binding upon all Interested Parties unless the Interested Parties reach agreement on an alternative CBL methodology prior to the expiration of the 20-day period established by this subsection (c).

(d) Operation of this Section 3.3A.2.01 shall not delay Economic Load Response Participant registrations pursuant to Section 1.5A.3, provided that the alternative CBL established pursuant to this section shall be used for all related energy settlements made pursuant to Sections 3.3A.4 and 3.3A.5.

(e) The Office of the Interconnection shall periodically publish alternative CBL methodologies established pursuant to this section in the PJM Manuals.

### **3.3A.2.02 On-Site Generators.**

On-Site Generators used as the basis for Economic Load Response Participant status pursuant to Section 1.5A shall be subject to the following provisions:

i. The On-Site Generator shall be used solely to enable an Economic Load Response Participant to provide demand reductions in response to the Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market;

ii. If subsection (i) does not apply, the amount of energy from an On-Site Generator used to enable an Economic Load Response Participant to provide demand reductions in response to the Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market shall be capable of being quantified in a manner that is acceptable to the Office of the Interconnection.

### **3.3A.3 Weather-Sensitive and Symmetric Additive Adjustment.**

(a) Concurrent with submitting a Economic Load Response Registration Form to the Office of the Interconnection and annually thereafter, the Economic Load Response Participant shall notify the Office of the Interconnection whether it elects to apply the Weather-Sensitive Adjustment (or “WSA”) or Symmetric Additive Adjustment for the summer period (May-October) or the winter period (November-April). The Weather-Sensitive Adjustment either will decrease or increase Customer Baseline Load values. The Weather-Sensitive Adjustment may apply to measure load reductions in both the Real-time Energy Market and Day-ahead Energy Market, except that the simplified analysis for the summer period cannot be used with regard to

the Day-ahead Energy Market. Unless an alternative formula is approved by the Office of the Interconnection and agreed upon by all relevant parties, including any Curtailment Service Provider, Load Serving Entity and end-use customer, the Weather-Sensitive Adjustment and Symmetric Additive Adjustment shall be calculated using the following applicable formula:

**Regression Analysis (available for the summer and winter period.)**

Step 1: Perform a regression analysis in Excel using the slope & intercept functions between the end-use customer's on-peak (8 AM to 8 PM), non-holiday, weekday hourly loads and the temperature-humidity index ("THI") on a seasonal basis for the period the WSA is being applied.

The Office of the Interconnection will post on the Office of the Interconnection website a spreadsheet of the THI values for all relevant weather stations located within the PJM region.

The regression analysis will produce a slope (m), expressing in kW/THI, and an intercept (b), expressed in kW, that describes the sensitivity of the end-use customer's load to weather.

Step 2: Determine the average THI for the on-peak hours for the five days used in the weekday CBL calculation.

Step 3: Determine the average THI for the on-peak hours of the event day.

Step 4: Calculate the WSA based on the following formula:

$$WSA = [(m \times THIEVENT DAY) + b] / [(m \times THICBL DAYS) + b]$$

**Simplified Analysis (available only for the summer period and for the Real-time Energy Market)**

Step 1: Determine that the load is weather sensitive by agreement of the end-use customer, the Curtailment Service Provider, and the Load Serving Entity or by the Office of the Interconnection if there is no agreement. Weather adjustments could be negative or positive.

Step 2: Show that the hourly temperature reading at the nearest airport that provides weather information to the Office of the Interconnection equaled or exceeded 85 degrees Fahrenheit during each hour of the reduction event. The hourly temperature reading of another major airport nearby the end-use customer's location may be used if it can be shown that the temperature at the end-use customer's location correlates more closely.

Step 3: Calculate the average hourly load over two full hours beginning three hours prior to the Load Reduction Event.

Step 4: Calculate the average hourly load for the same hours using the values given by the CBL calculation.

Step 5: Compare the resulting average two hour loads from Steps 3 and 4.

Step 6: Determine if the difference from Step 5 expressed as a percentage is greater than 5 percent. If the difference is greater than 5 percent then the percentage will be the WSA for the reduction event.

Step 7: Submit an Excel spreadsheet to the Office of the Interconnection documenting the weather adjustment.

- The WSA, expressed in percentage terms, shall be applied to each hour of the CBL during the event period in order to establish a weather-adjusted CBL.
- For end-use customers without interval data from the previous summer that select the regression analysis, the WSA shall initially be set at 100 percent. After one month of actual program response, a regression analysis shall be performed and the WSA shall be adjusted in accordance with Steps 1-4 above.
- In no event shall application of the WSA produce a weather-adjusted CBL that exceeds the end-use customer's historical, seasonal, on-peak non-coincident peak load.

### **Symmetric Additive Adjustment**

Step 1: Calculate the average usage over the 3 hour period ending 1 hour prior to the start of event.

Step 2: Calculate the average usage over the 3 hour period in the CBL that corresponds to the 3 hour period described in Step 1.

Step 3: Subtract the results of Step 2 from the results of Step 1 to determine the symmetric additive adjustment (this may be positive or negative).

Step 4: Add the symmetric additive adjustment (i.e. the results of Step 3) to each hour in the CBL that corresponds to each event hour.

(b) Following a Load Reduction Event that is submitted to the Office of the Interconnection for compensation, the Office of the Interconnection shall provide the Notification window(s), if applicable, directly metered data and Customer Baseline Load and Weather-Sensitive Adjustment calculations to the appropriate electric distribution company or Load Serving Entity for optional review. The electric distribution company or Load Serving Entity will have ten business days to provide the Office of the Interconnection with notification of any issues related to the metered data or calculations.

### **3.3A.4 Market Settlements in Real-time Energy Market.**

(a) Economic Load Response Participants participating in the Real-time Energy Market shall be compensated for reducing demand based on the actual kWh relief provided in excess of committed day-ahead load reductions. The Economic Load Response Participant that

curtails or causes the curtailment of demand in real-time will be compensated by the Office of the Interconnection the real-time Locational Market Price less an amount equal to the applicable generation and transmission charges. The applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction.

(b) In cases where the demand reduction is dispatched by the Office of the Interconnection, payment will not be less than the total value of the demand reduction bid less an amount equal to the applicable generation and transmission charges. For the purposes of this section, the applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction, and the total value of a demand reduction bid shall include any submitted start-up costs associated with reducing demand, including direct labor and equipment costs and opportunity costs and any costs associated with a minimum number of contiguous hours for which the demand reduction must be committed.

Any shortfall will be made up through normal, real-time operating reserves. In all cases, the applicable zonal or aggregate (including nodal) Locational Marginal Price is used as appropriate for the individual end-use customer.

(c) An Economic Load Response Participant shall accumulate credits for energy reductions in those hours when the energy delivered to the end-use customer is less than the end-use customer's Customer Baseline Load at the corresponding hourly rate. In the event the end-use customer's hourly energy consumption is greater than the Customer Baseline Load, the Economic Load Response Participant will accumulate debits at the corresponding hourly rate for the amount the end-use customer's hourly energy consumption is greater than the Customer Baseline Load. However, in no event will the Economic Load Response Participant credit be reduced below zero on a daily basis.

(d) Economic Load Response Participants that have Locational Marginal Price based contracts pursuant to which they have agreed to pay their Load Serving Entity for the physical delivery of energy according to the hour value of the real-time Locational Marginal Price as calculated by the Office of the Interconnection, may choose to reduce demand and be compensated for the reduction in the Real-time Energy Market under the following circumstances. The Economic Load Response Participant shall provide the Office of the Interconnection with a strike price for the end-use customer's zonal Locational Marginal Price at which the end-use customer will reduce demand, as well as any start-up costs associated with reducing load, including direct labor and equipment costs and opportunity costs and costs associated with the minimum number of contiguous hours for which the demand reduction must be committed. In cases where the Economic Load Response Participant's zonal Locational Marginal Price reaches the strike price and the demand reduction is dispatched by the Office of the Interconnection, the Office of the Interconnection shall pay such Economic Load Response Participant the difference between the actual savings achieved based on zonal Locational Marginal Price and the total value of the end-use customer's demand reduction bid. For purposes of this provision the total value of the demand reduction bid will be the sum of the strike price times the MW of reduction achieved during each hour of the time period the demand



reduction was dispatched by the Office of the Interconnection or the minimum down-time whichever is greater, plus the submitted start-up costs. Demand reductions hereunder will not be eligible to set real-time Locational Marginal Price.

### **3.3A.5 Market Settlements in the Day-ahead Energy Market.**

(a) Economic Load Response Participants participating in the Day-ahead Energy Market shall be compensated for reducing demand based on the reductions of kWh committed in the Day-ahead Energy Market. An Economic Load Response Participant that submits a demand reduction bid day ahead that is accepted by the Office of the Interconnection shall be paid the day-ahead Locational Marginal Price

less an amount equal to the applicable generation and transmission charges. The applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction.

(b) Total payments to Economic Load Response Participants for accepted day-ahead demand reduction bids will not be less than the total value of the demand reduction bid less an amount equal to the applicable generation and transmission charges. For the purposes of this section, the applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction, and the total value of a demand reduction bid shall include any submitted start-up costs associated with reducing load, including direct labor and equipment costs and opportunity costs and any costs associated with a minimum number of contiguous hours for which the load reduction must be committed. Any shortfall will be made up through normal, day-ahead operating reserves. In all cases, the applicable zonal or aggregate (including nodal) Locational Marginal Price is used as appropriate for the individual end-use customer.

(c) Economic Load Response Participants that have demand reductions committed in the Day-ahead Energy Market that deviate from the day-ahead schedule in real time shall be charged or credited for such variance at the real time LMP plus or minus an amount equal to the applicable balancing operating reserve charge. Load Serving Entities that otherwise would have load that was reduced shall receive any associated operating reserve credit plus, if the real-time Locational Marginal Price is higher than the day-ahead Locational Marginal Price during the shortfall, the difference between the day-ahead and the real-time Locational Marginal Price times the shortfall.

(d) Economic Load Response Participants that have real-time Locational Marginal Price-based contracts may not participate in the Day-ahead Energy Market.

### **3.3A.6 Prohibited Economic Load Response Participant Market Settlements.**

(a) Settlements pursuant to Sections 3.3A.4 and 3.3A.5 shall be limited to demand reductions executed in response to the Locational Marginal Price in the Real-time Energy Market and/or the Day-ahead Energy Market.

(b) Demand reductions that do not meet the requirements of Section 3.3A.6(a) shall not be eligible for settlement pursuant to Sections 3.3A.4 and 3.3A.5. Examples of settlements prohibited pursuant to this Section 3.3A.6(b) include, but are not limited to, the following:

i. Settlements based on variable demand where the timing of the demand reduction supporting the settlement did not change in direct response to Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market;

ii. Consecutive daily settlements that are the result of a change in normal demand patterns that are submitted to maintain a CBL that no longer reflects the relevant end-use customer's demand;

iii. Settlements based on On-Site Generator data if the On Site Generation is not supporting demand reductions executed in response to the Locational Marginal Price in the Real-time Energy Market and/or the Day-ahead Energy Market;

iv. Settlements based on demand reductions that are the result of operational changes between multiple end-use customer sites in the PJM footprint, provided that, the foregoing notwithstanding, settlements based on such demand reduction shall be allowed if the demand reduction alleviates congestion.

(c) The Office of the Interconnection shall disallow settlements for demand reductions that do not meet the requirements of Section 3.3A.6(a). If the Economic Load Response Participant continues to submit settlements for demand reductions that do not meet the requirements of Section 3.3A.6(a), then the Office of the Interconnection shall suspend the Economic Load Response Participant's PJM Interchange Energy Market activity and refer the matter to the FERC Office of Enforcement.

### **3.3A.7 Economic Load Response Participant Review Process.**

(a) The Office of the Interconnection shall review the participation of an Economic Load Response Participant in the PJM Interchange Energy Market under the following circumstances:

i. An Economic Load Response Participant's registrations submitted pursuant to Section 1.5A.3 are disputed more than 10% of the time by any relevant electric distribution company(ies) or Load Serving Entity(ies).

ii. An Economic Load Response Participant's settlements pursuant to Sections 3.3A.4 and 3.3A.5 are disputed more than 10% of the time by any relevant electric distribution company(ies) or Load Serving Entity(ies).

iii. An Economic Load Response Participant's settlements pursuant to Sections 3.3A.4 and 3.3A.5 are denied by the Office of the Interconnection more than 10% of the time.

iv. An Economic Load Response Participant's registration will be reviewed when settlements are frequently submitted. PJM will notify the Participant when their registration is under review. While the Participant's registration is under review by PJM, the Participant may continue economic load reductions but all settlements will be denied by PJM until the registration review is resolved pursuant to subsection (i) or (ii) below. PJM will require the Participant to provide information within 30 days to support that the settlements were submitted for load reduction activity done in response to price and not submitted based on the End-Use Customer's normal operations.

i) If the Participant is unable to provide adequate supporting information to substantiate the load reductions submitted for settlement, PJM will terminate the registration and may refer the Participant to either the Market Monitoring Unit or the Federal Energy Regulatory Commission for further investigation.

ii) If the Participant does provide adequate supporting information, the settlements denied by PJM will be resubmitted by the Participant for review according to existing PJM market rules. Further, PJM may introduce an alternative Customer Baseline Load if the existing Customer Baseline Load does not adequately reflect what the customer load would have been absent a load reduction.

v. An Economic Load Response Participant's daily settlement will be denied by PJM based on the following criteria:

1) Submission of settlement for self schedule energy in the Real-time Energy Market where only some of the self scheduled hours have been included in the daily settlement submission; or

2) Daily settlement with an estimated value less than Five U.S. Dollars (\$5.00); or

3) Daily settlement has a significant number of uneconomic hours where the Locational Marginal Price is less than or equal to the generation plus the transmission portion of an end-use customer's retail rate or price.

vi. The electric distribution company and the Load Serving Entity may only deny settlements during the normal settlement review process for inaccurate data including, but not limited to: meter data, line loss factor, Customer Baseline Load calculation, retail rate, interval meter owner and a known recurring End-Use Customer outage or holiday.

(b) The Office of the Interconnection shall have thirty days to conduct a review pursuant to this Section 3.3A.7. The Office of the Interconnection may refer the matter to the PJM MMU and/or the FERC Office of Enforcement if the review indicates the relevant Economic Load Response Participant and/or relevant electric distribution company or LSE is engaging in activity that is inconsistent with the PJM Interchange Energy Market rules governing Economic Load Response Participants.

**ATTACHMENT M**  
**PJM MARKET MONITORING PLAN**

References to section numbers in this Attachment M refer to sections of this Attachment M, unless otherwise specified.

**I. OBJECTIVES**

The objectives of this PJM Market Monitoring Plan are to maintain an independent Market Monitoring Unit that will objectively monitor, investigate, evaluate and report on the PJM Markets, including, but not limited to, structural, design or operational flaws in the PJM Markets or the exercise of market power or manipulation in the PJM Markets. The Market Monitoring Unit shall have responsibility for implementing the Plan. In the event of any conflict between a provision in the Plan and a provision of the PJM Market Rules, the provision of the Plan shall control.

**II. DEFINITIONS**

Unless the context otherwise requires, for purposes of this Plan, capitalized terms shall have the meanings given below or in Section I of the PJM Tariff.

(a) **“Authorized Government Agency”** means a regulatory body or government agency, with jurisdiction over PJM, the PJM Market, or any entity doing business in the PJM Market, including, but not limited to, the Commission, State Commissions, and state and federal attorneys general.

(b) **“Commission”** means the Federal Energy Regulatory Commission.

(c) **“Corrective Action”** means an action set forth in section IV.I of this Plan.

(d) **“FERC Market Rules”** mean the market behavior rules and the prohibition against electric energy market manipulation codified by the Commission in its Rules and Regulations at 18 CFR §§ 1c.2 and 35.37, respectively; the Commission-approved PJM Market Rules and any related proscriptions or any successor rules that the Commission from time to time may issue, approve or otherwise establish.

(e) **“Market Monitor”** means the head of the Market Monitoring Unit.

(f) **“Market Monitoring Unit”** or **“MMU”** means the organization that is responsible for implementing this Plan, including the Market Monitor.

(g) **“Market Monitoring Unit Advisory Committee”** or **“MMU Advisory Committee”** means the committee established under Section III.H.

(h) **“Market Participant”** means an entity that generates, transmits, distributes, purchases, or sells electricity, ancillary services, or any other product or service provided under

the PJM Tariff or Operating Agreement within, into, out of, or through the PJM Region. “Market Participant” shall not include an Authorized Government Agency that consumes energy for its own use but does not purchase or sell energy at wholesale.

(h-1) **“Market Violation”** means a tariff violation, violation of a Commission-approved order, rule or regulation, market manipulation, or inappropriate dispatch that creates substantial concerns regarding unnecessary market inefficiencies, as defined in 18 C.F.R. § 35.28(b)(8).

(i) **“OPSI Advisory Committee”** means the committee established under Section III.G.

(j) **“PJM”** means PJM Interconnection, L.L.C., including the Office of the Interconnection as referenced in the PJM Operating Agreement.

(k) **“PJM Board”** means the Board of Managers of PJM or its designated representative, exclusive of any members of PJM Management.

(l) **“PJM Entities”** mean PJM, including the Market Monitoring Unit, the PJM Board, and PJM’s officers, employees, representatives, advisors, contractors, and consultants.

(m) **“PJM Liaison”** means the liaison established under Section III.I.

(n) **“PJM Management”** means the officers, executives, supervisors and employee managers of PJM.

(o) **“PJM Manuals”** mean those documents, including business rules, produced by PJM that describe detailed PJM operating and accounting procedures that are made publicly available in hard copy and on the Internet.

(p) **“PJM Markets”** mean the PJM Interchange Energy and Capacity Markets, including the RPM auctions, together with all bilateral or other wholesale electric power and energy transactions, capacity transactions, ancillary services transactions (including black start service), transmission transactions and any other market operated under the PJM Tariff or Operating Agreement within the PJM Region.

(q) **“PJM Market Rules”** mean the rules, standards, procedures, and practices of the PJM Markets set forth in the PJM Tariff, the PJM Operating Agreement, the PJM Reliability Assurance Agreement, the PJM Consolidated Transmission Owners Agreement, the PJM Manuals, the PJM Regional Practices Document, the PJM-Midwest Independent Transmission System Operator Joint Operating Agreement or any other document setting forth market rules.

(r) **“PJM Operating Agreement”** means the Amended and Restated Operating Agreement of PJM on file with the Commission.

(s) **“PJM Regional Practices Document”** means the document of that title that compiles and describes the practices in the PJM Markets and that is made available in hard copy and on the Internet.

(t) **“PJM Reliability Assurance Agreement”** means the Reliability Assurance Agreement among Load Serving Entities in the PJM Region on file with the Commission.

(u) **“PJM Tariff”** means the Open Access Transmission Tariff of PJM on file with the Commission.

(v) **“PJM Transmission Owners Agreement”** means the PJM Consolidated Transmission Owners Agreement on file with the Commission.

(w) **“Plan”** means the PJM market monitoring plan set forth in this Attachment M.

(x) **“State”** means the District of Columbia and any state or commonwealth in the PJM Region.

(y) **“State Commission”** means any state regulatory agency having jurisdiction over retail electricity sales in any State in the PJM Region.

### **III. MARKET MONITORING UNIT**

**A. Establishment:** PJM shall establish or retain a Market Monitoring Unit to perform the functions set forth in this Plan.

**B. Composition:** The Market Monitoring Unit shall be comprised of personnel having the experience and qualifications necessary to implement this Plan. In carrying out its responsibilities, the Market Monitoring Unit may retain such consultants, attorneys and experts as it deems necessary.

**C. Independence:** The Market Monitoring Unit shall be independent from, and not subject to, the direction or supervision of any person or entity, with the exception of the PJM Board as specified in Section III.D, and the Commission. No person or entity shall have the right to preview, screen, alter, delete, or otherwise exercise editorial control over or delay Market Monitoring Unit actions or investigations or the findings, conclusions, and recommendations developed by the Market Monitoring Unit that fall within the scope of market monitoring responsibilities contained in this Plan. Nothing in this section shall be interpreted to exempt the Market Monitoring Unit from any applicable provision of state or federal law.

**D. Role of PJM Board:**

1. The PJM Board shall have the authority and responsibility:

a. To review the budget of the Market Monitoring Unit, consistent with the budget processes and requirements set forth in Section III.E.

b. To propose to terminate, retain by contract renewal or replace the Market Monitoring Unit, consistent with the requirements of Section III.F.

2. The PJM Board and the Market Monitor shall meet and confer from time to time on matters relevant to the discharge of the PJM Board's and the Market Monitoring Unit's duties under this Plan.

3. Other than the matters set forth in Sections III.D.1 and D.2, the PJM Board shall have no responsibility for, or authority over, the Market Monitoring Unit.

**E. Budget:**

1. **Preparation:** The Market Monitor shall prepare a budget each year of its expenses on an accrual basis in accordance with generally accepted accounting principles that is sufficient to cover the anticipated actual costs to perform the services under this Plan, including, but not limited to, salary and benefits, rent and utilities, interest, depreciation and other operating expenses.

2. **Review:** The Market Monitor shall, not later than September 15, submit a draft budget to the Finance Committee, OPSI Advisory Committee, and PJM Board for review and comment. The draft budget shall include total labor compensation, non-employee labor expense, current full-time employee and contractor head count, depreciation expense, interest expense, technology expense, other expense and capital spending, including a level of supporting detail consistent with that provided by PJM in its annual budget review to the Finance Committee. The draft budget shall also be made available for inspection by the PJM members. The Finance Committee, OPSI Advisory Committee, and PJM Board shall have until October 15 to request changes in the budget. The Market Monitor shall consider those requests and, if they are not accepted by the Market Monitor, it shall provide, in writing, to the foregoing and to PJM members, an explanation of the reasons they are not acceptable. If, after discussing requested changes with such entities, there is no remaining dispute over such requested changes, the mutually agreeable budget shall go into effect on January 1 of the subsequent year.

3. **Commission Action:** If despite the foregoing process, there remains a dispute regarding the budget, PJM shall, not later than November 1, file the Market Monitor's proposed budget with the Commission for resolution of the dispute. PJM shall accompany such filing with an explanation of the nature of the dispute and any position of the PJM Board on such dispute. Any interested person may also file comments on such dispute. The fact that PJM is submitting the dispute for Commission review shall not be deemed to provide the views of the PJM Board any special weight, nor subject them to any special burden of proof. If the Commission has not taken action by December 31, the Market Monitor's proposed budget, filed by PJM, shall take effect, subject to any subsequent Commission order.

4. **Intra-year Amendments to the Budget:** If the Market Monitor requires an intra-year amendment to the budget to perform its functions under the Plan, it shall provide the proposed amendment, the reasons for the proposed amendment and reasonable supporting

detail to the Finance Committee, OPSI Advisory Committee and the PJM Board for review and comment, and if any dispute regarding such proposed amendment remains 30 days thereafter, PJM shall file the proposed budget amendment with the Commission for resolution of the dispute. The proposed budget amendment and supporting explanation shall also be made available for inspection by the PJM members.

5. **Rates:** The Market Monitor's approved budget shall be collected pursuant to Schedule 9-MMU of the PJM Tariff.

**F. Term and Termination:**

1. **Term:** Upon the effective date of this revised Attachment M, there shall be a contract between PJM and the Market Monitoring Unit that has an initial term of six (6) years. Upon the expiration of that initial six (6) year term, the contract may be renewed for subsequent term(s) of three (3) years if both parties agree. If the PJM Board does not agree to renew the contract at the end of its term, it may propose to terminate the contract pursuant to the standards and processes set forth below.

2. **Standards for Proposed Termination:**

a. **Termination During Contract Term.** During the term of any contract with the Market Monitoring Unit, the PJM Board may propose to terminate the contract as follows:

(1) During the first three (3) years following the effective date of this revised Attachment M, the PJM Board may propose to terminate the contract with the Market Monitoring Unit upon a determination of willful misconduct or gross negligence by the Market Monitoring Unit.

(2) Following the expiration of this initial three (3) year period, the PJM Board may, during the term of any contract with the Market Monitoring Unit (or any successor Market Monitoring Unit), propose to terminate the contract with the Market Monitoring Unit upon a determination that the Market Monitoring Unit has not adequately performed its functions set forth in this Plan.

b. **Termination at End of Contract Term.** At the end of the term of any contract with the Market Monitoring Unit, the PJM Board may propose to terminate the contract with the Market Monitoring Unit (or any successor Market Monitoring Unit) (1) upon a determination that the Market Monitoring Unit has not adequately performed the functions set forth in this Plan, or (2) pursuant to an open, nondiscriminatory and transparent request for proposals.



3. **Process for Proposed Termination and Replacement:**

a. Notice. If the PJM Board proposes to terminate the contract with the Market Monitoring Unit pursuant to the standards set forth in Section III.F.2, it shall provide one hundred twenty (120) days prior notice to the Market Monitoring Unit, the OPSI Advisory Committee, MMU Advisory Committee and the PJM members.

b. Contents of Notice. The notice shall include the following information:

(1) If the PJM Board proposes to terminate the contract with the Market Monitoring Unit based on willful misconduct or gross negligence, it shall set forth in detail the conduct that supports such determination and shall propose an open and transparent process (such as a request for proposals) for selecting a new Market Monitoring Unit.

(2) If the PJM Board proposes to terminate the contract with the Market Monitoring Unit because it has not adequately performed its functions under this Plan, it shall set forth in detail the performance deficiencies that support that determination and shall propose an open and transparent process (such as a request for proposals) for selecting a new Market Monitoring Unit.

(3) If the PJM Board proposes to conduct a request for proposals to determine whether to replace the Market Monitoring Unit at the end of a contract term, it shall propose an open, nondiscriminatory and transparent request for proposals and shall allow the existing Market Monitoring Unit to submit a bid or proposal in that process. Any such notice shall set forth in detail the criteria applicable to such request for proposals. Such criteria shall be subject to comment as provided in Section III.F.3.c and subject to approval by the Commission.

c. Comments on the Notice. Within forty-five (45) days of any such notice, the Market Monitoring Unit, the OPSI Advisory Committee, MMU Advisory Committee, any PJM member or any stakeholder may provide advice or comment to the PJM Board regarding the proposed termination and/or the proposed process for selecting a new Market Monitoring Unit. The PJM Board shall take such advice or comment into account in reaching a final determination as to whether to propose to terminate the contract with the Market Monitoring Unit and, if so, the process for selecting a new Market Monitoring Unit.

d. FERC Filing. Upon the expiration of the one hundred twenty (120) day prior notice period, the PJM Board may, after considering the advice and comment provided pursuant to Section III.F.3.c, propose in a filing to FERC that the contract with the Market Monitoring Unit be terminated. Any such proposal shall include a detailed explanation of the reasons therefor, including an explanation of why the standards set forth in Section III.F.2 have been satisfied, and an open, nondiscriminatory and transparent process for selecting a new Market Monitoring Unit. The Market Monitoring Unit, OPSI Advisory Committee and any interested stakeholder may submit to FERC such comments, protests or other documents and advice as appropriate on such filing.

e. Termination. The contract with the Market Monitoring Unit shall not be terminated until (1) FERC has reviewed a termination proposal by the PJM Board and any comments or protests submitted by interested parties thereon (including the OPSI Advisory Committee), (2) FERC has made a finding that the PJM Board has demonstrated that termination is justified pursuant to the standards set forth in Section III.F.2 above, (3) FERC has approved a process for selecting a new Market Monitoring Unit, and (4) a new Market Monitoring Unit has been selected pursuant to such FERC-approved process.

**G. OPSI Advisory Committee:** There shall be an OPSI Advisory Committee comprised of five (5) representatives appointed by the Organization of PJM States, Inc. The OPSI Advisory Committee shall meet with the Market Monitoring Unit on a regular basis and as otherwise necessary to receive and discuss information relevant to this Plan. In addition to the specific responsibilities regarding budget and termination set forth in Sections III.E and III.F, the OPSI Advisory Committee may provide advice to the Commission, Market Monitor, the PJM Board, stakeholder committees, and stakeholder working groups regarding any matter concerning the Market Monitor, Market Monitoring Unit or Market Monitoring Plan. Any formal advice shall be in writing and, subject to confidentiality provisions, shall be made publicly available.

**H. Market Monitoring Unit Advisory Committee:** There shall be an MMU Advisory Committee, chaired by the Market Monitor, that is open to all stakeholders and representatives of Authorized Government Agencies. The MMU Advisory Committee shall act as a liaison between stakeholders and the MMU and shall provide advice from time to time on matters relevant to the MMU's responsibilities under this Plan. The MMU Advisory Committee shall have no authority to direct, supervise, review, or otherwise interfere with the functions of the MMU under this Plan, nor any authority to terminate or propose to terminate the Market Monitor.

**I. PJM Liaison:** PJM may appoint an employee to act as liaison with the Market Monitoring Unit. The function of the liaison will be to facilitate communications between PJM employees and the Market Monitoring Unit, as defined in Section V.E.

#### **IV. MARKET MONITORING UNIT FUNCTIONS AND RESPONSIBILITIES**

**A. General:** The Market Monitoring Unit shall objectively monitor the competitiveness of PJM Markets, investigate violations of FERC or PJM Market Rules, recommend changes to PJM Market Rules, prepare reports for the Authorized Government Agencies and take such other actions as are specified in this Plan.

**B. Monitored Activities:** The Market Monitoring Unit shall be responsible for monitoring the following:

1. Compliance with the PJM Market Rules.
2. Actual or potential design flaws in the PJM Market Rules.
3. Structural problems in the PJM Markets that may inhibit a robust and competitive market.
4. The potential for a Market Participant to exercise market power or violate any of the PJM or FERC Market Rules or the actual exercise of market power or violation of the PJM or FERC Market Rules.
5. PJM's implementation of the PJM Market Rules or operation of the PJM Markets, as further set forth in Section IV.C.
6. Such matters as are necessary to prepare the reports set forth in Section

VI.

**C. Monitoring of PJM:** The Market Monitoring Unit shall monitor PJM's implementation of the PJM Market Rules and operation of the PJM Markets. If the Market Monitoring Unit disagrees with the implementation of the PJM Market Rules or the operation of the PJM Markets, the Market Monitoring Unit may so advise PJM. Excepting matters governed by Section IV.I, if the disagreement cannot be resolved informally, the Market Monitoring Unit may inform the Commission, Authorized Government Agencies, or the PJM members. The Market Monitoring Unit shall have no authority to direct PJM to modify its operation of the PJM Markets or implementation of the PJM Market Rules.

**C-1. Monitoring of ITCs:** The Market Monitoring Unit shall monitor the services provided by the independent transmission companies (ITCs), and the ITC-PJM relationship, to detect any problems that may inhibit a robust and competitive market. Transactions utilizing the ITC Transmission Facilities shall be subject to the authority of the Market Monitoring Unit on the same basis as transactions involving any other Market Participant using other portions of the Transmission System. This provision is also found in Section 12.1 of Attachment U of the PJM Tariff.

**D. Monitoring of PJM Market Rules, PJM Tariff and Market Design:** PJM is responsible for proposing for approval by the Commission, consistent with tariff procedures and

applicable law, changes to the PJM Market Rules, PJM Tariff and design of the PJM Markets. The Market Monitoring Unit shall evaluate and monitor existing and proposed PJM Market Rules, PJM Tariff provisions, and the design of the PJM Markets. However, if the Market Monitoring Unit detects a design flaw or other problem with the PJM Markets, the Market Monitoring Unit shall not effectuate its proposed market design since that is the responsibility of the Office of the Interconnection. The Market Monitoring Unit may initiate and propose, through the appropriate stakeholder processes, changes to the design of such markets, as well as changes to the PJM Market Rules and PJM Tariff. In support of this function, the Market Monitoring Unit may engage in discussions with stakeholders, State Commissions, PJM Management, or the PJM Board; participate in PJM stakeholder meetings or working groups regarding market design matters; publish proposals, reports or studies on such market design issues; and make filings with the Commission on market design issues. The Market Monitoring Unit may also recommend changes to the PJM Market Rules and PJM Tariff provisions to the staff of the Commission's Office of Energy Market Regulation, State Commissions, and the PJM Board.

**E. Mitigation:** The Market Monitoring Unit may, consistent with the PJM Market Rules, recommend to PJM that it take specific mitigation action that PJM is authorized to take under the PJM Market Rules to address market behavior or conditions. The Market Monitoring Unit shall not, however, have authority to require modification of PJM operational decisions, including dispatch instructions. If PJM does not accept the Market Monitoring Unit's recommendations regarding mitigation actions, the Market Monitoring Unit may report its mitigation recommendation to the Authorized Government Agencies, Commission staff, State Commissions or the PJM members, as the Market Monitoring Unit deems appropriate. Nothing in this Plan shall be deemed to supersede any authority the Market Monitoring Unit may have under the PJM Market Rules, nor shall anything in this Plan preclude any person or entity from seeking to modify such authority in a filing with the Commission.

**F. Studies or Reports for State Commissions:** Upon request in writing by the OPSI Advisory Committee, the Market Monitoring Unit may, in its discretion, provide such studies or reports on wholesale market issues, including wholesale market transactions occurring under a state-administered auction process, as may affect one or more states within the PJM area. Any such request for such a study or report, as well as any resulting study or report, shall be made simultaneously available to the public, with simultaneous notice to PJM members, subject to the protection of confidential information.

**G. Participation in Stakeholder Processes:** The Market Monitoring Unit may, as it deems appropriate or necessary to perform its functions under this Plan, participate (consistent with the rules applicable to all PJM stakeholders) in stakeholder working groups, committees or other PJM stakeholder processes.

**H. Referrals to State Commissions:** If during the ordinary course of its activities the Market Monitoring Unit discovers evidence of wrongdoing (other than minor misconduct) that the Market Monitor reasonably believes to be within a State Commission's jurisdiction, the Market Monitoring Unit shall report such information to the State Commission(s).

## **I. Corrective Actions**

1. **Required Notice and Referral to Commission of Suspected Market Violations:** Immediately upon determining that it has identified a significant market problem or a potential Market Violation by a Market Participant or PJM that may require (a) further inquiry by the Market Monitoring Unit, (b) referral for investigation by the Commission and/or (c) action by the Commission, the Market Monitoring Unit shall notify the Commission's Office of Enforcement (or any successor), either orally or in writing. Nothing in this Section IV.I.1 shall limit the ability of the Market Monitoring Unit to engage in discussions with any such Market Participant as provided in Section IV.J.1.

In addition to the notification requirement above, where the Market Monitoring Unit has reason to believe, based on sufficient credible information, that the behavior of a Market Participant or PJM may require investigation, including but not limited to suspected Market Violations, the Market Monitoring Unit will refer the matter to the Commission's Office of Enforcement (or any successor) in the manner described below.

Such a referral shall be in writing, non-public, addressed to the Commission's Director of the Office of Enforcement, with a copy directed to the Commission's Director of the Office of Energy Market Regulation and the General Counsel, and should include, but need not be limited to, the following sufficient credible information to warrant further investigation by the Commission:

- a. The name(s) of and, if possible, the contact information for, the Market Participants that allegedly took the action(s) that constitute that alleged Market Violation(s);
- b. The date(s) or time period during which the alleged Market Violation(s) occurred and whether the alleged wrongful conduct is ongoing;
- c. The specific rule, regulation, and/or tariff provision(s) that were allegedly violated or the nature of any inappropriate dispatch that may have occurred;
- d. The specific act(s) or conduct that allegedly constituted the Market Violation;
- e. The consequences to the market resulting from the act(s) or conduct, including, if known, an estimate of economic impact on the market;
- f. If the Market Monitoring Unit believes that the act(s) or conduct constituted a violation of the anti-manipulation rule of 18 C.F.R. § 1c.2, a description of the alleged manipulative effect on market prices, market conditions, or market rules; and
- g. Any other information that the Market Monitoring Unit believes is relevant and may be helpful to the Commission.

The referral may be transmitted to the Commission electronically, by fax, by mail or by courier. The Market Monitoring Unit may also provide the Commission with oral notice of the alleged Market Violation in advance of the submission of a written, non-public referral. Following the submission of such a referral, the Market Monitoring Unit will continue to inform the Commission staff of any information relating to the referral that it discovers within the scope of its regular monitoring function, but it shall desist from, and not independently undertake any investigative steps regarding, the alleged Market Violation or referral except at the express direction of the Commission or Commission staff. The Market Monitoring Unit must also respond to requests of the Commission for additional information in connection with the alleged Market Violation that it has referred. The Market Monitoring Unit is not precluded from continuing to monitor for any repeated instances of the activity in question by the same or other Market Participants, which activity would constitute new Market Violations.

The foregoing notwithstanding, a clear, objectively identifiable violation of the following PJM Market Rules, which provide for an explicit remedy that has been accepted by the Commission and can be administered by PJM, shall not be subject to the provisions of this Section IV.I.1:

a. Default in obligations to the Office of the Interconnection by a Market Participant in violation of Section 1.7.10(a)(v) of Attachment K – Appendix of the PJM Tariff.

b. Default in obligations to the Office of the Interconnection by a Market Participant in violation of Section 1.7.19B(e) of Attachment K – Appendix of the PJM Tariff.

c. Failure of a Capacity Market Seller or Locational UCAP Seller to obtain replacement Unforced Capacity to the extent a Generation Capacity Resource that it committed for a Delivery Year is unavailable due to a planned or maintenance outage that occurs during the Peak Season without approval of the Office of the Interconnection, in violation of Section 9(b) of Attachment DD of the PJM Tariff.

d. Failure of an Electric Distributor to maintain the required underfrequency relays in violation of Schedule 7, Section 2 of the PJM Operating Agreement.

e. Failure to submit data to the Office of the Interconnection in conformance with Schedule 11 (Data Submittals) of the Reliability Assurance Agreement.

Nevertheless, the Market Monitoring Unit retains the right to refer a matter to the Commission's Office of Enforcement (or any successor) in the manner described above for a violation of the referenced PJM Market Rules.

## **2. Required Referral to Commission of Perceived Market Design Flaws and Recommended Tariff Changes:**

The Market Monitoring Unit is to make a referral to the Commission in all instances where the Market Monitoring Unit has reason to believe market design flaws exist that it believes could effectively be remedied by rule or PJM Tariff changes. The Market Monitoring Unit must limit

distribution of its identifications and recommendations to PJM and to the Commission in the event it believes broader dissemination could lead to exploitation, with an explanation of why further dissemination should be avoided at that time.

All referrals to the Commission relating to perceived market design flaws and recommended PJM Tariff changes related thereto are to be in writing, whether transmitted electronically, by fax, mail, or courier. The Market Monitoring Unit may alert the Commission orally in advance of the written referral.

The referral should be addressed to the Commission's Director of the Office of Energy Market Regulation, with copies directed to both the Director of the Office of Enforcement and the General Counsel.

The referral must include, but need not be limited to, the following information:

- a. A detailed narrative describing the perceived market design flaw[s];
- b. The consequences of the perceived market design flaws, including, if known, an estimate of economic impact on the market;
- c. The rule or PJM Tariff revisions that the Market Monitoring Unit believes could remedy the perceived market design flaw; and
- d. Any other information the Market Monitoring Unit believes is relevant and may be helpful to the Commission.

Following a referral to the Commission, the Market Monitoring Unit must continue to notify and inform the Commission of any additional information regarding the perceived market design flaw, its effects on the market, any additional or modified observations concerning the rule or PJM Tariff changes that could remedy the perceived design flaw. The Market Monitoring Unit must also notify and inform the Commission of any recommendations made by the Market Monitoring Unit to PJM, stakeholders, Market Participants or State Commissions regarding the perceived design flaw, and any actions taken by PJM regarding the perceived design flaw.

**J. Additional Market Monitoring Unit Authority:** In addition to notifications and referrals under Sections IV.I.1 and IV.I.2, respectively, the Market Monitoring Unit shall have the additional authority described in this section, as follows:

1. Engage in discussions regarding issues relating to the PJM Market Rules or FERC Market Rules, in order to understand such issues and to attempt to resolve informally such issues or other issues.
2. Excepting matters governed by Section IV.I, file reports and make appropriate regulatory filings with Authorized Government Agencies to address design flaws, structural problems, compliance, market power, or other issues, and seek such appropriate action or make such recommendations as the Market Monitoring Unit shall deem appropriate. The

Market Monitoring Unit shall make such filings or reports publicly available and provide simultaneous notice of the existence of reports to the PJM members and PJM, subject to protection of confidential information.

3. Consult with Authorized Government Agencies concerning the need for specific investigations or monitoring activities.

4. Consider and evaluate a broad range of additional enforcement mechanisms that may be necessary to assure compliance with the PJM Market Rules. As part of this evaluation process, the Market Monitoring Unit shall consult with Authorized Government Agencies and other interested parties.

5. Report directly to the Commission staff on any matter.

**K. Confidentiality:**

1. All discussions between the Market Monitoring Unit and Market Participants concerning the informal resolution of compliance issues initially shall remain confidential, subject to the provisions in subsection IV.K.3.

2. Except as provided in subsection IV.K.3, in exercising its authority to take Corrective Actions, the Market Monitoring Unit shall observe the confidentiality provisions of the PJM Operating Agreement and Attachment M - Appendix.

3. Notwithstanding anything to the contrary in this Plan or the PJM Operating Agreement and Attachment M - Appendix, the Market Monitoring Unit: (a) may disclose any information to the Commission in connection with the reporting required under Sections IV.I.1 and IV.I.2 of this Plan, provided that any written submission to the Commission that includes information that is confidential under the PJM Operating Agreement or Attachment M - Appendix shall be accompanied by a request that the information be maintained as confidential, and (b) may make reports or other regulatory filings pursuant to Section IV.J or V of this Plan if accompanied by a request that information that is confidential under the PJM Operating Agreement or Attachment M - Appendix be maintained as confidential.

**V. INFORMATION AND DATA**

A. **Primary Information Sources:** The Market Monitoring Unit shall rely primarily upon data and information that are customarily gathered in the normal course of business of PJM and such publicly available data and information that may be helpful to accomplish the objectives of the Plan, including, but not limited to, (1) information gathered or generated by PJM in connection with its scheduling and dispatch functions, its operation of the transmission grid in the PJM Region or its determination of Locational Marginal Prices, (2) information required to be provided to PJM in accordance with the PJM Market Rules and (3) any other information that is generated by, provided to, or in the possession of PJM. The foregoing information shall be provided to the Market Monitoring Unit as soon as practicable, including, but not limited to, real-time access to scheduling, dispatch and other operational data.



B. **Other Information Requests:** If other information is required from a Market Participant, the Market Monitoring Unit shall comply with the following procedures:

1. **Request for Additional Data:** If the Market Monitoring Unit determines that additional information is required to accomplish the objectives of the Plan, the Market Monitoring Unit may make reasonable requests of the entities possessing such information to provide the information. Any such request for additional information will be accompanied by an explanation of the need for the information and the Market Monitoring Unit's inability to acquire the information from alternate sources.

2. **Failure to Comply with Request:** The information request recipient shall provide the Market Monitoring Unit with all information that is reasonably requested. If an information request recipient does not provide requested information within a reasonable time, the Market Monitoring Unit may initiate such regulatory or judicial proceedings to compel the production of such information as may be available and deemed appropriate by the Market Monitoring Unit, including petitioning the Commission for an order that the information is necessary and directing its production. An information request recipient shall have the right to respond to any such petitions and participate in the proceedings thereon.

3. **Information Concerning Possible Undue Preference:** Notwithstanding subsection V.B.1, if the Market Monitoring Unit requests information relating to possible undue preference between Transmission Owners and their affiliates, Transmission Owners and their affiliates must provide requested information to the Market Monitoring Unit within a reasonable time, as specified by the Market Monitoring Unit; provided, however, that an information request recipient may petition the Commission for an order limiting all or part of the information request, in which event the Commission's order on the petition shall determine the extent of the information request recipient's obligation to comply with the disputed portion of the information request.

4. **Confidentiality:** Except as provided in Section IV.K.3 of this Plan, the Market Monitoring Unit shall observe the confidentiality provisions of the PJM Operating Agreement and Attachment M - Appendix with respect to information provided under this section if an entity providing the information designates it as confidential.

C. **Complaints:** Any Market Participant or other interested entity may at any time submit information to the Market Monitoring Unit concerning any matter relevant to the Market Monitoring Unit's responsibilities under the Plan, or may request the Market Monitoring Unit to make inquiry or take any action contemplated by the Plan. Such submissions or requests may be made on a confidential basis. The Market Monitoring Unit may request further information from such Market Participant or other entity and make such inquiry as the Market Monitoring Unit considers appropriate. The Market Monitoring Unit shall not be required to act with respect to any specific complaint unless the Market Monitoring Unit determines action to be warranted.

D. **Collection and Availability of Information:** The Market Monitoring Unit shall regularly collect and maintain under its sole control the information that it deems necessary for

implementing the Plan. A Market Participant shall have sole responsibility to make available to the Market Monitoring Unit any information that the Market Monitoring Unit deems reasonably necessary to document, verify or investigate a claim or request by such Market Participant. All load reduction data are subject to audit by the Market Monitoring Unit. The Market Monitoring Unit shall make publicly available a detailed description of the categories of data collected by the Market Monitoring Unit. To the extent it deems appropriate and upon specific request, the Market Monitoring Unit may release other data to the public, consistent with the obligations of the Market Monitoring Unit and PJM to protect confidential, proprietary, or commercially sensitive information as provided in Attachment M - Appendix and the PJM Operating Agreement.

E. **Access to Personnel and Facilities:** The Market Monitoring Unit shall have access to PJM personnel and facilities as necessary to perform the functions set forth in this Plan. If the Market Monitoring Unit seeks data or other information from PJM personnel, it may contact the appropriate personnel that may be in possession of such data or information. If the Market Monitoring Unit seeks a formal opinion or position on a matter from PJM, it shall contact the PJM Liaison or appropriate senior management official to provide such opinion or position.

F. **Market Monitoring Indices:** The Market Monitoring Unit shall develop, and shall refine on the basis of experience, indices or other standards to evaluate the information that it collects and maintains. Prior to using any such index or standard, the Market Monitoring Unit shall provide PJM members, Authorized Government Agencies, and other interested parties an opportunity to comment on the appropriateness of such index or standard. Following such opportunity for comments, the decision to use any index or standard shall be solely that of the Market Monitoring Unit.

G. **Evaluation of Information:** The Market Monitoring Unit shall evaluate, and shall refine on the basis of experience, the information it collects and maintains, or that it receives from other sources, regarding the operation of the PJM Markets or other matters relevant to the Plan. As so evaluated, such information shall provide the basis for reports or other actions of the Market Monitoring Unit under this Plan.

## **VI. REPORTS**

A. **Reports:** The Market Monitoring Unit shall prepare and submit contemporaneously to the Commission, the State Commissions, the PJM Board, PJM Management and to the PJM Members Committee, annual state-of-the-market reports on the state of competition within, and the efficiency of, the PJM Markets, and quarterly reports that update selected portions of the annual report and which may focus on certain topics of particular interest to the Market Monitoring Unit. The quarterly reports shall not be as extensive as the annual reports. In its annual, quarterly and other reports, the Market Monitoring Unit may make recommendations regarding any matter within its purview. The annual reports shall, and the quarterly reports may, address, among other things, the extent to which prices in the PJM Markets reflect competitive outcomes, the structural competitiveness of the PJM Markets, the effectiveness of bid mitigation rules, and the effectiveness of the PJM Markets in signaling infrastructure investment. These annual reports shall, and the quarterly reports may include

recommendations as to whether changes to the Market Monitoring Unit or the Plan are required. In addition, the Market Monitoring Unit shall provide to the PJM Board, in a timely manner, copies of any reports submitted to Authorized Government Agencies pursuant to Section VI.B. The Market Monitoring Unit may from time-to-time prepare and submit additional reports to the Commission, the PJM Board and PJM Members Committee as the Market Monitoring Unit may deem appropriate in the discharge of its responsibilities under the Plan.

B. **Reports to Authorized Government Agencies:** The Market Monitoring Unit shall contemporaneously submit to the Authorized Government Agencies the reports provided to the PJM Board pursuant to Section VI.A. Subject to applicable law and regulation and any other applicable provisions of the PJM Operating Agreement or PJM Tariff, the Market Monitoring Unit shall, to the extent practicable, respond to reasonable requests by Authorized Government Agencies other than the Commission for reports, subject to protection of confidential, proprietary and commercially sensitive information, the protection of the confidentiality of ongoing inquiries and monitoring activities, and the availability of resources.

C. **Public Reports:** The Market Monitoring Unit shall prepare a detailed public annual report about the Market Monitoring Unit's activities, subject to protection of confidential, proprietary, and commercially sensitive information and the protection of the confidentiality of ongoing investigations and monitoring activities. The Market Monitoring Unit may, instead of filing a separate report, include the referenced material in a report filed pursuant to Section VI.A hereof.

D. **State Commission Tailored Requests for Information:** Subject to the confidentiality restrictions of Attachment M – Appendix, Section I.D. of the PJM Tariff and Section 18.17.4 of the PJM Operating Agreement, the Market Monitoring Unit may provide, at its discretion, information regarding general market trends and the performance of the PJM Markets in response to a State Commission's tailored request for information unless the requested information is designed to aid state enforcement actions or impinges upon the confidentiality rules of the Federal Energy Regulatory Commission with regard to referrals.

The Market Monitoring Unit shall provide to any Market Participant whose information has been requested, or who may be affected by the release of the requested information, written notice, which shall include electronic communication, of a State Commission's tailored request for information as soon as possible, but not later than two (2) business days after the receipt of the request. If the request for tailored information seeks to obtain Confidential Information, the requirements and limitations of Section I.D. of Attachment M – Appendix shall apply. If the request for tailored information seeks to obtain information that is not Confidential Information, if the Market Participant whose information has been requested or who may be affected by the release of the requested information objects to the request or any portion thereof, it shall be given the opportunity to contest the request and to provide a contextual explanation to supplement the information produced by the Market Monitoring Unit so long as the providing of the contextual explanation does not unduly delay the release of the information to the State Commission. To register its objection, the Market Participant must request, in writing, within four (4) business days following the Market Monitoring Unit's receipt of the request, a conference with the State Commission to resolve differences concerning the scope or timing of the tailored request for

information; provided, however, nothing herein shall require the State Commission to participate in any conference. Any party to the conference may seek assistance from FERC staff in resolution of the dispute or terminate the conference process at any time. Should such conference be refused or terminated by any participant or should such conference not resolve the dispute, then the Market Participant whose information has been requested or who may be affected by the release of the requested information, may file a complaint with the FERC pursuant to Rule 206 objecting to the request for tailored information within ten (10) business days following receipt of written notice from any conference participant terminating such conference. Any complaints filed at the FERC objecting to a particular request for tailored information shall be designated by the party as a “fast track” complaint and each party shall bear its own costs in connection with such FERC proceeding.

If no complaint challenging the request for tailored information is filed within the ten (10) business day period defined above, the Market Monitoring Unit shall utilize its best efforts to respond to the request for tailored information promptly. If a complaint is filed, and the Commission does not act on that complaint within ninety (90) days, the complaint shall be deemed denied and the Market Monitoring Unit shall use its best efforts to respond to the request for tailored information promptly. Notwithstanding the foregoing, if the Market Monitoring Unit determines, in its discretion, that responding to the State Commission’s request for tailored information is unreasonably burdensome and/or will interfere with the Market Monitoring Unit’s ability to carry out its core functions based on time and resource availability of its staff, the Market Monitoring Unit may decline such a request.

E. **IMM Staff Availability:** The Market Monitoring Unit shall make one or more staff members available for regular conference calls, which may be attended telephonically or in person, by FERC Commission staff, State Commission staff, representatives of PJM, and Market Participants.

## **VII. AUDIT**

The Market Monitoring Unit shall annually (a) document, and advise PJM of, Market Monitoring Unit’s actual expenses for the prior year by no later than March 15, and provide a copy of such documentation to the Finance Committee, and (b) provide audited financial statements of the Market Monitoring Unit of revenues and expenses related solely to the services provided to PJM, audited by a nationally recognized independent third party auditor selected by the Market Monitor, by no later than May 15. The audit report shall include, but not be limited to, a review of whether MMU expenditures were for purposes consistent with the functions set forth in this Plan and shall include documentation at a level of supporting detail consistent with that required in Section III.E above. The audit report shall be provided to the PJM Board, Finance Committee, Market Monitoring Unit, OPSI, OPSI Advisory Committee, PJM and PJM members subject to the protection of confidential information. The requirement that the Market Monitoring Unit annually document and advise PJM of its expenses for the prior year is also found in subsection (e) of Schedule 9-MMU.

## **VIII. LIMITATION OF LIABILITY**

Any liability of PJM arising under or in relation to this Plan shall be subject to this Section VIII. The PJM Entities shall not be liable to any Market Participant, any party to the PJM Operating Agreement, any customer under the PJM Tariff, or any other person subject to this Plan in respect of any matter described in or contemplated by this Plan, as the same may be amended or supplemented from time to time, including but not limited to liability for any financial loss, loss of economic advantage, opportunity cost, or actual or consequential damages of any kind resulting from or attributable to any act or omission of any of the PJM Entities under this Plan. Neither the OPSI Advisory Committee nor any State Commission (including commissioners and staff persons) shall be liable to any person under this Plan for any financial loss, loss of economic advantage, opportunity cost, or actual or consequential damages associated with performing any of its functions or duties under this Plan.

## **IX. ALTERNATIVE DISPUTE RESOLUTION**

Notwithstanding any provision of the PJM Tariff or the PJM Operating Agreement, PJM and the Market Monitoring Unit shall not be required to use the dispute resolution procedures in the PJM Tariff or the PJM Operating Agreement in carrying out its duties and responsibilities under this Plan. However, nothing herein shall prevent PJM or any other person from requesting the use of the dispute resolution procedure set forth in the PJM Tariff or the PJM Operating Agreement, as applicable.

## **X. EFFECTIVE DATE**

This Plan shall be effective as of August 1, 2008.

## **XI. CODE OF ETHICS**

The Market Monitoring Unit and its employees, as applicable, shall adhere to the following Code of Ethics, which is reproduced from Section 17 of PJM Rate Schedule No. 46, Market Monitoring Services Agreement By And Between PJM Interconnection, L.L.C. And Monitoring Analytics, LLC entered into on December 18, 2007, and filed with the Commission to comply with order of the Federal Energy Regulatory Commission, Docket Nos. EL07-56 and EL07-58 et al., issued March 21, 2008, 122 FERC ¶ 61,257.

### **A. Conflicts of Interest:**

1. The Market Monitoring Unit will use its best efforts to assure that all of its employees comply with this Code of Ethics and shall take appropriate disciplinary actions against employees who violate the policy.

2. The Market Monitoring Unit and its employees assisting on market monitoring matters for PJM, and their spouses and dependent children, may not have a direct equity or other financial interest in a Market Participant or in a parent, subsidiary, or affiliate of a Market Participant. (The term “direct” is meant to exclude investments such as mutual funds in which a person has no direct control, with the exception of sector-specific mutual funds.)

3. The Market Monitoring Unit and its employees assisting on market monitoring matters for PJM, may not undertake a matter for a third party where such representation would require disclosure of market-sensitive or proprietary information of PJM.

**B. Prohibited Engagements and Conduct by the Market Monitoring Unit:**

1. Neither the Market Monitoring Unit nor its employees will be engaged to provide advice to, or undertake a matter for or on behalf of, any entity on any entity's participation in the PJM Markets, except as otherwise authorized under subparagraphs 3 and 5 below.

2. Neither the Market Monitoring Unit nor its employees will be engaged by any entity in any litigation, open regulatory docket, alternative dispute resolution procedure, or arbitration with PJM, except as otherwise authorized under subparagraphs 3 and 5 below.

3. Neither the Market Monitoring Unit nor its employees will be engaged to appear on behalf of or against any entity before a state regulatory commission within the PJM Region in any new engagement in the electricity business except as authorized under the PJM Tariff, as requested by a state regulatory commission, or as otherwise required by law.

4. Neither the Market Monitoring Unit nor its employees shall accept any engagement by any market participant outside of the PJM Region that would require the Market Monitoring Unit to take a position adverse to any PJM member or inconsistent with any position taken by the Market Monitoring Unit in the PJM Region.

5. Neither the Market Monitoring Unit nor its employees will be engaged to appear on behalf of or against any entity before the Commission on any matter within the PJM Region in any new engagement in the electricity business except as authorized under the PJM Tariff, as requested by the Commission, or as otherwise required by law.

6. Before the Market Monitoring Unit accepts any engagement on behalf of or against an Interested Party, it must inform the PJM General Counsel and the PJM Board of such potential engagement and provide the PJM Board with an opportunity to state its objection to such representation on the ground the engagement would present a conflict of interest or result in the material appearance of conflict. At the discretion of the Market Monitoring Unit, the Market Monitoring Unit may notify the PJM General Counsel that the proposed engagement is confidential and request that the General Counsel disclose the proposed engagement only to a PJM Board subcommittee in a manner which limits the disclosure of nonpublic information. Within seven (7) business days of being informed of the potential engagement by the Market Monitoring Unit, the PJM Board shall state any objection to such potential engagement. If the Market Monitoring Unit disagrees with the PJM Board's determination regarding the potential engagement by the Market Monitoring Unit, the Parties shall jointly engage the Commission's Dispute Resolution Service to determine whether the engagement would present a conflict of interest or result in the material appearance of a conflict. Unless the Commission's Dispute Resolution Service finds no conflict of interest the Market Monitoring Unit shall be precluded from accepting the challenged engagement. For these purposes, the term "Interested Party"

means (x) a Market Participant; (v) a state regulatory commission within the PJM Region; or (z) a person or entity with a significant direct financial interest in the organization, governance or operation of PJM but shall not include PJM itself.

7. Employees of the Market Monitoring Unit shall not accept gifts, payments, favors, meals, transportation, entertainment, or services (individually, "Gift," and collectively, "Gifts"), of other than nominal value within a calendar year from PJM, Authorized Government Agencies, any market participant, contractor, supplier or vendor to the Market Monitoring Unit. Except that "Gifts" shall not include any of the foregoing that is generally provided to the attendees of business meetings (e.g. PJM stakeholder meetings). Gifts not exceeding One Hundred Fifty Dollars (\$150) shall be deemed to be of "nominal value." Similarly, neither the Market Monitoring Unit nor any employee of the Market Monitoring Unit shall offer any Gift to any public official or Market Participant unless such Gifts: are legal; not offered for specific gain or reciprocal action; follow generally accepted ethical standards; and are of nominal value.

8. Neither the Market Monitoring Unit nor its employees shall serve as an officer, employee or partner of a Market Participant.

9. Neither the Market Monitoring Unit nor its employees shall engage in any transactions in the PJM markets other than the performance of their duties under the PJM Tariff.

10. Neither the Market Monitoring Unit nor its employees shall be compensated, other than by PJM, for any expert witness testimony or commercial services, either to PJM or to any other party, in connection with legal or regulatory proceeding or commercial transaction relating to PJM or to PJM's markets.

11. Employees of the Market Monitoring Unit must advise their supervisor(s) in the event they seek employment with a Market Participant, and must disqualify themselves from participating in any matter that would have an effect on the financial interest of the Market Participant while still in the employ of the Market Monitoring Unit.

C. **Compliance with All Applicable Laws:** The Market Monitoring Unit will use its best efforts to assure the compliance of the Market Monitoring Unit and its employees with all applicable laws, including but not limited to those referenced in the PJM Code of Conduct.

## 5.11 Posting of Information Relevant to the RPM Auctions

a) In accordance with the schedule provided in the PJM Manuals, PJM will post the following information for a Delivery Year prior to conducting the Base Residual Auction for such Delivery Year:

i) The Preliminary PJM Region Peak Load Forecast (for the PJM Region, and allocated to each Zone) and, for Delivery Years through May 31, 2012, the ILR Forecast by Locational Deliverability Area;

ii) The PJM Region Installed Reserve Margin, the Pool-wide average EFORd, and the Forecast Pool Requirement;

iii) The Demand Resource Factor;

iv) The PJM Region Reliability Requirement, and the Variable Resource Requirement Curve for the PJM Region;

v) The Locational Deliverability Area Reliability Requirement and the Variable Resource Requirement Curve for each Locational Deliverability Area for which a separate Variable Resource Requirement Curve has been established for such Base Residual Auction, and the CETO and CETL values for all Locational Deliverability Areas;

vi) Any Transmission Upgrades that are expected to be in service for such Delivery Year, provided that a Transmission Upgrade that is Backbone Transmission satisfies the project development milestones set forth in section 5.11A;

vii) The bidding window time schedule for each auction to be conducted for such Delivery Year

viii) The Net Energy and Ancillary Services Revenue Offset values for the PJM Region for use in the Variable Resource Requirement Curves for the PJM Region and each Locational Deliverability Area for which a separate Variable Resource Requirement Curve has been established for such Base Residual Auction; and

ix) The results of the Preliminary Market Structure Screen in accordance with section 6.2(a).

b) The information listed in (a) will be posted and applicable for the First, Second, Third, and Conditional Incremental Auctions for such Delivery Year, except to the extent updated as required by other provisions of this Tariff.

c) In accordance with the schedule provided in the PJM Manuals, PJM will post the Final PJM Region Peak Load Forecast and the allocation to each zone of the obligation resulting from such final forecast, following the completion of the final Incremental Auction (including any Conditional Incremental Auction) conducted for such Delivery Year;



d) In accordance with the schedule provided in the PJM Manuals, PJM will advise owners of Generation Capacity Resources of the updated EFORd values for such Generation Capacity Resources prior to the conduct of the Third Incremental Auction for such Delivery Year.

e) After conducting the Reliability Pricing Model Auctions, PJM will post the results of each auction as soon thereafter as possible. The posted results shall include graphical supply curves that are (a) provided for the entire PJM Region, (b) provided for any Locational Deliverability Area for which there are four (4) or more suppliers, and (c) developed using a formulaic approach to smooth the curves using a statistical technique that fits a smooth curve to the underlying supply curve data while ensuring that the point of intersection between supply and demand curves is at the market clearing price.

If PJM discovers an error in the initial posting of auction results for a particular Reliability Pricing Model Auction, it shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 5:00 p.m. of the fifth business day following the initial publication of the results of the auction. After this initial notification, if PJM determines it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the seventh business day following the initial publication of the results of the auction. Thereafter, PJM must post on its Web site any corrected auction results by no later than 5:00 p.m. of the tenth business day following the initial publication of the results of the auction. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced auction results are under publicly noticed review by the FERC.

## **6. MARKET POWER MITIGATION**

### **6.1 Applicability**

The provisions of the Market Monitoring Plan (in Attachment M and Attachment - M Appendix to this Tariff and this section 6) shall apply to the Reliability Pricing Model Auctions.

### **6.2 Process**

(a) By no later than 90 days (or such other time period as established for purposes of the Transition Period) prior to the conduct of the Base Residual Auction and each Incremental Auction for such Delivery Year, the Office of the Interconnection shall post or continue to post the results of the Market Monitoring Unit's application of the Preliminary Market Structure Screen determined pursuant to section II.D of Attachment M - Appendix.

(b) In accordance with the schedule specified in the PJM Manuals, following PJM's conduct of a Base Residual Auction or Incremental Auction pursuant to section 5.12, but prior to the Office of the Interconnection's final determination of clearing prices and charges pursuant to section 5.14, the Office of the Interconnection shall: (i) apply the Market Structure Test to any LDA having a Locational Price Adder greater than zero and to the entire PJM region; (ii) apply Market Seller Offer Caps, if required under this section 6; and (iii) recompute the optimization algorithm to clear the auction with the Market Seller Offer Caps in place.

(c) Within seven days after the deadline for submission of Sell Offers in a Base Residual Auction or Incremental Auction, the Office of the Interconnection shall file with FERC a report of any determination made pursuant to sections 5.14(h), 6.5(a)(ii), or 6.7(c) identified in such sections as subject to the procedures of this section. Such report shall list each such determination, the information considered in making each such determination, and an explanation of each such determination. Any entity that objects to any such determination may file a written objection with FERC no later than seven days after the filing of the report. Any such objection must not merely allege that the determination was in error, and must provide support for the objection, demonstrating that the determination overlooked or failed to consider relevant evidence. In the event that no objection is filed, the determination shall be final. In the event that an objection is filed, FERC shall issue any decision modifying the determination no later than 60 days after the filing of such report; otherwise, the determination shall be final. Final auction results shall reflect any decision made by FERC regarding the report.

### **6.3 Market Structure Tests**

(a) Preliminary Market Structure Screen.

The Market Monitoring Unit shall apply the Preliminary Market Structure Screen pursuant to section II.D of Attachment M - Appendix. Potential Capacity Market Sellers owning or controlling any existing Generation Capacity Resources in the PJM Region shall be required to provide to the Market Monitoring Unit the additional information specified in section II.D of Attachment M - Appendix if such Generation Capacity is located in an LDA, "Unconstrained

LDA Group” (as defined in Attachment M - Appendix), or the entire PJM Region that fails the Preliminary Market Structure Screen, as applied pursuant to section II.D below.

(b) Market Structure Test.

A constrained LDA or the PJM Region shall fail the Market Structure Test, and mitigation shall be applied to all jointly pivotal suppliers (including all Affiliates of such suppliers, and all third-party supply in the relevant LDA controlled by such suppliers by contract), if, as to the Sell Offers that comprise the incremental supply determined pursuant to section 6.3(c) that are based on Generation Capacity Resources, there are not more than three jointly pivotal suppliers. The Office of the Interconnection shall apply the Market Structure Test. The Office of the Interconnection shall confirm the results of the Market Structure Test with the Market Monitoring Unit.

(c) Determination of Incremental Supply

In applying the Market Structure Test, the Office of the Interconnection shall consider all (i) incremental supply (provided, however, that the Office of the Interconnection shall consider only such supply available from Generation Capacity Resources) available to solve the constraint applicable to a constrained LDA offered at less than or equal to 150% of the cost-based clearing price; or (ii) supply for the PJM Region, offered at less than or equal to 150% of the cost-based clearing price, provided that supply in this section includes only the lower of cost-based or priced based offers from Generation Capacity Resources. Cost-based clearing prices are the prices resulting from the RPM auction algorithm using the lower of cost-based or price-based offers for all Capacity Resources.

#### **6.4 Market Seller Offer Caps**

(a) The Market Seller Offer Cap, stated in dollars per MW-day of installed capacity, applicable to price-quantity offers within the Base Offer Segment for an existing Generation Capacity Resource shall be the Avoidable Cost Rate for such resource, less the Projected PJM Market Revenues for such resource, stated in dollars per MW of unforced capacity. During the first three Delivery Years of the Transition Period, the Market Seller Offer Cap shall be increased for Sell Offers submitted by eligible Capacity Market Sellers in any Unconstrained LDA Group by the Transition Adder set forth in section 17.5 of this Attachment. The Market Seller Offer Cap for an existing Generation Capacity Resource shall be the Opportunity Cost for such resource, if applicable, as determined in accordance with section 6.7. Nothing herein shall preclude any Capacity Market Seller and the Market Monitoring Unit from agreeing to, nor require either such entity to agree to, an alternative market seller offer cap determined on a mutually agreeable basis. Any such alternative offer cap shall be filed with the Commission for its approval. This provision is duplicated in section II.E.3 of Attachment M- Appendix.

(b) For each existing Generation Capacity Resource, a potential Capacity Market Seller must timely provide to the Market Monitoring Unit data and documentation required under section 6.6 to establish the level of the Market Seller Offer Cap applicable to each resource. The Capacity Market Seller must promptly address any concerns identified by the Market Monitoring Unit regarding the data and documentation provided, review the proposed

Market Seller Offer Cap, and attempt to reach agreement with the Market Monitoring Unit on the level of the Market Seller Offer Cap.

(c) If the Market Monitoring Unit informs the Office of the Interconnection that a Capacity Market Seller has failed to submit costs consistent with section 6.7, it shall be required to submit any Sell Offer in the applicable auction as Self-Supply. If such Capacity Market Seller submits a Sell Offer that is not Self-Supply, the Market Monitoring Unit may seek relief from the Commission pursuant to section 6.4(d) below.

(d) In the event that a Capacity Market Seller and the Market Monitoring Unit cannot agree on the level of a Market Seller Offer Cap, the Office of the Interconnection shall make its own determination of the level of the Market Seller Offer Cap based on the requirements of the Tariff and the PJM Manuals. If the Capacity Market Seller submits a Sell Offer that the Office of the Interconnection determines would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction compared to the Office of the Interconnection's determination of the level of the Market Seller Offer Cap, the Office of the Interconnection shall apply to FERC for an order, on an expedited basis, directing such Capacity Market Seller to submit a Sell Offer consistent with the Market Monitoring Unit's determination, or for other appropriate relief, and PJM shall postpone clearing the auction pending FERC's decision on the matter. Should the Market Monitoring Unit exercise its powers to inform Commission staff of its concerns and request a determination, on an expedited basis, directing a Capacity Market Seller to submit a Sell Offer consistent with the Market Monitoring Unit's determination, or for other appropriate relief, pursuant to section II.E of Attachment M - Appendix, PJM may postpone clearing the auction pending FERC's decision on the matter.

(e) Nothing in this section precludes the Capacity Market Seller from filing a petition with FERC seeking a determination of whether the Sell Offer complies with the requirements of the Tariff.

(f) Notwithstanding the foregoing, a Capacity Market Seller may submit a Sell Offer that it chooses, provided that (i) it has participated in good faith with the process described in this section 6.4 and in section II.E of Attachment M - Appendix, (ii) the offer is no higher than the level defined in any agreement reached by the Capacity Market Seller and the Market Monitoring Unit that resulted from the foregoing process, and (iii) the offer is accepted by the Office of the Interconnection subject to the criteria set forth in the Tariff and the PJM Manuals.

(g) For any Third Incremental Auction, the Market Seller Offer Cap for an existing Generation Capacity Resource shall be determined pursuant to paragraph (a) of this Section 6.4, or if elected by the Capacity Market Seller, shall be equal to 1.1 times the Capacity Resource Clearing Price in the Base Residual Auction for the relevant LDA and Delivery Year.

## **6.5 Mitigation**

The Office of the Interconnection shall apply market power mitigation measures in any Base Residual Auction or Incremental Auction for any LDA, Unconstrained LDA Group, or the PJM Region that fails the Market Structure Test.

(a) Mitigation for Generation Capacity Resources.

i) Existing Generation Resource

Mitigation will be applied on a unit-specific basis and only if the Sell Offer of Unforced Capacity from a Generation Capacity Resource: (1) is greater than the Market Seller Offer Cap applicable to such resource; and (2) would, absent mitigation, increase the Capacity Resource Clearing Price in the relevant auction. If such conditions are met, such Sell Offer shall be set equal to the Market Seller Offer Cap.

ii) Planned Generation Capacity Resources

(A) Sell Offers based on Planned Generation Capacity Resources (including External Planned Generation Capacity Resources) shall be presumed to be competitive and shall not be subject to market power mitigation in the Base Residual Auction or Incremental Auction for adjustment of committed capacity for the first Delivery Year for which such resource qualifies as a Planned Generation Capacity Resource, but any such Sell Offer shall be rejected if it meets the criteria set forth in subsection (C) below, unless the Capacity Market Seller obtains approval from FERC for use of such offer prior to the deadline for submission of such offers in the applicable auction. Such resources shall be treated as Existing Generation Capacity Resources in the auctions for any subsequent Delivery Year; provided, however, that such resources may receive certain price assurances for the two Delivery Years immediately following the first Delivery Year of service under certain conditions as set forth in section 5.14 of this Attachment.

(B) Sell Offers based on Planned Generation Capacity Resources (including External Planned Generation Capacity Resources) submitted for the first year in which such resources qualify as Planned Generation Capacity Resources shall be deemed competitive and not be subject to mitigation if: (1) collectively all such Sell Offers provide Unforced Capacity in an amount equal to or greater than two times the incremental quantity of new entry required to meet the LDA Reliability Requirement; and (2) at least two unaffiliated suppliers have submitted Sell Offers for Planned Generation Capacity Resources in such LDA. Notwithstanding the foregoing, any Capacity Market Seller, together with Affiliates, whose Sell Offers based on Planned Generation Capacity Resources in that LDA are pivotal, shall be subject to mitigation.

(C) Where the two conditions stated in subsection (B) are not met, or the Sell Offer is pivotal, the Sell Offer shall be rejected if it exceeds 140 percent of: 1) the average of location-adjusted Sell Offers for Planned Generation Capacity Resources from the same asset class as such Sell Offer, submitted (and not rejected) (Asset-Class New Plant Offers) for such Delivery Year; or 2) if there are no Asset-Class New Plant Offers for such Delivery Year, the average of Asset-Class New Plant Offers for all

prior Delivery Years; or 3) if there are no Asset-Class New Plant Offers for any prior Delivery Year, the Net CONE applicable for such Delivery Year in the LDA for which such offer was submitted. For purposes of this section, asset classes shall be as stated in section 6.7(c) as effective for such Delivery Year, and Asset-Class New Plant Offers shall be location-adjusted by the ratio between the Net CONE effective for such Delivery Year for the LDA in which the Sell Offer subject to this section was submitted and the average, weighted by installed capacity, of the Net CONEs for all LDAs in which the units underlying such Asset Class New Plant Offers are located. Following the conduct of the applicable auction and before the final determination of clearing prices, in accordance with Section 6.2(b) above, each Capacity Market Seller whose Sell Offer is so rejected shall be notified and allowed an opportunity to submit a revised Sell Offer that does not exceed such threshold. The Office of the Interconnection then shall clear the auction with such revised Sell Offer in place.

(b) Mitigation for Demand Resources

The Market Seller Offer Cap shall not be applied to Sell Offers of Demand Resources or Energy Efficiency Resources.

## **6.6 Offer Requirement for Capacity Resources**

(a) To avoid application of subsection (h), all Unforced Capacity of all existing Generation Capacity Resources located in the PJM Region shall be offered (which may include submission as Self-Supply) in the Base Residual Auction for each Delivery Year, where Unforced Capacity is determined using an EFORD less than or equal to the greater of (i) the annual average EFORD for the five consecutive years ending on the September 30 that last precedes the submission of such offers or (ii) the EFORD for the 12 months ending on the September 30 that last precedes the submission of such offers.

(b) For each existing Generation Capacity Resource, a potential Capacity Market Seller must timely provide to the Market Monitoring Unit data and documentation required under section 6.6 to establish the EFORD applicable to each resource. The Generation Market Seller must promptly address any concerns identified by the Market Monitoring Unit regarding the data and documentation provided, review the proposed EFORD, and attempt to reach agreement with the Market Monitoring Unit on the level of the EFORD

(c) If the Market Monitoring Unit informs the Office of the Interconnection that a Capacity Market Seller has failed to submit costs consistent with section 6.7, it shall be required to submit any Sell Offer in the applicable auction as Self-Supply. If such Capacity Market Seller submits a Sell Offer that is not Self-Supply, the Market Monitoring Unit may seek relief from the Commission pursuant to section 6.4(d) below and section II.C of Attachment M - Appendix.

(d) In the event that a Capacity Market Seller and the Market Monitoring Unit cannot agree on the level of the EFORD, the Office of the Interconnection shall make its own

determination of the level of the EFORd based on the requirements of the Tariff and the PJM Manuals. If the Capacity Market Seller submits an EFORd that the Office of the Interconnection determines would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction compared to the Office of the Interconnection's determination of the level of the EFORd, the Office of the Interconnection shall apply to FERC for an order, on an expedited basis, directing such Capacity Market Seller to submit an EFORd consistent with the Market Monitoring Unit's determination, or for other appropriate relief, and PJM shall postpone clearing the auction pending FERC's decision on the matter. Should the Market Monitoring Unit exercise its powers to inform Commission staff of its concerns and request a determination, on an expedited basis, directing a Capacity Market Seller to submit an EFORd consistent with the Market Monitoring Unit's determination, or for other appropriate relief, pursuant to section II.C of Attachment M - Appendix, PJM may postpone clearing the auction pending FERC's decision on the matter.

(e) Nothing in this section precludes the Capacity Market Seller from filing a petition with FERC seeking a determination of whether the EFORd complies with the requirements of the Tariff.

(f) Notwithstanding the foregoing, a Capacity Market Seller may submit an EFORd that it chooses, provided that (i) it has participated in good faith with the process described in this section 6.6 and in section II.C of Attachment M - Appendix, (ii) the offer is no higher than the level defined in any agreement reached by the Capacity Market Seller and the Market Monitoring Unit that resulted from the foregoing process, and (iii) the offer is accepted by the Office of the Interconnection subject to the criteria set forth in the Tariff and the PJM Manuals.

(g) Existing generation resources in the PJM Region capable of qualifying as a Generation Capacity Resource may not avoid the rule in subsection (a) by failing to qualify as a Generation Capacity Resource, or by attempting to remove a unit previously qualified as a Generation Capacity Resource from classification as a Capacity Resource, excepting only generation resources that, as shown by appropriate documentation: (i) are reasonably expected to be physically unable to participate in the relevant Delivery Year; (ii) have a financially and physically firm commitment to an external sale of its capacity, or (iii) were interconnected to the Transmission System as Energy Resources and not subsequently converted to a Capacity Resource. A Generation Capacity Resource that does not qualify for submission into an RPM Auction because it is not owned or controlled by the Capacity Market Seller for a full Delivery Year is not subject to the offer requirement hereunder; provided, however, that a Capacity Market Seller planning to transfer ownership or control of a Generation Capacity Resource during a Delivery Year pursuant to a sale or transfer agreement entered into after March 26, 2009 shall be required to satisfy the offer requirement hereunder for the entirety of such Delivery Year and may satisfy such requirement by providing for the assumption of this requirement by the transferee of ownership or control under such agreement.

In order to establish that a resource is reasonably expected to be physically unable to participate in the relevant auction as set forth in (i) above, the Capacity Market Seller must demonstrate that:

A. It has a documented plan in place to retire the resource prior to or during the Delivery Year, and has submitted a notice of Deactivation to the Office of the Interconnection consistent with Section 113.1 of the PJM Tariff;

B. Significant physical operational restrictions that cause long term or permanent changes to the installed capacity value of the resource, or the resource is under major repair that will extend into the applicable Delivery Year, that will result in the imposition of RPM performance penalties pursuant to Attachment DD of the PJM Tariff; or,

C. The Market Seller is involved in an ongoing regulatory proceeding (e.g. – regarding potential environmental restrictions) specific to the resource and has received an order, decision, final rule, opinion or other final directive from the regulatory authority that will result in the retirement of the resource.

(h) Any existing generation resource located in the PJM Region that is not offered into the Base Residual Auction for a Delivery Year, and that does not meet any of the exceptions stated in the prior subsection (g): (i) may not participate in any subsequent auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year; and (iii) shall not be permitted to satisfy any LSE's Unforced Capacity Obligation, or any entity's obligation to obtain the commitment of Capacity Resources, for such Delivery Year.

(i) To avoid application of subsection (j), any existing Generation Capacity Resource located in the PJM Region that is offered into the Base Residual Auction for a Delivery Year, but that does not clear in such auction, shall be offered in the First, Second, and Third Incremental Auctions (and any Conditional Incremental Auction) for such Delivery Year, unless such Generation Capacity Resource, as shown by appropriate documentation, (i) is reasonably expected to be physically unable to participate in the relevant auction; (ii) has a financially and physically firm commitment to an external sale of its capacity; or (iii) was interconnected to the Transmission System as an Energy Resource and not subsequently converted to a Capacity Resource.

(j) Any existing Generation Capacity Resource located in the PJM Region that is offered into the Base Residual Auction for a particular Delivery Year, does not clear in such auction, is not offered into the First, Second, Third, and Conditional Incremental Auctions for such Delivery Year, and does not meet any of the exceptions stated in subsection (g): (i) may not participate in any subsequent auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year; (iii) shall not be permitted to satisfy any LSE's Unforced Capacity Obligation, or any entity's obligation to obtain the commitment of Capacity Resources, for such Delivery Year, and (iv) may be subject to further action by the Market Monitoring Unit under Attachment M and Attachment M - Appendix.

(k) In addition to the remedies set forth in subsections (g), (h), (i), and (j), if the Market Monitoring Unit determines that one or more Capacity Market Sellers' failure to offer part or all of one or more existing generation resources into an auction would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction, the Office of the Interconnection shall apply to FERC for an order, on an expedited



basis, directing such Capacity Market Seller to participate in the auction, or for other appropriate relief, and PJM will postpone clearing the auction pending FERC's decision on the matter.

## **6.7 Data Submission**

(a) Potential participants in any PJM Reliability Pricing Model Auction shall submit, together with supporting documentation for each item, to the Market Monitoring Unit no later than four months prior to the posted date for the conduct of such auction, a list of owned or controlled generation resources by PJM transmission zone for the specified Delivery Year, including the amount of gross capacity, the EFORD and the net (unforced) capacity.

(b) Except as provided in subsection (c) below, potential participants in any PJM Reliability Pricing Model Auction in any LDA or Unconstrained LDA Group that fails the Preliminary Market Structure Screen (or, if such region fails the screen, potential auction participants in the entire PJM Region) shall, in addition, submit the following data, together with supporting documentation for each item, to the Market Monitoring Unit no later than two months prior to the conduct of such auction:

i. If the Capacity Market Seller intends to submit a non-zero price in its Sell Offer in any such auction, the Capacity Market Seller shall submit a calculation of the Avoidable Cost Rate and Projected PJM Market Revenues, as defined in subsection (d) below, together with detailed supporting documentation.

ii. If the Capacity Market Seller intends to submit a Sell Offer based on opportunity cost, the Capacity Market Seller shall also submit a calculation of Opportunity Cost, as defined in subsection (d), with detailed supporting documentation.

(c) Potential auction participants identified in subsection (b) above need not submit the data specified in that subsection for any Generation Capacity Resource:

i. that is in an Unconstrained LDA Group or, if this is the relevant market, the entire PJM Region, and is in a resource class identified in the table below as not likely to include the marginal price-setting resources in such auction; or

ii. for which the potential participant commits that any Sell Offer it submits as to such resource shall not include any price above: (1) the level identified below for the relevant resource class, less (2) the Projected PJM Market Revenues for such resource, as determined in accordance with this Tariff.

Nothing herein precludes the Market Monitoring Unit from requesting additional information from any potential auction participant as deemed necessary by the Market Monitoring Unit, including, without limitation, additional cost data on resources in a class that is not otherwise expected to include the marginal price setting resource; and compliance with such request shall be a condition of participation in any auction. Any Sell Offer submitted in any auction that is inconsistent with any commitment made pursuant to this subsection shall be rejected, and the Capacity Market Seller shall be required promptly to resubmit a Sell Offer that complies with such commitments. If the Capacity Market Seller does not timely resubmit its Sell Offer, it shall

be deemed to have submitted a Sell Offer that complies with the commitments made under this subsection, with a default price equal to the maximum price for the class of resource determined under section (c)(ii) above. The obligation imposed under section 6.6(a) shall not be satisfied unless and until the Capacity Market Seller submits (or is deemed to have submitted) a Sell Offer that conforms to its commitments made pursuant to this subsection or subject to the procedures set forth in section 6.4 and section II.H of Attachment M - Appendix. The default Avoidable Cost Rates referenced in section (c)(ii) above are as set forth in the tables below for any auction conducted after September 1, 2009 for any Delivery Year through the 2012-2013 Delivery Year. To determine the default ACR values for the 2013-2014 and subsequent Delivery Years, the Office of the Interconnection shall multiply the ACR values for the immediately preceding Delivery Year by a factor equal to the most recent ten-calendar-year annual average rate of change in the applicable Handy-Whitman Index of Public Utility Construction Costs or a comparable index approved by the Commission, as calculated by the Office of the Interconnection and posted to its Web site; provided, however, that after the Handy-Whitman indexing methodology has been employed to determine the default ACR values for the RPM Auctions for three consecutive Delivery Years, the Office of the Interconnection shall: i) review the default ACR values to determine whether any changes other than those produced by such methodology are warranted for subsequent Delivery Years (including seeking the analysis and advice of the Market Monitoring Unit on such matter) and report its conclusions to the Members in writing no later than four months after the Base Residual Auction for the third such Delivery Year; and ii) file with FERC resulting changes, if any, to this section no later than seven months after such Base Residual Auction, to be effective for the Base Residual Auction for the following Delivery Year; provided further, that nothing herein precludes the Office of the Interconnection from filing with FERC changes to the default ACR values or any other provision of this section prior to the deadline stated in the previous clause, or at any other time. Capacity Market Sellers shall use the one-year mothball Avoidable Cost Rate shown below, unless such Capacity Market Seller satisfies the criteria set forth in section 6.7(e), in which case the Capacity Market Seller may use the retirement Avoidable Cost Rate. PJM shall also publish on its Web site the number of Generation Capacity Resources and megawatts per LDA that use the retirement Avoidable Cost Rates.

Technology	Technology Classes Not Likely to be the Marginal Price Setting Resource					
	2010-2011 Mothball Avoidable Cost Rate (\$/MW- Day)	2010-2011 Retirement Avoidable Cost Rate (\$/MW- Day)	2011-2012 Mothball Avoidable Cost Rate (\$/MW- Day)	2011-2012 Retirement Avoidable Cost Rate (\$/MW-Day)	2012-2013 Mothball Avoidable Cost Rate (\$/MW- Day)	2012-2013 Retirement Avoidable Cost Rate (\$/MW- Day)
Nuclear	N/a	N/a	N/a	N/a	N/a	N/a
Pumped Storage	\$20.77	\$29.17	\$21.72	\$30.50	\$22.71	\$31.89
Hydro	\$71.01	\$92.87	\$74.24	\$97.10	\$77.62	\$101.52
Sub-Critical Coal	\$170.48	\$188.98	\$178.24	\$197.58	\$186.35	\$206.57
Super Critical Coal	\$176.13	\$192.65	\$184.15	\$201.42	\$192.53	\$210.59
Waste Coal - Small	\$224.83	\$272.31	\$235.06	\$284.70	\$245.75	\$297.65
Waste Coal – Large	\$83.15	\$100.45	\$86.94	\$105.02	\$90.89	\$109.80
Wind	N/a	N/a	N/a	N/a	N/a	N/a

<b>Maximum Avoidable Cost Rates by Technology Class</b>						
<b>Technology</b>	<b>2010-2011 Mothball Avoidable Cost Rate (\$/MW- Day)</b>	<b>2010-2011 Retirement Avoidable Cost Rate (\$/MW- Day)</b>	<b>2011-2012 Mothball Avoidable Cost Rate (\$/MW- Day)</b>	<b>2011-2012 Retirement Avoidable Cost Rate (\$/MW-Day)</b>	<b>2012-2013 Mothball Avoidable Cost Rate (\$/MW- Day)</b>	<b>2012-2013 Retirement Avoidable Cost Rate (\$/MW- Day)</b>
CC- 2 on 1 Frame F	\$30.92	\$43.86	\$32.33	\$45.85	\$33.80	\$47.94
CC- 3 on 1 Frame E/Siemens	\$34.33	\$46.48	\$35.89	\$48.60	\$37.52	\$50.81
CC – 3 or More on 1 or More Frame F	\$26.76	\$37.16	\$27.98	\$38.85	\$29.26	\$40.62
CC-NUG Cogen. Frame B or E Technology	\$114.93	\$154.43	\$120.16	\$161.45	\$125.62	\$168.80
CT - 1st & 2nd Gen. Aero (P&W FT 4)	\$24.57	\$32.68	\$25.69	\$34.17	\$26.86	\$35.73
CT - 1st & Gen. Frame B	\$24.28	\$32.41	\$25.38	\$33.87	\$26.54	\$35.42
CT - 2nd Gen. Frame E	\$23.08	\$30.89	\$24.13	\$32.29	\$25.23	\$33.76
CT - 3rd Gen. Aero (GE LM 6000)	\$55.87	\$82.36	\$58.42	\$86.10	\$61.07	\$90.02
CT - 3rd Gen. Aero (P&W FT - 8 TwinPak)	\$29.30	\$43.20	\$30.64	\$45.17	\$32.03	\$47.23
CT - 3rd Gen. Frame F	\$23.69	\$34.12	\$24.77	\$35.68	\$25.90	\$37.30
Diesel	\$26.29	\$33.39	\$27.49	\$34.91	\$28.74	\$36.49
Oil and Gas Steam	\$65.21	\$79.39	\$68.18	\$83.01	\$71.28	\$86.78

After the Market Monitoring Unit conducts its annual review of the table of default Avoided Cost Rates included in section 6.7(c) above in accordance with the procedure specified in section II.H of Attachment M – Appendix, it will provide updated values or notice of its determination that updated values are not needed to Office of the Interconnection. In the event that the Office of the Interconnection disagrees with the values proposed for revising the matrix, the Office of the Interconnection shall file its values.

(d) In order for costs to qualify for inclusion in the Market Seller Offer Cap, the Capacity Market Seller must provide to the Market Monitoring Unit relevant cost data concerning each data item specified as set forth in section 6. If cost data is not available at the time of submission for the time periods specified in section 6.8, costs may be estimated for such period based on the most recent data available, with an explanation of and basis for the estimate used. Based on the data and calculations submitted by the Capacity Market Sellers for each existing generation resource and the formulas specified below, the Market Monitoring Unit shall calculate the Market Seller Offer Cap for each such resource, and notify the Capacity Market Seller one month prior to the auction of its determination.

i. **Avoidable Cost Rate:** The Avoidable Cost Rate for an existing generation resource shall be determined using the formula below and applied to the unit's Base Offer Segment.

ii. **Opportunity Cost:** Opportunity Cost shall be the documented price available to an existing generation resource in a market external to PJM. In the event that the total MW of existing generation resources submitting opportunity cost offers in any auction for a Delivery Year exceeds the firm export capability of the PJM system for such Delivery Year, or the capability of external markets to import capacity in such year, the Office of the Interconnection will accept such offers on a competitive basis. PJM will construct a supply curve of opportunity cost offers, ordered by opportunity cost, and accept such offers to export starting with the highest opportunity cost, until the maximum level of such exports is reached. The maximum level of such exports is the lesser of the Office of the Interconnection's ability to permit firm exports or the ability of the importing area(s) to accept firm imports or imports of capacity, taking account of relevant export limitations by location. If, as a result, an opportunity cost offer is not accepted from an existing generation resource, the Market Seller Offer Cap applicable to Sell Offers relying on such generation resource shall be the Avoidable Cost Rate. The default Avoidable Cost Rate shall be the one year mothball Avoidable Cost Rate set forth in the tables in section 6.7(c) above unless Capacity Market Seller satisfies the criteria delineated in section 6.7(c) below.

iii. **Projected PJM Market Revenues,** as defined by section 6.8(d), for any Generation Capacity Resource to which the Avoidable Cost Rate is applied.

(e) In order for the retirement Avoidable Cost Rate set forth in the table in section 6.7(c) to apply, a Capacity Market Seller must timely submit to the Office of the Interconnection and the Market Monitoring Unit a written sworn, notarized statement of a corporate officer representing that the Capacity Market Seller will retire the Generation Capacity Resource if it does not receive during the relevant Delivery Year at least the applicable retirement Avoidable Cost Rate because it would be uneconomic to continue to operate the Generation Capacity Resource in the Delivery Year without the retirement Avoidable Cost Rate, and specifying the date the Generation Capacity Resource would otherwise be retired.

## **6.8 Avoidable Cost Definition**

### **(a) Avoidable Cost Rate:**

The Avoidable Cost Rate for a Generation Capacity Resource that is the subject of a Sell Offer shall be determined using the following formula, expressed in dollars per MW-year:

$$\text{Avoidable Cost Rate} = [\text{Adjustment Factor} * (\text{AOML} + \text{AAE} + \text{AME} + \text{AVE} + \text{ATFI} + \text{ACC} + \text{ACLE}) + \text{ARPIR} + \text{APIR}]$$

Where:

- **Adjustment Factor** equals 1.10 (to provide a margin of error for understatement of costs) plus an additional adjustment referencing the 10-year average Handy-Whitman Index in order to account for expected inflation from the time interval between the submission of the Sell Offer and the commencement of the Delivery Year.
- **AOML (Avoidable Operations and Maintenance Labor)** consists of the avoidable labor expenses related directly to operations and maintenance of the generating unit for the twelve months preceding the month in which the data must be provided. The categories of expenses included in AOML are those incurred for: (a) on-site based labor engaged in operations and maintenance activities; (b) off-site based labor engaged in on-site operations and maintenance activities directly related to the generating unit; and (c) off-site based labor engaged in off-site operations and maintenance activities directly related to generating unit equipment removed from the generating unit site.
- **AAE (Avoidable Administrative Expenses)** consists of the avoidable administrative expenses related directly to employees at the generating unit for twelve months preceding the month in which the data must be provided. The categories of expenses included in AAE are those incurred for: (a) employee expenses (except employee expenses included in AOML); (b) environmental fees; (c) safety and operator training; (d) office supplies; (e) communications; and (f) annual plant test, inspection and analysis.
- **AME (Avoidable Maintenance Expenses)** consists of avoidable maintenance expenses (other than expenses included in AOML) related directly to the generating unit for the twelve months preceding the month in which the data must be provided. The categories of expenses included in AME are those incurred for: (a) chemical and materials consumed during maintenance of the generating unit; and (b) rented maintenance equipment used to maintain the generating unit.
- **AVE (Avoidable Variable Expenses)** consists of avoidable variable expenses related directly to the generating unit incurred in the twelve months preceding the month in which the data must be provided. The categories of expenses included in AVE are those incurred for: (a) water treatment chemicals and lubricants; (b) water, gas, and electric service (not for power generation); and (c) waste water treatment.
- **ATFI (Avoidable Taxes, Fees and Insurance)** consists of avoidable expenses related directly to the generating unit incurred in the twelve months preceding the month in which the data must be provided. The categories of expenses included in AFTI are those incurred for: (a) insurance, (b) permits and licensing fees, (c) site security and utilities for maintaining security at the site; and (d) property taxes.

- **ACC (Avoidable Carrying Charges)** consists of avoidable short-term carrying charges related directly to the generating unit in the twelve months preceding the month in which the data must be provided. Avoidable short-term carrying charges shall include short term carrying charges for maintaining reasonable levels of inventories of fuel and spare parts that result from short-term operational unit decisions as measured by industry best practice standards. For the purpose of determining ACC, short term is the time period in which a reasonable replacement of inventory for normal, expected operations can occur.
- **ACLE (Avoidable Corporate Level Expenses)** consists of avoidable corporate level expenses directly related to the generating unit incurred in the twelve months preceding the month in which the data must be provided. Avoidable corporate level expenses shall include only such expenses that are directly linked to providing tangible services required for the operation of the generating unit proposed for Deactivation. The categories of avoidable expenses included in ACLE are those incurred for: (a) legal services, (b) environmental reporting; and (c) procurement expenses.
- **APIR (Avoidable Project Investment Recovery Rate) = PI \* CRF**

Where:

- **PI** is the amount of project investment completed prior to June 1 of the Delivery Year, except for Mandatory Capital Expenditures (“CapEx”) for which the project investment must be completed during the Delivery Year, that is reasonably required to enable a Generation Capacity Resource that is the subject of a Sell Offer to continue operating or improve availability during Peak-Hour Periods during the Delivery Year.
- **CRF** is the annual capital recovery factor from the following table, applied in accordance with the terms specified below.

Age of Existing Units (Years)	Remaining Life of Plant (Years)	Levelized CRF
1 to 5	30	0.107
6 to 10	25	0.114
11 to 15	20	0.125
16 to 20	15	0.146
21 to 25	10	0.198
25 Plus	5	0.363
Mandatory CapEx	4	0.450
40 Plus Alternative	1	1.100

Unless otherwise stated, Age of Existing Unit shall be equal to the number of years since the Unit commenced commercial operation, up to and through the relevant Delivery Year.

Remaining Life of Plant defines the amortization schedule (i.e., the maximum number of years over which the Project Investment may be included in the Avoidable Cost Rate.)

### **Capital Expenditures and Project Investment**

For any given Project Investment, a Capacity Market Seller may make a one-time election to recover such investment using: (i) the highest CRF and associated recovery schedule to which it is entitled; or (ii) the next highest CRF and associated recovery schedule. For these purposes, the CRF and recovery schedule for the 16 Plus category is the next highest CRF and recovery schedule for both the Mandatory CapEx and the 40 Plus Alternative categories. The Capacity Market Seller using the above table must provide the Market Monitoring Unit with information, identifying and supporting such election, including but not limited to the age of the unit, the amount of the Project Investment, the purpose of the investment, evidence of corporate commitment (e.g., an SEC filing, a press release, or a letter from a duly authorized corporate officer indicating intent to make such investment), and detailed information concerning the governmental requirement (if applicable). Absent other written notification, such election shall be deemed based on the CRF such Seller employs for the first Sell Offer reflecting recovery of any portion of such Project Investment. A Sell Offer submitted in the BRA for either or both of the 2007-2008 and 2008-2009 Delivery Years for which the “16 Plus” CRF and recovery schedule is selected may not exceed an offer price equal to the then-current Net CONE (on an unforced-equivalent basis).

For any resource using the CRF and associated recovery schedule from the CRF table that set the Capacity Resource Clearing Price in any Delivery Year, such Capacity Market Seller must also provide to the Market Monitoring Unit, for informational purposes only, evidence of the actual expenditure of the Project Investment, when such information becomes available.

If the project associated with a Project Investment that was included in a Sell Offer using a CRF and associated recovery schedule from the above table has not entered into commercial operation prior to the end of the relevant Delivery Year, and the resource’s Sell Offer sets the clearing price for the relevant LDA, the Capacity Market Seller shall be required to elect to either (i) pay a charge that is equal to the difference between the Capacity Resource Clearing Price for such LDA for the relevant Delivery Year and what the clearing price would have been absent the APIR component of the Avoidable Cost Rate, this difference to be multiplied by the cleared MW volume from such Resource (“rebate payment”); (ii) hold such rebate payment in escrow, to be released to the Capacity Market Seller in the event that the project enters into commercial operation during the subsequent Delivery Year or rebated to LSEs in the relevant LDA if the project has not entered into commercial operation during the subsequent Delivery Year; or (iii) make a reasonable investment in the amount of the PI in other existing Generation Capacity Resources owned or controlled by the Capacity Market Seller or its Affiliates in the relevant LDA. The revenue from such rebate payments shall be allocated pro rata to LSEs in the relevant LDA(s) that were charged a Locational Reliability Charge for such Delivery Year, based on their

Daily Unforced Capacity Obligation in the relevant LDA(s). If the Sell Offer from the Generation Capacity Resource did not set the Capacity Resource Clearing Price in the relevant LDA, no alternative investment or rebate payment is required. If the difference between the Capacity Resource Clearing Price for such LDA for the relevant Delivery Year and what the clearing price would have been absent the APIR amount does not exceed the greater of \$10 per MW-day or a 10% increase in the clearing price, no alternative investment or rebate payment is required.

### **Mandatory CapEx Option**

The Mandatory CapEx CRF and recovery schedule is an option available, beginning in the third BRA (Delivery Year 2009-10), to a resource that must make a Project Investment to comply with a governmental requirement that would otherwise materially impact operating levels during the Delivery Year, where: (i) such resource is a coal, oil or gas-fired resource that began commercial operation no fewer than fifteen years prior to the start of the first Delivery Year for which such recovery is sought, and such Project Investment is equal to or exceeds \$200/kW of capitalized project cost; or (ii) such resource is a coal-fired resource located in an LDA for which a separate VRR Curve has been established for the relevant Delivery Years, and began commercial operation at least 50 years prior to the conduct of the relevant BRA.

A Capacity Market Seller that wishes to elect the Mandatory CapEx option for a Project Investment must do so beginning with the Base Residual Auction for the Delivery Year in which such project is expected to enter commercial operation. A Sell Offer submitted in any Base Residual Auction for which the Mandatory CapEx option is selected may not exceed an offer price equivalent to 0.90 times the then-current Net CONE (on an unforced-equivalent basis).

### **40 Year Plus Alternative Option**

The 40 Plus Alternative CRF and recovery schedule is an option available, beginning in the third BRA (Delivery Year 2009-10), for a resource that is a gas- or oil-fired resource that began commercial operation no less than 40 years prior to the conduct of the relevant BRA (excluding, however, any resource in any Delivery Year for which the resource is receiving a payment under Part V of the PJM Tariff. Generation Capacity Resources electing this 40 Plus Alternative CRF shall be treated as At Risk Generation for purposes of the sensitivity runs in the RTEP process). Resources electing the 40 Year Plus Option will be modeled in the RTEP process as “at-risk” at the end of the one-year amortization period.

A Capacity Market Seller that wishes to elect the 40 Plus Alternative option for a Project Investment must provide written notice of such election to the Office of the Interconnection no later than six months prior to the Base Residual Auction for which such election is sought; provided however that shorter notice may be provided if unforeseen circumstances give rise to the need to make such election and such seller gives notice as soon as practicable.

The Office of the Interconnection shall give market participants reasonable notice of such election, subject to satisfaction of requirements under the PJM Operating Agreement for protection of confidential and commercially sensitive information. A Sell Offer submitted in any



Base Residual Auction for which the 40 Plus Alternative option is selected may not exceed an offer price equivalent to the then-current Net CONE (on an unforced-equivalent basis).

### **Multi-Year Pricing Option**

A Seller submitting a Sell Offer with an APIR component that is based on a Project Investment of at least \$450/kW may elect this Multi-Year Pricing Option by providing written notice to such effect the first time it submits a Sell Offer that includes an APIR component for such Project Investment. Such option shall be available on the same terms, and under the same conditions, as are available to Planned Generation Capacity Resources under section 5.14(c) of this Attachment.

- ARPIR (Avoidable Refunds of Project Investment Reimbursements) consists of avoidable refund amounts of Project Investment Reimbursements payable by a Generation Owner to PJM under Part V, Section 118 of this Tariff or avoidable refund amounts of project investment reimbursements payable by a Generation Owner to PJM under a Cost of Service Recovery Rate filed under Part V, Section 119 of the Tariff and approved by the Commission.

(b) For the purpose of determining an Avoidable Cost Rate, avoidable expenses are incremental expenses directly required to operate a Generation Capacity Resource that a Generation Owner would not incur if such generating unit did not operate in the Delivery Year or meet Availability criteria during Peak-Hour Periods during the Delivery Year.

(c) For the purpose of determining an Avoidable Cost Rate, avoidable expenses shall exclude variable costs recoverable under cost-based offers to sell energy from operating capacity on the PJM Interchange Energy Market under the Operating Agreement.

(d) Projected PJM Market Revenues for any Generation Capacity Resource to which the Avoidable Cost Rate is applied shall include all actual unit-specific revenues from PJM energy markets, ancillary services, and unit-specific bilateral contracts from such Generation Capacity Resource, net of marginal costs for providing such energy (i.e., costs allowed under cost-based offers pursuant to Section 6.4 of Schedule 1 of the Operating Agreement) and ancillary services from such resource.

(i) For the first three BRAs (for Delivery Years 2007-08, 2008-09, 2009-10), the calculation of Projected PJM Market Revenues shall be equal to the simple average of such net revenues as described above for calendar years 2001-2006; and

(ii) For the fourth BRA (delivery year 2010-11) and thereafter, the calculation of Projected PJM Market Revenues shall be equal to the rolling simple average of such net revenues as described above from the three most recent whole calendar years prior to the year in which the BRA is conducted.

If a Generation Capacity Resource did not receive PJM market revenues during the entire relevant time period because the Generation Capacity Resource was not integrated into PJM during the full period, then the Projected PJM Market Revenues shall be calculated using only those whole calendar years within the full period in which such Resource received PJM market revenues.

If a Generation Capacity Resource did not receive PJM market revenues during the entire relevant time period because it was not in commercial operation during the entire period, or if data is not available to the Capacity Market Seller for the entire period, despite the good faith efforts of such seller to obtain such data, then the Projected PJM Market Revenues shall be calculated based upon net revenues received over the entire period by comparable units, to be developed by the MMU and the Capacity Market Seller.

## **1.10 Scheduling.**

### **1.10.1 General.**

- (a) The Office of the Interconnection shall administer scheduling processes to implement a Day-ahead Energy Market and a Real-time Energy Market.
- (b) The Day-ahead Energy Market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at Day-ahead Prices and enable Transmission Customers to reserve transmission service with Transmission Congestion Charges and Transmission Loss Charges based on locational differences in Day-ahead Prices. Up-To Congestion transactions submitted in the Day-ahead Energy Market shall not require transmission service and Transmission Customers shall not reserve transmission service for such transactions. Market Participants whose purchases and sales, and Transmission Customers whose transmission uses are scheduled in the Day-ahead Energy Market, shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges and Transmission Loss Charges, at the applicable Day-ahead Prices for the amounts scheduled.
- (c) In the Real-time Energy Market, Market Participants that deviate from the amounts of energy purchases or sales, or Transmission Customers that deviate from the transmission uses, scheduled in the Day-ahead Energy Market shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges and Transmission Loss Charges, for the amount of the deviations at the applicable Real-time Prices or price differences, unless otherwise specified by this Schedule.
- (d) The following scheduling procedures and principles shall govern the commitment of resources to the Day-ahead Energy Market and the Real-time Energy Market over a period extending from one week to one hour prior to the real-time dispatch. Scheduling encompasses the day-ahead and hourly scheduling process, through which the Office of the Interconnection determines the Day-ahead Energy Market and determines, based on changing forecasts of conditions and actions by Market Participants and system constraints, a plan to serve the hourly energy and reserve requirements of the Internal Market Buyers and the purchase requests of the External Market Buyers in the least costly manner, subject to maintaining the reliability of the PJM Region. Scheduling shall be conducted as specified below, subject to the following condition. If the Office of the Interconnection's forecast for the next seven days projects a likelihood of Emergency conditions, the Office of the Interconnection may commit, for all or part of such seven day period, to the use of generation resources with notification or start-up times greater than one day as necessary in order to alleviate or mitigate such Emergency, in accordance with the Market Sellers' offers for such units for such periods and the specifications in the PJM Manuals.

#### **1.10.1A Day-ahead Energy Market Scheduling.**

The following actions shall occur not later than 12:00 noon on the day before the Operating Day for which transactions are being scheduled, or such other deadline as may be specified by the

Office of the Interconnection in order to comply with the practical requirements and the economic and efficiency objectives of the scheduling process specified in this Schedule.

(a) Each Market Participant may submit to the Office of the Interconnection specifications of the amount and location of its customer loads and/or energy purchases to be included in the Day-ahead Energy Market for each hour of the next Operating Day, such specifications to comply with the requirements set forth in the PJM Manuals. Each Market Buyer shall inform the Office of the Interconnection of the prices, if any, at which it desires not to include its load in the Day-ahead Energy Market rather than pay the Day-ahead Price.

(b) Each Generating Market Buyer shall submit to the Office of the Interconnection: (i) hourly schedules for resource increments, including hydropower units, self-scheduled by the Market Buyer to meet its Equivalent Load; and (ii) the Dispatch Rate at which each such self-scheduled resource will disconnect or reduce output, or confirmation of the Market Buyer's intent not to reduce output.

(c) All Market Participants shall submit to the Office of the Interconnection schedules for any bilateral transactions involving use of generation or Transmission Facilities as specified below, and shall inform the Office of the Interconnection whether the transaction is to be included in the Day-ahead Energy Market. Any Market Participant that elects to include a bilateral transaction in the Day-ahead Energy Market may specify the price (such price not to exceed the maximum price that may be specified in the PJM Manuals), if any, at which it will be wholly or partially curtailed rather than pay Transmission Congestion Charges. The foregoing price specification shall apply to the price difference between the specified bilateral transaction source and sink points in the day-ahead scheduling process only. Any Market Participant that elects not to include its bilateral transaction in the Day-ahead Energy Market shall inform the Office of the Interconnection if the parties to the transaction are not willing to incur Transmission Congestion Charges in the Real-time Energy Market in order to complete any such scheduled bilateral transaction. Scheduling of bilateral transactions shall be conducted in accordance with the specifications in the PJM Manuals and the following requirements:

- i) Internal Market Buyers shall submit schedules for all bilateral purchases for delivery within the PJM Region, whether from generation resources inside or outside the PJM Region;
- ii) Market Sellers shall submit schedules for bilateral sales to entities outside the PJM Region from generation within the PJM Region that is not dynamically scheduled to such entities pursuant to Section 1.12; and
- iii) In addition to the foregoing schedules for bilateral transactions, Market Participants shall submit confirmations of each scheduled bilateral transaction from each other party to the transaction in addition to the party submitting the schedule, or the adjacent Control Area.

(d) Market Sellers wishing to sell into the Day-ahead Energy Market shall submit offers for the supply of energy (including energy from hydropower units), demand reductions, Regulation,

Operating Reserves or other services for the following Operating Day. Offers shall be submitted to the Office of the Interconnection in the form specified by the Office of the Interconnection and shall contain the information specified in the Office of the Interconnection's Offer Data specification, this Section 1.10.1A(d), Schedule 2 to this Agreement, and the PJM Manuals, as applicable. Market Sellers owning or controlling the output of a Generation Capacity Resource that was committed in an FRR Capacity Plan, self-supplied, offered and cleared in a Base Residual Auction or Incremental Auction, or designated as replacement capacity, as specified in Attachment DD of the PJM Tariff, and that has not been rendered unavailable by a Generator Planned Outage, a Generator Maintenance Outage, or a Generator Forced Outage shall submit offers for the available capacity of such Generation Capacity Resource, including any portion that is self-scheduled by the Generating Market Buyer. The submission of offers for resource increments that have not cleared in a Base Residual Auction or an Incremental Auction, were not committed in an FRR Capacity Plan, and were not designated as replacement capacity under Attachment DD of the PJM Tariff shall be optional, but any such offers must contain the information specified in the Office of the Interconnection's Offer Data specification, this Section 1.10.1A(d), Schedule 2 to this Agreement, and the PJM Manuals, as applicable. Energy offered from generation resources that have not cleared a Base Residual Auction or an Incremental Auction, were not committed in an FRR Capacity Plan, and were not designated as replacement capacity under Attachment DD of the PJM Tariff shall not be supplied from resources that are included in or otherwise committed to supply the Operating Reserves of a Control Area outside the PJM Region. The foregoing offers:

- i) Shall specify the Generation Capacity Resource or Demand Resource and energy or demand reduction, amount, respectively, for each hour in the offer period, and the minimum run time for generation resources and minimum down time for Demand Resources;
- ii) Shall specify the amounts and prices for the entire Operating Day for each resource component offered by the Market Seller to the Office of the Interconnection;
- iii) If based on energy from a specific generating unit, may specify start-up and no-load fees equal to the specification of such fees for such unit on file with the Office of the Interconnection, if based on reductions in demand from a Demand Resource may specify shutdown costs;
- iv) Shall set forth any special conditions upon which the Market Seller proposes to supply a resource increment, including any curtailment rate specified in a bilateral contract for the output of the resource, or any cancellation fees;
- v) May include a schedule of offers for prices and operating data contingent on acceptance by the deadline specified in this Schedule, with a second schedule applicable if accepted after the foregoing deadline;

- vi) Shall constitute an offer to submit the resource increment to the Office of the Interconnection for scheduling and dispatch in accordance with the terms of the offer, which offer shall remain open through the Operating Day for which the offer is submitted;
- vii) Shall be final as to the price or prices at which the Market Seller proposes to supply energy or other services to the PJM Interchange Energy Market, such price or prices being guaranteed by the Market Seller for the period extending through the end of the following Operating Day; and
- viii) Shall not exceed an energy offer price of \$1,000/megawatt-hour.

(e) A Market Seller that wishes to make a resource available to sell Regulation service shall submit an offer for Regulation that shall specify the megawatt of Regulation being offered, which must equal or exceed 0.5 megawatts, the Regulation Zone for which such regulation is offered, the price of the offer in dollars per MWh, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the resource's opportunity costs. The price of the offer shall not exceed \$100 per MWh in the case of Regulation offered for all Regulation Zones. In addition to any market-based offer for Regulation, the Market Seller also shall submit a cost-based offer. A cost-based offer must be in the form specified in the PJM Manuals and consist of the following components as well as any other components specified in the PJM Manuals:

- i. The costs (in \$/MW) of the fuel cost increase due to the heat rate increase resulting from operating the unit at lower megawatt output incurred from the provision of Regulation;
- ii. The cost increase (in \$/MW) in variable operating and maintenance costs resulting from operating the unit at lower megawatt output incurred from the provision of Regulation; and
- iii. An adder of up to \$12.00 per megawatt of Regulation provided.

Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

(f) Each Market Seller owning or controlling the output of a Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative shall submit a forecast of the availability of each such Generation Capacity Resource for the next seven days. A Market Seller (i) may submit a non-binding forecast of the price at which it expects to offer a generation resource increment to the Office of the Interconnection over the next seven days, and (ii) shall submit a binding offer for energy, along with start-up and no-load fees, if any, for the next seven days or part thereof, for any generation resource with minimum notification or start-up requirement greater than 24 hours.

(g) Each offer by a Market Seller of a Generation Capacity Resource shall remain in effect for subsequent Operating Days until superseded or canceled.

(h) The Office of the Interconnection shall post on the PJM Open Access Same-time Information System the total hourly loads scheduled in the Day-ahead Energy Market, as well as, its estimate of the combined hourly load of the Market Buyers for the next four days, and peak load forecasts for an additional three days.

(i) Except for Economic Load Response Participants, all Market Participants may submit Increment Bids and/or Decrement Bids that apply to the Day-ahead Energy Market only. Such bids must comply with the requirements set forth in the PJM Manuals and must specify amount, location and price, if any, at which the Market Participant desires to purchase or sell energy in the Day-ahead Energy Market. The Office of the Interconnection may require that a market participant shall not submit in excess of 3000 bid/offer segments in the Day-ahead Energy Market, when the Office of the Interconnection determines that such limit is required to avoid or mitigate significant system performance problems related to bid/offer volume. Notice of the need to impose such limit shall be provided prior to 10:00 a.m. EPT on the day that the Day-ahead Energy Market will clear. For purposes of this provision, a bid/offer segment is each pairing of price and megawatt quantity submitted as part of an Increment Bid or Decrement Bid.

(j) A Market Seller that wishes to make a generation resource or Demand Resource available to sell Synchronized Reserve shall submit an offer for Synchronized Reserve that shall specify the megawatts of Synchronized Reserve being offered, which must equal or exceed 0.5 megawatts, the price of the offer in dollars per megawatt hour, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the energy used by the generation resource to provide the Synchronized Reserve and the generation resource's unit specific opportunity costs. The price of the offer shall not exceed the variable operating and maintenance costs for providing Synchronized Reserve plus seven dollars and fifty cents.

(k) An Economic Load Response Participant that wishes to participate in the Day-ahead Energy Market by reducing demand shall submit an offer to reduce demand to the Office of the Interconnection. The offer must equal or exceed 0.1 megawatts, and the offer shall specify: (i) the amount of the offered curtailment in minimum increments of .1 megawatts; (ii) the Day-ahead Locational Marginal Price above which the end-use customer will reduce load; and (iii) at the Economic Load Response Participant's option, start-up costs associated with reducing load, including direct labor and equipment costs, opportunity costs, and/or a minimum of number of contiguous hours for which the load reduction must be committed. Economic Load Response Participants submitting offers to reduce demand in the Day-ahead Energy Market may establish an incremental offer curve, provided that such offer curve shall be limited to ten price pairs (in MWs).

(l) Market Sellers owning or controlling the output of a Demand Resource that was committed in an FRR Capacity Plan, self-supplied or offered and cleared in the Base Residual Auction or one of the Incremental Auctions, or owning or controlling the output of an ILR resource which was certified as specified in Attachment DD of the PJM Tariff, may submit demand reduction bids for the available load reduction capability of the Demand Resource or ILR resource. The submission of demand reduction bids for resource increments that have not

cleared in the Base Residual Auction or in one of the Incremental Auctions, or for ILR resources that were not certified, or were not committed in an FRR Capacity Plan, shall be optional, but any such bids must contain the information specified in the PJM Economic Load Response Program to be included in such bids. A Demand Resource that was committed in an FRR Capacity Plan, self-supplied or offered and cleared in a Base Residual Auction or an Incremental Auction may submit a demand reduction bid in the Day-ahead Energy Market as specified in the Economic Load Response Program, provided however, that in the event of an Emergency, PJM shall require Demand Resources and ILR resources to reduce load notwithstanding that the Zonal LMP at the time such Emergency is declared is below the price identified in the demand reduction bid.

(m) Market Sellers that wish to make Day-ahead Scheduling Reserves Resources available to sell Day-ahead Scheduling Reserves shall submit offers, each of which must equal or exceed 0.5 megawatts, in the Day-ahead Scheduling Reserves Market specifying: 1) the price of the offer in dollars per megawatt hour; and 2) such other information specified by the Office of the Interconnection as may be necessary to determine any relevant opportunity costs for the resource(s). The foregoing notwithstanding, to qualify to submit offers pursuant to this section, the Day-ahead Scheduling Reserves Resources shall submit energy offers in the Day-ahead Energy Market including start-up and shut-down costs for generation resource and Demand Resources, respectively, and all generation resources that are capable of providing Day-ahead Scheduling Reserves that a particular resource can provide that service. The MW quantity of Day-ahead Scheduling Reserves that a particular resource can provide in a given hour will be determined based on the energy offer data submitted in the Day-ahead Energy Market, as detailed in the PJM Manuals.

### **1.10.2 Pool-scheduled Resources.**

Pool-scheduled resources are those resources for which Market Participants submitted offers to sell energy in the Day-ahead Energy Market and offers to reduce demand in the Day-ahead Energy Market, which the Office of the Interconnection scheduled in the Day-ahead Energy Market as well as generators committed by the Office of the Interconnection subsequent to the Day-ahead Energy Market. Such resources shall be committed to provide energy in the real-time dispatch unless the schedules for such units are revised pursuant to Sections 1.10.9 or 1.11. Pool-scheduled resources shall be governed by the following principles and procedures.

(a) Pool-scheduled resources shall be selected by the Office of the Interconnection on the basis of the prices offered for energy and demand reductions and related services, start-up, no-load and cancellation fees, and the specified operating characteristics, offered by Market Sellers to the Office of the Interconnection by the offer deadline specified in Section 1.10.1A.

(b) A resource that is scheduled by a Market Participant to support a bilateral sale, or that is self-scheduled by a Generating Market Buyer, shall not be selected by the Office of the Interconnection as a pool-scheduled resource except in an Emergency.

(c) Market Sellers offering energy from hydropower or other facilities with fuel or environmental limitations may submit data to the Office of the Interconnection that is sufficient



to enable the Office of the Interconnection to determine the available operating hours of such facilities.

(d) The Market Seller of a resource selected as a pool-scheduled resource shall receive payments or credits for energy, demand reductions or related services, or for start-up and no-load fees, from the Office of the Interconnection on behalf of the Market Buyers in accordance with Section 3 of this Schedule 1. Alternatively, the Market Seller shall receive, in lieu of start-up and no-load fees, its actual costs incurred, if any, up to a cap of the resource's start-up cost, if the Office of the Interconnection cancels its selection of the resource as a pool-scheduled resource and so notifies the Market Seller before the resource is synchronized.

(e) Market Participants shall make available their pool-scheduled resources to the Office of the Interconnection for coordinated operation to supply the Operating Reserves needs of the applicable Control Zone.

(f) Economic Load Response Participants offering to reduce demand shall specify: (i) the amount of the offered curtailment, which offer must equal or exceed 0.1 megawatts, in minimum increments of .1 megawatts; (ii) the real-time Locational Marginal Price above which the end-use customer will reduce load; and (iii) at the Economic Load Response Participant's option, shut-down costs associated with reducing load, including direct labor and equipment costs, opportunity costs, and/or a minimum number of contiguous hours for which the load reduction must be committed. Economic Load Response Participants submitting offers to reduce demand in the Real-time Energy Market may establish an incremental offer curve, provided that such offer curve shall be limited to ten price pairs (in MWs). Economic Load Response Participants offering to reduce demand shall also indicate the hours that the demand reduction is not available.

### **1.10.3 Self-scheduled Resources.**

Self-scheduled resources shall be governed by the following principles and procedures.

(a) Each Generating Market Buyer shall use all reasonable efforts, consistent with Good Utility Practice, not to self-schedule resources in excess of its Equivalent Load.

(b) The offered prices of resources that are self-scheduled, or otherwise not following the dispatch orders of the Office of the Interconnection, shall not be considered by the Office of the Interconnection in determining Locational Marginal Prices.

(c) Market Participants shall make available their self-scheduled resources to the Office of the Interconnection for coordinated operation to supply the Operating Reserves needs of the applicable Control Zone, by submitting an offer as to such resources.

(d) A Market Participant self-scheduling a resource in the Day-ahead Energy Market that does not deliver the energy in the Real-time Energy Market, shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

#### **1.10.4 Capacity Resources.**

(a) A Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative that is selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection. Such a Generation Capacity Resource that does not deliver energy as scheduled shall be deemed to have experienced a Generator Forced Outage to the extent of such energy not delivered. A Market Participant offering such Generation Capacity Resource in the Day-ahead Energy Market shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Energy from a Generation Capacity Resource committed to service of PJM loads under the Reliability Pricing Model or Fixed Resource Requirement Alternative that has not been scheduled in the Day-ahead Energy Market may be sold on a bilateral basis by the Market Seller, may be self-scheduled, or may be offered for dispatch during the Operating Day in accordance with the procedures specified in this Schedule. Such a Generation Capacity Resource that has not been scheduled in the Day-ahead Energy Market and that has been sold on a bilateral basis must be made available upon request to the Office of the Interconnection for scheduling and dispatch during the Operating Day if the Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable Real-time Price for energy delivered.

(c) A resource that has been self-scheduled shall not receive payments or credits for start-up or no-load fees.

#### **1.10.5 External Resources.**

(a) External Resources may submit offers to the PJM Interchange Energy Market, in accordance with the day-ahead and real-time scheduling processes specified above. An External Resource selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection, and except as specified below shall be compensated on the same basis as other pool-scheduled resources. External Resources that are not capable of dynamic dispatch shall, if selected by the Office of the Interconnection on the basis of the Market Seller's Offer Data, be block loaded on an hourly scheduled basis. Market Sellers shall offer External Resources to the PJM Interchange Energy Market on either a resource-specific or an aggregated resource basis. A Market Participant whose pool-scheduled resource does not deliver the energy scheduled in the Day-ahead Energy Market shall replace such energy not delivered as scheduled in the Day-ahead Energy Market with energy from the PJM Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Offers for External Resources from an aggregation of two or more generating units shall so indicate, and shall specify, in accordance with the Offer Data requirements specified by the Office of the Interconnection: (i) energy prices; (ii) hours of energy availability; (iii) a minimum

dispatch level; (iv) a maximum dispatch level; and (v) unless such information has previously been made available to the Office of the Interconnection, sufficient information, as specified in the PJM Manuals, to enable the Office of the Interconnection to model the flow into the PJM Region of any energy from the External Resources scheduled in accordance with the Offer Data. If a Market Seller submits more than one offer on an aggregated resource basis, the withdrawal of any such offer shall be deemed a withdrawal of all higher priced offers for the same period.

(c) Offers for External Resources on a resource-specific basis shall specify the resource being offered, along with the information specified in the Offer Data as applicable.

#### **1.10.6 External Market Buyers.**

(a) Deliveries to an External Market Buyer not subject to dynamic dispatch by the Office of the Interconnection shall be delivered on a block loaded basis to the load bus or buses at the electrical boundaries of the PJM Region, or in such area with respect to an External Market Buyer's load within such area not served by Network Service, at which the energy is delivered to or for the External Market Buyer. External Market Buyers shall be charged or credited at either the Day-ahead Prices or Real-time Prices, whichever is applicable, for energy at the foregoing load bus or buses.

(b) An External Market Buyer's hourly schedules for energy purchased from the PJM Interchange Energy Market shall conform to the ramping and other applicable requirements of the interconnection agreement between the PJM Region and the Control Area to which, whether as an intermediate or final point of delivery, the purchased energy will initially be delivered.

(c) The Office of the Interconnection shall curtail deliveries to an External Market Buyer if necessary to maintain appropriate reserve levels for a Control Zone as defined in the PJM Manuals, or to avoid shedding load in such Control Zone.

#### **1.10.6A Transmission Loading Relief Customers.**

(a) An entity that desires to elect to pay Transmission Congestion Charges in order to continue its energy schedules during an Operating Day over contract paths outside the PJM Region in the event that PJM initiates Transmission Loading Relief that otherwise would cause PJM to request security coordinators to curtail such Member's energy schedules shall:

- (i) enter its election on OASIS by 12:00 p.m. of the day before the Operating Day, in accordance with procedures established by PJM, which election shall be applicable for the entire Operating Day; and
- (ii) if PJM initiates Transmission Loading Relief, provide to PJM, at such time and in accordance with procedures established by PJM, the hourly integrated energy schedules that impacted the PJM Region (as indicated from the NERC Interchange Distribution Calculator) during the Transmission Loading Relief.

(b) If an entity has made the election specified in Section (a), then PJM shall not request security coordinators to curtail such entity's energy transactions, except as may be necessary to respond to Emergencies.

(c) In order to make elections under this Section 1.10.6A, an entity must (i) have met the creditworthiness standards established by the Office of the Interconnection or provided a letter of credit or other form of security acceptable to the Office of the Interconnection, and (ii) have executed either the Agreement, a Service Agreement under the PJM Tariff, or other agreement committing to pay all Transmission Congestion Charges incurred under this Section.

### **1.10.7 Bilateral Transactions.**

Bilateral transactions as to which the parties have notified the Office of the Interconnection by the deadline specified in Section 1.10.1A that they elect not to be included in the Day-ahead Energy Market and that they are not willing to incur Transmission Congestion Charges in the Real-time Energy Market shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions that were not included in the Day-ahead Energy Market and that are willing to incur congestion charges and bilateral transactions that were accepted in the Day-ahead Energy Market shall continue to be implemented during periods of congestion, except as may be necessary to respond to Emergencies.

### **1.10.8 Office of the Interconnection Responsibilities.**

(a) The Office of the Interconnection shall use its best efforts to determine (i) the least-cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers, including the reliability requirements of the PJM Region, of the Day-ahead Energy Market, and (ii) the least-cost means of satisfying the Operating Reserve and other ancillary service requirements for any portion of the load forecast of the Office of the Interconnection for the Operating Day in excess of that scheduled in the Day-ahead Energy Market. In making these determinations, the Office of the Interconnection shall take into account: (i) the Office of the Interconnection's forecasts of PJM Interchange Energy Market and PJM Region energy requirements, giving due consideration to the energy requirement forecasts and purchase requests submitted by Market Buyers; (ii) the offers submitted by Market Sellers; (iii) the availability of limited energy resources; (iv) the capacity, location, and other relevant characteristics of self-scheduled resources; (v) the objectives of each Control Zone for Operating Reserves, as specified in the PJM Manuals; (vi) the requirements of each Regulation Zone for Regulation and other ancillary services, as specified in the PJM Manuals; (vii) the benefits of avoiding or minimizing transmission constraint control operations, as specified in the PJM Manuals; and (viii) such other factors as the Office of the Interconnection reasonably concludes are relevant to the foregoing determination, including, without limitation, transmission constraints on external coordinated flowgates to the extent provided by section 1.7.6. The Office of the Interconnection shall develop a Day-ahead Energy Market based on the foregoing determination, and shall determine the Day-ahead Prices resulting from such schedule. The Office of the Interconnection shall report the planned schedule for a hydropower resource to

the operator of that resource as necessary for plant safety and security, and legal limitations on pond elevations.

(b) Not later than 4:00 p.m. of the day before each Operating Day, or such earlier deadline as may be specified by the Office of the Interconnection in the PJM Manuals, the Office of the Interconnection shall: (i) post the aggregate Day-ahead Energy Market results; (ii) post the Day-ahead Prices; and (iii) inform the Market Sellers, Market Buyers, and Economic Load Response Participants of their scheduled injections, withdrawals, and demand reductions respectively.

(c) Following posting of the information specified in Section 1.10.8(b), the Office of the Interconnection shall revise its schedule of generation resources to reflect updated projections of load, conditions affecting electric system operations in the PJM Region, the availability of and constraints on limited energy and other resources, transmission constraints, and other relevant factors. The Office of the Interconnection shall post on the PJM Open Access Same-time Information System at times specified in the PJM Manuals a revised forecast of the location and duration of any expected transmission congestion, and of the range of differences in Locational Marginal Prices between major subareas of the PJM Region expected to result from such transmission congestion.

(d) Market Buyers shall pay and Market Sellers shall be paid for the quantities of energy scheduled in the Day-ahead Energy Market at the Day-ahead Prices. Economic Load Response Participants shall be paid for scheduled demand reductions pursuant to Section 3.3A of this Schedule.

(e) If the Office of the Interconnection discovers an error in prices and/or cleared quantities in the Day-ahead Energy Market, Real-time Energy Market, Ancillary Services Markets or Day Ahead Scheduling Reserve Market after it has posted the results for these markets on its Web site, the Office of the Interconnection shall notify Market Participants of the error as soon as possible after it is found, but in no event later than 12:00 p.m. of the second business day following the Operating Day for the Ancillary Services Markets and Real-time Energy Market, and no later than 5:00 p.m. of the second business day following the initial publication of the results for the Day-ahead Scheduling Reserve Market and Day-ahead Energy Market. After this initial notification, if the Office of the Interconnection determines it is necessary to post modified results, it shall provide notification of its intent to do so, together with all available supporting documentation, by no later than 5:00 p.m. of the fifth business day following the Operating Day for the Ancillary Services Markets and Real-time Energy Market, and no later than 5:00 p.m. of the fifth business day following the initial publication of the results in the Day-ahead Scheduling Reserve Market and the Day-ahead Energy Market. Thereafter, the Office of the Interconnection must post on its Web site the corrected results by no later than 5:00 p.m. of the tenth calendar day following the Operating Day for the Ancillary Services Markets, Day-ahead Energy Market and Real-time Energy Market, and no later than 5:00 p.m. of the tenth calendar day following the initial publication of the results in the Day-ahead Scheduling Reserve Market. Should any of the above deadlines pass without the associated action on the part of the Office of the Interconnection, the originally posted results will be considered final. Notwithstanding the foregoing, the deadlines set forth above shall not apply if the referenced market results are under publicly noticed review by the FERC.

(f) Consistent with Section 18.17.1 of the PJM Operating Agreement, and notwithstanding anything to the contrary in the Operating Agreement or in the PJM Tariff, to allow the tracking of Market Participants' non-aggregated bids and offers over time as required by FERC Order No. 719, the Office of the Interconnection shall post on its Web site the non-aggregated bid data and Offer Data submitted by Market Participants (for participation in the PJM Interchange Energy Market) approximately four months after the bid or offer was submitted to the Office of the Interconnection.

### **1.10.9 Hourly Scheduling.**

(a) Following the initial posting by the Office of the Interconnection of the Locational Marginal Prices resulting from the Day-ahead Energy Market, and subject to the right of the Office of the Interconnection to schedule and dispatch pool-scheduled resources and to direct that schedules be changed in an Emergency, a generation rebidding period shall exist from 4:00 p.m. to 6:00 p.m. on the day before each Operating Day. During the rebidding period, Market Participants may submit revisions to generation Offer Data for any generation resource that was not selected as a pool-scheduled resource in the Day-ahead Energy Market. Adjustments to Day-ahead Energy Markets shall be settled at the applicable Real-time Prices, and shall not affect the obligation to pay or receive payment for the quantities of energy scheduled in the Day-ahead Energy market at the applicable Day-ahead Prices.

(b) A Market Participant may adjust the schedule of a resource under its dispatch control on an hour-to-hour basis beginning at 10:00 p.m. of the day before each Operating Day, provided that the Office of the Interconnection is notified not later than 60 minutes prior to the hour in which the adjustment is to take effect, as follows:

- i) A Generating Market Buyer may self-schedule any of its resource increments, including hydropower resources, not previously designated as self-scheduled and not selected as a pool-scheduled resource in the Day-ahead Energy Market;
- ii) A Market Participant may request the scheduling of a non-firm bilateral transaction; or
- iii) A Market Participant may request the scheduling of deliveries or receipts of Spot Market Energy; or
- iv) A Generating Market Buyer may remove from service a resource increment, including a hydropower resource, that it had previously designated as self-scheduled, provided that the Office of the Interconnection shall have the option to schedule energy from any such resource increment that is a Capacity Resource at the price offered in the scheduling process, with no obligation to pay any start-up fee.

(c) With respect to a pool-scheduled resource that is included in the Day-ahead Energy Market, a Market Seller may not change or otherwise modify its offer to sell energy.

(d) An External Market Buyer may refuse delivery of some or all of the energy it requested to purchase in the Day-ahead Energy Market by notifying the Office of the Interconnection of the adjustment in deliveries not later than 60 minutes prior to the hour in which the adjustment is to take effect, but any such adjustment shall not affect the obligation of the External Market Buyer to pay for energy scheduled on its behalf in the Day-ahead Energy Market at the applicable Day-ahead Prices.

(e) For each hour in the Operating Day, as soon as practicable after the deadlines specified in the foregoing subsection of this Section 1.10, the Office of the Interconnection shall provide External Market Buyers and External Market Sellers and parties to bilateral transactions with any revisions to their schedules for the hour.

### **3.3A Economic Load Response Participants.**

#### **3.3A.1 Compensation.**

Economic Load Response Participants shall be compensated pursuant to Sections 3.3A.4 and/or 3.3A.5 of this Schedule, for demand reductions measured by: 1) comparing actual metered load to an end-use customer's Customer Baseline Load or alternative CBL determined in accordance with the provisions of Section 3.3A.2 or 3.3A.2.01, respectively; or 2) by the MWs produced by On-Site Generators pursuant to the provisions of Section 3.3A.2.02.

#### **3.3A.2 Customer Baseline Load.**

For Economic Load Response Participants that choose to measure demand reductions using an end-use customer's Customer Baseline Load ("CBL"), the CBL shall be determined using the following formula:

(a) The CBL for weekdays shall be the average of the highest 4 out of the 5 most recent highest load weekdays in the 45 calendar day period preceding the relevant load reduction event.

- i. For the purposes of calculating the CBL for weekdays, weekdays shall not include:
  1. NERC holidays;
  2. Weekend days;
  3. Event days. For the purposes of this section an event day shall be any weekday that an Economic Load Response Participant submits a settlement pursuant to Section 3.3A.4 or 3.3A.5, provided that Event Days shall exclude such days if the settlement is denied by the relevant LSE or electric distribution company or is disallowed by the Office of the Interconnection;
  4. Any weekday where the average daily event period usage is less than 25% of the average event period usage for the five days.
- ii. For the purposes of calculating the CBL for weekdays, the 45-day period shall be extended one day for each of the following days that occur within the relevant period, provided that extensions pursuant to this section shall not exceed 15 days (i.e. 60 days total including the relevant 45-day period):
  1. NERC holidays;



2. Event day(s), as defined in subsection (a)(i)(3) above, in which the hourly LMP exceeds the annual threshold in at least 4 hours, where the annual threshold will be effective from June 1 through May 31 and will be determined based on the load weighted average PJM real time LMP for the 99th percentile for the calendar year prior to May 31;
  3. Weekdays the relevant end-use customer site responds to the dispatch instructions of the Office of the Interconnection;
  4. Any weekday the event period usage is less than 25% of the average event period usage for the five days.
- iii. If a 45-day period does not include 5 weekdays that meet the conditions in subsection (a)(i) of this section, provided there are 4 weekdays that meet the conditions in subsection (a)(i) of this section, the CBL shall be based on the average of those 4 weekdays. If there are not 4 eligible weekdays, the CBL shall be determined in accordance with subsection (iv) of this section.
  - iv. Section 3.3A.2(a)(i)(3) notwithstanding, if a 45-day period does not include 4 weekdays that meet the conditions in subsection (a)(i) of this section, event days will be used as necessary to meet the 4 day requirement to calculate the CBL, provided that any such event days shall be the highest load event days within the relevant 45-day period.

(b) The CBL for weekend days and NERC holidays shall be determined in accordance with the following provisions:

- i. The CBL for Saturdays and Sundays/NERC holidays shall be the average of the highest 2 load days out of the 3 most recent Saturdays or Sundays/NERC holidays, respectively, in the 45 calendar day period preceding the relevant load reduction event, provided that the following days shall not be used to calculate a Saturday or Sunday/NERC holiday CBL:
  1. Event days. For the purposes of this section an event day shall be any Saturday and Sunday/NERC holiday that an Economic Load Response Participant submits a settlement pursuant to Section 3.3A.4 or 3.3A.5, provided that Event Days shall exclude such days if the settlement is denied by the relevant LSE or electric distribution company or is disallowed by the Office of the Interconnection;
  2. Any Saturday or Sunday/NERC holiday where the average daily event period usage is less than 25% of the average event period usage level for the three days;

3. Any Saturday or Sunday/NERC holiday that corresponds to the beginning or end of daylight savings.
- ii. For the purposes of calculating the CBL for Saturdays or Sundays/NERC holidays, the 45-day period shall be extended one day for each of the following days that occur within the relevant period, provided that extensions pursuant to this section shall not exceed 15 days (i.e. 60 days total including the relevant 45-day period):
    1. Event day(s), as defined in subsection (b)(i)(1) above, in which the hourly LMP exceeds the annual threshold in at least 4 hours, where the annual threshold will be effective from June 1 through May 31 and will be determined based on the load weighted average PJM real time LMP for the 99th percentile for the calendar year prior to May 31;
    2. Saturday or Sundays/NERC holidays where the relevant end-use customer site responds to the dispatch instructions of the Office of the Interconnection.
  - iii. If a 45-day period does not include 3 Saturdays or 3 Sundays/NERC holidays, respectively, that meet the conditions in subsection (b)(i) of this section, provided there are 2 Saturdays or Sundays/NERC holidays that meet the conditions in subsection (b)(i) of this section, the CBL will be based on the average of those 2 Saturdays or Sundays/NERC holidays. If there are not 2 eligible Saturdays or Sundays/NERC holidays, the CBL shall be determined in accordance with subsection (iv) of this section.
  - iv. Section 3.3A.2(b)(i)(1) notwithstanding, if a 45-day period does not include 2 Saturdays or Sundays/NERC holidays, respectively, that meet the conditions in subsection (b)(i) of this section, event days will be used as necessary to meet the 2 day requirement to calculate the CBL, provided that any such event days shall be the highest load event days within the relevant 45-day period.

(c) CBLs established pursuant to this section shall represent end-use customers' actual load patterns. If the Office of the Interconnection determines that a CBL or alternative CBL does not accurately represent a customer's actual load patterns, the CBL shall be revised accordingly pursuant to Section 3.3A.2.01. Consistent with this requirement, if an Economic Load Response Participant chooses to measure load reductions using a Customer Baseline Load, the Economic Load Response Participant shall inform the Office of the Interconnection of a change in its operations or the operations of the end-use customer upon whose behalf it is acting that would result in the adjustment of more than half the hours in the affected party's Customer Baseline Load by twenty percent or more for more than twenty days.

### **3.3A.2.01 Alternative Customer Baseline Methodologies.**

(a) During the Economic Load Response Participant registration process pursuant to Section 1.5A.3 of this Schedule, the relevant Economic Load Response Participant, Load Serving Entity, electric distribution company, and/or the Office of the Interconnection (“Interested Parties”) may propose an alternative CBL calculation that more accurately reflects the relevant end-use customer’s consumption pattern relative to the CBL determined pursuant to Section 3.3A.2. Any proposal made pursuant to this section shall be provided to all other Interested Parties.

(b) The Interested Parties shall have 30 days to agree on a proposal issued pursuant to subsection (a) of this section. The 30-day period shall start the day the proposal is received by all Interested Parties. If all Interested Parties agree on a proposal issued pursuant to this section, that alternative CBL calculation methodology shall be effective consistent with the date of the relevant Economic Load Response Participant registration.

(c) If agreement is not reached pursuant to subsection (b) of this section, the Office of the Interconnection shall determine a CBL methodology within 20 days from the expiration of the 30-day period established by subsection (b). A CBL established by the Office of the Interconnection pursuant to this subsection (c) shall be binding upon all Interested Parties unless the Interested Parties reach agreement on an alternative CBL methodology prior to the expiration of the 20-day period established by this subsection (c).

(d) Operation of this Section 3.3A.2.01 shall not delay Economic Load Response Participant registrations pursuant to Section 1.5A.3, provided that the alternative CBL established pursuant to this section shall be used for all related energy settlements made pursuant to Sections 3.3A.4 and 3.3A.5.

(e) The Office of the Interconnection shall periodically publish alternative CBL methodologies established pursuant to this section in the PJM Manuals.

### **3.3A.2.02 On-Site Generators.**

On-Site Generators used as the basis for Economic Load Response Participant status pursuant to Section 1.5A shall be subject to the following provisions:

- i. The On-Site Generator shall be used solely to enable an Economic Load Response Participant to provide demand reductions in response to the Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market;
- ii. If subsection (i) does not apply, the amount of energy from an On-Site Generator used to enable an Economic Load Response Participant to provide demand reductions in response to the Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market shall be capable of being quantified in a manner that is acceptable to the Office of the Interconnection.

### **3.3A.3 Weather-Sensitive and Symmetric Additive Adjustment.**

(a) Concurrent with submitting a Economic Load Response Registration Form to the Office of the Interconnection and annually thereafter, the Economic Load Response Participant shall notify the Office of the Interconnection whether it elects to apply the Weather-Sensitive Adjustment (or “WSA”) or Symmetric Additive Adjustment for the summer period (May-October) or the winter period (November-April). The Weather-Sensitive Adjustment either will decrease or increase Customer Baseline Load values. The Weather-Sensitive Adjustment may apply to measure load reductions in both the Real-time Energy Market and Day-ahead Energy Market, except that the simplified analysis for the summer period cannot be used with regard to the Day-ahead Energy Market. Unless an alternative formula is approved by the Office of the Interconnection and agreed upon by all relevant parties, including any Curtailment Service Provider, Load Serving Entity and end-use customer, the Weather-Sensitive Adjustment and Symmetric Additive Adjustment shall be calculated using the following applicable formula:

#### **Regression Analysis (available for the summer and winter period.)**

Step 1: Perform a regression analysis in Excel using the slope & intercept functions between the end-use customer’s on-peak (8 AM to 8 PM), non-holiday, weekday hourly loads and the temperature-humidity index (“THI”) on a seasonal basis for the period the WSA is being applied.

The Office of the Interconnection will post on the Office of the Interconnection website a spreadsheet of the THI values for all relevant weather stations located within the PJM region.

The regression analysis will produce a slope (m), expressed in kW/THI, and an intercept (b), expressed in kW, that describes the sensitivity of the end-use customer’s load to weather.

Step 2: Determine the average THI for the on-peak hours for the five days used in the weekday CBL calculation.

Step 3: Determine the average THI for the on-peak hours of the event day.

Step 4: Calculate the WSA based on the following formula:

$$\text{WSA} = [(m \times \text{THI}_{\text{EVENT DAY}}) + b] / [(m \times \text{THI}_{\text{CBL DAYS}}) + b]$$

#### **Simplified Analysis (available only for the summer period and for the Real-time Energy Market)**

Step 1: Determine that the load is weather sensitive by agreement of the end-use customer, the Curtailment Service Provider, and the Load Serving Entity or by the

Office of the Interconnection if there is no agreement. Weather adjustments could be negative or positive.

Step 2: Show that the hourly temperature reading at the nearest airport that provides weather information to the Office of the Interconnection equaled or exceeded 85 degrees Fahrenheit during each hour of the reduction event. The hourly temperature reading of another major airport nearby the end-use customer's location may be used if it can be shown that the temperature at the end-use customer's location correlates more closely.

Step 3: Calculate the average hourly load over two full hours beginning three hours prior to the Load Reduction Event.

Step 4: Calculate the average hourly load for the same hours using the values given by the CBL calculation.

Step 5: Compare the resulting average two hour loads from Steps 3 and 4.

Step 6: Determine if the difference from Step 5 expressed as a percentage is greater than 5 percent. If the difference is greater than 5 percent then the percentage will be the WSA for the reduction event.

Step 7: Submit an Excel spreadsheet to the Office of the Interconnection documenting the weather adjustment.

- The WSA, expressed in percentage terms, shall be applied to each hour of the CBL during the event period in order to establish a weather-adjusted CBL.
- For end-use customers without interval data from the previous summer that select the regression analysis, the WSA shall initially be set at 100 percent. After one month of actual program response, a regression analysis shall be performed and the WSA shall be adjusted in accordance with Steps 1-4 above.
- In no event shall application of the WSA produce a weather-adjusted CBL that exceeds the end-use customer's historical, seasonal, on-peak non-coincident peak load.

### **Symmetric Additive Adjustment**

Step 1: Calculate the average usage over the 3 hour period ending 1 hour prior to the start of event.

Step 2: Calculate the average usage over the 3 hour period in the CBL that corresponds to the 3 hour period described in Step 1.

Step 3: Subtract the results of Step 2 from the results of Step 1 to determine the symmetric additive adjustment (this may be positive or negative).

Step 4: Add the symmetric additive adjustment (i.e. the results of Step 3) to each hour in the CBL that corresponds to each event hour.

(b) Following a Load Reduction Event that is submitted to the Office of the Interconnection for compensation, the Office of the Interconnection shall provide the Notification window(s), if applicable, directly metered data and Customer Baseline Load and Weather-Sensitive Adjustment calculations to the appropriate electric distribution company or Load Serving Entity for optional review. The electric distribution company or Load Serving Entity will have ten business days to provide the Office of the Interconnection with notification of any issues related to the metered data or calculations.

#### **3.3A.4 Market Settlements in Real-time Energy Market.**

(a) Economic Load Response Participants participating in the Real-time Energy Market shall be compensated for reducing demand based on the actual kWh relief provided in excess of committed day-ahead load reductions. The Economic Load Response Participant that curtails or causes the curtailment of demand in real-time will be compensated by the Office of the Interconnection the real-time Locational Market Price less an amount equal to the applicable generation and transmission charges. The applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction.

(b) In cases where the demand reduction is dispatched by the Office of the Interconnection, payment will not be less than the total value of the demand reduction bid less an amount equal to the applicable generation and transmission charges. For the purposes of this section, the applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction, and the total value of a demand reduction bid shall include any submitted start-up costs associated with reducing demand, including direct labor and equipment costs and opportunity costs and any costs associated with a minimum number of contiguous hours for which the demand reduction must be committed.

Any shortfall will be made up through normal, real-time operating reserves. In all cases, the applicable zonal or aggregate (including nodal) Locational Marginal Price is used as appropriate for the individual end-use customer.

(c) An Economic Load Response Participant shall accumulate credits for energy reductions in those hours when the energy delivered to the end-use customer is less than the end-use customer's Customer Baseline Load at the corresponding hourly rate. In the event the end-use customer's hourly energy consumption is greater than the Customer Baseline Load, the Economic Load Response Participant will accumulate debits at the corresponding hourly rate for the amount the end-use customer's hourly energy consumption is greater than the Customer

Baseline Load. However, in no event will the Economic Load Response Participant credit be reduced below zero on a daily basis.

(d) Economic Load Response Participants that have Locational Marginal Price based contracts pursuant to which they have agreed to pay their Load Serving Entity for the physical delivery of energy according to the hour value of the real-time Locational Marginal Price as calculated by the Office of the Interconnection, may choose to reduce demand and be compensated for the reduction in the Real-time Energy Market under the following circumstances. The Economic Load Response Participant shall provide the Office of the Interconnection with a strike price for the end-use customer's zonal Locational Marginal Price at which the end-use customer will reduce demand, as well as any start-up costs associated with reducing load, including direct labor and equipment costs and opportunity costs and costs associated with the minimum number of contiguous hours for which the demand reduction must be committed. In cases where the Economic Load Response Participant's zonal Locational Marginal Price reaches the strike price and the demand reduction is dispatched by the Office of the Interconnection, the Office of the Interconnection shall pay such Economic Load Response Participant the difference between the actual savings achieved based on zonal Locational Marginal Price and the total value of the end-use customer's demand reduction bid. For purposes of this provision the total value of the demand reduction bid will be the sum of the strike price times the MW of reduction achieved during each hour of the time period the demand reduction was dispatched by the Office of the Interconnection or the minimum down-time whichever is greater, plus the submitted start-up costs. Demand reductions hereunder will not be eligible to set real-time Locational Marginal Price.

### **3.3A.5 Market Settlements in the Day-ahead Energy Market.**

(a) Economic Load Response Participants participating in the Day-ahead Energy Market shall be compensated for reducing demand based on the reductions of kWh committed in the Day-ahead Energy Market. An Economic Load Response Participant that submits a demand reduction bid day ahead that is accepted by the Office of the Interconnection shall be paid the day-ahead Locational Marginal Price less an amount equal to the applicable generation and transmission charges. The applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction.

(b) Total payments to Economic Load Response Participants for accepted day-ahead demand reduction bids will not be less than the total value of the demand reduction bid less an amount equal to the applicable generation and transmission charges. For the purposes of this section, the applicable generation and transmission charges are the charges the participant would have otherwise paid the Load Serving Entity absent the demand reduction, and the total value of a demand reduction bid shall include any submitted start-up costs associated with reducing load, including direct labor and equipment costs and opportunity costs and any costs associated with a minimum number of contiguous hours for which the load reduction must be committed. Any shortfall will be made up through normal, day-ahead operating reserves. In all cases, the applicable zonal or aggregate (including nodal) Locational Marginal Price is used as appropriate for the individual end-use customer.

(c) Economic Load Response Participants that have demand reductions committed in the Day-ahead Energy Market that deviate from the day-ahead schedule in real time shall be charged or credited for such variance at the real time LMP plus or minus an amount equal to the applicable balancing operating reserve charge. Load Serving Entities that otherwise would have load that was reduced shall receive any associated operating reserve credit plus, if the real-time Locational Marginal Price is higher than the day-ahead Locational Marginal Price during the shortfall, the difference between the day-ahead and the real-time Locational Marginal Price times the shortfall.

(d) Economic Load Response Participants that have real-time Locational Marginal Price-based contracts may not participate in the Day-ahead Energy Market.

### **3.3A.6 Prohibited Economic Load Response Participant Market Settlements.**

(a) Settlements pursuant to Sections 3.3A.4 and 3.3A.5 shall be limited to demand reductions executed in response to the Locational Marginal Price in the Real-time Energy Market and/or the Day-ahead Energy Market.

(b) Demand reductions that do not meet the requirements of Section 3.3A.6(a) shall not be eligible for settlement pursuant to Sections 3.3A.4 and 3.3A.5. Examples of settlements prohibited pursuant to this Section 3.3A.6(b) include, but are not limited to, the following:

- i. Settlements based on variable demand where the timing of the demand reduction supporting the settlement did not change in direct response to Locational Marginal Prices in the Real-time Energy Market and/or the Day-ahead Energy Market;
- ii. Consecutive daily settlements that are the result of a change in normal demand patterns that are submitted to maintain a CBL that no longer reflects the relevant end-use customer's demand;
- iii. Settlements based on On-Site Generator data if the On Site Generation is not supporting demand reductions executed in response to the Locational Marginal Price in the Real-time Energy Market and/or the Day-ahead Energy Market;
- iv. Settlements based on demand reductions that are the result of operational changes between multiple end-use customer sites in the PJM footprint, provided that, the foregoing notwithstanding, settlements based on such demand reduction shall be allowed if the demand reduction alleviates congestion.

(c) The Office of the Interconnection shall disallow settlements for demand reductions that do not meet the requirements of Section 3.3A.6(a). If the Economic Load Response Participant continues to submit settlements for demand reductions that do not meet the requirements of Section 3.3A.6(a), then the Office of the Interconnection shall suspend the Economic Load Response



Participant's PJM Interchange Energy Market activity and refer the matter to the FERC Office of Enforcement.

### **3.3A.7 Economic Load Response Participant Review Process.**

(a) The Office of the Interconnection shall review the participation of an Economic Load Response Participant in the PJM Interchange Energy Market under the following circumstances:

- i. An Economic Load Response Participant's registrations submitted pursuant to Section 1.5A.3 are disputed more than 10% of the time by any relevant electric distribution company(ies) or Load Serving Entity(ies).
- ii. An Economic Load Response Participant's settlements pursuant to 3.3A.4 and 3.3A.5 are disputed more than 10% of the time by any relevant electric distribution company(ies) or Load Serving Entity(ies).
- iii. An Economic Load Response Participant's settlements pursuant to Sections 3.3A.4 and 3.3A.5 are denied by the Office of the Interconnection more than 10% of the time.
- iv. An Economic Load Response Participant's registration will be reviewed when settlements are frequently submitted. PJM will notify the Participant when their registration is under review. While the Participant's registration is under review by PJM, the Participant may continue economic load reductions but all settlements will be denied by PJM until the registration review is resolved pursuant to subsection (i) or (ii) below. PJM will require the Participant to provide information within 30 days to support that the settlements were submitted for load reduction activity done in response to price and not submitted based on the End-Use Customer's normal operations.
  - i) If the Participant is unable to provide adequate supporting information to substantiate the load reductions submitted for settlement, PJM will terminate the registration and may refer the Participant to either the Market Monitoring Unit or the Federal Energy Regulatory Commission for further investigation.
  - ii) If the Participant does provide adequate supporting information, the settlements denied by PJM will be resubmitted by the Participant for review according to existing PJM market rules. Further, PJM may introduce an alternative Customer Baseline Load if the existing Customer Baseline Load does not adequately reflect what the customer load would have been absent a load reduction.

- v. An Economic Load Response Participant's daily settlement will be denied by PJM based on the following criteria:
  - 1) Submission of settlement for self schedule energy in the Real-time Energy Market where only some of the self scheduled hours have been included in the daily settlement submission; or
  - 2) Daily settlement with an estimated value less than Five U.S. Dollars (\$5.00); or
  - 3) Daily settlement has a significant number of uneconomic hours where the Locational Marginal Price is less than or equal to the generation plus the transmission portion of an end-use customer's retail rate or price.
  
- vi. The electric distribution company and the Load Serving Entity may only deny settlements during the normal settlement review process for inaccurate data including, but not limited to: meter data, line loss factor, Customer Baseline Load calculation, retail rate, interval meter owner and a known recurring End-Use Customer outage or holiday.

(b) The Office of the Interconnection shall have thirty days to conduct a review pursuant to this Section 3.3A.7. The Office of the Interconnection may refer the matter to the PJM MMU and/or the FERC Office of Enforcement if the review indicates the relevant Economic Load Response Participant and/or relevant electric distribution company or LSE is engaging in activity that is inconsistent with the PJM Interchange Energy Market rules governing Economic Load Response Participants.