

July 9, 2015

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. ER15-623- 004

Dear Ms. Bose:

PJM Interconnection, L.L.C. (“PJM”), pursuant to the Commission’s June 9, 2015 order in this proceeding,<sup>1</sup> hereby submits revisions to the PJM Open Access Transmission Tariff (“Tariff”) and the Reliability Assurance Agreement among Load Serving Entities in the PJM Region (“RAA”) as directed by the June 9 Order. In accordance with the June 9 Order, the enclosed revised Tariff and RAA sections reflect an effective date of April 1, 2015.

## **I. Background**

On December 12, 2014, PJM filed revisions to the Tariff and RAA pursuant to section 205 of the Federal Power Act (“FPA”), 16 U.S.C. § 824d, to reform the Reliability Pricing Model (“RPM”) to better ensure that committed capacity resources will perform when called upon to meet the reliability needs of the PJM Region (“December 12 Filing”). On June 9, 2015, the Commission accepted the December 12 Filing, effective April 1, 2015, but ordered PJM to make certain changes through a compliance filing, within 30 days of the date of the order. PJM hereby submits that compliance filing, with all required changes to the Tariff and RAA.<sup>2</sup>

In the following sections of this letter, PJM identifies each Commission compliance directive, in generally the same order they appear in the June 9 Order, and then describes and explains PJM’s proposed compliance changes to the Tariff and RAA.

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<sup>1</sup> *PJM Interconnection, L.L.C.*, 151 FERC ¶ 61,208 (2015) (“June 9 Order”).

<sup>2</sup> PJM concurrently files today in Docket No. EL15-29 related changes to the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. (“Operating Agreement”) and to the Tariff under FPA section 206, 16 U.S.C. § 824e, as also directed by the June 9 Order. All capitalized terms not otherwise defined in this filing have the meaning specified in the Tariff, Operating Agreement, or RAA, as applicable.

## **II. Satisfaction of the Compliance Requirements of the June 9 Order**

### **A. Performance Requirements.**

#### 1. Review of Capacity Performance Resource Offers.

##### a. Commission Directive.

In the December 12 Filing, PJM proposed to add to its tariff a process for market seller support of intended Capacity Performance Resource offers, PJM and IMM review of that supporting information, and PJM rejection of offers that are not supported. As to rejection of offers, PJM proposed that PJM “shall reject a request for a resource to offer as a Capacity Performance Resource if the Capacity Market Seller does not demonstrate to the satisfaction of the Office of the Interconnection that the resource meets the necessary requirements.”<sup>3</sup> In the June 9 Order, the Commission found that “PJM’s proposed mechanism for reviewing and, when appropriate, rejecting a sell offer is just and reasonable,” subject, however, to PJM removing the phrase “to the satisfaction of the Office of the Interconnection” from the language on rejection of offers.<sup>4</sup> The Commission observed that “PJM’s existing tariff gives PJM the authority to reject a seller offer, as applicable to a capacity resource,” and found that “this same authority is generally appropriate in the case of a Capacity Performance Resource offer.”<sup>5</sup> However, the Commission found the phrase “to the satisfaction of the Office of the Interconnection” to be “too ambiguous and allows PJM too much discretion in determining whether a resource can meet the operational and performance requirements of Capacity Performance Resources.”<sup>6</sup>

##### b. Compliance Tariff Revisions.

As directed, PJM is removing the phrase “to the satisfaction of the Office of the Interconnection” from proposed section 5.5A(a)(i)(B) of Attachment DD.<sup>7</sup> Consistent with the June 9 Order’s description of the governing determination (and consistent with

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<sup>3</sup> December 12 Filing, proposed Tariff, Attachment DD, section 5.5A(a)(i)(B).

<sup>4</sup> June 9 Order at P 92.

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

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

<sup>7</sup> In the December 12 Filing, PJM proposed to provide for PJM’s review of Capacity Performance Resource Sell Offers in section 5.5A(a)(ii) and detail Capacity Performance Sell Offer representations in section 5.5A(a)(i). However, as discussed in part II.A.2 of this transmittal letter, PJM is removing the tariff language prescribing such Sell Offer representations. Therefore, PJM is renumbering the Tariff subsection regarding PJM’s review of Capacity Performance Resource Sell Offers from 5.5A(a)(ii) to 5.5A(a)(i).

the existing provisions, cited by the Commission, on rejection of offers), PJM is replacing the provision's description of the required demonstration, i.e., "[the resource] meets the necessary requirements" with "[the resource] can reasonably be expected to meet its Capacity Performance obligations consistent with the resource's offer by the relevant Delivery Year."<sup>8</sup>

2. Sell Offer Representations.

a. Commission Directive.

In the December 12 Filing, PJM proposed to require a seller submitting a Capacity Performance Resource offer to make a good faith representation that (i) it has made, or will make, the necessary investment to ensure that its resource has the capability to provide energy when called upon; (ii) the resource meets the operational requirements and performance obligations applicable to Capacity Performance Resources; and (iii) the seller's offer contemplates the physical delivery of the Capacity Performance Resource by no later than the commencement of the applicable delivery year.<sup>9</sup>

In the June 9 Order, the Commission expressed concern "that significant aspects of the required representation are inappropriately vague and this ambiguity could incent well-performing resources to elect not to participate in the capacity market to avoid the risk of sanction."<sup>10</sup> The Commission also was not persuaded that the representation "would provide any added value in incenting resource performance,"<sup>11</sup> given the other "specific tariff provision[s] designed to elicit performance and penalize failure to perform."<sup>12</sup> Finding the representation provision had not been shown to be either necessary or just and reasonable, the Commission conditioned its acceptance of the December 12 Filing on "the removal of this provision."<sup>13</sup>

On a related point, the Commission "[found] merit" in the substance of PJM's proposal to require External Generation Capacity Resources to meet the criteria for a Capacity Import Limit exception in order to submit a Capacity Performance Resource offer, but interpreted this provision as "an eligibility requirement for External Generation Capacity Resources," rather than as "a seller representation."<sup>14</sup> The Commission therefore accepted the proposal "subject to PJM including in its tariff revisions a

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<sup>8</sup> Proposed Tariff, Attachment DD, section 5.5A(a)(i)(B).

<sup>9</sup> December 12 Filing, Proposed Tariff, Attachment DD, section 5.5A(c).

<sup>10</sup> June 9 Order at P 95.

<sup>11</sup> *Id.* at P 94.

<sup>12</sup> *Id.* at P 95.

<sup>13</sup> *Id.*

<sup>14</sup> June 9 Order at P 96.

requirement that an External Generation Capacity Resource must demonstrate that it meets – or will meet by the start of the delivery year – the criteria for an exception to the Capacity Import Limit in order to offer as a Capacity Performance Resource.”<sup>15</sup>

b. Compliance Tariff Revisions.

As directed, PJM is removing the proposed seller representation requirements from section 5.5A(a)(i) of Attachment DD of the Tariff.

PJM also is adding language to section 5.5A(a) to require an External Generation Capacity Resource seeking to submit a Capacity Performance Resource offer to demonstrate that it meets – or will meet by the start of the delivery year – the criteria for an exception to the Capacity Import Limit.

3. Resource Aggregation Offers.

a. Commission Directives.

In the December 12 Filing, PJM proposed to allow certain types of resources that might not be able to qualify as a Capacity Performance Resource on a stand-alone basis to aggregate their capabilities in order to better ensure satisfaction of the performance expectation. PJM proposed to limit this aggregation option to Demand Resources, Energy Efficiency Resources, Capacity Storage Resources, and Intermittent Resources. In response to comments and protests on this proposal, PJM offered in its February 13, 2015 answer (“February 13 Answer”) to permit: (i) environmentally-limited resources to aggregate with Demand Resources, Energy Efficiency Resources, Capacity Storage Resources, and Intermittent Resources; and (ii) Demand Resources, Energy Efficiency Resources, Capacity Storage Resources, and Intermittent Resources owned by different entities to aggregate, so long as they comply with PJM rules on reporting of bilateral transactions.<sup>16</sup> PJM also confirmed that the resource types that are permitted to aggregate may offer on a stand-alone basis, if they can meet the Capacity Performance eligibility standards.<sup>17</sup>

In the June 9 Order, the Commission “[found] merit in PJM’s proposal to allow resources that would generally not be able to offer as Capacity Performance Resources to aggregate their capabilities in order to reliably perform during emergency conditions;” while also agreeing that “extending this allowance to environmentally-limited resources and permitting aggregated offers from different entities are appropriate modifications.”<sup>18</sup>

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<sup>15</sup> *Id.* at P 97.

<sup>16</sup> February 13 Answer at 27-28.

<sup>17</sup> *Id.*

<sup>18</sup> June 9 Order at P 101.

The Commission therefore accepted PJM's proposal on aggregation of resources, "subject to PJM submitting tariff revisions . . . to clarify that: (i) aggregated offers from environmentally-limited resources are permitted; and (ii) aggregated offers composed of resources from different entities, so long as the associated bilateral arrangements are reflected in PJM's system, are permitted."<sup>19</sup> The June 9 Order's acceptance of PJM's proposal also was conditioned on PJM submitting tariff revisions clarifying that "Capacity Storage Resources, Intermittent Resources, Energy Efficiency Resources, and Demand Resources may submit stand-alone Capacity Performance sell offers in a MW quantity consistent with their average expected output during peak-hour periods."<sup>20</sup>

b. Compliance Tariff Revisions.

In accordance with the June 9 Order, PJM is revising Tariff, Attachment DD, section 5.6.1(h) to (1) add "Environmentally-Limited Resources"<sup>21</sup> to the list of resource types that can submit aggregated offers; (2) confirm that resources of the listed resource types can submit Capacity Performance Resource offers "in a MW quantity consistent with their average expected output during peak-hour periods;" and (3) provide that the aggregated resources may be *either* "owned by" *or* "under contract to" the seller submitting the offer, including "resources obtained through bilateral contract" and reported to PJM through its capacity accounting system.

**B. Non-Performance Charges.**

1. Monthly Stop-Loss.

a. Commission Directive.

In the December 12 Filing, PJM proposed significant changes to the financial incentives for capacity resource performance, including a stringent new Non-Performance Charge that can assess charges on poorly performing resources that potentially could significantly exceed the capacity revenues the resource can earn through RPM.<sup>22</sup> Recognizing, however, the need to set well-defined outside bounds on that

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

<sup>20</sup> *Id.* at P 100.

<sup>21</sup> PJM is defining "Environmentally Limited Resource" at Tariff, Attachment DD, section 2.24.01, as: "a resource which has a limit on its run hours imposed by a federal, state, or other governmental agency that will significantly limit its availability, on either a temporary or long-term basis. This includes a resource that is limited by a governmental authority to operating only during declared PJM capacity emergencies." This definition mirrors that already found in the Operating Agreement, Schedule 1, section 1.10.1A(d)(i).

<sup>22</sup> *See* December 12 Filing at 39, *et seq.*

financial obligation exposure, PJM included “stop-loss” provisions to limit a resource’s maximum Non-Performance Charges for a calendar month and a calendar year.<sup>23</sup> In PJM’s April 10, 2015 (“April 10 Response”) response to the Commission’s March 31, 2015 Information Request, however, PJM reevaluated the merits of the monthly stop-loss provision and determined that “[w]hile the monthly stop-loss is beneficial from the capacity seller’s perspective because it reduces the non-performance payments in a [severe] month . . . it dilutes the core incentives because it allows underperformance without consequence any time a resource has reached the monthly stop loss.”<sup>24</sup> Accordingly, PJM clarified that it would not be opposed to the Commission directing PJM to eliminate the monthly stop-loss provision.<sup>25</sup> In the June 9 Order, the Commission agreed with PJM that the monthly stop-loss “significantly weakens” the performance incentives created by the two settlement system and directed PJM to remove the provision.<sup>26</sup>

b. Compliance Tariff Revisions.

In accordance with the June 9 Order, PJM is revising sections 10A(f), (h), and (i) of Attachment DD to remove the limit on the amount of Non-Performance Charges a resource may be assessed for performance in a single calendar month.

2. Excuses for Non-Performance.

a. Commission Directives.

In the December 12 Filing, as part of a general effort to squarely place responsibility for resource performance on the resource provider (i.e., the Capacity Market Seller), PJM proposed to recognize only two excuses for sub-par performance during a Performance Assessment Hour that will allow the Capacity Market Seller to avoid a Non-Performance Charge.<sup>27</sup> First, the performance assessment will not include resource non-performance occurring solely because the resource was on a PJM-approved

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<sup>23</sup> See December 12 Filing at 46-48; proposed Tariff, Attachment DD, section 10A(j).

<sup>24</sup> April 10 Response at 17 (Response to Information Request 6).

<sup>25</sup> *Id.*

<sup>26</sup> June 9 Order at P 165. In the February 13 Answer (at 113-114), PJM stated a willingness to add a monthly stop-loss provision for resources that meet their capacity requirements through FRR Plans. However, consistent with its findings that a monthly stop-loss is “not . . . necessary or appropriate within the Capacity Performance design,” the Commission declined to direct PJM to adopt a monthly stop-loss for FRR entities. *Id.* at P 208. Consequently, no tariff change is needed to comply with this finding.

<sup>27</sup> See December 12 Filing, proposed Tariff, Attachment DD, section 10A(d).

planned or maintenance outage. Second, the performance assessment will not include non-performance occurring because PJM directed the resource not to run, or to run at a reduced level. But PJM also proposed two limitations on this excuse: If PJM scheduled the resource down, or directed it not to run, as a result of operating parameter limitations specified by the seller, or because the seller specified a market-based offer price higher than its cost-based offer price, then that reduced performance *will* be subject to Non-Performance Charges.<sup>28</sup>

In the June 9 Order, the Commission accepted these two performance excuses because they “are strictly circumscribed and can be traced to a determination by PJM that the resource’s unavailability is appropriate in a given hour.”<sup>29</sup> Moreover, the Commission found, they reinforce resource incentives to follow PJM’s dispatch, because resources will not be penalized “for PJM’s determination, based on its independent assessment of the needs of the bulk power system at a given point in time, not to schedule a capacity resource or to dispatch the capacity resource down.”<sup>30</sup> But the Commission directed PJM to provide two clarifications “to avoid ambiguity or misinterpretation.”<sup>31</sup> First, the Commission found that the phrase “limitations specified by such seller in the resource operating parameters” could be misinterpreted as referring to “only those operating parameter limitations that are less flexible than a resource’s pre-determined parameter-limited schedule” which would allow “less flexible resources to avoid Non-Performance Charges more often than more flexible resources.”<sup>32</sup> The Commission found that the non-performance excuse should only apply if the resource “is not scheduled by PJM because the resource was not needed to alleviate the capacity shortage.”<sup>33</sup> Accordingly, the Commission directed PJM to clarify that “if a capacity resource is not scheduled by PJM due to any operating parameter limitations submitted in the resource’s offer, any undelivered megawatts will be counted as a performance shortfall.”<sup>34</sup>

Second, the Commission found that a resource that submits a market-based offer higher than its cost-based offer should still be excused from non-performance if PJM would have scheduled the resource not to run, or dispatched it down, regardless of that price difference. As the Commission explained, “[i]n this scenario, the reason that PJM did not schedule the resource is not that the resource’s market-based offer was higher than its cost-based offer, [but] because [the resource] was not needed, even at its cost-

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<sup>28</sup> See December 12 Filing at 44-46.

<sup>29</sup> June 9 Order at P 167.

<sup>30</sup> *Id.*

<sup>31</sup> June 9 Order at P 170.

<sup>32</sup> *Id.* at P 171.

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

<sup>34</sup> June 9 Order at P 173.

based offer price.”<sup>35</sup> Accordingly, the Commission directed PJM to clarify that “if a capacity resource is not scheduled by PJM after submitting a market-based offer higher than its cost-based offer but would have been scheduled if its market-based offer had been equal to its cost-based offer, any undelivered megawatts will be counted as a performance shortfall.”<sup>36</sup>

b. Compliance Tariff Revisions.

PJM is revising section 10A(d) to make the requested clarifications. First, consistent with the June 9 Order’s statements that PJM’s determination that the resource is not needed is the key factor in determining whether not scheduling the resource, or dispatching it down, warrants a non-performance excuse, PJM is clarifying that a resource will be exempt from Non-Performance Charges if it was not scheduled by PJM because it was on an approved outage or was scheduled down “based on a determination by [PJM] that such scheduling action was appropriate to the security-constrained economic dispatch of the PJM Region.”<sup>37</sup> Similarly, and in further compliance with the June 9 Order, PJM is revising these provisions to state that a resource will be assessed Non-Performance Charges “if it would otherwise have been scheduled by the Office of the Interconnection to perform, but was not scheduled to operate, or was scheduled down, solely due to: (i) any operating parameter limitations submitted in the resource’s offer, or (ii) the seller’s submission of a market-based offer higher than its cost-based offer.”<sup>38</sup> These revisions provide the clarifications sought by the Commission, including making more explicit the role of PJM’s determination that the resource should not run, or should run at a reduced level, in light of the relevant reliability conditions and dispatch considerations.

3. Performance Evaluation Mechanics.

a. Commission Directives.

In the June 9 Order, the Commission found that the Capacity Performance rules fail to specify how performance by energy imports will be assessed when Emergency Action hours only occur within individual zones or sub-zones.<sup>39</sup> Specifically, the Commission found that PJM’s proposed calculation of the Balancing Ratio may incorrectly include energy imports when the Emergency Action is on a zonal- or sub-zonal-only basis, where by definition imports into the affected region would be

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<sup>35</sup> June 9 Order at P 172.

<sup>36</sup> *Id.* at P 173.

<sup>37</sup> *See* proposed Tariff, Attachment DD, section 10A(d).

<sup>38</sup> Proposed Tariff, Attachment DD, section 10A(d).

<sup>39</sup> June 9 Order at P 175.



restricted.<sup>40</sup> The Commission also observed that the proposed performance evaluation appeared to exclude external resources, given proposed language that limited the performance assessment to “the area defined by the [PJM] Emergency Action,” which would seem to never include non-PJM resources.<sup>41</sup> Accordingly, the Commission directed PJM to clarify the performance evaluation metrics so as to: (1) “avoid the distortion of the Balancing Ratio” by accounting for energy imports when the Emergency Action occurs in a zonal or sub-zonal area; (2) properly account for resources outside an Emergency Action area in the performance calculation and ensure such external resources are credited the appropriate Performance Bonus Payments; and (3) provide for how external resources, with and without a capacity commitment, will be included in the performance assessment calculation when an Emergency Action is triggered for the PJM Region.<sup>42</sup>

In addition, the Commission found that, “as proposed, the Balancing Ratio could exceed one and, thereby, cause capacity resources’ expected performance during a Performance Assessment Hour to exceed their full cleared UCAP quantity;” an outcome the Commission found to be “inconsistent with the capacity obligation within the Capacity Performance design.”<sup>43</sup> The Commission therefore directed PJM to clarify that “a capacity resource’s expected performance for any Performance Assessment Hour shall not exceed 100 percent of its cleared UCAP quantity, or explain[ ] why the absence of such a statement is just and reasonable.”<sup>44</sup>

b. Compliance Tariff Revisions.

To properly reflect external resources in the Non-Performance Charges and Bonus Performance Payments, as required by the June 9 Order, PJM is making several types of changes in section 10A of Attachment DD, that implement the following principles:

- For Emergency Actions that *do not* involve the entire PJM Region, imports are not considered in the performance calculations;
- For Emergency Actions that *do* involve the entire PJM Region, imports and deliveries from external capacity resources are considered in the performance calculations;
- For Emergency Actions that *do* involve the entire PJM Region, external Generation Capacity Resources that have been committed as capacity will

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

<sup>41</sup> *Id.* at P 176.

<sup>42</sup> June 9 Order at P 178.

<sup>43</sup> *Id.* at P 177.

<sup>44</sup> *Id.* at P 178.

have their performance assessed and are subject to Non-Performance Charges and eligible for Bonus Performance Payments;

- For Emergency Actions that *do* involve the entire PJM Region, external resources that have not been committed as capacity are eligible for Bonus Performance Payments. PJM proposes to measure the performance of market participants that provide such imports as the net import under all interchange transactions scheduled by such market participant.<sup>45</sup>

In addition, as also required by the June 9 Order, PJM is adding language to establish that the Balancing Ratio may not exceed a value of 1.0.<sup>46</sup> This ensures that a capacity resource's expected performance for any Performance Assessment Hour will not exceed 100 percent of its cleared Unforced Capacity ("UCAP") quantity.

#### 4. Performance Assessment for Coupled Offers.

##### a. Commission Directives.

The December 12 Filing allows resources to submit coupled offers as both Capacity Performance Resources and Base Capacity Resources,<sup>47</sup> which can result in a resource clearing partially as a Capacity Performance Resource and partially as a Base Capacity Resource. In response to filed comments and informal stakeholder questions, PJM clarified in the February 13 Answer that, for purposes of determining performance during Performance Assessment Hours, it will attribute any performance first to the Capacity Performance Resource performance requirement. Any output above that requirement will then be attributed to the Base Capacity Resource performance requirement.<sup>48</sup> In the June 9 Order, the Commission directed PJM to memorialize in its Tariff this clarified treatment of performance by such resources.<sup>49</sup>

##### b. Compliance Tariff Revisions.

As required by the June 9 Order, PJM is revising revised section 10A(c) of Attachment DD to the Tariff to state that, for resources that clear partially as a Capacity Performance Resource and partially as a Base Capacity Resource, any performance will first be attributed to the Capacity Performance Resource performance obligation; and that performance will be attributed to the Base Capacity Resource performance obligation only after that Capacity Performance Resource obligation has been met.

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<sup>45</sup> See proposed Tariff, Attachment DD, sections 10A(c), (g).

<sup>46</sup> See proposed Tariff, Attachment DD, section 10A(c).

<sup>47</sup> December 12 Filing at 35-36, 60; proposed Tariff, Attachment DD, sections 5.6.1(g) & (h).

<sup>48</sup> February 13 Answer at 22.

<sup>49</sup> June 9 Order at P 181.

5. Clarify Application of Overlapping Non-Performance Charges.

a. Commission Directive.

In the December 12 Filing, PJM revised its Tariff to add a new Non-Performance Charge applicable only to Capacity Performance Resources and Base Capacity Resources.<sup>50</sup> PJM also revised its Tariff to provide for Capacity Performance Transition Incremental Auctions to procure a specific amount of Capacity Performance Resources for the 2016/2017 and 2017/2018 Delivery Years. However, PJM did not remove its pre-existing charges for failure to perform during peak periods, i.e., the Peak-Hour Period Availability (“PHPA”) Charge and the Peak Season Maintenance Compliance Penalty Charge for the 2016/2017 and 2017/2018 Delivery Years. Rather, PJM revised its Tariff to state that the PHPA Charge and Peak Season Maintenance Charge provisions only apply through the end of the 2017/2018 Delivery Year. But in an oversight, PJM did not address how these two existing performance charge provisions would interact with the Non-Performance Charge during the 2016/2017 and 2017/2018 Delivery Years. In the June 9 Order, the Commission noted this apparent drafting error and directed PJM to correct and revise its Tariff to state how these two charges would apply to an underperforming Capacity Performance Resource for the 2016/2017 and 2017/2018 Delivery Years “or otherwise clarifying how its proposed tariff provisions achieve the stated intent.”<sup>51</sup>

b. Compliance Tariff Revisions.

In compliance with the June 9 Order, PJM is revising sections 9 and 10 of Attachment DD to the Tariff to clarify that Capacity Performance Resources are not subject to the Peak Season Maintenance Compliance Charge or the PHPA Charge.<sup>52</sup> As explained in the December 12 Filing, the Non-Performance Charge supersedes the Peak Season Maintenance Compliance Charge and the PHPA Charge and thus such existing charges “will no longer be required upon implementation of the Non-Performance Charge.”<sup>53</sup> PJM also explained that any Capacity Performance Resource committed in a transition auction “will be subject only to the Non-Performance Charge provisions in section 10A and will not be subject to the capacity performance provisions in Attachment DD, sections 9 and 10,”<sup>54</sup> although, as the June 9 Order noted, PJM did not propose Tariff language to effectuate this intent. Accordingly, consistent with the Commission’s directive, PJM is making these revisions to clarify that Capacity Performance Resources are not subject to the Peak Season Maintenance Compliance Charge or the PHPA Charge.

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<sup>50</sup> December 12 Filing at 39; proposed Tariff, Attachment DD, section 10A.

<sup>51</sup> June 9 Order at P 185.

<sup>52</sup> See proposed Tariff, Attachment DD, sections 9 and 10.

<sup>53</sup> December 12 Filing at 52.

<sup>54</sup> December 12 Filing at 53.

**C. Fixed Resource Requirement Plans.**

1. Rate for Physical Repayment Option.

a. Commission Directive.

In the December 12 Filing, PJM revised its Tariff and the RAA to apply the Capacity Performance rules to load-serving entities (“LSEs”) that use the Fixed Resource Requirement (“FRR”) Alternative to meet their capacity obligations. Given the differences between RPM and the FRR Alternative, however, PJM proposed to allow FRR Entities a “physical option” as an alternative to the “financial option” of paying a monetary Non-Performance Charge when the FRR Entities’ resources underperform during a Performance Assessment Hour.<sup>55</sup> Under the physical option proposed in the December 12 Filing, an FRR Entity with a Capacity Resource that underperforms during a Performance Assessment Hour would be required to add to its FRR Plan for the next Delivery Year 0.5 MW for each megawatt the resource underperformed.<sup>56</sup>

In the June 9 Order, while the Commission found the physical option to be “generally appropriate,”<sup>57</sup> the Commission found that the “proposed physical option penalty rate is not just and reasonable because it could unduly penalize Fixed Resource Requirement entities” as it “lacks an hourly charge rate relative to the additional capacity per MW of non-performance.”<sup>58</sup> Accordingly, the Commission directed PJM to “derive and incorporate” a physical option charge comparable to the financial Non-Performance Charge hourly rate “in terms of additional capacity per MWh of non-performance.”<sup>59</sup>

b. Compliance RAA Revisions.

In compliance with the June 9 Order, PJM is revising the FRR physical option rules to establish hourly charges for underperformance by Capacity Performance Resources and Base Capacity Resources identified in an FRR Capacity Plan. To effectuate this directive, PJM also is making conforming changes to clarify that the physical option also would apply to underperformance by Base Capacity Resources.

Because FRR Entities rely on a portfolio of Capacity Resources in their FRR Capacity Plan, PJM is revising the FRR rules to clarify that, if an FRR Entity elects the physical option, such option applies to all Capacity Resources its FRR Capacity Plan —

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<sup>55</sup> See December 12 Filing at 77-78.

<sup>56</sup> *Id.*

<sup>57</sup> June 9 Order at P 208.

<sup>58</sup> *Id.* at P 209.

<sup>59</sup> *Id.*

i.e., both Capacity Performance Resources and Base Capacity Resources. For each Performance Assessment Hour, the Performance Shortfall will be determined on a net basis separately for (i) all Capacity Performance Resources and (ii) all Base Capacity Resources in an FRR Entity's FRR Capacity Plan. The Expected and Actual Performance for each Capacity Resource in an FRR Plan will be determined for each Performance Assessment Hour in the same manner as set forth in section 10A of Attachment DD.<sup>60</sup> Any resulting net over-performance by one class of resources, whether Capacity Performance Resources or Base Capacity Resources, will be netted against any net under-performance (on a class basis) by the other class of resources, and the applicable physical option hourly charge rate will be applied to any remaining underperformance.<sup>61</sup> For example, if, for a Performance Assessment Hour, an FRR Entity's Capacity Performance Resources together over-performed by 10 MW, but such entity's Base Capacity Resources together underperformed by 15 MW, after applying the 10 MW of over-performance to the under-performance by Base Capacity Resources, the FRR Entity would be assessed a non-performance charge based on 5 MW of under-performance at the Base Capacity Resource physical option hourly charge rate.

As directed by the June 9 Order, PJM is revising the FRR physical option rules to establish an hourly charge of 0.01667 MW per MW of net Performance Shortfall during Performance Assessment Hours. This rate is comparable to the approved annual stop-loss of 1.5 times Net Cost of New Entry ("CONE") under the Non-Performance Charge, and employs the same rate denominator as the approved Non-Performance Charge, i.e., 30 Performance Assessment Hours. Under the 1.5 times Net CONE annual stop-loss, the deemed penalty or incentive component is 0.5 times Net CONE,<sup>62</sup> and the physical equivalent for FRR, therefore, would be for a poorly performing resource to provide 0.5 MW of additional capacity for each MW of overall resource performance deficiency over the course of a Delivery Year. To be equivalent to the financial Non-Performance Charge, that performance deficiency would have to persist over 30 Performance Assessment Hours<sup>63</sup> during the Delivery Year. Putting these two principles together, the comparable physical charge rate for each Performance Assessment Hour is 0.5 MW divided by 30 Performance Assessment Hours, or 0.01667 MW.<sup>64</sup> Thus, an FRR Entity whose resources underperform will need to add to its FRR Plan for the next Delivery Year an amount of megawatts equal to or greater than the megawatt shortfall amount times 0.01667 MW per Performance Assessment Hour in which the shortfall occurred.<sup>65</sup>

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<sup>60</sup> See proposed RAA, Schedule 8.1, section G.2.

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

<sup>62</sup> See June 9 Order at P 159.

<sup>63</sup> See *id.* at P 163.

<sup>64</sup> See Tariff, Attachment DD, section 10A(e).

<sup>65</sup> See proposed RAA, Schedule 8.1, section G.2.

Consistent with the addition of an hourly charge rate for Capacity Performance Resources, PJM is adding a physical option hourly charge rate for Base Capacity Resources that is a scaled-down version of the hourly charge for Capacity Performance Resources, based on the ratio between the relevant Net CONE and the relevant auction clearing price. Using the same approach as for financial non-performance charges for Base Capacity Resources, the physical option hourly charge rate for Base Capacity Resources is based on the applicable weighted-average clearing price, rather than on Net CONE (which is used for Capacity Performance Resources).<sup>66</sup> However, given that FRR-committed resources do not participate in RPM Auctions and thus are not associated with any clearing price, the clearing price used to determine the applicable charge rate is that for the Locational Deliverability Area (“LDA”) encompassing the Zone in which the resource is located.<sup>67</sup> Accordingly, the Base Capacity Resource physical option hourly charge rate equals the product of 0.01667 MW per Performance Assessment Hour times the ratio of the relevant weighted average clearing price to the Net CONE established for such LDA for that Delivery Year.<sup>68</sup>

This rate is reasonable as it reflects that non-physical option Base Capacity Resources are charged at a rate of the applicable weighted-average clearing price divided by 30 instead of Net CONE divided by 30.<sup>69</sup> Moreover, a scaled-down charge rate for Base Capacity Resources is appropriate for a capacity product that is available for only a single Delivery Year, because the incentives intended through a net charge exposure are not needed to encourage a seller to invest in improvements in a Base Capacity Resource.

PJM also is capping the maximum additional physical capacity commitment for the following Delivery Year due to shortfalls by Capacity Performance Resources and separately for shortfalls by Base Capacity Resources. For Capacity Performance Resources, “the total additional MWs required as a result of non-performance by the FRR Entity’s Capacity Performance Resources in any Delivery Year shall not exceed a MW quantity equal to 0.5 times the MW quantity of the Capacity Performance Resources that were committed in the FRR Capacity Plan for such Delivery Year.”<sup>70</sup> This is comparable to the annual stop-loss for non-FRR Capacity Performance Resources of 1.5 times Net CONE times a resource’s full Unforced Capacity, for the same reasons as explained above. For Base Capacity Resources, the annual limit is scaled down consistent with the lower hourly charge rates, such that the cap is set at: (a) the ratio of [(i) the applicable

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<sup>66</sup> See Tariff, Attachment DD, section 10A(e).

<sup>67</sup> This is the same approach taken under the current FRR rules to determine an appropriate FRR charge rate for penalties that, for resources committed in an RPM Auction, are based on an auction clearing price. See RAA, Schedule 8.1, section G.1.

<sup>68</sup> See proposed RAA, Schedule 8.1, section G.2.

<sup>69</sup> See Tariff, Attachment DD, section 10A(e).

<sup>70</sup> See proposed RAA, Schedule 8.1, section G.2.

weighted-average clearing price to (ii) Net CONE] times (b) 0.5 MW per megawatt of committed capacity.<sup>71</sup> This is comparable to the annual stop-loss applicable to Base Capacity Resources under the financial option.<sup>72</sup>

2. Election of Financial or Physical Option.

a. Commission Directive.

The June 9 Order also conditioned its acceptance of PJM's proposal to allow FRR Entities a choice of physical or financial performance assessments "on PJM modifying its proposal . . . to allow [an FRR] [E]ntity to choose between the physical non-performance assessment option and the financial non-performance assessment option at the start of the relevant delivery year, rather than when the Fixed Resource Requirement entity submits its first Fixed Resource Requirement Capacity Plan."<sup>73</sup>

b. Compliance RAA Revisions.

As directed by the June 9 Order, PJM is revising RAA, Schedule 8.1, section C.1, to require that, prior to the start of each Delivery Year in which Capacity Performance requirements apply to an FRR Entity, such FRR Entity must elect either the financial or physical option for satisfying underperformance charges. PJM is also removing the sentence that limited an FRR Entity's ability to make such election to a one-time choice that applies for the duration of its FRR Alternative commitment,<sup>74</sup> given that the solution proposed in the February 13 Answer on this issue, which the June 9 Order accepted, proposed to allow this election for "each" Delivery Year.<sup>75</sup>

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<sup>71</sup> *Id.*

<sup>72</sup> *See* proposed Tariff, Attachment DD, section 10A(f) ("The total Non-Performance Charges for each Base Capacity Resource (including Locational UCAP from such a resource) for a Delivery Year shall not exceed a Non-Performance Charge Limit equal to the total payments due such Capacity Resource or Locational UCAP under section 5.14 of this Attachment DD for such Delivery Year.").

<sup>73</sup> June 9 Order at P 210.

<sup>74</sup> *See* proposed RAA, Schedule 8.1, section C.1.

<sup>75</sup> February 13 Answer at 114.

3. Effective Date of Capacity Performance Rules for FRR Entities.

a. Commission Directive.

Lastly, the Commission found that “a phase-in of the Capacity Performance rules for [FRR] [E]ntities is appropriate.”<sup>76</sup> The Commission therefore conditioned its acceptance of the changes for FRR Entities on PJM applying the Capacity Performance rules to FRR Entities “only after the conclusion of the Fixed Resource Requirement plans to which these entities are currently obligated as of the date of this order.”<sup>77</sup>

b. Compliance RAA and Tariff Revisions.

FRR Entities submitted their FRR Plans for the 2018/2019 Delivery Year in April 2015, i.e., shortly before the Commission issued the June 9 Order. The capacity plans for that Delivery Year therefore reflect the only “Fixed Resource Requirement plans to which these entities are currently obligated as of the date of [the June 9 O]rder.” *Id.* Accordingly, to comply with the June 9 Order, PJM is revising its FRR rules so that the Capacity Performance rules do not apply to FRR Entities until the 2019/2020 Delivery Year.<sup>78</sup>

This change requires numerous conforming changes in other tariff revisions proposed in the December 12 Filing, to preserve—solely for FRR and solely for one additional Delivery Year—existing capacity market rules that would otherwise be superseded as of June 1, 2018. Specifically, PJM is revising its FRR Capacity Plan rules<sup>79</sup> and the definitions of Limited Demand Resource,<sup>80</sup> Extended Summer Demand Resource,<sup>81</sup> Sub-Annual Resource Reliability Target,<sup>82</sup> Sub-Annual Resource Constraint,<sup>83</sup> Limited Demand Resource Reliability Target,<sup>84</sup> and Limited Resource Constraint<sup>85</sup> so that those limited-availability resource types may be committed (in the same manner as permitted in current effective rules) in FRR Plans for the 2018/2019 Delivery Year. Similarly, PJM is revising the procedures for determining the unforced

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<sup>76</sup> June 9 Order at P 212.

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

<sup>78</sup> Proposed RAA, Schedule 8.1, sections D.2, D.4, and D.5.

<sup>79</sup> *See* proposed RAA, Schedule 8.1, section D.2.

<sup>80</sup> Proposed RAA, Article 1, Definition 1.43A.

<sup>81</sup> Proposed RAA, Article 1, Definition 1.20C.

<sup>82</sup> Proposed Tariff, Attachment DD, section 2.24C.

<sup>83</sup> Proposed Tariff, Attachment DD, section 2.25.

<sup>84</sup> Proposed Tariff, Attachment DD, section 2.36B.

<sup>85</sup> Proposed Tariff, Attachment DD, section 2.36C.



capacity values for Demand Resources and Energy Efficiency Resources contained in RAA Schedule 6 and Tariff, Attachment DD-1 to continue to apply the DR Factor in determining the unforced capacity values for such resources committed in an FRR Plan for the 2018/2019 Delivery Year.<sup>86</sup> In effect, preserving these rules for one year for FRR Entities creates an exception to the rules the Commission accepted in the June 9 Order that otherwise eliminate those various provisions as of May 31, 2018.

#### **D. Market Power Mitigation.**

##### **1. Market Seller Offer Cap for Capacity Performance Resources.**

###### **a. Commission Directive.**

In the December 12 Filing, PJM proposed to increase its Market Seller Offer Cap to allow Capacity Performance Resources to offer up to the applicable Net CONE.<sup>87</sup> However, in response to the Commission's March 31, 2015 Information Request and comments filed by the IMM, PJM amended its proposal to set the offer cap for Capacity Performance Resources as the product of Net CONE times the Balancing Ratio, which is the factor used in the Non-Performance Charge provisions to measure Expected Performance.<sup>88</sup> PJM proposed to set that Balancing Ratio as the historical three-year average of the ratio observed in the three calendar years preceding the Base Residual Auction in which a Capacity Performance Resource offer is being submitted.<sup>89</sup>

In the June 9 Order, the Commission found the Capacity Performance Resource Market Seller Offer Cap set at Net CONE times the Balancing Ratio to be just and reasonable<sup>90</sup> and accepted PJM's proposal as amended in the April 10 Response.<sup>91</sup> The Commission also found "that using a three-year historical average will provide a reasonable estimate of future Balancing Ratios."<sup>92</sup>

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<sup>86</sup> Proposed RAA, Schedule 6, sections B and L.3; proposed Tariff, Attachment DD-1, sections B and L.3.

<sup>87</sup> December 12 Filing at 54-56.

<sup>88</sup> Balancing Ratios are calculated to determine the Expected Performance of Generation Capacity Resources and Capacity Storage Resources and are equal to the quotient of (the sum of All Actual Generation Performance, Storage Resource Performance, Net Energy Imports and Demand Response Bonus Performance) / (All Committed Generation and Storage Capacity). See proposed Tariff, Attachment DD, section 10A(c).

<sup>89</sup> April 10 Response at 7 (Response to Information Request 3).

<sup>90</sup> June 9 Order at P 336.

<sup>91</sup> *Id.* at P 341.

<sup>92</sup> *Id.* at P 350.

b. Compliance Tariff Revisions.

In compliance with the June 9 Order, PJM is revising its rules to set the Market Seller Offer Cap for Capacity Performance Resources at Net CONE times a three-year historical average Balancing Ratio. First, while the calculation that the IMM and PJM referred to as “the Balancing Ratio” was set forth in the Non-Performance Charge provisions on Expected Performance in the December 12 Filing, that calculation was not formally defined as “the Balancing Ratio.” PJM is therefore revising section 10A(c) of Attachment DD to segregate the relevant components of the approved definition of Expected Performance and separately define them as “the Balancing Ratio.” Second, PJM is revising Attachment DD, section 6.4(a) to set the offer cap for Capacity Performance Resources as the product of Net CONE times the “average of the Balancing Ratios in the three consecutive calendar years (during the Performance Assessment Hours in such calendar years) that precede the Base Residual Auction for such Delivery Year).”<sup>93</sup>

PJM is also making a conforming change to its sell offer rules in section 5.6.1 of Attachment DD to account for the revised Market Seller Offer Cap. In the December 12 Filing, PJM proposed in new Attachment DD, section 5.6.1(g) that any resource that can qualify as a Capacity Performance Resource, but (i) requires substantial investment do so, and (ii) submits an offer that exceeds Net CONE must submit a coupled offer as both a Capacity Performance Resource and a Base Capacity Resource.<sup>94</sup> Given that Net CONE in this provision is used as a stand-in for the Market Seller Offer Cap, PJM is revising section 5.6.1(g) to set “Net Cost of New Entry times the Balancing Ratio as provided for in section 6.4” as the price at which a Capacity Performance Resource sell offer triggers an accompanying, “coupled” Base Capacity Resource sell offer.<sup>95</sup>

2. Risk Premium.

a. Commission Directive.

In the December 12 Filing, PJM revised its RPM Auction offer cap rules to allow for a risk premium related to the risks of offering as a Capacity Performance Resource. Specifically, PJM added to the Avoidable Cost Rate (“ACR”) formula the new element of “Capacity Performance Quantifiable Risk,” consisting of “the documented and

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<sup>93</sup> Proposed Tariff, Attachment DD, section 6.4(a). To ensure that the term Balancing Ratio used in revised section 6.4(a) refers to the Balancing Ratio determined under section 10A, PJM is defining ‘Balancing Ratio’ in the definitions section of Attachment DD to “have the meaning provided in section 10A.” Proposed Tariff, Attachment DD, section 2.2.01.

<sup>94</sup> See December 12 Filing at 61; proposed Tariff, Attachment DD, section 5.6.1.

<sup>95</sup> Proposed Tariff, Attachment DD, section 5.6.1(g).

quantifiable costs of mitigating the risks associated with submission of a Capacity Performance Resource offer, such as insurance expenses solely attributable to the risk of being a Capacity Performance Resource.” PJM also made clear that “CPQR applies solely for offers of a Capacity Performance Resource.”<sup>96</sup>

In the June 9 Order, the Commission found the definition of Capacity Performance Quantifiable Risk “may be insufficiently narrow to permit resources to include quantifiable and reasonably-supported risks in their Avoidable Cost Rate” and held that “the ability to submit risk premiums should be afforded to Base Capacity Resources as well.”<sup>97</sup> Accordingly, the Commission generally accepted PJM’s proposal to include a risk premium in the ACR formula, but directed PJM to “clarify that both Capacity Performance Resources and Base Capacity Resources will be permitted to include quantifiable and reasonably-supported risks in their Avoidable Cost Rate.”<sup>98</sup>

b. Compliance Tariff Revisions.

PJM is revising its offer cap rules such that the Capacity Performance Quantifiable Risk “consists of the quantifiable and reasonably-supported costs of mitigating the risks of non-performance associated with submission of a Capacity Performance Resource offer (or of a Base Capacity Resource offer for the 2018/19 or 2019/20 Delivery Years), such as insurance expenses associated with resource non-performance risks.”<sup>99</sup> To further address the Commission’s concern that the risk premium proposal in the December 12 Filing was “insufficiently narrow,” PJM is incorporating language substantially similar to that PJM supported in its February 13 Answer<sup>100</sup> that eliminates any ambiguity about whether a risk premium is “reasonably supported,” i.e.,

CPQR shall be considered reasonably supported if it is based on actuarial practices generally used by the industry to model or value risk and if it is based on actuarial practices used by the Capacity Market Seller to model or value risk in other aspects of the Capacity Market Seller’s business. Such reasonable support shall also include an officer certification that the modeling and valuation of the CPQR was developed in accord with such practices.

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<sup>96</sup> December 12 Filing at 57-58; proposed Tariff, Attachment DD, section 6.8.

<sup>97</sup> June 9 Order at P 353.

<sup>98</sup> *Id.*

<sup>99</sup> Proposed Tariff, Attachment DD, section 6.8.

<sup>100</sup> February 13 Answer at 88-90 (citing Motion to Submit Reply Comments and Reply Comments of Exelon Corporation, Docket No. ER15-623-000, at 30 (Feb. 4, 2015)).

Provision of such reasonable support shall be sufficient to establish the CPQR.

With these changes, the Capacity Performance Quantifiable Risk ACR component is available to both Capacity Performance and Base Capacity Resources, and allows sellers to include “quantifiable and reasonably-supported risks in their Avoidable Cost Rate.”

3. When Planned Generation Becomes Existing Generation.

a. Commission Directive.

In the December 12 Filing, PJM proposed, by amending the relevant “Planned” and “Existing” Generation Capacity Resource definitions, to exempt Planned Generation Capacity Resources from the capacity market must-offer requirement until such resources go into service.<sup>101</sup> In the June 9 Order, the Commission rejected this aspect of the December 12 Filing, based on concerns that a seller of a Planned Generation Capacity Resource could effectively withhold capacity (by deterring a new entrant from taking its place, but not entering service on the timeline contemplated at the time of the BRA). Accordingly, the Commission directed PJM to “remove the revisions proposed in RAA Article 1, Definition 1.20B Existing Generation Capacity Resource; RAA Definitions 1.69 and 1.70; and PJM OATT at Attachment DD, section 6.5” that implemented this change.<sup>102</sup>

b. Compliance Tariff and RAA Revisions.

As directed, PJM is removing the revisions proposed in RAA Article 1, Definition 1.20B Existing Generation Capacity Resource; RAA Definitions 1.69 and 1.70 that would have exempted Planned Generation Capacity Resources from the capacity market must-offer requirement until the project enters service.<sup>103</sup>

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<sup>101</sup> December 12 Filing at 78-81.

<sup>102</sup> June 9 Order at P 356.

<sup>103</sup> While the December 12 Filing discussed changes to section 6.5 of Attachment DD to remove language that would be mooted by PJM’s proposed changes to the definitions of Existing Generation Capacity Resource and Planned Generation Capacity Resource, the December 12 Filing did not include any changes to section 6.5. Thus, there are no revisions to section 6.5 to remove on compliance with the June 9 Order.

**E. Credit Requirements.**

1. Credit Rates for Locational Deliverability Areas.

a. Commission Directive.

PJM's pre-existing Tariff requires that certain Capacity Resources post financial credit in direct relation to the megawatt quantity to be provided as capacity. Specifically, the Tariff requires a Capacity Market Seller of such Capacity Resources to post credit ahead of an RPM Auction equal to the product of the megawatts to be offered times an "RPM Auction Credit Rate," which is determined (for credit posted before the BRA) using the Net CONE for the PJM Region for the relevant Delivery Year.<sup>104</sup> Following an RPM Auction, a seller whose offer cleared must post credit equal to the product of the megawatts cleared times an RPM Auction Credit Rate determined using the auction clearing price for the LDA in which the resource is located.

In the December 12 Filing, PJM revised the RPM Auction Credit Rate to provide for a higher credit requirement for certain Capacity Performance Resources, commensurate with the increased cost exposure faced by those resources.<sup>105</sup> PJM did not revise the use of Net CONE for the PJM Region in determining the applicable RPM Auction Credit Rate for those Capacity Performance Resources required to post credit. In response to comments on the December 12 Filing, PJM stated in its February 13 Answer that the applicable RPM Auction Credit Rate should be modified to utilize the Net CONE for the LDA in which the resource is located, where applicable, rather than the Net CONE for the PJM Region.<sup>106</sup> PJM stated that it will make this change in a compliance filing, subject to the Commission directing such change. In the June 9 Order, the Commission agreed and directed PJM to make this change.<sup>107</sup>

b. Compliance Tariff Revisions.

PJM is revising section IV.D of Attachment Q of the Tariff so that the applicable RPM Auction Credit Rate for Capacity Performance Resources will be determined using the Net CONE employed to establish the VRR Curve for the LDA in which the resource is located. Given that separate Variable Resource Requirement ("VRR") Curves are established only for those LDAs that meet specific criteria<sup>108</sup> and thus not all LDAs are separately modeled, PJM is retaining use of Net CONE for the PJM Region to determine

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<sup>104</sup> See Tariff, Attachment Q, section IV.D.a.

<sup>105</sup> See December 12 Filing at 71-75.

<sup>106</sup> February 13 Answer at 95 n.173.

<sup>107</sup> June 9 Order at P 383.

<sup>108</sup> See Tariff, Attachment DD, section 5.10(a)(ii) (setting forth criteria for when separate VRR Curves should be established).

the credit rate for those Capacity Performance Resources that are external to PJM or located in an LDA that is not separately modeled.<sup>109</sup> Such Net CONE values are posted before each RPM Auction<sup>110</sup> and therefore sellers are on notice of all inputs for determining their credit requirement. PJM's compliance revisions reasonably match the Net CONE used to determine a planned Capacity Performance Resource's credit requirement with such resource's penalty exposure, by using the same Net CONE value for determining credit requirements and any Non-Performance Charges.

2. Planned Generation Milestones for Credit Reductions.

a. Commission Directive.

PJM's pre-existing Tariff allows sellers of planned generation resources to reduce their posted credit requirement as certain milestones are met. Specifically, for Planned Generation Capacity Resources, the credit requirement may be reduced by 50 percent as of the effective date of an Interconnection Service Agreement ("ISA") and may be reduced to zero upon the commencement of Interconnection Service, which signifies that the resource is in service.<sup>111</sup> For Planned Generation Capacity Resources located outside the PJM Region (i.e., external resources) to obtain a 50 percent reduction in credit requirement, the seller must have, in addition to the equivalent of an effective ISA, secured at least 50 percent of the required firm transmission service to the PJM border, and similarly, to be relieved of its credit requirement entirely, a seller of such external resource must have secured 100 percent of the required firm transmission service and must have commenced the equivalent of Interconnection Service.<sup>112</sup>

In its February 13 Answer, PJM expressed agreement with a proposal by Panda Power Funds ("Panda") to allow for increased opportunities for a Planned Generation Capacity Resource to reduce its credit requirement when it achieves specific project milestones, as certified by an independent engineer.<sup>113</sup> PJM also saw merit in Panda's proposal to, for the 2015 BRA, reduce the initial credit requirement for financed resources, which are Planned Generation Capacity Resources that already have an effective ISA and "are fully financed prior to the 2015 BRA,"<sup>114</sup> and to allow a financed resource to reduce further its credit requirement as it achieves specific project milestones

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<sup>109</sup> The portions of PJM for which an LDA is not separately modeled is sometimes referred to as the "Rest of PJM" or "Rest of RTO."

<sup>110</sup> See Tariff, Attachment DD, section 5.11 (Posting of Information Relevant to the RPM Auctions).

<sup>111</sup> See Tariff, Attachment Q, section IV.C.c.

<sup>112</sup> See Tariff, Attachment Q, section IV.C.d.

<sup>113</sup> See February 13 Answer at 100-101 (discussing Panda's February 5, 2015 answer ("Panda February 5 Answer")).

<sup>114</sup> See February 13 Answer at 100 (quoting Panda February 5 Answer at 2).

as certified by an independent engineer. PJM offered, subject to a Commission compliance directive, to incorporate into its Tariff such milestone-based credit reductions for both financed resources and other Planned Generation Capacity Resources.<sup>115</sup>

In the June 9 Order, the Commission found that “PJM’s proposal fails to recognize changes in the risk a market seller faces as it transitions through various stages of development towards commercial operation,” and thus, the Commission accepted the Capacity Performance Filing “subject to the condition that PJM modify the proposed credit requirements for planned resources and financed resources, in accordance with Panda’s suggestions, to allow the security requirement to be reduced as the project nears a timely in-service date.”<sup>116</sup>

b. Compliance Tariff Revisions.

As directed by the June 9 Order, PJM is revising the RPM credit rules to implement Panda’s suggestions and allow for additional reductions in the credit requirement for Planned Generation Capacity Resources, both internal and external, as certain development milestones are met. This includes special credit rules for two newly-defined types of financed resources – Planned Financed Generation Capacity Resources and Planned External Financed Generation Capacity Resources – that (1) provide for a lower initial credit requirement for such resources than for other Planned Generation Capacity Resources, (2) generally allow for the same credit reduction opportunities as for other Planned Generation Capacity Resources, and (3) apply only for the 2015 BRA.

i. Planned Generation Capacity Resources

In accordance with the June 9 Order and consistent with Panda’s proposal, PJM is revising its credit provisions to allow sellers of Planned Generation Capacity Resources to incrementally reduce their credit obligation as certain project development milestones are met and the project advances towards in-service. In particular, PJM is offering an incremental reduction in credit for the achievement of three additional developmental milestones between effectiveness of an ISA and commencement of Interconnection Service – Financial Close; Full Notice to Proceed and Commencement of Construction (e.g., footers poured); and Main Power Generating Equipment Delivered.

Thus, a Planned Generation Capacity Resource’s credit requirement will be reduced incrementally for completion of each of these milestones as illustrated in the following table.

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<sup>115</sup> See February 13 Answer at 100-101.

<sup>116</sup> June 9 Order at P 382.

<b>Credit Reduction Milestones for Planned Generation Capacity Resources</b>	
<b>Milestones</b>	<b>Increment of reduction from initial RPM Auction Credit Requirement</b>
Effective Date of Interconnection Service Agreement	50%
Financial Close	15%
Full Notice to Proceed and Commencement of Construction (e.g., footers poured)	5%
Main Power Generating Equipment Delivered	5%
Commencement of Interconnection Service	25%

The increment of reduction for each milestone is consistent with the pre-existing Tariff’s requirement of 50 percent reduction for an effective ISA and zero credit requirement after entering service. These credit reductions also reasonably reflect a project’s progress and attendant reduction in risk of default on its capacity obligation. In addition, these milestones and associated incremental reductions are consistent with those suggested by Panda.<sup>117</sup>

While Panda’s pleading described the reductions in terms of percentage of initial RPM Auction Credit Requirement that the resource must maintain,<sup>118</sup> such an approach implicitly requires development milestones to be achieved in a certain order, even though that may not always be the case. For example, an internally funded resource may achieve Financial Close before it has an effective ISA, but under Panda’s approach may not be eligible for a reduction in credit until such resource has an effective ISA. However, resources should be rewarded for achieving any prescribed development milestone regardless of the order in which it was reached. Although the two approaches are fundamentally equivalent, the latter approach recognizes that not every resource will be developed in the same progression. Thus, PJM is revising its credit rules to ensure that achievement of each milestone is independently recognized by assigning an increment of reduction from the initial RPM Auction Credit Requirement, which reductions are derived from the step-down percentages suggested by Panda.<sup>119</sup>

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<sup>117</sup> Panda February 5 Answer at 15-16.

<sup>118</sup> *Id.* at 16.

<sup>119</sup> *Id.* For example, Panda suggested that a non-financed planned resource that achieves Financial Close be required to maintain 35 percent of its initial credit requirement and that achievement of Full Notice to Proceed and Commencement of Construction would reduce the credit level to 30 percent, i.e., a difference of 5 percent. PJM is therefore proposing that a resource that achieves Full Notice to Proceed and Commencement of Construction obtain a 5 percent reduction in its credit requirement. *See id.*



To obtain a reduction to its credit requirement for meeting a development milestone, a resource must, as suggested by Panda,<sup>120</sup> submit to PJM a sworn, notarized certification of a duly authorized independent engineer, certifying that the engineer has personal knowledge of, or has conducted a diligent inquiry to determine, that the project has achieved the asserted milestone. The engineer must also certify that, “based on its review of the relevant project information, the independent engineer is not aware of any information that could reasonably cause it to believe that the Capacity Resource will not be in-service by the beginning of the applicable Delivery Year.”<sup>121</sup> The Capacity Market Seller must also, if requested by PJM, “supply to PJM on a confidential basis all records and documents relating to the independent engineer’s certification.”<sup>122</sup>

Consistent with Panda’s proposal,<sup>123</sup> PJM is defining “Financial Close” to mean that a seller has executed all material contracts and/or other documents necessary to “(1) authorize construction of the project and (2) establish the necessary funding for the project under the control of an independent third-party entity.”<sup>124</sup> Although Panda did not explicitly discuss projects that are internally financed, Panda’s suggestion did recognize that possibility,<sup>125</sup> and the same credit reductions and milestones should apply whether a project is project-financed or internally financed. Accordingly, PJM’s proposed Tariff revisions explicitly recognize internally funded projects. PJM likewise is defining Financial Close to add that, “[f]or resources that do not have external financing, Financial Close shall mean the project has full funding available, and that the project has been duly authorized to proceed with full construction” by the funding company. Additionally, PJM is defining Full Notice to Proceed as when “all material third party contractors have been given the notice to proceed with construction by the Capacity Market Seller or its agent, with a guaranteed completion date backed by liquidated damages.”<sup>126</sup>

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<sup>120</sup> Panda February 5 Answer at 13-14.

<sup>121</sup> Proposed Tariff, Attachment Q, section IV.C.c.

<sup>122</sup> *Id.*

<sup>123</sup> Panda February 5 Answer at 9.

<sup>124</sup> Proposed Tariff, Attachment Q, section IX, Financial Close.

<sup>125</sup> *See* Panda February 5 Answer at 13 (asserting that a project may be financed if “full funding for the project is available”).

<sup>126</sup> *See* proposed Tariff, Attachment Q, section IX, Financial Close. Given the generally self-evident nature of the other milestones, the Effective Date of the ISA, Commencement of Construction, Main Power Generating Equipment Delivered, and Commencement of Interconnection Service do not need to be defined in the Tariff, but will be defined in the PJM Manuals, as indicated in the revised Tariff. *See, e.g.*, proposed Attachment Q, section IV.C.c (“[T]he RPM Credit Requirement shall be reduced as the Capacity Resource attains the

Because a Planned External Generation Capacity Resource must also have secured sufficient firm transmission service to meet its capacity obligations, such resource's cumulative amount of credit reduction must also be tied to the quantity of firm transmission service obtained. For example, for a Planned External Generation Capacity Resource that has achieved the "Main Power Generating Equipment Delivered" milestone to obtain the incremental 5 percent reduction in credit to an amount equal to 25 percent of its initial credit requirement (assuming achievement of all milestones except Commencement of Interconnection Service), such resource must also demonstrate that it has secured 75 percent of the necessary firm transmission service.<sup>127</sup> Thus, PJM is revising its Tariff to provide that the amount of credit that must be maintained by a planned external resource should have an inverse relationship to the amount of firm transmission service secured.<sup>128</sup> This is consistent with the pre-existing Tariff's requirement that a Planned External Generation Capacity Resource must have an effective ISA, *and* attain the milestone of 50 percent of the necessary firm transmission service before a 50 percent reduction in credit requirement is available and must be placed in service *and* have 100 percent of the required transmission service before the credit requirement is eliminated.<sup>129</sup>

ii. Financed Resources

PJM is revising its Tariff to include special credit rules for resources that have secured financing or have full funding available prior to the start of the 2015 BRA by setting forth credit requirements for two new resource types: Planned Financed Generation Capacity Resource and Planned External Financed Generation Capacity Resource. These resources are a subset of Planned Generation Capacity Resources or Planned External Generation Capacity Resources, respectively. To qualify for this category, a planned generation capacity resource must have (1) an effective ISA in hand and (2) achieved Financial Close by August 7, 2015, i.e., the last business day before the

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milestones stated in the following table and as further described in the PJM Manuals.”).

<sup>127</sup> Likewise, to obtain a reduction in credit for Financial Close to 35 percent of the initial requirement, a planned external resource must have secured 65 percent of the necessary firm transmission service.

<sup>128</sup> Specifically, the revised Tariff provides that “the total percentage reduction in the RPM Auction Credit Requirement shall be no greater than the quotient of (a) the MWs of firm transmission service that the Capacity Market Seller has secured for the complete transmission path divided by (b) the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.” Proposed Tariff, Attachment Q, section IV.C.d.

<sup>129</sup> Proposed Tariff, Attachment Q, section IV.C.d.

2015 BRA opens on August 10, 2015.<sup>130</sup> In addition, a Planned External Generation Capacity Resource must also have secured at least 50 percent of the required firm transmission service to meet the deliverability requirements under the RAA.<sup>131</sup>

Given that financed resources have already achieved two of the development milestones at which a planned generation resource may reduce its credit — effective ISA and Financial Close — the initial credit requirement for Planned Financed Generation Capacity Resources and Planned External Financed Generation Capacity Resources is 50 percent that of a comparably sized and located planned generation resource.<sup>132</sup> Stated another way, a Planned Financed Generation Capacity Resource's and Planned External Financed Generation Capacity Resource's initial RPM Credit Requirement is equal to half of the product of the RPM Auction Credit Rate times the megawatts offered.

Although starting from a lower initial credit requirement, the credit rules applicable to such financed resources generally mirror the revised rules for Planned Generation Capacity Resources and Planned External Generation Capacity Resources, including demonstration of milestone achievement through a sworn, notarized certification by a duly authorized independent engineer.<sup>133</sup> While achievement of the same development milestones allows for a reduction in the credit requirement for financed resources, as suggested by Panda,<sup>134</sup> PJM is separating the Full Notice to Proceed and Commencement of Construction (e.g., footers poured) into distinct milestones for which an incremental reduction in credit is available.<sup>135</sup> The credit requirement for Planned Financed Generation Capacity Resources and Planned External Financed Generation Capacity Resources may be reduced in accordance with the table below.

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<sup>130</sup> Proposed Tariff, Attachment Q, section IX, Planned Financed Generation Capacity Resource & Planned External Financed Generation Capacity Resource.

<sup>131</sup> Proposed Tariff, Attachment Q, section IX, Planned External Financed Generation Capacity Resource.

<sup>132</sup> See proposed Tariff, Attachment Q, IV.B.

<sup>133</sup> Proposed Tariff, Attachment Q, sections IV.C.e & f.

<sup>134</sup> Panda February 5 Answer at 13.

<sup>135</sup> Proposed Tariff, Attachment Q, section IV.C.e.

<b>Credit Reduction Milestones for Planned Financed Generation Capacity Resources and Planned External Financed Generation Capacity Resources</b>	
<b>Milestones</b>	<b>Increment of reduction from initial RPM Auction Credit Requirement that must be maintained</b>
Full Notice to Proceed	50%
Commencement of Construction (e.g., footers poured)	15%
Main Power Generating Equipment Delivered	10%
Commencement of Interconnection Service	25%

Additionally, for a Planned External Financed Generation Capacity Resource to obtain a credit reduction, the resource must also have secured a quantity of firm transmission service corresponding with the level of reduction from the initial credit requirement. However, the determination of the amount of firm transmission service required for an external financed resource to obtain a credit reduction is not as straightforward as it is for all other Planned External Generation Capacity Resources, given that the initial credit requirement for a Planned External Financed Generation Capacity Resource is half of that for a comparable Planned External Generation Capacity Resource. Thus, to be consistent as between the types of planned external resources, the firm transmission service milestones for external financed resources must reflect the initial 50 percent reduction afforded to financed resources in determining the quantity of firm transmission service needed to obtain an additional reduction in credit. Accordingly, applying the principle that the amount of credit required should have an inverse relationship to the amount of firm transmission service secured the Tariff will state that:

the total percentage reduction in the RPM Auction Credit Requirement [for a Planned External Financed Generation Capacity Resource], including the initial 50% reduction for being a Planned External Financed Generation Resource, shall be no greater than the quotient of (a) the MWs of firm transmission service that the Capacity Market Seller has secured for the complete transmission path divided by (b) the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.<sup>136</sup>

Recognizing the initial reduction recognized for Planned External Financed Generation Resources ensures that the amount of firm transmission service required and the dollar amount of credit maintain their proper relationship.

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<sup>136</sup> Proposed Tariff, Attachment Q, section IV.C.f.

Finally, and as proposed by Panda, PJM is limiting the special credit rules for financed resources to those resources that have closed on their finances prior to the 2015 BRA for the 2018/2019 Delivery Year, given that such rules “specifically address an inadvertent problem resulting from PJM’s proposed changes to the credit support requirements.”<sup>137</sup> Thus, Financed Resources must have achieved Financial Close, and must have submitted a certification of such achievement to PJM, by August 7, 2015, the last business day prior to commencement of the 2015 BRA for the 2018/2019 Delivery Year. As Panda explained, the genesis for needing special rules for financed resource is that the planned resources that completed financing under the pre-existing (and much lower) credit requirements have become “inadvertently ‘trap[ped]’” by the “vastly increased” credit requirements associated with offering as a Capacity Performance Resource for the 2015 BRA and the desire to offer as a Capacity Performance Resource.<sup>138</sup> Recognizing that financed resources had no opportunity to account for the increased security requirements when obtaining financing, PJM is reasonably limiting these special credit rules only for those resources that have completed financing, or are fully funded, before the start of the 2015 BRA.

#### **F. Removal of Proposed Capacity Obligation Allocation Revisions.**

##### **1. Commission Directive.**

In the December 12 Filing, PJM proposed reforms to its allocation of capacity obligations among LSEs in Schedule 8 of the RAA to expand the data set used to determine such allocations from the most recent summer peak load to also include the highest winter peak hour and Performance Assessment Hours. PJM explained that, while it was proposing no change to the actual capacity allocation methodology, the broadened data set would better match the benefits provided with the costs incurred by LSEs.<sup>139</sup> However, in the February 13 Answer, PJM recognized that modifying the capacity allocation is significant, and not essential to the other elements of the Capacity Performance Filing.<sup>140</sup> Accordingly, PJM asked the Commission to defer action on this change so that PJM may engage with its stakeholders and perhaps file a new proposal with the Commission at a later date. In the June 9 Order, the Commission conditioned acceptance of PJM’s Capacity Performance Filing “on removal of this element” and stated that “PJM may, at its election, make a separate filing with the Commission addressing this matter.”<sup>141</sup>

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<sup>137</sup> Panda February 5 Answer at 14.

<sup>138</sup> Panda February 5 Answer at 2-3.

<sup>139</sup> See December 12 Filing at 62-66; proposed RAA, Schedule 8.

<sup>140</sup> See February 13 Answer at 91-92.

<sup>141</sup> June 9 Order at P 23 n.27.

## 2. Compliance RAA Revisions.

In accordance with the June 9 Order, PJM is removing all changes to RAA Schedule 8 (for RPM generally) and Schedule 8.1 (for FRR Entities) that were proposed in the December 12 Filing to revise the capacity obligation allocation calculation.<sup>142</sup> While PJM is restoring the pre-existing capacity allocation methodology, PJM is revising an input in such approach to account for the Commission's acceptance of the elimination of the Short-Term Resource Procurement Target ("STRPT") at the start of the 2018/2019 Delivery Year.<sup>143</sup> Specifically, PJM is removing the STRPT from the calculation of the Base Zonal Unforced Capacity Obligation for the 2018/2019 Delivery Year and subsequent Delivery Years.<sup>144</sup>

### **III. Description of Submittal and Effective Date**

Along with this transmittal letter, PJM submits electronic versions of the revisions to the Tariff and RAA in both marked and clean forms. The enclosed revised sections have an effective date of April 1, 2015, i.e., the effective date of the tariff changes accepted in the June 9 Order.

### **IV. 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. In accordance with the Commission's regulations,<sup>145</sup> PJM will post a copy of this filing to the FERC filings section of its internet site, located at the following link: <http://www.pjm.com/documents/ferc-manuals.aspx> with a specific link to the newly-filed document, and will send an e-mail on the same date as this filing to all PJM Members and all state utility regulatory commissions in the PJM Region<sup>146</sup> alerting them that this filing has been made by PJM today and is available by following such link. PJM also is serving all persons on the service list for Docket No. ER15-623-000.

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<sup>142</sup> See proposed RAA Schedule 8; and proposed RAA, Schedule 8.1, sections D.3 and F.

<sup>143</sup> See June 9 Order at PP 394-399.

<sup>144</sup> See proposed RAA, Schedule 8, section B.

<sup>145</sup> See 18 C.F.R §§ 35.2(e) and 385.2010(f)(3).

<sup>146</sup> PJM already maintains, updates, and regularly uses e-mail lists for all PJM members and affected commissions.

**V. Conclusion**

Accordingly, PJM respectfully requests that the Commission accept the enclosed Tariff and RAA revisions as PJM's compliance with the June 9 Order, effective as proposed.

Respectfully submitted,

/s/ Paul M. Flynn

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**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C., this 9th day of July, 2015.

/s/ Paul M. Flynn  
Paul M. Flynn

Attorney for  
PJM Interconnection, L.L.C.



# Attachment A

## Revisions to the PJM Open Access Transmission Tariff and PJM Reliability Assurance Agreement

(Marked / Redline Format)

Section(s) of the  
PJM Open Access Transmission Tariff  
(Marked / Redline Format)

## **ATTACHMENT Q**

### **PJM CREDIT POLICY**

#### **POLICY STATEMENT:**

It is the policy of PJM Interconnection, LLC (“PJM”) that prior to an entity participating in the PJM Markets, or in order to take Transmission Service, the entity must demonstrate its ability to meet PJMSettlement’s credit requirements.

Prior to becoming a Market Participant, Transmission Customer, and/or Member of PJM, PJMSettlement must accept and approve a Credit Application (including Credit Agreement) from such entity and establish a Working Credit Limit with PJMSettlement. PJMSettlement shall approve or deny an accepted Credit Application on the basis of a complete credit evaluation including, but not be limited to, a review of financial statements, rating agency reports, and other pertinent indicators of credit strength.

#### **POLICY INTENT:**

This credit policy describes requirements for: (1) the establishment and maintenance of credit by Market Participants, Transmission Customers, and entities seeking either such status (collectively “Participants”), pursuant to one or more of the Agreements, and (2) forms of security that will be deemed acceptable (hereinafter the “Financial Security”) in the event that the Participant does not satisfy the financial or other requirements to establish Unsecured Credit.

This policy also sets forth the credit limitations that will be imposed on Participants in order to minimize the possibility of failure of payment for services rendered pursuant to the Agreements, and conditions that will be considered an event of default pursuant to this policy and the Agreements.

These credit rules may establish certain set-asides of credit for designated purposes (such as for FTR or RPM activity). Such set-asides shall be construed to be applicable to calculation of credit requirements only, and shall not restrict PJMSettlement’s ability to apply such designated credit to any obligation(s) in case of a default.

PJMSettlement may post on PJM's web site, and may reference on OASIS, a supplementary document which contains additional business practices (such as algorithms for credit scoring) that are not included in this document. Changes to the supplementary document will be subject to stakeholder review and comment prior to implementation. PJMSettlement may specify a required compliance date, not less than 15 days from notification, by which time all Participants must comply with provisions that have been revised in the supplementary document.

#### **APPLICABILITY:**

This policy applies to all Participants.

## **IMPLEMENTATION:**

### **I. CREDIT EVALUATION**

Each Participant will be subject to a complete credit evaluation in order for PJMSettlement to determine creditworthiness and to establish an **Unsecured Credit Allowance**, if applicable; provided, however, that a Participant need not provide the information specified in section I.A or I.B if it notifies PJMSettlement in writing that it does not seek any Unsecured Credit Allowance. PJMSettlement will identify any necessary Financial Security requirements and establish a Working Credit Limit for each Participant. In addition, PJMSettlement will perform follow-up credit evaluations on at least an annual basis.

If a **Corporate Guaranty** is being utilized to establish credit for a Participant, the guarantor will be evaluated and the Unsecured Credit Allowance or Financial Security requirement will be based on the financial strength of the Guarantor.

PJMSettlement will provide a Participant, upon request, with a written explanation for any change in credit levels or collateral requirements. PJMSettlement will provide such explanation within ten Business Days.

If a Participant believes that either its level of unsecured credit or its collateral requirement has been incorrectly determined, according to this credit policy, then the Participant may send a request for reconsideration in writing to PJMSettlement. Such a request should include:

- A citation to the applicable section(s) of the PJMSettlement credit policy along with an explanation of how the respective provisions of the credit policy were not carried out in the determination as made
- A calculation of what the Participant believes should be the correct credit level or collateral requirement, according to terms of the credit policy

PJMSettlement will reconsider the determination and will provide a written response as promptly as practical, but no longer than ten Business Days of receipt of the request. If the Participant still feels that the determination is incorrect, then the Participant may contest that determination. Such contest should be in written form, addressed to PJMSettlement, and should contain:

- ◆ A complete copy of the Participant's earlier request for reconsideration, including citations and calculations
- ◆ A copy of PJMSettlement's written response to its request for reconsideration
- ◆ An explanation of why it believes that the determination still does not comply with the credit policy

PJMSettlement will investigate and will respond to the Participant with a final determination on the matter as promptly as practical, but no longer than 20 Business Days.

Neither requesting reconsideration nor contesting the determination following such request shall relieve or delay Participant's responsibility to comply with all provisions of this credit policy.

#### **A. Initial Credit Evaluation**

In completing the initial credit evaluation, PJMSettlement will consider:

##### **1) Rating Agency Reports**

In evaluating credit strength, PJMSettlement will review rating agency reports from Standard & Poor's, Moody's Investors Service, Fitch Ratings, or other nationally known rating agencies. The focus of the review will be on senior unsecured debt ratings; however, PJMSettlement will consider other ratings if senior unsecured debt ratings are not available.

##### **2) Financial Statements and Related Information**

Each Participant must submit with its application audited financial statements for the most recent fiscal quarter, as well as the most recent three fiscal years, or the period of existence of the Participant, if shorter. All financial and related information considered for a Credit Score must be audited by an outside entity, and must be accompanied by an unqualified audit letter acceptable to PJMSettlement.

The information should include, but not be limited to, the following:

- a. If publicly traded:
  - i. Annual and quarterly reports on Form 10-K and Form 10-Q, respectively.
  - ii. Form 8-K reports disclosing Material changes, if any.
- b. If privately held:
  - i. Management's Discussion & Analysis
  - ii. Report of Independent Accountants
  - iii. Financial Statements, including:
    - Balance Sheet
    - Income Statement
    - Statement of Cash Flows
    - Statement of Stockholder's Equity
  - iv. Notes to Financial Statements

If the above information is available on the Internet, the Participant may provide a letter stating where such statements may be located and retrieved by PJMSettlement. For certain Participants, some of the above financial submittals may not be applicable, and alternate requirements may be specified by PJMSettlement.

In its credit evaluation of Cooperatives and Municipalities, PJMSettlement may request additional information as part of the overall financial review process and may also consider qualitative factors in determining financial strength and creditworthiness.

### **3) References**

PJMSettlement may request Participants to provide with their applications at least one (1) bank and three (3) utility credit references. In the case where a Participant does not have the required utility references, trade payable vendor references may be substituted.

### **4) Litigation, Commitments and Contingencies**

Each Participant is also required to provide with its application information as to any known Material litigation, commitments or contingencies as well as any prior bankruptcy declarations or Material defalcations by the Participant or its predecessors, subsidiaries or Affiliates, if any. These disclosures shall be made upon application, upon initiation or change, and at least annually thereafter, or as requested by PJMSettlement.

### **5) Other Disclosures**

Each Participant is required to disclose any Affiliates that are currently Members of PJMSettlement or are applying for membership with PJMSettlement. Each Participant is also required to disclose the existence of any ongoing investigations by the Securities and Exchange Commission (“SEC”), Federal Energy Regulatory Commission (“FERC”), Commodity Futures Trading Commission (“CFTC”), or any other governing, regulatory, or standards body. These disclosures shall be made upon application, upon initiation or change, and at least annually thereafter, or as requested by PJMSettlement.

## **B. Ongoing Credit Evaluation**

On at least an annual basis, PJMSettlement will perform follow-up credit evaluations on all Participants. In completing the credit evaluation, PJMSettlement will consider:

### **1) Rating Agency Reports**

In evaluating credit strength, PJMSettlement will review rating agency reports from Standard & Poor’s, Moody’s Investors Service, Fitch Ratings, or other nationally known rating agencies. The focus of the review will be on senior unsecured debt ratings; however, PJMSettlement will consider other ratings if senior unsecured debt ratings are not available.

### **2) Financial Statements and Related Information**

Each Participant must submit audited annual financial statements as soon as they become available and no later than 120 days after fiscal year end. Each Participant is also required to provide PJMSettlement with quarterly financial statements promptly upon their issuance, but no later than 60 days after the end of each quarter. All financial and related information considered

for a Credit Score must be audited by an outside entity, and must be accompanied by an unqualified audit letter acceptable to PJMSettlement. If financial statements are not provided within the timeframe required, the Participant may not be granted an Unsecured Credit Allowance.

The information should include, but not be limited to, the following:

- a. If publicly traded:
  - i. Annual and quarterly reports on Form 10-K and Form 10-Q, respectively.
  - ii. Form 8-K reports disclosing Material changes, if any, immediately upon issuance.
- b. If privately held:
  - i. Management's Discussion & Analysis
  - ii. Report of Independent Accountants
  - iii. Financial Statements, including:
    - Balance Sheet
    - Income Statement
    - Statement of Cash Flows
    - Statement of Stockholder's Equity
  - iv. Notes to Financial Statements

If the above information is available on the Internet, the Participant may provide a letter stating where such statements may be located and retrieved by PJMSettlement. For certain Participants, some of the above financial submittals may not be applicable, and alternate requirements may be specified by PJMSettlement.

In its credit evaluation of Cooperatives and Municipalities, PJMSettlement may request additional information as part of the overall financial review process and may also consider qualitative factors in determining financial strength and creditworthiness.

### **3) Material Changes**

Each Participant is responsible for informing PJMSettlement immediately, in writing, of any Material change in its financial condition. However, PJMSettlement may also independently establish from available information that a Participant has experienced a Material change in its financial condition without regard to whether such Participant has informed PJMSettlement of the same.

For the purpose of this policy, a Material change in financial condition may include, but not be limited to, any of the following:

- a. a downgrade of any debt rating by any rating agency;
- b. being placed on a credit watch with negative implications by any rating agency;
- c. a bankruptcy filing;
- d. insolvency;

- e. a report of a quarterly or annual loss or a decline in earnings of ten percent or more compared to the prior period;
- f. restatement of prior financial statements;
- g. the resignation of key officer(s);
- h. the filing of a lawsuit that could adversely impact any current or future financial results by ten percent or more;
- i. financial default in another organized wholesale electric market futures exchange or clearing house;
- j. revocation of a license or other authority by any Federal or State regulatory agency; where such license or authority is necessary or important to the Participants continued business for example, FERC market-based rate authority, or State license to serve retail load; or
- k. a significant change in credit default spreads, market capitalization, or other market-based risk measurement criteria, such as a recent increase in Moody's KMV Expected Default Frequency (EDF<sup>tm</sup>) that is noticeably greater than the increase in its peers' EDF<sup>tm</sup> rates, or a collateral default swap (CDS) premium normally associated with an entity rated lower than investment grade.

If PJMSettlement determines that a Material change in the financial condition of the Participant has occurred, it may require the Participant to provide Financial Security within two Business Days, in an amount and form approved by PJMSettlement. If the Participant fails to provide the required Financial Security, the Participant shall be in default under this credit policy.

In the event that PJMSettlement determines that a Material change in the financial condition of a Participant warrants a requirement to provide Financial Security, PJMSettlement shall provide the Participant with a written explanation of why such determination was made. However, under no circumstances shall the requirement that a Participant provide the requisite Financial Security be deferred pending the issuance of such written explanation.

#### **4) Litigation, Commitments, and Contingencies**

Each Participant is also required to provide information as to any known Material litigation, commitments or contingencies as well as any prior bankruptcy declarations or Material defalcations by the Participant or its predecessors, subsidiaries or Affiliates, if any. These disclosures shall be made upon initiation or change or as requested by PJMSettlement.

#### **5) Other Disclosures**

Each Participant is required to disclose any Affiliates that are currently Members of PJM or are applying for membership within PJM. Each Participant is also required to disclose the existence of any ongoing investigations by the SEC, FERC, CFTC or any other governing, regulatory, or standards body. These disclosures shall be made upon initiation or change, or as requested by PJMSettlement.

### **C. Corporate Guaranty**



If a Corporate Guaranty is being utilized to establish credit for a Participant, the Guarantor will be evaluated and the Unsecured Credit Allowance or Financial Security requirement will be based on the financial strength of the Guarantor.

An irrevocable and unconditional Corporate Guaranty may be utilized as part of the credit evaluation process, but will not be considered a form of Financial Security. The Corporate Guaranty will be considered a transfer of credit from the Guarantor to the Participant. The Corporate Guaranty must guarantee the (i) full and prompt payment of all amounts payable by the Participant under the Agreements, and (ii) performance by the Participant under this policy.

The Corporate Guaranty should clearly state the identities of the “Guarantor,” “Beneficiary” (PJMSettlement) and “Obligor” (Participant). The Corporate Guaranty must be signed by an officer of the Guarantor, and must demonstrate that it is duly authorized in a manner acceptable to PJMSettlement. Such demonstration may include either a Corporate Seal on the Guaranty itself, or an accompanying executed and sealed Secretary’s Certificate noting that the Guarantor was duly authorized to provide such Corporate Guaranty and that the person signing the Corporate Guaranty is duly authorized, or other manner acceptable to PJMSettlement.

A Participant supplying a Corporate Guaranty must provide the same information regarding the Guarantor as is required in the “Initial Credit Evaluation” §I.A. and the “Ongoing Evaluation” §I.B. of this policy, including providing the Rating Agency Reports, Financial Statements and Related Information, References, Litigation Commitments and Contingencies, and Other Disclosures. A Participant supplying a Foreign or Canadian Guaranty must also satisfy the requirements of §I.C.1 or §I.C.2, as appropriate.

If there is a Material change in the financial condition of the Guarantor or if the Corporate Guaranty comes within 30 days of expiring without renewal, the Participant will be required to provide Financial Security either in the form of a cash deposit or a letter of credit. Failure to provide the required Financial Security within two Business Days after request by PJMSettlement will constitute an event of default under this credit policy. A Participant may request PJMSettlement to perform a credit evaluation in order to determine creditworthiness and to establish an Unsecured Credit Allowance, if applicable. If PJMSettlement determines that a Participant does qualify for a sufficient Unsecured Credit Allowance, then Financial Security will not be required.

The PJMSettlement Credit Application contains an acceptable form of Corporate Guaranty that should be utilized by a Participant choosing to establish its credit with a Corporate Guaranty. If the Corporate Guaranty varies in any way from the PJMSettlement format, it must first be reviewed and approved by PJMSettlement. All costs associated with obtaining and maintaining a Corporate Guaranty and meeting the policy provisions are the responsibility of the Participant.

### **1) Foreign Guaranties**

A Foreign Guaranty is a Corporate Guaranty that is provided by an Affiliate entity that is domiciled in a country other than the United States or Canada. The entity providing a Foreign Guaranty on behalf of a Participant is a Foreign Guarantor. A Participant may provide a Foreign

Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJMSettlement provided that all of the following conditions are met:

PJMSettlement reserves the right to deny, reject, or terminate acceptance of any Foreign Guaranty at any time, including for material adverse circumstances or occurrences.

- a. A Foreign Guaranty:
  - i. Must contain provisions equivalent to those contained in PJMSettlement’s standard form of Foreign Guaranty with any modifications subject to review and approval by PJMSettlement counsel.
  - ii. Must be denominated in US currency.
  - iii. Must be written and executed solely in English, including any duplicate originals.
  - iv. Will not be accepted towards a Participant’s Unsecured Credit Allowance for more than the following limits, depending on the Foreign Guarantor's credit rating:

Rating of Foreign Guarantor	Maximum Accepted Guaranty if Country Rating is AAA	Maximum Accepted Guaranty if Country Rating is AA+
A- and above	USD50,000,000	USD30,000,000
BBB+	USD30,000,000	USD20,000,000
BBB	USD10,000,000	USD10,000,000
BBB- or below	USD 0	USD 0

- v. May not exceed 50% of the Participant’s total credit, if the Foreign Grantor is rated less than BBB+.

- b. A Foreign Guarantor:
  - i. Must satisfy all provisions of the PJM credit policy applicable to domestic Guarantors.
  - ii. Must be an Affiliate of the Participant.
  - iii. Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.
  - iv. Must be rated by at least one Rating Agency acceptable to PJMSettlement; the credit strength of a Foreign Guarantor may not be determined based on an evaluation of its financials without an actual credit rating as well.
  - v. Must have a Senior Unsecured (or equivalent, in PJMSettlement's sole discretion) rating of BBB (one notch above BBB-) or greater by any and all agencies that provide rating coverage of the entity.
  - vi. Must provide financials in GAAP format or other format acceptable to PJMSettlement with clear representation of net worth, intangible assets, and any other information PJMSettlement may require in order to determine the entity’s Unsecured Credit Allowance

- vii. Must provide a Secretary's Certificate certifying the adoption of Corporate Resolutions:
  - 1. Authorizing and approving the Guaranty; and
  - 2. Authorizing the Officers to execute and deliver the Guaranty on behalf of the Guarantor.
- viii. Must be domiciled in a country with a minimum long-term sovereign (or equivalent) rating of AA+/Aa1, with the following conditions:
  - 1. Sovereign ratings must be available from at least two rating agencies acceptable to PJMSettlement (e.g. S&P, Moody's, Fitch, DBRS).
  - 2. Each agency's sovereign rating for the domicile will be considered to be the lowest of: country ceiling, senior unsecured government debt, long-term foreign currency sovereign rating, long-term local currency sovereign rating, or other equivalent measures, at PJMSettlement's sole discretion.
  - 3. Whether ratings are available from two or three agencies, the lowest of the two or three will be used.
- ix. Must be domiciled in a country that recognizes and enforces judgments of US courts.
- x. Must demonstrate financial commitment to activity in the United States as evidenced by one of the following:
  - 1. American Depository Receipts (ADR) are traded on the New York Stock Exchange, American Stock Exchange, or NASDAQ.
  - 2. Equity ownership worth over USD100,000,000 in the wholly-owned or majority owned subsidiaries in the United States.
- xi. Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including this credit policy.
- xii. Must pay for all expenses incurred by PJMSettlement related to reviewing and accepting a foreign guaranty beyond nominal in-house credit and legal review.
- xiii. Must, at its own cost, provide PJMSettlement with independent legal opinion from an attorney/solicitor of PJMSettlement's choosing and licensed to practice law in the United States and/or Guarantor's domicile, in form and substance acceptable to PJMSettlement in its sole discretion, confirming the enforceability of the Foreign Guaranty, the Guarantor's legal authorization to grant the Guaranty, the conformance of the Guaranty, Guarantor, and Guarantor's domicile to all of these requirements, and such other matters as PJMSettlement may require in its sole discretion.

## **2) Canadian Guaranties**

A Canadian Guaranty is a Corporate Guaranty that is provided by an Affiliate entity that is domiciled in Canada and satisfies all of the provisions below. The entity providing a Canadian Guaranty on behalf of a Participant is a Canadian Guarantor. A Participant may provide a Canadian Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJMSettlement provided that all of the following conditions are met.

PJMSettlement reserves the right to deny, reject, or terminate acceptance of any Canadian Guaranty at any time for reasonable cause, including adverse material circumstances.

- a. A Canadian Guaranty:
  - i. Must contain provisions equivalent to those contained in PJMSettlement's standard form of Foreign Guaranty with any modifications subject to review and approval by PJMSettlement counsel.
  - ii. Must be denominated in US currency.
  - iii. Must be written and executed solely in English, including any duplicate originals.
  
- b. A Canadian Guarantor:
  - i. Must satisfy all provisions of the PJM credit policy applicable to domestic Guarantors.
  - ii. Must be an Affiliate of the Participant.
  - iii. Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.
  - iv. Must be rated by at least one Rating Agency acceptable to PJMSettlement; the credit strength of a Canadian Guarantor may not be determined based on an evaluation of its financials without an actual credit rating as well.
  - v. Must provide financials in GAAP format or other format acceptable to PJMSettlement with clear representation of net worth, intangible assets, and any other information PJMSettlement may require in order to determine the entity's Unsecured Credit Allowance.
  
  - vi. Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including this Credit Policy.

## **Ia. MINIMUM PARTICIPATION REQUIREMENTS**

### **A. PJM Market Participation Eligibility Requirements**

To be eligible to transact in PJM Markets, a Market Participant must demonstrate in accordance with the Risk Management and Verification processes set forth below that it qualifies in one of the following ways:

1. an "appropriate person," as that term is defined under Section 4(c)(3), or successor provision, of the Commodity Exchange Act, or;
2. an "eligible contract participant," as that term is defined in Section 1a(18), or successor provision, of the Commodity Exchange Act, or;
3. a business entity or person who is in the business of: (1) generating, transmitting, or distributing electric energy, or (2) providing electric energy services that are necessary to support the reliable operation of the transmission system, or;

4. a Market Participant seeking eligibility as an “appropriate person” providing an unlimited Corporate Guaranty in a form acceptable to PJMSettlement as described in Section I.C of Attachment Q from an issuer that has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty, or;
5. a Market Participant providing a letter of credit of at least \$5 million to PJMSettlement in a form acceptable to PJMSettlement as described in Section VI.B of Attachment Q that the Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJMSettlement.

If, at any time, a Market Participant cannot meet the eligibility requirements set forth above, it shall immediately notify PJMSettlement and immediately cease conducting transactions in the PJM Markets. PJMSettlement shall terminate a Market Participant’s transaction rights in the PJM Markets if, at any time, it becomes aware that the Market Participant does not meet the minimum eligibility requirements set forth above.

In the event that a Market Participant is no longer able to demonstrate it meets the minimum eligibility requirements set forth above, and possesses, obtains or has rights to possess or obtain, any open or forward positions in PJM’s Markets, PJMSettlement may take any such action it deems necessary with respect to such open or forward positions, including, but not limited to, liquidation, transfer, assignment or sale; provided, however, that the Market Participant will, notwithstanding its ineligibility to participate in the PJM Markets, be entitled to any positive market value of those positions, net of any obligations due and owing to PJM and/or PJMSettlement.

## **B. Risk Management and Verification**

All Participants shall provide to PJMSettlement an executed copy of the annual certification set forth in Appendix 1 to this Attachment Q. This certification shall be provided before an entity is eligible to participate in the PJM Markets and shall be initially submitted to PJMSettlement together with the entity’s Credit Application. Thereafter, it shall be submitted each calendar year by all Participants during a period beginning on January 1 and ending April 30, except that new Participants who became eligible to participate in PJM markets during the period of January through April shall not be required to resubmit such certification until the following calendar year. Except for certain FTR Participants (discussed below) or in cases of manifest error, PJMSettlement will accept such certifications as a matter of course and Participants will not need further notice from PJMSettlement before commencing or maintaining their eligibility to participate in PJM markets. A Participant that fails to provide its annual certification by April 30 shall be ineligible to transact in the PJM markets and PJM will disable the Participant’s access to the PJM markets until such time as PJMSettlement receives the Participant’s certification.

Participants acknowledge and understand that the annual certification constitutes a representation upon which PJMSettlement will rely. Such representation is additionally made under the PJM Tariff, filed with and accepted by FERC, and any inaccurate or incomplete statement may subject the Participant to action by FERC. Failure to comply with any of the criteria or

requirements listed herein or in the certification may result in suspension of a Participant's transaction rights in the PJM markets.

Certain FTR Participants (those providing representations found in paragraph 3.b of the annual certification set forth in Appendix 1 to this Attachment Q) are additionally required to submit to PJMSettlement (at the time they make their annual certification) a copy of their current governing risk control policies, procedures and controls applicable to their FTR trading activities, except that if no substantive changes have been made to such policies, practices and/or controls applicable to their FTR trading activities, they may instead submit to PJMSettlement a certification stating that no changes have been made. PJMSettlement will review such documentation to verify that it appears generally to conform to prudent risk management practices for entities trading in FTR-type markets. If principles or best practices relating to risk management in FTR-type markets are published, as may be modified from time to time, by a third-party industry association, such as the Committee of Chief Risk Officers, PJMSettlement may, following stakeholder discussion and with no less than six months prior notice to stakeholders, apply such principles or best practices in determining the fundamental sufficiency of the FTR Participant's risk controls. Those FTR Participants subject to this provision shall make a one-time payment of \$1,000.00 to PJMSettlement to cover costs associated with review and verification. Thereafter, if such FTR Participant's risk policies, procedures and controls applicable to its FTR trading activities change substantively, it shall submit such modified documentation, without charge, to PJMSettlement for review and verification at the time it makes its annual certification. Such FTR Participant's continued eligibility to participate in the PJM FTR markets is conditioned on PJMSettlement notifying such FTR Participant that its annual certification, including the submission of its risk policies, procedures and controls, has been accepted by PJMSettlement. PJMSettlement may retain outside expertise to perform the review and verification function described in this paragraph, however, in all circumstances, PJMSettlement and any third-party it may retain will treat as confidential the documentation provided by an FTR Participant under this paragraph, consistent with the applicable provisions of PJM's Operating Agreement.

An FTR Participant that makes the representation in paragraph 3.a of the annual certification understand that PJMSettlement, given the visibility it has over a Participant's overall market activity in performing billing and settlement functions, may at any time request the FTR Participant provide additional information demonstrating that it is in fact eligible to make the representation in paragraph 3.a of the annual certification. If such additional information is not provided or does not, in PJMSettlement's judgment, demonstrate eligibility to make the representation in paragraph 3.a of the annual certification, PJMSettlement will require the FTR Participant to instead make the representations required in paragraph 3.b of the annual certification, including representing that it has submitted a copy of its current governing risk control policies, procedures and controls applicable to its FTR trading activities. If the FTR Participant cannot or does not make those representations as required in paragraph 3.b of the annual certification, then PJM will terminate the FTR Participant's rights to purchase FTRs in the FTR market and may terminate the FTR Participant's rights to sell FTRs in the PJM FTR market.

PJMSettlement shall also conduct a periodic compliance verification process to review and verify, as applicable, Participants' risk management policies, practices, and procedures pertaining to the Participants' activities in the PJM markets. Such review shall include verification that:

1. The risk management framework is documented in a risk policy addressing market, credit and liquidity risks.
2. The Participant maintains an organizational structure with clearly defined roles and responsibilities that clearly segregates trading and risk management functions.
3. There is clarity of authority specifying the types of transactions into which traders are allowed to enter.
4. The Participant has requirements that traders have adequate training relative to their authority in the systems and PJM markets in which they transact.
5. As appropriate, risk limits are in place to control risk exposures.
6. Reporting is in place to ensure that risks and exceptions are adequately communicated throughout the organization.
7. Processes are in place for qualified independent review of trading activities.
8. As appropriate, there is periodic valuation or mark-to-market of risk positions.

If principles or best practices relating to risk management in PJM-type markets are published, as may be modified from time to time, by a third-party industry association, PJMSettlement may, following stakeholder discussion and with no less than six months prior notice to stakeholders, apply such principles or best practices in determining the sufficiency of the Participant's risk controls. PJMSettlement may select Participants for review on a random basis and/or based on identified risk factors such as, but not limited to, the PJM markets in which the Participant is transacting, the magnitude of the Participant's transactions in the PJM markets, or the volume of the Participant's open positions in the PJM markets. Those Participants notified by PJMSettlement that they have been selected for review shall, upon 14 calendar days notice, provide a copy of their current governing risk control policies, procedures and controls applicable to their PJM market activities and shall also provide such further information or documentation pertaining to the Participants' activities in the PJM markets as PJMSettlement may reasonably request. Participants selected for risk management verification through a random process and satisfactorily verified by PJMSettlement shall be excluded from such verification process based on a random selection for the subsequent two years. PJMSettlement shall annually randomly select for review no more than 20% of the Participants in each member sector.

Each selected Participant's continued eligibility to participate in the PJM markets is conditioned upon PJMSettlement notifying the Participant of successful completion of PJMSettlement's verification of the Participant's risk management policies, practices and procedures, as discussed

herein. However, if PJMSettlement notifies the Participant in writing that it could not successfully complete the verification process, PJMSettlement shall allow such Participant 14 calendar days to provide sufficient evidence for verification prior to declaring the Participant as ineligible to continue to participate in PJM's markets, which declaration shall be in writing with an explanation of why PJMSettlement could not complete the verification. If, prior to the expiration of such 14 calendar days, the Participant demonstrates to PJMSettlement that it has filed with the Federal Energy Regulatory Commission an appeal of PJMSettlement's risk management verification determination, then the Participant shall retain its transaction rights, pending the Commission's determination on the Participant's appeal. PJMSettlement may retain outside expertise to perform the review and verification function described in this paragraph. PJMSettlement and any third party it may retain will treat as confidential the documentation provided by a Participant under this paragraph, consistent with the applicable provisions of the Operating Agreement. If PJMSettlement retains such outside expertise, a Participant may direct in writing that PJMSettlement perform the risk management review and verification for such Participant instead of utilizing a third party, provided however, that employees and contract employees of PJMSettlement and PJM shall not be considered to be such outside expertise or third parties.

Participants are solely responsible for the positions they take and the obligations they assume in PJM markets. PJMSettlement hereby disclaims any and all responsibility to any Participant or PJM Member associated with Participant's submitting or failure to submit its annual certification or PJMSettlement's review and verification of an FTR Participant's risk policies, procedures and controls. Such review and verification is limited to demonstrating basic compliance by an FTR Participant with the representation it makes under paragraph 3.b of its annual certification showing the existence of written policies, procedures and controls to limit its risk in PJM's FTR markets and does not constitute an endorsement of the efficacy of such policies, procedures or controls.

### **C. Capitalization**

In addition to the Annual Certification requirements in Appendix 1 to this Attachment Q, a Participant must demonstrate that it meets the minimum financial requirements appropriate for the PJM market(s) in which it transacts by satisfying either the Minimum Capitalization or the Provision of Collateral requirements listed below:

#### **1. Minimum Capitalization**

FTR Participants must demonstrate a tangible net worth in excess of \$1 million or tangible assets in excess of \$10 million. Other Participants must demonstrate a tangible net worth in excess of \$500,000 or tangible assets in excess of \$5 million.

- a. In either case, consideration of "tangible" assets and net worth shall exclude assets (net of any matching liabilities, assuming the result is a positive value) which PJMSettlement reasonably believes to be restricted, highly risky, or potentially unavailable to settle a claim in the event of default. Examples include, but are not



limited to, restricted assets and Affiliate assets, derivative assets, goodwill, and other intangible assets.

- b. Demonstration of “tangible” assets and net worth may be satisfied through presentation of an acceptable Corporate Guaranty, provided that both:
  - (i) the guarantor is an affiliate company that satisfies the tangible net worth or tangible assets requirements herein, and;
  - (ii) the Corporate Guaranty is either unlimited or at least \$500,000.

If the Corporate Guaranty presented by the Participant to satisfy these Capitalization requirements is limited in value, then the Participant’s resulting Unsecured Credit Allowance shall be the lesser of:

- (1) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Credit Policy, or:
- (2) the face value of the Corporate Guaranty, reduced by \$500,000 and further reduced by 10%. (For example, a \$10.5 million Corporate Guaranty would be reduced first by \$500,000 to \$10 million and then further reduced 10% more to \$9 million. The resulting \$9 million would be the Participant’s Unsecured Credit Allowance available through the Corporate Guaranty).

In the event that a Participant provides collateral in addition to a limited Corporate Guaranty to increase its available credit, the value of such collateral shall be reduced by 10%. This reduced value shall be deemed Financial Security and available to satisfy the requirements of this Credit Policy.

Demonstrations of capitalization must be presented in the form of audited financial statements for the Participant’s most recent fiscal year.

## **2. Provision of Collateral**

If a Participant does not demonstrate compliance with its applicable Minimum Capitalization Requirements above, it may still qualify to participate in PJM’s markets by posting additional collateral, subject to the terms and conditions set forth herein.

Any collateral provided by a Participant unable to satisfy the Minimum Capitalization Requirements above will be restricted in the following manner:

- i. Collateral provided by FTR Participants shall be reduced by \$500,000 and then further reduced by 10%. This reduced amount shall be considered the Financial Security provided by the Participant and available to satisfy requirements of this Credit Policy.
- ii. Collateral provided by other Participants that engage in Virtual Transactions or Export Transactions shall be reduced by \$200,000 and then further reduced by 10%. This reduced value shall be considered Financial Security available to satisfy requirements of this Credit Policy.
- iii. Collateral provided by other Participants that do not engage in Virtual Transactions or Export Transactions shall be reduced by 10%, and this reduced value shall be considered Financial Security available to satisfy requirements of this Credit Policy.

In the event a Participant that satisfies the Minimum Participation Requirements through provision of collateral also provides a Corporate Guaranty to increase its available credit, then the Participant's resulting Unsecured Credit Allowance conveyed through such Guaranty shall be the lesser of:

- (1) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this credit policy, or,
- (2) the face value of the Guaranty, reduced by 10%.

## **II. CREDIT ALLOWANCE AND WORKING CREDIT LIMIT**

PJMSettlement's credit evaluation process will include calculating a Credit Score for each Participant. The credit score will be utilized to determine a Participant's Unsecured Credit Allowance.

Participants who do not qualify for an Unsecured Credit Allowance will be required to provide Financial Security based on their Peak Market Activity, as provided below.

A corresponding Working Credit Limit will be established based on the Unsecured Credit Allowance and/or the Financial Security provided.

Where Participant of PJM are considered Affiliates, Unsecured Credit Allowances and Working Credit Limits will be established for each individual Participant, subject to an aggregate maximum amount for all Affiliates as provided for in §II.F of this policy.

In its credit evaluation of Cooperatives and Municipalities, PJMSettlement may request additional information as part of the overall financial review process and may also consider qualitative factors in determining financial strength and creditworthiness.

## A. Credit Score

For participants with credit ratings, a Credit Score will be assigned based on their senior unsecured credit rating and credit watch status as shown in the table below. If an explicit senior unsecured rating is not available, PJMSettlement may impute an equivalent rating from other ratings that are available. For Participants without a credit rating, but who wish to be considered for unsecured Credit, a Credit Score will be generated from PJMSettlement’s review and analysis of various factors that are predictors of financial strength and creditworthiness. Key factors in the scoring process include, financial ratios, and years in business. PJMSettlement will consistently apply the measures it uses in determining Credit Scores. The credit scoring methodology details are included in a supplementary document available on OASIS.

### Rated Entities Credit Scores

Rating	Score	Score Modifier	
		Credit Watch Negative	Credit Watch Positive
AAA	100	-1.0	0.0
AA+	99	-1.0	0.0
AA	99	-1.0	0.0
AA-	98	-1.0	0.0
A+	97	-1.0	0.0
A	96	-2.0	0.0
A-	93	-3.0	1.0
BBB+	88	-4.0	2.0
BBB	78	-4.0	2.0
BBB-	65	-4.0	2.0
BB+ and below	0	0.0	0.0

## B. Unsecured Credit Allowance

PJMSettlement will determine a Participant’s Unsecured Credit Allowance based on its Credit Score and the parameters in the table below. The maximum Unsecured Credit Allowance is the lower of:

- 1) A percentage of the Participant’s Tangible Net Worth, as stated in the table below, with the percentage based on the Participant’s credit score; and
- 2) A dollar cap based on the credit score, as stated in the table below:

<b>Credit Score</b>	<b>Tangible Net Worth Factor</b>	<b>Maximum Unsecured Credit Allowance</b>  <b>(\$ Million)</b>
91-100	2.125 – 2.50%	\$50
81-90	1.708 – 2.083%	\$42
71-80	1.292 – 1.667%	\$33
61-70	0.875 – 1.25%	\$7
51-60	0.458 – 0.833%	\$0-\$2
50 and Under	0%	\$0

If a Corporate Guaranty is utilized to establish an Unsecured Credit Allowance for a Participant, the value of a Corporate Guaranty will be the lesser of:

- The limit imposed in the Corporate Guaranty;
- The Unsecured Credit Allowance calculated for the Guarantor; and
- A portion of the Unsecured Credit Allowance calculated for the Guarantor in the case of Affiliated Participants.

PJMSettlement has the right at any time to modify any Unsecured Credit Allowance and/or require additional Financial Security as may be deemed reasonably necessary to support current market activity. Failure to pay the required amount of additional Financial Security within two Business Days shall be an event of default.

PJMSettlement will maintain a posting of each Participant’s unsecured Credit Allowance, along with certain other credit related parameters, on the PJM web site in a secure, password-protected location. Such information will be updated at least weekly. Each Participant will be responsible for monitoring such information and recognizing changes that may occur.

### **C. Seller Credit**

Participants that have maintained a Net Sell Position for each of the prior 12 months are eligible for Seller Credit, which is an additional form of Unsecured Credit. A Participant’s Seller Credit will be equal to sixty percent of the Participant’s thirteenth smallest weekly Net Sell Position invoiced in the past 52 weeks.

Each Participant receiving Seller Credit must maintain both its Seller Credit and its Total Net Sell Position equal to or greater than the Participant’s aggregate credit requirements, less any Financial Security or other sources of credit provided.

For Participants receiving Seller Credit, PJMSettlement may forecast the Participant’s Total Net Sell Position considering the Participant’s current Total Net Sell Position, recent trends in the Participant’s Total Net Sell Position, and other information available to PJMSettlement, such as, but not limited to, known generator outages, changes in load responsibility, and bilateral

transactions impacting the Participant. If PJMSettlement's forecast ever indicates that the Participant's Total Net Sell Position may in the future be less than the Participant's aggregate credit requirements, less any Financial Security or other sources of credit provided, then PJMSettlement may require Financial Security as needed to cover the difference. Failure to pay the required amount of additional Financial Security within two Business Days shall be an event of default.

Any Financial Security required by PJMSettlement pursuant to these provisions for Seller Credit will be returned once the requirement for such Financial Security has ended. Seller Credit may not be conveyed to another entity through use of a guaranty. Seller Credit shall be subject to the cap on available Unsecured Credit set forth in Section II.F.

#### **D. Peak Market Activity and Financial Security Requirement**

A PJM Participant or Applicant that has an insufficient Unsecured Credit Allowance to satisfy its Peak Market Activity will be required to provide Financial Security such that its Unsecured Credit Allowance and Financial Security together are equal to its Peak Market Activity in order to secure its transactional activity in the PJM Market.

Peak Market Activity for Participants will be determined semi-annually beginning in the first complete billing week in the months of April and October. Peak Market Activity shall be the greater of the initial Peak Market Activity, as explained below, or the greatest amount invoiced for the Participant's transaction activity for all PJM markets and services in any rolling one, two, or three week period, ending within a respective semi-annual period. However, Peak Market Activity shall not exceed the greatest amount invoiced for the Participant's transaction activity for all PJM markets and services in any rolling one, two or three week period in the prior 52 weeks.

Peak Market Activity shall exclude FTR Net Activity, Virtual Transactions Net Activity, and Export Transactions Net Activity.

The initial Peak Market Activity for Applicants will be determined by PJMSettlement based on a review of an estimate of their transactional activity for all PJM markets and services over the next 52 weeks, which the Applicant shall provide to PJMSettlement.

The initial Peak Market Activity for Participants, calculated at the beginning of each respective semi-annual period, shall be the three-week average of all non-zero invoice totals over the previous 52 weeks. This calculation shall be performed and applied within three business days following the day the invoice is issued for the first full billing week in the current semi-annual period.

Prepayments shall not affect Peak Market Activity unless otherwise agreed to in writing pursuant to this Credit Policy.

All Peak Market Activity calculations shall take into account reductions of invoice values effectuated by early payments which are applied to reduce a Participant's Peak Market Activity

as contemplated by other terms of the Credit Policy; provided that the initial Peak Market Activity shall not be less than the average value calculated using the weeks for which no early payment was made.

A Participant may reduce its Financial Security Requirement by agreeing in writing (in a form acceptable to PJMSettlement) to make additional payments, including prepayments, as and when necessary to ensure that such Participant's Total Net Obligation at no time exceeds such reduced Financial Security Requirement.

PJMSettlement may, at its discretion, adjust a Participant's Financial Security Requirement if PJMSettlement determines that the Peak Market Activity is not representative of such Participant's expected activity, as a consequence of known, measurable, and sustained changes. Such changes may include the loss (without replacement) of short-term load contracts, when such contracts had terms of three months or more and were acquired through state-sponsored retail load programs, but shall not include short-term buying and selling activities.

PJMSettlement may waive the Financial Security Requirement for a Participant that agrees in writing that it shall not, after the date of such agreement, incur obligations under any of the Agreements. Such entity's access to all electronic transaction systems administered by PJM shall be terminated.

PJMSettlement will maintain a posting of each Participant's Financial Security Requirement on the PJM web site in a secure, password-protected location. Such information will be updated at least weekly. Each Participant will be responsible for monitoring such information and recognizing changes that may occur.

#### **E. Working Credit Limit**

PJMSettlement will establish a Working Credit Limit for each Participant against which its **Total Net Obligation** will be monitored. The Working Credit Limit is defined as 75% of the Financial Security provided to PJMSettlement and/or 75% of the Unsecured Credit Allowance determined by PJMSettlement based on a credit evaluation, as reduced by any applicable credit requirement determinants defined in this policy. A Participant's Total Net Obligation should not exceed its Working Credit Limit.

Example: After a credit evaluation by PJMSettlement, a Participant is deemed able to support an Unsecured Credit Allowance of \$10.0 million. The Participant will be assigned a Working Credit Limit of \$8.5 million. PJMSettlement will monitor the Participant's Total Net Obligations against the Working Credit Limit.

A Participant with an Unsecured Credit Allowance may choose to provide Financial Security in order to increase its Working Credit Limit. A Participant with no Unsecured Credit Allowance may also choose to increase its Working Credit Limit by providing Financial Security in an amount greater than its Peak Market Activity.

If a Participant's Total Net Obligation approaches its Working Credit Limit, PJMSettlement may require the Participant to make an advance payment or increase its Financial Security in order to maintain its Total Net Obligation below its Working Credit Limit. Except as explicitly provided

below, advance payments shall not serve to reduce the Participant's Peak Market Activity for the purpose of calculating credit requirements.

Example: After 10 days, and with 5 days remaining before the bill is due to be paid, a Participant approaches its \$4.0 million Working Credit Limit. PJMSettlement may require a prepayment of \$2.0 million in order that the Total Net Obligation will not exceed the Working Credit Limit.

If a Participant exceeds its Working Credit Limit or is required to make advance payments more than ten times during a 52-week period, PJMSettlement may require Financial Security in an amount as may be deemed reasonably necessary to support its Total Net Obligation.

A Participant receiving unsecured credit may make early payments up to ten times in a rolling 52-week period in order to reduce its Peak Market Activity for credit requirement purposes. Imputed Peak Market Activity reductions for credit purposes will be applied to the billing period for which the payment was received. Payments used as the basis for such reductions must be received prior to issuance or posting of the invoice for the relevant billing period. The imputed Peak Market Activity reduction attributed to any payment may not exceed the amount of Unsecured Credit for which the Participant is eligible.

#### **F. Credit Limit Setting For Affiliates**

If two or more Participants are Affiliates and each is being granted an Unsecured Credit Allowance and a corresponding Working Credit Limit, PJMSettlement will consider the overall creditworthiness of the Affiliated Participants when determining the Unsecured Credit Allowances and Working Credit Limits in order not to grant more Unsecured Credit than the overall corporation could support.

**Example:** Participants A and B each have a \$10.0 million Corporate Guaranty from their common parent, a holding company with an Unsecured Credit Allowance calculation of \$12.0 million. PJMSettlement may limit the Unsecured Credit Allowance for each Participant to \$6.0 million, so the total Unsecured Credit Allowance does not exceed the corporate total of \$12.0 million.

PJMSettlement will work with Affiliated Participants to allocate the total Unsecured Credit Allowance among the Affiliates while assuring that no individual Participant, nor common guarantor, exceeds the Unsecured Credit Allowance appropriate for its credit strength. The aggregate Unsecured Credit for a Participant, including Unsecured Credit Allowance granted based on its own creditworthiness and any Unsecured Credit Allowance conveyed through a Guaranty shall not exceed \$50 million. The aggregate Unsecured Credit for a group of Affiliates shall not exceed \$50 million. A group of Affiliates subject to this cap shall request PJMSettlement to allocate the maximum Unsecured Credit and Working Credit Limit amongst the group, assuring that no individual Participant or common guarantor, shall exceed the Unsecured Credit level appropriate for its credit strength and activity.

#### **G. Working Credit Limit Violations**

##### **1) Notification**

A Participant is subject to notification when its Total Net Obligation to PJMSettlement approaches the Participant's established Working Credit Limit.

## **2) Suspension**

A Participant that exceeds its Working Credit Limit is subject to suspension from participation in the PJM markets and from scheduling any future Transmission Service unless and until Participant's credit standing is brought within acceptable limits. A Participant will have two Business Days from notification to remedy the situation in a manner deemed acceptable by PJMSettlement. Additionally, PJMSettlement, in coordination with PJM, will take such actions as may be required or permitted under the Agreements, including but not limited to the termination of the Participant's ongoing Transmission Service and participation in PJM Markets. Failure to comply with this policy will be considered an event of default under this credit policy.

## **H. PJM Administrative Charges**

Financial Security held by PJMSettlement shall also secure obligations to PJM for PJM administrative charges.

## **I. Pre-existing Financial Security**

PJMSettlement's credit requirements are applicable as of the effective date of the filing on May 5, 2010 by PJM and PJMSettlement of amendments to Attachment Q. Financial Security held by PJM prior to the effective date of such amendments shall be held by PJM for the benefit of PJMSettlement.

## **III. VIRTUAL TRANSACTION SCREENING**

### **A. Credit and Financial Security**

PJMSettlement does not require a Market Participant to establish separate or additional credit for submitting Virtual Transactions. If a Market Participant chooses to establish additional Financial Security and/or Unsecured Credit Allowance in order to increase its Credit Available for Virtual Transactions, the Market Participant's Working Credit Limit for Virtual Transactions shall be increased in accordance with the definition thereof. The Financial Security and/or Unsecured Credit Allowance available to increase a Market Participant's Credit Available for Virtual Transactions shall be the amount of Financial Security and/or Unsecured Credit Allowance available after subtracting any credit required for Minimum Participation Requirements, FTR, Export Transactions, or other credit requirement determinants as defined in this policy, as applicable.

If a Market Participant chooses to provide additional Financial Security in order to increase its **Credit Available for Virtual Transactions PJMSettlement** may establish a reasonable timeframe, not to exceed three months, for which such Financial Security must be maintained. PJMSettlement will not impose such restriction on a deposit unless a Market Participant is



notified prior to making the deposit. Such restriction, if applied, shall be applied to all future deposits by all Market Participants engaging in Virtual Transactions.

A Market Participant wishing to increase its Credit Available for Virtual Transactions by providing additional Financial Security may make the appropriate arrangements with PJMSettlement. PJMSettlement will make a good faith effort to make new Financial Security available as Credit Available for Virtual Transactions as soon as practicable after confirmation of receipt. In any event, however, Financial Security received and confirmed by noon on a business day will be applied (as provided under this policy) to Credit Available for Virtual Transactions no later than 10:00 am on the following business day. Receipt and acceptance of wired funds for cash deposit shall mean actual receipt by PJMSettlement's bank, deposit into PJMSettlement's customer deposit account, and confirmation by PJMSettlement that such wire has been received and deposited. Receipt and acceptance of letters of credit shall mean receipt of the original letter of credit or amendment thereto, and confirmation from PJMSettlement's credit and legal staffs that such letter of credit or amendment thereto conforms to PJMSettlement's requirements, which confirmation shall be made in a reasonable and practicable timeframe. To facilitate this process, bidders wiring funds for the purpose of increasing their Credit Available for Virtual Transactions are advised to specifically notify PJMSettlement that a wire is being sent for such purpose.

## **B. Virtual Transaction Screening Process**

All Virtual Transactions submitted to PJM shall be subject to a credit screen prior to acceptance in the Day-ahead Energy Market auction. The credit screen process will automatically reject Virtual Transactions submitted by the PJM market participant if the participant's Credit Available for Virtual Transactions is exceeded by the **Virtual Credit Exposure** that is calculated based on the participant's submitted Virtual Transactions as described below.

A Participant's Virtual Credit Exposure will be calculated on a daily basis for all Virtual Transactions submitted by the market participant for the next market day using the following equation:

Virtual Credit Exposure = INC and DEC Exposure + Up-to Congestion Exposure

Where:

1) INC and DEC Exposure is calculated as:

(a) ((the total MWh bid or offered, whichever is greater, hourly at each node) x the Nodal Reference Price x 1 day) summed over all nodes and all hours; plus (b) ((the difference between the total bid MWh cleared and total offered MWh cleared hourly at each node) x Nodal Reference Price) summed over all nodes and all hours for the previous cleared Day-ahead Energy Market.

2) Up-to Congestion Exposure is calculated as:

(a) Total MWh bid hourly for each Up-to Congestion Transaction  $x$  (price bid – Up-to Congestion Reference Price) summed over all Up-to Congestion Transactions and all hours; plus (b) Total MWh cleared hourly for each Up-to Congestion Transaction  $x$  (cleared price – Up-to Congestion Reference Price) summed over all Up-to Congestion Transactions and all hours for the previous cleared Day-ahead Energy Market, provided that hours for which the calculation for an Up-to Congestion Transaction is negative, it shall be deemed to have a zero contribution to the sum.

If a Market Participant's Virtual Transactions are rejected as a result of the credit screen process, the Market Participant will be notified via an eMKT error message. A Market Participant whose Virtual Transactions are rejected may alter its Virtual Transactions so that its Virtual Credit Exposure does not exceed its Credit Available for Virtual Transactions, and may resubmit them. Virtual Transactions may be submitted in one or more groups during a day. If one or more groups of Virtual Transactions is submitted and accepted, and a subsequent group of submitted Virtual Transactions causes the total submitted Virtual Transactions to exceed the Virtual Credit Exposure, then only that subsequent set of Virtual Transactions will be rejected. Previously accepted Virtual Transactions will not be affected, though the Market Participant may choose to withdraw them voluntarily.

#### **IV. RELIABILITY PRICING MODEL AUCTION AND PRICE RESPONSIVE DEMAND CREDIT REQUIREMENTS**

Settlement during any Delivery Year of cleared positions resulting or expected to result from any Reliability Pricing Model Auction shall be included as appropriate in Peak Market Activity, and the provisions of this Attachment Q shall apply to any such activity and obligations arising therefrom. In addition, the provisions of this section shall apply to any entity seeking to participate in any RPM Auction, to address credit risks unique to such auctions. The provisions of this section also shall apply under certain circumstances to PRD Providers that seek to commit Price Responsive Demand pursuant to the provisions of the Reliability Assurance Agreement.

##### **A. Applicability**

A Market Seller seeking to submit a Sell Offer in any Reliability Pricing Model Auction based on any Capacity Resource for which there is a materially increased risk of non-performance must satisfy the credit requirement specified in section IV.B before submitting such Sell Offer. A PRD Provider seeking to commit Price Responsive Demand for which there is a materially increased risk of non-performance must satisfy the credit requirement specified in section IV.B before it may commit the Price Responsive Demand. Credit must be maintained until such risk of non-performance is substantially eliminated, but may be reduced commensurate with the reduction in such risk, as set forth in Section IV.C.

For purposes of this provision, a resource for which there is a materially increased risk of non-performance shall mean: (i) a Planned Generation Capacity Resource; (ii) a Planned Demand Resource or an Energy Efficiency Resource; (iii) a Qualifying Transmission Upgrade; (iv) an existing or Planned Generation Capacity Resource located outside the PJM Region that at the time it is submitted in a Sell Offer has not secured firm transmission service to the border of the

PJM Region sufficient to satisfy the deliverability requirements of the Reliability Assurance Agreement; or (v) Price Responsive Demand to the extent the responsible PRD Provider has not registered PRD-eligible load at a PRD Substation level to satisfy its Nominal PRD Value commitment, in accordance with Schedule 6.1 of the Reliability Assurance Agreement.

## **B. Reliability Pricing Model Auction and Price Responsive Demand Credit Requirement**

Except as provided for Credit-Limited Offers below, for any resource specified in Section IV.A, other than Price Responsive Demand, the credit requirement shall be the RPM Auction Credit Rate, as provided in Section IV.D, times the megawatts to be offered for sale from such resource in a Reliability Pricing Model Auction. For Qualified Transmission Upgrades, the credit requirements shall be based on the Locational Deliverability Area in which such upgrade was to increase the Capacity Emergency Transfer Limit. However, the credit requirement for Planned Financed Generation Capacity Resources and Planned External Financed Generation Capacity Resources shall be one half of the product of the RPM Auction Credit Rate, as provided in Section IV.D, times the megawatts to be offered for sale from such resource in a Reliability Pricing Model Auction. The RPM Auction Credit Requirement for each Market Seller shall be the sum of the credit requirements for all such resources to be offered by such Market Seller in the auction or, as applicable, cleared by such Market Seller from the relevant auctions. For Price Responsive Demand specified in section IV.A, the credit requirement shall be based on the Nominal PRD Value (stated in Unforced Capacity terms) times the Price Responsive Demand Credit Rate as set forth in section IV.E.

Except for Credit-Limited Offers, the RPM Auction Credit Requirement for a Market Seller will be reduced for any Delivery Year to the extent less than all of such Market Seller's offers clear in the Base Residual Auction or any Incremental Auction for such Delivery Year. Such reduction shall be proportional to the quantity, in megawatts, that failed to clear in such Delivery Year.

A Sell Offer based on a Planned Generation Capacity Resource, Planned Demand Resource, or Energy Efficiency Resource may be submitted as a Credit-Limited Offer. A Market Seller electing this option shall specify a maximum amount of Unforced Capacity, in megawatts, and a maximum credit requirement, in dollars, applicable to the Sell Offer. A Credit-Limited Offer shall clear the RPM Auction in which it is submitted (to the extent it otherwise would clear based on the other offer parameters and the system's need for the offered capacity) only to the extent of the lesser of: (i) the quantity of Unforced Capacity that is the quotient of the division of the specified maximum credit requirement by the Auction Credit Rate resulting from section IV.D.b.; and (ii) the maximum amount of Unforced Capacity specified in the Sell Offer. For a Market Seller electing this alternative, the RPM Auction Credit Requirement applicable prior to the posting of results of the auction shall be the maximum credit requirement specified in its Credit-Limited Offer, and the RPM Auction Credit Requirement subsequent to posting of the results will be the Auction Credit Rate, as provided in Section IV.D.b, c. or d., as applicable, times the amount of Unforced Capacity from such Sell Offer that cleared in the auction. The availability and operational details of Credit-Limited Offers shall be as described in the PJM Manuals.

As set forth in Section IV.D, a Market Seller's Auction Credit Requirement shall be determined separately for each Delivery Year.

**C. Reduction in Credit Requirement**

As specified in Section IV.D, the RPM Auction Credit Rate may be reduced under certain circumstances after the auction has closed.

The Price Responsive Demand credit requirement shall be reduced as and to the extent the PRD Provider registers PRD-eligible load at a PRD Substation level to satisfy its Nominal PRD Value commitment, in accordance with Schedule 6.1 of the Reliability Assurance Agreement.

In addition, the RPM Auction Credit Requirement for a Participant for any given Delivery Year shall be reduced periodically, provided the Participant successfully meets progress milestones that reduce the risk of non-performance, as follows:

a. For Planned Demand Resources and Energy Efficiency Resources, the RPM Auction Credit Requirement will be reduced in direct proportion to the megawatts of such Demand Resource that the Resource Provider qualifies as a Capacity Resource, in accordance with the procedures established under the Reliability Assurance Agreement.

b. For Existing Generation Capacity Resources located outside the PJM Region that have not secured sufficient firm transmission to the border of the PJM Region prior to the auction in which such resource is first offered, the RPM Auction Credit Requirement shall be reduced in direct proportion to the megawatts of firm transmission service secured by the Market Seller that qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

c. For Planned Generation Capacity Resources located in the PJM Region, the RPM Auction Credit Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manual ~~to 50% of the amount calculated under Section IV.B beginning as of the effective date of an Interconnection Service Agreement, and shall be reduced to zero on the date of commencement of Interconnection Service.~~

<u>Milestones</u>	<u>Increment of reduction from initial RPM Auction Credit Requirement</u>
<u>Effective Date of Interconnection Service Agreement</u>	<u>50%</u>
<u>Financial Close</u>	<u>15%</u>
<u>Full Notice to Proceed and Commencement of Construction (e.g., footers poured)</u>	<u>5%</u>
<u>Main Power Generating Equipment Delivered</u>	<u>5%</u>

<u>Commencement of Interconnection Service</u>	<u>25%</u>
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To obtain a reduction in its RPM Auction Credit Requirement, except for the Interconnection Service Agreement and Commencement of Interconnection Service milestones, the Capacity Market Seller must submit a sworn, notarized certification of a duly authorized independent engineer in a form acceptable to PJM, certifying that the engineer has personal knowledge, or has engaged in a diligent inquiry to determine, that the milestone has been achieved and that, based on its review of the relevant project information, the independent engineer is not aware of any information that could reasonably cause it to believe that the Capacity Resource will not be in-service by the beginning of the applicable Delivery Year. The Capacity Market Seller shall, if requested by PJM, supply to PJM on a confidential basis all records and documents relating to the independent engineer’s certification.

d. For Planned External Generation Capacity Resources ~~located outside the PJM Region~~, the RPM Auction Credit Requirement shall be reduced ~~as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit Requirement shall be no greater than the quotient of (a) the MWs of firm transmission service that the Capacity Market Seller has secured for the complete transmission path divided by (b) the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.~~ ~~by 50% once the conditions in both b and c above are met, i.e., the RPM Credit Requirement shall be reduced to 50% of the amount calculated under Section IV.B when 1) the equivalent of an Interconnection Service Agreement becomes effective, and 2) 50% or more megawatts of firm transmission service have been secured by the Market Seller that qualify such resource under the deliverability requirements of the Reliability Assurance Agreement. The RPM Credit Requirement for a Planned Generation Capacity Resource located outside the PJM Region shall be reduced to zero when 1) the resource commences Interconnection Service and 2) 100% of the megawatts of firm transmission service have been secured by the Market Seller that qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.~~

<b><u>Credit Reduction Milestones for Planned External Generation Capacity Resources</u></b>	
<b><u>Milestones</u></b>	<b><u>Increment of reduction from initial RPM Auction Credit Requirement</u></b>
<u>Effective Date of the equivalent of an Interconnection Service Agreement</u>	<u>50%</u>
<u>Financial Close</u>	<u>15%</u>
<u>Full Notice to Proceed and Commencement of Construction (e.g., footers poured)</u>	<u>5%</u>
<u>Main Power Generating Equipment Delivered</u>	<u>5%</u>
<u>Commencement of Interconnection Service</u>	<u>25%</u>

To obtain a reduction in its RPM Auction Credit Requirement, the Capacity Market Seller must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

e. For Planned Financed Generation Capacity Resources located in the PJM Region, the RPM Auction Credit Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals.

<b><u>Credit Reduction Milestones for Planned Financed Generation Capacity Resources</u></b>	
<b><u>Milestones</u></b>	<b><u>Increment of reduction from initial RPM Auction Credit Requirement</u></b>
<u>Full Notice to Proceed</u>	<u>50%</u>
<u>Commencement of Construction (e.g., footers poured)</u>	<u>15%</u>
<u>Main Power Generating Equipment Delivered</u>	<u>10%</u>
<u>Commencement of Interconnection Service</u>	<u>25%</u>

To obtain a reduction in its RPM Auction Credit Requirement, the Capacity Market Seller must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

f. For Planned External Financed Generation Capacity Resources, the RPM Credit Auction Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit Requirement, including the initial 50% reduction for being a Planned External Financed Generation Capacity Resources, shall be no greater than the quotient of (a) the MWs of firm transmission service that the Capacity Market Seller has secured for the complete transmission path divided by (b) the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

<b><u>Credit Reduction Milestones for Planned External Financed Generation Capacity</u></b>	
<b><u>Milestones</u></b>	<b><u>Increment of reduction from initial RPM Auction Credit Requirement</u></b>
<u>Full Notice to Proceed</u>	<u>50%</u>
<u>Commencement of Construction (e.g., footers poured)</u>	<u>15%</u>
<u>Main Power Generating Equipment Delivered</u>	<u>10%</u>
<u>Commencement of Interconnection Service</u>	<u>25%</u>

To obtain a reduction in its RPM Auction Credit Requirement, the Capacity Market Seller must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

eg. For Qualifying Transmission Upgrades, the RPM Auction Credit Requirement shall be reduced to 50% of the amount calculated under Section IV.B beginning as of the effective date

of the latest associated Interconnection Service Agreement (or, when a project will have no such agreement, an Upgrade Construction Service Agreement), and shall be reduced to zero on the date the Qualifying Transmission Upgrade is placed in service. In addition, a Qualifying Transmission Upgrade will be allowed a reduction in its RPM Auction Credit Requirement equal to the amount of collateral currently posted with PJM for the facility construction when the Qualifying Transmission Upgrade meets the following requirements: the Upgrade Construction Service Agreement has been fully executed, the full estimated cost to complete as most recently determined or updated by PJM has been fully paid or collateralized, and all regulatory and other required approvals (except those that must await construction completion) have been obtained. Such reduction in RPM Auction Credit Requirement may not be transferred across different projects.

#### **D. RPM Auction Credit Rate**

As set forth in the PJM Manuals, a separate Auction Credit Rate shall be calculated for each Delivery Year prior to each Reliability Pricing Model Auction for such Delivery Year, as follows:

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a. Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Auction Credit Rate shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) \$20 per MW-day) times the number of days in such Delivery Year; and

(ii) For Capacity Performance Resources, the greater of ((A) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in MW-day or (B) \$20 per MW-day) times the number of days in such Delivery Year.

b. Subsequent to the posting of the results from a Base Residual Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of days in such Delivery Year; and

(ii) For Capacity Performance Resources, the (greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) or (C) the lesser of (i) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (ii) 1.5 times the Net Cost of New



Entry (stated on an installed capacity basis) for the PJM Region for such Delivery year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of days in such Delivery Year).

c. For any resource not previously committed for a Delivery Year that seeks to participate in an Incremental Auction, the Auction Credit Rate shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) 0.24 times the Capacity Resource Clearing Price in the Base Residual Auction for such Delivery Year for the Locational Deliverability Area within which the resource is located or (C) \$20 per MW-day) times the number of days in such Delivery Year; and

(ii) For Capacity Performance Resources, the (greater of (A) 0.5 times Net Cost of New Entry for the PJM Region for such Delivery year or for the Relevant LDA or (B) \$20/MW-day) times the number of days in such Delivery Year.

d. Subsequent to the posting of the results of an Incremental Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

(i) For Base Capacity Resources: (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of days in such Delivery Year, but no greater than the Auction Credit Rate previously established for such resource's participation in such Incremental Auction pursuant to subsection (c) above) times the number of days in such Delivery Year; and

(ii) For Capacity Performance Resources, the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) or (C) the lesser of (i) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (ii) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of days in such Delivery Year).

e. For the purposes of this section IV.D, "Relevant LDA" means the Locational Deliverability Area in which the Capacity Performance Resource is located if a separate Variable Resource Requirement Curve has been established for that Locational Deliverability Area for the Base Residual Auction for such Delivery Year.

## **E. Price Responsive Demand Credit Rate**



- a. Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be (the greater of (i) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (ii) \$20 per MW-day) times the number of days in such Delivery Year;
- b. Subsequent to the posting of the results from a Base Residual Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for Price Responsive Demand registered prior to such auction shall be (the greater of (i) \$20/MW-day or (ii) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the PRD load is located) times the number of days in such Delivery Year times a final price uncertainty factor of 1.05;
- c. For any additional Price Responsive Demand that seeks to commit in a Third Incremental Auction in response to a qualifying change in the final LDA load forecast, the Price Responsive Demand Credit Rate shall be the same as the rate for Price Responsive Demand that had cleared in the Base Residual Auction;
- d. Subsequent to the posting of the results of the Third Incremental Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for all Price Responsive Demand, shall be (the greater of (i) \$20/MW-day or (ii) 0.2 times the Final Zonal Capacity Price for the Locational Deliverability Area within which the Price Responsive Demand is located) times the number of days in such Delivery Year, but no greater than the Price Responsive Demand Credit Rate previously established under subsections (a), (b), or (c) of this section for such Delivery Year.

#### **F. RPM Seller Credit - Additional Form of Unsecured Credit for RPM**

In addition to the forms of credit specified elsewhere in this Attachment Q, RPM Seller Credit shall be available to Market Sellers, but solely for purposes of satisfying RPM Auction Credit Requirements. If a supplier has a history of being a net seller into PJM markets, on average, over the past 12 months, then PJMSettlement will count as available Unsecured Credit twice the average of that participant's total net monthly PJMSettlement bills over the past 12 months. This RPM Seller Credit shall be subject to the cap on available Unsecured Credit as established in Section II.F.

#### **G. Credit Responsibility for Traded Planned RPM Capacity Resources**

PJMSettlement may require that credit and financial responsibility for planned RPM Capacity Resources that are traded remain with the original party (which for these purposes, means the party bearing credit responsibility for the planned RPM Capacity Resource immediately prior to trade) unless the receiving party independently establishes consistent with the PJM credit policy, that it has sufficient credit with PJMSettlement and agrees by providing written notice to PJMSettlement that it will fully assume the credit responsibility associated with the traded planned RPM Capacity Resource.

### **V. FINANCIAL TRANSMISSION RIGHT AUCTIONS**

**A. FTR Credit Limit.**

PJMSettlement will establish an FTR Credit Limit for each Participant. Participants must maintain their FTR Credit Limit at a level equal to or greater than their FTR Credit Requirement. FTR Credit Limits will be established only by a Participant providing Financial Security.

**B. FTR Credit Requirement.**

For each Participant with FTR activity, PJMSettlement shall calculate an FTR Credit Requirement based on FTR cost less a discounted historical value. FTR Credit Requirements shall be further adjusted by ARR credits available and by an amount based on portfolio diversification, if applicable. The requirement will be based on individual monthly exposures which are then used to derive a total requirement.

The FTR Credit Requirement shall be calculated by first adding for each month the FTR Monthly Credit Requirement Contribution for each submitted, accepted, and cleared FTR and then subtracting the prorated value of any ARRs held by the Participant for that month. The resulting twelve monthly subtotals represent the expected value of net payments between PJMSettlement and the Participant for FTR activity each month during the Planning Period. Subject to later adjustment by an amount based on portfolio diversification, if applicable, the FTR Credit Requirement shall be the sum of the individual positive monthly subtotals, representing months in which net payments to PJMSettlement are expected.

**C. Rejection of FTR Bids.**

Bids submitted into an auction will be rejected if the Participant's FTR Credit Requirement including such submitted bids would exceed the Participant's FTR Credit Limit, or if the Participant fails to establish additional credit as required pursuant to provisions related to portfolio diversification.

**D. FTR Credit Collateral Returns.**

A Market Participant may request from PJMSettlement the return of any collateral no longer required for the FTR auctions. PJMSettlement is permitted to limit the frequency of such requested collateral returns, provided that collateral returns shall be made by PJMSettlement at least once per calendar quarter, if requested by a Market Participant.

**E. Credit Responsibility for Traded FTRs.**

PJMSettlement may require that credit responsibility associated with an FTR traded within PJM's eFTR system remain with the original party (which for these purposes, means the party bearing credit responsibility for the FTR immediately prior to trade) unless and until the receiving party independently establishes, consistent with the PJM credit policy, sufficient credit with PJMSettlement and agrees through confirmation of the FTR trade within the eFTR system that it will meet in full the credit requirements associated with the traded FTR.

## **F. Portfolio Diversification.**

Subsequent to calculating a tentative cleared solution for an FTR auction (or auction round), PJM shall both:

1. Determine the FTR Portfolio Auction Value, including the tentative cleared solution. Any Participants with such FTR Portfolio Auction Values that are negative shall be deemed FTR Flow Undiversified.
2. Measure the geographic concentration of the FTR Flow Undiversified portfolios by testing such portfolios using a simulation model including, one at a time, each planned transmission outage or other network change which would substantially affect the network for the specific auction period. A list of such planned outages or changes anticipated to be modeled shall be posted prior to commencement of the auction (or auction round). Any FTR Flow Undiversified portfolio that experiences a net reduction in calculated congestion credits as a result of any one or more of such modeled outages or changes shall be deemed FTR Geographically Undiversified.

For portfolios that are FTR Flow Undiversified but not FTR Geographically Undiversified, PJMSettlement shall increment the FTR Credit Requirement by an amount equal to twice the absolute value of the FTR Portfolio Auction Value, including the tentative cleared solution. For Participants with portfolios that are both FTR Flow Undiversified and FTR Geographically Undiversified, PJMSettlement shall increment the FTR Credit Requirement by an amount equal to three times the absolute value of the FTR Portfolio Auction Value, including the tentative cleared solution. For portfolios that are FTR Flow Undiversified in months subsequent to the current planning year, these incremental amounts, calculated on a monthly basis, shall be reduced (but not below zero) by an amount up to 25% of the monthly value of ARR credits that are held by a Participant. Subsequent to the ARR allocation process preceding an annual FTR auction, such ARR credits shall be reduced to zero for months associated with that ARR allocation process. PJMSettlement may recalculate such ARR credits at any time, but at a minimum shall do so subsequent to each annual FTR auction. If a reduction in such ARR credits at any time increases the amount of credit required for the Participant beyond its credit available for FTR activity, the Participant must increase its credit to eliminate the shortfall.

If the FTR Credit Requirement for any Participant exceeds its credit available for FTRs as a result of these diversification requirements for the tentatively cleared portfolio of FTRs, PJMSettlement shall immediately issue a demand for additional credit, and such demand must be fulfilled before 4:00 p.m. on the business day following the demand. If any Participant does not timely satisfy such demand, PJMSettlement, in coordination with PJM, shall cause the removal that Participant's entire set of bids for that FTR auction (or auction round) and a new cleared solution shall be calculated for the entire auction (or auction round).

If necessary, PJM shall repeat the auction clearing calculation. PJM shall repeat these portfolio diversification calculations subsequent to any such secondary clearing calculation, and PJMSettlement shall require affected Participants to establish additional credit.

## **G. FTR Administrative Charge Credit Requirement**

In addition to any other credit requirements, PJMSettlement may apply a credit requirement to cover the maximum administrative fees that may be charged to a Participant for its bids and offers.

## **H. Long-Term FTR Credit Recalculation**

Long-term FTR Credit Requirement calculations shall be updated annually for known history, consistent with updating of historical values used for FTR Credit Requirement calculations in the annual auctions.

## **VI. EXPORT TRANSACTION SCREENING**

Export Transactions in the Real-time Energy Market shall be subject to Export Transaction Screening. Export Transaction Screening may be performed either for the duration of the entire Export Transaction, or separately for each time interval comprising an Export Transaction. PJM will deny or curtail all or a portion (based on the relevant time interval) of an Export Transaction if that Export Transaction, or portion thereof, would otherwise cause the Market Participant's Export Credit Exposure to exceed its Credit Available for Export Transactions. Export Transaction Screening shall be applied separately for each Operating Day and shall also be applied to each Export Transaction one or more times prior to the market clearing process for each relevant time interval. Export Transaction Screening shall not apply to transactions established directly by and between PJM and a neighboring Balancing Authority for the purpose of maintaining reliability.

A Market Participant's credit exposure for an individual Export Transaction shall be the MWh volume of the Export Transaction for each relevant time interval multiplied by each relevant Export Transaction Price Factor and summed over all relevant time intervals of the Export Transaction.

## **VII. FORMS OF FINANCIAL SECURITY**

Participants that provide Financial Security must provide the security in a PJMSettlement approved form and amount according to the guidelines below.

Financial Security which is no longer required to be maintained under provisions of the Agreements shall be returned at the request of a participant no later than two Business Days following determination by PJMSettlement within a commercially reasonable period of time that such collateral is not required.

Except when an event of default has occurred, a Participant may substitute an approved PJMSettlement form of Financial Security for another PJMSettlement approved form of Financial Security of equal value. The Participant must provide three (3) Business Days notice to PJMSettlement of its intent to substitute the Financial Security. PJMSettlement will release

the replaced Financial Security with interest, if applicable, within (3) Business Days of receiving an approved form of substitute Financial Security.

#### **A. Cash Deposit**

Cash provided by a Participant as Financial Security will be held in a depository account by PJMSettlement with interest earned at PJMSettlement's overnight bank rate, and accrued to the Participant. PJMSettlement also may establish an array of investment options among which a Participant may choose to invest its cash deposited as Financial Security. Such investment options shall be comprised of high quality debt instruments, as determined by PJMSettlement, and may include obligations issued by the federal government and/or federal government sponsored enterprises. These investment options will reside in accounts held in PJMSettlement's name in a banking or financial institution acceptable to PJMSettlement. Where practicable, PJMSettlement may establish a means for the Participant to communicate directly with the bank or financial institution to permit the Participant to direct certain activity in the PJMSettlement account in which its Financial Security is held. PJMSettlement will establish and publish procedural rules, identifying the investment options and respective discounts in collateral value that will be taken to reflect any liquidation, market and/or credit risk presented by such investments. PJMSettlement has the right to liquidate all or a portion of the account balances at its discretion to satisfy a Participant's Total Net Obligation to PJMSettlement in the event of default under this credit policy or one or more of the Agreements.

#### **B. Letter Of Credit**

An unconditional, irrevocable standby letter of credit can be utilized to meet the Financial Security requirement. As stated below, the form, substance, and provider of the letter of credit must all be acceptable to PJMSettlement.

- The letter of credit will only be accepted from U.S.-based financial institutions or U.S. branches of foreign financial institutions ("financial institutions") that have a minimum corporate debt rating of "A" by Standard & Poor's or Fitch Ratings, or "A2" from Moody's Investors Service, or an equivalent short term rating from one of these agencies. PJMSettlement will consider the lowest applicable rating to be the rating of the financial institution. If the rating of a financial institution providing a letter of credit is lowered below A/A2 by any rating agency, then PJMSettlement may require the Participant to provide a letter of credit from another financial institution that is rated A/A2 or better, or to provide a cash deposit. If a letter of credit is provided from a U.S. branch of a foreign institution, the U.S. branch must itself comply with the terms of this credit policy, including having its own acceptable credit rating.
- The letter of credit shall state that it shall renew automatically for successive one-year periods, until terminated upon at least ninety (90) days prior written notice from the issuing financial institution. If PJM or PJMSettlement receives notice from the issuing financial institution that the current letter of credit is being cancelled, the Participant will be required to provide evidence, acceptable to PJMSettlement, that such letter of credit will be replaced with appropriate Financial Security, effective as of the cancellation date

of the letter of credit, no later than thirty (30) days before the cancellation date of the letter of credit, and no later than ninety (90) days after the notice of cancellation. Failure to do so will constitute a default under this credit policy and one of more of the Agreements.

- The letter of credit must clearly state the full names of the "Issuer", "Account Party" and "Beneficiary" (PJMSettlement), the dollar amount available for drawings, and shall specify that funds will be disbursed upon presentation of the drawing certificate in accordance with the instructions stated in the letter of credit. The letter of credit should specify any statement that is required to be on the drawing certificate, and any other terms and conditions that apply to such drawings.
- The PJMSettlement Credit Application contains an acceptable form of a letter of credit that should be utilized by a Participant choosing to meet its Financial Security requirement with a letter of credit. If the letter of credit varies in any way from the PJMSettlement format, it must first be reviewed and approved by PJMSettlement. All costs associated with obtaining and maintaining a letter of credit and meeting the policy provisions are the responsibility of the Participant
- PJMSettlement may accept a letter of credit from a Financial Institution that does not meet the credit standards of this policy provided that the letter of credit has third-party support, in a form acceptable to PJMSettlement, from a financial institution that does meet the credit standards of this policy.

## **VIII. POLICY BREACH AND EVENTS OF DEFAULT**

A Participant will have two Business Days from notification of Breach (including late payment notice) or notification of a Collateral Call to remedy the Breach or satisfy the Collateral Call in a manner deemed acceptable by PJMSettlement. Failure to remedy the Breach or satisfy such Collateral Call within such two Business Days will be considered an event of default. If a Participant fails to meet the requirements of this policy but then remedies the Breach or satisfies a Collateral Call within the two Business Day cure period, then the Participant shall be deemed to have complied with the policy. Any such two Business Day cure period will expire at 4:00 p.m. eastern prevailing time on the final day.

Only one cure period shall apply to a single event giving rise to a breach or default. Application of Financial Security towards a non-payment Breach shall not be considered a satisfactory cure of the Breach if the Participant fails to meet all requirements of this policy after such application.

Failure to comply with this policy (except for the responsibility of a Participant to notify PJMSettlement of a Material change) shall be considered an event of default. Pursuant to § 15.1.3(a) of the Operating Agreement of PJM Interconnection, L.L.C. and § I.7.3 of the PJM Open Access Transmission Tariff, non-compliance with the PJMSettlement credit policy is an event of default under those respective Agreements. In event of default under this credit policy or one or more of the Agreements, PJMSettlement, in coordination with PJM, will take such actions as may be required or permitted under the Agreements, including but not limited to the

termination of the Participant's ongoing Transmission Service and participation in PJM Markets. PJMSettlement has the right to liquidate all or a portion of a Participant's Financial Security at its discretion to satisfy Total Net Obligations to PJMSettlement in the event of default under this credit policy or one or more of the Agreements.

PJMSettlement may hold a defaulting Participant's Financial Security for as long as such party's positions exist and consistent with the PJM credit policy in this Attachment Q, in order to protect PJM's membership from default.

No payments shall be due to a Participant, nor shall any payments be made to a Participant, while the Participant is in default or has been declared in Breach of this policy or the Agreements, or while a Collateral Call is outstanding. PJMSettlement may apply towards an ongoing default any amounts that are held or later become available or due to the defaulting Participant through PJM's markets and systems.

In order to cover Obligations, PJMSettlement may hold a Participant's Financial Security through the end of the billing period which includes the 90th day following the last day a Participant had activity, open positions, or accruing obligations (other than reconciliations and true-ups), and until such Participant has satisfactorily paid any obligations invoiced through such period. Obligations incurred or accrued through such period shall survive any withdrawal from PJM. In event of non-payment, PJMSettlement may apply such Financial Security to such Participant's Obligations, even if Participant had previously announced and effected its withdrawal from PJM.

## **IX. DEFINITIONS:**

All capitalized terms in this Attachment Q that are not otherwise defined herein shall have the same meaning as they are defined in the Agreements.

### **Affiliate**

Affiliate is defined in the PJM Operating Agreement, §1.2.

### **Agreements**

Agreements are the Operating Agreement of PJM Interconnection, L.L.C., the PJM Open Access Transmission Tariff, the Reliability Assurance Agreement, the Reliability Assurance Agreement – West, and/or other agreements between PJM Interconnection, L.L.C. and its Members.

### **Applicant**

Applicant is an entity desiring to become a PJM Member, or to take Transmission Service that has submitted the PJMSettlement Credit Application, PJMSettlement Credit Agreement and other required submittals as set forth in this policy.

### **Breach**

Breach is the status of a Participant that does not currently meet the requirements of this policy or other provisions of the Agreements.

### **Business Day**

A Business Day is a day in which the Federal Reserve System is open for business and is not a scheduled PJM holiday.

**Canadian Guaranty**

Canadian Guaranty is a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in Canada, and meets all of the provisions of this credit policy.

**Capacity**

Capacity is the installed capacity requirement of the Reliability Assurance Agreement or similar such requirements as may be established.

**Collateral Call**

Collateral Call is a notice to a Participant that additional Financial Security, or possibly early payment, is required in order to remain in, or to regain, compliance with this policy.

**Corporate Guaranty**

Corporate Guaranty is a legal document used by one entity to guaranty the obligations of another entity.

**Credit Available for Export Transactions**

Credit Available for Export Transactions is a set-aside of credit to be used for Export Transactions that is allocated by each Market Participant from its Credit Available for Virtual Transactions, and which reduces the Market Participant's Credit Available for Virtual Transactions accordingly.

**Credit Available for Virtual Transactions**

A Market Participant's Credit Available for Virtual Transactions is the Market Participant's Working Credit Limit for Virtual Transactions calculated on its credit provided in compliance with its Peak Market Activity requirement plus available credit submitted above that amount, less any unpaid billed and unbilled amounts owed to PJMSettlement, plus any unpaid unbilled amounts owed by PJMSettlement to the Market Participant, less any applicable credit required for Minimum Participation Requirements, FTR, Export Transactions, or other credit requirement determinants as defined in this policy.

**Credit-Limited Offer**

Credit-Limited Offer shall mean a Sell Offer that is submitted by a Market Seller in an RPM Auction subject to a maximum credit requirement specified by such Market Seller.

**Credit Score**

Credit Score is a composite numerical score scaled from 0-100 as calculated by PJMSettlement that incorporates various predictors of creditworthiness.

**Export Credit Exposure**

Export Credit Exposure is determined for each Market Participant for a given Operating Day, and is the sum of credit exposures for the Market Participant's Export Transactions for that Operating Day and for the preceding Operating Day.



### **Export Nodal Reference Price**

The Export Nodal Reference Price at each location is the 97th percentile real-time hourly integrated price experienced over the corresponding two-month period in the preceding calendar year, calculated separately for peak and off-peak time periods. The two-month time periods used in this calculation shall be January and February, March and April, May and June, July and August, September and October, and November and December.

### **Export Transaction**

An Export Transaction is a transaction by a Market Participant that results in the transfer of energy from within the PJM Control Area to outside the PJM Control Area. Coordinated External Transactions that result in the transfer of energy from the PJM Control Area to an adjacent Control Area are one form of Export Transaction.

### **Export Transactions Net Activity**

Export Transactions Net Activity shall mean the aggregate net total, resulting from Export Transactions, of (i) Spot Market Energy charges, (ii) Transmission Congestion Charges, and (iii) Transmission Loss Charges, calculated as set forth in Attachment K-Appendix. Export Transactions Net Activity may be positive or negative.

### **Export Transaction Price Factor**

The Export Transaction Price Factor for a prospective time interval shall be the greater of (i) PJM's forecast price for the time interval, if available, or (ii) the Export Nodal Reference Price, but shall not exceed the Export Transaction's dispatch ceiling price cap, if any, for that time interval. The Export Transaction Price Factor for a past time interval shall be calculated in the same manner as for a prospective time interval, except that the Export Transaction Price Factor may use a tentative or final settlement price, as available. If an Export Nodal Reference Price is not available for a particular time interval, PJM may use an Export Transaction Price Factor for that time interval based on an appropriate alternate reference price.

### **Export Transaction Screening**

Export Transaction Screening is the process PJM uses to review the Export Credit Exposure of Export Transactions against the Credit Available for Export Transactions, and deny or curtail all or a portion of an Export Transaction, if the credit required for such transactions is greater than the credit available for the transactions.

### **Financial Close**

Financial Close shall mean the Capacity Market Seller has demonstrated that the Capacity Market Seller or its agent has completed the act of executing the material contracts and/or other documents necessary to (1) authorize construction of the project and (2) establish the necessary funding for the project under the control of an independent third-party entity. A sworn, notarized certification of an independent engineer certifying to such facts, and that the engineer has personal knowledge of, or has engaged in a diligent inquiry to determine, such facts, shall be sufficient to make such demonstration. For resources that do not have external financing, Financial Close shall mean the project has full funding available, and that the project has been duly authorized to proceed with full construction of the material portions of the project by the

appropriate governing body of the company funding such project. A sworn, notarized certification by an officer of such company certifying to such facts, and that the officer has personal knowledge of, or has engaged in a diligent inquiry to determine, such facts, shall be sufficient to make such demonstration.

### **Financial Security**

Financial Security is a cash deposit or letter of credit in an amount and form determined by and acceptable to PJMSettlement, provided by a Participant to PJMSettlement as security in order to participate in the PJM Markets or take Transmission Service.

### **Foreign Guaranty**

Foreign Guaranty is a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in a foreign country, and meets all of the provisions of this credit policy.

### **FTR Credit Limit**

FTR Credit Limit will be equal to the amount of credit established with PJMSettlement that a Participant has specifically designated to PJMSettlement to be set aside and used for FTR activity. Any such credit so set aside shall not be considered available to satisfy any other credit requirement the Participant may have with PJMSettlement.

### **FTR Credit Requirement**

FTR Credit Requirement is the amount of credit that a Participant must provide in order to support the FTR positions that it holds and/or is bidding for. The FTR Credit Requirement shall not include months for which the invoicing has already been completed, provided that PJMSettlement shall have up to two Business Days following the date of the invoice completion to make such adjustments in its credit systems.

### **FTR Flow Undiversified**

FTR Flow Undiversified shall have the meaning established in section V.G of this Attachment Q.

### **FTR Geographically Undiversified**

FTR Geographically Undiversified shall have the meaning established in section V.G of this Attachment Q.

### **FTR Historical Value**

FTR Historical Value – For each FTR for each month, this is the historical weighted average value over three years for the FTR path using the following weightings: 50% - most recent year; 30% - second year; 20% - third year. FTR Historical Values shall be calculated separately for on-peak, off-peak, and 24-hour FTRs for each month of the year. FTR Historical Values shall be adjusted by plus or minus ten percent (10%) for cleared counterflow or normal flow FTRs, respectively, in order to mitigate exposure due to uncertainty and fluctuations in actual FTR value.

### **FTR Monthly Credit Requirement Contribution**

FTR Monthly Credit Requirement Contribution - For each FTR for each month, this is the total FTR cost for the month, prorated on a daily basis, less the FTR Historical Value for the month.

For cleared FTRs, this contribution may be negative; prior to clearing, FTRs with negative contribution shall be deemed to have zero contribution.

**FTR Net Activity**

FTR Net Activity shall mean the aggregate net value of the billing line items for auction revenue rights credits, FTR auction charges, FTR auction credits, and FTR congestion credits, and shall also include day-ahead and balancing/real-time congestion charges up to a maximum net value of the sum of the foregoing auction revenue rights credits, FTR auction charges, FTR auction credits and FTR congestion credits.

**FTR Participant**

FTR Participant shall mean any Market Participant that is required to provide Financial Security in order to participate in PJM's FTR auctions.

**FTR Portfolio Auction Value**

FTR Portfolio Auction Value shall mean for each Participant (or Participant account), the sum, calculated on a monthly basis, across all FTRs, of the FTR price times the FTR volume in MW.

**Full Notice to Proceed**

Full Notice to Proceed shall mean that all material third party contractors have been given the notice to proceed with construction by the Capacity Market Seller or its agent, with a guaranteed completion date backed by liquidated damages.

**Market Participant**

Market Participant shall have the meaning provided in the Operating Agreement.

**Material**

For these purposes, material is defined in §I.B.3, Material Changes. For the purposes herein, the use of the term "material" is not necessarily synonymous with use of the term by governmental agencies and regulatory bodies.

**Member**

Member shall have the meaning provided in the Operating Agreement.

**Minimum Participation Requirements**

A set of minimum training, risk management, communication and capital or collateral requirements required for Participants in the PJM markets, as set forth herein and in the Form of Annual Certification set forth as Appendix 1 to this Attachment Q. Participants transacting in FTRs in certain circumstances will be required to demonstrate additional risk management procedures and controls as further set forth in the Annual Certification found in Appendix 1 to this Attachment Q.

**Net Obligation**

Net Obligation is the amount owed to PJM Settlement and PJM for purchases from the PJM Markets, Transmission Service, (under both Part II and Part III of the O.A.T.T.), and other services pursuant to the Agreements, after applying a deduction for amounts owed to a

Participant by PJMSettlement as it pertains to monthly market activity and services. Should other markets be formed such that Participants may incur future Obligations in those markets, then the aggregate amount of those Obligations will also be added to the Net Obligation.

### **Net Sell Position**

Net Sell Position is the amount of Net Obligation when Net Obligation is negative.

### **Nodal Reference Price**

The Nodal Reference Price at each location is the 97th percentile price differential between hourly day-ahead and real-time prices experienced over the corresponding two-month reference period in the prior calendar year. In order to capture seasonality effects and maintain a two-month reference period, reference months will be grouped by two, starting with January (e.g., Jan-Feb, Mar-Apr, ... , Jul-Aug, ... Nov-Dec). For any given current-year month, the reference period months will be the set of two months in the prior calendar year that include the month corresponding to the current month. For example, July and August 2003 would each use July-August 2002 as their reference period.

### **Obligation**

Obligation is all amounts owed to PJMSettlement for purchases from the PJM Markets, Transmission Service, (under both Part II and Part III of the O.A.T.T.), and other services or obligations pursuant to the Agreements. In addition, aggregate amounts that will be owed to PJMSettlement in the future for Capacity purchases within the PJM Capacity markets will be added to this figure. Should other markets be formed such that Participants may incur future Obligations in those markets, then the aggregate amount of those Obligations will also be added to the Net Obligation.

### **Operating Agreement of PJM Interconnection, L.L.C., (“Operating Agreement”)**

The Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., dated as of June 2, 1997, on file with the Federal Energy Regulatory Commission, and as revised from time to time.

### **Participant**

A Participant is a Market Participant and/or Transmission Customer and/or Applicant requesting to be an active Market Participant and/or Transmission Customer.

### **Peak Market Activity**

Peak Market Activity is a measure of exposure for which credit is required, involving peak exposures in rolling three-week periods over a year timeframe, with two semi-annual reset points, pursuant to provisions of section II.D of this Credit Policy.

### **Planned Financed Generation Capacity Resource**

**Planned Financed Generation Capacity Resource shall mean a Planned Generation Capacity Resource that, prior to August 7, 2015, has an effective Interconnection Service Agreement and has submitted to the Office of the Interconnection the appropriate certification attesting achievement of Financial Close.**

### **Planned External Financed Generation Capacity Resource**

Planned External Financed Generation Capacity Resource shall mean a Planned External Generation Capacity Resource that, prior to August 7, 2015, has an effective agreement that is the equivalent of an Interconnection Service Agreement, has submitted to the Office of the Interconnection the appropriate certification attesting achievement of Financial Close, and has secured at least 50 percent of the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

### **PJM Markets**

The PJM Markets are the PJM Interchange Energy Market and the PJM Capacity markets as established by the Operating Agreement. Also any other markets that exist or may be established in the future wherein Participants may incur Obligations to PJMSettlement.

### **PJM Open Access Transmission Tariff (“O.A.T.T.”)**

The Open Access Transmission Tariff of PJM Interconnection, L.L.C., on file with the Federal Energy Regulatory Commission, and as revised from time to time.

### **Reliability Assurance Agreement (“R.A.A.”)**

See the definition of the Reliability Assurance Agreement (“R.A.A.”) in the Operating Agreement.

### **RPM Seller Credit**

RPM Seller Credit is an additional form of Unsecured Credit defined in section IV of this document.

### **Seller Credit**

A Seller Credit is a form of Unsecured Credit extended to Participants that have a consistent long-term history of selling into PJM Markets, as defined in this document.

### **Tangible Net Worth**

Tangible Net Worth is all assets (not including any intangible assets such as goodwill) less all liabilities. Any such calculation may be reduced by PJMSettlement upon review of the available financial information.

### **Total Net Obligation**

Total Net Obligation is all unpaid billed Net Obligations plus any unbilled Net Obligation incurred to date, as determined by PJMSettlement on a daily basis, plus any other Obligations owed to PJMSettlement at the time.

### **Total Net Sell Position**

Total Net Sell Position is all unpaid billed Net Sell Positions plus any unbilled Net Sell Positions accrued to date, as determined by PJMSettlement on a daily basis.

### **Transmission Customer**

Transmission Customer is a Transmission Customer is an entity taking service under Part II or Part III of the O.A.T.T.

**Transmission Service**

Transmission Service is any or all of the transmission services provided by PJM pursuant to Part II or Part III of the O.A.T.T.

**Uncleared Bid Exposure**

Uncleared Bid Exposure is a measure of exposure from Increment Offers and Decrement Bids activity relative to a Participant's established credit as defined in this policy. It is used only as a pre-screen to determine whether a Participant's Increment Offers and Decrement Bids should be subject to Increment Offer and Decrement Bid Screening.

**Unsecured Credit**

Unsecured Credit is any credit granted by PJMSettlement to a Participant that is not secured by a form of Financial Security.

**Unsecured Credit Allowance**

Unsecured Credit Allowance is Unsecured Credit extended by PJMSettlement in an amount determined by PJMSettlement's evaluation of the creditworthiness of a Participant. This is also defined as the amount of credit that a Participant qualifies for based on the strength of its own financial condition without having to provide Financial Security. See also: "Working Credit Limit."

**Up-to Congestion Counterflow Transaction**

An Up-to Congestion Transaction will be deemed an Up-to Congestion Counterflow Transaction if the following value is negative: (a) when bidding, the lower of the bid price and the prior Up-to Congestion Historical Month's average real-time value for the transaction; or (b) for cleared Virtual Transactions, the cleared day-ahead price of the Virtual Transactions.

**Up-to Congestion Historical Month**

An Up-to Congestion Historical Month is a consistently-defined historical period nominally one month long that is as close to a calendar month as PJM determines is practical.

**Up-to Congestion Prevailing Flow Transaction**

An Up-to Congestion Transaction will be deemed an Up-to Congestion Prevailing Flow Transaction if it is not an Up-to Congestion Counterflow Transaction.

**Up-to Congestion Reference Price**

The Up-to Congestion Reference Price for an Up-to Congestion Transaction is the specified percentile price differential between source and sink (defined as sink price minus source price) for hourly real-time prices experienced over the prior Up-to Congestion Historical Month, averaged with the same percentile value calculated for the second prior Up-to Congestion Historical Month. Up-to Congestion Reference Prices shall be calculated using the following historical percentiles:

For Up-to Congestion Prevailing Flow Transactions: 30<sup>th</sup> percentile

For Up-to Congestion Counterflow Transactions when bid: 20<sup>th</sup> percentile

For Up-to Congestion Counterflow Transactions when cleared: 5<sup>th</sup> percentile

**Virtual Credit Exposure**

Virtual Credit Exposure is the amount of potential credit exposure created by a market participant's bid submitted into the Day-ahead market, as defined in this policy.

**Virtual Transaction Screening**

Virtual Transaction Screening is the process of reviewing the Virtual Credit Exposure of submitted Virtual Transactions against the Credit Available for Virtual Transactions. If the credit required is greater than credit available, then the Virtual Transactions will not be accepted.

**Virtual Transactions Net Activity**

Virtual Transactions Net Activity shall mean the aggregate net total, resulting from Virtual Transactions, of (i) Spot Market Energy charges, (ii) Transmission Congestion Charges, and (iii) Transmission Loss Charges, calculated as set forth in Attachment K-Appendix. Virtual Transactions Net Activity may be positive or negative.

**Working Credit Limit**

Working Credit Limit amount is 75% of the Market Participant's Unsecured Credit Allowance and/or 75% of the Financial Security provided by the Market Participant to PJMSettlement. The Working Credit Limit establishes the maximum amount of Total Net Obligation that a Market Participant may have outstanding at any time. The calculation of Working Credit Limit shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in this policy.

**Working Credit Limit for Virtual Transactions**

The Working Credit Limit for Virtual Transactions shall be calculated as 75% of the Market Participant's Unsecured Credit Allowance and/or 75% of the Financial Security provided by the Market Participant to PJMSettlement when the Market Participant is at or below its Peak Market Activity credit requirements as specified in section II.D of this Credit Policy. When the Market Participant provides additional Unsecured Credit Allowance and/or Financial Security in excess of its Peak Market Activity credit requirements, such additional Unsecured Credit Allowance and/or Financial Security shall not be discounted by 25% when calculating the Working Credit Limit for Virtual Transactions. The Working Credit Limit for Virtual Transactions is a component in the calculation of Credit Available for Virtual Transactions. The calculation of Working Credit Limit for Virtual Transactions shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in this policy.

**Appendix 1 to Attachment Q**



**PJM MINIMUM PARTICIPATION CRITERIA  
OFFICER CERTIFICATION FORM**

Participant Name: \_\_\_\_\_ ("Participant")

I, \_\_\_\_\_, a duly authorized officer of Participant, understanding that PJM Interconnection, L.L.C. and PJM Settlement, Inc. ("PJMSettlement") are relying on this certification as evidence that Participant meets the minimum requirements set forth in Attachment Q to the PJM Open Access Transmission Tariff ("PJM Tariff"), hereby certify that I have full authority to represent on behalf of Participant and further represent as follows, as evidenced by my initialing each representation in the space provided below:

1. All employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Amended and Restated Operating Agreement ("PJM Operating Agreement") on behalf of the Participant have received appropriate<sup>1</sup> training and are authorized to transact on behalf of Participant. \_\_\_\_\_
  
2. Participant has written risk management policies, procedures, and controls, approved by Participant's independent risk management function<sup>2</sup> and applicable to transactions in the PJM markets in which it participates and for which employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Operating Agreement have been trained, that provide an appropriate, comprehensive risk management framework that, at a minimum, clearly identifies and documents the range of risks to which Participant is exposed, including, but not limited to credit risks, liquidity risks and market risks. \_\_\_\_\_
  
3. An FTR Participant (as defined in Attachment Q to the PJM Tariff) must make either the following 3.a. or 3.b. additional representations, evidenced by the undersigned officer initialing either the one 3.a. representation or the six 3.b. representations in the spaces provided below:
  - 3.a. Participant transacts in PJM's FTR markets with the sole intent to hedge congestion risk in connection with either obligations Participant has to serve load or rights Participant has to generate electricity in the PJM Region ("physical

<sup>1</sup> As used in this representation, the term "appropriate" as used with respect to training means training that is (i) comparable to generally accepted practices in the energy trading industry, and (ii) commensurate and proportional in sophistication, scope and frequency to the volume of transactions and the nature and extent of the risk taken by the participant.

<sup>2</sup> As used in this representation, a Participant's "independent risk management function" can include appropriate corporate persons or bodies that are independent of the Participant's trading functions, such as a risk management committee, a risk officer, a Participant's board or board committee, or a board or committee of the Participant's parent company.

transactions”) and monitors all of the Participant’s FTR market activity to endeavor to ensure that its FTR positions, considering both the size and pathways of the positions, are either generally proportionate to or generally do not exceed the Participant’s physical transactions, and remain generally consistent with the Participant’s intention to hedge its physical transactions. \_\_\_\_\_

- 3.b. On no less than a weekly basis, Participant values its FTR positions and engages in a probabilistic assessment of the hypothetical risk of such positions using analytically based methodologies, predicated on the use of industry accepted valuation methodologies. \_\_\_\_\_

Such valuation and risk assessment functions are performed either by persons within Participant’s organization independent from those trading in PJM’s FTR markets or by an outside firm qualified and with expertise in this area of risk management. \_\_\_\_\_

Having valued its FTR positions and quantified their hypothetical risks, Participant applies its written policies, procedures and controls to limit its risks using industry recognized practices, such as value-at-risk limitations, concentration limits, or other controls designed to prevent Participant from purposefully or unintentionally taking on risk that is not commensurate or proportional to Participant’s financial capability to manage such risk. \_\_\_\_\_

Exceptions to Participant’s written risk policies, procedures and controls applicable to Participant’s FTR positions are documented and explain a reasoned basis for the granting of any exception. \_\_\_\_\_

Participant has provided to PJMSettlement, in accordance with Section I A. of Attachment Q to the PJM Tariff, a copy of its current governing risk management policies, procedures and controls applicable to its FTR trading activities. \_\_\_\_\_

If the risk management policies, procedures and controls applicable to Participant’s FTR trading activities submitted to PJMSettlement were submitted prior to the current certification, Participant certifies that no substantive changes have been made to such policies, procedures and controls applicable to its FTR trading activities since such submission. \_\_\_\_\_

4. Participant has appropriate personnel resources, operating procedures and technical abilities to promptly and effectively respond to all PJM communications and directions. \_\_\_\_\_
5. Participant has demonstrated compliance with the Minimum Capitalization criteria set forth in Attachment Q of the PJM Open Access Transmission Tariff that are applicable to the PJM market(s) in which Participant transacts, and is not aware of any change having occurred or being imminent that would invalidate such compliance. \_\_\_\_\_

6. All Participants must certify and initial in at least one of the four sections below:

- a. I certify that Participant qualifies as an “appropriate person” as that term is defined under Section 4(c)(3), or successor provision, of the Commodity Exchange Act or an “eligible contract participant” as that term is defined under Section 1a(18), or successor provision, of the Commodity Exchange Act. I certify that Participant will cease transacting in PJM’s Markets and notify PJMSettlement immediately if Participant no longer qualifies as an “appropriate person” or “eligible contract participant.” \_\_\_\_\_

If providing financial statements to support Participant’s certification of qualification as an “appropriate person:”

I certify, to the best of my knowledge and belief, that the financial statements provided to PJMSettlement present fairly, pursuant to such disclosures in such financial statements, the financial position of Participant as of the date of those financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$5 million total asset levels reflected in these financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. \_\_\_\_\_

If providing financial statements to support Participant’s certification of qualification as an “eligible contract participant:”

I certify, to the best of my knowledge and belief, that the financial statements provided to PJMSettlement present fairly, pursuant to such disclosures in such financial statements, the financial position of Participant as of the date of those financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$10 million total asset levels reflected in these financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. \_\_\_\_\_

- b. I certify that Participant has provided an unlimited Corporate Guaranty in a form acceptable to PJM as described in Section I.C of Attachment Q from an issuer that has at least \$1 million of total net worth or \$5 million of total assets per Participant per Participant for which the issuer has issued an unlimited Corporate Guaranty. I certify that Participant will cease transacting PJM’s Markets and notify PJMSettlement immediately if issuer of the unlimited Corporate Guaranty for Participant no longer has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. \_\_\_\_\_

I certify that the issuer of the unlimited Corporate Guaranty to Participant continues to have at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. I acknowledge that PJM and PJMSettlement are relying upon my certifications to maintain compliance with federal regulatory requirements.\_\_\_\_\_

c. I certify that Participant fulfills the eligibility requirements of the Commodity Futures Trading Commission exemption order (78 F.R. 19880 – April 2, 2013) by being in the business of at least one of the following in the PJM Region as indicated below (initial those applicable):

1. Generating electric energy, including Participants that resell physical energy acquired from an entity generating electric energy:\_\_\_\_\_
2. Transmitting electric energy:\_\_\_\_\_
3. Distributing electric energy delivered under Point-to-Point or Network Integration Transmission Service, including scheduled import, export and wheel through transactions:\_\_\_\_\_
4. Other electric energy services that are necessary to support the reliable operation of the transmission system:\_\_\_\_\_

Description only if c(4) is initialed:

\_\_\_\_\_

Further, I certify that Participant will cease transacting in PJM's Markets and notify PJMSettlement immediately if Participant no longer performs at least one of the functions noted above in the PJM Region. I acknowledge that PJM and PJMSettlement are relying on my certification to maintain compliance with federal energy regulatory requirements.\_\_\_\_\_

- d. I certify that Participant has provided a letter of credit of \$5 million or more to PJMSettlement in a form acceptable to PJMSettlement as described in Section VI.B of Attachment Q that the Participant acknowledges cannot be utilized to meet its credit requirements to PJMSettlement. I acknowledge that PJM and PJMSettlement are relying on the provision of this letter of credit and my certification to maintain compliance with federal regulatory requirements.\_\_\_\_\_
7. I acknowledge that I have read and understood the provisions of Attachment Q of the PJM Tariff applicable to Participant's business in the PJM markets, including those provisions describing PJM's minimum participation requirements and the enforcement actions available to PJMSettlement of a Participant not satisfying those requirements. I acknowledge that the information provided herein is true and accurate to the best of my belief and knowledge after due investigation. In addition, by signing this Certification, I

acknowledge the potential consequences of making incomplete or false statements in this Certification. \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

## **2. DEFINITIONS**

Definitions specific to this Attachment are set forth below. In addition, any capitalized terms used in this Attachment not defined herein shall have the meaning given to such terms elsewhere in this Tariff or in the Operating Agreement or RAA. References to section numbers in this Attachment DD refer to sections of this attachment, unless otherwise specified.

### **2.1 Annual Demand Resource**

“Annual Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.1A Annual Energy Efficiency Resource**

“Annual Energy Efficiency Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.1B Annual Resource**

“Annual Resource” shall mean a Generation Capacity Resource, an Annual Energy Efficiency Resource or an Annual Demand Resource.

#### **2.1C Annual Resource Price Adder**

“Annual Resource Price Adder” shall mean, for Delivery Years starting June 1, 2014 and ending May 31, 2017, an addition to the marginal value of Unforced Capacity and the Extended Summer Resource Price Adder as necessary to reflect the price of Annual Resources required to meet the applicable Minimum Annual Resource Requirement.

#### **2.1D Annual Revenue Rate**

“Annual Revenue Rate” shall mean the rate employed to assess a compliance penalty charge on a Curtailment Service Provider under section 11.

### **2.2 Avoidable Cost Rate**

“Avoidable Cost Rate” shall mean a component of the Market Seller Offer Cap calculated in accordance with section 6.

#### **2.2.01 Balancing Ratio**

“Balancing Ratio” shall have the meaning provided in section 10A.

#### **2.2A Base Capacity Demand Resource**

“Base Capacity Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.2B Base Capacity Demand Resource Constraint**

“Base Capacity Demand Resource Constraint” for the PJM Region or an LDA, shall mean, for the 2018/2019 and 2019/2020 Delivery Years, the maximum Unforced Capacity amount, determined by PJM, of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources that is consistent with the maintenance of reliability. As more fully set forth in the PJM Manuals, PJM calculates the Base Capacity Demand Resource Constraint for the PJM Region or an LDA, by first determining a reference annual loss of load expectation (“LOLE”) assuming no Base Capacity Resources, including no Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources. The calculation for the PJM Region uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question.

For both the PJM Region and LDA analyses, PJM then models the commitment of varying amounts of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources (displacing otherwise committed generation) as interruptible from June 1 through September 30 and unavailable the rest of the Delivery Year in question and calculates the LOLE at each DR and EE level. The Base Capacity Demand Resource Constraint is the combined amount of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, stated as a percentage of the unrestricted annual peak load, that produces no more than a five percent increase in the LOLE, compared to the reference value. The Base Capacity Demand Resource Constraint shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

## **2.2C Base Capacity Demand Resource Price Decrement**

“Base Capacity Demand Resource Price Decrement” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources and the clearing price for Base Capacity Resources and Capacity Performance Resources, representing the cost to procure additional Base Capacity Resources or Capacity Performance Resources out of merit order when the Base Capacity Demand Resource Constraint is binding.

## **2.2D Base Capacity Energy Efficiency Resource**

“Base Capacity Energy Efficiency Resource” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.2E Base Capacity Resource**

“Base Capacity Resource” shall mean a Capacity Resource as described in section 5.5A(b).

## **2.2F Base Capacity Resource Constraint**

“Base Capacity Resource Reliability Constraint” for the PJM Region or an LDA, shall mean, for the 2018/2019 and 2019/2020 Delivery Years, the maximum Unforced Capacity amount, determined by PJM, of Base Capacity Resources, including Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, that is consistent with the maintenance of reliability. As more fully set forth in the PJM Manuals, PJM calculates the above Base Capacity Resource Constraint for the PJM Region or an LDA, by first determining a reference annual loss of load expectation (“LOLE”) assuming no Base Capacity Resources, including no Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources. The calculation for the PJM Region uses the weekly load distribution from the Installed Reserve Margin study for the Delivery Year in question (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a weekly load distribution (based on the Installed Reserve Margin study and the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question. Additionally, for the PJM Region and relevant LDA calculation, the weekly capacity distributions are adjusted to reflect winter ratings.

For both the PJM Region and LDA analyses, PJM models the commitment of an amount of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources equal to the Base Capacity Demand Resource Constraint (displacing otherwise committed generation). PJM then models the commitment of varying amounts of Base Capacity Resources (displacing otherwise committed generation) as unavailable during the peak week of winter and available the rest of the Delivery Year in question and calculates the LOLE at each Base Capacity Resource level. The Base Capacity Resource Constraint is the combined amount of Base Capacity Demand Resources, Base Capacity Energy Efficiency Resources and Base Capacity Resources, stated as a percentage of the unrestricted annual peak load, that produces no more than a ten percent increase in the LOLE, compared to the reference value. The Base Capacity Resource Constraint shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA



and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [one minus the pool-wide average EFORD] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

“Base Capacity Resource Price Decrement” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Resources and the clearing price for Capacity Performance Resources, representing the cost to procure additional Capacity Performance Resources out of merit order when the Base Capacity Resource Constraint is binding.

## **2.2G Base Capacity Resource Price Decrement**

“Base Capacity Resource Price Decrement” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Resources and the clearing price for Capacity Performance Resources, representing the cost to procure additional Capacity Performance Resources out of merit order when the Base Capacity Resource Constraint is binding.

## **2.3 Base Load Generation Resource**

“Base Load Generation Resource” shall mean a Generation Capacity Resource that operates at least 90 percent of the hours that it is available to operate, as determined by the Office of the Interconnection in accordance with the PJM Manuals.

## **2.4 Base Offer Segment**

“Base Offer Segment” shall mean a component of a Sell Offer based on an existing Generation Capacity Resource, equal to the Unforced Capacity of such resource, as determined in accordance with the PJM Manuals. If the Sell Offers of multiple Market Sellers are based on a single Existing Generation Capacity Resource, the Base Offer Segments of such Market Sellers shall be determined pro rata based on their entitlements to Unforced Capacity from such resource.

## **2.5 Base Residual Auction**

“Base Residual Auction” shall mean the auction conducted three years prior to the start of the Delivery Year to secure commitments from Capacity Resources as necessary to satisfy any portion of the Unforced Capacity Obligation of the PJM Region not satisfied through Self-Supply.

## **2.6 Buy Bid**

“Buy Bid” shall mean a bid to buy Capacity Resources in any Incremental Auction.

## **2.6A Compliance Aggregation Area (CAA)**

“Compliance Aggregation Area” or “CAA” shall mean a geographic area of Zones or sub-Zones that are electrically-contiguous and experience for the relevant Delivery Year, based on Resource Clearing Prices of, for Delivery Years through May 31, 2018, Annual Resources and for the 2018/2019 Delivery Year and subsequent Delivery Years, Capacity Performance Resources, the same locational price separation in the Base Residual Auction, the same locational price separation in the First Incremental Auction, the same locational price separation in the Second Incremental Auction, or the same locational price separation in the Third Incremental Auction.

## **2.7 Capacity Credit**

“Capacity Credit” shall have the meaning specified in Schedule 11 of the Operating Agreement, including Capacity Credits obtained prior to the termination of such Schedule applicable to periods after the termination of such Schedule.

## **2.8 Capacity Emergency Transfer Limit**

“Capacity Emergency Transfer Limit” or “CETL” shall have the meaning provided in the Reliability Assurance Agreement.

## **2.9 Capacity Emergency Transfer Objective**

“Capacity Emergency Transfer Objective” or “CETO” shall have the meaning provided in the Reliability Assurance Agreement.

## **2.9A Capacity Export Transmission Customer**

“Capacity Export Transmission Customer” shall mean a customer taking point to point transmission service under Part II of this Tariff to export capacity from a generation resource located in the PJM Region that has qualified for an exception to the RPM must-offer requirement as described in section 6.6(g).

## **2.9B Capacity Import Limit**

“Capacity Import Limit” shall have the meaning provided in the Reliability Assurance Agreement.

## **2.10 Capacity Market Buyer**

“Capacity Market Buyer” shall mean a Member that submits bids to buy Capacity Resources in any Incremental Auction.

## **2.11 Capacity Market Seller**

“Capacity Market Seller” shall mean a Member that owns, or has the contractual authority to control the output or load reduction capability of, a Capacity Resource, that has not transferred

such authority to another entity, and that offers such resource in the Base Residual Auction or an Incremental Auction.

### **2.11A Capacity Performance Resource**

“Capacity Performance Resource” shall mean a Capacity Resource as described in section 5.5A(a).

### **2.11B Capacity Performance Transition Incremental Auction**

“Capacity Performance Transition Incremental Auction” shall have the meaning specified in section 5.14D.

### **2.12 Capacity Resource**

“Capacity Resource” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.13 Capacity Resource Clearing Price**

“Capacity Resource Clearing Price” shall mean the price calculated for a Capacity Resource that offered and cleared in a Base Residual Auction or Incremental Auction, in accordance with Section 5.

### **2.13A Capacity Storage Resource**

“Capacity Storage Resource” shall mean any hydroelectric power plant, flywheel, battery storage, or other such facility solely used for short term storage and injection of energy at a later time to participate in the PJM energy and/or Ancillary Services markets and which participates in the Reliability Pricing Model.

### **2.14 Capacity Transfer Right**

“Capacity Transfer Right” shall mean a right, allocated to LSEs serving load in a Locational Deliverability Area, to receive payments, based on the transmission import capability into such Locational Deliverability Area, that offset, in whole or in part, the charges attributable to the Locational Price Adder, if any, included in the Zonal Capacity Price calculated for a Locational Delivery Area.

### **2.14A Conditional Incremental Auction**

“Conditional Incremental Auction” shall mean an Incremental Auction conducted for a Delivery Year if and when necessary to secure commitments of additional capacity to address reliability criteria violations arising from the delay in a Backbone Transmission upgrade that was modeled in the Base Residual Auction for such Delivery Year.

### **2.15 CONE Area**

“CONE Area” shall mean the areas listed in section 5.10(a)(iv)(A) and any LDAs established as CONE Areas pursuant to section 5.10(a)(iv)(B).

## **2.16 Cost of New Entry**

“Cost of New Entry” or “CONE” shall mean the nominal levelized cost of a Reference Resource, as determined in accordance with section 5.

### **2.16A Credit-Limited Offer**

“Credit-Limited Offer” shall have the meaning provided in Attachment Q to this Tariff.

## **2.17 Daily Deficiency Rate**

“Daily Deficiency Rate” shall mean the rate employed to assess certain deficiency charges under sections 7, 8, 9, or 13.

## **2.18 Daily Unforced Capacity Obligation**

“Daily Unforced Capacity Obligation” shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with Schedule 8, or, as to an FRR entity, in Schedule 8.1 of the Reliability Assurance Agreement.

## **2.19 Delivery Year**

Delivery Year shall mean the Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Section 5, or pursuant to an FRR Capacity Plan.

## **2.20 Demand Resource**

“Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.21 Demand Resource Factor or DR Factor**

“Demand Resource Factor” or (“DR Factor”) shall have the meaning specified in the Reliability Assurance Agreement.

## **2.22 [Reserved for Future Use]**

## **2.23 EFORD**

“EFORD” shall have the meaning specified in the PJM Reliability Assurance Agreement.

### **2.23A Emergency Action**

“Emergency Action” shall mean any emergency action for locational or system-wide capacity shortages that either utilizes pre-emergency mandatory load management reductions or other emergency capacity, or initiates a more severe action including, but not limited to, a Voltage Reduction Warning, Voltage Reduction Action, Manual Load Dump Warning, or Manual Load Dump Action.

## **2.24 Energy Efficiency Resource**

“Energy Efficiency Resource” shall have the meaning specified in the PJM Reliability Assurance Agreement.

### **2.24.01 Environmentally-Limited Resource**

“Environmentally-Limited Resource” shall mean a resource which has a limit on its run hours imposed by a federal, state, or other governmental agency that will significantly limit its availability, on either a temporary or long-term basis. This includes a resource that is limited by a governmental authority to operating only during declared PJM capacity emergencies.

### **2.24A Extended Summer Demand Resource**

“Extended Summer Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.24B Extended Summer Resource Price Adder**

“Extended Summer Resource Price Adder” shall mean, for Delivery Years through May 31, 2018, an addition to the marginal value of Unforced Capacity as necessary to reflect the price of Annual Resources and Extended Summer Demand Resources required to meet the applicable Minimum Extended Summer Resource Requirement.

### **2.24C Sub-Annual Resource Reliability Target**

“Sub-Annual Reliability Target” for the PJM Region or an LDA, shall mean the maximum amount of the combination of Extended Summer Demand Resources and Limited Demand Resources in Unforced Capacity determined by PJM to be consistent with the maintenance of reliability, stated in Unforced Capacity, that shall be used to calculate the Minimum Annual Resource Requirement for Delivery Years through May 31, 2017 and the Sub-Annual Resource Constraint for the 2017/2018 and 2018/2019 Delivery Years. As more fully set forth in the PJM Manuals, PJM calculates the Sub-Annual Resource Reliability Target, by first determining a reference annual loss of load expectation (“LOLE”) assuming no Demand Resources. The calculation for the unconstrained portion of the PJM Region uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast for the Delivery Year in

question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Capacity Emergency Transfer Objective study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question.

For both the PJM Region and LDA analyses, PJM then models the commitment of varying amounts of DR (displacing otherwise committed generation) as interruptible from May 1 through October 31 and unavailable from November 1 through April 30 and calculates the LOLE at each DR level. The Extended Summer DR Reliability Target is the DR amount, stated as a percentage of the unrestricted peak load, that produces no more than a ten percent increase in the LOLE, compared to the reference value. The Sub-Annual Resource Reliability Target shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the DR Factor] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

## **2.25 Sub-Annual Resource Constraint**

“Sub-Annual Resource Constraint” shall mean, for the 2017/2018 Delivery Year and for FRR Capacity Plans the 2017/2018 and 2018/2019 Delivery Years, for the PJM Region or for each LDA for which the Office of the Interconnection is required under section 5.10(a) of this Attachment DD to establish a separate VRR Curve for a Delivery Year, a limit on the total amount of Unforced Capacity that can be committed as Limited Demand Resources and Extended Summer Demand Resources for the 2017/2018 Delivery Year in the PJM Region or in such LDA, calculated as the Sub-Annual Resource Reliability Target for the PJM Region or for such LDA, respectively, minus the Short-Term Resource Procurement Target for the PJM Region or for such LDA, respectively.

## **2.26 Final RTO Unforced Capacity Obligation**

“Final RTO Unforced Capacity Obligation” shall mean the capacity obligation for the PJM Region, determined in accordance with Schedule 8 of the Reliability Assurance Agreement.

### **2.26A [Reserved]**

## **2.27 First Incremental Auction**

“First Incremental Auction” shall mean an Incremental Auction conducted 20 months prior to the start of the Delivery Year to which it relates.

## **2.28 Forecast Pool Requirement**

“Forecast Pool Requirement” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.29 [Reserved]**

### **2.30 [Reserved]**

### **2.31 Generation Capacity Resource**

“Generation Capacity Resource” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.32 Generator Forced Outage**

“Generator Forced Outage” shall have the meaning specified in the Operating Agreement.

### **2.33 Generator Maintenance Outage**

“Generator Maintenance Outage” shall have the meaning specified in the Operating Agreement.

### **2.33A Generator Planned Outage**

“Generator Planned Outage” shall have the meaning specified in the Operating Agreement.

### **2.34 Incremental Auction**

“Incremental Auction” shall mean any of several auctions conducted for a Delivery Year after the Base Residual Auction for such Delivery Year and before the first day of such Delivery Year, including the First Incremental Auction, Second Incremental Auction, Third Incremental Auction or Conditional Incremental Auction. Incremental Auctions (other than the Conditional Incremental Auction), shall be held for the purposes of:

(i) allowing Market Sellers that committed Capacity Resources in the Base Residual Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year (due to resource retirement, resource cancellation or construction delay, resource derating, EFORD increase, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences) to submit Buy Bids for replacement Capacity Resources; and

(ii) allowing the Office of the Interconnection to reduce or increase the amount of committed capacity secured in prior auctions for such Delivery Year if, as a result of changed circumstances or expectations since the prior auction(s), there is, respectively, a significant excess or significant deficit of committed capacity for such Delivery Year, for the PJM Region or for an LDA.

### **2.35 Incremental Capacity Transfer Right**

“Incremental Capacity Transfer Right” shall mean a Capacity Transfer Right allocated to a Generation Interconnection Customer or Transmission Interconnection Customer obligated to

fund a transmission facility or upgrade, to the extent such upgrade or facility increases the transmission import capability into a Locational Deliverability Area, or a Capacity Transfer Right allocated to a Responsible Customer in accordance with Schedule 12A of the Tariff.

## **2.36 Intermittent Resource**

“Intermittent Resource” shall mean a Generation Capacity Resource with output that can vary as a function of its energy source, such as wind, solar, run of river hydroelectric power and other renewable resources.

### **2.36A Limited Demand Resource**

“Limited Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.36B Limited Demand Resource Reliability Target**

“Limited Demand Resource Reliability Target” for the PJM Region or an LDA, shall mean the maximum amount of Limited Demand Resources determined by PJM to be consistent with the maintenance of reliability, stated in Unforced Capacity that shall be used to calculate the Minimum Extended Summer Demand Resource Requirement for Delivery Years through May 31, 2017 and the Limited Resource Constraint for the 2017/2018 and 2018/2019 Delivery Years for the PJM Region or such LDA. As more fully set forth in the PJM Manuals, PJM calculates the Limited Demand Resource Reliability Target by first: i) testing the effects of the ten-interruption requirement by comparing possible loads on peak days under a range of weather conditions (from the daily load forecast distributions for the Delivery Year in question) against possible generation capacity on such days under a range of conditions (using the cumulative capacity distributions employed in the Installed Reserve Margin study for the PJM Region and in the Capacity Emergency Transfer Objective study for the relevant LDAs for such Delivery Year) and, by varying the assumed amounts of DR that is committed and displaces committed generation, determines the DR penetration level at which there is a ninety percent probability that DR will not be called (based on the applicable operating reserve margin for the PJM Region and for the relevant LDAs) more than ten times over those peak days; ii) testing the six-hour duration requirement by calculating the MW difference between the highest hourly unrestricted peak load and seventh highest hourly unrestricted peak load on certain high peak load days (e.g., the annual peak, loads above the weather normalized peak, or days where load management was called) in recent years, then dividing those loads by the forecast peak for those years and averaging the result; and (iii) (for the 2016/2017 and 2017/2018 Delivery Years) testing the effects of the six-hour duration requirement by comparing possible hourly loads on peak days under a range of weather conditions (from the daily load forecast distributions for the Delivery Year in question) against possible generation capacity on such days under a range of conditions (using a Monte Carlo model of hourly capacity levels that is consistent with the capacity model employed in the Installed Reserve Margin study for the PJM Region and in the Capacity Emergency Transfer Objective study for the relevant LDAs for such Delivery Year) and, by varying the assumed amounts of DR that is committed and displaces committed generation, determines the DR penetration level at which there is a ninety percent probability that DR will



not be called (based on the applicable operating reserve margin for the PJM Region and for the relevant LDAs) for more than six hours over any one or more of the tested peak days. Second, PJM adopts the lowest result from these three tests as the Limited Demand Resource Reliability Target. The Limited Demand Resource Reliability Target shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the DR Factor] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

### **2.36C Limited Resource Constraint**

“Limited Resource Constraint” shall mean, for the 2017/2018 Delivery Year and for FRR Capacity Plans the 2017/2018 and Delivery Years, for the PJM Region or each LDA for which the Office of the Interconnection is required under section 5.10(a) of this Attachment DD to establish a separate VRR Curve for a Delivery Year, a limit on the total amount of Unforced Capacity that can be committed as Limited Demand Resources for the 2017/2018 Delivery Year in the PJM Region or in such LDA, calculated as the Limited Demand Resource Reliability Target for the PJM Region or such LDA, respectively, minus the Short Term Resource Procurement Target for the PJM Region or such LDA, respectively.

### **2.36D Limited Resource Price Decrement**

“Limited Resource Price Decrement” shall mean, for the 2017/2018 Delivery Year , a difference between the clearing price for Limited Demand Resources and the clearing price for Extended Summer Demand Resources and Annual Resources, representing the cost to procure additional Extended Summer Demand Resources or Annual Resources out of merit order when the Limited Resource Constraint is binding.

### **2.37 Load Serving Entity (LSE)**

“Load Serving Entity” or “LSE” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.38 Locational Deliverability Area (LDA)**

“Locational Deliverability Area” or “LDA” shall mean a geographic area within the PJM Region that has limited transmission capability to import capacity to satisfy such area’s reliability requirement, as determined by the Office of the Interconnection in connection with preparation of the Regional Transmission Expansion Plan, and as specified in Schedule 10.1 of the Reliability Assurance Agreement.

### **2.39 Locational Deliverability Area Reliability Requirement**

“Locational Deliverability Area Reliability Requirement” shall mean the projected internal capacity in the Locational Deliverability Area plus the Capacity Emergency Transfer Objective for the Delivery Year, as determined by the Office of the Interconnection in connection with

preparation of the Regional Transmission Expansion Plan, less the minimum internal resources required for all FRR Entities in such Locational Deliverability Area.

#### **2.40 Locational Price Adder**

“Locational Price Adder” shall mean an addition to the marginal value of Unforced Capacity within an LDA as necessary to reflect the price of Capacity Resources required to relieve applicable binding locational constraints.

#### **2.41 Locational Reliability Charge**

“Locational Reliability Charge” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.41A Locational UCAP**

“Locational UCAP” shall mean unforced capacity that a Member with available uncommitted capacity sells in a bilateral transaction to a Member that previously committed capacity through an RPM Auction but now requires replacement capacity to fulfill its RPM Auction commitment. The Locational UCAP Seller retains responsibility for performance of the resource providing such replacement capacity.

#### **2.41B Locational UCAP Seller**

“Locational UCAP Seller” shall mean a Member that sells Locational UCAP.

#### **2.41C Market Seller Offer Cap**

“Market Seller Offer Cap” shall mean a maximum offer price applicable to certain Market Sellers under certain conditions, as determined in accordance with section 6 of Attachment DD and section II.E of Attachment M - Appendix.

#### **2.41D Minimum Annual Resource Requirement**

“Minimum Annual Resource Requirement” shall mean, for Delivery Years through May 31, 2017, the minimum amount of capacity that PJM will seek to procure from Annual Resources for the PJM Region and for each Locational Deliverability Area for which the Office of the Interconnection is required under section 5.10(a) of this Attachment DD to establish a separate VRR Curve for such Delivery Year. For the PJM Region, the Minimum Annual Resource Requirement shall be equal to the RTO Reliability Requirement minus [the Sub-Annual Resource Reliability Target for the RTO in Unforced Capacity]. For an LDA, the Minimum Annual Resource Requirement shall be equal to the LDA Reliability Requirement minus [the LDA CETL] minus [the Sub-Annual Resource Reliability Target for such LDA in Unforced Capacity]. The LDA CETL may be adjusted pro rata for the amount of load served under the FRR Alternative.

## **2.41E Minimum Extended Summer Resource Requirement**

“Minimum Extended Summer Resource Requirement” shall mean, for Delivery Years through May 31, 2017, the minimum amount of capacity that PJM will seek to procure from Extended Summer Demand Resources and Annual Resources for the PJM Region and for each Locational Deliverability Area for which the Office of the Interconnection is required under section 5.10(a) of this Attachment DD to establish a separate VRR Curve for such Delivery Year. For the PJM Region, the Minimum Extended Summer Resource Requirement shall be equal to the RTO Reliability Requirement minus [the Limited Demand Resource Reliability Target for the PJM Region in Unforced Capacity]. For an LDA, the Minimum Extended Summer Resource Requirement shall be equal to the LDA Reliability Requirement minus [the LDA CETL] minus [the Limited Demand Resource Reliability Target for such LDA in Unforced Capacity]. The LDA CETL may be adjusted pro rata for the amount of load served under the FRR Alternative.

## **2.42 Net Cost of New Entry**

“Net Cost of New Entry” shall mean the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset, as defined in Section 5.

## **2.43 Nominated Demand Resource Value**

“Nominated Demand Resource Value” shall mean the amount of load reduction that a Demand Resource commits to provide either through direct load control, firm service level or guaranteed load drop programs. For existing Demand Resources, the maximum Nominated Demand Resource Value is limited, in accordance with the PJM Manuals, to the value appropriate for the method by which the load reduction would be accomplished, at the time the Base Residual Auction or Incremental Auction is being conducted.

## **2.43A Nominated Energy Efficiency Value**

“Nominated Energy Efficiency Value” shall mean the amount of load reduction that an Energy Efficiency Resource commits to provide through installation of more efficient devices or equipment or implementation of more efficient processes or systems.

## **2.44 [Reserved]**

## **2.45 Opportunity Cost**

“Opportunity Cost” shall mean a component of the Market Seller Offer Cap calculated in accordance with section 6.

## **2.46 Peak-Hour Dispatch**

“Peak-Hour Dispatch” shall mean, for purposes of calculating the Energy and Ancillary Services Revenue Offset under section 5 of this Attachment, an assumption, as more fully set forth in the PJM Manuals, that the Reference Resource is committed in the Day-Ahead Energy Market in

four distinct blocks of four hours of continuous output for each block from the peak-hour period beginning with the hour ending 0800 EPT through to the hour ending 2300 EPT for any day when the average day-ahead LMP for the area for which the Net Cost of New Entry is being determined is greater than, or equal to, the cost to generate (including the cost for a complete start and shutdown cycle) for at least two hours during each four-hour block, where such blocks shall be assumed to be committed independently; provided that, if there are not at least two economic hours in any given four-hour block, then the Reference Resource shall be assumed not to be committed for such block; and to the extent not committed in any such block in the Day-Ahead Energy Market under the above conditions based on Day-Ahead LMPs, is dispatched in the Real-Time Energy Market for such block if the Real-Time LMP is greater than or equal to the cost to generate under the same conditions as described above for the Day-Ahead Energy Market.

#### **2.47 Peak Season**

“Peak Season” shall mean the weeks containing the 24th through 36th Wednesdays of the calendar year. Each such week shall begin on a Monday and end on the following Sunday, except for the week containing the 36th Wednesday, which shall end on the following Friday.

#### **2.48 Percentage Internal Resources Required**

“Percentage Internal Resources Required” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.48A Performance Assessment Hour**

“Performance Assessment Hour” shall mean each whole or partial clock-hour for which an Emergency Action has been declared by the Office of the Interconnection, provided, however, that Performance Assessment Hours for a Base Capacity Resource shall not include any hours outside the calendar months of June through September.

#### **2.49 Planned Demand Resource**

“Planned Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.50 Planned External Generation Capacity Resource**

“Planned External Generation Capacity Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.50A Planned Generation Capacity Resource**

“Planned Generation Capacity Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.51 Planning Period**

“Planning Period” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.52 PJM Region**

“PJM Region” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.53 PJM Region Installed Reserve Margin**

“PJM Region Installed Reserve Margin” shall have the meaning specified in the Operating Agreement.

## **2.54 PJM Region Peak Load Forecast**

“PJM Region Peak Load Forecast” shall mean the peak load forecast used by the Office of the Interconnection in determining the PJM Region Reliability Requirement, and shall be determined on both a preliminary and final basis as set forth in section 5.

## **2.55 PJM Region Reliability Requirement**

“PJM Region Reliability Requirement” shall mean, for purposes of the Base Residual Auction, the Forecast Pool Requirement multiplied by the Preliminary PJM Region Peak Load Forecast, less the sum of all Preliminary Unforced Capacity Obligations of FRR Entities in the PJM Region; and, for purposes of the Incremental Auctions, the Forecast Pool Requirement multiplied by the updated PJM Region Peak Load Forecast, less the sum of all updated Unforced Capacity Obligations of FRR Entities in the PJM Region.

## **2.56 Projected PJM Market Revenues**

“Projected PJM Market Revenues” shall mean a component of the Market Seller Offer Cap calculated in accordance with section 6.

## **2.57 Qualifying Transmission Upgrade**

“Qualifying Transmission Upgrade” shall mean a proposed enhancement or addition to the Transmission System that: (a) will increase the Capacity Emergency Transfer Limit into an LDA by a megawatt quantity certified by the Office of the Interconnection; (b) the Office of the Interconnection has determined will be in service on or before the commencement of the first Delivery Year for which such upgrade is the subject of a Sell Offer in the Base Residual Auction; (c) is the subject of a Facilities Study Agreement executed before the conduct of the Base Residual Auction for such Delivery Year and (d) a New Service Customer is obligated to fund through a rate or charge specific to such facility or upgrade.

## **2.58 Reference Resource**

“Reference Resource” shall mean a combustion turbine generating station, configured with two General Electric Frame 7FA turbines with inlet air cooling to 50 degrees, Selective Catalytic Reduction technology all CONE Areas, dual fuel capability, and a heat rate of 10.096 Mmbtu/MWh.

### **2.59 Reliability Assurance Agreement**

“Reliability Assurance Agreement” shall mean that certain “Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region,” on file with FERC as PJM Interconnection, L.L.C. Rate Schedule FERC No.44.

### **2.60 Reliability Pricing Model Auction**

“Reliability Pricing Model Auction” or “RPM Auction” shall mean the Base Residual Auction or any Incremental Auction, or, for the 2016/2017 and 2017/2018 Delivery Years, any Capacity Performance Transition Incremental Auction.

### **2.60A Repowered / Repowering**

“Repowering” or “Repowered” shall refer to a partial or total replacement of existing steam production equipment with new technology or a partial or total replacement of steam production process and power generation equipment, or an addition of steam production and/or power generation equipment, or a change in the primary fuel being used at the plant. A resource can be considered Repowered whether or not such aforementioned replacement, addition, or fuel change provides an increase in installed capacity, and whether or not the pre-existing plant capability is formally deactivated or retired.

### **2.61 Resource Substitution Charge**

“Resource Substitution Charge” shall mean a charge assessed on Capacity Market Buyers in an Incremental Auction to recover the cost of replacement Capacity Resources.

### **2.61A Scheduled Incremental Auctions**

“Scheduled Incremental Auctions” shall refer to the First, Second, or Third Incremental Auction.

### **2.62 Second Incremental Auction**

“Second Incremental Auction” shall mean an Incremental Auction conducted ten months before the Delivery Year to which it relates.

### **2.63 Sell Offer**

“Sell Offer” shall mean an offer to sell Capacity Resources in a Base Residual Auction, Incremental Auction, or Reliability Backstop Auction.

## **2.64 [Reserved for Future Use]**

## **2.65 Self-Supply**

“Self-Supply” shall mean Capacity Resources secured by a Load-Serving Entity, by ownership or contract, outside a Reliability Pricing Model Auction, and used to meet obligations under this Attachment or the Reliability Assurance Agreement through submission in a Base Residual Auction or an Incremental Auction of a Sell Offer indicating such Market Seller’s intent that such Capacity Resource be Self-Supply. Self-Supply may be either committed regardless of clearing price or submitted as a Sell Offer with a price bid. A Load Serving Entity’s Sell Offer with a price bid for an owned or contracted Capacity Resource shall not be deemed “Self-Supply,” unless it is designated as Self-Supply and used by the LSE to meet obligations under this Attachment or the Reliability Assurance Agreement.

### **2.65A Short-Term Resource Procurement Target**

“Short-Term Resource Procurement Target” shall mean, for Delivery Years through May 31, 2018, as to the PJM Region, for purposes of the Base Residual Auction, 2.5% of the PJM Region Reliability Requirement determined for such Base Residual Auction, for purposes of the First Incremental Auction, 2% of the of the PJM Region Reliability Requirement as calculated at the time of the Base Residual Auction; and, for purposes of the Second Incremental Auction, 1.5% of the of the PJM Region Reliability Requirement as calculated at the time of the Base Residual Auction; and, as to any Zone, an allocation of the PJM Region Short-Term Resource Procurement Target based on the Preliminary Zonal Forecast Peak Load, reduced by the amount of load served under the FRR Alternative. For any LDA, the LDA Short-Term Resource Procurement Target shall be the sum of the Short-Term Resource Procurement Targets of all Zones in the LDA.

### **2.65B Short-Term Resource Procurement Target Applicable Share**

“Short-Term Resource Procurement Target Applicable Share” shall mean, for Delivery Years through May 31, 2018: (i) for the PJM Region, as to the First and Second Incremental Auctions, 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction and, as to the Third Incremental Auction for the PJM Region, 0.6 times such target; and (ii) for an LDA, as to the First and Second Incremental Auctions, 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction for such LDA and, as to the Third Incremental Auction, 0.6 times such target.

#### **2.65B.01 Small Commercial Customer**

“Small Commercial Customer,” as used in Schedule 6 of the RAA and Attachment DD-1 of the Tariff, shall mean a commercial retail electric end-use customer of an electric distribution company that participates in a mass market demand response program under the jurisdiction of a RERRA and satisfies the definition of a “small commercial customer” under the terms of the applicable RERRA’s program, provided that the customer has an annual peak demand no greater than 100kW.

### **2.65C Sub-Annual Resource Price Decrement**

“Sub-Annual Resource Price Decrement” shall mean, for the 2017/2018 Delivery Year, a difference between the clearing price for Extended Summer Demand Resources and the clearing price for Annual Resources, representing the cost to procure additional Annual Resources out of merit order when the Sub-Annual Resource Constraint is binding.

### **2.66 Third Incremental Auction**

“Third Incremental Auction” shall mean an Incremental Auction conducted three months before the Delivery Year to which it relates.

### **2.67 [Reserved for Future Use]**

### **2.68 Unconstrained LDA Group**

“Unconstrained LDA Group” shall mean a combined group of LDAs that form an electrically contiguous area and for which a separate Variable Resource Requirement Curve has not been established under Section 5.10 of Attachment DD. Any LDA for which a separate Variable Resource Requirement Curve has not been established under Section 5.10 of Attachment DD shall be combined with all other such LDAs that form an electrically contiguous area.

### **2.69 Unforced Capacity**

“Unforced Capacity” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.69A Updated VRR Curve**

“Updated VRR Curve” shall mean the Variable Resource Requirement Curve as defined in section 5.10(a) of this Attachment for use in the Base Residual Auction of the relevant Delivery Year, updated to reflect any change in the Reliability Requirement from the Base Residual Auction to such Incremental Auction, and for Delivery Years through May 31, 2018, the Short-term Resource Procurement Target applicable to the relevant Incremental Auction.

### **2.69B Updated VRR Curve Increment**

“Updated VRR Curve Increment” shall mean the portion of the Updated VRR Curve to the right of a vertical line at the level of Unforced Capacity on the x-axis of such curve equal to the net Unforced Capacity committed to the PJM Region as a result of all prior auctions conducted for such Delivery Year and adjusted, if applicable, by the reduction in Unforced Capacity commitments associated with the transition provision of section 5.14C of this Attachment DD.

### **2.69C Updated VRR Curve Decrement**



“Updated VRR Curve Decrement” shall mean the portion of the Updated VRR Curve to the left of a vertical line at the level of Unforced Capacity on the x-axis of such curve equal to the net Unforced Capacity committed to the PJM Region as a result of all prior auctions conducted for such Delivery Year and adjusted, if applicable, by the reduction in Unforced Capacity commitments associated with the transition provision of section 5.14C of this attachment DD.

## **2.70 Variable Resource Requirement Curve**

“Variable Resource Requirement Curve” shall mean a series of maximum prices that can be cleared in a Base Residual Auction for Unforced Capacity, corresponding to a series of varying resource requirements based on varying installed reserve margins, as determined by the Office of the Interconnection for the PJM Region and for certain Locational Deliverability Areas in accordance with the methodology provided in Section 5.

## **2.71 Zonal Capacity Price**

“Zonal Capacity Price” shall mean the clearing price required in each Zone to meet the demand for Unforced Capacity and satisfy Locational Deliverability Requirements for the LDA or LDAs associated with such Zone. If the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA.

## 5.5A Capacity Resource Types

### a) Capacity Performance Resources

Capacity Performance Resources are Capacity Resources which, to the extent such resources cleared in a Reliability Pricing Model Auction or are otherwise committed as a Capacity Resource, are obligated to deliver energy during the relevant Delivery Year as scheduled and/or dispatched by the Office of Interconnection during the Performance Assessment Hours. As further detailed in Section 10A of this Attachment, Capacity Performance Resources that fail to meet this obligation will be subject to a Non-Performance Assessment Charge, unless excused pursuant to Section 10A(d) of this Attachment. Subject to 5.5A(a)(i)-(ii), the following types of Capacity Resources are eligible to submit a Sell Offer as a Capacity Performance Resource: internal or external Generation Capacity Resources; Annual Demand Resources; Capacity Storage Resources; Annual Energy Efficiency Resources; and Qualifying Transmission Upgrades. To the extent the underlying Capacity Resource is an external Generation Capacity Resource, such resource must meet the criteria for obtaining an exception to the Capacity Import Limit as contained in section 1.7A of the Reliability Assurance Agreement.

#### ~~i). Capacity Performance Resource Sell Offer Representations~~

~~In submitting a Sell Offer for a Capacity Performance Resource in an RPM Auction for a Delivery Year, a Capacity Market Seller is representing that it:~~

- ~~A. has made, or is capable of demonstrating that it will make, the necessary investment to ensure the Capacity Resource has the capability for the entire such Delivery Year to provide energy at any time when called upon by the Office of the Interconnection;~~
- ~~B. shall be capable of complying with the performance obligations specified in this Attachment DD and in Schedule 1 of the Operating Agreement by the relevant Delivery Year;~~
- ~~C. meets the criteria for obtaining an exception to the Capacity Import Limit as contained in section 1.7A of the Reliability Assurance Agreement, to the extent the underlying Capacity Resource is an external Generation Capacity Resource; and~~

~~D. contemplates the physical delivery of the Capacity Performance Resource underlying such Sell Offer by no later than the commencement of the applicable Delivery Year. A Sell Offer shall not meet the standard of physical delivery, for purposes of this section, if at the time it is submitted in an RPM Auction, the Capacity Market Seller intends to satisfy its obligation for the applicable Delivery Year by subsequently securing a replacement Capacity Performance Resource through either an Incremental Auction or bilateral transaction(s). Capacity Market Sellers acknowledge and agree that the Office of the Interconnection will rely on this representation to meet the physical capacity resource adequacy objectives upon which RPM is based. A Capacity Market Seller that is unable to make such representation shall not submit a Sell Offer for that resource into an RPM Auction. Capacity Market Sellers are cautioned that representations made hereunder that are knowingly false or otherwise inconsistent with the requirements of this section may constitute a violation of, and may subject the Capacity Market Seller to penalties under, the PJM Market Rules and the FERC Market Rules.~~

**ii). Process for Support and Review of Capacity Performance Resource Offers**

- A. The Capacity Market Seller shall provide to the Office of the Interconnection and the Market Monitoring Unit, upon their request, all supporting data and information requested by either the Office of the Interconnection or the Market Monitoring Unit to evaluate whether the underlying Capacity Resource can meet the operational and performance requirements of Capacity Performance Resources. The Capacity Market Seller shall have an ongoing obligation through the closing of the offer period for the RPM Auction to update the request to reflect any material changes.
- B. The Office of the Interconnection and the Market Monitoring Unit shall review any requested supporting data and information, and the Office of the Interconnection, considering advice and recommendation from the Market Monitoring Unit, shall reject a request for a resource to offer as a Capacity Performance Resource if the Capacity Market Seller does not demonstrate ~~to the satisfaction of the Office of the Interconnection that~~ it can reasonably be expected to meet its Capacity Performance obligations consistent with the resource's offer by the relevant Delivery Year ~~the resource meets the necessary requirements~~. The Office of Interconnection

shall provide its determination to reject eligibility of the resource as a Capacity Performance Resource, and notify the Market Monitoring Unit, by no later than sixty-five (65) days prior to the date on which the offer period for the applicable RPM Auction commences. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules unless and until ordered to do otherwise by FERC.

**b) Base Capacity Resources**

For the 2018/2019 and 2019/2020 Delivery Years, following types of Capacity Resources eligible to submit a Sell Offer as a Base Capacity Resource: Generation Capacity Resources, Capacity Storage Resources, Annual Demand Resources, Base Capacity Demand Resources, and Base Capacity Energy Efficiency Resources. Each resource that clears a RPM Auction as a Base Capacity Resource must provide energy output to PJM if called during Performance Assessment Hours occurring in the calendar months of June through September, including any necessary recall of such capacity and energy from service to areas outside the PJM Region. As further detailed in Section 10A of this Attachment, Base Capacity Resources that fail to meet this obligation will be subject to a Non-Performance Assessment Charge, unless excused pursuant to Section 10A(d) of this section.

## 5.6 Sell Offers

Sell Offers shall be submitted or withdrawn via the internet site designated by the Office of the Interconnection, under the procedures and time schedule set forth in the PJM Manuals.

### 5.6.1 Specifications

A Sell Offer shall state quantities in increments of 0.1 megawatts and shall specify, as appropriate:

a) Identification of the Generation Capacity Resource, Demand Resource, Capacity Storage Resource or Energy Efficiency Resource on which such Sell Offer is based;

b) Minimum and maximum megawatt quantity of installed capacity that the Capacity Market Seller is willing to offer (notwithstanding such specification, the product offered shall be Unforced Capacity), or designate as Self-Supply, from a Generation Capacity Resource;

i) Price, in dollars and cents per megawatt-day, that will be accepted by the Capacity Market Seller for the megawatt quantity of Unforced Capacity offered from such Generation Capacity Resource.

ii) The Sell Offer may take the form of offer segments with varying price-quantity pairs for varying output levels from the underlying resource, but may not take the form of an offer curve with nonzero slope.

c) EFORd of each Generation Capacity Resource offered.

i) If a Capacity Market Seller is offering such resource in a Base Residual Auction, First Incremental Auction, Second Incremental Auction, or Conditional Incremental Auction occurring before the Third Incremental Auction, the Capacity Market Seller shall specify the EFORd to apply to the offer.

ii) If a Capacity Market Seller is committing the resource as Self-Supply, the Capacity Market Seller shall specify the EFORd to apply to the commitment.

iii) The EFORd applied to the Third Incremental Auction will be the final EFORd established by the Office of the Interconnection six (6) months prior to the Delivery Year, based on the actual EFORd in the PJM Region during the 12-month period ending September 30 that last precedes such Delivery Year.

d) The Nominated Demand Resource Value for each Demand Resource offered and the Nominated Energy Efficiency Value for each Energy Efficiency Resource offered. The Office of the Interconnection shall, in both cases, convert such value to an Unforced Capacity basis by multiplying such value by the DR Factor (for Delivery Years through May 31, 2018) times the Forecast Pool Requirement. Demand Resources shall specify the LDA in which the Demand Resource is located, including the location of such resource within any Zone that includes more than one LDA as identified on Schedule 10.1 of the RAA.

e) For Delivery Years through May 31, 2018, a Demand Resource with the potential to qualify as two or more of a Limited Demand Resource, Extended Summer Demand Resource or Annual Demand Resource may submit separate but coupled Sell Offers for each Demand Resource type for which it qualifies at different prices and the auction clearing algorithm will select the Sell Offer that yields the least-cost solution. For such coupled Demand Resource offers, the offer price of an Annual Demand Resource offer must be at least \$.01 per MW-day greater than the offer price of a coupled Extended Summer Demand Resource offer and the offer price of a Extended Summer Demand Resource offer must be at least \$.01 per MW-day greater than the offer price of a coupled Limited Demand Resource offer.

f) For a Qualifying Transmission Upgrade, the Sell Offer shall identify such upgrade, and the Office of the Interconnection shall determine and certify the increase in CETL provided by such upgrade. The Capacity Market Seller may offer the upgrade with an associated increase in CETL to an LDA in accordance with such certification, including an offer price that will be accepted by the Capacity Market Seller, stated in dollars and cents per megawatt-day as a price difference between a Capacity Resource located outside such an LDA and a Capacity Resource located inside such LDA; and the increase in CETL into such LDA to be provided by such Qualifying Transmission Upgrade, as certified by the Office of the Interconnection.

g) For the 2018/2019 and 2019/2020 Delivery Years, each Capacity Market Seller owning or controlling a resource that qualifies as both a Base Capacity Resource and a Capacity Performance Resource may submit separate but coupled Sell Offers for such resource as a Base Capacity Resource and as a Capacity Performance Resource, at different prices, and the auction clearing algorithm will select the Sell Offer that yields the least-cost solution. Submission of a coupled Base Capacity Resource Sell Offer shall be mandatory for any Capacity Performance Resource Sell Offer that exceeds a Sell Offer Price equal to the applicable Net Cost of New Entry times the Balancing Ratio as provided for in section 6.4. For such coupled Sell Offers, the offer price of a Capacity Performance Resource offer must be at least \$.01 per MW-day greater than the offer price of a coupled Base Capacity Resource offer.

(h) For the 2018/2019 Delivery Year and subsequent Delivery Years, a Capacity Market Seller that owns or controls one or more Capacity Storage Resources, Intermittent Resources, Demand Resources, or Energy Efficiency Resources may submit a Sell Offer as a Capacity Performance Resource in a MW quantity consistent with their average expected output during peak-hour periods. Alternatively, for the 2018/2019 Delivery Year and subsequent Delivery Years, a Capacity Market Seller that owns or controls one or more Capacity Storage Resources, Intermittent Resources, Demand Resources, Energy Efficiency Resources, or Environmentally-Limited Resources located within the same modeled Locational Deliverability Area may submit a Sell Offer which represents the aggregated Unforced Capacity value of such resources. Such aggregated resources shall be owned by or under contract to the Capacity Market Seller, including all such resources obtained through bilateral contract and reported to the Office of the Interconnection in accordance with the Office of the Interconnection's rules related to its eRPM tools. For the 2018/2019 and 2019/2020 Delivery Years, any such offer may be submitted as Capacity Performance Resource, Base Capacity Resource, or as a coupled offer for Capacity Performance Resource and Base Capacity Resource, provided that, for any such coupled Sell Offers, the offer price of a Capacity Performance Resource offer must be at least

\$.01 per MW-day greater than the offer price of a coupled Base Capacity Resource offer. For the 2020/2021 Delivery Year and subsequent Delivery Years, any such offer must be submitted as a Capacity Performance Resource.

### **5.6.2 Compliance with PJM Credit Policy**

Capacity Market Sellers shall comply with the provisions of the PJM Credit Policy as set forth in Attachment Q to this Tariff, including the provisions specific to the Reliability Pricing Model, prior to submission of Sell Offers in any Reliability Pricing Model Auction. A Capacity Market Seller desiring to submit a Credit-Limited Offer shall specify in its Sell Offer the maximum auction credit requirement, in dollars, and the maximum amount of Unforced Capacity, in megawatts, applicable to its Sell Offer.

### **5.6.3 [reserved]**

### **5.6.4 Qualifying Transmission Upgrades**

A Qualifying Transmission Upgrade may not be the subject of any Sell Offer in a Base Residual Auction unless it has been approved by the Office of the Interconnection, including certification of the increase in Import Capability to be provided by such Qualifying Transmission Upgrade, no later than 45 days prior to such Base Residual Auction. No such approval shall be granted unless, at a minimum, a Facilities Study Agreement has been executed with respect to such upgrade, and such upgrade conforms to all applicable standards of the Regional Transmission Expansion Plan process.

### **5.6.5 Market-based Sell Offers**

Subject to section 6, a Market Seller authorized by FERC to sell electric generating capacity at market-based prices, or that is not required to have such authorization, may submit Sell Offers that specify market-based prices in any Base Residual Auction or Incremental Auction.

### **5.6.6 Availability of Capacity Resources for Sale**

(a) The Office of the Interconnection shall determine the quantity of megawatts of available installed capacity that each Capacity Market Seller must offer in any RPM Auction pursuant to Section 6.6 of Attachment DD, through verification of the availability of megawatts of installed capacity from: (i) all Generation Capacity Resources owned by or under contract to the Capacity Market Seller, including all Generation Capacity Resources obtained through bilateral contract; (ii) the results of prior Reliability Pricing Model Auctions, if any, for such Delivery Year (including consideration of any restriction imposed as a consequence of a prior failure to offer); and (iii) such other information as may be available to the Office of the Interconnection. The Office of the Interconnection shall reject Sell Offers or portions of Sell Offers for Capacity Resources in excess of the quantity of installed capacity from such Capacity Market Seller's Capacity Resource that it determines to be available for sale.

(b) The Office of the Interconnection shall determine the quantity of installed capacity available for sale in a Base Residual Auction or Incremental Auction as of the beginning of the period during which Buy Bids and Sell Offers are accepted for such auction, as

applicable, in accordance with the time schedule set forth in the PJM Manuals. Removal of a resource from Capacity Resource status shall not be reflected in the determination of available installed capacity unless the associated unit-specific bilateral transaction is approved, the designation of such resource (or portion thereof) as a network resource for the external load is demonstrated to the Office of the Interconnection, or equivalent evidence of a firm external sale is provided prior to the deadline established therefor. The determination of available installed capacity shall also take into account, as they apply in proportion to the share of each resource owned or controlled by a Capacity Market Seller, any approved capacity modifications, and existing capacity commitments established in a prior RPM Auction, an FRR Capacity Plan, Locational UCAP transactions and/or replacement capacity transactions under this Attachment DD. To enable the Office of the Interconnection to make this determination, no bilateral transactions for Capacity Resources applicable to the period covered by an auction will be processed from the beginning of the period for submission of Sell Offers and Buy Bids, as appropriate, for that auction until completion of the clearing determination for such auction. Processing of such bilateral transactions will reconvene once clearing for that auction is completed. A Generation Capacity Resource located in the PJM Region shall not be removed from Capacity Resource status to the extent the resource is committed to service of PJM loads as a result of an RPM Auction, FRR Capacity Plan, Locational UCAP transaction and/or by designation as a replacement resource under this Attachment DD.

(c) In order for a bilateral transaction for the purchase and sale of a Capacity Resource to be processed by the Office of the Interconnection, both parties to the transaction must notify the Office of the Interconnection of the transfer of the Capacity Resource from the seller to the buyer in accordance with procedures established by the Office of the Interconnection and set forth in the PJM Manuals. If a material change with respect to any of the prerequisites for the application of Section 5.6.6 to the Generation Capacity Resource occurs, the Capacity Resource Owner shall immediately notify the Market Monitoring Unit and the Office of the Interconnection.



## **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) [Reserved for Future Use]

(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 Test**

(a) [Reserved for Future Use]

(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 unforced 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/day of unforced capacity, provided, however, that the Market Seller Offer Cap for any Capacity Performance Resource shall be the product of (the Net Cost of New Entry applicable for the Delivery Year and Locational Deliverability Area for which such Capacity Performance Resource is offered, times the average of the Balancing Ratios in the three consecutive calendar years (during the Performance Assessment Hours in such calendar years) that precede the Base Residual Auction for such Delivery Year), and provided further that the submission of a Sell Offer with an Offer Price at or below the revised Market Seller Offer Cap permitted under this proviso shall not, in and of itself, be deemed an exercise of market power in the RPM market. Notwithstanding the previous sentence, ~~should a Capacity Performance Resource Market Seller may seek and obtain a Market Seller Offer Cap for a Capacity Performance Resource that exceeds the Net Cost of New Entry, it shall be subject to and comply with the revised Market Seller Offer Cap permitted under the prior sentence, if it supports and obtains approval of such alternative offer cap pursuant to the procedures and standards of~~ paragraph (b) of this section 6.4. 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 provide to the Market Monitoring Unit and the Office of the Interconnection data and documentation required under section 6.7 to establish the level of the Market Seller Offer Cap applicable to each resource by no later than one hundred twenty (120) days prior to the commencement of the offer period for the applicable RPM Auction. The Capacity Market Seller must promptly address any concerns identified by the Market Monitoring Unit regarding the data and documentation provided, review the Market Seller Offer Cap proposed by the Market Monitoring Unit, and attempt to reach agreement with the Market Monitoring Unit on the level

of the Market Seller Offer Cap by no later than ninety (90) days prior to the commencement of the offer period for the applicable RPM Auction. The Capacity Market Seller shall notify the Market Monitoring Unit in writing, with a copy to the Office of the Interconnection, whether an agreement with the Market Monitoring Unit has been reached or, if no agreement has been reached, specifying the level of Market Seller Offer Cap to which it commits by no later than eighty (80) days prior to the commencement of the offer period for the applicable RPM Auction. The Office of the Interconnection shall review the data submitted by the Capacity Market Seller, make a determination whether to accept or reject the requested unit-specific Market Seller Offer Cap, and notify the Capacity Market Seller and the Market Monitoring Unit of its determination in writing, by no later than sixty-five (65) days prior to the commencement of the offer period for the applicable RPM Auction. If the Market Monitoring Unit does not provide its determination to the Capacity Market Seller and the Office of the Interconnection by the specified deadline, by no later than sixty-five (65) days prior to the commencement of the offer period for the applicable RPM Auction the Office of the Interconnection will make the determination of the level of the Market Seller Offer Cap, which shall be deemed to be final. If the Capacity Market Seller does not notify the Market Monitoring Unit and the Office of the Interconnection of the Market Seller Offer Cap it desires to utilize by no later than eighty (80) days prior to the commencement of the offer period for the applicable RPM Auction, it shall be required to utilize a Market Seller Offer Cap determined using the applicable default Avoidable Cost Rate specified in section 6.7(c).

(c) 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.

(d) For any Third Incremental Auction for Delivery Years through the 2017/2018 Delivery Year, 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. For any Third Incremental Auction for the 2018/2019 or 2019/2020 Delivery Years, the Market Seller Offer Cap for an Existing Generation Capacity Resource offering as a Base 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. For any Third Incremental Auction for the 2018/2019 Delivery Year or any subsequent Delivery Year, the Market Seller Offer Cap for an Existing Generation Capacity Resource offering as a Capacity Performance 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 the greater of the Net Cost of New Entry for the relevant LDA and Delivery Year or 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 Capacity Resource

Mitigation will be applied on a unit-specific basis and only if the Sell Offer of Unforced Capacity from an Existing 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 any Base Residual Auction or Incremental Auction 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 are Existing Generation Capacity Resources in the auctions for any Delivery Year following the Delivery Year for which such resource cleared an RPM Auction. 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. Notwithstanding the foregoing, a Generation Capacity Resource for which construction has not commenced and which would otherwise have been treated as a Planned Generation Capacity Resource but for the fact that it was bid into RPM Auctions for at least two consecutive Delivery Years, and cleared the last such auction only because it was considered existing and its mitigated offer cap was accepted when its price offer would not have otherwise been accepted, shall be deemed to be a Planned Generation Capacity Resource.

(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 in writing by the Office of the Interconnection by no later than one (1) business day after the close of the offer period for the applicable RPM Auction and allowed an opportunity to submit a revised Sell Offer that does not exceed such threshold within one business (1) day of the Office of the Interconnection's rejection of such Sell Offer. If such revised Sell Offer is accepted by the Office of the Interconnection, 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 of the installed capacity of all Existing Generation Capacity Resources located in the PJM Region shall be offered by the Capacity Market Seller that owns or controls all or part of such resource (which may include submission as Self-Supply) in all RPM Auctions for each Delivery Year, less any amount determined by the Office of the Interconnection to be eligible for an exception to the must-offer requirement, where installed capacity is determined as of the date on which bidding commences for each RPM Auction pursuant to Section 5.6.6 of Attachment DD of the Tariff. The Unforced Capacity of such resources is determined using the EFORD value that is submitted by the Capacity Market Seller in its Sell Offer, which shall not exceed the maximum EFORD for that resource as defined

in Section 6.6(b). If a resource should be included on the list of Existing Generation Capacity Resources subject to the must-offer requirement that is maintained by the Market Monitoring Unit pursuant to Section II.C.1 of Attachment M – Appendix of the Tariff, but is omitted therefrom whether by mistake of the Market Monitoring Unit or failure of the Capacity Market Seller that owns or controls all or part of such resource to provide information about the resource to the Market Monitoring Unit, this shall not excuse such resource from the must-offer requirement.

(b) For each Existing Generation Capacity Resource, a potential Capacity Market Seller must timely provide to the Market Monitoring Unit and the Office of the Interconnection all data and documentation required under section 6.6 to establish the maximum EFORD applicable to each resource in accordance with standards and procedures specified in the PJM Manuals. The maximum EFORD that may be used in a Sell Offer for RPM Auctions held prior to the date on which the final EFORDs used for a Delivery Year are posted, is the greater of (i) the average EFORD for the five consecutive years ending on the September 30 that last precedes the Base Residual Auction, or (ii) the EFORD for the 12 months ending on the September 30 that last precedes the Base Residual Auction.

Notwithstanding the foregoing, a Capacity Market Seller may request an alternate maximum EFORD for Sell Offers submitted in such auctions if it has a documented, known reason that would result in an increase in its EFORD, by submitting a written request to the Market Monitoring Unit and Office of the Interconnection, along with data and documentation required to support the request for an alternate maximum EFORD, by no later one hundred twenty (120) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year. The Capacity Market Seller must address any concerns identified by the Market Monitoring Unit and/or the Office of the Interconnection regarding the data and documentation provided and attempt to reach agreement with the Market Monitoring Unit on the level of the alternate maximum EFORD by no later than ninety (90) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year. As further described in Section II.C of Attachment M-Appendix, the Market Monitoring Unit shall notify the Capacity Market Seller and the Office of the Interconnection in writing of its determination of the requested alternate maximum EFORD by no later than ninety (90) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year. By no later than eighty (80) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year, the Capacity Market Seller shall notify the Office of the Interconnection and the Market Monitoring Unit in writing whether it agrees with the Market Monitoring Unit on the alternate maximum EFORD or, if no agreement has been reached, specifying the level of alternate maximum EFORD to which it commits. If a Capacity Market Seller fails to request an alternate maximum EFORD prior to the specified deadlines, the maximum EFORD for the applicable RPM Auction shall be deemed to be the default EFORD calculated pursuant to this section.

The maximum EFORD that may be used in a Sell Offer for Third Incremental Auctions, and for Conditional Incremental Auctions held after the date on which the final EFORD used for a Delivery Year is posted, is the EFORD for the 12 months ending on the September 30 that last precedes the submission of such offers.

(c) [Reserved for Future Use]

(d) In the event that a Capacity Market Seller and the Market Monitoring Unit cannot agree on the maximum level of the alternate EFORD that may be used in a Sell Offer for RPM Auctions held prior to the date on which the final EFORDs used for a Delivery Year are posted, the Office of the Interconnection shall make its own determination of the maximum level of the alternate EFORD based on the requirements of the Tariff and the PJM Manuals, per Section 5.8 of Attachment DD, by no later than sixty-five (65) days prior to the commencement of the offer period for the Base Residual for the applicable Delivery Year, and shall notify the Capacity Market Seller and the Market Monitoring Unit in writing of such determination.

(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 for an RPM Auction held prior to the date on which the final EFORD used for a Delivery Year is posted, provided that (i) it has participated in good faith with the process described in this section 6.6 and in section I.I.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) A Capacity Market Seller that owns or controls an existing generation resource in the PJM Region that is capable of qualifying as an Existing Generation Capacity Resource as of the date on which bidding commences for an RPM Auction may not avoid the rule in subsection (a) or be removed from Capacity Resource status 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 for that RPM Auction. However, generation resource may qualify for an exception to the must-offer requirement, as shown by appropriate documentation, if the Capacity Market Seller that owns or controls such resource demonstrates that it: (i) is reasonably expected to be physically unable to participate in the relevant Delivery Year; (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.

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, without regard to whether the Office of the Interconnection has requested the Capacity Market Seller to continue to operate the resource beyond its desired deactivation date in accordance with Section 113.2 of the

PJM Tariff for the purpose of maintaining the reliability of the PJM Transmission System and the Capacity Market Seller has agreed to do so;

- B. Significant physical operational restrictions 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;
- C. The Capacity 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; or
- D. A resource considered an Existing Generating Capacity Resource because it cleared an RPM Auction for a Delivery Year prior to the Delivery Year of the relevant auction, but which is not yet in service, is unable to achieve full commercial operation prior to the Delivery Year of the relevant auction. The Capacity Market Seller must submit to the Office of the Interconnection and the Market Monitoring Unit a written sworn, notarized statement of a corporate officer certifying that the resource will not be in full commercial operation prior to the referenced Delivery Year.

In order to establish that a resource has a financially and physically firm commitment to an external sale of its capacity as set forth in (ii) above, the Capacity Market Seller must demonstrate that it has entered into a unit-specific bilateral transaction for service to load located outside the PJM Region, by a demonstration that such resource is identified on a unit-specific basis as a network resource under the transmission tariff for the control area applicable to such external load, or by an equivalent demonstration of a financially and physically firm commitment to an external sale. The Capacity Market Seller additionally shall identify the megawatt amount, export zone, and time period (in days) of the export.

A Capacity Market Seller that seeks to remove a Generation Capacity Resource from PJM Capacity Resource status and/or seeks approval for an exception to the must-offer requirement, for any reason other than the reason specified in Paragraph A above, shall first submit such request in writing, along with all supporting data and documentation, to the Market Monitoring Unit for evaluation, notifying the Office of the Interconnection by copy of the same, by no later than one hundred twenty (120) days prior to the commencement of the offer period for the applicable RPM Auction.

In order to obtain an exception to the must-offer requirement for the reason specified in Paragraph A above, a Capacity Market Seller shall first submit a preliminary exception request in writing, along with supporting data and documentation indicating the reasons and conditions upon which the Capacity Market Seller is relying in its analysis of whether to retire such resource, to the Market Monitoring Unit for evaluation, notifying the Office of the Interconnection by copy of the same, by no later than (a) November 1, 2013 for the Base Residual Auction for the 2017/2018 Delivery Year, (b) the September 1 that last precedes the Base Residual Auction for the 2018/2019 and subsequent Delivery Years, and (c) two hundred forty (240) days prior to the commencement of the offer period for the applicable Incremental



Auction. By no later than five (5) business days after receipt of any such preliminary exception requests, the Office of the Interconnection will post on its website a summary of the number of megawatts of Generation Capacity Resources for which it has received notification of preliminary exception requests, on an aggregate basis by Zone and Locational Deliverability Area that comprises a subset of a Zone, as specified in the PJM Manuals.

Thereafter, as applicable, such Capacity Market Seller shall by no later than (a) the December 1 that last precedes the Base Residual Auction for the applicable Delivery Year, or (b) one hundred twenty (120) days prior to the commencement of the offer period for the applicable Incremental Auction, either (a) notify the Office of the Interconnection and the Market Monitoring Unit in writing that it is withdrawing its preliminary exception request and explaining the changes to its analysis of whether to retire such resource that support its decision to withdraw, or (b) demonstrate that it has met the requirements specified under Paragraph A above. By no later than five (5) business days after receipt of such notification, the Office of the Interconnection will post on its website a revised summary of the number of megawatts of Generation Capacity Resources for which it has received requests for exceptions to the must-offer requirement for the reason specified in Paragraph A above, on an aggregate basis by Zone and Locational Deliverability Area that comprises a subset of a Zone, as specified in the PJM Manuals.

A Capacity Market Seller may only remove the Generation Capacity Resource from PJM Capacity Resource status if (i) the Market Monitoring Unit has determined that the Generation Capacity Resource meets the applicable criteria set forth in Sections 5.6.6 and 6.6 of Attachment DD and the Office of the Interconnection agrees with this determination, or (ii) the Commission has issued an order terminating the Capacity Resource status of the resource. Nothing herein shall require a Market Seller to offer its resource into an RPM Auction prior to seeking to remove a resource from Capacity Resource status, subject to satisfaction of Section 6.6.

If the Capacity Market Seller disagrees with the Market Monitoring Unit's determination of its request to remove a resource from Capacity Resource status or its request for an exception to the must-offer requirement, it must notify the Market Monitoring Unit in writing, with a copy to the Office of the Interconnection, of the same by no later than eighty (80) days prior to the commencement of the offer period for the applicable RPM Auction. After the Market Monitoring Unit has made its determination of whether a resource has satisfied the must-offer requirement or meets one of the exceptions thereto and has notified the Capacity Market Seller and the Office of the Interconnection of the same pursuant to Section II.C.4 of Attachment M – Appendix, the Office of the Interconnection shall approve or deny the exception request. The exception request shall be deemed to be approved by the Office of the Interconnection, consistent with the determination of the Market Monitoring Unit, unless the Office of the Interconnection notifies the Capacity Market Seller and Market Monitoring Unit, by no later than sixty-five (65) days prior to the date on which the offer period for the applicable RPM Auction commences, that the exception request is denied.

If the Market Monitoring Unit does not timely notify the Capacity Market Seller and the Office of the Interconnection of its determination of the request to remove a Generation Capacity Resource from Capacity Resource status or for an exception to the must-offer requirement, the Office of the Interconnection shall make the determination whether the request shall be approved

or denied, and will notify the Capacity Market Seller of its determination in writing, with a copy to the Market Monitoring Unit, by no later than sixty-five (65) days prior to the date on which the offer period for the applicable RPM Auction commences.

After the Market Monitoring Unit and the Office of the Interconnection have made their determinations of whether a resource meets the criteria to qualify for an exception to the must-offer requirement, the Capacity Market Seller must notify the Market Monitoring Unit and the Office of the Interconnection whether it intends to exclude from its Sell Offer some or all of the subject capacity on the basis of an identified exception by no later than sixty-five (65) days prior to the date on which the offer period for the applicable RPM Auction commences. PJM does not make determinations of whether withholding of capacity constitutes market power. 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.

If a Capacity Market Seller doesn't timely seek to remove a Generation Capacity Resource from Capacity Resource status or timely submit a request for an exception to the must-offer requirement, the Generation Capacity Resource shall only be removed from Capacity Resource status, and may only be approved for an exception to the must-offer requirement, upon the Capacity Market Seller requesting and receiving an order from FERC, prior to the close of the offer period for the applicable RPM Auction, directing the Office of the Interconnection to remove the resource from Capacity Resource status and/or granting an exception to the must-offer requirement or a waiver of the must-offer requirement as to such resource.

(h) Any existing generation resource located in the PJM Region that satisfies the criteria in the definition of Existing Generation Capacity Resource as of the date on which bidding commences for the Base Residual Auction for a Delivery Year, that is not offered into such Base Residual Auction, and that does not meet any of the exceptions stated in the prior subsection (g): (i) may not participate in any subsequent Incremental Auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year for the capacity of such Generation Capacity Resources; 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.

All generation resources located in the PJM Region that satisfy the criteria in the definition of Existing Generation Capacity Resource as of the date on which bidding commences for an Incremental Auction for a particular Delivery Year, but that did not satisfy such criteria as of the date that on which bidding commenced in the Base Residual Auction for that Delivery Year, that is not offered into that Incremental Auction, and that does not meet any of the exceptions stated in the prior subsection (g): (i) may not participate in any subsequent Incremental Auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year for the capacity of such Generation Capacity

Resources; 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.

All Existing Generation Capacity Resources that are offered into a Base Residual Auction or Incremental Auction for a particular Delivery Year but do not clear in such auction, that are not offered into each subsequent Incremental Auction, and that do not meet any of the exceptions stated in the prior subsection (g): (i) may not participate in any Incremental Auctions conducted for such Delivery Year subsequent to such failure to offer; (ii) shall not receive any payments under section 5.14 for such Delivery Year for the capacity of such Generation Capacity Resources; 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.

Any such Existing Generation Capacity Resources may also be subject to further action by the Market Monitoring Unit under the terms of Attachment M and Attachment M – Appendix.

(i) In addition to the remedies set forth in subsections (g) and (h) above, 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, for which the Office of the Interconnection has not approved an exception to the must-offer requirement, into an RPM Auction as required by this Section 6.6 would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction, and the Office of the Interconnection agrees with that determination, 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 relevant RPM Auction, or for other appropriate relief, and PJM will postpone clearing the auction pending FERC's decision on the matter. If the Office of the Interconnection disagrees with the Market Monitoring Unit's determination and does not apply to FERC for an order directing the Capacity Market Seller to participate in the auction or for other appropriate relief, the Market Monitoring Unit may exercise its powers to inform Commission staff of its concerns and to seek appropriate relief.

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

(a) For the 2018/2019 Delivery Year and subsequent Delivery Years, the installed capacity of every Generation Capacity Resource located in the PJM Region that is capable (or that reasonably can become capable) of qualifying as a Capacity Performance Resource shall be offered as a Capacity Performance Resource by the Capacity Market Seller that owns or controls all or part of such resource (which may include submission as Self-Supply) in all RPM Auctions for each such Delivery Year, less any amount determined by the Office of the Interconnection to be eligible for an exception to the must-offer requirement, where installed capacity is determined as of the date on which bidding commences for each RPM Auction pursuant to Section 5.6.6 of Attachment DD of the Tariff.

(b) Determinations of EFORD and Unforced Capacity made under section 6.6 hereof as to a Generation Capacity Resource shall govern the offers required under this section as to the same Generation Capacity Resource.

(c) Exceptions to the requirement in subsection (a) shall be permitted only for a resource which the Capacity Market Seller demonstrates is reasonably expected to be physically incapable of satisfying the requirements of a Capacity Performance Resource. Intermittent Resources, Capacity Storage Resources, Demand Resources, and Energy Efficiency Resources shall not be required to offer as a Capacity Performance Resource, but shall not be precluded from being offered as a Capacity Performance Resource at a level that demonstrably satisfies such requirements. Exceptions shall be determined using the same timeline and procedures as specified in section 6.6.

(d) A resource not exempted or excepted under subsection (c) hereof that is capable of qualifying as a Capacity Performance Resource and does not offer into an RPM Auction as a Capacity Performance Resource shall be subject to the same restrictions on subsequent offers, and other possible remedies, as specified in section 6.6.

## **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 and the Office of the Interconnection no later than one hundred twenty (120) days 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. A potential participant intending to offer any Capacity Performance Resource choosing an offer cap at or below the Net Cost of New Entry must provide the associated offer cap and the MW to which the offer cap applies.

(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 request a unit specific Avoidable Cost Rate shall, in addition, submit the following data, together with supporting documentation for each item, to the Market Monitoring Unit no later than one hundred twenty (120) days prior to the commencement of the offer period for 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 applicable default 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 as outlined in section II.G of Attachment M-Appendix. Any Sell Offer submitted in any auction that is inconsistent with any agreement or commitment made pursuant to this subsection shall be rejected, and the Capacity Market Seller shall be required to resubmit a Sell Offer that complies with such agreement or commitment within one (1) business day of the Office of the Interconnection’s rejection of such Sell Offer. If the Capacity Market Seller does not timely resubmit its Sell Offer, fails to request a unit-specific Avoidable Cost Rate by the specified deadline, or if the Office of the Interconnection determines that the information provided by the Capacity Market Seller in support of the requested unit-specific Avoidable Cost Rate or Sell Offer is incomplete, the Capacity Market Seller shall be deemed to have submitted a Sell Offer that complies with the commitments made under this subsection, with a default offer for the applicable class of resource or nearest comparable class of resource determined under this subsection (c)(ii). 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 retirement and mothball Avoidable Cost Rates (“ACR”) referenced in this subsection (c)(ii) are as set forth in the tables below for the 2013/2014 Delivery Year through the 2016/2017 Delivery Year. 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.

<b>Maximum Avoidable Cost Rates by Technology Class</b>								
<b>Technology</b>	<b>2013/14 Mothball ACR (\$/MW-Day)</b>	<b>2013/14 Retirement ACR (\$/MW-Day)</b>	<b>2014/15 Mothball ACR (\$/MW-Day)</b>	<b>2014/15 Retirement ACR (\$/MW-Day)</b>	<b>2015/16 Mothball ACR (\$/MW-Day)</b>	<b>2015/16 Retirement ACR (\$/MW-Day)</b>	<b>2016/2017 Mothball ACR (\$/MW-Day)</b>	<b>2016/2017 Retirement ACR (\$/MW-Day)</b>
Nuclear	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumped Storage	\$23.64	\$33.19	\$24.56	\$34.48	\$25.56	\$35.89	\$24.05	\$33.78
Hydro	\$80.80	\$105.67	\$83.93	\$109.76	\$87.35	\$114.24	\$82.23	\$107.55
Sub-Critical Coal	\$193.98	\$215.02	\$201.49	\$223.35	\$209.71	\$232.46	\$197.43	\$218.84
Super Critical Coal	\$200.41	\$219.21	\$208.17	\$227.70	\$216.66	\$236.99	\$203.96	\$223.10
Waste Coal - Small	\$255.81	\$309.83	\$265.72	\$321.83	\$276.56	\$334.96	\$260.35	\$315.34

Waste Coal – Large	\$94.61	\$114.29	\$98.27	\$118.72	\$102.28	\$123.56	\$96.29	\$116.32
Wind	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CC-2 on 1 Frame F	\$35.18	\$49.90	\$36.54	\$51.83	\$38.03	\$53.94	\$35.81	\$50.79
CC-3 on 1 Frame E/Siemens	\$39.06	\$52.89	\$40.57	\$54.94	\$42.23	\$57.18	\$39.75	\$53.83
CC-3 or More on 1 or More Frame F	\$30.46	\$42.28	\$31.64	\$43.92	\$32.93	\$45.71	\$30.99	\$43.03
CC-NUG Cogen. Frame B or E Technology	\$130.76	\$175.71	\$135.82	\$182.52	\$141.36	\$189.97	\$133.09	\$178.83
CT - 1st & 2nd Gen. Aero (P&W FT 4)	\$27.96	\$37.19	\$29.04	\$38.63	\$30.22	\$40.21	\$28.45	\$37.85
CT - 1st & Gen. Frame B	\$27.63	\$36.87	\$28.70	\$38.30	\$29.87	\$39.86	\$28.11	\$37.52
CT - 2nd Gen. Frame E	\$26.26	\$35.14	\$27.28	\$36.50	\$28.39	\$37.99	\$26.73	\$35.77
CT - 3rd Gen. Aero (GE LM 6000)	\$63.57	\$93.70	\$66.03	\$97.33	\$68.72	\$101.30	\$64.70	\$95.37
CT - 3rd Gen. Aero (P&W FT - 8 TwinPak)	\$33.34	\$49.16	\$34.63	\$51.06	\$36.04	\$53.14	\$33.93	\$50.03
CT - 3rd Gen. Frame F	\$26.96	\$38.83	\$28.00	\$40.33	\$29.14	\$41.98	\$27.43	\$39.52
Diesel	\$29.92	\$37.98	\$31.08	\$39.45	\$32.35	\$41.06	\$30.44	\$38.66
Oil and Gas Steam	\$74.20	\$90.33	\$77.07	\$93.83	\$80.21	\$97.66	\$75.51	\$91.94

Commencing with the Base Residual Auction for the 2017/2018 Delivery Year, the Office of the Interconnection shall determine the default retirement and mothball Avoidable Cost Rates referenced in section (c)(ii) above, and post them on its website, by no later than one hundred fifty (150) days prior to the commencement of the offer period for each Base Residual Auction. To determine the applicable ACR rates, the Office of the Interconnection shall use the actual rate of change in the historical values from the Handy-Whitman Index of Public Utility Construction Costs or a comparable index approved by the Commission (“Handy-Whitman Index”) to the extent they are available to update the base values for the Delivery Year, and for future Delivery Years for which the updated Handy-Whitman Index values are not yet available the Office of the Interconnection shall update the base values for the Delivery Year using the most recent ten-calendar-year annual average rate of change. The ACR rates shall be expressed in dollar values for the applicable Delivery Year.

<b>Maximum Avoidable Cost Rates by Technology Class (Expressed in 2011 Dollars for the 2011/2012 Delivery Year)</b>		
<b>Technology</b>	<b>Mothball ACR (\$/MW-Day)</b>	<b>Retirement ACR (\$/MW-Day)</b>
Combustion Turbine - Industrial Frame	\$24.13	\$33.04
Coal Fired	\$136.91	\$157.83
Combined Cycle	\$29.58	\$40.69
Combustion Turbine - Aero Derivative	\$26.13	\$37.18
Diesel	\$25.46	\$32.33
Hydro	\$68.78	\$89.96
Oil and Gas Steam	\$63.16	\$76.90
Pumped Storage	\$20.12	\$28.26

To determine the default retirement and mothball ACR values for the 2017/2018 Delivery Year, the Office of the Interconnection shall multiply the base default retirement and mothball ACR values in the table above by a factor equal to one plus the most recent annual average rate of change in the July Handy-Whitman Indices for the 2011 to 2013 calendar years to determine updated base default retirement and mothball ACR values. The updated base default retirement and mothball ACR values shall then be multiplied by a factor equal to one plus the most recent ten-calendar-year annual average rate of change in the applicable Handy-Whitman Index, taken to the fourth power, as calculated by the Office of the Interconnection and posted to its website.

To determine the default retirement and mothball ACR values for the 2018/2019 and subsequent Delivery Years, the Office of the Interconnection shall multiply the updated base default retirement and mothball ACR values from the immediately preceding Delivery Year by a factor equal to one plus the most recent annual average rate of change in the July Handy-Whitman Index. These values become the new adjusted base default retirement and mothball ACR values, as calculated by the Office of the Interconnection and posted to its website. These resulting adjusted base values for the Delivery Year shall be multiplied by a factor equal to one plus the most recent ten-calendar-year annual average rate of change in the applicable Handy-Whitman

Index, taken to the fourth power, as calculated by the Office of the Interconnection and posted to its website; provided, however, that after the Handy-Whitman indexing methodology has been employed to determine the default retirement and mothball ACR values for the RPM Auctions for the 2017/2018 through 2020/2021 Delivery Years, the Office of the Interconnection shall: i) review the default retirement and mothball 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 June 1, 2017; and ii) file with FERC resulting changes, if any, to this section no later than October 1, 2017, to be effective for the Base Residual Auction for the 2021/2022 Delivery Year; provided further, that nothing herein precludes the Office of the Interconnection from filing with FERC changes to the default retirement and mothball ACR values or any other provision of this section prior to the deadline stated in the previous clause, or at any other time.

PJM shall also publish on its website the number of Generation Capacity Resources and megawatts per LDA that use the retirement Avoidable Cost Rates.

After the Market Monitoring Unit conducts its annual review of the table of default Avoidable 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 determines that the values should be updated, the Office of the Interconnection shall file its proposed values with the Commission by no later than October 30th prior to the commencement of the offer period for the first RPM Auction for which it proposes to apply the updated 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 and the Office of the Interconnection relevant unit-specific cost data concerning each data item specified as set forth in section 6 by no later than one hundred twenty (120) days prior to the commencement of the offer period for the applicable RPM Auction. 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, as may be further specified in the PJM Manuals. 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 and the Office of the Interconnection in writing of its determination pursuant to section II.E of Attachment M-Appendix.

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 less the Projected Market Revenues for such resource (as defined in Section 6.4). 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(e) below.

iii. **Projected PJM Market Revenues:** Projected PJM Market Revenues are 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, by no later than one hundred twenty (120) days prior to the commencement of the offer period for the applicable RPM Auction, a Capacity Market Seller must 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:

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

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.
- **AFAE (Avoidable Fuel Availability Expenses)** consists of avoidable operating expenses related directly to fuel availability and delivery for the generating unit that can be demonstrated by the Capacity Market Seller based on data for the twelve months preceding the month in which the data must be provided , or on reasonable projections for the Delivery Year supported by executed contracts, published tariffs, or other data sufficient to demonstrate with reasonable certainty the level of costs that have been or shall be incurred for such purpose. The categories of expenses included in AFAE are those incurred for: (a) firm gas pipeline transportation; (b) natural gas storage costs; (c) costs of gas balancing agreements; and (d) costs of gas park and loan services. AFAE expenses are for firm fuel supply and apply solely for offers for a Capacity Performance Resource
- **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.
- **CPQR (Capacity Performance Quantifiable Risk)** consists of the ~~documented and~~ quantifiable and reasonably-supported costs of mitigating the risks of non-performance associated with submission of a Capacity Performance Resource offer (or of a Base Capacity Resource offer for the 2018/19 or 2019/20 Delivery Years), such as insurance expenses associated with resource non-performance risks. , solely attributable to risks of being a Capacity Performance Resource. CPQR applies solely for offers for a Capacity Performance Resource. CPQR shall be considered reasonably supported if it is based on actuarial practices generally used by the industry to model or value risk and if it is based on actuarial practices used by the Capacity Market Seller to model or value risk in other aspects of the Capacity Market Seller's business. Such reasonable support shall also include an officer certification that the modeling and valuation of the CPQR was developed in accord with such practices. Provision of such reasonable support shall be sufficient to establish the CPQR.
- **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 25 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.

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 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 Plus Alternative 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.

## **9. PEAK SEASON MAINTENANCE COMPLIANCE PENALTY CHARGE.**

### **a) Purpose**

To preserve and maintain the reliability of the PJM Region and to recognize the impact of planned outages and maintenance outages of Generation Capacity Resources during the Peak Season, 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.

The provisions of this section 9 do not apply to Capacity Performance Resources.

### **b) Peak Season Requirement**

To the extent the Generation Capacity Resource will not be available due to a planned or maintenance outage that occurs during the Peak Season without the approval of the Office of the Interconnection, the Capacity Market Seller or Locational UCAP Seller must obtain replacement Unforced Capacity meeting the same locational requirements and same or better temporal availability characteristics (i.e., Annual Resources) from a Capacity Resource that is not already committed for such Delivery Year and that meets all characteristics specified in the Sell Offer or Locational UCAP transaction, including the megawatt quantity of Unforced Capacity committed for such Delivery Year (with such Unforced Capacity, in the case of a Generation Capacity Resource, determined on the basis of such Generation Capacity Resource's EFORD for the twelve months ending on the September 30 last preceding the Delivery Year), or otherwise, for Delivery Years through May 31, 2018, pay a Peak Season Maintenance Compliance Penalty Charge. The Capacity Market Seller or Locational UCAP Seller shall commit such replacement Capacity Resource in accordance with the procedure set forth in the PJM Manuals.

### **c) Peak Season Planned and Maintenance Outages**

The Office of the Interconnection shall adopt and maintain rules and procedures for determining the allowable Peak Season planned and maintenance outages.

### **d) Peak Season Maintenance Compliance Penalty Charge**

The Peak Season Maintenance Compliance Penalty Charge 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 peak season day.

e) Allocation of Revenue Collected from Peak Season Maintenance Compliance Penalty Charges

The revenue collected from assessment of a Peak Season Maintenance Compliance Penalty Charge shall be distributed on a pro-rata basis to all LSEs that were charged a Locational Reliability Charge for the day for which the Capacity Resource Deficiency Charge was assessed. Such revenues shall be distributed on a pro-rata basis to all such LSEs based on their Daily Unforced Capacity Obligation.

## 10. PEAK-HOUR-PERIOD AVAILABILITY CHARGES AND CREDITS

(a) To preserve and maintain the reliability of the PJM Region and to encourage Capacity Market Sellers and Locational UCAP Sellers to maintain the availability of Generation Capacity Resources during critical peak hours of the Delivery Year, each Capacity Market Seller that commits a Generation Capacity Resource for the 2017/2018 Delivery Year and any prior Delivery Year, and each Locational UCAP Seller that sells Locational UCAP from a Generation Capacity Resource for the 2017/2018 Delivery Year and any prior Delivery Year, shall be credited or charged to the extent the critical peak-period availability of its committed Generation Capacity Resources exceeds or falls short, respectively, of the expected availability of such resources. Charges and credits hereunder shall not apply to wind, ~~or~~ solar resources, or Capacity Performance Resources.

(b) Critical peak periods for purposes of this assessment (“Peak-Hour Periods”) shall be the hour ending 1500 local prevailing time through the hour ending 1900 local prevailing time on any day during the calendar months of June through August that is not a Saturday, Sunday, or federal holiday, and the hour ending 800 local prevailing time through the hour ending 900 local prevailing time and the hour ending 1900 local prevailing time through the hour ending 2000 local prevailing time on any day during the calendar months of January and February that is not a Saturday, Sunday or federal holiday.

(c) Peak-Period Equivalent Forced Outage Rate and Peak-Period Capacity Calculations

The Peak-Period Equivalent Forced Outage Rate shall be calculated for Peak-Hour Periods based on the following formula:

$$\text{EFORP (\%)} = (\text{FOH} + \text{EFPOH}) / (\text{SH} + \text{FOH})$$

where

FOH = full forced outage hours when the unit was called upon, excluding those outages deemed as OMC (as defined below);

EFPOH = equivalent forced partial outage hours when the unit was called upon, excluding those outages deemed as OMC (as defined below); and

SH = service hours as defined pursuant to NERC GADS standards.

The Peak-Period Capacity of a Generation Capacity Resource shall be calculated as follows:

$$\text{PCAP} = \text{ICAP} * (1.0 - \text{EFOR}_p)$$

where

ICAP = the installed capacity rating of such Generation Capacity Resource

(d) Determination of Expected EFOR<sub>P</sub> and PCAP for Generation Capacity Resources

For each Delivery Year, the expected EFOR<sub>P</sub> and PCAP of each Generation Capacity Resource committed to serve load in such Delivery Year shall be the EFORD and UCAP, respectively, calculated on a rolling-average basis using such resource's service history during the five consecutive annual periods of twelve consecutive months ending September 30 last preceding such Delivery Year. Such EFOR<sub>D</sub> and UCAP shall be determined in accordance with Schedule 5 of the Reliability Assurance Agreement, which excludes (for purposes of Capacity Resource UCAP calculations) outages deemed outside management control in accordance with the standards and guidelines of NERC, as defined in the Generating Availability Data System, Data Reporting Instructions in Attachment K or its successor ("Outside Plant Management Control" or "OMC").

(e) For each Delivery Year, the actual EFOR<sub>P</sub> and PCAP of each Generation Capacity Resource shall be calculated during the Peak-Hour Periods of such Delivery Year, provided however, that such calculation shall not include any day such a resource was unavailable if such unavailability resulted in a charge or penalty due to delay, cancellation, retirement, de-rating, or rating test failure. The full or partial forced outage hours when called upon shall be those outage hours during which the cost-based offer for energy from the resource would have been less than the applicable Locational Marginal Price for such resource, or when the Office of the Interconnection would have called upon the resource (absent the outage) for Operating Reserves, in both cases as determined by the Office of the Interconnection in accordance with the procedures specified in the PJM Manuals (including, without limitation, respecting such unit's current operating constraints). In addition, for single-fueled, natural gas-fired units, a failure to perform during the winter Peak-Hour Period shall be excused for purposes of this section if the Capacity Market Seller, or Locational UCAP Seller, as applicable, can demonstrate to the Office of the Interconnection that such failure was due to non-availability of gas to supply the unit.

(f) If the calculation under subsection (e) for any Generation Capacity Resource for a Delivery Year results in fewer than fifty total Service Hours during Peak Hours, then the actual EFOR<sub>P</sub> for purposes of such calculation shall be the lower of the resource's EFOR<sub>D</sub> (based on Delivery Year outage data) and its EFOR<sub>P</sub> and the actual PCAP for purposes of such calculation shall be, respectively, the resource's UCAP or its PCAP.

(g) For each Delivery Year, the excess or shortfall in Peak-Hour Period availability for each Generation Capacity Resource shall be determined by comparing such resource's expected and actual PCAP, subject to the limitation under subsection (i) below. The net Peak-Hour Period availability shortfall or excess for each Capacity Market Seller and FRR Entity in each Locational Deliverability Area shall be the net of the shortfalls and excesses of all Generation Capacity Resources in such Locational Deliverability Area committed by such Capacity Market Seller or Locational UCAP Seller for such Delivery Year. If there is a net positive Peak Hour Period availability shortfall in the LDA for such committed resources in the LDA, the sum of the excesses of all Generation Capacity Resources in such Locational Deliverability Area owned or controlled by such Capacity Market Seller, available for the

Delivery Year but not committed for such Delivery Year, and satisfying all obligations of a committed Capacity Resource for such Delivery Year shall be used to reduce the net positive Peak Hour Period availability shortfall in the LDA of committed resources by the amount of the sum of the excesses of such available uncommitted resources; however, such reduction shall not result in a net Peak Hour Period availability excess in the LDA.

(h) As to any Generation Capacity Resource experiencing or expected to experience a full or partial outage during any Peak-Hour Period that would or could result in a shortfall under subsection (g) above, a Capacity Market Seller or Locational UCAP Seller may obtain and commit Unforced Capacity from a replacement Capacity Resource (not previously committed) meeting the same locational requirements and same or better temporal availability characteristics (i.e., Annual Resources) as such resource. Such Unforced Capacity shall be recognized for purposes of this section prospectively from the effective date of commitment of such replacement resource, and to the extent such replacement Unforced Capacity thereafter is available during Peak-Hour Periods, any shortfall that otherwise would have been calculated shall be reduced to that extent. Any such commitment of replacement capacity shall be effective upon no less than one day's notice to the Office of the Interconnection.

(i) The shortfall determined for any Generation Capacity Resource shall not exceed an amount equal to 0.50 times the Unforced Capacity of such resource; provided, however, that if such limitation is triggered as to any Generation Capacity Resource for a Delivery Year, then the decimal multiplier for this calculation as to such resource in the immediately succeeding Delivery Year shall be increased to 0.75, and if such limitation again is triggered in such succeeding Delivery Year, then the multiplier shall be increased to 1.00. The multiplier shall remain at either such elevated level for each succeeding Delivery Year until the shortfall experienced by such resource is less than 0.50 times the Unforced Capacity of such resource for three consecutive Delivery Years.

(j) A Peak-Hour Period Availability Charge shall be assessed on each Capacity Market Seller or Locational UCAP Seller with a net shortfall in PCAP in an LDA, where such charge is equal to such shortfall times the Capacity Resource Clearing Price determined for such Locational Deliverability Area for such Delivery Year.

(k) The revenues from such charges shall be distributed to the Capacity Market Sellers, Locational UCAP Sellers, and FRR Entities that committed Generation Capacity Resources, in such Locational Deliverability Area that have net excess PCAP for such Delivery Year, provided however that any such seller shall be paid no more than the product of such seller's net excess PCAP times the Capacity Clearing Price determined for such Locational Deliverability Area for such Delivery Year. Any excess revenues remaining after such distribution shall be distributed on a pro-rata basis to all LSEs in the Zone that were charged the same Locational Reliability Charge for the Delivery Year for which the Peak Hour Availability Charge was assessed, and to all FRR Entities in the Zone that are LSEs and whose FRR Capacity Plan resources over-performed in the Delivery Year, on a pro-rata basis in accordance with each LSE's Daily Unforced Capacity Obligation.

(1) The Office of the Interconnection shall provide estimated charges and credits based on the summer Peak-Hour Periods within three calendar months after the end of the summer period. Final charges and credits for the Delivery Year shall be billed within three calendar months following the end of the Delivery Year.

## 10A. CHARGES FOR NON-PERFORMANCE AND CREDITS FOR PERFORMANCE

(a) For the 2018/2019 Delivery Year and any subsequent Delivery Year (and for certain purposes for the 2016/2017 and 2017/2018 Delivery Years as provided in subsections (h) and (i) hereof), each Capacity Market Seller that commits a Capacity Resource for a Delivery Year (whether through an RPM Auction, a bilateral transaction, or as Locational UCAP), and each Locational UCAP Seller that sells Locational UCAP from a Capacity Resource for a Delivery Year, shall be charged to the extent the performance of each of its committed Capacity Resources during all or any part of a clock-hour when an Emergency Action is in effect falls short of the expected performance of such resources (as determined herein) and the revenue from such charges shall be provided to Market Participants with generation or demand response resources that perform during such hour in excess of the level expected based on commitments (if any) of such resources.

(b) Performance shall be measured for purposes of this assessment during each Performance Assessment Hour.

(c) For each Performance Assessment Hour, the Office of the Interconnection shall determine whether, and the extent to which, the actual performance of each Capacity Resource and Locational UCAP has fallen short of the performance expected of such committed Capacity Resource, and the magnitude of any such shortfall, based on the following formula:

Performance Shortfall = Expected Performance - Actual Performance

Where the result of such formula is a positive number and where:

Expected Performance =

for Generation Capacity Resources (including external Generation Capacity Resources for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region) and Capacity Storage Resources: [(Resource Committed Capacity \* the Balancing Ratio)/~~All Committed Generation and Storage Capacity~~] \* ~~(All Actual Generation Performance, Storage Resource Performance, Net Energy Imports and Demand Response Bonus Performance)~~];

where

Resource Committed Capacity = the total megawatts of Unforced Capacity of the Capacity Resource committed by such Capacity Market Seller or Locational UCAP Seller; and

The Balancing Ratio = (All Actual Generation Performance, Storage Resource Performance, Net Energy Imports and Demand Response Bonus Performance) / (All Committed Generation and Storage Capacity); provided, however, that Net Energy Imports shall be included in the calculation of the Balancing Ratio only for any Performance Assessment Hour for which the Emergency Action was

declared for the entire PJM Region; and provided further that the Balancing Ratio shall not exceed a value of 1.0.

for purposes of which

All Committed Generation and Storage Capacity = the total megawatts of Unforced Capacity of all Generation Capacity Resources (including external Generation Capacity Resources for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region) and all Capacity Storage Resources committed by all Capacity Market Sellers, FRR Entities, Locational UCAP Sellers;

All Actual Generation Performance and Storage Resource Performance = the total amount of Actual Performance for all generation resources (including external Generation Capacity Resources for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region) and storage resources during the interval;

Net Energy Imports = the sum of interchange transactions importing energy into PJM (not including those associated with external Generation Capacity Resources and therefore included in All Actual Generation Performance) minus the sum of interchange transactions exporting energy out of PJM, but not less than zero;

Demand Response Bonus Performance = the sum of Bonus performance provided by Demand Response resources as calculated in (g) below;

and for Demand Resources, Energy Efficiency Resources, and Qualifying Transmission Upgrades: Resource Committed Capacity;

where

Resource Committed Capacity = the total megawatts of capacity committed from such Capacity Resource committed capacity without making any adjustment for the Forecast Pool Requirement

and

Actual Performance =

for each generation resource, the metered output of energy delivered by such resource plus the resource's real-time reserve or regulation assignment, if any, during the Performance Assessment Hour;

for each storage resource, the metered output of energy delivered by such resource plus the resource's real-time reserve or regulation assignment, if any, during the Performance Assessment Hour;

for each Demand Resource, the demand response provided by such resource, plus such resource's real-time reserve or regulation assignment, if any, during the Performance Assessment Hour, as established through the PJM demand response settlement procedure consistent with the standards specified in Schedule 6 of the RAA;

for each Energy Efficiency Resource, the load reduction quantity approved by PJM subsequent to the pre-delivery year submittal of a post-installation measurement and verification report; and

for each Qualified Transmission Upgrade, the megawatt quantity cleared by such Qualified Transmission Upgrade if it is in service during the Performance Assessment Hour, and zero if it is not in service during such Performance Assessment Hour.

Such calculation shall encompass all resources located in the area defined by the Emergency Action; provided, however, that Performance Shortfall shall be calculated for external Generation Capacity Resources for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region.—For such purpose, For purposes of this provision, Qualifying Transmission Upgrades shall be deemed to be located in the Locational Deliverability Area into which such upgrade increased the Capacity Emergency Transfer Limit, and a Qualifying Transmission Upgrade shall be included in calculations of Expected Performance and Actual Performance only if, and to the extent that, the declared Emergency Action encompasses the Locational Deliverability Area into which such upgrade increased the Capacity Emergency Transfer Limit. The Performance Shortfall shall be calculated for each Performance Assessment Hour, and any committed Capacity Resource for which the above calculation produces a negative number for a Performance Assessment Hour shall not have a Performance Shortfall for such Performance Assessment Hour. For any resource that is partially committed as a Capacity Performance Resource and partially committed as a Base Capacity Resource, the performance of such resource during a Performance Assessment Hour shall first be attributed to the resource's Capacity Performance Resource obligation; any performance by such resource in excess of the Capacity Performance Resource's Expected Performance shall be attributed to the resource's Base Capacity Resource obligation.

(d) Notwithstanding subsection (c) above, a Capacity Resource or Locational UCAP of a Capacity Market Seller or Locational UCAP Seller shall not be considered in the calculation of a Performance Shortfall for a Performance Assessment Hour to the extent such Capacity Resource or Locational UCAP was unavailable during such Performance Assessment Hour solely because the resource on which such Capacity Resource or Locational UCAP is based was on a Generator Planned Outage or Generator Maintenance Outage approved by the Office of the Interconnection, or was not scheduled to operate by the Office of the Interconnection, or was online but was scheduled down, by the Office of the Interconnection, based on a determination by the Office of the Interconnection that such scheduling action was appropriate to the security-constrained economic dispatch of the PJM Region. Subject to the foregoing, such resource shall be considered in the calculation of a Performance Shortfall if it would otherwise have been



scheduled by the Office of the Interconnection to perform, but was not scheduled to operate, or was scheduled down, solely due to: for reasons other than (i) any operating parameter limitations submitted specified by such seller in the resource's offer operating parameters, or (ii) the seller's submission by such seller of a market-based offer higher than its cost-based.

(e) Subject to the Non-Performance Charge Limit specified in subsection (f) hereof, each Capacity Market Seller and Locational UCAP Seller shall be assessed a Non-Performance Charge for each of its Capacity Resources or Locational UCAP that has a Performance Shortfall for a Performance Assessment Hour based on the following formula, applied to each such resource:

$$\text{Non-Performance Charge} = \text{Performance Shortfall} * \text{Non-Performance Charge Rate}$$

Where

For Capacity Performance Resources the Non-Performance Charge Rate = (Net Cost of New Entry (stated in terms of installed capacity) for the LDA and Delivery Year for which such calculation is performed \* (365 / 30)

and for Base Capacity Resources the Non-Performance Charge Rate = (Weighted Average Resource Clearing Price applicable to the resource \* (365 / 30)

(f) The Non-Performance Charges for each Capacity Performance Resource or (including Locational UCAP from such a resource) for a Delivery Year shall not exceed a Non-Performance Charge Limit equal to, ~~for any calendar month of a Delivery Year, 0.5 times the Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365; and for a Delivery Year, an amount equal to~~ 1.5 times the Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365. All references to Net Cost of New Entry in this section 10A shall be to the Net Cost of New Entry for the LDA and Delivery Year for which the calculation is performed. The total Non-Performance Charges for each Base Capacity Resource (including Locational UCAP from such a resource) for a Delivery Year shall not exceed a Non-Performance Charge Limit equal ~~to, for a Delivery Year, an amount equal~~ to the total payments due such Capacity Resource or Locational UCAP under section 5.14 of this Attachment DD for such Delivery Year.

(g) Revenues collected from assessment of Non-Performance Charges for a Performance Assessment Hour shall be distributed to each Market Participant, whether or not such Market Participant committed a Capacity Resource or Locational UCAP for a Performance Assessment Hour, that provided energy or load reductions above the levels expected for such resource during such hour. For purposes of this provision, the performance expected of a resource, and the revenue distribution payment, if any, for a resource, shall be determined in accordance with the following formulae:

Formula 1: Market Participant Bonus Performance = Actual Performance – Expected Performance

And

Formula 2: Performance Payment = (Market Participant Bonus Performance / All Market Participants Bonus Performance) \* Non-Performance Charge Revenues.

Where the result of Formula 1 is a positive number and where:

Actual Performance is as defined in subsection (c), provided, however, that Actual Performance for purposes of this calculation shall not exceed the megawatt level at which such resource was scheduled by the Office of the Interconnection during the Performance Assessment Hours; and provided further that Actual Performance for a Market Participant that imports energy into the PJM Region during such Performance Assessment Hour shall be the net import, if any, from all interchange transactions scheduled by such Market Participant during such Performance Assessment Hour;

Expected Performance is as defined in subsection (c), provided, however, that for purposes of this calculation, Expected Performance shall be zero for any resource that is not a Capacity Resource or Locational UCAP, or that is a Capacity Resource or Locational UCAP, but for which the Performance Assessment Hour occurs outside the resource's capacity obligation period, including, without limitation, a Base Capacity Demand Resource providing demand response during non-summer months; and

All Market Participants Bonus Performance is the sum of the results of calculating Formula 1 of this subsection (g) for all Market Participants that have Bonus Performance during such Performance Assessment Hour.

(h) The provisions of this section 10A shall apply during the 2016/2017 Delivery Year, provided that:

- (i) Non-Performance Charges shall be determined solely for and assessed solely on, Capacity Performance Resources committed for such Delivery Year;
- (ii) The Non-Performance Charge shall be 0.5 times the Non-Performance Charge calculated under subsection (e) hereof; and
- (iii) The Non-Performance Charge Limit for ~~any calendar month shall be 0.25 times Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365; and for~~ a Delivery Year shall be 0.75 times Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365.

(i) The provisions of this section 10A shall apply during the 2017-2018 Delivery Year, provided that:

- (i) Non-Performance Charges shall be determined solely for, and assessed solely on, Capacity Performance Resources committed for such Delivery Year;

- (ii) The Non-Performance Charge shall be 0.6 times the Non-Performance Charge calculated under subsection (e) hereof; and
- (iii) The Non-Performance Charge Limit for ~~any calendar month shall be 0.3 times the Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365; and for a~~ Delivery Year shall be 0.9 times Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365.

(j) The Office of the Interconnection shall bill charges and credits for performance during Performance Assessment Hours within three calendar months after the calendar month that included such Performance Assessment Hours, provided, for any Non-Performance Charge, the amount shall be divided by the number of months remaining in the Delivery Year for which no invoice has been issued, and the resulting amount shall be invoiced each such remaining month in the Delivery Year.

## ATTACHMENT DD-1

Preface: The provisions of this Attachment incorporate into the Tariff for ease of reference the provisions of Schedule 6 of the Reliability Assurance Agreement among Load Serving Entities in the PJM Region. As a result, this Attachment will be modified, subject to FERC approval, so that the terms and conditions set forth herein remain consistent with the corresponding terms and conditions of Schedule 6 of the RAA. Capitalized terms used herein that are not otherwise defined in Attachment DD or elsewhere in this Tariff have the meaning set forth in the RAA.

### PROCEDURES FOR DEMAND RESOURCES AND ENERGY EFFICIENCY

A. Parties can partially or wholly offset the amounts payable for the Locational Reliability Charge with Demand Resources that are operated under the direction of the Office of the Interconnection. FRR Entities may reduce their capacity obligations with Demand Resources that are operated under the direction of the Office of the Interconnection and detailed in such entity's FRR Capacity Plan. Demand Resources qualifying under the criteria set forth below may be offered for sale or designated as Self-Supply in the Base Residual Auction, included in an FRR Capacity Plan, or offered for sale in any Incremental Auction, for any Delivery Year for which such resource qualifies. Qualified Demand Resources generally fall in one of three categories, i.e., Guaranteed Load Drop, Firm Service Level, or Direct Load Control, as further specified in section G and the PJM Manuals. Qualified Demand Resources may be provided by a Curtailment Service Provider, notwithstanding that such Curtailment Service Provider is not a Party to this Agreement. Such Curtailment Service Providers must satisfy the requirements hereof and the PJM Manuals.

1. A Party must formally notify, in accordance with the requirements of the PJM Manuals and section F hereof, as applicable, the Office of the Interconnection of the Demand Resource that it is placing under the direction of the Office of the Interconnection. A Party must further notify the Office of the Interconnection whether the resource is a Limited Demand Resource, an Extended Summer Demand Resource, a Base Capacity Demand Resource, or an Annual Demand Resource.

2. A Demand Resource must achieve its full load reduction within the following time period:

(a) For the 2014/2015 Delivery Year, Curtailment Service Providers may elect a notification time period from the Office of the Interconnection of 30, 60 or 120 minutes prior to their Demand Resources being required to fully respond to a Load Management Event.

(b) For the 2015/2016 Delivery Year and subsequent Delivery Years, a Demand Resource must be able to fully respond to a Load Management Event within 30 minutes of notification from the Office of the Interconnection. This default 30 minute prior notification shall apply unless a Curtailment Service Provider obtains an exception from the Office of the Interconnection due to physical operational limitations that prevent the Demand Resource from reducing load within that timeframe. In such case, the Curtailment Service Provider shall submit a request for an exception to the 30 minute prior notification requirement to the Office of the Interconnection, at the time the Registration Form for that resource is submitted in accordance

with Attachment K-Appendix of this Tariff. The only alternative notification times that the Office of Interconnection will permit, upon approval of an exception request, are 60 minutes and 120 minutes prior to a Load Management Event. The Curtailment Service Provider shall indicate in writing, in the appropriate application, that it seeks an exception to permit a prior notification time of 60 minutes or 120 minutes, and the reason(s) for the requested exception. A Curtailment Service Provider shall not submit a request for an exception to the default 30 minute notification period unless it has done its due diligence to confirm that the Demand Resource is physically incapable of responding within that timeframe based on one or more of the reasons set forth below and as may be further defined in the PJM Manuals and has obtained detailed data and documentation to support this determination.

In order to establish that a Demand Resource is reasonably expected to be physically unable to reduce load in that timeframe, the Curtailment Service Provider that registered the resource must demonstrate that:

- 1) The manufacturing processes for the Demand Resource require gradual reduction to avoid damaging major industrial equipment used in the manufacturing process, or damage to the product generated or feedstock used in the manufacturing process;
- 2) Transfer of load to back-up generation requires time-intensive manual process taking more than 30 minutes;
- 3) On-site safety concerns prevent location from implementing reduction plan in less than 30 minutes; or,
- 4) The Demand Resource is comprised of mass market residential customers or Small Commercial Customers which collectively cannot be notified of a Load Management Event within a 30-minute timeframe due to unavoidable communications latency, in which case the requested notification time shall be no longer than 120 minutes.

The Office of the Interconnection may request data and documentation from the Curtailment Service Provider and such Curtailment Service Provider shall provide to the Office of the Interconnection within three (3) business days of a request therefor, a copy of all of the data and documentation supporting the exception request. Failure to provide a timely response to such request shall cause the exception to terminate the following Operating Day.

At its sole option and discretion, the Office of the Interconnection may review the data and documentation provided by the Curtailment Service Provider to determine if the Demand Resource has met one or more of the criteria above. The Office of the Interconnection will notify the Curtailment Service Provider in writing of its determination by no later than ten (10) business days after receipt of the data and documentation.

The Curtailment Service Provider shall provide written notification to the Office of the Interconnection of a material change to the facts that supported its exception request within three (3) business days of becoming aware of such material change in facts, and, if the Office of Interconnection determines that the physical limitation criteria above are no longer being met, the

Demand Resource shall be subject to the default notification period of 30 minutes immediately upon such determination.

3. The initiation of load reduction, upon the request of the Office of the Interconnection, must be within the authority of the dispatchers of the Party. No additional approvals should be required.

4. The initiation of load reduction upon the request of the Office of the Interconnection is considered a pre-emergency or emergency action and must be implementable prior to a voltage reduction.

5. A Curtailment Service Provider intending to offer for sale or designate for self-supply, a Demand Resource in any RPM Auction, or intending to include a Demand Resource in any FRR Capacity Plan must demonstrate, to PJM's satisfaction, that such resource shall have the capability to provide a reduction in demand, or otherwise control load, on or before the start of the Delivery Year for which such resource is committed. As part of such demonstration, each such Curtailment Service Provider shall submit a Demand Resource Sell Offer Plan in accordance with the standards and procedures set forth in section A-1 of Schedule 6, Schedule 8.1 (as to FRR Capacity Plans) and the PJM Manuals, no later than 15 business days prior to, as applicable, the RPM Auction in which such resource is to be offered, or the deadline for submission of the FRR Capacity Plan in which such resource is to be included. PJM may verify the Curtailment Service Provider's adherence to the Demand Resource Sell Offer Plan at any time. A Curtailment Service Provider with a PJM-approved Demand Resource Sell Offer Plan will be permitted to offer up to the approved Demand Resource quantity into the subject RPM Auction or include such resource in its FRR Capacity Plan.

6. Selection of a Demand Resource in an RPM Auction results in commitment of capacity to the PJM Region. Demand Resources that are so committed must be registered to participate in the Full Program Option or as a Capacity Only resource of the Emergency Load Response and Pre-Emergency Load Response Program and thus available for dispatch during PJM-declared pre-emergency events and emergency events.

A-1. A Demand Resource Sell Offer Plan shall consist of a completed template document in the form posted on the PJM website, requiring the information set forth below and in the PJM Manuals, and a Demand Resource Officer Certification Form signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification. The Demand Resource Sell Offer Plan must provide information that supports the Demand Resource Provider's intended Demand Resource Sell Offers and demonstrates that the Demand Resources are being offered with the intention that the MW quantity that clears the auction is reasonably expected to be physically delivered through Demand Resource registrations for the relevant Delivery Year. The Demand Resource Sell Offer Plan shall include all Existing Demand Resources and all Planned Demand Resources that the Demand Resource Provider intends to offer into an RPM Auction or include in an FRR Capacity Plan.

1. Demand Resource Sell Offer Plan Template. The Demand Resource Sell Offer Plan template, in the form provided on the PJM website, shall require the Demand

Resource Provider to provide the following information and such other information as specified in the PJM Manuals:

(a) **Summary Information.** The completed template shall include the Demand Resource Provider's company name, contact information, and the Nominated DR Value in ICAP MWs by Zone/sub-Zone that the Demand Resource Provider intends to offer, stated separately for Existing Demand Resources and Planned Demand Resources. The total Nominated DR Value in MWs for each Zone/sub-Zone shall be the sum of the Nominated DR Value of Existing Demand Resources and the Nominated DR Value of Planned Demand Resources, and shall be the maximum MW amount the Provider intends to offer in the RPM Auction for the indicated Zone/sub-Zone, provided that nothing herein shall preclude the Demand Resource Provider from offering in the auction a lesser amount than the total Nominated DR Value shown in its Demand Resource Sell Offer Plan.

(b) **Existing Demand Resources.** The Demand Resource Provider shall identify all Existing Demand Resources by identifying end-use customer sites that are currently registered with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the auction Delivery Year.

(c) **Planned Demand Resources.** The Demand Resource Provider shall provide the details of, and key assumptions underlying, the Planned Demand Resource quantities (i.e., all Demand Resource quantities in excess of Existing Demand Resource quantities) contained in the Demand Resource Sell Offer Plan, including:

(i) key program attributes and assumptions used to develop the Planned Demand Resource quantities, including, but not limited to, discussion of:

- method(s) of achieving load reduction at customer site(s);
- equipment to be controlled or installed at customer site(s), if any;
- plan and ability to acquire customers;
- types of customer targeted;
- support of market potential and market share for the target customer base, with adjustments for Existing Demand Resource customers within this market and the potential for other Demand Resource Providers targeting the same customers;
- assumptions regarding regulatory approval of program(s), if applicable; and
- if applicable, Direct Load Control (DLC) program details such as: a description of the cycling control strategy, any assumptions regarding switch operability rate, and a list (and copy) of all load research studies used to develop the estimated nominated ICAP value per customer (i.e., the per-participant impact).

(ii) Zone/sub-Zone information by end-use customer segment for all Nominated DR Values for which an end-use customer site is not

identified, to include the number in each segment of end-use customers expected to be registered for the subject Delivery Year, the average Peak Load Contribution per end-use customer for such segment, and the average Nominated DR Value per customer for such segment. End-use customer segments may include residential, commercial, small industrial, medium industrial, and large industrial, as identified and defined in the PJM Manuals, provided that nothing herein or in the Manuals shall preclude the Provider from identifying more specific customer segments within the commercial and industrial categories, if known.

(iii) Information by end-use customer site to the extent required by subsection A-1(1)(c)(iv) or, if not required by such subsection, to the extent known at the time of the submittal of the Demand Resource Sell Offer Plan, to include: customer EDC account number (if known), customer name, customer premise address, Zone/sub-Zone in which the customer is located, end-use customer segment, current Peak Load Contribution value (or an estimate if actual value not known) and an estimate of expected Peak Load Contribution for the subject Delivery Year, and an estimated Nominated DR Value.

(iv) End-use customer site-specific information shall be required for any Zones or sub-Zones identified by PJM pursuant to this subsection for the portion, if any, of a Demand Resource Provider's intended offer in such Zones or sub-Zones that exceeds a Sell Offer threshold determined pursuant to this subsection, as any such excess quantity under such conditions should reflect Planned Demand Resources from end-use customer sites that the Provider has a high degree of certainty it will physically deliver for the subject Delivery Year. In accordance with the procedures in subsection A-1(3) below, PJM shall identify, as requiring site-specific information, all Zones and sub-Zones that comprise any LDA group (from a list of LDA groups stated in the PJM Manuals) in which [the quantity of cleared Demand Resources from the most recent Base Residual Auction] plus [the quantity of Demand Resources included in FRR Capacity Plans for the Delivery Year addressed by the most recent Base Residual Auction] in any Zone or sub-Zone of such LDA group exceeds the greater of:

- the maximum Demand Resources quantity registered with PJM for such Zone for any Delivery Year from the current (at time of plan submission) Delivery Year and the two preceding Delivery Years; and
- the potential Demand Resource quantity for such Zone estimated by PJM based on an independent published assessment of demand response potential that is reasonably applicable to such Zone, as identified in the PJM Manuals.



For each such Zone and sub-Zone, the Sell Offer threshold for each Demand Resource Provider shall be the higher of:

- the Demand Resource Provider's maximum Demand Resource quantity registered with PJM for such Zone/sub-Zone over the current Delivery Year (at the time of plan submission) and two preceding Delivery Years;
- the Demand Resource Provider's maximum for any single Delivery Year of [such provider's cleared Demand Resource quantity] plus [such provider's quantity of Demand Resources included in FRR Capacity Plans] from the three forward Delivery Years addressed by the three most recent Base Residual Auctions for such Zone/sub-Zone; and
- 10 MW.

(d) Schedule. The Demand Resource Provider shall provide an approximate timeline for procuring end-use customer sites as needed to physically deliver the total Nominated DR Value (for both Existing Demand Resources and Planned Demand Resources) by Zone/sub-Zone in the Demand Resource Sell Offer Plan. The Demand Resource Provider must specify the cumulative number of customers and the cumulative Nominated DR Value associated with each end-use customer segment within each Zone/sub-Zone that the Demand Resource Provider expects (at the time of plan submission) to have under contract as of June 1 each year between the time of the auction and the subject Delivery Year.

2. Demand Resource Officer Certification Form. Each Demand Resource Sell Offer Plan must include a Demand Resource Officer Certification, signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification, in the form shown in the PJM Manuals, which form shall include the following certifications:

(a) that the signing officer has reviewed the Demand Resource Sell Offer Plan and the information supplied to PJM in support of the Plan is true and correct as of the date of the certification; and

(b) that the Demand Resource Provider is submitting the Plan with the reasonable expectation, based upon its analyses as of the date of the certification, to physically deliver all megawatts that clear the RPM Auction through Demand Resource registrations by the specified Delivery Year.

As set forth in the form provided in the PJM manuals, the certification shall specify that it does not in any way abridge, expand, or otherwise modify the current provisions of the PJM Tariff, Operating Agreement and/or RAA, or the Demand Resource Provider's rights and obligations thereunder, including the Demand Resource Provider's ability to adjust capacity obligations through participation in PJM incremental auctions and bilateral transactions.

3. Procedures. No later than December 1 prior to the Base Residual Auction for a Delivery Year, PJM shall post to the PJM website a list of Zones and sub-Zones, if any, for which end-use customer site-specific information shall be required under the conditions specified in subsection A-1(1)(c)(iv) above for all RPM Auctions conducted for such Delivery Year. Once so identified, a Zone or sub-Zone shall remain on the list for future Delivery Years until the threshold determined under subsection A-1(1)(c)(iv) above is not exceeded for three consecutive Delivery Years. No later than 15 business days prior to the RPM Auction in which a Demand Resource Provider intends to offer a Demand Resource, the Demand Resource Provider shall submit to PJM a completed Demand Resource Sell Offer Plan template and a Demand Resource Officer Certification Form signed by a duly authorized officer of the Provider. PJM will review all submitted DR Sell Offer Plans. No later than 10 business days prior to the subject RPM Auction, PJM shall notify any Demand Resource Providers that have identified the same end-use customer site(s) in their respective DR Sell Offer Plans for the same Delivery Year. In such event, the MWs associated with such site(s) will not be approved for inclusion in a Sell Offer in an RPM Auction by any of the Demand Resource Providers, unless a Demand Resource Provider provides a letter of support from the end-use customer indicating that it is likely to execute a contract with that Demand Resource Provider for the relevant Delivery Year, or provides other comparable evidence of likely commitment. Such letter of support or other supporting evidence must be provided to PJM no later than 7 business days prior to the subject RPM Auction. If an end-use customer provides letters of support for the same site for the same Delivery Year to multiple Demand Resource Providers, the MWs associated with such end-use customer site shall not be approved as a Demand Resource for any of the Demand Resource Providers. No later than 5 business days prior to the subject RPM Auction, PJM will notify each Demand Resource Provider of the approved Demand Resource quantity, by Zone/sub-Zone, that such Demand Resource Provider is permitted to offer into such RPM Auction.

B. The Unforced Capacity value of a Demand Resource will be determined as:

for the Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the product of the Nominated Value of the Demand Resource, times the DR Factor, times the Forecast Pool Requirement, and for the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans the 2019/2020 Delivery Year and subsequent Delivery Years, the product of the Nominated Value of the Demand Resource times the Forecast Pool Requirement. Nominated Values shall be determined and reviewed in accordance with sections I and J, respectively, and the PJM Manuals. The DR Factor is a factor established by the PJM Board with the advice of the Members Committee to reflect the increase in the peak load carrying capability in the PJM Region due to Demand Resources. Peak load carrying capability is defined to be the peak load that the PJM Region is able to serve at the loss of load expectation defined in the Reliability Principles and Standards. The DR Factor is the increase in the peak load carrying capability in the PJM Region due to Demand Resources, divided by the total Nominated Value of Demand Resources in the PJM Region. The DR Factor will be determined using an analytical program that uses a probabilistic approach to determine reliability. The determination of the DR Factor will consider the reliability of Demand Resources, the number of interruptions, and the total amount of load reduction.

C. Demand Resources offered and cleared in a Base Residual or Incremental Auction shall receive the corresponding Capacity Resource Clearing Price as determined in such auction, in accordance with Attachment DD of the PJM Tariff. For Delivery Years beginning with the Delivery Year that commences on June 1, 2013, any Demand Resources located in a Zone with multiple LDAs shall receive the Capacity Resource Clearing Price applicable to the location of such resource within such Zone, as identified in such resource's offer. Further, the Curtailment Service Provider shall register its resource in the same location within the Zone as specified in its cleared sell offer, and shall be subject to deficiency charges under Attachment DD of this Tariff to the extent it fails to provide the resource in such location consistent with its cleared offer. For either of the Delivery Year commencing on June 1, 2010 or commencing on June 1, 2012, if the location of a Demand Resource is not specified by a Seller in the Sell Offer on an individual LDA basis in a Zone with multiple LDAs, then Demand Resources cleared by such Seller will be paid a DR Weighted Zonal Resource Clearing Price, determined as follows: (i) for a Zone that includes non-overlapping LDAs, calculated as the weighted average of the Resource Clearing Prices for such LDAs, weighted by the cleared Demand Resources registered by such Seller in each such LDA; or (ii) for a Zone that contains a smaller LDA within a larger LDA, calculated treating the smaller LDA and the remaining portion of the larger LDA as if they were separate LDAs, and weight-averaging in the same manner as (i) above.

D. The Party, Electric Distributor, or Curtailment Service Provider that establishes a contractual relationship (by contract or tariff rate) with a customer for load reductions is entitled to receive the compensation specified in section C for a committed Demand Resource, notwithstanding that such provider is not the customer's energy supplier.

E. Any Party hereto shall demonstrate that its Demand Resources performed during periods when load management procedures were invoked by the Office of the Interconnection. The Office of the Interconnection shall adopt and maintain rules and procedures for verifying the performance of such resources, as set forth in section K hereof and the PJM Manuals. In addition, committed Demand Resources that do not comply with the directions of the Office of the Interconnection to reduce load during an emergency shall be subject to the penalty charge set forth in Attachment DD to the PJM Tariff.

F. Parties may elect to place Demand Resources associated with Behind The Meter Generation under the direction of the Office of the Interconnection for a Delivery Year by submitting a Sell Offer for such resource (as Self Supply, or with an offer price) in the Base Residual Auction for such Delivery Year. This election shall remain in effect for the entirety of such Delivery Year. In the event such an election is made, such Behind The Meter Generation will not be netted from load for the purposes of calculating the Daily Unforced Capacity Obligations under this Agreement.

G. PJM measures Demand Resources in the following four ways:

Direct Load Control (DLC) – Load management that is initiated directly by the Curtailment Service Provider's market operations center or its agent, employing a communication signal to cycle equipment (typically water heaters or central air conditioners). DLC programs are qualified based on load research and customer subscription data. Curtailment Service Providers

may rely on the results of load research studies identified in the PJM Manuals to set the per-participant load reduction for DLC programs. Each Curtailment Service Provider relying on DLC load management must periodically update its DLC switch operability rates, in accordance with the PJM Manuals.

**Firm Service Level (FSL)** – Load management achieved by an end-use customer reducing its load to a pre-determined level (the Firm Service Level), upon notification from the Curtailment Service Provider’s market operations center or its agent.

**Guaranteed Load Drop (GLD)** – Load management achieved by an end-use customer reducing its load by a pre-determined amount (the Guaranteed Load Drop), upon notification from the Curtailment Service Provider’s market operations center or its agent. Typically, the load reduction is achieved through running customer-owned backup generators, or by shutting down process equipment.

**Customer Baseline Load (CBL)** - Load management achieved by an end-use customer as measured by 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 of the Operating Agreement.

H. Each Curtailment Service Provider must satisfy (or contract with another LSE, Curtailment Service Provider, or electric distribution company to provide) the following requirements:

- A point of contact with appropriate backup to ensure single call notification from PJM and timely execution of the notification process;
- Supplemental status reports, detailing Demand Resources available, as requested by PJM;
- Entry of customer-specific Demand Resource credit information, for planning and verification purposes, into the designated PJM electronic system.
- Customer-specific compliance and verification information for each PJM-initiated Demand Resource event, as well as aggregated Provider load drop data for Provider-initiated events, in accordance with established reporting guidelines.
- Load drop estimates for all Demand Resource events, prepared in accordance with the PJM Manuals.

I. The Nominated Value of each Demand Resource shall be determined consistent with the process for determination of the capacity obligation for the customer.

The Nominated Value for a Firm Service Level customer will be based on the peak load contribution for the customer, as determined by the 5CP methodology utilized to determine other

ICAP obligation values. The maximum Demand Resource load reduction value for a Firm Service Level customer will be equal to Peak Load Contribution – Firm Contract Level adjusted for system losses.

The Nominated Value for a Guaranteed Load Drop customer will be the guaranteed load drop amount, adjusted for system losses, as established by the customer’s contract with the Curtailment Service Provider. The maximum credit nominated shall not exceed the customer’s Peak Load Contribution.

The Nominated Value for a Direct Load Control program will be based on load research and customer subscription. The maximum value of the program is equal to the approved per-participant load reduction multiplied by the number of active participants, adjusted for system losses. The per-participant impact is to be estimated at long-term average local weather conditions at the time of the summer peak.

Customer-specific Demand Resource information (EDC account number, peak load, notification period, etc.) will be entered into the designated PJM electronic system to establish credit values. Additional data may be required, as defined in sections J and K.

J. Nominated Values shall be reviewed based on documentation of customer-specific data and Demand Resource information, to verify the amount of load management available and to set a maximum allowable Nominated Value. Data is provided by both the zone EDC and the Curtailment Service Provider on templates supplied by PJM, and must include the EDC meter number or other unique customer identifier, Peak Load Contribution (5CP), contract firm service level or guaranteed load drop values, applicable loss factor, zone/area location of the load drop, LSE contact information, number of active participants, etc. Such data must be uploaded and approved prior to the first day of the Delivery Year for such resource as a Demand Resource. Curtailment Service Providers must provide this information concurrently to host EDCs.

For Firm Service Level and Guaranteed Load Drop customers, the 5CP values, for the zone and affected customers, will be adjusted to reflect an “unrestricted” peak for a zone, based on information provided by the Curtailment Service Provider. Load drop levels shall be estimated in accordance with guidelines in the PJM Manuals.

For Direct Load Control programs, the Curtailment Service Provider must provide information detailing the number of active participants in each program. Other information on approved DLC programs will be provided by PJM.

K. Compliance is the process utilized to review Provider performance during PJM-initiated Demand Resource events. Compliance will be established for each Provider on an event specific basis for the Curtailment Service Provider’s Demand Resources dispatched by the Office of the Interconnection during such event. PJM will establish and communicate reasonable deadlines for the timely submittal of event data to expedite compliance reviews. Compliance reviews will be completed as soon after the event as possible, with the expectation that reviews of a single event will be completed within two months of the end of the month in which the event

took place. Curtailment Service Providers are responsible for the submittal of compliance information to PJM for each PJM-initiated event during the compliance period.

For Load Management Events occurring through the May 31, 2018 and for Load Management Events occurring during the months of June through September of the 2018/2019 Delivery Year and subsequent Delivery Years:

Compliance for Direct Load Control programs will consider only the transmission of the control signal. Curtailment Service Providers are required to report the time period (during the Demand Resource event) that the control signal was actually sent.

Compliance is checked on an individual customer basis for FSL, by comparing actual load during the event to the firm service level. Curtailment Service Providers must submit actual customer load levels (for the event period) for the compliance report. Compliance for FSL will be based on:

End use customer's current Delivery Year peak load contribution ("PLC") minus the metered load ("Load") multiplied by the loss factor ("LF"). The calculation is represented by:

$(PLC) - (Load * LF)$

Compliance is checked on an individual customer basis for GLD, and will be based on:

- (i) the lesser of (a) comparison load used to best represent what the load would have been if PJM did not declare a Load Management Event or the CSP did not initiate a test as outlined in the PJM Manuals, minus the Load and then multiplied by the LF, or (b) the PLC minus the Load multiplied by the LF. A load reduction will only be recognized for capacity compliance if the Load multiplied by the LF is less than the PLC.
- (iii) Curtailment Service Providers must submit actual loads and comparison loads for all hours during the day of the Load Management Event or the Load Management performance test, and for all hours during any other days as required by the Office of the Interconnection to calculate the load reduction. Comparison loads must be developed from the guidelines in the PJM Manuals, and note which method was employed.

Compliance is averaged over the Load Management Event for non-interval metered DLC programs. Compliance is averaged over the Load Management Event, for each FSL and GLD customer dispatched by the Office of the Interconnection, for at least 30 minutes of the clock hour (i.e., "partial dispatch compliance hour"). The registered capacity commitment for the partial dispatch compliance hour will be prorated based on the number of minutes dispatched during the clock hour and as defined in the Manuals. Curtailment Service Provider may submit 1 minute load data for use in capacity compliance calculations for partial dispatch compliance hours subject to PJM approval and in accordance with the PJM Manuals where: (a) metering meets all Tariff and Manual requirements, (b) 1 minute load data shall be submitted to PJM for

all locations on the registration, and (c) 1 minute load data measures energy consumption over the minute.

For Load Management Events occurring during the months of October through May of the 2018/2019 Delivery Year and subsequent Delivery Years:

Compliance is determined on an individual customer basis by 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 of the Operating Agreement.

For all Delivery Years:

Demand Resources may not reduce their load below zero (i.e., export energy into the system). No compliance credit will be given for an incremental load drop below zero. Compliance will be totaled over all FSL and GLD customers and DLC programs to determine a net compliance position for the event for each Provider by Zone, for all Demand Resources committed by such Provider and dispatched by the Office of the Interconnection in the zone. Deficiencies shall be as further determined in accordance with section 11 of Schedule DD to the PJM Tariff.

#### L. Energy Efficiency Resources

1. An Energy Efficiency Resource is a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during peak summer and winter periods as described herein) reduction in electric energy consumption at the End-Use Customer's retail site that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

2. An Energy Efficiency Resource may be offered as a Capacity Resource in the Base Residual or Incremental Auctions for any Delivery Year beginning on or after June 1, 2012. No later than 30 days prior to the auction in which the resource is to be offered, the Capacity Market Seller shall submit to the Office of the Interconnection a notice of intent to offer the resource into such auction and a measurement and verification plan. The notice of intent shall include all pertinent project design data, including but not limited to the peak-load contribution of affected customers, a full description of the equipment, device, system or process intended to achieve the load reduction, the load reduction pattern, the project location, the project development timeline, and any other relevant data. Such notice also shall state the seller's proposed Nominated Energy Efficiency Value.

- For Delivery Years through May 31, 2018, the seller's proposed Nominated Energy Efficiency Value shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday;

- For the 2018/2019 and 2019/2020 Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Base Capacity Energy Efficiency Resource shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday; and

The measurement and verification plan shall describe the methods and procedures, consistent with the PJM Manuals, for determining the amount of the load reduction and confirming that such reduction is achieved. The Office of the Interconnection shall determine, upon review of such notice, the Nominated Energy Efficiency Value that may be offered in the Reliability Pricing Model Auction.

- For the 2018/2019 Delivery Year and subsequent Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Annual Energy Efficiency Resources, shall be the expected average load reduction, for all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 15:00 EPT and the hour ending 18:00 EPT. In addition, the expected average load reduction for all days from January 1 through February 28, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 8:00 EPT and the hour ending 9:00 EPT and between the hour ending 19:00 EPT and the hour ending 20:00 EPT shall not be less than the Nominated Energy Efficiency Value.

3. An Energy Efficiency Resource may be offered with a price offer or as Self-Supply. If an Energy Efficiency Resource clears the auction, it shall receive the applicable Capacity Resource Clearing Price, subject to section 5 below. A Capacity Market Seller offering an Energy Efficiency Resource must comply with all applicable credit requirements as set forth in Attachment Q to the PJM Tariff. For Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency value times the DR Factor and the Forecast Pool Requirement. For the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans the 2019/2020 Delivery Year and subsequent Delivery Years, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency Value times the Forecast Pool Requirement.

4. An Energy Efficiency Resource that clears an auction for a Delivery Year may be offered in auctions for up to three additional consecutive Delivery Years, but shall not be assured of clearing in any such auction; provided, however, an Energy Efficiency Resource may not be offered for any Delivery Year in which any part of the peak season is beyond the expected life of the equipment, device, system, or process providing the expected load reduction; and provided further that a Capacity Market Seller that offers and clears an Energy Efficiency Resource in a BRA may elect a New Entry Price Adjustment on the same terms as set forth in section 5.14(c) of this Attachment DD.



5. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than 30 days prior to each Auction an updated project status and measurement and verification plan subject to the criteria set forth in the PJM Manuals.

6. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than the start of such Delivery Year, an updated project status and detailed measurement and verification data meeting the standards for precision and accuracy set forth in the PJM Manuals. The final value of the Energy Efficiency Resource during such Delivery Year shall be as determined by the Office of the Interconnection based on the submitted data.

7. The Office of the Interconnection may audit, at the Capacity Market Seller's expense, any Energy Efficiency Resource committed to the PJM Region. The audit may be conducted any time including the Performance Hours of the Delivery Year.

Section(s) of the  
PJM Reliability Assurance Agreement  
(Marked / Redline Format)

## **ARTICLE 1 – DEFINITIONS**

Unless the context otherwise specifies or requires, capitalized terms used herein shall have the respective meanings assigned herein or in the Schedules hereto for all purposes of this Agreement (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Articles, Sections or Schedules, are to Articles, Sections or Schedules of this Agreement. As used in this Agreement:

### **1.1 Agreement**

Agreement shall mean this Reliability Assurance Agreement, together with all Schedules hereto, as amended from time to time.

#### **1.1A Annual Demand Resource**

Annual Demand Resource shall mean a resource that is placed under the direction of the Office of the Interconnection during the Delivery Year, and will be available for an unlimited number of interruptions during such Delivery Year by the Office of the Interconnection, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time for the months of June through October and the following May, and 6:00AM through 9:00PM Eastern Prevailing Time for the months of November through April unless there is an Office of the Interconnection approved maintenance outage during October through April. The Annual Demand Resource must be available in the corresponding Delivery year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Annual Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

#### **1.1B Annual Energy Efficiency Resource**

Annual Energy Efficiency Resource shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Schedule 6 of this Agreement and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer and winter periods described in Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

### **1.2 Applicable Regional Entity**

Applicable Regional Entity shall have the same meaning as in the PJM Tariff.

#### **1.2A Base Capacity Demand Resource**

Base Capacity Demand Resource shall mean, for the 2018/2019 and 2019/2020 Delivery

Years, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through September of a Delivery Year, and will be available to the Office of the Interconnection for an unlimited number of interruptions during such months, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Base Capacity Demand Resource must be available June through September in the corresponding Delivery Year to be offered for sale or self-supplied in an RPM Auction, or included as an Base Capacity Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

### **1.2B Base Capacity Energy Efficiency Resource**

Base Capacity Energy Efficiency Resource shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Schedule 6 of this Agreement and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer peak periods as described in Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Base Capacity Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

### **1.2C Base Capacity Resource**

Base Capacity Resource shall have the same meaning as in Attachment DD to the PJM Tariff.

### **1.3 Base Residual Auction**

Base Residual Auction shall have the same meaning as in Attachment DD to the PJM Tariff.

### **1.4 Behind The Meter Generation**

Behind The Meter Generation shall mean a generating unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of the Office of the Interconnection; provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit's capacity that is designated as a Capacity Resource or (ii) in any hour, any portion of the output of such generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

### **1.5 Black Start Capability**

Black Start Capability shall mean the ability of a generating unit or station to go from a shutdown condition to an operating condition and start delivering power without assistance from the power system.

### **1.6 Capacity Emergency Transfer Objective (“CETO”)**

Capacity Emergency Transfer Objective (“CETO”) shall mean the amount of electric energy that a given area must be able to import in order to remain within a loss of load expectation of one event in 25 years when the area is experiencing a localized capacity emergency, as determined in accordance with the PJM Manuals. Without limiting the foregoing, CETO shall be calculated based in part on EFORD determined in accordance with Paragraph C of Schedule 5.

### **1.7 Capacity Emergency Transmission Limit (“CETL”)**

Capacity Emergency Transmission Limit (“CETL”) shall mean the capability of the transmission system to support deliveries of electric energy to a given area experiencing a localized capacity emergency as determined in accordance with the PJM Manuals.

#### **1.7A Capacity Import Limit**

Capacity Import Limit shall mean, (a) for the PJM Region, (1) the maximum megawatt quantity of external Generation Capacity Resources that PJM determines for each Delivery Year, through appropriate modeling and the application of engineering judgment, the transmission system can receive, in aggregate at the interface of the PJM Region with all external balancing authority areas and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus (2) the then-applicable Capacity Benefit Margin; and (b) for certain source zones identified in the PJM manuals as groupings of one or more balancing authority areas, (1) the maximum megawatt quantity of external Generation Capacity Resources that PJM determines the transmission system can receive at the interface of the PJM Region with each such source zone and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus the then-applicable Capacity Benefit Margin times (2) the ratio of the maximum import quantity from each such source zone divided by the PJM total maximum import quantity. As more fully set forth in the PJM Manuals, PJM shall make such determination based on the latest peak load forecast for the studied period, the same computer simulation model of loads, generation and transmission topography employed in the determination of Capacity Emergency Transmission Limit for such Delivery Year, including external facilities from an industry standard model of the loads, generation, and transmission topography of the Eastern Interconnection under peak conditions. PJM shall specify in the PJM Manuals the areas and minimum distribution factors for identifying monitored bulk electric system facilities that have an electrically significant response to such transfers on the PJM interface. Employing such tools, PJM shall model increased power transfers from external areas

into PJM to determine the transfer level at which one or more reliability criteria is violated on any monitored bulk electric system facilities that have an electrically significant response to such transfers. For the PJM Region Capacity Import Limit, PJM shall optimize transfers from other source areas not experiencing any reliability criteria violations as appropriate to increase the Capacity Import Limit. The aggregate megawatt quantity of transfers into PJM at the point where any increase in transfers on the interface would violate reliability criteria will establish the Capacity Import Limit. Notwithstanding the foregoing, a Capacity Resource located outside the PJM Region shall not be subject to the Capacity Import Limit if the Capacity Market Seller seeks an exception thereto by demonstrating to PJM, by no later than five (5) business days prior to the commencement of the offer period for the relevant RPM Auction, that such resource meets all of the following requirements:

(i) it has, at the time such exception is requested, met all applicable requirements to be treated as equivalent to PJM Region internal generation that is not subject to NERC tagging as an interchange transaction, or the Capacity Market Seller has committed in writing that it will meet such requirements, unless prevented from doing so by circumstances beyond the control of the Capacity Market Seller, prior to the relevant Delivery Year;

(ii) at the time such exception is requested, it has long-term firm transmission service confirmed on the complete transmission path from such resource into PJM; and

(iii) it is, by written commitment of the Capacity Market Seller, subject to the same obligations imposed on Generation Capacity Resources located in the PJM Region by section 6.6 of Attachment DD of the PJM Tariff to offer their capacity into RPM Auctions;

provided, however, that (a) the total megawatt quantity of all exceptions granted hereunder for a Delivery Year, plus the Capacity Import Limit for the applicable interface determined for such Delivery Year, may not exceed the total megawatt quantity of Network External Designated Transmission Service on such interface that PJM has confirmed for such Delivery Year; and (b) if granting a qualified exception would result in a violation of the rule in clause (a), PJM shall grant the requested exception but reduce the Capacity Import Limit by the quantity necessary to ensure that the total quantity of Network External Designated Transmission Service is not exceeded.

### **1.7B Capacity Performance Resource**

Capacity Performance Resource shall have the same meaning as in Attachment DD to the PJM Tariff.

### **1.8 Capacity Resources**

Capacity Resources shall mean megawatts of (i) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources meeting the requirements of Schedules 9 and 10 that are or will be owned by or contracted to a Party and that are or will be committed to satisfy that Party's obligations under this Agreement, or to satisfy the reliability requirements of the PJM Region, for a Delivery Year; (ii) net capacity from Existing Generation

Capacity Resources or Planned Generation Capacity Resources not owned or contracted for by a Party which are accredited to the PJM Region pursuant to the procedures set forth in Schedules 9 and 10; and (iii) load reduction capability provided by Demand Resources or Energy Efficiency Resources that are accredited to the PJM Region pursuant to the procedures set forth in Schedule 6.

## **1.9 Capacity Transfer Right**

Capacity Transfer Right shall have the meaning specified in Attachment DD to the PJM Tariff.

### **1.9.1 Compliance Aggregation Area (CAA)**

“Compliance Aggregation Area” or “CAA” shall have the same meaning as in the PJM Tariff.

## **1.10 Control Area**

Control Area shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common generation control scheme is applied in order to:

- (a) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);
- (b) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;
- (c) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice and the criteria of NERC and each Applicable Regional Entity;
- (d) maintain power flows on transmission facilities within appropriate limits to preserve reliability; and
- (e) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

## **1.11 Daily Unforced Capacity Obligation**

Daily Unforced Capacity Obligation shall have the meaning set forth in Schedule 8 or, as to an FRR Entity, in Schedule 8.1.

## **1.12 Delivery Year**

Delivery Year shall mean a Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Attachment DD to the Tariff or pursuant to an FRR Capacity Plan.

### **1.13 Demand Resource**

Demand Resource or “DR” shall mean a Limited Demand Resource, Extended Summer Demand Resource, Annual Demand Resource, or Base Capacity Demand Resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements of Schedule 6 that offers and that clears load reduction capability in a Base Residual Auction or Incremental Auction or that is committed through an FRR Capacity Plan.

#### **1.13A Demand Resource Officer Certification Form**

Demand Resource Officer Certification Form shall mean a certification as to an intended Demand Resource Sell Offer, in accordance with Schedules 6 and 8.1 of this Agreement and the PJM Manuals.

### **1.14 [Reserved for Future Use]**

#### **1.14A Demand Resource Sell Offer Plan**

Demand Resource Sell Offer Plan shall mean the plan required by Schedules 6 and 8.1 of this Agreement in support of an intended offer of Demand Resources in an RPM Auction, or an intended inclusion of Demand Resources in an FRR Capacity Plan.

### **1.15 DR Factor**

DR Factor (“Demand Resource Factor”) shall mean, for Delivery Years through May 31, 2018, that factor approved from time to time by the PJM Board used to determine the unforced capacity value of a Demand Resource in accordance with Schedule 6.

### **1.16 [Reserved for Future Use]**

### **1.17 Electric Cooperative**

Electric Cooperative shall mean an entity owned in cooperative form by its customers that is engaged in the generation, transmission, and/or distribution of electric energy.

### **1.18 Electric Distributor**

Electric Distributor shall mean an entity that owns or leases with rights equivalent to ownership electric distribution facilities that are providing electric distribution service to electric load within the PJM Region.



## **1.19 Emergency**

Emergency shall mean (i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals.

## **1.20 End-Use Customer**

End-Use Customer shall mean a Member that is a retail end-user of electricity within the PJM Region.

### **1.20A Energy Efficiency Resource**

Energy Efficiency Resource shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Schedule 6 of this Agreement and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the periods described in Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention. Annual Energy Efficiency Resources and Base Capacity Energy Efficiency Resources are types of Energy Efficiency Resources.

#### **1.20A.1 Existing Demand Resource**

Existing Demand Resource shall mean a Demand Resource for which the Demand Resource Provider has identified existing end-use customer sites that are registered for the current Delivery Year with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the Delivery Year for which such resource is offered.

#### **1.20B Existing Generation Capacity Resource**

Existing Generation Capacity Resource shall mean, for purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource that, as of the date on which bidding commences for such auction: (a) is in ~~full commercial operation and for which Interconnection Service has ever commenced service;~~ or (b) ~~is not yet in service, but has cleared any RPM Auction for any prior Delivery Year.~~ Notwithstanding the foregoing, a Generation Capacity Resource for which construction has not commenced and which would otherwise have been treated as a Planned Generation Capacity

Resource but for the fact that it was bid into RPM Auctions for at least two consecutive Delivery Years, and cleared the last such auction only because it was considered existing and its mitigated offer cap was accepted when its price offer would not have otherwise been accepted, shall be deemed to be a Planned Generation Capacity Resource. A Generation Capacity Resource shall be deemed to be in service if interconnection service has ever commenced (for resources located in the PJM Region), or if it is physically and electrically interconnected to an external Control Area and is in full commercial operation (for resources not located in the PJM Region). The additional megawatts of a Generation Capacity Resource that is being, or has been, modified to increase the number of megawatts of available installed capacity thereof shall not be deemed to be an Existing Generation Capacity Resource until such time as those megawatts ~~are in full commercial operation and Interconnection Service has commenced~~(a) are in service; or (b) are not yet in service, but have cleared any RPM Auction for any prior Delivery Year.

### **1.20C Extended Summer Demand Resource**

Extended Summer Demand Resource shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years though May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through October and the following May, and will be available for an unlimited number of interruptions during such months by the Office of the Interconnection, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Extended Summer Demand Resource must be available June through October and the following May in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Extended Summer Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

### **1.21 Facilities Study Agreement**

Facilities Study Agreement shall have the same meaning as in the PJM Tariff

### **1.22 FERC**

FERC shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department.

### **1.23 Firm Point-To-Point Transmission Service**

Firm Point-To-Point Transmission Service shall mean Firm Transmission Service provided pursuant to the rates, terms and conditions set forth in Part II of the PJM Tariff.

### **1.24 Firm Transmission Service**

Firm Transmission Service shall mean transmission service that is intended to be available at all times to the maximum extent practicable, subject to an Emergency, an unanticipated failure of a facility, or other event beyond the control of the owner or operator of the facility or the Office of the Interconnection.

### **1.25 Fixed Resource Requirement Alternative or FRR Alternative**

Fixed Resource Requirement Alternative or FRR Alternative shall mean an alternative method for a Party to satisfy its obligation to provide Unforced Capacity hereunder, as set forth in Schedule 8.1 to this Agreement.

### **1.26 Forecast Pool Requirement**

Forecast Pool Requirement or FPR shall mean the amount equal to one plus the unforced reserve margin (stated as a decimal number) for the PJM Region required pursuant to this Agreement, as approved by the PJM Board pursuant to Schedule 4.1.

### **1.27 [Reserved]**

### **1.28 [Reserved]**

### **1.29 FRR Capacity Plan or FRR Plan**

FRR Capacity Plan or FRR Plan shall mean a long-term plan for the commitment of Capacity Resources to satisfy the capacity obligations of a Party that has elected the FRR Alternative, as more fully set forth in Schedule 8.1 to this Agreement.

### **1.30 FRR Entity**

FRR Entity shall mean, for the duration of such election, a Party that has elected the FRR Alternative hereunder.

### **1.31 FRR Service Area**

FRR Service Area shall mean (a) the service territory of an IOU as recognized by state law, rule or order; (b) the service area of a Public Power Entity or Electric Cooperative as recognized by franchise or other state law, rule, or order; or (c) a separately identifiable geographic area that is: (i) bounded by wholesale metering, or similar appropriate multi-site aggregate metering, that is visible to, and regularly reported to, the Office of the Interconnection, or that is visible to, and regularly reported to an Electric Distributor and such Electric Distributor agrees to aggregate the load data from such meters for such FRR Service Area and regularly report such aggregated information, by FRR Service Area, to the Office of the Interconnection; and (ii) for which the FRR Entity has or assumes the obligation to provide capacity for all load (including load growth) within such area. In the event that the service obligations of an Electric Cooperative or Public Power Entity are not defined by geographic boundaries but by physical connections to a defined set of customers, the FRR Service Area in such circumstances shall be defined as all customers physically connected to transmission or distribution facilities of such Electric Cooperative or Public Power Entity within an area bounded by appropriate wholesale aggregate metering as described above.

### **1.32 Full Requirements Service**

Full Requirements Service shall mean wholesale service to supply all of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

### **1.33 Generation Capacity Resource**

Generation Capacity Resource shall mean a generation unit, or the contractual right to capacity from a specified generation unit, that meets the requirements of Schedules 9 and 10 of this Agreement, and, for generation units that are committed to an FRR Capacity Plan, that meets the requirements of Schedule 8.1 of this Agreement. A Generation Capacity Resource may be an Existing Generation Capacity Resource or a Planned Generation Capacity Resource.

### **1.34 Generation Owner**

Generation Owner shall mean a Member that owns or leases with rights equivalent to ownership, facilities for the generation of electric energy that are located within the PJM Region. Purchasing all or a portion of the output of a generation facility shall not be sufficient to qualify a Member as a Generation Owner.

### **1.35 Generator Forced Outage**

Generator Forced Outage shall mean an immediate reduction in output or capacity or removal from service, in whole or in part, of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility, as specified in the relevant portions of the PJM Manuals. A reduction in output or removal from service of a generating unit in response to changes in market conditions shall not constitute a Generator Forced Outage.

### **1.36 Generator Maintenance Outage**

Generator Maintenance Outage shall mean the scheduled removal from service, in whole or in part, of a generating unit in order to perform repairs on specific components of the facility, if removal of the facility qualifies as a maintenance outage pursuant to the PJM Manuals.

### **1.37 Generator Planned Outage**

Generator Planned Outage shall mean the scheduled removal from service, in whole or in part, of a generating unit for inspection, maintenance or repair with the approval of the Office of the Interconnection in accordance with the PJM Manuals.

### **1.38 Good Utility Practice**

Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period,

or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region.

**1.39 [Reserved]**

**1.40 Incremental Auction**

Incremental Auction shall mean the First Incremental Auction, the Second Incremental Auction, the Third Incremental Auction, or the Conditional Incremental Auction, each as defined in Attachment DD to the PJM Tariff.

**1.41 Interconnection Agreement**

Interconnection Agreement shall have the same meaning as in the PJM Tariff.

**1.42 [Reserved]**

**1.43 IOU**

IOU shall mean an investor-owned utility with substantial business interest in owning and/or operating electric facilities in any two or more of the following three asset categories: generation, transmission, distribution.

**1.43A Limited Demand Resource**

Limited Demand Resource shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will, at a minimum, be available for interruption for at least 10 Load Management Events during the summer period of June through September in the Delivery Year, and will be capable of maintaining each such interruption for at least a 6-hour duration. At a minimum, the Limited Demand Resource shall be available for such interruptions on weekdays, other than NERC holidays, from 12:00PM (noon) to 8:00PM Eastern Prevailing Time. The Limited Demand Resource must be available during the summer period of June through September in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as a Limited Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

**1.44 Load Serving Entity or LSE**

Load Serving Entity or LSE shall mean any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer, (i) serving end-users within the PJM Region, and (ii) that has been granted the authority or has an obligation pursuant to state or local

law, regulation or franchise to sell electric energy to end-users located within the PJM Region. Load Serving Entity shall include any end-use customer that qualifies under state rules or a utility retail tariff to manage directly its own supply of electric power and energy and use of transmission and ancillary services.

#### **1.45 Locational Reliability Charge**

Locational Reliability Charge shall mean the charge determined pursuant to Schedule 8.

#### **1.46 Markets and Reliability Committee**

Markets and Reliability Committee shall mean the committee established pursuant to the Operating Agreement as a Standing Committee of the Members Committee.

#### **1.46A Maximum Emergency Service Level**

Maximum Emergency Service Level or MESL of Price Responsive Demand shall mean the level, determined at a PRD Substation level, to which Price Responsive Demand shall be reduced during the Delivery Year when a Maximum Generation Emergency is declared and the Locational Marginal Price exceeds the price associated with such Price Responsive Demand identified by the PRD Provider in its PRD Plan.

#### **1.47 Member**

Member shall mean an entity that satisfies the requirements of Sections 1.24 and 11.6 of the PJM Operating Agreement. In accordance with Article 4 of this Agreement, each Party to this Agreement also is a Member.

#### **1.48 Members Committee**

Members Committee shall mean the committee specified in Section 8 of the PJM Operating Agreement composed of the representatives of all the Members.

#### **1.49 NERC**

NERC shall mean the North American Electric Reliability Council or any successor thereto.

#### **1.49A Network External Designated Transmission Service**

Network External Designated Transmission Service shall mean the quantity of network transmission service confirmed by PJM for use by a market participant to import power and energy from an identified Generation Capacity Resource located outside the PJM Region, upon demonstration by such market participant that it owns such Generation Capacity Resource, has an executed contract to purchase power and energy from such Generation Capacity Resource, or has a contract to purchase power and energy from such Generation Capacity Resource contingent

upon securing firm transmission service from such resource.

### **1.50 Network Resources**

Network Resources shall have the meaning set forth in the PJM Tariff.

### **1.51 Network Transmission Service**

Network Transmission Service shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Part III of the PJM Tariff or transmission service comparable to such service that is provided to a Load Serving Entity that is also a Transmission Owner (as that term is defined in the PJM Tariff).

### **1.51A Nominal PRD Value**

Nominal PRD Value shall mean, as to any PRD Provider, an adjustment, determined in accordance with Schedule 6.1 of this Agreement, to the peak-load forecast used to determine the quantity of capacity sought through an RPM Auction, reflecting the aggregate effect of Price Responsive Demand on peak load resulting from the Price Responsive Demand to be provided by such PRD Provider.

### **1.52 Nominated Demand Resource Value**

Nominated Demand Resource Value shall have the meaning specified in Attachment DD to the PJM Tariff.

### **1.53 [Reserved]**

### **1.54 Non-Retail Behind the Meter Generation**

Non-Retail Behind the Meter Generation shall mean Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, and electric distribution companies to serve load.

### **1.55 Obligation Peak Load**

Obligation Peak Load shall have the meaning specified in Schedule 8 of this Agreement.

### **1.56 Office of the Interconnection**

Office of the Interconnection shall mean the employees and agents of PJM Interconnection, L.L.C., subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

### **1.57 Operating Agreement of PJM Interconnection, L.L.C. or Operating Agreement**

Operating Agreement of PJM Interconnection, L.L.C. or Operating Agreement shall mean that certain agreement, dated April 1, 1997 and as amended and restated June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

#### **1.57A Operating Day**

Operating Day shall have the same meaning as provided in the Operating Agreement.

#### **1.58 Operating Reserve**

Operating Reserve shall mean the amount of generating capacity scheduled to be available for a specified period of an Operating Day to ensure the reliable operation of the PJM Region, as specified in the PJM Manuals.

#### **1.59 Other Supplier**

Other Supplier shall mean a Member that is (i) a seller, buyer or transmitter of electric capacity or energy in, from or through the PJM Region, and (ii) is not a Generation Owner, Electric Distributor, Transmission Owner or End-Use Customer.

#### **1.60 Partial Requirements Service**

Partial Requirements Service shall mean wholesale service to supply a specified portion, but not all, of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

#### **1.60A Performance Assessment Hour**

Performance Assessment Hour shall have the meaning specified in Attachment DD of the PJM Tariff.

#### **1.61 Percentage Internal Resources Required**

Percentage Internal Resources Required shall mean, for purposes of an FRR Capacity Plan, the percentage of the LDA Reliability Requirement for an LDA that must be satisfied with Capacity Resources located in such LDA.

#### **1.62 Party**

Party shall mean an entity bound by the terms of this Agreement.

#### **1.63 PJM**

PJM shall mean the PJM Board and the Office of the Interconnection.



#### **1.64 PJM Board**

PJM Board shall mean the Board of Managers of the PJM Interconnection, L.L.C., acting pursuant to the Operating Agreement.

#### **1.65 PJM Manuals**

PJM Manuals shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning and accounting requirements of the PJM Region.

#### **1.66 PJM Open Access Transmission Tariff or PJM Tariff**

PJM Open Access Transmission Tariff or PJM Tariff shall mean the tariff for transmission service within the PJM Region, as in effect from time to time, including any schedules, appendices, or exhibits attached thereto.

#### **1.67 PJM Region**

PJM Region shall have the same meaning as provided in the Operating Agreement.

#### **1.68 PJM Region Installed Reserve Margin**

PJM Region Installed Reserve Margin shall mean the percent installed reserve margin for the PJM Region required pursuant to this Agreement, as approved by the PJM Board pursuant to Schedule 4.1.

#### **1.69 Planned Demand Resource**

Planned Demand Resource shall mean any Demand Resource that does not currently have the capability to provide a reduction in demand or to otherwise control load, but that is scheduled to be capable of providing such reduction or control on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Schedule 6. As set forth in Schedules 6 and 8.1 of this Agreement, a Demand Resource Provider submitting a DR Sell Offer Plan shall identify as Planned Demand Resources in such plan all Demand Resources in excess of those that qualify as Existing Demand Resources.

#### **1.69A Planned External Generation Capacity Resource**

Planned External Generation Capacity Resource shall mean a proposed Generation Capacity Resource, or a proposed increase in the capability of a Generation Capacity Resource, that (a) is to be located outside the PJM Region, (b) participates in the generation interconnection process of a Control Area external to PJM, (c) is scheduled to be physically and electrically interconnected to the transmission facilities of such Control Area on or before the first day of the

Delivery Year for which such resource is to be committed to satisfy the reliability requirements of the PJM Region, and (d) is in full commercial operation prior to the first day of such Delivery Year, such that it is sufficient to provide the Installed Capacity set forth in the Sell Offer forming the basis of such resource's commitment to the PJM Region. Prior to participation in any Base Residual Auction for such Delivery Year, the Capacity Market Seller must demonstrate that it has a fully executed system impact study agreement (or other documentation which is functionally equivalent to a System Impact Study Agreement under the PJM Tariff) or, for resources which are greater than 20MWs participating in a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, an agreement or other documentation which is functionally equivalent to a Facilities Study Agreement under the PJM Tariff), with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. Prior to participating in any Incremental Auction for such Delivery Year, the Capacity Market Seller must demonstrate it has entered into an interconnection agreement, or such other documentation that is functionally equivalent to an Interconnection Service Agreement under the PJM Tariff, with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. A Planned External Generation Capacity Resource must provide evidence to PJM that it has been studied as a Network Resource, or such other similar interconnection product in such external Control Area, must provide contractual evidence that it has applied for or purchased transmission service to be deliverable to the PJM border, and must provide contractual evidence that it has applied for transmission service to be deliverable to the bus at which energy is to be delivered, the agreements for which must have been executed prior to participation in any Reliability Pricing Model Auction for such Delivery Year. Any such resource shall cease to be considered a Planned External Generation Capacity Resource as of the earlier of (i) the date that interconnection service commences as to such resource; or (ii) the resource has cleared an RPM Auction, in which case it shall become an Existing Generation Capacity Resource for purposes of the mitigation of offers for any RPM Auction for all subsequent Delivery Years.

### **1.70 Planned Generation Capacity Resource**

Planned Generation Capacity Resource shall mean a Generation Capacity Resource, or additional megawatts to increase the size of a Generation Capacity Resource that is being or has been modified to increase the number of megawatts of available installed capacity thereof, participating in the generation interconnection process under Part IV, Subpart A of the PJM Tariff, as applicable, for which: (i) Interconnection Service is scheduled to commence on or before the first day of the Delivery Year for which such resource is to be committed to RPM or to an FRR Capacity Plan; (ii) for any such resource seeking to offer into a Base Residual Auction, or for any such resource of 20 MWs or less seeking to offer into a Base Residual Auction, a System Impact Study Agreement (or, for resources for which a System Impact Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a System Impact Study Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; (iii) for any such resource of more than 20 MWs seeking to offer into a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, a Facilities Study Agreement (or, for resources for which a Facilities Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a

Facility Studies Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; ~~and~~ (iv) an Interconnection Service Agreement has been executed prior to any Incremental Auction for such Delivery Year in which such resource plans to participate; and (iv) no megawatts of capacity have cleared an RPM Auction for any prior Delivery Year. For purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource shall cease to be considered a Planned Generation Capacity Resource as of the earlier of (i) the date that ~~the resource is in full commercial operation and~~ Interconnection Service commences as to such resource; or (ii) the resource has cleared an RPM Auction for any Delivery Year, in which case it shall become an Existing Generation Capacity Resource. Notwithstanding the foregoing, a Generation Capacity Resource for which construction has not commenced and which would otherwise have been treated as a Planned Generation Capacity Resource but for the fact that it was bid into RPM Auctions for at least two consecutive Delivery Years, and cleared the last such auction only because it was considered existing and its mitigated offer cap was accepted when its price offer would not have otherwise been accepted, shall be deemed to be a Planned Generation Capacity Resource.

### **1.71 Planning Period**

Planning Period shall mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee.

#### **1.71A PRD Curve**

PRD Curve shall mean a price-consumption curve at a PRD Substation level, if available, and otherwise at a Zonal (or sub-Zonal LDA, if applicable) level, that details the base consumption level of Price Responsive Demand and the decreasing consumption levels at increasing prices.

#### **1.71B PRD Provider**

PRD Provider shall mean (i) a Load Serving Entity that provides PRD; or (ii) an entity without direct load serving responsibilities that has entered contractual arrangements with end-use customers served by a Load Serving Entity that satisfy the eligibility criteria for Price Responsive Demand.

#### **1.71C PRD Provider's Zonal Expected Peak Load Value of PRD**

PRD Provider's Zonal Expected Peak Load Value of PRD shall mean the expected contribution to Delivery Year peak load of a PRD Provider's Price Responsive Demand, were such demand not to be reduced in response to price, based on the contribution of the end-use customers comprising such Price Responsive Demand to the most recent prior Delivery Year's peak demand, escalated to the Delivery Year in question, as determined in a manner consistent with the Office of the Interconnection's load forecasts used for purposes of the RPM Auctions.

#### **1.71D PRD Reservation Price**

PRD Reservation Price shall mean an RPM Auction clearing price identified in a PRD Plan for Price Responsive Demand load below which the PRD Provider desires not to commit the identified load as Price Responsive Demand.

#### **1.71E PRD Substation**

PRD Substation shall mean an electrical substation that is located in the same Zone or in the same sub-Zonal LDA as the end-use customers identified in a PRD Plan or PRD registration and that, in terms of the electrical topography of the Transmission Facilities comprising the PJM Region, is as close as practicable to such loads.

#### **1.71F Price Responsive Demand**

Price Responsive Demand or PRD shall mean end-use customer load registered by a PRD Provider pursuant to Schedule 6.1 of the PJM Reliability Assurance Agreement that have, as set forth in more detail in the PJM Manuals, the metering capability to record electricity consumption at an interval of one hour or less, Supervisory Control capable of curtailing such load (consistent with applicable RERRA requirements) at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection, and a retail rate structure, or equivalent contractual arrangement, capable of changing retail rates as frequently as an hourly basis, that is linked to or based upon changes in real-time Locational Marginal Prices at a PRD Substation level and that results in a predictable automated response to varying wholesale electricity prices.

#### **1.71G Price Responsive Demand Credit**

Price Responsive Demand Credit shall mean a credit, based on committed Price Responsive Demand, as determined under Schedule 6.1 of this Agreement.

#### **1.71H Price Responsive Demand Plan or PRD Plan**

Price Responsive Demand Plan or PRD Plan shall mean a plan, submitted by a PRD Provider and received by the Office of the Interconnection in accordance with Schedule 6.1 of this Agreement and procedures specified in the PJM Manuals, claiming a peak demand limitation due to Price Responsive Demand to support the determination of such PRD Provider's Nominal PRD Value.

#### **1.72 Public Power Entity**

Public Power Entity shall mean any agency, authority, or instrumentality of a state or of a political subdivision of a state, or any corporation wholly owned by any one or more of the foregoing, that is engaged in the generation, transmission, and/or distribution of electric energy.

#### **1.73 Qualifying Transmission Upgrades**

Qualifying Transmission Upgrades shall have the meaning specified in Attachment DD to the PJM Tariff.

**1.74 [Reserved for Future Use]**

**1.74A Relevant Electric Retail Regulatory Authority**

Relevant Electric Retail Regulatory Authority or RERRA shall have the meaning specified in the PJM Operating Agreement.

**1.75 Reliability Principles and Standards**

Reliability Principles and Standards shall mean the principles and standards established by NERC or an Applicable Regional Entity to define, among other things, an acceptable probability of loss of load due to inadequate generation or transmission capability, as amended from time to time.

**1.76 Required Approvals**

Required Approvals shall mean all of the approvals required for this Agreement to be modified or to be terminated, in whole or in part, including the acceptance for filing by FERC and every other regulatory authority with jurisdiction over all or any part of this Agreement.

**1.77 Self-Supply**

Self-Supply shall have the meaning provided in Attachment DD to the PJM Tariff.

**1.77A Small Commercial Customer**

“Small Commercial Customer” shall have the same meaning as in the PJM Tariff.

**1.78 [Reserved for Future Use]**

**1.79 [Reserved for Future Use]**

**1.80 State Consumer Advocate**

State Consumer Advocate shall mean a legislatively created office from any State, all or any part of the territory of which is within the PJM Region, and the District of Columbia established, inter alia, for the purpose of representing the interests of energy consumers before the utility regulatory commissions of such states and the District of Columbia and the FERC.

**1.81 State Regulatory Structural Change**

State Regulatory Structural Change shall mean as to any Party, a state law, rule, or order that, after September 30, 2006, initiates a program that allows retail electric consumers served by such Party to choose from among alternative suppliers on a competitive basis, terminates such a program, expands such a program to include classes of customers or localities served by such Party that were not previously permitted to participate in such a program, or that modifies retail electric market structure or market design rules in a manner that materially increases the likelihood that a substantial proportion of the customers of such Party that are eligible for retail choice under such a program (a) that have not exercised such choice will exercise such choice; or (b) that have exercised such choice will no longer exercise such choice, including for example, without limitation, mandating divestiture of utility-owned generation or structural changes to such Party's default service rules that materially affect whether retail choice is economically viable.

### **1.81A Supervisory Control**

Supervisory Control shall mean the capability to curtail, in accordance with applicable RERRA requirements, load registered as Price Responsive Demand at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection. Except to the extent automation is not required by the provisions of this Agreement, the curtailment shall be automated, meaning that load shall be reduced automatically in response to control signals sent by the PRD Provider or its designated agent directly to the control equipment where the load is located without the requirement for any action by the end-use customer.

### **1.82 Threshold Quantity**

Threshold Quantity shall mean, as to any FRR Entity for any Delivery Year, the sum of (a) the Unforced Capacity equivalent (determined using the Pool-Wide Average EFORD) of the Installed Reserve Margin for such Delivery Year multiplied by the Preliminary Forecast Peak Load for which such FRR Entity is responsible under its FRR Capacity Plan for such Delivery Year, plus (b) the lesser of (i) 3% of the Unforced Capacity amount determined in (a) above or (ii) 450 MW. If the FRR Entity is not responsible for all load within a Zone, the Preliminary Forecast Peak Load for such entity shall be the FRR Entity's Obligation Peak Load last determined prior to the Base Residual Auction for such Delivery Year, times the Base FRR Scaling Factor (as determined in accordance with Schedule 8.1).

### **1.83 Transmission Facilities**

Transmission Facilities shall mean facilities that: (i) are within the PJM Region; (ii) meet the definition of transmission facilities pursuant to FERC's Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities; and (iii) have been demonstrated to the satisfaction of the Office of the Interconnection to be integrated with the PJM Region transmission system and integrated into the planning and operation of the PJM Region to serve all of the power and transmission customers within the PJM Region.

### **1.84 Transmission Owner**

Transmission Owner shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner.

**1.85 Transmission Owners Agreement**

Transmission Owners Agreement shall mean that certain Consolidated Transmission Owners Agreement, dated as of December 15, 2005 and as amended from time to time, among transmission owners within the PJM Region.

**1.86 Unforced Capacity**

Unforced Capacity shall mean installed capacity rated at summer conditions that is not on average experiencing a forced outage or forced derating, calculated for each Capacity Resource on the 12-month period from October to September without regard to the ownership of or the contractual rights to the capacity of the unit.

**1.87 [Reserved for Future Use]**

**1.88 Zonal Capacity Price**

Zonal Capacity Price shall mean the price of Unforced Capacity in a Zone that an LSE that has not elected the FRR Alternative is obligated to pay for a Delivery Year as determined pursuant to Attachment DD to the PJM Tariff.

**1.89 Zone or Zonal**

Zone or Zonal shall refer to an area within the PJM Region, as set forth in Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load (as defined in the PJM Tariff) located outside the PJM Region that is served from such Zone under Schedule H-A of the PJM Tariff.

## SCHEDULE 6

### **PROCEDURES FOR DEMAND RESOURCES AND ENERGY EFFICIENCY**

A. Parties can partially or wholly offset the amounts payable for the Locational Reliability Charge with Demand Resources that are operated under the direction of the Office of the Interconnection. FRR Entities may reduce their capacity obligations with Demand Resources that are operated under the direction of the Office of the Interconnection and detailed in such entity's FRR Capacity Plan. Demand Resources qualifying under the criteria set forth below may be offered for sale or designated as Self-Supply in the Base Residual Auction, included in an FRR Capacity Plan, or offered for sale in any Incremental Auction, for any Delivery Year for which such resource qualifies. Qualified Demand Resources generally fall in one of three categories, i.e., Guaranteed Load Drop, Firm Service Level, or Direct Load Control, as further specified in section G and the PJM Manuals. Qualified Demand Resources may be provided by a Curtailment Service Provider, notwithstanding that such Curtailment Service Provider is not a Party to this Agreement. Such Curtailment Service Providers must satisfy the requirements hereof and the PJM Manuals.

1. A Party must formally notify, in accordance with the requirements of the PJM Manuals and section F hereof, as applicable, the Office of the Interconnection of the Demand Resource that it is placing under the direction of the Office of the Interconnection. A Party must further notify the Office of the Interconnection whether the resource is a Limited Demand Resource, an Extended Summer Demand Resource, a Base Capacity Demand Resource or an Annual Demand Resource.

2. A Demand Resource must achieve its full load reduction within the following time period:

(a) For the 2014/2015 Delivery Year, Curtailment Service Providers may elect a notification time period from the Office of the Interconnection of 30, 60 or 120 minutes prior to their Demand Resources being required to fully respond to a Load Management Event.

(b) For the 2015/2016 Delivery Year and subsequent Delivery Years, a Demand Resource must be able to fully respond to a Load Management Event within 30 minutes of notification from the Office of the Interconnection. This default 30 minute prior notification shall apply unless a Curtailment Service Provider obtains an exception from the Office of the Interconnection due to physical operational limitations that prevent the Demand Resource from reducing load within that timeframe. In such case, the Curtailment Service Provider shall submit a request for an exception to the 30 minute prior notification requirement to the Office of the Interconnection, at the time the Registration Form for that resource is submitted in accordance with Attachment K-Appendix of this Tariff. The only alternative notification times that the Office of Interconnection will permit, upon approval of an exception request, are 60 minutes and 120 minutes prior to a Load Management Event. The Curtailment Service Provider shall indicate in writing, in the appropriate application, that it seeks an exception to permit a prior notification time of 60 minutes or 120 minutes, and the reason(s) for the requested exception. A Curtailment Service Provider shall not submit a request for an exception to the default 30 minute notification period unless it has done its due diligence to confirm that the Demand Resource is physically



incapable of responding within that timeframe based on one or more of the reasons set forth below and as may be further defined in the PJM Manuals and has obtained detailed data and documentation to support this determination.

In order to establish that a Demand Resource is reasonably expected to be physically unable to reduce load in that timeframe, the Curtailment Service Provider that registered the resource must demonstrate that:

1) The manufacturing processes for the Demand Resource require gradual reduction to avoid damaging major industrial equipment used in the manufacturing process, or damage to the product generated or feedstock used in the manufacturing process;

2) Transfer of load to back-up generation requires time-intensive manual process taking more than 30 minutes;

3) On-site safety concerns prevent location from implementing reduction plan in less than 30 minutes; or,

4) The Demand Resource is comprised of mass market residential customers or Small Commercial Customers which collectively cannot be notified of a Load Management Event within a 30-minute timeframe due to unavoidable communications latency, in which case the requested notification time shall be no longer than 120 minutes.

The Office of the Interconnection may request data and documentation from the Curtailment Service Provider and such Curtailment Service Provider shall provide to the Office of the Interconnection within three (3) business days of a request therefor, a copy of all of the data and documentation supporting the exception request. Failure to provide a timely response to such request shall cause the exception to terminate the following Operating Day.

At its sole option and discretion, the Office of the Interconnection may review the data and documentation provided by the Curtailment Service Provider to determine if the Demand Resource has met one or more of the criteria above. The Office of the Interconnection will notify the Curtailment Service Provider in writing of its determination by no later than ten (10) business days after receipt of the data and documentation.

The Curtailment Service Provider shall provide written notification to the Office of the Interconnection of a material change to the facts that supported its exception request within three (3) business days of becoming aware of such material change in facts, and, if the Office of Interconnection determines that the physical limitation criteria above are no longer being met, the Demand Resource shall be subject to the default notification period of 30 minutes immediately upon such determination.

3. The initiation of load reduction, upon the request of the Office of the Interconnection, must be within the authority of the dispatchers of the Party. No additional approvals should be required.

4. The initiation of load reduction upon the request of the Office of the Interconnection is considered a pre-emergency or emergency action and must be implementable prior to a voltage reduction.

5. A Curtailment Service Provider intending to offer for sale or designate for self-supply, a Demand Resource in any RPM Auction, or intending to include a Demand Resource in any FRR Capacity Plan must demonstrate, to PJM's satisfaction, that such resource shall have the capability to provide a reduction in demand, or otherwise control load, on or before the start of the Delivery Year for which such resource is committed. As part of such demonstration, each such Curtailment Service Provider shall submit a Demand Resource Sell Offer Plan in accordance with the standards and procedures set forth in section A-1 of Schedule 6, Schedule 8.1 (as to FRR Capacity Plans) and the PJM Manuals, no later than 15 business days prior to, as applicable, the RPM Auction in which such resource is to be offered, or the deadline for submission of the FRR Capacity Plan in which such resource is to be included. PJM may verify the Curtailment Service Provider's adherence to the Demand Resource Sell Offer Plan at any time. A Curtailment Service Provider with a PJM-approved Demand Resource Sell Offer Plan will be permitted to offer up to the approved Demand Resource quantity into the subject RPM Auction or include such resource in its FRR Capacity Plan.

6. Selection of a Demand Resource in an RPM Auction results in commitment of capacity to the PJM Region. Demand Resources that are so committed must be registered to participate in the Full Program Option or as a Capacity Only resource of the Emergency Load Response and Pre-Emergency Load Response Program and thus available for dispatch during PJM-declared pre-emergency events and emergency events.

A-1. A Demand Resource Sell Offer Plan shall consist of a completed template document in the form posted on the PJM website, requiring the information set forth below and in the PJM Manuals, and a Demand Resource Officer Certification Form signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification. The Demand Resource Sell Offer Plan must provide information that supports the Demand Resource Provider's intended Demand Resource Sell Offers and demonstrates that the Demand Resources are being offered with the intention that the MW quantity that clears the auction is reasonably expected to be physically delivered through Demand Resource registrations for the relevant Delivery Year. The Demand Resource Sell Offer Plan shall include all Existing Demand Resources and all Planned Demand Resources that the Demand Resource Provider intends to offer into an RPM Auction or include in an FRR Capacity Plan.

1. Demand Resource Sell Offer Plan Template. The Demand Resource Sell Offer Plan template, in the form provided on the PJM website, shall require the Demand Resource Provider to provide the following information and such other information as specified in the PJM Manuals:

(a) Summary Information. The completed template shall include the Demand Resource Provider's company name, contact information, and the Nominated DR Value in ICAP MWs by Zone/sub-Zone that the Demand Resource Provider intends to offer, stated separately for Existing Demand Resources and Planned Demand Resources. The total

Nominated DR Value in MWs for each Zone/sub-Zone shall be the sum of the Nominated DR Value of Existing Demand Resources and the Nominated DR Value of Planned Demand Resources, and shall be the maximum MW amount the Provider intends to offer in the RPM Auction for the indicated Zone/sub-Zone, provided that nothing herein shall preclude the Demand Resource Provider from offering in the auction a lesser amount than the total Nominated DR Value shown in its Demand Resource Sell Offer Plan.

(b) Existing Demand Resources. The Demand Resource Provider shall identify all Existing Demand Resources by identifying end-use customer sites that are currently registered with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the auction Delivery Year.

(c) Planned Demand Resources. The Demand Resource Provider shall provide the details of, and key assumptions underlying, the Planned Demand Resource quantities (i.e., all Demand Resource quantities in excess of Existing Demand Resource quantities) contained in the Demand Resource Sell Offer Plan, including:

(i) key program attributes and assumptions used to develop the Planned Demand Resource quantities, including, but not limited to, discussion of:

- method(s) of achieving load reduction at customer site(s);
- equipment to be controlled or installed at customer site(s), if any;
- plan and ability to acquire customers;
- types of customer targeted;
- support of market potential and market share for the target customer base, with adjustments for Existing Demand Resource customers within this market and the potential for other Demand Resource Providers targeting the same customers;
- assumptions regarding regulatory approval of program(s), if applicable; and
- if applicable, Direct Load Control (DLC) program details such as: a description of the cycling control strategy, any assumptions regarding switch operability rate, and a list (and copy) of all load research studies used to develop the estimated nominated ICAP value per customer (i.e., the per-participant impact).

(ii) Zone/sub-Zone information by end-use customer segment for all Nominated DR Values for which an end-use customer site is not identified, to include the number in each segment of end-use customers expected to be registered for the subject Delivery Year, the average Peak Load Contribution per end-use customer for such segment, and the average Nominated DR Value per customer for such segment. End-use customer segments may include residential, commercial, small industrial, medium industrial, and large industrial, as identified and defined in the PJM Manuals, provided that nothing herein or in the Manuals shall

preclude the Provider from identifying more specific customer segments within the commercial and industrial categories, if known.

(iii) Information by end-use customer site to the extent required by subsection A-1(1)(c)(iv) or, if not required by such subsection, to the extent known at the time of the submittal of the Demand Resource Sell Offer Plan, to include: customer EDC account number (if known), customer name, customer premise address, Zone/sub-Zone in which the customer is located, end-use customer segment, current Peak Load Contribution value (or an estimate if actual value not known) and an estimate of expected Peak Load Contribution for the subject Delivery Year, and an estimated Nominated DR Value.

(iv) End-use customer site-specific information shall be required for any Zones or sub-Zones identified by PJM pursuant to this subsection for the portion, if any, of a Demand Resource Provider's intended offer in such Zones or sub-Zones that exceeds a Sell Offer threshold determined pursuant to this subsection, as any such excess quantity under such conditions should reflect Planned Demand Resources from end-use customer sites that the Provider has a high degree of certainty it will physically deliver for the subject Delivery Year. In accordance with the procedures in subsection A-1(3) below, PJM shall identify, as requiring site-specific information, all Zones and sub-Zones that comprise any LDA group (from a list of LDA groups stated in the PJM Manuals) in which [the quantity of cleared Demand Resources from the most recent Base Residual Auction] plus [the quantity of Demand Resources included in FRR Capacity Plans for the Delivery Year addressed by the most recent Base Residual Auction] in any Zone or sub-Zone of such LDA group exceeds the greater of:

- the maximum Demand Resources quantity registered with PJM for such Zone for any Delivery Year from the current (at time of plan submission) Delivery Year and the two preceding Delivery Years; and
- the potential Demand Resource quantity for such Zone estimated by PJM based on an independent published assessment of demand response potential that is reasonably applicable to such Zone, as identified in the PJM Manuals.

For each such Zone and sub-Zone, the Sell Offer threshold for each Demand Resource Provider shall be the higher of:

- the Demand Resource Provider's maximum Demand Resource quantity registered with PJM for such Zone/sub-Zone over the

current Delivery Year (at the time of plan submission) and two preceding Delivery Years;

- the Demand Resource Provider's maximum for any single Delivery Year of [such provider's cleared Demand Resource quantity] plus [such provider's quantity of Demand Resources included in FRR Capacity Plans] from the three forward Delivery Years addressed by the three most recent Base Residual Auctions for such Zone/sub-Zone; and
- 10 MW.

(d) Schedule. The Demand Resource Provider shall provide an approximate timeline for procuring end-use customer sites as needed to physically deliver the total Nominated DR Value (for both Existing Demand Resources and Planned Demand Resources) by Zone/sub-Zone in the Demand Resource Sell Offer Plan. The Demand Resource Provider must specify the cumulative number of customers and the cumulative Nominated DR Value associated with each end-use customer segment within each Zone/sub-Zone that the Demand Resource Provider expects (at the time of plan submission) to have under contract as of June 1 each year between the time of the auction and the subject Delivery Year.

2. Demand Resource Officer Certification Form. Each Demand Resource Sell Offer Plan must include a Demand Resource Officer Certification, signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification, in the form shown in the PJM Manuals, which form shall include the following certifications:

(a) that the signing officer has reviewed the Demand Resource Sell Offer Plan and the information supplied to PJM in support of the Plan is true and correct as of the date of the certification; and

(b) that the Demand Resource Provider is submitting the Plan with the reasonable expectation, based upon its analyses as of the date of the certification, to physically deliver all megawatts that clear the RPM Auction through Demand Resource registrations by the specified Delivery Year.

As set forth in the form provided in the PJM manuals, the certification shall specify that it does not in any way abridge, expand, or otherwise modify the current provisions of the PJM Tariff, Operating Agreement and/or RAA, or the Demand Resource Provider's rights and obligations thereunder, including the Demand Resource Provider's ability to adjust capacity obligations through participation in PJM incremental auctions and bilateral transactions.

3. Procedures. No later than December 1 prior to the Base Residual Auction for a Delivery Year, PJM shall post to the PJM website a list of Zones and sub-Zones, if any, for which end-use customer site-specific information shall be required under the conditions specified in subsection A-1(1)(c)(iv) above for all RPM Auctions conducted for such Delivery Year. Once so identified, a Zone or sub-Zone shall remain on the list for future Delivery Years until the

threshold determined under subsection A-1(1)(c)(iv) above is not exceeded for three consecutive Delivery Years. No later than 15 business days prior to the RPM Auction in which a Demand Resource Provider intends to offer a Demand Resource, the Demand Resource Provider shall submit to PJM a completed Demand Resource Sell Offer Plan template and a Demand Resource Officer Certification Form signed by a duly authorized officer of the Provider. PJM will review all submitted DR Sell Offer Plans. No later than 10 business days prior to the subject RPM Auction, PJM shall notify any Demand Resource Providers that have identified the same end-use customer site(s) in their respective DR Sell Offer Plans for the same Delivery Year. In such event, the MWs associated with such site(s) will not be approved for inclusion in a Sell Offer in an RPM Auction by any of the Demand Resource Providers, unless a Demand Resource Provider provides a letter of support from the end-use customer indicating that it is likely to execute a contract with that Demand Resource Provider for the relevant Delivery Year, or provides other comparable evidence of likely commitment. Such letter of support or other supporting evidence must be provided to PJM no later than 7 business days prior to the subject RPM Auction. If an end-use customer provides letters of support for the same site for the same Delivery Year to multiple Demand Resource Providers, the MWs associated with such end-use customer site shall not be approved as a Demand Resource for any of the Demand Resource Providers. No later than 5 business days prior to the subject RPM Auction, PJM will notify each Demand Resource Provider of the approved Demand Resource quantity, by Zone/sub-Zone, that such Demand Resource Provider is permitted to offer into such RPM Auction.

B. The Unforced Capacity value of a Demand Resource will be determined as:

for the Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the product of the Nominated Value of the Demand Resource, times the DR Factor, times the Forecast Pool Requirement, and for the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans the 2019/2020 Delivery Year and subsequent Delivery Years, the product of the Nominated Value of the Demand Resource times the Forecast Pool Requirement. Nominated Values shall be determined and reviewed in accordance with sections I and J, respectively, and the PJM Manuals. The DR Factor is a factor established by the PJM Board with the advice of the Members Committee to reflect the increase in the peak load carrying capability in the PJM Region due to Demand Resources. Peak load carrying capability is defined to be the peak load that the PJM Region is able to serve at the loss of load expectation defined in the Reliability Principles and Standards. The DR Factor is the increase in the peak load carrying capability in the PJM Region due to Demand Resources, divided by the total Nominated Value of Demand Resources in the PJM Region. The DR Factor will be determined using an analytical program that uses a probabilistic approach to determine reliability. The determination of the DR Factor will consider the reliability of Demand Resources, the number of interruptions, and the total amount of load reduction.

C. Demand Resources offered and cleared in a Base Residual or Incremental Auction shall receive the corresponding Capacity Resource Clearing Price as determined in such auction, in accordance with Attachment DD of the PJM Tariff. For Delivery Years beginning with the Delivery Year that commences on June 1, 2013, any Demand

Resources located in a Zone with multiple LDAs shall receive the Capacity Resource Clearing Price applicable to the location of such resource within such Zone, as identified in such resource's offer. Further, the Curtailment Service Provider shall register its resource in the same location within the Zone as specified in its cleared sell offer, and shall be subject to deficiency charges under Attachment DD of this Tariff to the extent it fails to provide the resource in such location consistent with its cleared offer. For either of the Delivery Year commencing on June 1, 2010 or commencing on June 1, 2012, if the location of a Demand Resource is not specified by a Seller in the Sell Offer on an individual LDA basis in a Zone with multiple LDAs, then Demand Resources cleared by such Seller will be paid a DR Weighted Zonal Resource Clearing Price, determined as follows: (i) for a Zone that includes non-overlapping LDAs, calculated as the weighted average of the Resource Clearing Prices for such LDAs, weighted by the cleared Demand Resources registered by such Seller in each such LDA; or (ii) for a Zone that contains a smaller LDA within a larger LDA, calculated treating the smaller LDA and the remaining portion of the larger LDA as if they were separate LDAs, and weight-averaging in the same manner as (i) above.

- D. The Party, Electric Distributor, or Curtailment Service Provider that establishes a contractual relationship (by contract or tariff rate) with a customer for load reductions is entitled to receive the compensation specified in section C for a committed Demand Resource, notwithstanding that such provider is not the customer's energy supplier.
- E. Any Party hereto shall demonstrate that its Demand Resources performed during periods when load management procedures were invoked by the Office of the Interconnection. The Office of the Interconnection shall adopt and maintain rules and procedures for verifying the performance of such resources, as set forth in section K hereof and the PJM Manuals. In addition, committed Demand Resources that do not comply with the directions of the Office of the Interconnection to reduce load during an emergency shall be subject to the penalty charge set forth in Attachment DD to the PJM Tariff.
- F. Parties may elect to place Demand Resources associated with Behind The Meter Generation under the direction of the Office of the Interconnection for a Delivery Year by submitting a Sell Offer for such resource (as Self Supply, or with an offer price) in the Base Residual Auction for such Delivery Year. This election shall remain in effect for the entirety of such Delivery Year. In the event such an election is made, such Behind The Meter Generation will not be netted from load for the purposes of calculating the Daily Unforced Capacity Obligations under this Agreement.
- G. PJM measures Demand Resources in the following four ways:
  - Direct Load Control (DLC) – Load management that is initiated directly by the Curtailment Service Provider's market operations center or its agent, employing a communication signal to cycle equipment (typically water heaters or central air conditioners). DLC programs are qualified based on load research and customer subscription data. Curtailment Service Providers may rely on the results of load research studies identified in the PJM Manuals to set the per-participant load reduction for DLC

programs. Each Curtailment Service Provider relying on DLC load management must periodically update its DLC switch operability rates, in accordance with the PJM Manuals.

Firm Service Level (FSL) – Load management achieved by an end-use customer reducing its load to a pre-determined level (the Firm Service Level), upon notification from the Curtailment Service Provider’s market operations center or its agent.

Guaranteed Load Drop (GLD) – Load management achieved by an end-use customer reducing its load by a pre-determined amount (the Guaranteed Load Drop), upon notification from the Curtailment Service Provider’s market operations center or its agent. Typically, the load reduction is achieved through running customer-owned backup generators, or by shutting down process equipment.

Customer Baseline Load (CBL) - Load management achieved by an end-use customer as measured by 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 of the Operating Agreement.

- H. Each Curtailment Service Provider must satisfy (or contract with another LSE, Curtailment Service Provider, or electric distribution company to provide) the following requirements:
- A point of contact with appropriate backup to ensure single call notification from PJM and timely execution of the notification process;
  - Supplemental status reports, detailing Demand Resources available, as requested by PJM;
  - Entry of customer-specific Demand Resource credit information, for planning and verification purposes, into the designated PJM electronic system.
  - Customer-specific compliance and verification information for each PJM-initiated Demand Resource event, as well as aggregated Provider load drop data for Provider-initiated events, in accordance with established reporting guidelines.
  - Load drop estimates for all Demand Resource events, prepared in accordance with the PJM Manuals.
- I. The Nominated Value of each Demand Resource shall be determined consistent with the process for determination of the capacity obligation for the customer.

The Nominated Value for a Firm Service Level customer will be based on the peak load contribution for the customer, as determined by the 5CP methodology utilized to determine other ICAP obligation values. The maximum Demand Resource load



reduction value for a Firm Service Level customer will be equal to Peak Load Contribution – Firm Contract Level adjusted for system losses.

The Nominated Value for a Guaranteed Load Drop customer will be the guaranteed load drop amount, adjusted for system losses, as established by the customer's contract with the Curtailment Service Provider. The maximum credit nominated shall not exceed the customer's Peak Load Contribution.

The Nominated Value for a Direct Load Control program will be based on load research and customer subscription. The maximum value of the program is equal to the approved per-participant load reduction multiplied by the number of active participants, adjusted for system losses. The per-participant impact is to be estimated at long-term average local weather conditions at the time of the summer peak.

Customer-specific Demand Resource information (EDC account number, peak load, notification period, etc.) will be entered into the designated PJM electronic system to establish credit values. Additional data may be required, as defined in sections J and K.

- J. Nominated Values shall be reviewed based on documentation of customer-specific data and Demand Resource information, to verify the amount of load management available and to set a maximum allowable Nominated Value. Data is provided by both the zone EDC and the Curtailment Service Provider on templates supplied by PJM, and must include the EDC meter number or other unique customer identifier, Peak Load Contribution (5CP), contract firm service level or guaranteed load drop values, applicable loss factor, zone/area location of the load drop, LSE contact information, number of active participants, etc. Such data must be uploaded and approved prior to the first day of the Delivery Year for such resource as a Demand Resource. Curtailment Service Providers must provide this information concurrently to host EDCs.

For Firm Service Level and Guaranteed Load Drop customers, the 5CP values, for the zone and affected customers, will be adjusted to reflect an "unrestricted" peak for a zone, based on information provided by the Curtailment Service Provider. Load drop levels shall be estimated in accordance with guidelines in the PJM Manuals.

For Direct Load Control programs, the Curtailment Service Provider must provide information detailing the number of active participants in each program. Other information on approved DLC programs will be provided by PJM.

- K. Compliance is the process utilized to review Provider performance during PJM-initiated Demand Resource events. Compliance will be established for each Provider on an event specific basis for the Curtailment Service Provider's Demand Resources dispatched by the Office of the Interconnection during such event. PJM will establish and communicate reasonable deadlines for the timely submittal of event data to expedite compliance reviews. Compliance reviews will be completed as soon after the event as possible, with the expectation that reviews of a single event will be completed within two months of the end of the month in which the event took place. Curtailment Service Providers are

responsible for the submittal of compliance information to PJM for each PJM-initiated event during the compliance period.

For Load Management Events occurring through the May 31, 2018 and for Load Management Events occurring during the months of June through September of the 2018/2019 Delivery Year and subsequent Delivery Years:

Compliance for Direct Load Control programs will consider only the transmission of the control signal. Curtailment Service Providers are required to report the time period (during the Demand Resource event) that the control signal was actually sent.

Compliance is checked on an individual customer basis for FSL, by comparing actual load during the event to the firm service level. Curtailment Service Providers must submit actual customer load levels (for the event period) for the compliance report. Compliance for FSL will be based on:

End use customer's current Delivery Year peak load contribution ("PLC") minus the metered load ("Load") multiplied by the loss factor ("LF"). The calculation is represented by:

$$(PLC) - (Load * LF)$$

Compliance is checked on an individual customer basis for GLD, and will be based on:

- (i) the lesser of (a) comparison load used to best represent what the load would have been if PJM did not declare a Load Management Event or the CSP did not initiate a test as outlined in the PJM Manuals, minus the Load and then multiplied by the LF, or (b) the PLC minus the Load multiplied by the LF. A load reduction will only be recognized for capacity compliance if the Load multiplied by the LF is less than the PLC.
- (iii) Curtailment Service Providers must submit actual loads and comparison loads for all hours during the day of the Load Management Event or the Load Management performance test, and for all hours during any other days as required by the Office of the Interconnection to calculate the load reduction. Comparison loads must be developed from the guidelines in the PJM Manuals, and note which method was employed.

Compliance is averaged over the Load Management Event for non-interval metered DLC programs. Compliance is averaged over the Load Management Event, for each FSL and GLD customer dispatched by the Office of the Interconnection for at least 30 minutes of the clock hour (i.e., "partial dispatch compliance hour". The registered capacity commitment for the partial dispatch compliance hour will be prorated based on the number of minutes dispatched during the clock hour and as defined in the Manual. Curtailment Service Provider may submit 1 minute load data for use in capacity compliance calculations for partial dispatch compliance hours subject to PJM approval and in accordance with the PJM Manuals where: (a) metering meets all Tariff and Manual requirements, (b) 1 minute load data shall be submitted to PJM for all locations

on the registration, and (c) 1 minute load data measures energy consumption over the minute.

For Load Management Events occurring during the months of October through May of the 2018/2019 Delivery Year and subsequent Delivery Years:

Compliance is determined on an individual customer basis by 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 of the Operating Agreement.

For all Delivery Years:

Demand Resources may not reduce their load below zero (i.e., export energy into the system). No compliance credit will be given for an incremental load drop below zero. Compliance will be totaled over all FSL and GLD customers and DLC programs to determine a net compliance position for the event for each Provider by Zone, for all Demand Resources committed by such Provider and dispatched by the Office of the Interconnection in the zone. Deficiencies shall be as further determined in accordance with section 11 of Schedule DD to the PJM Tariff.

#### L. Energy Efficiency Resources

1. An Energy Efficiency Resource is a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during peak summer and winter periods as described herein) reduction in electric energy consumption at the End-Use Customer's retail site that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.
2. An Energy Efficiency Resource may be offered as a Capacity Resource in the Base Residual or Incremental Auctions for any Delivery Year beginning on or after June 1, 2011. No later than 30 days prior to the auction in which the resource is to be offered, the Capacity Market Seller shall submit to the Office of the Interconnection a notice of intent to offer the resource into such auction and a measurement and verification plan. The notice of intent shall include all pertinent project design data, including but not limited to the peak-load contribution of affected customers, a full description of the equipment, device, system or process intended to achieve the load reduction, the load reduction pattern, the project location, the project development timeline, and any other relevant data. Such notice also shall state the seller's proposed Nominated Energy Efficiency Value,
  - For Delivery Years through May 31, 2018, the seller's proposed Nominated Energy Efficiency Value shall be the expected average load reduction between the

hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday;

- For the 2018/2019 and 2019/2020 Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Base Capacity Energy Efficiency Resource shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday; and
- For the 2018/2019 Delivery Year and subsequent Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Annual Energy Efficiency Resources, shall be the expected average load reduction, for all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 15:00 EPT and the hour ending 18:00 EPT. In addition, the expected average load reduction for all days from January 1 through February 28, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 8:00 EPT and the hour ending 9:00 EPT and between the hour ending 19:00 EPT and the hour ending 20:00 EPT shall not be less than the Nominated Energy Efficiency Value.

The measurement and verification plan shall describe the methods and procedures, consistent with the PJM Manuals, for determining the amount of the load reduction and confirming that such reduction is achieved. The Office of the Interconnection shall determine, upon review of such notice, the Nominated Energy Efficiency Value that may be offered in the Reliability Pricing Model Auction.

3. An Energy Efficiency Resource may be offered with a price offer or as Self-Supply. If an Energy Efficiency Resource clears the auction, it shall receive the applicable Capacity Resource Clearing Price, subject to section 5 below. A Capacity Market Seller offering an Energy Efficiency Resource must comply with all applicable credit requirements as set forth in Attachment Q to the PJM Tariff. For Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency value times the DR Factor and the Forecast Pool Requirement. For the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans the 2019/2020 Delivery Year and subsequent Delivery Years, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency Value times the Forecast Pool Requirement.
4. An Energy Efficiency Resource that clears an auction for a Delivery Year may be offered in auctions for up to three additional consecutive Delivery Years, but shall not be assured of clearing in any such auction; provided, however, an Energy Efficiency Resource may not be offered for any Delivery Year in which any part

of the peak season is beyond the expected life of the equipment, device, system, or process providing the expected load reduction; and provided further that a Capacity Market Seller that offers and clears an Energy Efficiency Resource in a BRA may elect a New Entry Price Adjustment on the same terms as set forth in section 5.14(c) of this Attachment DD.

5. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than 30 days prior to each Auction an updated project status and measurement and verification plan subject to the criteria set forth in the PJM Manuals.
6. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than the start of such Delivery Year, an updated project status and detailed measurement and verification data meeting the standards for precision and accuracy set forth in the PJM Manuals. The final value of the Energy Efficiency Resource during such Delivery Year shall be as determined by the Office of the Interconnection based on the submitted data.
7. The Office of the Interconnection may audit, at the Capacity Market Seller's expense, any Energy Efficiency Resource committed to the PJM Region. The audit may be conducted any time including the Performance Hours of the Delivery Year.

## SCHEDULE 8

### DETERMINATION OF UNFORCED CAPACITY OBLIGATIONS

- A. For each billing month during a Delivery Year, the Daily Unforced Capacity Obligation of a Party that has not elected the FRR Alternative for such Delivery Year shall be determined on a daily basis for each Zone as follows:

Daily Unforced Capacity Obligation = OPL x Final Zonal RPM Scaling Factor x FPR

Where:

OPL =Obligation Peak Load, defined as:

~~The Parties' share of the Zonal Obligation Peak Load as assigned by the EDC for the daily summation of the weather-adjusted coincident summer peak, last preceding the Delivery Year, of~~ the end-users in such Zone (net of operating Behind The Meter Generation, but not to be less than zero) for which such Party was responsible on that billing day, as determined in accordance with the procedures set forth in the PJM Manuals

Final Zonal RPM Scaling Factor = the factor determined as set forth in sections B and C of this Schedule

FPR = the Forecast Pool Requirement

Netting of Behind the Meter Generation for a Party with regard to Non-Retail Behind the Meter Generation shall be subject to the following limitation:

For the 2006/2007 Planning Period, 100 percent of the operating Non-Retail Behind the Meter Generation shall be netted, provided that the total amount of Non-Retail Behind the Meter Generation in the PJM Region does not exceed 1500 megawatts ("Non-Retail Threshold"). For each Planning Period/Delivery Year thereafter, the Non-Retail threshold shall be proportionately increased based on load growth in the PJM Region but shall not be greater than 3000 megawatts. Load growth shall be determined by the Office of the Interconnection based on the most recent forecasted weather-adjusted coincident summer peak for the PJM Region divided by the weather-adjusted coincident peak for the previous summer for the same area. After the load growth factor is applied, the Non-Retail Threshold will be rounded up or down to the nearest whole megawatt and the rounded number shall be the Non-Retail Threshold for the current Planning Period and the base amount for calculating the Non-Retail Threshold for the succeeding planning period. If the Non-Retail Threshold is exceeded, the amount of operating Non-Retail Behind the Meter Generation that a Party may net shall be adjusted according to the following formula:

Party Netting Credit = (NRT/ PJM NRBTMG) \* Party Operating NRBTMG

Where: NRBTMG is Non-Retail Behind the Meter Generation

NRT is the Non-Retail Threshold

PJM NRBTMG is the total amount of Non-Retail Behind the Meter Generation in the PJM Region

The total amount of Non-Retail Behind the Meter Generation that is eligible for netting in the PJM Region is 3000 megawatts. Once this 3000 megawatt limit is reached, any additional Non-Retail Behind the Meter Generation which operates in the PJM Region will be ineligible for netting under this section.

In addition, the Party NRBTMG Netting Credit shall be adjusted pursuant to Schedule 16 of this Agreement, if applicable.

A Party shall be required to report to PJM such information as is required to facilitate the determination of its NRBTMG Netting Credit in accordance with the procedures set forth in the PJM Manuals.

B. Following the Base Residual Auction ~~and each Incremental Auction~~ for a Delivery Year, the Office of the Interconnection shall determine the ~~RTO Unforced Capacity Obligation, as well as the~~ Base Zonal RPM Scaling Factor and the Base Zonal Unforced Capacity Obligation for each Zone for such Delivery Year as follows:

~~The RTO Unforced Capacity Obligation for a Delivery Year shall be equal to the sum of the Unforced Capacity obligations satisfied through the Base Residual Auction and all Incremental Auctions conducted for such Delivery Year. The Unforced Capacity obligation satisfied in an Incremental Auction may be negative if capacity is decommitted in such auction.~~

For Delivery Years through May 31, 2018, Base Zonal Unforced Capacity Obligation = (ZWNSP \* Base Zonal RPM Scaling Factor \* FPR) + -Zonal Short-Term Resource Procurement Target

For the 2018/2019 Delivery Year and subsequent Delivery Years, Base Zonal Unforced Capacity Obligation = (ZWNSP \* Base Zonal RPM Scaling Factor \* FPR)

and

Base Zonal RPM Scaling Factor = ZPLDY/ZWNSP x [RUCO / (RPLDY x FPR)]

Where:

ZPLDY = Preliminary Zonal Peak Load Forecast for such Delivery Year

ZWNSP = Zonal Weather-Normalized Summer Peak for the summer season concluding four years prior to the commencement of such Delivery Year

RUCO = the RTO Unforced Capacity Obligation satisfied in the Base Residual Auction for such Delivery Year.

RPLDY = RTO Preliminary Peak Load Forecast for such Delivery Year.

For purposes of such determination, PJM shall determine the Preliminary RTO Peak Load Forecast, and the Preliminary Zonal Peak Load Forecasts for each Zone, in accordance with the PJM Manuals for each Delivery Year no later than one month prior to the Base Residual Auction for such Delivery Year. PJM shall determine the Updated RTO and Zonal Peak Load Forecasts in accordance with the PJM Manuals for each Delivery Year no later than one month prior to each of the First, Second, and Third Incremental Auctions for such Delivery Year. PJM shall determine the most recent Weather Normalized Summer Peak for each Zone no later than seven months prior to the start of the Delivery Year, and shall calculate the RTO Weather Normalized Summer Peak as the sum of the Weather Normalized Summer Peaks for all Zones.

C. The Final RTO Unforced Capacity Obligation for a Delivery Year shall be equal to the sum of the unforced capacity obligations satisfied through the Base Residual Auction and the First, Second, Third, and any Conditional Incremental Auctions for such Delivery Year. The unforced capacity obligation satisfied in an Incremental Auction may be negative if capacity is decommitted in such auction. The Final Zonal Unforced Capacity Obligation for a Zone shall be equal to such Zone's pro rata share of the Final RTO Unforced Capacity Obligation for the Delivery Year based on the Final Zonal Peak Load Forecast made one month prior to the Third Incremental Auction. The Final Zonal RPM Scaling Factor shall be equal to the Final Zonal Unforced Capacity Obligation divided by (FPR times the Zonal Weather Normalized Summer Peak for the summer concluding prior to the commencement of such Delivery Year).

~~For Delivery Years through May 31, 2018, the Zonal Obligation Peak Load for a Zone shall be equal to the weather normalized summer peak for the Zone for the summer concluding prior to the most recent RPM Auction conducted for such Delivery Year; and, the Zonal Unforced Capacity Obligation for a Zone shall be equal to such Zone's pro rata share of the RTO Unforced Capacity Obligation for the Delivery Year based on the Zonal Peak Load Forecast made one month prior to the most recent RPM Auction conducted for such Delivery Year. The Zonal RPM Scaling Factor shall be equal to the Zonal Unforced Capacity Obligation divided by (FPR times the Zonal Obligation Peak Load.~~

~~For the 2018/2019 Delivery Year and subsequent Delivery Years, the Zonal Obligation Peak Load for a Zone shall be equal to the average zonal peak load at~~



~~the time of: (i) the four highest RTO summer peak hours, (ii) the single highest RTO winter peak hour, and (iii) the highest RTO load occurring during Performance Assessment Hours (only considering a single Performance Assessment Hour from each day containing Performance Assessment Hours), occurring in the twelve-month period ending October 31 of the calendar year prior to the most recent RPM Auction conducted for such Delivery Year; and, the Zonal Unforced Capacity Obligation for a Zone shall be equal to such Zone's pro-rata share of the RTO Unforced Capacity Obligation for the Delivery Year based on the Zonal Obligation Peak Load. The Zonal RPM Scaling Factor shall be equal to the Zonal Unforced Capacity Obligation divided by (FPR times the the Zonal Obligation Peak Load).~~

- D. ~~C.~~ 1. No later than five months prior to the start of each Delivery Year, the Electric Distributor for a Zone shall allocate the most recent ~~Zonal Obligation Weather Normalized Summer Peak Load~~ for such Zone to determine the ~~peak load contribution Obligation Peak Load~~ for each end-use customer within such Zone.
2. During the Delivery Year, no later than 36 hours prior to the start of each Operating Day, the Electric Distributor shall provide to PJM for each Party to this Agreement serving load in such Electric Distributor's Zone the Obligation Peak Load for all end-use customers served by such Party in such Zone. The Electric Distributor may submit corrections to the Obligation Peak Load data up to 12:00PM Eastern Prevailing Time of the next business day following the Operating Day.
3. For purposes of such allocations, the daily sum of the Obligation Peak Loads of all Parties serving load in a Zone must equal the Zonal Obligation Peak Load for such Zone.

### C. Election, and Termination of Election, of FRR Alternative

1. No less than two months before the conduct of the Base Residual Auction for the first Delivery Year for which such election is to be effective, any Party seeking to elect the FRR Alternative shall notify the Office of the Interconnection in writing of such election. Such election shall be for a minimum term of five consecutive Delivery Years. No later than one month before such Base Residual Auction, such Party shall submit its FRR Capacity Plan demonstrating its commitment of Capacity Resources for the term of such election sufficient to meet such Party's Daily Unforced Capacity Obligation (and all other applicable obligations under this Schedule) for the load identified in such plan. ~~At the same time an FRR Entity submits its (i) first FRR Capacity Plan (for FRR Entities electing the FRR Alternative to be effective starting with the 2018/2019 Delivery Year) or (ii) extended or updated FRR Capacity Plan (for FRR Entities which elected the FRR Alternative to be effective starting with Delivery Years prior the 2018/2019 Delivery Year), No later than the last business day prior to the start of the relevant Delivery Year in which Capacity Performance requirements shall apply to such FRR Entity,~~ the FRR Entity must also elect whether it seeks to be subject to the Non-Performance Charge for both Capacity Performance Resources and Base Capacity Resources, as provided in section 10A of Attachment DD of the PJM Tariff, and described in section G.1 of this Schedule 8.1, or to physical non-performance assessments, as described in section G.2 of this Schedule 8.1. ~~This is a one-time election that will apply for the remainder of the FRR Alternative commitment.~~

2. An FRR Entity may terminate its election of the FRR Alternative effective with the commencement of any Delivery Year following the minimum five Delivery Year commitment by providing written notice of such termination to the Office of the Interconnection no later than two months prior to the Base Residual Auction for such Delivery Year. An FRR Entity that has terminated its election of the FRR Alternative shall not be eligible to re-elect the FRR Alternative for a period of five consecutive Delivery Years following the effective date of such termination.

3. Notwithstanding subsections C.1 and C.2 of this Schedule, in the event of a State Regulatory Structural Change, a Party may elect, or terminate its election of, the FRR Alternative effective as to any Delivery Year by providing written notice of such election or termination to the Office of the Interconnection in good faith as soon as the Party becomes aware of such State Regulatory Structural Change but in any event no later than two months prior to the Base Residual Auction for such Delivery Year.

4. To facilitate the elections and notices required by this Schedule, the Office of the Interconnection shall post, in addition to the information required by Section 5.11(a) of Attachment DD to the PJM Tariff, the percentage of Capacity Resources required to be located in each Locational Deliverability Area by no later than one month prior to the deadline for a Party to provide such elections and notices.

## D. FRR Capacity Plans

1. Each FRR Entity shall submit its initial FRR Capacity Plan as required by subsection C.1 of this Schedule, and shall annually extend and update such plan by no later than one month prior to the Base Residual Auction for each succeeding Delivery Year in such plan. Each FRR Capacity Plan shall indicate the nature and current status of each resource, including the status of each Planned Generation Capacity Resource or Planned Demand Resource, the planned deactivation or retirement of any Generation Capacity Resource or Demand Resource, and the status of commitments for each sale or purchase of capacity included in such plan.

1.1 Beginning with the 2020/2021 Delivery Year and for all subsequent Delivery Years, the FRR Capacity Plan shall comprise only Capacity Performance Resources as defined in section 5.5A of Attachment DD of the PJM Tariff.

2. The FRR Capacity Plan of each FRR Entity that commits that it will not sell surplus Capacity Resources as a Capacity Market Seller in any auction conducted under Attachment DD of the PJM Tariff, or to any direct or indirect purchaser that uses such resource as the basis of any Sell Offer in such auction, shall designate Capacity Resources in a megawatt quantity no less than the Forecast Pool Requirement for each applicable Delivery Year times the FRR Entity's allocated share of the Preliminary Zonal Peak Load Forecast for such Delivery Year, as determined in accordance with procedures set forth in the PJM Manuals. For the 2016/2017 Delivery Year and prior Delivery Years, the set of Capacity Resources designated in the FRR Capacity Plan must meet the Minimum Annual Resource Requirement and the Minimum Extended Summer Resource Requirement associated with the FRR Entity's capacity obligation. For the 2017/2018 and 2018/2019 Delivery Years, the set of Capacity Resources designated in the FRR Capacity Plan must satisfy the Limited Resource Constraints and the Sub-Annual Resource Constraints applicable to the FRR Entity's capacity obligation. For the 2018/2019 and 2019/2020 Delivery Years, the set of Capacity Resources designated in the FRR Capacity Plan must satisfy the Base Capacity Resource Constraints and Base Capacity Demand Resource Constraints applicable to the FRR Entity's capacity obligation. If the FRR Entity is not responsible for all load within a Zone, the Preliminary Forecast Peak Load for such entity shall be the FRR Entity's Obligation Peak Load last determined prior to the Base Residual Auction for such Delivery Year, times the Base Zonal FRR Scaling Factor. The FRR Capacity Plan of each FRR Entity that does not commit that it will not sell surplus Capacity Resources as set forth above shall designate Capacity Resources at least equal to the Threshold Quantity. To the extent the FRR Entity's allocated share of the Final Zonal Peak Load Forecast exceeds the FRR Entity's allocated share of the Preliminary Zonal Peak Load Forecast, such FRR Entity's FRR Capacity Plan shall be updated to designate additional Capacity Resources in an amount no less than the Forecast Pool Requirement times such increase; provided, however, any excess megawatts of Capacity Resources included in such FRR Entity's previously designated Threshold Quantity, if any, may be used to satisfy the capacity obligation for such increased load. To the extent the FRR Entity's allocated share of the Final Zonal Peak Load Forecast is less than the FRR Entity's allocated share of the Preliminary Zonal Peak Load Forecast, such FRR Entity's FRR Capacity Plan may be updated to release previously designated Capacity Resources in an amount no greater than the Forecast Pool Requirement times such decrease. Peak load values referenced in this section shall be adjusted as necessary to take into account any

applicable Nominal PRD Values approved pursuant to Schedule 6.1 of this Agreement. Any FRR Entity seeking an adjustment to peak load for Price Responsive Demand must submit a separate PRD Plan in compliance with Section 6.1 (provided that the FRR Entity shall not specify any PRD Reservation Price), and shall register all PRD-eligible load needed to satisfy its PRD commitment and be subject to compliance charges as set forth in that Schedule under the circumstances specified therein; provided that for non-compliance by an FRR Entity, the compliance charge rate shall be equal to 1.20 times the Capacity Resource Clearing Price resulting from all RPM Auctions for such Delivery Year for the LDA encompassing the FRR Entity's Zone, weight-averaged for the Delivery Year based on the prices established and quantities cleared in the RPM auctions for such Delivery Year; and provided further that an alternative PRD Provider may provide PRD in an FRR Service Area by agreement with the FRR Entity responsible for the load in such FRR Service Area, subject to the same terms and conditions as if the FRR Entity had provided the PRD.

3. ~~For the Delivery Years through May 31, 2018, a~~As to any FRR Entity, the Base Zonal FRR Scaling Factor for each Zone in which it serves load for a Delivery Year shall equal  $ZPLDY/ZWNSP$ , where:

$ZPLDY$  = Preliminary Zonal Peak Load Forecast for such Zone for such Delivery Year; and

$ZWNSP$  = Zonal Weather-Normalized Summer Peak Load for such Zone for the summer concluding four years prior to the commencement of such Delivery Year.

~~For the 2018/2019 Delivery Year and all subsequent Delivery Years, as to any FRR Entity, the Base Zonal FRR Scaling Factor for each Zone in which it serves load for a Delivery Year shall equal  $ZPLDY/ZOPL$ , where:~~

~~$ZPLDY$  = Preliminary Zonal Peak Load Forecast for such Zone for such Delivery Year; and~~

~~$ZOPL$  = the Preliminary Zonal Obligation Peak Load for a Zone shall be equal to the average zonal peak load at the time of: (i) the four highest RTO summer peak hours, (ii) the single highest RTO winter peak hour, and (iii) the highest RTO load occurring during Performance Assessment Hours (only considering a single performance hour from each day containing Performance Assessment Hours), occurring in the twelve month period ending October 31 four years prior to the commencement of such Delivery Year.~~

4. Capacity Resources identified and committed in an FRR Capacity Plan shall meet all requirements under this Agreement, the PJM Tariff, and the PJM Operating Agreement applicable to Capacity Resources, including, as applicable, requirements and milestones for Planned Generation Capacity Resources and Planned Demand Resources. A Capacity Resource submitted in an FRR Capacity Plan must be on a unit-specific basis, and may not include "slice of system" or similar agreements that are not unit specific. An FRR Capacity Plan may include bilateral transactions that commit capacity for less than a full Delivery Year only if the resources included in such plan in the aggregate satisfy all obligations for all Delivery Years. All demand response, load management, energy efficiency, or similar programs on which such FRR Entity intends to rely for a Delivery Year must be included in the FRR Capacity Plan, subject to ~~the~~

applicable Base Capacity Demand Resource Constraints for the relevant Delivery Year, submitted three years in advance of such Delivery Year and must satisfy all requirements applicable to Demand Resources or Energy Efficiency Resources, as applicable, including, without limitation, those set forth in Schedule 6 to this Agreement and the PJM Manuals; provided, however, that previously uncommitted Unforced Capacity from such programs may be used to satisfy any increased capacity obligation for such FRR Entity resulting from a Final Zonal Peak Load Forecast applicable to such FRR Entity. Without limiting the generality of the foregoing, the FRR Entity must submit a Demand Resource Sell Offer Plan 15 business days before the deadline for submitting an FRR Capacity Plan as to any Demand Resources it intends to include in such FRR Capacity Plan and may only include in such FRR Capacity Plan Demand Resources that are approved by PJM following review of such Demand Resource Sell Offer Plan. The requirements, standards, and procedures for a Demand Resource Sell Offer Plan shall be as set forth in Schedule 6 of this Agreement, provided that all references (including deadlines) in Schedule 6, section A-1 to submission or clearing of a Demand Resource offer in an RPM Auction shall be understood for purposes of FRR Entities as referring to inclusion of a Demand Resource in an FRR Capacity Plan, and a distinct Demand Resource Officer Certification Form shall be applicable to FRR Entities, as shown in the PJM Manuals and provided on the PJM website.

5. For each LDA for which the Office of the Interconnection has established a separate Variable Resource Requirement Curve for any Delivery Year addressed by such FRR Capacity Plan, the plan must include a Percentage Internal Resources Required, subject to subsections D.1.1 and D.2 of this Schedule. ~~For the 2018/2019 and 2019/2020 Delivery Years, the Percentage Internal Resources Required may be satisfied with one or more Capacity Performance Resources, Base Capacity Resources, Base Capacity Demand Resources, or Base Capacity Energy Efficiency Resources, subject to the Base Capacity Resource Constraint and Base Capacity Demand Response Constraint.~~ The Percentage Internal Resources Required will be calculated as the LDA Reliability Requirement less the CETL for the Delivery Year, as determined by the RTEP process as set forth in the PJM Manuals. Such requirement shall be expressed as a percentage of the Unforced Capacity Obligation based on the Preliminary Zonal Peak Load Forecast multiplied by the Forecast Pool Requirement.

6. An FRR Entity may reduce the Percentage Internal Resources Required as to any LDA to the extent the FRR Entity commits to a transmission upgrade that increases the capacity emergency transfer limit for such LDA. Any such transmission upgrade shall adhere to all requirements for a Qualified Transmission Upgrade as set forth in Attachment DD to the PJM Tariff. The increase in CETL used in the FRR Capacity Plan shall be that approved by PJM prior to inclusion of any such upgrade in an FRR Capacity Plan. The FRR Entity shall designate specific additional Capacity Resources located in the LDA from which the CETL was increased, to the extent of such increase.

7. The Office of the Interconnection will review the adequacy of all submittals hereunder both as to timing and content. A Party that seeks to elect the FRR Alternative that submits an FRR Capacity Plan which, upon review by the Office of the Interconnection, is determined not to satisfy such Party's capacity obligations hereunder, shall not be permitted to elect the FRR Alternative. If a previously approved FRR Entity submits an FRR Capacity Plan that, upon

review by the Office of the Interconnection, is determined not to satisfy such Party's capacity obligations hereunder, the Office of the Interconnection shall notify the FRR Entity, in writing, of the insufficiency within five (5) business days of the submittal of the FRR Capacity Plan. If the FRR Entity does not cure such insufficiency within five (5) business days after receiving such notice of insufficiency, then such FRR Entity shall be assessed an FRR Commitment Insufficiency Charge, in an amount equal to two times the Cost of New Entry for the relevant location, in \$/MW-day, times the shortfall of Capacity Resources below the FRR Entity's capacity obligation (including any Threshold Quantity requirement) in such FRR Capacity Plan, for the remaining term of such plan.

8. In a state regulatory jurisdiction that has implemented retail choice, the FRR Entity must include in its FRR Capacity Plan all load, including expected load growth, in the FRR Service Area, notwithstanding the loss of any such load to or among alternative retail LSEs. In the case of load reflected in the FRR Capacity Plan that switches to an alternative retail LSE, where the state regulatory jurisdiction requires switching customers or the LSE to compensate the FRR Entity for its FRR capacity obligations, such state compensation mechanism will prevail. In the absence of a state compensation mechanism, the applicable alternative retail LSE shall compensate the FRR Entity at the capacity price in the unconstrained portions of the PJM Region, as determined in accordance with Attachment DD to the PJM Tariff, provided that the FRR Entity may, at any time, make a filing with FERC under Sections 205 of the Federal Power Act proposing to change the basis for compensation to a method based on the FRR Entity's cost or such other basis shown to be just and reasonable, and a retail LSE may at any time exercise its rights under Section 206 of the FPA.

9. Notwithstanding the foregoing, in lieu of providing the compensation described above, such alternative retail LSE may, for any Delivery Year subsequent to those addressed in the FRR Entity's then-current FRR Capacity Plan, provide to the FRR Entity Capacity Resources sufficient to meet the capacity obligation described in paragraph D.2 for the switched load. Such Capacity Resources shall meet all requirements applicable to Capacity Resources pursuant to this Agreement, the PJM Tariff, and the PJM Operating Agreement, all requirements applicable to resources committed to an FRR Capacity Plan under this Agreement, and shall be committed to service to the switched load under the FRR Capacity Plan of such FRR Entity. The alternative retail LSE shall provide the FRR Entity all information needed to fulfill these requirements and permit the resource to be included in the FRR Capacity Plan. The alternative retail LSE, rather than the FRR Entity, shall be responsible for any performance charges or compliance penalties related to the performance of the resources committed by such LSE to the switched load. For any Delivery Year, or portion thereof, the foregoing obligations apply to the alternative retail LSE serving the load during such time period. PJM shall manage the transfer accounting associated with such compensation and shall administer the collection and payment of amounts pursuant to the compensation mechanism.

Such load shall remain under the FRR Capacity Plan until the effective date of any termination of the FRR Alternative and, for such period, shall not be subject to Locational Reliability Charges under Section 7.2 of this Agreement.

## F. FRR Daily Unforced Capacity Obligations and Deficiency Charges

1. For each billing month during a Delivery Year, the Daily Unforced Capacity Obligation of an FRR Entity shall be determined on a daily basis for each Zone as follows:

Daily Unforced Capacity Obligation = [(OPL \* Final Zonal FRR Scaling Factor) – Nominal PRD Value committed by the FRR Entity] \* FPR

where:

~~For for Delivery Years through May 31, 2018,~~

OPL =Obligation Peak Load, defined as:

the daily summation of the weather-adjusted coincident summer peak, last preceding the Delivery Year, of the end-users in such Zone (net of operating Behind The Meter Generation, but not to be less than zero) for which such Party was responsible on that billing day, as determined in accordance with the procedures set forth in the PJM Manuals;~~and~~

Final Zonal FRR Scaling Factor = FZPLDY/FZWNSP;

FZPLDY = Final Zonal Peak Load Forecast for such Delivery Year; and

FZWNSP = Zonal Weather-Normalized Peak Load for the summer concluding prior to the commencement of such Delivery Year.

~~For the 2018/2019 Delivery Year and subsequent Delivery Years,~~

~~OPL =Obligation Peak Load, defined as:~~

~~for the 2018/2019 Delivery Year and subsequent Delivery Years, the Parties' share of the Final Zonal Obligation Peak Load as assigned by the EDC for the end-users in such Zone (net of operating Behind The Meter Generation, but not to be less than zero) for which such Party was responsible on that billing day, as determined in accordance with the procedures set forth in the PJM Manuals~~

~~Final Zonal FRR Scaling Factor = FZPLDY/FZOPL;~~

~~FZPLDY = Final Zonal Peak Load Forecast for such Delivery Year; and~~

~~FZOPL = the Final Zonal Obligation Peak Load for a Zone shall be equal to the average zonal peak load at the time of: (i) the four highest RTO summer peak hours, (ii) the single highest RTO winter peak hour, and (iii) the highest RTO load occurring during Performance Assessment Hours (only considering a single Performance Assessment Hour from each day containing~~



~~Performance Assessment Hours), occurring in the twelve month period ending October 31 prior to the commencement of such Delivery Year.~~

2. An FRR Entity shall be assessed an FRR Capacity Deficiency Charge in each Zone addressed in such entity's FRR Capacity Plan for each day during a Delivery Year that it fails to satisfy its Daily Unforced Capacity Obligation in each Zone. Such FRR Capacity Deficiency Charge shall be in an amount equal to the deficiency below such FRR Entity's Daily Unforced Capacity Obligation for such Zone times (1.20 times the Capacity Resource Clearing Price resulting from all RPM Auctions for such Delivery Year for the LDA encompassing such Zone, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions).

3. If an FRR Entity acquires load that is not included in the Preliminary Zonal Peak Load Forecast such acquired load shall be treated in the same manner as provided in Sections H.1 and H.2 of this Schedule.

4. The shortages in meeting the minimum requirement within the constrained zones and the shortage in meeting the total obligation are first calculated. The shortage in the unconstrained area is calculated as the total shortage less shortages in constrained zones and excesses in constrained zones (the shortage is zero if this is a negative number). The Capacity Deficiency Charge is charged to the shortage in each zone and in the unconstrained area separately. This procedure is used to allow the use of capacity excesses from constrained zones to reduce shortage in the unconstrained area and to disallow the use of capacity excess from unconstrained area to reduce shortage in constrained zones.

5. For Delivery Years during the period starting June 1, 2014 and ending May 31, 2017, the shortages in meeting the Minimum Annual Resource Requirement and the Minimum Extended Summer Resource Requirement associated with the FRR Entity's capacity obligation are calculated separately. For such period, the applicable penalty rate is calculated for Annual Resources, Extended Summer Demand Resources, and Limited Resources as (1.20 times the Capacity Resource Clearing Price resulting from all RPM Auctions for such Delivery Year for the LDA encompassing such Zone, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions). For Delivery Years beginning June 1, 2017, the FRR Entity shall receive no credit for Limited Demand Resources to the extent committed in excess of the applicable Limited Resource Constraint and shall receive no credit for the sum of Limited Demand Resources and Extended Summer Demand Resources to the extent the sum of the Unforced Capacity of such resources exceeds the applicable Sub-Annual Resource Constraint.



## G. Capacity Resource Performance

1. Any Capacity Resource committed by an FRR Entity in an FRR Capacity Plan for a Delivery Year shall be subject during such Delivery Year to the charges set forth in sections 7, 9, 10, 10A, 11, and 13 of Attachment DD to the PJM Tariff; provided, however: (i) the Daily Deficiency Rate under sections 7, 9, and 13 thereof shall be 1.20 times the Capacity Resource Clearing Price resulting from all RPM Auctions for such Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions); (ii) the charges set forth in section 10A of Attachment DD to the PJM Tariff shall apply only for the 2019/2020 and subsequent Delivery Years and only to those FRR Entities which opted to be subject to the Non-Performance Charge under section C.1 of this Schedule 8.1 and the charge rates under section 10A thereof for Base Capacity Resources shall be the Capacity Resource Clearing Price resulting from the RPM Auctions for the Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged as described above; and (iii) the charge rates under section 10 thereof, shall be the Capacity Resource Clearing Price resulting from the RPM Auctions for the Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged as described above. An FRR Entity shall have the same opportunities to cure deficiencies and avoid or reduce associated charges during the Delivery Year that a Market Seller has under sections 7, 9, 10, and 10A of Attachment DD to the PJM Tariff. An FRR Entity may cure deficiencies and avoid or reduce associated charges prior to the Delivery Year by procuring replacement Unforced Capacity outside of any RPM Auction and committing such capacity in its FRR Capacity Plan.

2. For any FRR Entity which opted to be subject to physical non-performance assessments under section C.1. of this Schedule 8.1, such FRR Entity will not be subject to charges under section 10A of Attachment DD of the PJM Tariff, but, rather, it will be required to update its FRR Capacity Plan with ~~an additional 0.5 MW megawatts~~ of Capacity Performance Resources ~~for each megawatt of Performance Shortfall using the formulae contained in section 10A(e) of Attachment DD of the PJM Tariff.~~ determined in accordance with the following: For each Performance Assessment Hour, the Actual Performance and Expected Performance of each resource contained in an FRR Entity's FRR Capacity Plan will be determined in the same fashion as prescribed by the PJM Tariff, Attachment DD, section 10A, and for such hour, a net Performance Shortfall shall be determined separately for Capacity Performance Resources and for Base Capacity Resources. If, for a Performance Assessment Hour, the combined Actual Performance of all an FRR Entity's committed Capacity Performance Resources exceeds the Expected Performance of such resources, then such over-performance may be applied to any Performance Shortfall experienced by such FRR Entity's Base Capacity Resources for such hour. If, for a Performance Assessment Hour, the combined Actual Performance of all an FRR Entity's committed Base Capacity Resources exceeds the Expected Performance of such resources, then such over-performance may be applied to any Performance Shortfall experienced by such FRR Entity's Capacity Performance Resources for such hour.

The FRR Entity's net Performance Shortfall among Capacity Performance Resources, if any, for each such Performance Assessment Hour shall be multiplied by a rate of 0.01667 MWs/Performance Assessment Hour to establish the additional MW quantities of Capacity Performance Resources that such FRR Entity must add to its FRR Capacity Plan for the next Delivery Year. Notwithstanding the foregoing, the total additional MWs required as a result of

non-performance by the FRR Entity's Capacity Performance Resources in any Delivery Year shall not exceed a MW quantity equal to 0.5 times the MW quantity of the Capacity Performance Resources that were committed in the FRR Capacity Plan for such Delivery Year. The FRR Entity's net Performance Shortfall among Base Capacity Resources, if any, for each such Performance Assessment Hour shall be multiplied by a rate of [(0.01667 MWs/Performance Assessment Hour) times (the Base Capacity Resource Clearing Price resulting from the RPM Auctions for the Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions, divided by the Net CONE established for such LDA for the Delivery Year)] to establish the additional MW quantities of Capacity Performance Resources that such FRR Entity must add to its FRR Capacity Plan for the next Delivery Year. Notwithstanding the foregoing, the total additional MWs required as a result of non-performance by the FRR Entity's Base Capacity Resources in any Delivery Year shall not exceed a MW quantity equal to [(0.5 times the MW quantity of the Base Capacity Resources that were committed in the FRR Capacity Plan for such Delivery Year) times (the Base Capacity Resource Clearing Price resulting from the RPM Auctions for the Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions, divided by the Net CONE established for such LDA for the Delivery Year)].

~~Such An~~ FRR Entity that elects the physical option shall not be eligible for, or subject to, the revenue allocation described in section 10A(g) of Attachment DD of the PJM Tariff.

# Attachment B

PJM Open Access Transmission Tariff  
and  
PJM Reliability Assurance Agreement

(Clean Format)

Section(s) of the  
PJM Open Access Transmission Tariff  
(Clean Format)

## **ATTACHMENT Q**

### **PJM CREDIT POLICY**

#### **POLICY STATEMENT:**

It is the policy of PJM Interconnection, LLC (“PJM”) that prior to an entity participating in the PJM Markets, or in order to take Transmission Service, the entity must demonstrate its ability to meet PJMSettlement’s credit requirements.

Prior to becoming a Market Participant, Transmission Customer, and/or Member of PJM, PJMSettlement must accept and approve a Credit Application (including Credit Agreement) from such entity and establish a Working Credit Limit with PJMSettlement. PJMSettlement shall approve or deny an accepted Credit Application on the basis of a complete credit evaluation including, but not be limited to, a review of financial statements, rating agency reports, and other pertinent indicators of credit strength.

#### **POLICY INTENT:**

This credit policy describes requirements for: (1) the establishment and maintenance of credit by Market Participants, Transmission Customers, and entities seeking either such status (collectively “Participants”), pursuant to one or more of the Agreements, and (2) forms of security that will be deemed acceptable (hereinafter the “Financial Security”) in the event that the Participant does not satisfy the financial or other requirements to establish Unsecured Credit.

This policy also sets forth the credit limitations that will be imposed on Participants in order to minimize the possibility of failure of payment for services rendered pursuant to the Agreements, and conditions that will be considered an event of default pursuant to this policy and the Agreements.

These credit rules may establish certain set-asides of credit for designated purposes (such as for FTR or RPM activity). Such set-asides shall be construed to be applicable to calculation of credit requirements only, and shall not restrict PJMSettlement’s ability to apply such designated credit to any obligation(s) in case of a default.

PJMSettlement may post on PJM's web site, and may reference on OASIS, a supplementary document which contains additional business practices (such as algorithms for credit scoring) that are not included in this document. Changes to the supplementary document will be subject to stakeholder review and comment prior to implementation. PJMSettlement may specify a required compliance date, not less than 15 days from notification, by which time all Participants must comply with provisions that have been revised in the supplementary document.

#### **APPLICABILITY:**

This policy applies to all Participants.

## **IMPLEMENTATION:**

### **I. CREDIT EVALUATION**

Each Participant will be subject to a complete credit evaluation in order for PJMSettlement to determine creditworthiness and to establish an **Unsecured Credit Allowance**, if applicable; provided, however, that a Participant need not provide the information specified in section I.A or I.B if it notifies PJMSettlement in writing that it does not seek any Unsecured Credit Allowance. PJMSettlement will identify any necessary Financial Security requirements and establish a Working Credit Limit for each Participant. In addition, PJMSettlement will perform follow-up credit evaluations on at least an annual basis.

If a **Corporate Guaranty** is being utilized to establish credit for a Participant, the guarantor will be evaluated and the Unsecured Credit Allowance or Financial Security requirement will be based on the financial strength of the Guarantor.

PJMSettlement will provide a Participant, upon request, with a written explanation for any change in credit levels or collateral requirements. PJMSettlement will provide such explanation within ten Business Days.

If a Participant believes that either its level of unsecured credit or its collateral requirement has been incorrectly determined, according to this credit policy, then the Participant may send a request for reconsideration in writing to PJMSettlement. Such a request should include:

- A citation to the applicable section(s) of the PJMSettlement credit policy along with an explanation of how the respective provisions of the credit policy were not carried out in the determination as made
- A calculation of what the Participant believes should be the correct credit level or collateral requirement, according to terms of the credit policy

PJMSettlement will reconsider the determination and will provide a written response as promptly as practical, but no longer than ten Business Days of receipt of the request. If the Participant still feels that the determination is incorrect, then the Participant may contest that determination. Such contest should be in written form, addressed to PJMSettlement, and should contain:

- ◆ A complete copy of the Participant's earlier request for reconsideration, including citations and calculations
- ◆ A copy of PJMSettlement's written response to its request for reconsideration
- ◆ An explanation of why it believes that the determination still does not comply with the credit policy

PJMSettlement will investigate and will respond to the Participant with a final determination on the matter as promptly as practical, but no longer than 20 Business Days.

Neither requesting reconsideration nor contesting the determination following such request shall relieve or delay Participant's responsibility to comply with all provisions of this credit policy.

#### **A. Initial Credit Evaluation**

In completing the initial credit evaluation, PJMSettlement will consider:

##### **1) Rating Agency Reports**

In evaluating credit strength, PJMSettlement will review rating agency reports from Standard & Poor's, Moody's Investors Service, Fitch Ratings, or other nationally known rating agencies. The focus of the review will be on senior unsecured debt ratings; however, PJMSettlement will consider other ratings if senior unsecured debt ratings are not available.

##### **2) Financial Statements and Related Information**

Each Participant must submit with its application audited financial statements for the most recent fiscal quarter, as well as the most recent three fiscal years, or the period of existence of the Participant, if shorter. All financial and related information considered for a Credit Score must be audited by an outside entity, and must be accompanied by an unqualified audit letter acceptable to PJMSettlement.

The information should include, but not be limited to, the following:

- a. If publicly traded:
  - i. Annual and quarterly reports on Form 10-K and Form 10-Q, respectively.
  - ii. Form 8-K reports disclosing Material changes, if any.
- b. If privately held:
  - i. Management's Discussion & Analysis
  - ii. Report of Independent Accountants
  - iii. Financial Statements, including:
    - Balance Sheet
    - Income Statement
    - Statement of Cash Flows
    - Statement of Stockholder's Equity
  - iv. Notes to Financial Statements

If the above information is available on the Internet, the Participant may provide a letter stating where such statements may be located and retrieved by PJMSettlement. For certain Participants, some of the above financial submittals may not be applicable, and alternate requirements may be specified by PJMSettlement.

In its credit evaluation of Cooperatives and Municipalities, PJMSettlement may request additional information as part of the overall financial review process and may also consider qualitative factors in determining financial strength and creditworthiness.

### **3) References**

PJMSettlement may request Participants to provide with their applications at least one (1) bank and three (3) utility credit references. In the case where a Participant does not have the required utility references, trade payable vendor references may be substituted.

### **4) Litigation, Commitments and Contingencies**

Each Participant is also required to provide with its application information as to any known Material litigation, commitments or contingencies as well as any prior bankruptcy declarations or Material defalcations by the Participant or its predecessors, subsidiaries or Affiliates, if any. These disclosures shall be made upon application, upon initiation or change, and at least annually thereafter, or as requested by PJMSettlement.

### **5) Other Disclosures**

Each Participant is required to disclose any Affiliates that are currently Members of PJMSettlement or are applying for membership with PJMSettlement. Each Participant is also required to disclose the existence of any ongoing investigations by the Securities and Exchange Commission (“SEC”), Federal Energy Regulatory Commission (“FERC”), Commodity Futures Trading Commission (“CFTC”), or any other governing, regulatory, or standards body. These disclosures shall be made upon application, upon initiation or change, and at least annually thereafter, or as requested by PJMSettlement.

## **B. Ongoing Credit Evaluation**

On at least an annual basis, PJMSettlement will perform follow-up credit evaluations on all Participants. In completing the credit evaluation, PJMSettlement will consider:

### **1) Rating Agency Reports**

In evaluating credit strength, PJMSettlement will review rating agency reports from Standard & Poor’s, Moody’s Investors Service, Fitch Ratings, or other nationally known rating agencies. The focus of the review will be on senior unsecured debt ratings; however, PJMSettlement will consider other ratings if senior unsecured debt ratings are not available.

### **2) Financial Statements and Related Information**

Each Participant must submit audited annual financial statements as soon as they become available and no later than 120 days after fiscal year end. Each Participant is also required to provide PJMSettlement with quarterly financial statements promptly upon their issuance, but no later than 60 days after the end of each quarter. All financial and related information considered



for a Credit Score must be audited by an outside entity, and must be accompanied by an unqualified audit letter acceptable to PJMSettlement. If financial statements are not provided within the timeframe required, the Participant may not be granted an Unsecured Credit Allowance.

The information should include, but not be limited to, the following:

- a. If publicly traded:
  - i. Annual and quarterly reports on Form 10-K and Form 10-Q, respectively.
  - ii. Form 8-K reports disclosing Material changes, if any, immediately upon issuance.
- b. If privately held:
  - i. Management's Discussion & Analysis
  - ii. Report of Independent Accountants
  - iii. Financial Statements, including:
    - Balance Sheet
    - Income Statement
    - Statement of Cash Flows
    - Statement of Stockholder's Equity
  - iv. Notes to Financial Statements

If the above information is available on the Internet, the Participant may provide a letter stating where such statements may be located and retrieved by PJMSettlement. For certain Participants, some of the above financial submittals may not be applicable, and alternate requirements may be specified by PJMSettlement.

In its credit evaluation of Cooperatives and Municipalities, PJMSettlement may request additional information as part of the overall financial review process and may also consider qualitative factors in determining financial strength and creditworthiness.

### **3) Material Changes**

Each Participant is responsible for informing PJMSettlement immediately, in writing, of any Material change in its financial condition. However, PJMSettlement may also independently establish from available information that a Participant has experienced a Material change in its financial condition without regard to whether such Participant has informed PJMSettlement of the same.

For the purpose of this policy, a Material change in financial condition may include, but not be limited to, any of the following:

- a. a downgrade of any debt rating by any rating agency;
- b. being placed on a credit watch with negative implications by any rating agency;
- c. a bankruptcy filing;
- d. insolvency;

- e. a report of a quarterly or annual loss or a decline in earnings of ten percent or more compared to the prior period;
- f. restatement of prior financial statements;
- g. the resignation of key officer(s);
- h. the filing of a lawsuit that could adversely impact any current or future financial results by ten percent or more;
- i. financial default in another organized wholesale electric market futures exchange or clearing house;
- j. revocation of a license or other authority by any Federal or State regulatory agency; where such license or authority is necessary or important to the Participants continued business for example, FERC market-based rate authority, or State license to serve retail load; or
- k. a significant change in credit default spreads, market capitalization, or other market-based risk measurement criteria, such as a recent increase in Moody's KMV Expected Default Frequency (EDF<sup>tm</sup>) that is noticeably greater than the increase in its peers' EDF<sup>tm</sup> rates, or a collateral default swap (CDS) premium normally associated with an entity rated lower than investment grade.

If PJMSettlement determines that a Material change in the financial condition of the Participant has occurred, it may require the Participant to provide Financial Security within two Business Days, in an amount and form approved by PJMSettlement. If the Participant fails to provide the required Financial Security, the Participant shall be in default under this credit policy.

In the event that PJMSettlement determines that a Material change in the financial condition of a Participant warrants a requirement to provide Financial Security, PJMSettlement shall provide the Participant with a written explanation of why such determination was made. However, under no circumstances shall the requirement that a Participant provide the requisite Financial Security be deferred pending the issuance of such written explanation.

#### **4) Litigation, Commitments, and Contingencies**

Each Participant is also required to provide information as to any known Material litigation, commitments or contingencies as well as any prior bankruptcy declarations or Material defalcations by the Participant or its predecessors, subsidiaries or Affiliates, if any. These disclosures shall be made upon initiation or change or as requested by PJMSettlement.

#### **5) Other Disclosures**

Each Participant is required to disclose any Affiliates that are currently Members of PJM or are applying for membership within PJM. Each Participant is also required to disclose the existence of any ongoing investigations by the SEC, FERC, CFTC or any other governing, regulatory, or standards body. These disclosures shall be made upon initiation or change, or as requested by PJMSettlement.

### **C. Corporate Guaranty**

If a Corporate Guaranty is being utilized to establish credit for a Participant, the Guarantor will be evaluated and the Unsecured Credit Allowance or Financial Security requirement will be based on the financial strength of the Guarantor.

An irrevocable and unconditional Corporate Guaranty may be utilized as part of the credit evaluation process, but will not be considered a form of Financial Security. The Corporate Guaranty will be considered a transfer of credit from the Guarantor to the Participant. The Corporate Guaranty must guarantee the (i) full and prompt payment of all amounts payable by the Participant under the Agreements, and (ii) performance by the Participant under this policy.

The Corporate Guaranty should clearly state the identities of the “Guarantor,” “Beneficiary” (PJMSettlement) and “Obligor” (Participant). The Corporate Guaranty must be signed by an officer of the Guarantor, and must demonstrate that it is duly authorized in a manner acceptable to PJMSettlement. Such demonstration may include either a Corporate Seal on the Guaranty itself, or an accompanying executed and sealed Secretary’s Certificate noting that the Guarantor was duly authorized to provide such Corporate Guaranty and that the person signing the Corporate Guaranty is duly authorized, or other manner acceptable to PJMSettlement.

A Participant supplying a Corporate Guaranty must provide the same information regarding the Guarantor as is required in the “Initial Credit Evaluation” §I.A. and the “Ongoing Evaluation” §I.B. of this policy, including providing the Rating Agency Reports, Financial Statements and Related Information, References, Litigation Commitments and Contingencies, and Other Disclosures. A Participant supplying a Foreign or Canadian Guaranty must also satisfy the requirements of §I.C.1 or §I.C.2, as appropriate.

If there is a Material change in the financial condition of the Guarantor or if the Corporate Guaranty comes within 30 days of expiring without renewal, the Participant will be required to provide Financial Security either in the form of a cash deposit or a letter of credit. Failure to provide the required Financial Security within two Business Days after request by PJMSettlement will constitute an event of default under this credit policy. A Participant may request PJMSettlement to perform a credit evaluation in order to determine creditworthiness and to establish an Unsecured Credit Allowance, if applicable. If PJMSettlement determines that a Participant does qualify for a sufficient Unsecured Credit Allowance, then Financial Security will not be required.

The PJMSettlement Credit Application contains an acceptable form of Corporate Guaranty that should be utilized by a Participant choosing to establish its credit with a Corporate Guaranty. If the Corporate Guaranty varies in any way from the PJMSettlement format, it must first be reviewed and approved by PJMSettlement. All costs associated with obtaining and maintaining a Corporate Guaranty and meeting the policy provisions are the responsibility of the Participant.

## **1) Foreign Guaranties**

A Foreign Guaranty is a Corporate Guaranty that is provided by an Affiliate entity that is domiciled in a country other than the United States or Canada. The entity providing a Foreign Guaranty on behalf of a Participant is a Foreign Guarantor. A Participant may provide a Foreign

Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJMSettlement provided that all of the following conditions are met:

PJMSettlement reserves the right to deny, reject, or terminate acceptance of any Foreign Guaranty at any time, including for material adverse circumstances or occurrences.

- a. A Foreign Guaranty:
  - i. Must contain provisions equivalent to those contained in PJMSettlement’s standard form of Foreign Guaranty with any modifications subject to review and approval by PJMSettlement counsel.
  - ii. Must be denominated in US currency.
  - iii. Must be written and executed solely in English, including any duplicate originals.
  - iv. Will not be accepted towards a Participant’s Unsecured Credit Allowance for more than the following limits, depending on the Foreign Guarantor's credit rating:

Rating of Foreign Guarantor	Maximum Accepted Guaranty if Country Rating is AAA	Maximum Accepted Guaranty if Country Rating is AA+
A- and above	USD50,000,000	USD30,000,000
BBB+	USD30,000,000	USD20,000,000
BBB	USD10,000,000	USD10,000,000
BBB- or below	USD 0	USD 0

- v. May not exceed 50% of the Participant’s total credit, if the Foreign Grantor is rated less than BBB+.

- b. A Foreign Guarantor:
  - i. Must satisfy all provisions of the PJM credit policy applicable to domestic Guarantors.
  - ii. Must be an Affiliate of the Participant.
  - iii. Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.
  - iv. Must be rated by at least one Rating Agency acceptable to PJMSettlement; the credit strength of a Foreign Guarantor may not be determined based on an evaluation of its financials without an actual credit rating as well.
  - v. Must have a Senior Unsecured (or equivalent, in PJMSettlement's sole discretion) rating of BBB (one notch above BBB-) or greater by any and all agencies that provide rating coverage of the entity.
  - vi. Must provide financials in GAAP format or other format acceptable to PJMSettlement with clear representation of net worth, intangible assets, and any other information PJMSettlement may require in order to determine the entity’s Unsecured Credit Allowance

- vii. Must provide a Secretary's Certificate certifying the adoption of Corporate Resolutions:
  1. Authorizing and approving the Guaranty; and
  2. Authorizing the Officers to execute and deliver the Guaranty on behalf of the Guarantor.
- viii. Must be domiciled in a country with a minimum long-term sovereign (or equivalent) rating of AA+/Aa1, with the following conditions:
  1. Sovereign ratings must be available from at least two rating agencies acceptable to PJMSettlement (e.g. S&P, Moody's, Fitch, DBRS).
  2. Each agency's sovereign rating for the domicile will be considered to be the lowest of: country ceiling, senior unsecured government debt, long-term foreign currency sovereign rating, long-term local currency sovereign rating, or other equivalent measures, at PJMSettlement's sole discretion.
  3. Whether ratings are available from two or three agencies, the lowest of the two or three will be used.
- ix. Must be domiciled in a country that recognizes and enforces judgments of US courts.
- x. Must demonstrate financial commitment to activity in the United States as evidenced by one of the following:
  1. American Depository Receipts (ADR) are traded on the New York Stock Exchange, American Stock Exchange, or NASDAQ.
  2. Equity ownership worth over USD100,000,000 in the wholly-owned or majority owned subsidiaries in the United States.
- xi. Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including this credit policy.
- xii. Must pay for all expenses incurred by PJMSettlement related to reviewing and accepting a foreign guaranty beyond nominal in-house credit and legal review.
- xiii. Must, at its own cost, provide PJMSettlement with independent legal opinion from an attorney/solicitor of PJMSettlement's choosing and licensed to practice law in the United States and/or Guarantor's domicile, in form and substance acceptable to PJMSettlement in its sole discretion, confirming the enforceability of the Foreign Guaranty, the Guarantor's legal authorization to grant the Guaranty, the conformance of the Guaranty, Guarantor, and Guarantor's domicile to all of these requirements, and such other matters as PJMSettlement may require in its sole discretion.

## **2) Canadian Guaranties**

A Canadian Guaranty is a Corporate Guaranty that is provided by an Affiliate entity that is domiciled in Canada and satisfies all of the provisions below. The entity providing a Canadian Guaranty on behalf of a Participant is a Canadian Guarantor. A Participant may provide a Canadian Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJMSettlement provided that all of the following conditions are met.

PJMSettlement reserves the right to deny, reject, or terminate acceptance of any Canadian Guaranty at any time for reasonable cause, including adverse material circumstances.

- a. A Canadian Guaranty:
  - i. Must contain provisions equivalent to those contained in PJMSettlement's standard form of Foreign Guaranty with any modifications subject to review and approval by PJMSettlement counsel.
  - ii. Must be denominated in US currency.
  - iii. Must be written and executed solely in English, including any duplicate originals.
  
- b. A Canadian Guarantor:
  - i. Must satisfy all provisions of the PJM credit policy applicable to domestic Guarantors.
  - ii. Must be an Affiliate of the Participant.
  - iii. Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.
  - iv. Must be rated by at least one Rating Agency acceptable to PJMSettlement; the credit strength of a Canadian Guarantor may not be determined based on an evaluation of its financials without an actual credit rating as well.
  - v. Must provide financials in GAAP format or other format acceptable to PJMSettlement with clear representation of net worth, intangible assets, and any other information PJMSettlement may require in order to determine the entity's Unsecured Credit Allowance.
  
  - vi. Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including this Credit Policy.

## **Ia. MINIMUM PARTICIPATION REQUIREMENTS**

### **A. PJM Market Participation Eligibility Requirements**

To be eligible to transact in PJM Markets, a Market Participant must demonstrate in accordance with the Risk Management and Verification processes set forth below that it qualifies in one of the following ways:

1. an "appropriate person," as that term is defined under Section 4(c)(3), or successor provision, of the Commodity Exchange Act, or;
2. an "eligible contract participant," as that term is defined in Section 1a(18), or successor provision, of the Commodity Exchange Act, or;
3. a business entity or person who is in the business of: (1) generating, transmitting, or distributing electric energy, or (2) providing electric energy services that are necessary to support the reliable operation of the transmission system, or;

4. a Market Participant seeking eligibility as an “appropriate person” providing an unlimited Corporate Guaranty in a form acceptable to PJMSettlement as described in Section I.C of Attachment Q from an issuer that has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty, or;
5. a Market Participant providing a letter of credit of at least \$5 million to PJMSettlement in a form acceptable to PJMSettlement as described in Section VI.B of Attachment Q that the Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJMSettlement.

If, at any time, a Market Participant cannot meet the eligibility requirements set forth above, it shall immediately notify PJMSettlement and immediately cease conducting transactions in the PJM Markets. PJMSettlement shall terminate a Market Participant’s transaction rights in the PJM Markets if, at any time, it becomes aware that the Market Participant does not meet the minimum eligibility requirements set forth above.

In the event that a Market Participant is no longer able to demonstrate it meets the minimum eligibility requirements set forth above, and possesses, obtains or has rights to possess or obtain, any open or forward positions in PJM’s Markets, PJMSettlement may take any such action it deems necessary with respect to such open or forward positions, including, but not limited to, liquidation, transfer, assignment or sale; provided, however, that the Market Participant will, notwithstanding its ineligibility to participate in the PJM Markets, be entitled to any positive market value of those positions, net of any obligations due and owing to PJM and/or PJMSettlement.

## **B. Risk Management and Verification**

All Participants shall provide to PJMSettlement an executed copy of the annual certification set forth in Appendix 1 to this Attachment Q. This certification shall be provided before an entity is eligible to participate in the PJM Markets and shall be initially submitted to PJMSettlement together with the entity’s Credit Application. Thereafter, it shall be submitted each calendar year by all Participants during a period beginning on January 1 and ending April 30, except that new Participants who became eligible to participate in PJM markets during the period of January through April shall not be required to resubmit such certification until the following calendar year. Except for certain FTR Participants (discussed below) or in cases of manifest error, PJMSettlement will accept such certifications as a matter of course and Participants will not need further notice from PJMSettlement before commencing or maintaining their eligibility to participate in PJM markets. A Participant that fails to provide its annual certification by April 30 shall be ineligible to transact in the PJM markets and PJM will disable the Participant’s access to the PJM markets until such time as PJMSettlement receives the Participant’s certification.

Participants acknowledge and understand that the annual certification constitutes a representation upon which PJMSettlement will rely. Such representation is additionally made under the PJM Tariff, filed with and accepted by FERC, and any inaccurate or incomplete statement may subject the Participant to action by FERC. Failure to comply with any of the criteria or

requirements listed herein or in the certification may result in suspension of a Participant's transaction rights in the PJM markets.

Certain FTR Participants (those providing representations found in paragraph 3.b of the annual certification set forth in Appendix 1 to this Attachment Q) are additionally required to submit to PJMSettlement (at the time they make their annual certification) a copy of their current governing risk control policies, procedures and controls applicable to their FTR trading activities, except that if no substantive changes have been made to such policies, practices and/or controls applicable to their FTR trading activities, they may instead submit to PJMSettlement a certification stating that no changes have been made. PJMSettlement will review such documentation to verify that it appears generally to conform to prudent risk management practices for entities trading in FTR-type markets. If principles or best practices relating to risk management in FTR-type markets are published, as may be modified from time to time, by a third-party industry association, such as the Committee of Chief Risk Officers, PJMSettlement may, following stakeholder discussion and with no less than six months prior notice to stakeholders, apply such principles or best practices in determining the fundamental sufficiency of the FTR Participant's risk controls. Those FTR Participants subject to this provision shall make a one-time payment of \$1,000.00 to PJMSettlement to cover costs associated with review and verification. Thereafter, if such FTR Participant's risk policies, procedures and controls applicable to its FTR trading activities change substantively, it shall submit such modified documentation, without charge, to PJMSettlement for review and verification at the time it makes its annual certification. Such FTR Participant's continued eligibility to participate in the PJM FTR markets is conditioned on PJMSettlement notifying such FTR Participant that its annual certification, including the submission of its risk policies, procedures and controls, has been accepted by PJMSettlement. PJMSettlement may retain outside expertise to perform the review and verification function described in this paragraph, however, in all circumstances, PJMSettlement and any third-party it may retain will treat as confidential the documentation provided by an FTR Participant under this paragraph, consistent with the applicable provisions of PJM's Operating Agreement.

An FTR Participant that makes the representation in paragraph 3.a of the annual certification understand that PJMSettlement, given the visibility it has over a Participant's overall market activity in performing billing and settlement functions, may at any time request the FTR Participant provide additional information demonstrating that it is in fact eligible to make the representation in paragraph 3.a of the annual certification. If such additional information is not provided or does not, in PJMSettlement's judgment, demonstrate eligibility to make the representation in paragraph 3.a of the annual certification, PJMSettlement will require the FTR Participant to instead make the representations required in paragraph 3.b of the annual certification, including representing that it has submitted a copy of its current governing risk control policies, procedures and controls applicable to its FTR trading activities. If the FTR Participant cannot or does not make those representations as required in paragraph 3.b of the annual certification, then PJM will terminate the FTR Participant's rights to purchase FTRs in the FTR market and may terminate the FTR Participant's rights to sell FTRs in the PJM FTR market.



PJMSettlement shall also conduct a periodic compliance verification process to review and verify, as applicable, Participants' risk management policies, practices, and procedures pertaining to the Participants' activities in the PJM markets. Such review shall include verification that:

1. The risk management framework is documented in a risk policy addressing market, credit and liquidity risks.
2. The Participant maintains an organizational structure with clearly defined roles and responsibilities that clearly segregates trading and risk management functions.
3. There is clarity of authority specifying the types of transactions into which traders are allowed to enter.
4. The Participant has requirements that traders have adequate training relative to their authority in the systems and PJM markets in which they transact.
5. As appropriate, risk limits are in place to control risk exposures.
6. Reporting is in place to ensure that risks and exceptions are adequately communicated throughout the organization.
7. Processes are in place for qualified independent review of trading activities.
8. As appropriate, there is periodic valuation or mark-to-market of risk positions.

If principles or best practices relating to risk management in PJM-type markets are published, as may be modified from time to time, by a third-party industry association, PJMSettlement may, following stakeholder discussion and with no less than six months prior notice to stakeholders, apply such principles or best practices in determining the sufficiency of the Participant's risk controls. PJMSettlement may select Participants for review on a random basis and/or based on identified risk factors such as, but not limited to, the PJM markets in which the Participant is transacting, the magnitude of the Participant's transactions in the PJM markets, or the volume of the Participant's open positions in the PJM markets. Those Participants notified by PJMSettlement that they have been selected for review shall, upon 14 calendar days notice, provide a copy of their current governing risk control policies, procedures and controls applicable to their PJM market activities and shall also provide such further information or documentation pertaining to the Participants' activities in the PJM markets as PJMSettlement may reasonably request. Participants selected for risk management verification through a random process and satisfactorily verified by PJMSettlement shall be excluded from such verification process based on a random selection for the subsequent two years. PJMSettlement shall annually randomly select for review no more than 20% of the Participants in each member sector.

Each selected Participant's continued eligibility to participate in the PJM markets is conditioned upon PJMSettlement notifying the Participant of successful completion of PJMSettlement's verification of the Participant's risk management policies, practices and procedures, as discussed

herein. However, if PJMSettlement notifies the Participant in writing that it could not successfully complete the verification process, PJMSettlement shall allow such Participant 14 calendar days to provide sufficient evidence for verification prior to declaring the Participant as ineligible to continue to participate in PJM's markets, which declaration shall be in writing with an explanation of why PJMSettlement could not complete the verification. If, prior to the expiration of such 14 calendar days, the Participant demonstrates to PJMSettlement that it has filed with the Federal Energy Regulatory Commission an appeal of PJMSettlement's risk management verification determination, then the Participant shall retain its transaction rights, pending the Commission's determination on the Participant's appeal. PJMSettlement may retain outside expertise to perform the review and verification function described in this paragraph. PJMSettlement and any third party it may retain will treat as confidential the documentation provided by a Participant under this paragraph, consistent with the applicable provisions of the Operating Agreement. If PJMSettlement retains such outside expertise, a Participant may direct in writing that PJMSettlement perform the risk management review and verification for such Participant instead of utilizing a third party, provided however, that employees and contract employees of PJMSettlement and PJM shall not be considered to be such outside expertise or third parties.

Participants are solely responsible for the positions they take and the obligations they assume in PJM markets. PJMSettlement hereby disclaims any and all responsibility to any Participant or PJM Member associated with Participant's submitting or failure to submit its annual certification or PJMSettlement's review and verification of an FTR Participant's risk policies, procedures and controls. Such review and verification is limited to demonstrating basic compliance by an FTR Participant with the representation it makes under paragraph 3.b of its annual certification showing the existence of written policies, procedures and controls to limit its risk in PJM's FTR markets and does not constitute an endorsement of the efficacy of such policies, procedures or controls.

### **C. Capitalization**

In addition to the Annual Certification requirements in Appendix 1 to this Attachment Q, a Participant must demonstrate that it meets the minimum financial requirements appropriate for the PJM market(s) in which it transacts by satisfying either the Minimum Capitalization or the Provision of Collateral requirements listed below:

#### **1. Minimum Capitalization**

FTR Participants must demonstrate a tangible net worth in excess of \$1 million or tangible assets in excess of \$10 million. Other Participants must demonstrate a tangible net worth in excess of \$500,000 or tangible assets in excess of \$5 million.

- a. In either case, consideration of "tangible" assets and net worth shall exclude assets (net of any matching liabilities, assuming the result is a positive value) which PJMSettlement reasonably believes to be restricted, highly risky, or potentially unavailable to settle a claim in the event of default. Examples include, but are not

limited to, restricted assets and Affiliate assets, derivative assets, goodwill, and other intangible assets.

- b. Demonstration of “tangible” assets and net worth may be satisfied through presentation of an acceptable Corporate Guaranty, provided that both:
  - (i) the guarantor is an affiliate company that satisfies the tangible net worth or tangible assets requirements herein, and;
  - (ii) the Corporate Guaranty is either unlimited or at least \$500,000.

If the Corporate Guaranty presented by the Participant to satisfy these Capitalization requirements is limited in value, then the Participant’s resulting Unsecured Credit Allowance shall be the lesser of:

- (1) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this Credit Policy, or:
- (2) the face value of the Corporate Guaranty, reduced by \$500,000 and further reduced by 10%. (For example, a \$10.5 million Corporate Guaranty would be reduced first by \$500,000 to \$10 million and then further reduced 10% more to \$9 million. The resulting \$9 million would be the Participant’s Unsecured Credit Allowance available through the Corporate Guaranty).

In the event that a Participant provides collateral in addition to a limited Corporate Guaranty to increase its available credit, the value of such collateral shall be reduced by 10%. This reduced value shall be deemed Financial Security and available to satisfy the requirements of this Credit Policy.

Demonstrations of capitalization must be presented in the form of audited financial statements for the Participant’s most recent fiscal year.

## **2. Provision of Collateral**

If a Participant does not demonstrate compliance with its applicable Minimum Capitalization Requirements above, it may still qualify to participate in PJM’s markets by posting additional collateral, subject to the terms and conditions set forth herein.

Any collateral provided by a Participant unable to satisfy the Minimum Capitalization Requirements above will be restricted in the following manner:

- i. Collateral provided by FTR Participants shall be reduced by \$500,000 and then further reduced by 10%. This reduced amount shall be considered the Financial Security provided by the Participant and available to satisfy requirements of this Credit Policy.
- ii. Collateral provided by other Participants that engage in Virtual Transactions or Export Transactions shall be reduced by \$200,000 and then further reduced by 10%. This reduced value shall be considered Financial Security available to satisfy requirements of this Credit Policy.
- iii. Collateral provided by other Participants that do not engage in Virtual Transactions or Export Transactions shall be reduced by 10%, and this reduced value shall be considered Financial Security available to satisfy requirements of this Credit Policy.

In the event a Participant that satisfies the Minimum Participation Requirements through provision of collateral also provides a Corporate Guaranty to increase its available credit, then the Participant's resulting Unsecured Credit Allowance conveyed through such Guaranty shall be the lesser of:

- (1) the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of this credit policy, or,
- (2) the face value of the Guaranty, reduced by 10%.

## **II. CREDIT ALLOWANCE AND WORKING CREDIT LIMIT**

PJMSettlement's credit evaluation process will include calculating a Credit Score for each Participant. The credit score will be utilized to determine a Participant's Unsecured Credit Allowance.

Participants who do not qualify for an Unsecured Credit Allowance will be required to provide Financial Security based on their Peak Market Activity, as provided below.

A corresponding Working Credit Limit will be established based on the Unsecured Credit Allowance and/or the Financial Security provided.

Where Participant of PJM are considered Affiliates, Unsecured Credit Allowances and Working Credit Limits will be established for each individual Participant, subject to an aggregate maximum amount for all Affiliates as provided for in §II.F of this policy.

In its credit evaluation of Cooperatives and Municipalities, PJMSettlement may request additional information as part of the overall financial review process and may also consider qualitative factors in determining financial strength and creditworthiness.

## A. Credit Score

For participants with credit ratings, a Credit Score will be assigned based on their senior unsecured credit rating and credit watch status as shown in the table below. If an explicit senior unsecured rating is not available, PJMSettlement may impute an equivalent rating from other ratings that are available. For Participants without a credit rating, but who wish to be considered for unsecured Credit, a Credit Score will be generated from PJMSettlement’s review and analysis of various factors that are predictors of financial strength and creditworthiness. Key factors in the scoring process include, financial ratios, and years in business. PJMSettlement will consistently apply the measures it uses in determining Credit Scores. The credit scoring methodology details are included in a supplementary document available on OASIS.

### Rated Entities Credit Scores

Rating	Score	Score Modifier	
		Credit Watch Negative	Credit Watch Positive
AAA	100	-1.0	0.0
AA+	99	-1.0	0.0
AA	99	-1.0	0.0
AA-	98	-1.0	0.0
A+	97	-1.0	0.0
A	96	-2.0	0.0
A-	93	-3.0	1.0
BBB+	88	-4.0	2.0
BBB	78	-4.0	2.0
BBB-	65	-4.0	2.0
BB+ and below	0	0.0	0.0

## B. Unsecured Credit Allowance

PJMSettlement will determine a Participant’s Unsecured Credit Allowance based on its Credit Score and the parameters in the table below. The maximum Unsecured Credit Allowance is the lower of:

- 1) A percentage of the Participant’s Tangible Net Worth, as stated in the table below, with the percentage based on the Participant’s credit score; and
- 2) A dollar cap based on the credit score, as stated in the table below:

<b>Credit Score</b>	<b>Tangible Net Worth Factor</b>	<b>Maximum Unsecured Credit Allowance</b>  <b>(\$ Million)</b>
91-100	2.125 – 2.50%	\$50
81-90	1.708 – 2.083%	\$42
71-80	1.292 – 1.667%	\$33
61-70	0.875 – 1.25%	\$7
51-60	0.458 – 0.833%	\$0-\$2
50 and Under	0%	\$0

If a Corporate Guaranty is utilized to establish an Unsecured Credit Allowance for a Participant, the value of a Corporate Guaranty will be the lesser of:

- The limit imposed in the Corporate Guaranty;
- The Unsecured Credit Allowance calculated for the Guarantor; and
- A portion of the Unsecured Credit Allowance calculated for the Guarantor in the case of Affiliated Participants.

PJMSettlement has the right at any time to modify any Unsecured Credit Allowance and/or require additional Financial Security as may be deemed reasonably necessary to support current market activity. Failure to pay the required amount of additional Financial Security within two Business Days shall be an event of default.

PJMSettlement will maintain a posting of each Participant’s unsecured Credit Allowance, along with certain other credit related parameters, on the PJM web site in a secure, password-protected location. Such information will be updated at least weekly. Each Participant will be responsible for monitoring such information and recognizing changes that may occur.

### **C. Seller Credit**

Participants that have maintained a Net Sell Position for each of the prior 12 months are eligible for Seller Credit, which is an additional form of Unsecured Credit. A Participant’s Seller Credit will be equal to sixty percent of the Participant’s thirteenth smallest weekly Net Sell Position invoiced in the past 52 weeks.

Each Participant receiving Seller Credit must maintain both its Seller Credit and its Total Net Sell Position equal to or greater than the Participant’s aggregate credit requirements, less any Financial Security or other sources of credit provided.

For Participants receiving Seller Credit, PJMSettlement may forecast the Participant’s Total Net Sell Position considering the Participant’s current Total Net Sell Position, recent trends in the Participant’s Total Net Sell Position, and other information available to PJMSettlement, such as, but not limited to, known generator outages, changes in load responsibility, and bilateral

transactions impacting the Participant. If PJMSettlement's forecast ever indicates that the Participant's Total Net Sell Position may in the future be less than the Participant's aggregate credit requirements, less any Financial Security or other sources of credit provided, then PJMSettlement may require Financial Security as needed to cover the difference. Failure to pay the required amount of additional Financial Security within two Business Days shall be an event of default.

Any Financial Security required by PJMSettlement pursuant to these provisions for Seller Credit will be returned once the requirement for such Financial Security has ended. Seller Credit may not be conveyed to another entity through use of a guaranty. Seller Credit shall be subject to the cap on available Unsecured Credit set forth in Section II.F.

#### **D. Peak Market Activity and Financial Security Requirement**

A PJM Participant or Applicant that has an insufficient Unsecured Credit Allowance to satisfy its Peak Market Activity will be required to provide Financial Security such that its Unsecured Credit Allowance and Financial Security together are equal to its Peak Market Activity in order to secure its transactional activity in the PJM Market.

Peak Market Activity for Participants will be determined semi-annually beginning in the first complete billing week in the months of April and October. Peak Market Activity shall be the greater of the initial Peak Market Activity, as explained below, or the greatest amount invoiced for the Participant's transaction activity for all PJM markets and services in any rolling one, two, or three week period, ending within a respective semi-annual period. However, Peak Market Activity shall not exceed the greatest amount invoiced for the Participant's transaction activity for all PJM markets and services in any rolling one, two or three week period in the prior 52 weeks.

Peak Market Activity shall exclude FTR Net Activity, Virtual Transactions Net Activity, and Export Transactions Net Activity.

The initial Peak Market Activity for Applicants will be determined by PJMSettlement based on a review of an estimate of their transactional activity for all PJM markets and services over the next 52 weeks, which the Applicant shall provide to PJMSettlement.

The initial Peak Market Activity for Participants, calculated at the beginning of each respective semi-annual period, shall be the three-week average of all non-zero invoice totals over the previous 52 weeks. This calculation shall be performed and applied within three business days following the day the invoice is issued for the first full billing week in the current semi-annual period.

Prepayments shall not affect Peak Market Activity unless otherwise agreed to in writing pursuant to this Credit Policy.

All Peak Market Activity calculations shall take into account reductions of invoice values effectuated by early payments which are applied to reduce a Participant's Peak Market Activity

as contemplated by other terms of the Credit Policy; provided that the initial Peak Market Activity shall not be less than the average value calculated using the weeks for which no early payment was made.

A Participant may reduce its Financial Security Requirement by agreeing in writing (in a form acceptable to PJMSettlement) to make additional payments, including prepayments, as and when necessary to ensure that such Participant's Total Net Obligation at no time exceeds such reduced Financial Security Requirement.

PJMSettlement may, at its discretion, adjust a Participant's Financial Security Requirement if PJMSettlement determines that the Peak Market Activity is not representative of such Participant's expected activity, as a consequence of known, measurable, and sustained changes. Such changes may include the loss (without replacement) of short-term load contracts, when such contracts had terms of three months or more and were acquired through state-sponsored retail load programs, but shall not include short-term buying and selling activities.

PJMSettlement may waive the Financial Security Requirement for a Participant that agrees in writing that it shall not, after the date of such agreement, incur obligations under any of the Agreements. Such entity's access to all electronic transaction systems administered by PJM shall be terminated.

PJMSettlement will maintain a posting of each Participant's Financial Security Requirement on the PJM web site in a secure, password-protected location. Such information will be updated at least weekly. Each Participant will be responsible for monitoring such information and recognizing changes that may occur.

#### **E. Working Credit Limit**

PJMSettlement will establish a Working Credit Limit for each Participant against which its **Total Net Obligation** will be monitored. The Working Credit Limit is defined as 75% of the Financial Security provided to PJMSettlement and/or 75% of the Unsecured Credit Allowance determined by PJMSettlement based on a credit evaluation, as reduced by any applicable credit requirement determinants defined in this policy. A Participant's Total Net Obligation should not exceed its Working Credit Limit.

Example: After a credit evaluation by PJMSettlement, a Participant is deemed able to support an Unsecured Credit Allowance of \$10.0 million. The Participant will be assigned a Working Credit Limit of \$8.5 million. PJMSettlement will monitor the Participant's Total Net Obligations against the Working Credit Limit.

A Participant with an Unsecured Credit Allowance may choose to provide Financial Security in order to increase its Working Credit Limit. A Participant with no Unsecured Credit Allowance may also choose to increase its Working Credit Limit by providing Financial Security in an amount greater than its Peak Market Activity.

If a Participant's Total Net Obligation approaches its Working Credit Limit, PJMSettlement may require the Participant to make an advance payment or increase its Financial Security in order to maintain its Total Net Obligation below its Working Credit Limit. Except as explicitly provided



below, advance payments shall not serve to reduce the Participant's Peak Market Activity for the purpose of calculating credit requirements.

Example: After 10 days, and with 5 days remaining before the bill is due to be paid, a Participant approaches its \$4.0 million Working Credit Limit. PJMSettlement may require a prepayment of \$2.0 million in order that the Total Net Obligation will not exceed the Working Credit Limit.

If a Participant exceeds its Working Credit Limit or is required to make advance payments more than ten times during a 52-week period, PJMSettlement may require Financial Security in an amount as may be deemed reasonably necessary to support its Total Net Obligation.

A Participant receiving unsecured credit may make early payments up to ten times in a rolling 52-week period in order to reduce its Peak Market Activity for credit requirement purposes. Imputed Peak Market Activity reductions for credit purposes will be applied to the billing period for which the payment was received. Payments used as the basis for such reductions must be received prior to issuance or posting of the invoice for the relevant billing period. The imputed Peak Market Activity reduction attributed to any payment may not exceed the amount of Unsecured Credit for which the Participant is eligible.

#### **F. Credit Limit Setting For Affiliates**

If two or more Participants are Affiliates and each is being granted an Unsecured Credit Allowance and a corresponding Working Credit Limit, PJMSettlement will consider the overall creditworthiness of the Affiliated Participants when determining the Unsecured Credit Allowances and Working Credit Limits in order not to grant more Unsecured Credit than the overall corporation could support.

**Example:** Participants A and B each have a \$10.0 million Corporate Guaranty from their common parent, a holding company with an Unsecured Credit Allowance calculation of \$12.0 million. PJMSettlement may limit the Unsecured Credit Allowance for each Participant to \$6.0 million, so the total Unsecured Credit Allowance does not exceed the corporate total of \$12.0 million.

PJMSettlement will work with Affiliated Participants to allocate the total Unsecured Credit Allowance among the Affiliates while assuring that no individual Participant, nor common guarantor, exceeds the Unsecured Credit Allowance appropriate for its credit strength. The aggregate Unsecured Credit for a Participant, including Unsecured Credit Allowance granted based on its own creditworthiness and any Unsecured Credit Allowance conveyed through a Guaranty shall not exceed \$50 million. The aggregate Unsecured Credit for a group of Affiliates shall not exceed \$50 million. A group of Affiliates subject to this cap shall request PJMSettlement to allocate the maximum Unsecured Credit and Working Credit Limit amongst the group, assuring that no individual Participant or common guarantor, shall exceed the Unsecured Credit level appropriate for its credit strength and activity.

#### **G. Working Credit Limit Violations**

##### **1) Notification**

A Participant is subject to notification when its Total Net Obligation to PJMSettlement approaches the Participant's established Working Credit Limit.

## **2) Suspension**

A Participant that exceeds its Working Credit Limit is subject to suspension from participation in the PJM markets and from scheduling any future Transmission Service unless and until Participant's credit standing is brought within acceptable limits. A Participant will have two Business Days from notification to remedy the situation in a manner deemed acceptable by PJMSettlement. Additionally, PJMSettlement, in coordination with PJM, will take such actions as may be required or permitted under the Agreements, including but not limited to the termination of the Participant's ongoing Transmission Service and participation in PJM Markets. Failure to comply with this policy will be considered an event of default under this credit policy.

## **H. PJM Administrative Charges**

Financial Security held by PJMSettlement shall also secure obligations to PJM for PJM administrative charges.

## **I. Pre-existing Financial Security**

PJMSettlement's credit requirements are applicable as of the effective date of the filing on May 5, 2010 by PJM and PJMSettlement of amendments to Attachment Q. Financial Security held by PJM prior to the effective date of such amendments shall be held by PJM for the benefit of PJMSettlement.

## **III. VIRTUAL TRANSACTION SCREENING**

### **A. Credit and Financial Security**

PJMSettlement does not require a Market Participant to establish separate or additional credit for submitting Virtual Transactions. If a Market Participant chooses to establish additional Financial Security and/or Unsecured Credit Allowance in order to increase its Credit Available for Virtual Transactions, the Market Participant's Working Credit Limit for Virtual Transactions shall be increased in accordance with the definition thereof. The Financial Security and/or Unsecured Credit Allowance available to increase a Market Participant's Credit Available for Virtual Transactions shall be the amount of Financial Security and/or Unsecured Credit Allowance available after subtracting any credit required for Minimum Participation Requirements, FTR, Export Transactions, or other credit requirement determinants as defined in this policy, as applicable.

If a Market Participant chooses to provide additional Financial Security in order to increase its **Credit Available for Virtual Transactions PJMSettlement** may establish a reasonable timeframe, not to exceed three months, for which such Financial Security must be maintained. PJMSettlement will not impose such restriction on a deposit unless a Market Participant is

notified prior to making the deposit. Such restriction, if applied, shall be applied to all future deposits by all Market Participants engaging in Virtual Transactions.

A Market Participant wishing to increase its Credit Available for Virtual Transactions by providing additional Financial Security may make the appropriate arrangements with PJMSettlement. PJMSettlement will make a good faith effort to make new Financial Security available as Credit Available for Virtual Transactions as soon as practicable after confirmation of receipt. In any event, however, Financial Security received and confirmed by noon on a business day will be applied (as provided under this policy) to Credit Available for Virtual Transactions no later than 10:00 am on the following business day. Receipt and acceptance of wired funds for cash deposit shall mean actual receipt by PJMSettlement's bank, deposit into PJMSettlement's customer deposit account, and confirmation by PJMSettlement that such wire has been received and deposited. Receipt and acceptance of letters of credit shall mean receipt of the original letter of credit or amendment thereto, and confirmation from PJMSettlement's credit and legal staffs that such letter of credit or amendment thereto conforms to PJMSettlement's requirements, which confirmation shall be made in a reasonable and practicable timeframe. To facilitate this process, bidders wiring funds for the purpose of increasing their Credit Available for Virtual Transactions are advised to specifically notify PJMSettlement that a wire is being sent for such purpose.

## **B. Virtual Transaction Screening Process**

All Virtual Transactions submitted to PJM shall be subject to a credit screen prior to acceptance in the Day-ahead Energy Market auction. The credit screen process will automatically reject Virtual Transactions submitted by the PJM market participant if the participant's Credit Available for Virtual Transactions is exceeded by the **Virtual Credit Exposure** that is calculated based on the participant's submitted Virtual Transactions as described below.

A Participant's Virtual Credit Exposure will be calculated on a daily basis for all Virtual Transactions submitted by the market participant for the next market day using the following equation:

Virtual Credit Exposure = INC and DEC Exposure + Up-to Congestion Exposure

Where:

1) INC and DEC Exposure is calculated as:

(a) ((the total MWh bid or offered, whichever is greater, hourly at each node) x the Nodal Reference Price x 1 day) summed over all nodes and all hours; plus (b) ((the difference between the total bid MWh cleared and total offered MWh cleared hourly at each node) x Nodal Reference Price) summed over all nodes and all hours for the previous cleared Day-ahead Energy Market.

2) Up-to Congestion Exposure is calculated as:

(a) Total MWh bid hourly for each Up-to Congestion Transaction  $x$  (price bid – Up-to Congestion Reference Price) summed over all Up-to Congestion Transactions and all hours; plus (b) Total MWh cleared hourly for each Up-to Congestion Transaction  $x$  (cleared price – Up-to Congestion Reference Price) summed over all Up-to Congestion Transactions and all hours for the previous cleared Day-ahead Energy Market, provided that hours for which the calculation for an Up-to Congestion Transaction is negative, it shall be deemed to have a zero contribution to the sum.

If a Market Participant's Virtual Transactions are rejected as a result of the credit screen process, the Market Participant will be notified via an eMKT error message. A Market Participant whose Virtual Transactions are rejected may alter its Virtual Transactions so that its Virtual Credit Exposure does not exceed its Credit Available for Virtual Transactions, and may resubmit them. Virtual Transactions may be submitted in one or more groups during a day. If one or more groups of Virtual Transactions is submitted and accepted, and a subsequent group of submitted Virtual Transactions causes the total submitted Virtual Transactions to exceed the Virtual Credit Exposure, then only that subsequent set of Virtual Transactions will be rejected. Previously accepted Virtual Transactions will not be affected, though the Market Participant may choose to withdraw them voluntarily.

#### **IV. RELIABILITY PRICING MODEL AUCTION AND PRICE RESPONSIVE DEMAND CREDIT REQUIREMENTS**

Settlement during any Delivery Year of cleared positions resulting or expected to result from any Reliability Pricing Model Auction shall be included as appropriate in Peak Market Activity, and the provisions of this Attachment Q shall apply to any such activity and obligations arising therefrom. In addition, the provisions of this section shall apply to any entity seeking to participate in any RPM Auction, to address credit risks unique to such auctions. The provisions of this section also shall apply under certain circumstances to PRD Providers that seek to commit Price Responsive Demand pursuant to the provisions of the Reliability Assurance Agreement.

##### **A. Applicability**

A Market Seller seeking to submit a Sell Offer in any Reliability Pricing Model Auction based on any Capacity Resource for which there is a materially increased risk of nonperformance must satisfy the credit requirement specified in section IV.B before submitting such Sell Offer. A PRD Provider seeking to commit Price Responsive Demand for which there is a materially increased risk of non-performance must satisfy the credit requirement specified in section IV.B before it may commit the Price Responsive Demand. Credit must be maintained until such risk of non-performance is substantially eliminated, but may be reduced commensurate with the reduction in such risk, as set forth in Section IV.C.

For purposes of this provision, a resource for which there is a materially increased risk of nonperformance shall mean: (i) a Planned Generation Capacity Resource; (ii) a Planned Demand Resource or an Energy Efficiency Resource; (iii) a Qualifying Transmission Upgrade; (iv) an existing or Planned Generation Capacity Resource located outside the PJM Region that at the time it is submitted in a Sell Offer has not secured firm transmission service to the border of

the PJM Region sufficient to satisfy the deliverability requirements of the Reliability Assurance Agreement; or (v) Price Responsive Demand to the extent the responsible PRD Provider has not registered PRD-eligible load at a PRD Substation level to satisfy its Nominal PRD Value commitment, in accordance with Schedule 6.1 of the Reliability Assurance Agreement.

## **B. Reliability Pricing Model Auction and Price Responsive Demand Credit Requirement**

Except as provided for Credit-Limited Offers below, for any resource specified in Section IV.A, other than Price Responsive Demand, the credit requirement shall be the RPM Auction Credit Rate, as provided in Section IV.D, times the megawatts to be offered for sale from such resource in a Reliability Pricing Model Auction. For Qualified Transmission Upgrades, the credit requirements shall be based on the Locational Deliverability Area in which such upgrade was to increase the Capacity Emergency Transfer Limit. However, the credit requirement for Planned Financed Generation Capacity Resources and Planned External Financed Generation Capacity Resources shall be one half of the product of the RPM Auction Credit Rate, as provided in Section IV.D, times the megawatts to be offered for sale from such resource in a Reliability Pricing Model Auction. The RPM Auction Credit Requirement for each Market Seller shall be the sum of the credit requirements for all such resources to be offered by such Market Seller in the auction or, as applicable, cleared by such Market Seller from the relevant auctions. For Price Responsive Demand specified in section IV.A, the credit requirement shall be based on the Nominal PRD Value (stated in Unforced Capacity terms) times the Price Responsive Demand Credit Rate as set forth in section IV.E.

Except for Credit-Limited Offers, the RPM Auction Credit Requirement for a Market Seller will be reduced for any Delivery Year to the extent less than all of such Market Seller's offers clear in the Base Residual Auction or any Incremental Auction for such Delivery Year. Such reduction shall be proportional to the quantity, in megawatts, that failed to clear in such Delivery Year.

A Sell Offer based on a Planned Generation Capacity Resource, Planned Demand Resource, or Energy Efficiency Resource may be submitted as a Credit-Limited Offer. A Market Seller electing this option shall specify a maximum amount of Unforced Capacity, in megawatts, and a maximum credit requirement, in dollars, applicable to the Sell Offer. A Credit-Limited Offer shall clear the RPM Auction in which it is submitted (to the extent it otherwise would clear based on the other offer parameters and the system's need for the offered capacity) only to the extent of the lesser of: (i) the quantity of Unforced Capacity that is the quotient of the division of the specified maximum credit requirement by the Auction Credit Rate resulting from section IV.D.b.; and (ii) the maximum amount of Unforced Capacity specified in the Sell Offer. For a Market Seller electing this alternative, the RPM Auction Credit Requirement applicable prior to the posting of results of the auction shall be the maximum credit requirement specified in its Credit-Limited Offer, and the RPM Auction Credit Requirement subsequent to posting of the results will be the Auction Credit Rate, as provided in Section IV.D.b, c. or d., as applicable, times the amount of Unforced Capacity from such Sell Offer that cleared in the auction. The availability and operational details of Credit-Limited Offers shall be as described in the PJM Manuals.

As set forth in Section IV.D, a Market Seller's Auction Credit Requirement shall be determined separately for each Delivery Year.

**C. Reduction in Credit Requirement**

As specified in Section IV.D, the RPM Auction Credit Rate may be reduced under certain circumstances after the auction has closed.

The Price Responsive Demand credit requirement shall be reduced as and to the extent the PRD Provider registers PRD-eligible load at a PRD Substation level to satisfy its Nominal PRD Value commitment, in accordance with Schedule 6.1 of the Reliability Assurance Agreement.

In addition, the RPM Auction Credit Requirement for a Participant for any given Delivery Year shall be reduced periodically, provided the Participant successfully meets progress milestones that reduce the risk of non-performance, as follows:

- a. For Planned Demand Resources and Energy Efficiency Resources, the RPM Auction Credit Requirement will be reduced in direct proportion to the megawatts of such Demand Resource that the Resource Provider qualifies as a Capacity Resource, in accordance with the procedures established under the Reliability Assurance Agreement.
- b. For Existing Generation Capacity Resources located outside the PJM Region that have not secured sufficient firm transmission to the border of the PJM Region prior to the auction in which such resource is first offered, the RPM Auction Credit Requirement shall be reduced in direct proportion to the megawatts of firm transmission service secured by the Market Seller that qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.
- c. For Planned Generation Capacity Resources located in the PJM Region, the RPM Auction Credit Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals.

Milestones	Increment of reduction from initial RPM Auction Credit Requirement
Effective Date of Interconnection Service Agreement	50%
Financial Close	15%
Full Notice to Proceed and Commencement of Construction (e.g., footers poured)	5%
Main Power Generating Equipment Delivered	5%
Commencement of Interconnection Service	25%

To obtain a reduction in its RPM Auction Credit Requirement, except for the Interconnection Service Agreement and Commencement of Interconnection Service milestones, the Capacity Market Seller must submit a sworn, notarized certification of a duly authorized independent engineer in a form acceptable to PJM, certifying that the engineer has personal knowledge, or has engaged in a diligent inquiry to determine, that the milestone has been achieved and that, based on its review of the relevant project information, the independent engineer is not aware of any information that could reasonably cause it to believe that the Capacity Resource will not be in-service by the beginning of the applicable Delivery Year. The Capacity Market Seller shall, if requested by PJM, supply to PJM on a confidential basis all records and documents relating to the independent engineer's certification.

d. For Planned External Generation Capacity Resources, the RPM Auction Credit Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit Requirement shall be no greater than the quotient of (a) the MWs of firm transmission service that the Capacity Market Seller has secured for the complete transmission path divided by (b) the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

<b>Credit Reduction Milestones for Planned External Generation Capacity Resources</b>	
<b>Milestones</b>	<b>Increment of reduction from initial RPM Auction Credit Requirement</b>
Effective Date of the equivalent of an Interconnection Service Agreement	50%
Financial Close	15%
Full Notice to Proceed and Commencement of Construction (e.g., footers poured)	5%
Main Power Generating Equipment Delivered	5%
Commencement of Interconnection Service	25%

To obtain a reduction in its RPM Auction Credit Requirement, the Capacity Market Seller must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

e. For Planned Financed Generation Capacity Resources located in the PJM Region, the RPM Auction Credit Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals.

<b>Credit Reduction Milestones for Planned Financed Generation Capacity Resources</b>	
<b>Milestones</b>	<b>Increment of reduction from initial RPM Auction Credit Requirement</b>

Full Notice to Proceed	50%
Commencement of Construction (e.g., footers poured)	15%
Main Power Generating Equipment Delivered	10%
Commencement of Interconnection Service	25%

To obtain a reduction in its RPM Auction Credit Requirement, the Capacity Market Seller must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

f. For Planned External Financed Generation Capacity Resources, the RPM Credit Auction Requirement shall be reduced as the Capacity Resource attains the milestones stated in the following table and as further described in the PJM Manuals; provided, however, that the total percentage reduction in the RPM Auction Credit Requirement, including the initial 50% reduction for being a Planned External Financed Generation Capacity Resources, shall be no greater than the quotient of (a) the MWs of firm transmission service that the Capacity Market Seller has secured for the complete transmission path divided by (b) the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

<b>Credit Reduction Milestones for Planned External Financed Generation Capacity</b>	
<b>Milestones</b>	<b>Increment of reduction from initial RPM Auction Credit Requirement</b>
Full Notice to Proceed	50%
Commencement of Construction (e.g., footers poured)	15%
Main Power Generating Equipment Delivered	10%
Commencement of Interconnection Service	25%

To obtain a reduction in its RPM Auction Credit Requirement, the Capacity Market Seller must demonstrate satisfaction of the applicable milestone in the same manner as set forth for Planned Generation Capacity Resources in subsection (c) above.

g. For Qualifying Transmission Upgrades, the RPM Auction Credit Requirement shall be reduced to 50% of the amount calculated under Section IV.B beginning as of the effective date of the latest associated Interconnection Service Agreement (or, when a project will have no such agreement, an Upgrade Construction Service Agreement), and shall be reduced to zero on the date the Qualifying Transmission Upgrade is placed in service. In addition, a Qualifying Transmission Upgrade will be allowed a reduction in its RPM Auction Credit Requirement equal to the amount of collateral currently posted with PJM for the facility construction when the Qualifying Transmission Upgrade meets the following requirements: the Upgrade Construction Service Agreement has been fully executed, the full estimated cost to complete as most recently determined or updated by PJM has been fully paid or collateralized, and all regulatory and other required approvals (except those that must await construction completion) have been obtained.



Such reduction in RPM Auction Credit Requirement may not be transferred across different projects.

#### **D. RPM Auction Credit Rate**

As set forth in the PJM Manuals, a separate Auction Credit Rate shall be calculated for each Delivery Year prior to each Reliability Pricing Model Auction for such Delivery Year, as follows:

a. Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Auction Credit Rate shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) \$20 per MW-day) times the number of days in such Delivery Year; and

(ii) For Capacity Performance Resources, the greater of ((A) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in MW-day or (B) \$20 per MW-day) times the number of days in such Delivery Year.

b. Subsequent to the posting of the results from a Base Residual Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of days in such Delivery Year; and

(ii) For Capacity Performance Resources, the (greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) or (C) the lesser of (i) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (ii) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of days in such Delivery Year).

c. For any resource not previously committed for a Delivery Year that seeks to participate in an Incremental Auction, the Auction Credit Rate shall be:

(i) For all Capacity Resources other than Capacity Performance Resources, (the greater of (A) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (B) 0.24 times the Capacity Resource Clearing Price in the Base Residual Auction for such Delivery Year for the Locational Deliverability Area within which the resource is located or (C) \$20 per MW-day) times the number of days in such Delivery Year; and

(ii) For Capacity Performance Resources, the (greater of (A) 0.5 times Net Cost of New Entry for the PJM Region for such Delivery year or for the Relevant LDA or (B) \$20/MW-day) times the number of days in such Delivery Year.

d. Subsequent to the posting of the results of an Incremental Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be:

(i) For Base Capacity Resources: (the greater of (A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of days in such Delivery Year, but no greater than the Auction Credit Rate previously established for such resource's participation in such Incremental Auction pursuant to subsection (c) above) times the number of days in such Delivery Year; and

(ii) For Capacity Performance Resources, the greater of [(A) \$20/MW-day or (B) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) or (C) the lesser of (i) 0.5 times the Net Cost of New Entry for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day or (ii) 1.5 times the Net Cost of New Entry (stated on an installed capacity basis) for the PJM Region for such Delivery Year or for the Relevant LDA, in \$/MW-day minus (the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located)] times the number of days in such Delivery Year).

e. For the purposes of this section IV.D, "Relevant LDA" means the Locational Deliverability Area in which the Capacity Performance Resource is located if a separate Variable Resource Requirement Curve has been established for that Locational Deliverability Area for the Base Residual Auction for such Delivery Year.

#### **E. Price Responsive Demand Credit Rate**

a. Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be (the greater of (i) 0.3 times the Net Cost of New Entry for the PJM Region for such Delivery Year, in MW-day or (ii) \$20 per MW-day) times the number of days in such Delivery Year;

b. Subsequent to the posting of the results from a Base Residual Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for Price Responsive Demand registered prior to such auction shall be (the greater of (i) \$20/MW-day or (ii) 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the PRD load is located) times the number of days in such Delivery Year times a final price uncertainty factor of 1.05;

c. For any additional Price Responsive Demand that seeks to commit in a Third Incremental Auction in response to a qualifying change in the final LDA load forecast, the Price Responsive Demand Credit Rate shall be the same as the rate for Price Responsive Demand that had cleared in the Base Residual Auction;

d. Subsequent to the posting of the results of the Third Incremental Auction, the Price Responsive Demand Credit Rate used for ongoing credit requirements for all Price Responsive Demand, shall be (the greater of (i) \$20/MW-day or (ii) 0.2 times the Final Zonal Capacity Price for the Locational Deliverability Area within which the Price Responsive Demand is located) times the number of days in such Delivery Year, but no greater than the Price Responsive Demand Credit Rate previously established under subsections (a), (b), or (c) of this section for such Delivery Year.

#### **F. RPM Seller Credit - Additional Form of Unsecured Credit for RPM**

In addition to the forms of credit specified elsewhere in this Attachment Q, RPM Seller Credit shall be available to Market Sellers, but solely for purposes of satisfying RPM Auction Credit Requirements. If a supplier has a history of being a net seller into PJM markets, on average, over the past 12 months, then PJMSettlement will count as available Unsecured Credit twice the average of that participant's total net monthly PJMSettlement bills over the past 12 months. This RPM Seller Credit shall be subject to the cap on available Unsecured Credit as established in Section II.F.

#### **G. Credit Responsibility for Traded Planned RPM Capacity Resources**

PJMSettlement may require that credit and financial responsibility for planned RPM Capacity Resources that are traded remain with the original party (which for these purposes, means the party bearing credit responsibility for the planned RPM Capacity Resource immediately prior to trade) unless the receiving party independently establishes consistent with the PJM credit policy, that it has sufficient credit with PJMSettlement and agrees by providing written notice to PJMSettlement that it will fully assume the credit responsibility associated with the traded planned RPM Capacity Resource.

### **V. FINANCIAL TRANSMISSION RIGHT AUCTIONS**

#### **A. FTR Credit Limit.**

PJMSettlement will establish an FTR Credit Limit for each Participant. Participants must maintain their FTR Credit Limit at a level equal to or greater than their FTR Credit Requirement. FTR Credit Limits will be established only by a Participant providing Financial Security.

#### **B. FTR Credit Requirement.**

For each Participant with FTR activity, PJMSettlement shall calculate an FTR Credit Requirement based on FTR cost less a discounted historical value. FTR Credit Requirements shall be further adjusted by ARR credits available and by an amount based on portfolio

diversification, if applicable. The requirement will be based on individual monthly exposures which are then used to derive a total requirement.

The FTR Credit Requirement shall be calculated by first adding for each month the FTR Monthly Credit Requirement Contribution for each submitted, accepted, and cleared FTR and then subtracting the prorated value of any ARRs held by the Participant for that month. The resulting twelve monthly subtotals represent the expected value of net payments between PJMSettlement and the Participant for FTR activity each month during the Planning Period. Subject to later adjustment by an amount based on portfolio diversification, if applicable, the FTR Credit Requirement shall be the sum of the individual positive monthly subtotals, representing months in which net payments to PJMSettlement are expected.

**C. Rejection of FTR Bids.**

Bids submitted into an auction will be rejected if the Participant's FTR Credit Requirement including such submitted bids would exceed the Participant's FTR Credit Limit, or if the Participant fails to establish additional credit as required pursuant to provisions related to portfolio diversification.

**D. FTR Credit Collateral Returns.**

A Market Participant may request from PJMSettlement the return of any collateral no longer required for the FTR auctions. PJMSettlement is permitted to limit the frequency of such requested collateral returns, provided that collateral returns shall be made by PJMSettlement at least once per calendar quarter, if requested by a Market Participant.

**E. Credit Responsibility for Traded FTRs.**

PJMSettlement may require that credit responsibility associated with an FTR traded within PJM's eFTR system remain with the original party (which for these purposes, means the party bearing credit responsibility for the FTR immediately prior to trade) unless and until the receiving party independently establishes, consistent with the PJM credit policy, sufficient credit with PJMSettlement and agrees through confirmation of the FTR trade within the eFTR system that it will meet in full the credit requirements associated with the traded FTR.

**F. Portfolio Diversification.**

Subsequent to calculating a tentative cleared solution for an FTR auction (or auction round), PJM shall both:

1. Determine the FTR Portfolio Auction Value, including the tentative cleared solution. Any Participants with such FTR Portfolio Auction Values that are negative shall be deemed FTR Flow Undiversified.
2. Measure the geographic concentration of the FTR Flow Undiversified portfolios by testing such portfolios using a simulation model including, one at a time, each planned

transmission outage or other network change which would substantially affect the network for the specific auction period. A list of such planned outages or changes anticipated to be modeled shall be posted prior to commencement of the auction (or auction round). Any FTR Flow Undiversified portfolio that experiences a net reduction in calculated congestion credits as a result of any one or more of such modeled outages or changes shall be deemed FTR Geographically Undiversified.

For portfolios that are FTR Flow Undiversified but not FTR Geographically Undiversified, PJMSettlement shall increment the FTR Credit Requirement by an amount equal to twice the absolute value of the FTR Portfolio Auction Value, including the tentative cleared solution. For Participants with portfolios that are both FTR Flow Undiversified and FTR Geographically Undiversified, PJMSettlement shall increment the FTR Credit Requirement by an amount equal to three times the absolute value of the FTR Portfolio Auction Value, including the tentative cleared solution. For portfolios that are FTR Flow Undiversified in months subsequent to the current planning year, these incremental amounts, calculated on a monthly basis, shall be reduced (but not below zero) by an amount up to 25% of the monthly value of ARR credits that are held by a Participant. Subsequent to the ARR allocation process preceding an annual FTR auction, such ARR credits shall be reduced to zero for months associated with that ARR allocation process. PJMSettlement may recalculate such ARR credits at any time, but at a minimum shall do so subsequent to each annual FTR auction. If a reduction in such ARR credits at any time increases the amount of credit required for the Participant beyond its credit available for FTR activity, the Participant must increase its credit to eliminate the shortfall.

If the FTR Credit Requirement for any Participant exceeds its credit available for FTRs as a result of these diversification requirements for the tentatively cleared portfolio of FTRs, PJMSettlement shall immediately issue a demand for additional credit, and such demand must be fulfilled before 4:00 p.m. on the business day following the demand. If any Participant does not timely satisfy such demand, PJMSettlement, in coordination with PJM, shall cause the removal that Participant's entire set of bids for that FTR auction (or auction round) and a new cleared solution shall be calculated for the entire auction (or auction round).

If necessary, PJM shall repeat the auction clearing calculation. PJM shall repeat these portfolio diversification calculations subsequent to any such secondary clearing calculation, and PJMSettlement shall require affected Participants to establish additional credit.

#### **G. FTR Administrative Charge Credit Requirement**

In addition to any other credit requirements, PJMSettlement may apply a credit requirement to cover the maximum administrative fees that may be charged to a Participant for its bids and offers.

#### **H. Long-Term FTR Credit Recalculation**

Long-term FTR Credit Requirement calculations shall be updated annually for known history, consistent with updating of historical values used for FTR Credit Requirement calculations in the annual auctions.

## **VI. EXPORT TRANSACTION SCREENING**

Export Transactions in the Real-time Energy Market shall be subject to Export Transaction Screening. Export Transaction Screening may be performed either for the duration of the entire Export Transaction, or separately for each time interval comprising an Export Transaction. PJM will deny or curtail all or a portion (based on the relevant time interval) of an Export Transaction if that Export Transaction, or portion thereof, would otherwise cause the Market Participant's Export Credit Exposure to exceed its Credit Available for Export Transactions. Export Transaction Screening shall be applied separately for each Operating Day and shall also be applied to each Export Transaction one or more times prior to the market clearing process for each relevant time interval. Export Transaction Screening shall not apply to transactions established directly by and between PJM and a neighboring Balancing Authority for the purpose of maintaining reliability.

A Market Participant's credit exposure for an individual Export Transaction shall be the MWh volume of the Export Transaction for each relevant time interval multiplied by each relevant Export Transaction Price Factor and summed over all relevant time intervals of the Export Transaction.

## **VII. FORMS OF FINANCIAL SECURITY**

Participants that provide Financial Security must provide the security in a PJMSettlement approved form and amount according to the guidelines below.

Financial Security which is no longer required to be maintained under provisions of the Agreements shall be returned at the request of a participant no later than two Business Days following determination by PJMSettlement within a commercially reasonable period of time that such collateral is not required.

Except when an event of default has occurred, a Participant may substitute an approved PJMSettlement form of Financial Security for another PJMSettlement approved form of Financial Security of equal value. The Participant must provide three (3) Business Days notice to PJMSettlement of its intent to substitute the Financial Security. PJMSettlement will release the replaced Financial Security with interest, if applicable, within (3) Business Days of receiving an approved form of substitute Financial Security.

### **A. Cash Deposit**

Cash provided by a Participant as Financial Security will be held in a depository account by PJMSettlement with interest earned at PJMSettlement's overnight bank rate, and accrued to the Participant. PJMSettlement also may establish an array of investment options among which a Participant may choose to invest its cash deposited as Financial Security. Such investment options shall be comprised of high quality debt instruments, as determined by PJMSettlement, and may include obligations issued by the federal government and/or federal government sponsored enterprises. These investment options will reside in accounts held in PJMSettlement's

name in a banking or financial institution acceptable to PJMSettlement. Where practicable, PJMSettlement may establish a means for the Participant to communicate directly with the bank or financial institution to permit the Participant to direct certain activity in the PJMSettlement account in which its Financial Security is held. PJMSettlement will establish and publish procedural rules, identifying the investment options and respective discounts in collateral value that will be taken to reflect any liquidation, market and/or credit risk presented by such investments. PJMSettlement has the right to liquidate all or a portion of the account balances at its discretion to satisfy a Participant's Total Net Obligation to PJMSettlement in the event of default under this credit policy or one or more of the Agreements.

## **B. Letter Of Credit**

An unconditional, irrevocable standby letter of credit can be utilized to meet the Financial Security requirement. As stated below, the form, substance, and provider of the letter of credit must all be acceptable to PJMSettlement.

- The letter of credit will only be accepted from U.S.-based financial institutions or U.S. branches of foreign financial institutions ("financial institutions") that have a minimum corporate debt rating of "A" by Standard & Poor's or Fitch Ratings, or "A2" from Moody's Investors Service, or an equivalent short term rating from one of these agencies. PJMSettlement will consider the lowest applicable rating to be the rating of the financial institution. If the rating of a financial institution providing a letter of credit is lowered below A/A2 by any rating agency, then PJMSettlement may require the Participant to provide a letter of credit from another financial institution that is rated A/A2 or better, or to provide a cash deposit. If a letter of credit is provided from a U.S. branch of a foreign institution, the U.S. branch must itself comply with the terms of this credit policy, including having its own acceptable credit rating.
- The letter of credit shall state that it shall renew automatically for successive one-year periods, until terminated upon at least ninety (90) days prior written notice from the issuing financial institution. If PJM or PJMSettlement receives notice from the issuing financial institution that the current letter of credit is being cancelled, the Participant will be required to provide evidence, acceptable to PJMSettlement, that such letter of credit will be replaced with appropriate Financial Security, effective as of the cancellation date of the letter of credit, no later than thirty (30) days before the cancellation date of the letter of credit, and no later than ninety (90) days after the notice of cancellation. Failure to do so will constitute a default under this credit policy and one of more of the Agreements.
- The letter of credit must clearly state the full names of the "Issuer", "Account Party" and "Beneficiary" (PJMSettlement), the dollar amount available for drawings, and shall specify that funds will be disbursed upon presentation of the drawing certificate in accordance with the instructions stated in the letter of credit. The letter of credit should specify any statement that is required to be on the drawing certificate, and any other terms and conditions that apply to such drawings.

- The PJMSettlement Credit Application contains an acceptable form of a letter of credit that should be utilized by a Participant choosing to meet its Financial Security requirement with a letter of credit. If the letter of credit varies in any way from the PJMSettlement format, it must first be reviewed and approved by PJMSettlement. All costs associated with obtaining and maintaining a letter of credit and meeting the policy provisions are the responsibility of the Participant
- PJMSettlement may accept a letter of credit from a Financial Institution that does not meet the credit standards of this policy provided that the letter of credit has third-party support, in a form acceptable to PJMSettlement, from a financial institution that does meet the credit standards of this policy.

### **VIII. POLICY BREACH AND EVENTS OF DEFAULT**

A Participant will have two Business Days from notification of Breach (including late payment notice) or notification of a Collateral Call to remedy the Breach or satisfy the Collateral Call in a manner deemed acceptable by PJMSettlement. Failure to remedy the Breach or satisfy such Collateral Call within such two Business Days will be considered an event of default. If a Participant fails to meet the requirements of this policy but then remedies the Breach or satisfies a Collateral Call within the two Business Day cure period, then the Participant shall be deemed to have complied with the policy. Any such two Business Day cure period will expire at 4:00 p.m. eastern prevailing time on the final day.

Only one cure period shall apply to a single event giving rise to a breach or default. Application of Financial Security towards a non-payment Breach shall not be considered a satisfactory cure of the Breach if the Participant fails to meet all requirements of this policy after such application.

Failure to comply with this policy (except for the responsibility of a Participant to notify PJMSettlement of a Material change) shall be considered an event of default. Pursuant to § 15.1.3(a) of the Operating Agreement of PJM Interconnection, L.L.C. and § I.7.3 of the PJM Open Access Transmission Tariff, non-compliance with the PJMSettlement credit policy is an event of default under those respective Agreements. In event of default under this credit policy or one or more of the Agreements, PJMSettlement, in coordination with PJM, will take such actions as may be required or permitted under the Agreements, including but not limited to the termination of the Participant's ongoing Transmission Service and participation in PJM Markets. PJMSettlement has the right to liquidate all or a portion of a Participant's Financial Security at its discretion to satisfy Total Net Obligations to PJMSettlement in the event of default under this credit policy or one or more of the Agreements.

PJMSettlement may hold a defaulting Participant's Financial Security for as long as such party's positions exist and consistent with the PJM credit policy in this Attachment Q, in order to protect PJM's membership from default.

No payments shall be due to a Participant, nor shall any payments be made to a Participant, while the Participant is in default or has been declared in Breach of this policy or the Agreements, or while a Collateral Call is outstanding. PJMSettlement may apply towards an



ongoing default any amounts that are held or later become available or due to the defaulting Participant through PJM's markets and systems.

In order to cover Obligations, PJMSettlement may hold a Participant's Financial Security through the end of the billing period which includes the 90th day following the last day a Participant had activity, open positions, or accruing obligations (other than reconciliations and true-ups), and until such Participant has satisfactorily paid any obligations invoiced through such period. Obligations incurred or accrued through such period shall survive any withdrawal from PJM. In event of non-payment, PJMSettlement may apply such Financial Security to such Participant's Obligations, even if Participant had previously announced and effected its withdrawal from PJM.

## **IX. DEFINITIONS:**

All capitalized terms in this Attachment Q that are not otherwise defined herein shall have the same meaning as they are defined in the Agreements.

### **Affiliate**

Affiliate is defined in the PJM Operating Agreement, §1.2.

### **Agreements**

Agreements are the Operating Agreement of PJM Interconnection, L.L.C., the PJM Open Access Transmission Tariff, the Reliability Assurance Agreement, the Reliability Assurance Agreement – West, and/or other agreements between PJM Interconnection, L.L.C. and its Members.

### **Applicant**

Applicant is an entity desiring to become a PJM Member, or to take Transmission Service that has submitted the PJMSettlement Credit Application, PJMSettlement Credit Agreement and other required submittals as set forth in this policy.

### **Breach**

Breach is the status of a Participant that does not currently meet the requirements of this policy or other provisions of the Agreements.

### **Business Day**

A Business Day is a day in which the Federal Reserve System is open for business and is not a scheduled PJM holiday.

### **Canadian Guaranty**

Canadian Guaranty is a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in Canada, and meets all of the provisions of this credit policy.

### **Capacity**

Capacity is the installed capacity requirement of the Reliability Assurance Agreement or similar such requirements as may be established.

### **Collateral Call**

Collateral Call is a notice to a Participant that additional Financial Security, or possibly early payment, is required in order to remain in, or to regain, compliance with this policy.

### **Corporate Guaranty**

Corporate Guaranty is a legal document used by one entity to guaranty the obligations of another entity.

### **Credit Available for Export Transactions**

Credit Available for Export Transactions is a set-aside of credit to be used for Export Transactions that is allocated by each Market Participant from its Credit Available for Virtual Transactions, and which reduces the Market Participant's Credit Available for Virtual Transactions accordingly.

### **Credit Available for Virtual Transactions**

A Market Participant's Credit Available for Virtual Transactions is the Market Participant's Working Credit Limit for Virtual Transactions calculated on its credit provided in compliance with its Peak Market Activity requirement plus available credit submitted above that amount, less any unpaid billed and unbilled amounts owed to PJMSettlement, plus any unpaid unbilled amounts owed by PJMSettlement to the Market Participant, less any applicable credit required for Minimum Participation Requirements, FTR, Export Transactions, or other credit requirement determinants as defined in this policy.

### **Credit-Limited Offer**

Credit-Limited Offer shall mean a Sell Offer that is submitted by a Market Seller in an RPM Auction subject to a maximum credit requirement specified by such Market Seller.

### **Credit Score**

Credit Score is a composite numerical score scaled from 0-100 as calculated by PJMSettlement that incorporates various predictors of creditworthiness.

### **Export Credit Exposure**

Export Credit Exposure is determined for each Market Participant for a given Operating Day, and is the sum of credit exposures for the Market Participant's Export Transactions for that Operating Day and for the preceding Operating Day.

### **Export Nodal Reference Price**

The Export Nodal Reference Price at each location is the 97th percentile real-time hourly integrated price experienced over the corresponding two-month period in the preceding calendar year, calculated separately for peak and off-peak time periods. The two-month time periods used in this calculation shall be January and February, March and April, May and June, July and August, September and October, and November and December.

### **Export Transaction**

An Export Transaction is a transaction by a Market Participant that results in the transfer of energy from within the PJM Control Area to outside the PJM Control Area. Coordinated

External Transactions that result in the transfer of energy from the PJM Control Area to an adjacent Control Area are one form of Export Transaction.

### **Export Transactions Net Activity**

Export Transactions Net Activity shall mean the aggregate net total, resulting from Export Transactions, of (i) Spot Market Energy charges, (ii) Transmission Congestion Charges, and (iii) Transmission Loss Charges, calculated as set forth in Attachment K-Appendix. Export Transactions Net Activity may be positive or negative.

### **Export Transaction Price Factor**

The Export Transaction Price Factor for a prospective time interval shall be the greater of (i) PJM's forecast price for the time interval, if available, or (ii) the Export Nodal Reference Price, but shall not exceed the Export Transaction's dispatch ceiling price cap, if any, for that time interval. The Export Transaction Price Factor for a past time interval shall be calculated in the same manner as for a prospective time interval, except that the Export Transaction Price Factor may use a tentative or final settlement price, as available. If an Export Nodal Reference Price is not available for a particular time interval, PJM may use an Export Transaction Price Factor for that time interval based on an appropriate alternate reference price.

### **Export Transaction Screening**

Export Transaction Screening is the process PJM uses to review the Export Credit Exposure of Export Transactions against the Credit Available for Export Transactions, and deny or curtail all or a portion of an Export Transaction, if the credit required for such transactions is greater than the credit available for the transactions.

### **Financial Close**

Financial Close shall mean the Capacity Market Seller has demonstrated that the Capacity Market Seller or its agent has completed the act of executing the material contracts and/or other documents necessary to (1) authorize construction of the project and (2) establish the necessary funding for the project under the control of an independent third-party entity. A sworn, notarized certification of an independent engineer certifying to such facts, and that the engineer has personal knowledge of, or has engaged in a diligent inquiry to determine, such facts, shall be sufficient to make such demonstration. For resources that do not have external financing, Financial Close shall mean the project has full funding available, and that the project has been duly authorized to proceed with full construction of the material portions of the project by the appropriate governing body of the company funding such project. A sworn, notarized certification by an officer of such company certifying to such facts, and that the officer has personal knowledge of, or has engaged in a diligent inquiry to determine, such facts, shall be sufficient to make such demonstration.

### **Financial Security**

Financial Security is a cash deposit or letter of credit in an amount and form determined by and acceptable to PJMSettlement, provided by a Participant to PJMSettlement as security in order to participate in the PJM Markets or take Transmission Service.

### **Foreign Guaranty**

Foreign Guaranty is a Corporate Guaranty provided by an Affiliate of a Participant that is domiciled in a foreign country, and meets all of the provisions of this credit policy.

**FTR Credit Limit**

FTR Credit Limit will be equal to the amount of credit established with PJMSettlement that a Participant has specifically designated to PJMSettlement to be set aside and used for FTR activity. Any such credit so set aside shall not be considered available to satisfy any other credit requirement the Participant may have with PJMSettlement.

**FTR Credit Requirement**

FTR Credit Requirement is the amount of credit that a Participant must provide in order to support the FTR positions that it holds and/or is bidding for. The FTR Credit Requirement shall not include months for which the invoicing has already been completed, provided that PJMSettlement shall have up to two Business Days following the date of the invoice completion to make such adjustments in its credit systems.

**FTR Flow Undiversified**

FTR Flow Undiversified shall have the meaning established in section V.G of this Attachment Q.

**FTR Geographically Undiversified**

FTR Geographically Undiversified shall have the meaning established in section V.G of this Attachment Q.

**FTR Historical Value**

FTR Historical Value – For each FTR for each month, this is the historical weighted average value over three years for the FTR path using the following weightings: 50% - most recent year; 30% - second year; 20% - third year. FTR Historical Values shall be calculated separately for on-peak, off-peak, and 24-hour FTRs for each month of the year. FTR Historical Values shall be adjusted by plus or minus ten percent (10%) for cleared counterflow or normal flow FTRs, respectively, in order to mitigate exposure due to uncertainty and fluctuations in actual FTR value.

**FTR Monthly Credit Requirement Contribution**

FTR Monthly Credit Requirement Contribution - For each FTR for each month, this is the total FTR cost for the month, prorated on a daily basis, less the FTR Historical Value for the month. For cleared FTRs, this contribution may be negative; prior to clearing, FTRs with negative contribution shall be deemed to have zero contribution.

**FTR Net Activity**

FTR Net Activity shall mean the aggregate net value of the billing line items for auction revenue rights credits, FTR auction charges, FTR auction credits, and FTR congestion credits, and shall also include day-ahead and balancing/real-time congestion charges up to a maximum net value of the sum of the foregoing auction revenue rights credits, FTR auction charges, FTR auction credits and FTR congestion credits.

**FTR Participant**

FTR Participant shall mean any Market Participant that is required to provide Financial Security in order to participate in PJM's FTR auctions.

**FTR Portfolio Auction Value**

FTR Portfolio Auction Value shall mean for each Participant (or Participant account), the sum, calculated on a monthly basis, across all FTRs, of the FTR price times the FTR volume in MW.

**Full Notice to Proceed**

Full Notice to Proceed shall mean that all material third party contractors have been given the notice to proceed with construction by the Capacity Market Seller or its agent, with a guaranteed completion date backed by liquidated damages.

**Market Participant**

Market Participant shall have the meaning provided in the Operating Agreement.

**Material**

For these purposes, material is defined in §I.B.3, Material Changes. For the purposes herein, the use of the term "material" is not necessarily synonymous with use of the term by governmental agencies and regulatory bodies.

**Member**

Member shall have the meaning provided in the Operating Agreement.

**Minimum Participation Requirements**

A set of minimum training, risk management, communication and capital or collateral requirements required for Participants in the PJM markets, as set forth herein and in the Form of Annual Certification set forth as Appendix 1 to this Attachment Q. Participants transacting in FTRs in certain circumstances will be required to demonstrate additional risk management procedures and controls as further set forth in the Annual Certification found in Appendix 1 to this Attachment Q.

**Net Obligation**

Net Obligation is the amount owed to PJMSettlement and PJM for purchases from the PJM Markets, Transmission Service, (under both Part II and Part III of the O.A.T.T.), and other services pursuant to the Agreements, after applying a deduction for amounts owed to a Participant by PJMSettlement as it pertains to monthly market activity and services. Should other markets be formed such that Participants may incur future Obligations in those markets, then the aggregate amount of those Obligations will also be added to the Net Obligation.

**Net Sell Position**

Net Sell Position is the amount of Net Obligation when Net Obligation is negative.

**Nodal Reference Price**

The Nodal Reference Price at each location is the 97th percentile price differential between hourly day-ahead and real-time prices experienced over the corresponding two-month reference period in the prior calendar year. In order to capture seasonality effects and maintain a two-

month reference period, reference months will be grouped by two, starting with January (e.g., Jan-Feb, Mar-Apr, ... , Jul-Aug, ... Nov-Dec). For any given current-year month, the reference period months will be the set of two months in the prior calendar year that include the month corresponding to the current month. For example, July and August 2003 would each use July-August 2002 as their reference period.

### **Obligation**

Obligation is all amounts owed to PJMSettlement for purchases from the PJM Markets, Transmission Service, (under both Part II and Part III of the O.A.T.T.), and other services or obligations pursuant to the Agreements. In addition, aggregate amounts that will be owed to PJMSettlement in the future for Capacity purchases within the PJM Capacity markets will be added to this figure. Should other markets be formed such that Participants may incur future Obligations in those markets, then the aggregate amount of those Obligations will also be added to the Net Obligation.

### **Operating Agreement of PJM Interconnection, L.L.C., (“Operating Agreement”)**

The Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., dated as of June 2, 1997, on file with the Federal Energy Regulatory Commission, and as revised from time to time.

### **Participant**

A Participant is a Market Participant and/or Transmission Customer and/or Applicant requesting to be an active Market Participant and/or Transmission Customer.

### **Peak Market Activity**

Peak Market Activity is a measure of exposure for which credit is required, involving peak exposures in rolling three-week periods over a year timeframe, with two semi-annual reset points, pursuant to provisions of section II.D of this Credit Policy.

### **Planned Financed Generation Capacity Resource**

Planned Financed Generation Capacity Resource shall mean a Planned Generation Capacity Resource that, prior to August 7, 2015, has an effective Interconnection Service Agreement and has submitted to the Office of the Interconnection the appropriate certification attesting achievement of Financial Close.

### **Planned External Financed Generation Capacity Resource**

Planned External Financed Generation Capacity Resource shall mean a Planned External Generation Capacity Resource that, prior to August 7, 2015, has an effective agreement that is the equivalent of an Interconnection Service Agreement, has submitted to the Office of the Interconnection the appropriate certification attesting achievement of Financial Close, and has secured at least 50 percent of the MWs of firm transmission service required to qualify such resource under the deliverability requirements of the Reliability Assurance Agreement.

### **PJM Markets**

The PJM Markets are the PJM Interchange Energy Market and the PJM Capacity markets as established by the Operating Agreement. Also any other markets that exist or may be established in the future wherein Participants may incur Obligations to PJMSettlement.

**PJM Open Access Transmission Tariff (“O.A.T.T.”)**

The Open Access Transmission Tariff of PJM Interconnection, L.L.C., on file with the Federal Energy Regulatory Commission, and as revised from time to time.

**Reliability Assurance Agreement (“R.A.A.”)**

See the definition of the Reliability Assurance Agreement (“R.A.A.”) in the Operating Agreement.

**RPM Seller Credit**

RPM Seller Credit is an additional form of Unsecured Credit defined in section IV of this document.

**Seller Credit**

A Seller Credit is a form of Unsecured Credit extended to Participants that have a consistent long-term history of selling into PJM Markets, as defined in this document.

**Tangible Net Worth**

Tangible Net Worth is all assets (not including any intangible assets such as goodwill) less all liabilities. Any such calculation may be reduced by PJMSettlement upon review of the available financial information.

**Total Net Obligation**

Total Net Obligation is all unpaid billed Net Obligations plus any unbilled Net Obligation incurred to date, as determined by PJMSettlement on a daily basis, plus any other Obligations owed to PJMSettlement at the time.

**Total Net Sell Position**

Total Net Sell Position is all unpaid billed Net Sell Positions plus any unbilled Net Sell Positions accrued to date, as determined by PJMSettlement on a daily basis.

**Transmission Customer**

Transmission Customer is an entity taking service under Part II or Part III of the O.A.T.T.

**Transmission Service**

Transmission Service is any or all of the transmission services provided by PJM pursuant to Part II or Part III of the O.A.T.T.

**Uncleared Bid Exposure**

Uncleared Bid Exposure is a measure of exposure from Increment Offers and Decrement Bids activity relative to a Participant’s established credit as defined in this policy. It is used only as a

pre-screen to determine whether a Participant's Increment Offers and Decrement Bids should be subject to Increment Offer and Decrement Bid Screening.

### **Unsecured Credit**

Unsecured Credit is any credit granted by PJMSettlement to a Participant that is not secured by a form of Financial Security.

### **Unsecured Credit Allowance**

Unsecured Credit Allowance is Unsecured Credit extended by PJMSettlement in an amount determined by PJMSettlement's evaluation of the creditworthiness of a Participant. This is also defined as the amount of credit that a Participant qualifies for based on the strength of its own financial condition without having to provide Financial Security. See also: "Working Credit Limit."

### **Up-to Congestion Counterflow Transaction**

An Up-to Congestion Transaction will be deemed an Up-to Congestion Counterflow Transaction if the following value is negative: (a) when bidding, the lower of the bid price and the prior Up-to Congestion Historical Month's average real-time value for the transaction; or (b) for cleared Virtual Transactions, the cleared day-ahead price of the Virtual Transactions.

### **Up-to Congestion Historical Month**

An Up-to Congestion Historical Month is a consistently-defined historical period nominally one month long that is as close to a calendar month as PJM determines is practical.

### **Up-to Congestion Prevailing Flow Transaction**

An Up-to Congestion Transaction will be deemed an Up-to Congestion Prevailing Flow Transaction if it is not an Up-to Congestion Counterflow Transaction.

### **Up-to Congestion Reference Price**

The Up-to Congestion Reference Price for an Up-to Congestion Transaction is the specified percentile price differential between source and sink (defined as sink price minus source price) for hourly real-time prices experienced over the prior Up-to Congestion Historical Month, averaged with the same percentile value calculated for the second prior Up-to Congestion Historical Month. Up-to Congestion Reference Prices shall be calculated using the following historical percentiles:

For Up-to Congestion Prevailing Flow Transactions: 30<sup>th</sup> percentile

For Up-to Congestion Counterflow Transactions when bid: 20<sup>th</sup> percentile

For Up-to Congestion Counterflow Transactions when cleared: 5<sup>th</sup> percentile

### **Virtual Credit Exposure**

Virtual Credit Exposure is the amount of potential credit exposure created by a market participant's bid submitted into the Day-ahead market, as defined in this policy.

### **Virtual Transaction Screening**



Virtual Transaction Screening is the process of reviewing the Virtual Credit Exposure of submitted Virtual Transactions against the Credit Available for Virtual Transactions. If the credit required is greater than credit available, then the Virtual Transactions will not be accepted.

### **Virtual Transactions Net Activity**

Virtual Transactions Net Activity shall mean the aggregate net total, resulting from Virtual Transactions, of (i) Spot Market Energy charges, (ii) Transmission Congestion Charges, and (iii) Transmission Loss Charges, calculated as set forth in Attachment K-Appendix. Virtual Transactions Net Activity may be positive or negative.

### **Working Credit Limit**

Working Credit Limit amount is 75% of the Market Participant's Unsecured Credit Allowance and/or 75% of the Financial Security provided by the Market Participant to PJMSettlement. The Working Credit Limit establishes the maximum amount of Total Net Obligation that a Market Participant may have outstanding at any time. The calculation of Working Credit Limit shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in this policy.

### **Working Credit Limit for Virtual Transactions**

The Working Credit Limit for Virtual Transactions shall be calculated as 75% of the Market Participant's Unsecured Credit Allowance and/or 75% of the Financial Security provided by the Market Participant to PJMSettlement when the Market Participant is at or below its Peak Market Activity credit requirements as specified in section II.D of this Credit Policy. When the Market Participant provides additional Unsecured Credit Allowance and/or Financial Security in excess of its Peak Market Activity credit requirements, such additional Unsecured Credit Allowance and/or Financial Security shall not be discounted by 25% when calculating the Working Credit Limit for Virtual Transactions. The Working Credit Limit for Virtual Transactions is a component in the calculation of Credit Available for Virtual Transactions. The calculation of Working Credit Limit for Virtual Transactions shall take into account applicable reductions for Minimum Participation Requirements, FTR, or other credit requirement determinants as defined in this policy.

**Appendix 1 to Attachment Q**

**PJM MINIMUM PARTICIPATION CRITERIA  
OFFICER CERTIFICATION FORM**

Participant Name: \_\_\_\_\_ ("Participant")

I, \_\_\_\_\_, a duly authorized officer of Participant, understanding that PJM Interconnection, L.L.C. and PJM Settlement, Inc. ("PJMSettlement") are relying on this certification as evidence that Participant meets the minimum requirements set forth in Attachment Q to the PJM Open Access Transmission Tariff ("PJM Tariff"), hereby certify that I have full authority to represent on behalf of Participant and further represent as follows, as evidenced by my initialing each representation in the space provided below:

1. All employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Amended and Restated Operating Agreement ("PJM Operating Agreement") on behalf of the Participant have received appropriate<sup>1</sup> training and are authorized to transact on behalf of Participant. \_\_\_\_\_
  
2. Participant has written risk management policies, procedures, and controls, approved by Participant's independent risk management function<sup>2</sup> and applicable to transactions in the PJM markets in which it participates and for which employees or agents transacting in markets or services provided pursuant to the PJM Tariff or PJM Operating Agreement have been trained, that provide an appropriate, comprehensive risk management framework that, at a minimum, clearly identifies and documents the range of risks to which Participant is exposed, including, but not limited to credit risks, liquidity risks and market risks. \_\_\_\_\_
  
3. An FTR Participant (as defined in Attachment Q to the PJM Tariff) must make either the following 3.a. or 3.b. additional representations, evidenced by the undersigned officer initialing either the one 3.a. representation or the six 3.b. representations in the spaces provided below:
  - 3.a. Participant transacts in PJM's FTR markets with the sole intent to hedge congestion risk in connection with either obligations Participant has to serve load or rights Participant has to generate electricity in the PJM Region ("physical

<sup>1</sup> As used in this representation, the term "appropriate" as used with respect to training means training that is (i) comparable to generally accepted practices in the energy trading industry, and (ii) commensurate and proportional in sophistication, scope and frequency to the volume of transactions and the nature and extent of the risk taken by the participant.

<sup>2</sup> As used in this representation, a Participant's "independent risk management function" can include appropriate corporate persons or bodies that are independent of the Participant's trading functions, such as a risk management committee, a risk officer, a Participant's board or board committee, or a board or committee of the Participant's parent company.

transactions”) and monitors all of the Participant’s FTR market activity to endeavor to ensure that its FTR positions, considering both the size and pathways of the positions, are either generally proportionate to or generally do not exceed the Participant’s physical transactions, and remain generally consistent with the Participant’s intention to hedge its physical transactions.\_\_\_\_\_

- 3.b. On no less than a weekly basis, Participant values its FTR positions and engages in a probabilistic assessment of the hypothetical risk of such positions using analytically based methodologies, predicated on the use of industry accepted valuation methodologies.\_\_\_\_\_

Such valuation and risk assessment functions are performed either by persons within Participant’s organization independent from those trading in PJM’s FTR markets or by an outside firm qualified and with expertise in this area of risk management.\_\_\_\_\_

Having valued its FTR positions and quantified their hypothetical risks, Participant applies its written policies, procedures and controls to limit its risks using industry recognized practices, such as value-at-risk limitations, concentration limits, or other controls designed to prevent Participant from purposefully or unintentionally taking on risk that is not commensurate or proportional to Participant’s financial capability to manage such risk.\_\_\_\_\_

Exceptions to Participant’s written risk policies, procedures and controls applicable to Participant’s FTR positions are documented and explain a reasoned basis for the granting of any exception.\_\_\_\_\_

Participant has provided to PJMSettlement, in accordance with Section I A. of Attachment Q to the PJM Tariff, a copy of its current governing risk management policies, procedures and controls applicable to its FTR trading activities.\_\_\_\_\_

If the risk management policies, procedures and controls applicable to Participant’s FTR trading activities submitted to PJMSettlement were submitted prior to the current certification, Participant certifies that no substantive changes have been made to such policies, procedures and controls applicable to its FTR trading activities since such submission.\_\_\_\_\_

4. Participant has appropriate personnel resources, operating procedures and technical abilities to promptly and effectively respond to all PJM communications and directions.\_\_\_\_\_
5. Participant has demonstrated compliance with the Minimum Capitalization criteria set forth in Attachment Q of the PJM Open Access Transmission Tariff that are applicable to the PJM market(s) in which Participant transacts, and is not aware of any change having occurred or being imminent that would invalidate such compliance.\_\_\_\_\_

6. All Participants must certify and initial in at least one of the four sections below:

- a. I certify that Participant qualifies as an “appropriate person” as that term is defined under Section 4(c)(3), or successor provision, of the Commodity Exchange Act or an “eligible contract participant” as that term is defined under Section 1a(18), or successor provision, of the Commodity Exchange Act. I certify that Participant will cease transacting in PJM’s Markets and notify PJMSettlement immediately if Participant no longer qualifies as an “appropriate person” or “eligible contract participant.” \_\_\_\_\_

If providing financial statements to support Participant’s certification of qualification as an “appropriate person:”

I certify, to the best of my knowledge and belief, that the financial statements provided to PJMSettlement present fairly, pursuant to such disclosures in such financial statements, the financial position of Participant as of the date of those financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$5 million total asset levels reflected in these financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. \_\_\_\_\_

If providing financial statements to support Participant’s certification of qualification as an “eligible contract participant:”

I certify, to the best of my knowledge and belief, that the financial statements provided to PJMSettlement present fairly, pursuant to such disclosures in such financial statements, the financial position of Participant as of the date of those financial statements. Further, I certify that Participant continues to maintain the minimum \$1 million total net worth and/or \$10 million total asset levels reflected in these financial statements as of the date of this certification. I acknowledge that both PJM and PJMSettlement are relying upon my certification to maintain compliance with federal regulatory requirements. \_\_\_\_\_

- b. I certify that Participant has provided an unlimited Corporate Guaranty in a form acceptable to PJM as described in Section I.C of Attachment Q from an issuer that has at least \$1 million of total net worth or \$5 million of total assets per Participant per Participant for which the issuer has issued an unlimited Corporate Guaranty. I certify that Participant will cease transacting PJM’s Markets and notify PJMSettlement immediately if issuer of the unlimited Corporate Guaranty for Participant no longer has at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. \_\_\_\_\_

I certify that the issuer of the unlimited Corporate Guaranty to Participant continues to have at least \$1 million of total net worth or \$5 million of total assets per Participant for which the issuer has issued an unlimited Corporate Guaranty. I acknowledge that PJM and PJMSettlement are relying upon my certifications to maintain compliance with federal regulatory requirements.\_\_\_\_\_

c. I certify that Participant fulfills the eligibility requirements of the Commodity Futures Trading Commission exemption order (78 F.R. 19880 – April 2, 2013) by being in the business of at least one of the following in the PJM Region as indicated below (initial those applicable):

1. Generating electric energy, including Participants that resell physical energy acquired from an entity generating electric energy:\_\_\_\_\_
2. Transmitting electric energy:\_\_\_\_\_
3. Distributing electric energy delivered under Point-to-Point or Network Integration Transmission Service, including scheduled import, export and wheel through transactions:\_\_\_\_\_
4. Other electric energy services that are necessary to support the reliable operation of the transmission system:\_\_\_\_\_

Description only if c(4) is initialed:

\_\_\_\_\_

Further, I certify that Participant will cease transacting in PJM's Markets and notify PJMSettlement immediately if Participant no longer performs at least one of the functions noted above in the PJM Region. I acknowledge that PJM and PJMSettlement are relying on my certification to maintain compliance with federal energy regulatory requirements.\_\_\_\_\_

- d. I certify that Participant has provided a letter of credit of \$5 million or more to PJMSettlement in a form acceptable to PJMSettlement as described in Section VI.B of Attachment Q that the Participant acknowledges cannot be utilized to meet its credit requirements to PJMSettlement. I acknowledge that PJM and PJMSettlement are relying on the provision of this letter of credit and my certification to maintain compliance with federal regulatory requirements.\_\_\_\_\_
7. I acknowledge that I have read and understood the provisions of Attachment Q of the PJM Tariff applicable to Participant's business in the PJM markets, including those provisions describing PJM's minimum participation requirements and the enforcement actions available to PJMSettlement of a Participant not satisfying those requirements. I acknowledge that the information provided herein is true and accurate to the best of my belief and knowledge after due investigation. In addition, by signing this Certification, I

acknowledge the potential consequences of making incomplete or false statements in this Certification. \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

## **2. DEFINITIONS**

Definitions specific to this Attachment are set forth below. In addition, any capitalized terms used in this Attachment not defined herein shall have the meaning given to such terms elsewhere in this Tariff or in the Operating Agreement or RAA. References to section numbers in this Attachment DD refer to sections of this attachment, unless otherwise specified.

### **2.1 Annual Demand Resource**

“Annual Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.1A Annual Energy Efficiency Resource**

“Annual Energy Efficiency Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.1B Annual Resource**

“Annual Resource” shall mean a Generation Capacity Resource, an Annual Energy Efficiency Resource or an Annual Demand Resource.

#### **2.1C Annual Resource Price Adder**

“Annual Resource Price Adder” shall mean, for Delivery Years starting June 1, 2014 and ending May 31, 2017, an addition to the marginal value of Unforced Capacity and the Extended Summer Resource Price Adder as necessary to reflect the price of Annual Resources required to meet the applicable Minimum Annual Resource Requirement.

#### **2.1D Annual Revenue Rate**

“Annual Revenue Rate” shall mean the rate employed to assess a compliance penalty charge on a Curtailment Service Provider under section 11.

### **2.2 Avoidable Cost Rate**

“Avoidable Cost Rate” shall mean a component of the Market Seller Offer Cap calculated in accordance with section 6.

#### **2.2.01 Balancing Ratio**

“Balancing Ratio” shall have the meaning provided in section 10A.

#### **2.2A Base Capacity Demand Resource**



“Base Capacity Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.2B Base Capacity Demand Resource Constraint**

“Base Capacity Demand Resource Constraint” for the PJM Region or an LDA, shall mean, for the 2018/2019 and 2019/2020 Delivery Years, the maximum Unforced Capacity amount, determined by PJM, of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources that is consistent with the maintenance of reliability. As more fully set forth in the PJM Manuals, PJM calculates the Base Capacity Demand Resource Constraint for the PJM Region or an LDA, by first determining a reference annual loss of load expectation (“LOLE”) assuming no Base Capacity Resources, including no Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources. The calculation for the PJM Region uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question.

For both the PJM Region and LDA analyses, PJM then models the commitment of varying amounts of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources (displacing otherwise committed generation) as interruptible from June 1 through September 30 and unavailable the rest of the Delivery Year in question and calculates the LOLE at each DR and EE level. The Base Capacity Demand Resource Constraint is the combined amount of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, stated as a percentage of the unrestricted annual peak load, that produces no more than a five percent increase in the LOLE, compared to the reference value. The Base Capacity Demand Resource Constraint shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

## **2.2C Base Capacity Demand Resource Price Decrement**

“Base Capacity Demand Resource Price Decrement” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources and the clearing price for Base Capacity Resources and Capacity Performance Resources, representing the cost to procure additional Base Capacity Resources or Capacity Performance Resources out of merit order when the Base Capacity Demand Resource Constraint is binding.

## **2.2D Base Capacity Energy Efficiency Resource**

“Base Capacity Energy Efficiency Resource” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.2E Base Capacity Resource**

“Base Capacity Resource” shall mean a Capacity Resource as described in section 5.5A(b).

## **2.2F Base Capacity Resource Constraint**

“Base Capacity Resource Reliability Constraint” for the PJM Region or an LDA, shall mean, for the 2018/2019 and 2019/2020 Delivery Years, the maximum Unforced Capacity amount, determined by PJM, of Base Capacity Resources, including Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources, that is consistent with the maintenance of reliability. As more fully set forth in the PJM Manuals, PJM calculates the above Base Capacity Resource Constraint for the PJM Region or an LDA, by first determining a reference annual loss of load expectation (“LOLE”) assuming no Base Capacity Resources, including no Base Capacity Demand Resources or Base Capacity Energy Efficiency Resources. The calculation for the PJM Region uses the weekly load distribution from the Installed Reserve Margin study for the Delivery Year in question (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a weekly load distribution (based on the Installed Reserve Margin study and the most recent load forecast for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question. Additionally, for the PJM Region and relevant LDA calculation, the weekly capacity distributions are adjusted to reflect winter ratings.

For both the PJM Region and LDA analyses, PJM models the commitment of an amount of Base Capacity Demand Resources and Base Capacity Energy Efficiency Resources equal to the Base Capacity Demand Resource Constraint (displacing otherwise committed generation). PJM then models the commitment of varying amounts of Base Capacity Resources (displacing otherwise committed generation) as unavailable during the peak week of winter and available the rest of the Delivery Year in question and calculates the LOLE at each Base Capacity Resource level. The Base Capacity Resource Constraint is the combined amount of Base Capacity Demand Resources, Base Capacity Energy Efficiency Resources and Base Capacity Resources, stated as a percentage of the unrestricted annual peak load, that produces no more than a ten percent increase in the LOLE, compared to the reference value. The Base Capacity Resource Constraint shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA

and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [one minus the pool-wide average EFORD] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

“Base Capacity Resource Price Decrement” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Resources and the clearing price for Capacity Performance Resources, representing the cost to procure additional Capacity Performance Resources out of merit order when the Base Capacity Resource Constraint is binding.

## **2.2G Base Capacity Resource Price Decrement**

“Base Capacity Resource Price Decrement” shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a difference between the clearing price for Base Capacity Resources and the clearing price for Capacity Performance Resources, representing the cost to procure additional Capacity Performance Resources out of merit order when the Base Capacity Resource Constraint is binding.

## **2.3 Base Load Generation Resource**

“Base Load Generation Resource” shall mean a Generation Capacity Resource that operates at least 90 percent of the hours that it is available to operate, as determined by the Office of the Interconnection in accordance with the PJM Manuals.

## **2.4 Base Offer Segment**

“Base Offer Segment” shall mean a component of a Sell Offer based on an existing Generation Capacity Resource, equal to the Unforced Capacity of such resource, as determined in accordance with the PJM Manuals. If the Sell Offers of multiple Market Sellers are based on a single Existing Generation Capacity Resource, the Base Offer Segments of such Market Sellers shall be determined pro rata based on their entitlements to Unforced Capacity from such resource.

## **2.5 Base Residual Auction**

“Base Residual Auction” shall mean the auction conducted three years prior to the start of the Delivery Year to secure commitments from Capacity Resources as necessary to satisfy any portion of the Unforced Capacity Obligation of the PJM Region not satisfied through Self-Supply.

## **2.6 Buy Bid**

“Buy Bid” shall mean a bid to buy Capacity Resources in any Incremental Auction.

## **2.6A Compliance Aggregation Area (CAA)**

“Compliance Aggregation Area” or “CAA” shall mean a geographic area of Zones or sub-Zones that are electrically-contiguous and experience for the relevant Delivery Year, based on Resource Clearing Prices of, for Delivery Years through May 31, 2018, Annual Resources and for the 2018/2019 Delivery Year and subsequent Delivery Years, Capacity Performance Resources, the same locational price separation in the Base Residual Auction, the same locational price separation in the First Incremental Auction, the same locational price separation in the Second Incremental Auction, or the same locational price separation in the Third Incremental Auction.

## **2.7 Capacity Credit**

“Capacity Credit” shall have the meaning specified in Schedule 11 of the Operating Agreement, including Capacity Credits obtained prior to the termination of such Schedule applicable to periods after the termination of such Schedule.

## **2.8 Capacity Emergency Transfer Limit**

“Capacity Emergency Transfer Limit” or “CETL” shall have the meaning provided in the Reliability Assurance Agreement.

## **2.9 Capacity Emergency Transfer Objective**

“Capacity Emergency Transfer Objective” or “CETO” shall have the meaning provided in the Reliability Assurance Agreement.

## **2.9A Capacity Export Transmission Customer**

“Capacity Export Transmission Customer” shall mean a customer taking point to point transmission service under Part II of this Tariff to export capacity from a generation resource located in the PJM Region that has qualified for an exception to the RPM must-offer requirement as described in section 6.6(g).

## **2.9B Capacity Import Limit**

“Capacity Import Limit” shall have the meaning provided in the Reliability Assurance Agreement.

## **2.10 Capacity Market Buyer**

“Capacity Market Buyer” shall mean a Member that submits bids to buy Capacity Resources in any Incremental Auction.

## **2.11 Capacity Market Seller**

“Capacity Market Seller” shall mean a Member that owns, or has the contractual authority to control the output or load reduction capability of, a Capacity Resource, that has not transferred

such authority to another entity, and that offers such resource in the Base Residual Auction or an Incremental Auction.

### **2.11A Capacity Performance Resource**

“Capacity Performance Resource” shall mean a Capacity Resource as described in section 5.5A(a).

### **2.11B Capacity Performance Transition Incremental Auction**

“Capacity Performance Transition Incremental Auction” shall have the meaning specified in section 5.14D.

### **2.12 Capacity Resource**

“Capacity Resource” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.13 Capacity Resource Clearing Price**

“Capacity Resource Clearing Price” shall mean the price calculated for a Capacity Resource that offered and cleared in a Base Residual Auction or Incremental Auction, in accordance with Section 5.

### **2.13A Capacity Storage Resource**

“Capacity Storage Resource” shall mean any hydroelectric power plant, flywheel, battery storage, or other such facility solely used for short term storage and injection of energy at a later time to participate in the PJM energy and/or Ancillary Services markets and which participates in the Reliability Pricing Model.

### **2.14 Capacity Transfer Right**

“Capacity Transfer Right” shall mean a right, allocated to LSEs serving load in a Locational Deliverability Area, to receive payments, based on the transmission import capability into such Locational Deliverability Area, that offset, in whole or in part, the charges attributable to the Locational Price Adder, if any, included in the Zonal Capacity Price calculated for a Locational Delivery Area.

### **2.14A Conditional Incremental Auction**

“Conditional Incremental Auction” shall mean an Incremental Auction conducted for a Delivery Year if and when necessary to secure commitments of additional capacity to address reliability criteria violations arising from the delay in a Backbone Transmission upgrade that was modeled in the Base Residual Auction for such Delivery Year.

### **2.15 CONE Area**

“CONE Area” shall mean the areas listed in section 5.10(a)(iv)(A) and any LDAs established as CONE Areas pursuant to section 5.10(a)(iv)(B).

## **2.16 Cost of New Entry**

“Cost of New Entry” or “CONE” shall mean the nominal levelized cost of a Reference Resource, as determined in accordance with section 5.

### **2.16A Credit-Limited Offer**

“Credit-Limited Offer” shall have the meaning provided in Attachment Q to this Tariff.

## **2.17 Daily Deficiency Rate**

“Daily Deficiency Rate” shall mean the rate employed to assess certain deficiency charges under sections 7, 8, 9, or 13.

## **2.18 Daily Unforced Capacity Obligation**

“Daily Unforced Capacity Obligation” shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with Schedule 8, or, as to an FRR entity, in Schedule 8.1 of the Reliability Assurance Agreement.

## **2.19 Delivery Year**

Delivery Year shall mean the Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Section 5, or pursuant to an FRR Capacity Plan.

## **2.20 Demand Resource**

“Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.21 Demand Resource Factor or DR Factor**

“Demand Resource Factor” or (“DR Factor”) shall have the meaning specified in the Reliability Assurance Agreement.

## **2.22 [Reserved for Future Use]**

## **2.23 EFORD**

“EFORD” shall have the meaning specified in the PJM Reliability Assurance Agreement.

### **2.23A Emergency Action**

“Emergency Action” shall mean any emergency action for locational or system-wide capacity shortages that either utilizes pre-emergency mandatory load management reductions or other emergency capacity, or initiates a more severe action including, but not limited to, a Voltage Reduction Warning, Voltage Reduction Action, Manual Load Dump Warning, or Manual Load Dump Action.

## **2.24 Energy Efficiency Resource**

“Energy Efficiency Resource” shall have the meaning specified in the PJM Reliability Assurance Agreement.

### **2.24.01 Environmentally-Limited Resource**

“Environmentally-Limited Resource” shall mean a resource which has a limit on its run hours imposed by a federal, state, or other governmental agency that will significantly limit its availability, on either a temporary or long-term basis. This includes a resource that is limited by a governmental authority to operating only during declared PJM capacity emergencies.

### **2.24A Extended Summer Demand Resource**

“Extended Summer Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.24B Extended Summer Resource Price Adder**

“Extended Summer Resource Price Adder” shall mean, for Delivery Years through May 31, 2018, an addition to the marginal value of Unforced Capacity as necessary to reflect the price of Annual Resources and Extended Summer Demand Resources required to meet the applicable Minimum Extended Summer Resource Requirement.

### **2.24C Sub-Annual Resource Reliability Target**

“Sub-Annual Reliability Target” for the PJM Region or an LDA, shall mean the maximum amount of the combination of Extended Summer Demand Resources and Limited Demand Resources in Unforced Capacity determined by PJM to be consistent with the maintenance of reliability, stated in Unforced Capacity, that shall be used to calculate the Minimum Annual Resource Requirement for Delivery Years through May 31, 2017 and the Sub-Annual Resource Constraint for the 2017/2018 and 2018/2019 Delivery Years. As more fully set forth in the PJM Manuals, PJM calculates the Sub-Annual Resource Reliability Target, by first determining a reference annual loss of load expectation (“LOLE”) assuming no Demand Resources. The calculation for the unconstrained portion of the PJM Region uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast and iteratively shifting the load distributions to result in the Installed Reserve Margin established for the Delivery Year in question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Installed Reserve Margin study for the Delivery Year in question). The calculation for each relevant LDA uses a daily distribution of loads under a range of weather scenarios (based on the most recent load forecast for the Delivery Year in

question) and a weekly capacity distribution (based on the cumulative capacity availability distributions developed for the Capacity Emergency Transfer Objective study for the Delivery Year in question). For the relevant LDA calculation, the weekly capacity distributions are adjusted to reflect the Capacity Emergency Transfer Limit for the Delivery Year in question.

For both the PJM Region and LDA analyses, PJM then models the commitment of varying amounts of DR (displacing otherwise committed generation) as interruptible from May 1 through October 31 and unavailable from November 1 through April 30 and calculates the LOLE at each DR level. The Extended Summer DR Reliability Target is the DR amount, stated as a percentage of the unrestricted peak load, that produces no more than a ten percent increase in the LOLE, compared to the reference value. The Sub-Annual Resource Reliability Target shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the DR Factor] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

## **2.25 Sub-Annual Resource Constraint**

“Sub-Annual Resource Constraint” shall mean, for the 2017/2018 Delivery Year and for FRR Capacity Plans the 2017/2018 and 2018/2019 Delivery Years, for the PJM Region or for each LDA for which the Office of the Interconnection is required under section 5.10(a) of this Attachment DD to establish a separate VRR Curve for a Delivery Year, a limit on the total amount of Unforced Capacity that can be committed as Limited Demand Resources and Extended Summer Demand Resources for the 2017/2018 Delivery Year in the PJM Region or in such LDA, calculated as the Sub-Annual Resource Reliability Target for the PJM Region or for such LDA, respectively, minus the Short-Term Resource Procurement Target for the PJM Region or for such LDA, respectively.

## **2.26 Final RTO Unforced Capacity Obligation**

“Final RTO Unforced Capacity Obligation” shall mean the capacity obligation for the PJM Region, determined in accordance with Schedule 8 of the Reliability Assurance Agreement.

### **2.26A [Reserved]**

## **2.27 First Incremental Auction**

“First Incremental Auction” shall mean an Incremental Auction conducted 20 months prior to the start of the Delivery Year to which it relates.

## **2.28 Forecast Pool Requirement**

“Forecast Pool Requirement” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.29 [Reserved]**



### **2.30 [Reserved]**

### **2.31 Generation Capacity Resource**

“Generation Capacity Resource” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.32 Generator Forced Outage**

“Generator Forced Outage” shall have the meaning specified in the Operating Agreement.

### **2.33 Generator Maintenance Outage**

“Generator Maintenance Outage” shall have the meaning specified in the Operating Agreement.

### **2.33A Generator Planned Outage**

“Generator Planned Outage” shall have the meaning specified in the Operating Agreement.

### **2.34 Incremental Auction**

“Incremental Auction” shall mean any of several auctions conducted for a Delivery Year after the Base Residual Auction for such Delivery Year and before the first day of such Delivery Year, including the First Incremental Auction, Second Incremental Auction, Third Incremental Auction or Conditional Incremental Auction. Incremental Auctions (other than the Conditional Incremental Auction), shall be held for the purposes of:

(i) allowing Market Sellers that committed Capacity Resources in the Base Residual Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year (due to resource retirement, resource cancellation or construction delay, resource derating, EFORD increase, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences) to submit Buy Bids for replacement Capacity Resources; and

(ii) allowing the Office of the Interconnection to reduce or increase the amount of committed capacity secured in prior auctions for such Delivery Year if, as a result of changed circumstances or expectations since the prior auction(s), there is, respectively, a significant excess or significant deficit of committed capacity for such Delivery Year, for the PJM Region or for an LDA.

### **2.35 Incremental Capacity Transfer Right**

“Incremental Capacity Transfer Right” shall mean a Capacity Transfer Right allocated to a Generation Interconnection Customer or Transmission Interconnection Customer obligated to

fund a transmission facility or upgrade, to the extent such upgrade or facility increases the transmission import capability into a Locational Deliverability Area, or a Capacity Transfer Right allocated to a Responsible Customer in accordance with Schedule 12A of the Tariff.

## **2.36 Intermittent Resource**

“Intermittent Resource” shall mean a Generation Capacity Resource with output that can vary as a function of its energy source, such as wind, solar, run of river hydroelectric power and other renewable resources.

### **2.36A Limited Demand Resource**

“Limited Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.36B Limited Demand Resource Reliability Target**

“Limited Demand Resource Reliability Target” for the PJM Region or an LDA, shall mean the maximum amount of Limited Demand Resources determined by PJM to be consistent with the maintenance of reliability, stated in Unforced Capacity that shall be used to calculate the Minimum Extended Summer Demand Resource Requirement for Delivery Years through May 31, 2017 and the Limited Resource Constraint for the 2017/2018 and 2018/2019 Delivery Years for the PJM Region or such LDA. As more fully set forth in the PJM Manuals, PJM calculates the Limited Demand Resource Reliability Target by first: i) testing the effects of the ten-interruption requirement by comparing possible loads on peak days under a range of weather conditions (from the daily load forecast distributions for the Delivery Year in question) against possible generation capacity on such days under a range of conditions (using the cumulative capacity distributions employed in the Installed Reserve Margin study for the PJM Region and in the Capacity Emergency Transfer Objective study for the relevant LDAs for such Delivery Year) and, by varying the assumed amounts of DR that is committed and displaces committed generation, determines the DR penetration level at which there is a ninety percent probability that DR will not be called (based on the applicable operating reserve margin for the PJM Region and for the relevant LDAs) more than ten times over those peak days; ii) testing the six-hour duration requirement by calculating the MW difference between the highest hourly unrestricted peak load and seventh highest hourly unrestricted peak load on certain high peak load days (e.g., the annual peak, loads above the weather normalized peak, or days where load management was called) in recent years, then dividing those loads by the forecast peak for those years and averaging the result; and (iii) (for the 2016/2017 and 2017/2018 Delivery Years) testing the effects of the six-hour duration requirement by comparing possible hourly loads on peak days under a range of weather conditions (from the daily load forecast distributions for the Delivery Year in question) against possible generation capacity on such days under a range of conditions (using a Monte Carlo model of hourly capacity levels that is consistent with the capacity model employed in the Installed Reserve Margin study for the PJM Region and in the Capacity Emergency Transfer Objective study for the relevant LDAs for such Delivery Year) and, by varying the assumed amounts of DR that is committed and displaces committed generation, determines the DR penetration level at which there is a ninety percent probability that DR will

not be called (based on the applicable operating reserve margin for the PJM Region and for the relevant LDAs) for more than six hours over any one or more of the tested peak days. Second, PJM adopts the lowest result from these three tests as the Limited Demand Resource Reliability Target. The Limited Demand Resource Reliability Target shall be expressed as a percentage of the forecasted peak load of the PJM Region or such LDA and is converted to Unforced Capacity by multiplying [the reliability target percentage] times [the Forecast Pool Requirement] times [the DR Factor] times [the forecasted peak load of the PJM Region or such LDA, reduced by the amount of load served under the FRR Alternative].

### **2.36C Limited Resource Constraint**

“Limited Resource Constraint” shall mean, for the 2017/2018 Delivery Year and for FRR Capacity Plans the 2017/2018 and Delivery Years, for the PJM Region or each LDA for which the Office of the Interconnection is required under section 5.10(a) of this Attachment DD to establish a separate VRR Curve for a Delivery Year, a limit on the total amount of Unforced Capacity that can be committed as Limited Demand Resources for the 2017/2018 Delivery Year in the PJM Region or in such LDA, calculated as the Limited Demand Resource Reliability Target for the PJM Region or such LDA, respectively, minus the Short Term Resource Procurement Target for the PJM Region or such LDA, respectively.

### **2.36D Limited Resource Price Decrement**

“Limited Resource Price Decrement” shall mean, for the 2017/2018 Delivery Year, a difference between the clearing price for Limited Demand Resources and the clearing price for Extended Summer Demand Resources and Annual Resources, representing the cost to procure additional Extended Summer Demand Resources or Annual Resources out of merit order when the Limited Resource Constraint is binding.

### **2.37 Load Serving Entity (LSE)**

“Load Serving Entity” or “LSE” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.38 Locational Deliverability Area (LDA)**

“Locational Deliverability Area” or “LDA” shall mean a geographic area within the PJM Region that has limited transmission capability to import capacity to satisfy such area’s reliability requirement, as determined by the Office of the Interconnection in connection with preparation of the Regional Transmission Expansion Plan, and as specified in Schedule 10.1 of the Reliability Assurance Agreement.

### **2.39 Locational Deliverability Area Reliability Requirement**

“Locational Deliverability Area Reliability Requirement” shall mean the projected internal capacity in the Locational Deliverability Area plus the Capacity Emergency Transfer Objective for the Delivery Year, as determined by the Office of the Interconnection in connection with

preparation of the Regional Transmission Expansion Plan, less the minimum internal resources required for all FRR Entities in such Locational Deliverability Area.

#### **2.40 Locational Price Adder**

“Locational Price Adder” shall mean an addition to the marginal value of Unforced Capacity within an LDA as necessary to reflect the price of Capacity Resources required to relieve applicable binding locational constraints.

#### **2.41 Locational Reliability Charge**

“Locational Reliability Charge” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.41A Locational UCAP**

“Locational UCAP” shall mean unforced capacity that a Member with available uncommitted capacity sells in a bilateral transaction to a Member that previously committed capacity through an RPM Auction but now requires replacement capacity to fulfill its RPM Auction commitment. The Locational UCAP Seller retains responsibility for performance of the resource providing such replacement capacity.

#### **2.41B Locational UCAP Seller**

“Locational UCAP Seller” shall mean a Member that sells Locational UCAP.

#### **2.41C Market Seller Offer Cap**

“Market Seller Offer Cap” shall mean a maximum offer price applicable to certain Market Sellers under certain conditions, as determined in accordance with section 6 of Attachment DD and section II.E of Attachment M - Appendix.

#### **2.41D Minimum Annual Resource Requirement**

“Minimum Annual Resource Requirement” shall mean, for Delivery Years through May 31, 2017, the minimum amount of capacity that PJM will seek to procure from Annual Resources for the PJM Region and for each Locational Deliverability Area for which the Office of the Interconnection is required under section 5.10(a) of this Attachment DD to establish a separate VRR Curve for such Delivery Year. For the PJM Region, the Minimum Annual Resource Requirement shall be equal to the RTO Reliability Requirement minus [the Sub-Annual Resource Reliability Target for the RTO in Unforced Capacity]. For an LDA, the Minimum Annual Resource Requirement shall be equal to the LDA Reliability Requirement minus [the LDA CETL] minus [the Sub-Annual Resource Reliability Target for such LDA in Unforced Capacity]. The LDA CETL may be adjusted pro rata for the amount of load served under the FRR Alternative.

## **2.41E Minimum Extended Summer Resource Requirement**

“Minimum Extended Summer Resource Requirement” shall mean, for Delivery Years through May 31, 2017, the minimum amount of capacity that PJM will seek to procure from Extended Summer Demand Resources and Annual Resources for the PJM Region and for each Locational Deliverability Area for which the Office of the Interconnection is required under section 5.10(a) of this Attachment DD to establish a separate VRR Curve for such Delivery Year. For the PJM Region, the Minimum Extended Summer Resource Requirement shall be equal to the RTO Reliability Requirement minus [the Limited Demand Resource Reliability Target for the PJM Region in Unforced Capacity]. For an LDA, the Minimum Extended Summer Resource Requirement shall be equal to the LDA Reliability Requirement minus [the LDA CETL] minus [the Limited Demand Resource Reliability Target for such LDA in Unforced Capacity]. The LDA CETL may be adjusted pro rata for the amount of load served under the FRR Alternative.

## **2.42 Net Cost of New Entry**

“Net Cost of New Entry” shall mean the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset, as defined in Section 5.

## **2.43 Nominated Demand Resource Value**

“Nominated Demand Resource Value” shall mean the amount of load reduction that a Demand Resource commits to provide either through direct load control, firm service level or guaranteed load drop programs. For existing Demand Resources, the maximum Nominated Demand Resource Value is limited, in accordance with the PJM Manuals, to the value appropriate for the method by which the load reduction would be accomplished, at the time the Base Residual Auction or Incremental Auction is being conducted.

## **2.43A Nominated Energy Efficiency Value**

“Nominated Energy Efficiency Value” shall mean the amount of load reduction that an Energy Efficiency Resource commits to provide through installation of more efficient devices or equipment or implementation of more efficient processes or systems.

## **2.44 [Reserved]**

## **2.45 Opportunity Cost**

“Opportunity Cost” shall mean a component of the Market Seller Offer Cap calculated in accordance with section 6.

## **2.46 Peak-Hour Dispatch**

“Peak-Hour Dispatch” shall mean, for purposes of calculating the Energy and Ancillary Services Revenue Offset under section 5 of this Attachment, an assumption, as more fully set forth in the PJM Manuals, that the Reference Resource is committed in the Day-Ahead Energy Market in

four distinct blocks of four hours of continuous output for each block from the peak-hour period beginning with the hour ending 0800 EPT through to the hour ending 2300 EPT for any day when the average day-ahead LMP for the area for which the Net Cost of New Entry is being determined is greater than, or equal to, the cost to generate (including the cost for a complete start and shutdown cycle) for at least two hours during each four-hour block, where such blocks shall be assumed to be committed independently; provided that, if there are not at least two economic hours in any given four-hour block, then the Reference Resource shall be assumed not to be committed for such block; and to the extent not committed in any such block in the Day-Ahead Energy Market under the above conditions based on Day-Ahead LMPs, is dispatched in the Real-Time Energy Market for such block if the Real-Time LMP is greater than or equal to the cost to generate under the same conditions as described above for the Day-Ahead Energy Market.

#### **2.47 Peak Season**

“Peak Season” shall mean the weeks containing the 24th through 36th Wednesdays of the calendar year. Each such week shall begin on a Monday and end on the following Sunday, except for the week containing the 36th Wednesday, which shall end on the following Friday.

#### **2.48 Percentage Internal Resources Required**

“Percentage Internal Resources Required” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.48A Performance Assessment Hour**

“Performance Assessment Hour” shall mean each whole or partial clock-hour for which an Emergency Action has been declared by the Office of the Interconnection, provided, however, that Performance Assessment Hours for a Base Capacity Resource shall not include any hours outside the calendar months of June through September.

#### **2.49 Planned Demand Resource**

“Planned Demand Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.50 Planned External Generation Capacity Resource**

“Planned External Generation Capacity Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.50A Planned Generation Capacity Resource**

“Planned Generation Capacity Resource” shall have the meaning specified in the Reliability Assurance Agreement.

#### **2.51 Planning Period**

“Planning Period” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.52 PJM Region**

“PJM Region” shall have the meaning specified in the Reliability Assurance Agreement.

## **2.53 PJM Region Installed Reserve Margin**

“PJM Region Installed Reserve Margin” shall have the meaning specified in the Operating Agreement.

## **2.54 PJM Region Peak Load Forecast**

“PJM Region Peak Load Forecast” shall mean the peak load forecast used by the Office of the Interconnection in determining the PJM Region Reliability Requirement, and shall be determined on both a preliminary and final basis as set forth in section 5.

## **2.55 PJM Region Reliability Requirement**

“PJM Region Reliability Requirement” shall mean, for purposes of the Base Residual Auction, the Forecast Pool Requirement multiplied by the Preliminary PJM Region Peak Load Forecast, less the sum of all Preliminary Unforced Capacity Obligations of FRR Entities in the PJM Region; and, for purposes of the Incremental Auctions, the Forecast Pool Requirement multiplied by the updated PJM Region Peak Load Forecast, less the sum of all updated Unforced Capacity Obligations of FRR Entities in the PJM Region.

## **2.56 Projected PJM Market Revenues**

“Projected PJM Market Revenues” shall mean a component of the Market Seller Offer Cap calculated in accordance with section 6.

## **2.57 Qualifying Transmission Upgrade**

“Qualifying Transmission Upgrade” shall mean a proposed enhancement or addition to the Transmission System that: (a) will increase the Capacity Emergency Transfer Limit into an LDA by a megawatt quantity certified by the Office of the Interconnection; (b) the Office of the Interconnection has determined will be in service on or before the commencement of the first Delivery Year for which such upgrade is the subject of a Sell Offer in the Base Residual Auction; (c) is the subject of a Facilities Study Agreement executed before the conduct of the Base Residual Auction for such Delivery Year and (d) a New Service Customer is obligated to fund through a rate or charge specific to such facility or upgrade.

## **2.58 Reference Resource**

“Reference Resource” shall mean a combustion turbine generating station, configured with two General Electric Frame 7FA turbines with inlet air cooling to 50 degrees, Selective Catalytic Reduction technology all CONE Areas, dual fuel capability, and a heat rate of 10.096 Mmbtu/MWh.

### **2.59 Reliability Assurance Agreement**

“Reliability Assurance Agreement” shall mean that certain “Reliability Assurance Agreement Among Load-Serving Entities in the PJM Region,” on file with FERC as PJM Interconnection, L.L.C. Rate Schedule FERC No.44.

### **2.60 Reliability Pricing Model Auction**

“Reliability Pricing Model Auction” or “RPM Auction” shall mean the Base Residual Auction or any Incremental Auction, or, for the 2016/2017 and 2017/2018 Delivery Years, any Capacity Performance Transition Incremental Auction.

### **2.60A Repowered / Repowering**

“Repowering” or “Repowered” shall refer to a partial or total replacement of existing steam production equipment with new technology or a partial or total replacement of steam production process and power generation equipment, or an addition of steam production and/or power generation equipment, or a change in the primary fuel being used at the plant. A resource can be considered Repowered whether or not such aforementioned replacement, addition, or fuel change provides an increase in installed capacity, and whether or not the pre-existing plant capability is formally deactivated or retired.

### **2.61 Resource Substitution Charge**

“Resource Substitution Charge” shall mean a charge assessed on Capacity Market Buyers in an Incremental Auction to recover the cost of replacement Capacity Resources.

### **2.61A Scheduled Incremental Auctions**

“Scheduled Incremental Auctions” shall refer to the First, Second, or Third Incremental Auction.

### **2.62 Second Incremental Auction**

“Second Incremental Auction” shall mean an Incremental Auction conducted ten months before the Delivery Year to which it relates.

### **2.63 Sell Offer**

“Sell Offer” shall mean an offer to sell Capacity Resources in a Base Residual Auction, Incremental Auction, or Reliability Backstop Auction.



## **2.64 [Reserved for Future Use]**

## **2.65 Self-Supply**

“Self-Supply” shall mean Capacity Resources secured by a Load-Serving Entity, by ownership or contract, outside a Reliability Pricing Model Auction, and used to meet obligations under this Attachment or the Reliability Assurance Agreement through submission in a Base Residual Auction or an Incremental Auction of a Sell Offer indicating such Market Seller’s intent that such Capacity Resource be Self-Supply. Self-Supply may be either committed regardless of clearing price or submitted as a Sell Offer with a price bid. A Load Serving Entity’s Sell Offer with a price bid for an owned or contracted Capacity Resource shall not be deemed “Self-Supply,” unless it is designated as Self-Supply and used by the LSE to meet obligations under this Attachment or the Reliability Assurance Agreement.

### **2.65A Short-Term Resource Procurement Target**

“Short-Term Resource Procurement Target” shall mean, for Delivery Years through May 31, 2018, as to the PJM Region, for purposes of the Base Residual Auction, 2.5% of the PJM Region Reliability Requirement determined for such Base Residual Auction, for purposes of the First Incremental Auction, 2% of the of the PJM Region Reliability Requirement as calculated at the time of the Base Residual Auction; and, for purposes of the Second Incremental Auction, 1.5% of the of the PJM Region Reliability Requirement as calculated at the time of the Base Residual Auction; and, as to any Zone, an allocation of the PJM Region Short-Term Resource Procurement Target based on the Preliminary Zonal Forecast Peak Load, reduced by the amount of load served under the FRR Alternative. For any LDA, the LDA Short-Term Resource Procurement Target shall be the sum of the Short-Term Resource Procurement Targets of all Zones in the LDA.

### **2.65B Short-Term Resource Procurement Target Applicable Share**

“Short-Term Resource Procurement Target Applicable Share” shall mean, for Delivery Years through May 31, 2018: (i) for the PJM Region, as to the First and Second Incremental Auctions, 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction and, as to the Third Incremental Auction for the PJM Region, 0.6 times such target; and (ii) for an LDA, as to the First and Second Incremental Auctions, 0.2 times the Short-Term Resource Procurement Target used in the Base Residual Auction for such LDA and, as to the Third Incremental Auction, 0.6 times such target.

#### **2.65B.01 Small Commercial Customer**

“Small Commercial Customer,” as used in Schedule 6 of the RAA and Attachment DD-1 of the Tariff, shall mean a commercial retail electric end-use customer of an electric distribution company that participates in a mass market demand response program under the jurisdiction of a RERRA and satisfies the definition of a “small commercial customer” under the terms of the applicable RERRA’s program, provided that the customer has an annual peak demand no greater than 100kW.

### **2.65C Sub-Annual Resource Price Decrement**

“Sub-Annual Resource Price Decrement” shall mean, for the 2017/2018 Delivery Year, a difference between the clearing price for Extended Summer Demand Resources and the clearing price for Annual Resources, representing the cost to procure additional Annual Resources out of merit order when the Sub-Annual Resource Constraint is binding.

### **2.66 Third Incremental Auction**

“Third Incremental Auction” shall mean an Incremental Auction conducted three months before the Delivery Year to which it relates.

### **2.67 [Reserved for Future Use]**

### **2.68 Unconstrained LDA Group**

“Unconstrained LDA Group” shall mean a combined group of LDAs that form an electrically contiguous area and for which a separate Variable Resource Requirement Curve has not been established under Section 5.10 of Attachment DD. Any LDA for which a separate Variable Resource Requirement Curve has not been established under Section 5.10 of Attachment DD shall be combined with all other such LDAs that form an electrically contiguous area.

### **2.69 Unforced Capacity**

“Unforced Capacity” shall have the meaning specified in the Reliability Assurance Agreement.

### **2.69A Updated VRR Curve**

“Updated VRR Curve” shall mean the Variable Resource Requirement Curve as defined in section 5.10(a) of this Attachment for use in the Base Residual Auction of the relevant Delivery Year, updated to reflect any change in the Reliability Requirement from the Base Residual Auction to such Incremental Auction, and for Delivery Years through May 31, 2018, the Short-term Resource Procurement Target applicable to the relevant Incremental Auction.

### **2.69B Updated VRR Curve Increment**

“Updated VRR Curve Increment” shall mean the portion of the Updated VRR Curve to the right of a vertical line at the level of Unforced Capacity on the x-axis of such curve equal to the net Unforced Capacity committed to the PJM Region as a result of all prior auctions conducted for such Delivery Year and adjusted, if applicable, by the reduction in Unforced Capacity commitments associated with the transition provision of section 5.14C of this Attachment DD.

### **2.69C Updated VRR Curve Decrement**

“Updated VRR Curve Decrement” shall mean the portion of the Updated VRR Curve to the left of a vertical line at the level of Unforced Capacity on the x-axis of such curve equal to the net Unforced Capacity committed to the PJM Region as a result of all prior auctions conducted for such Delivery Year and adjusted, if applicable, by the reduction in Unforced Capacity commitments associated with the transition provision of section 5.14C of this attachment DD.

## **2.70 Variable Resource Requirement Curve**

“Variable Resource Requirement Curve” shall mean a series of maximum prices that can be cleared in a Base Residual Auction for Unforced Capacity, corresponding to a series of varying resource requirements based on varying installed reserve margins, as determined by the Office of the Interconnection for the PJM Region and for certain Locational Deliverability Areas in accordance with the methodology provided in Section 5.

## **2.71 Zonal Capacity Price**

“Zonal Capacity Price” shall mean the clearing price required in each Zone to meet the demand for Unforced Capacity and satisfy Locational Deliverability Requirements for the LDA or LDAs associated with such Zone. If the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA.

## **5.5A Capacity Resource Types**

### **a) Capacity Performance Resources**

Capacity Performance Resources are Capacity Resources which, to the extent such resources cleared in a Reliability Pricing Model Auction or are otherwise committed as a Capacity Resource, are obligated to deliver energy during the relevant Delivery Year as scheduled and/or dispatched by the Office of Interconnection during the Performance Assessment Hours. As further detailed in Section 10A of this Attachment, Capacity Performance Resources that fail to meet this obligation will be subject to a Non-Performance Assessment Charge, unless excused pursuant to Section 10A(d) of this Attachment. Subject to 5.5A(a)(i)-(ii), the following types of Capacity Resources are eligible to submit a Sell Offer as a Capacity Performance Resource: internal or external Generation Capacity Resources; Annual Demand Resources; Capacity Storage Resources; Annual Energy Efficiency Resources; and Qualifying Transmission Upgrades. To the extent the underlying Capacity Resource is an external Generation Capacity Resource, such resource must meet the criteria for obtaining an exception to the Capacity Import Limit as contained in section 1.7A of the Reliability Assurance Agreement.

#### **i). Process for Support and Review of Capacity Performance Resource Offers**

- A. The Capacity Market Seller shall provide to the Office of the Interconnection and the Market Monitoring Unit, upon their request, all supporting data and information requested by either the Office of the Interconnection or the Market Monitoring Unit to evaluate whether the underlying Capacity Resource can meet the operational and performance requirements of Capacity Performance Resources. The Capacity Market Seller shall have an ongoing obligation through the closing of the offer period for the RPM Auction to update the request to reflect any material changes.
- B. The Office of the Interconnection and the Market Monitoring Unit shall review any requested supporting data and information, and the Office of the Interconnection, considering advice and recommendation from the Market Monitoring Unit, shall reject a request for a resource to offer as a Capacity Performance Resource if the Capacity Market Seller does not demonstrate that it can reasonably be expected to meet its Capacity Performance obligations consistent with the resource's offer by the relevant Delivery Year. The Office of Interconnection shall provide its

determination to reject eligibility of the resource as a Capacity Performance Resource, and notify the Market Monitoring Unit, by no later than sixty-five (65) days prior to the date on which the offer period for the applicable RPM Auction commences. A Capacity Market Seller that is dissatisfied with any determination hereunder may seek any remedies available to it from FERC; provided, however, that the Office of the Interconnection will proceed with administration of the Tariff and market rules unless and until ordered to do otherwise by FERC.

**b) Base Capacity Resources**

For the 2018/2019 and 2019/2020 Delivery Years, following types of Capacity Resources eligible to submit a Sell Offer as a Base Capacity Resource: Generation Capacity Resources, Capacity Storage Resources, Annual Demand Resources, Base Capacity Demand Resources, and Base Capacity Energy Efficiency Resources. Each resource that clears a RPM Auction as a Base Capacity Resource must provide energy output to PJM if called during Performance Assessment Hours occurring in the calendar months of June through September, including any necessary recall of such capacity and energy from service to areas outside the PJM Region. As further detailed in Section 10A of this Attachment, Base Capacity Resources that fail to meet this obligation will be subject to a Non-Performance Assessment Charge, unless excused pursuant to Section 10A(d) of this section.

## 5.6 Sell Offers

Sell Offers shall be submitted or withdrawn via the internet site designated by the Office of the Interconnection, under the procedures and time schedule set forth in the PJM Manuals.

### 5.6.1 Specifications

A Sell Offer shall state quantities in increments of 0.1 megawatts and shall specify, as appropriate:

a) Identification of the Generation Capacity Resource, Demand Resource, Capacity Storage Resource or Energy Efficiency Resource on which such Sell Offer is based;

b) Minimum and maximum megawatt quantity of installed capacity that the Capacity Market Seller is willing to offer (notwithstanding such specification, the product offered shall be Unforced Capacity), or designate as Self-Supply, from a Generation Capacity Resource;

i) Price, in dollars and cents per megawatt-day, that will be accepted by the Capacity Market Seller for the megawatt quantity of Unforced Capacity offered from such Generation Capacity Resource.

ii) The Sell Offer may take the form of offer segments with varying price-quantity pairs for varying output levels from the underlying resource, but may not take the form of an offer curve with nonzero slope.

c) EFORd of each Generation Capacity Resource offered.

i) If a Capacity Market Seller is offering such resource in a Base Residual Auction, First Incremental Auction, Second Incremental Auction, or Conditional Incremental Auction occurring before the Third Incremental Auction, the Capacity Market Seller shall specify the EFORd to apply to the offer.

ii) If a Capacity Market Seller is committing the resource as Self-Supply, the Capacity Market Seller shall specify the EFORd to apply to the commitment.

iii) The EFORd applied to the Third Incremental Auction will be the final EFORd established by the Office of the Interconnection six (6) months prior to the Delivery Year, based on the actual EFORd in the PJM Region during the 12-month period ending September 30 that last precedes such Delivery Year.

d) The Nominated Demand Resource Value for each Demand Resource offered and the Nominated Energy Efficiency Value for each Energy Efficiency Resource offered. The Office of the Interconnection shall, in both cases, convert such value to an Unforced Capacity basis by multiplying such value by the DR Factor (for Delivery Years through May 31, 2018) times the Forecast Pool Requirement. Demand Resources shall specify the LDA in which the Demand Resource is located, including the location of such resource within any Zone that includes more than one LDA as identified on Schedule 10.1 of the RAA.

e) For Delivery Years through May 31, 2018, a Demand Resource with the potential to qualify as two or more of a Limited Demand Resource, Extended Summer Demand Resource or Annual Demand Resource may submit separate but coupled Sell Offers for each Demand Resource type for which it qualifies at different prices and the auction clearing algorithm will select the Sell Offer that yields the least-cost solution. For such coupled Demand Resource offers, the offer price of an Annual Demand Resource offer must be at least \$.01 per MW-day greater than the offer price of a coupled Extended Summer Demand Resource offer and the offer price of a Extended Summer Demand Resource offer must be at least \$.01 per MW-day greater than the offer price of a coupled Limited Demand Resource offer.

f) For a Qualifying Transmission Upgrade, the Sell Offer shall identify such upgrade, and the Office of the Interconnection shall determine and certify the increase in CETL provided by such upgrade. The Capacity Market Seller may offer the upgrade with an associated increase in CETL to an LDA in accordance with such certification, including an offer price that will be accepted by the Capacity Market Seller, stated in dollars and cents per megawatt-day as a price difference between a Capacity Resource located outside such an LDA and a Capacity Resource located inside such LDA; and the increase in CETL into such LDA to be provided by such Qualifying Transmission Upgrade, as certified by the Office of the Interconnection.

g) For the 2018/2019 and 2019/2020 Delivery Years, each Capacity Market Seller owning or controlling a resource that qualifies as both a Base Capacity Resource and a Capacity Performance Resource may submit separate but coupled Sell Offers for such resource as a Base Capacity Resource and as a Capacity Performance Resource, at different prices, and the auction clearing algorithm will select the Sell Offer that yields the least-cost solution. Submission of a coupled Base Capacity Resource Sell Offer shall be mandatory for any Capacity Performance Resource Sell Offer that exceeds a Sell Offer Price equal to the applicable Net Cost of New Entry times the Balancing Ratio as provided for in section 6.4. For such coupled Sell Offers, the offer price of a Capacity Performance Resource offer must be at least \$.01 per MW-day greater than the offer price of a coupled Base Capacity Resource offer.

(h) For the 2018/2019 Delivery Year and subsequent Delivery Years, a Capacity Market Seller that owns or controls one or more Capacity Storage Resources, Intermittent Resources, Demand Resources, or Energy Efficiency Resources may submit a Sell Offer as a Capacity Performance Resource in a MW quantity consistent with their average expected output during peak-hour periods. Alternatively, for the 2018/2019 Delivery Year and subsequent Delivery Years, a Capacity Market Seller that owns or controls one or more Capacity Storage Resources, Intermittent Resources, Demand Resources, Energy Efficiency Resources, or Environmentally-Limited Resources located within the same modeled Locational Deliverability Area may submit a Sell Offer which represents the aggregated Unforced Capacity value of such resources. **Such aggregated resources shall be** owned by or under contract to the Capacity Market Seller, including all such resources obtained through bilateral contract and reported to the Office of the Interconnection in accordance with the Office of the Interconnection's rules related to its eRPM tools. For the 2018/2019 and 2019/2020 Delivery Years, any such offer may be submitted as Capacity Performance Resource, Base Capacity Resource, or as a coupled offer for Capacity Performance Resource and Base Capacity Resource, provided that, for any such coupled Sell Offers, the offer price of a Capacity Performance Resource offer must be at least

\$.01 per MW-day greater than the offer price of a coupled Base Capacity Resource offer. For the 2020/2021 Delivery Year and subsequent Delivery Years, any such offer must be submitted as a Capacity Performance Resource.

### **5.6.2 Compliance with PJM Credit Policy**

Capacity Market Sellers shall comply with the provisions of the PJM Credit Policy as set forth in Attachment Q to this Tariff, including the provisions specific to the Reliability Pricing Model, prior to submission of Sell Offers in any Reliability Pricing Model Auction. A Capacity Market Seller desiring to submit a Credit-Limited Offer shall specify in its Sell Offer the maximum auction credit requirement, in dollars, and the maximum amount of Unforced Capacity, in megawatts, applicable to its Sell Offer.

### **5.6.3 [reserved]**

### **5.6.4 Qualifying Transmission Upgrades**

A Qualifying Transmission Upgrade may not be the subject of any Sell Offer in a Base Residual Auction unless it has been approved by the Office of the Interconnection, including certification of the increase in Import Capability to be provided by such Qualifying Transmission Upgrade, no later than 45 days prior to such Base Residual Auction. No such approval shall be granted unless, at a minimum, a Facilities Study Agreement has been executed with respect to such upgrade, and such upgrade conforms to all applicable standards of the Regional Transmission Expansion Plan process.

### **5.6.5 Market-based Sell Offers**

Subject to section 6, a Market Seller authorized by FERC to sell electric generating capacity at market-based prices, or that is not required to have such authorization, may submit Sell Offers that specify market-based prices in any Base Residual Auction or Incremental Auction.

### **5.6.6 Availability of Capacity Resources for Sale**

(a) The Office of the Interconnection shall determine the quantity of megawatts of available installed capacity that each Capacity Market Seller must offer in any RPM Auction pursuant to Section 6.6 of Attachment DD, through verification of the availability of megawatts of installed capacity from: (i) all Generation Capacity Resources owned by or under contract to the Capacity Market Seller, including all Generation Capacity Resources obtained through bilateral contract; (ii) the results of prior Reliability Pricing Model Auctions, if any, for such Delivery Year (including consideration of any restriction imposed as a consequence of a prior failure to offer); and (iii) such other information as may be available to the Office of the Interconnection. The Office of the Interconnection shall reject Sell Offers or portions of Sell Offers for Capacity Resources in excess of the quantity of installed capacity from such Capacity Market Seller's Capacity Resource that it determines to be available for sale.

(b) The Office of the Interconnection shall determine the quantity of installed capacity available for sale in a Base Residual Auction or Incremental Auction as of the beginning of the period during which Buy Bids and Sell Offers are accepted for such auction, as



applicable, in accordance with the time schedule set forth in the PJM Manuals. Removal of a resource from Capacity Resource status shall not be reflected in the determination of available installed capacity unless the associated unit-specific bilateral transaction is approved, the designation of such resource (or portion thereof) as a network resource for the external load is demonstrated to the Office of the Interconnection, or equivalent evidence of a firm external sale is provided prior to the deadline established therefor. The determination of available installed capacity shall also take into account, as they apply in proportion to the share of each resource owned or controlled by a Capacity Market Seller, any approved capacity modifications, and existing capacity commitments established in a prior RPM Auction, an FRR Capacity Plan, Locational UCAP transactions and/or replacement capacity transactions under this Attachment DD. To enable the Office of the Interconnection to make this determination, no bilateral transactions for Capacity Resources applicable to the period covered by an auction will be processed from the beginning of the period for submission of Sell Offers and Buy Bids, as appropriate, for that auction until completion of the clearing determination for such auction. Processing of such bilateral transactions will reconvene once clearing for that auction is completed. A Generation Capacity Resource located in the PJM Region shall not be removed from Capacity Resource status to the extent the resource is committed to service of PJM loads as a result of an RPM Auction, FRR Capacity Plan, Locational UCAP transaction and/or by designation as a replacement resource under this Attachment DD.

(c) In order for a bilateral transaction for the purchase and sale of a Capacity Resource to be processed by the Office of the Interconnection, both parties to the transaction must notify the Office of the Interconnection of the transfer of the Capacity Resource from the seller to the buyer in accordance with procedures established by the Office of the Interconnection and set forth in the PJM Manuals. If a material change with respect to any of the prerequisites for the application of Section 5.6.6 to the Generation Capacity Resource occurs, the Capacity Resource Owner shall immediately notify the Market Monitoring Unit and the Office of the Interconnection.

## **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) [Reserved for Future Use]

(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 Test**

(a) [Reserved for Future Use]

(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 unforced 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/day of unforced capacity, provided, however, that the Market Seller Offer Cap for any Capacity Performance Resource shall be the product of (the Net Cost of New Entry applicable for the Delivery Year and Locational Deliverability Area for which such Capacity Performance Resource is offered times the average of the Balancing Ratios in the three consecutive calendar years (during the Performance Assessment Hours in such calendar years) that precede the Base Residual Auction for such Delivery Year), and provided further that the submission of a Sell Offer with an Offer Price at or below the revised Market Seller Offer Cap permitted under this proviso shall not, in and of itself, be deemed an exercise of market power in the RPM market. Notwithstanding the previous sentence, a Capacity Market Seller may seek and obtain a Market Seller Offer Cap for a Capacity Performance Resource that exceeds the revised Market Seller Offer Cap permitted under the prior sentence, if it supports and obtains approval of such alternative offer cap pursuant to the procedures and standards of paragraph (b) of this section 6.4. 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 provide to the Market Monitoring Unit and the Office of the Interconnection data and documentation required under section 6.7 to establish the level of the Market Seller Offer Cap applicable to each resource by no later than one hundred twenty (120) days prior to the commencement of the offer period for the applicable RPM Auction. The Capacity Market Seller must promptly address any concerns identified by the Market Monitoring Unit regarding the data and documentation provided, review the Market Seller Offer Cap proposed by the Market Monitoring Unit, and attempt to reach agreement with the Market Monitoring Unit on the level of the Market Seller Offer Cap by no later than ninety (90) days prior to the commencement of

the offer period for the applicable RPM Auction. The Capacity Market Seller shall notify the Market Monitoring Unit in writing, with a copy to the Office of the Interconnection, whether an agreement with the Market Monitoring Unit has been reached or, if no agreement has been reached, specifying the level of Market Seller Offer Cap to which it commits by no later than eighty (80) days prior to the commencement of the offer period for the applicable RPM Auction. The Office of the Interconnection shall review the data submitted by the Capacity Market Seller, make a determination whether to accept or reject the requested unit-specific Market Seller Offer Cap, and notify the Capacity Market Seller and the Market Monitoring Unit of its determination in writing, by no later than sixty-five (65) days prior to the commencement of the offer period for the applicable RPM Auction. If the Market Monitoring Unit does not provide its determination to the Capacity Market Seller and the Office of the Interconnection by the specified deadline, by no later than sixty-five (65) days prior to the commencement of the offer period for the applicable RPM Auction the Office of the Interconnection will make the determination of the level of the Market Seller Offer Cap, which shall be deemed to be final. If the Capacity Market Seller does not notify the Market Monitoring Unit and the Office of the Interconnection of the Market Seller Offer Cap it desires to utilize by no later than eighty (80) days prior to the commencement of the offer period for the applicable RPM Auction, it shall be required to utilize a Market Seller Offer Cap determined using the applicable default Avoidable Cost Rate specified in section 6.7(c).

(c) 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.

(d) For any Third Incremental Auction for Delivery Years through the 2017/2018 Delivery Year, 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. For any Third Incremental Auction for the 2018/2019 or 2019/2020 Delivery Years, the Market Seller Offer Cap for an Existing Generation Capacity Resource offering as a Base 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. For any Third Incremental Auction for the 2018/2019 Delivery Year or any subsequent Delivery Year, the Market Seller Offer Cap for an Existing Generation Capacity Resource offering as a Capacity Performance 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 the greater of the Net Cost of New Entry for the relevant LDA and Delivery Year or 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 Capacity Resource

Mitigation will be applied on a unit-specific basis and only if the Sell Offer of Unforced Capacity from an Existing 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 any Base Residual Auction or Incremental Auction 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 are Existing Generation Capacity Resources in the auctions for any Delivery Year following the Delivery Year for which such resource cleared an RPM Auction. 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. Notwithstanding the foregoing, a Generation Capacity Resource for which construction has not commenced and which would otherwise have been treated as a Planned Generation Capacity Resource but for the fact that it was bid into RPM Auctions for at least two consecutive Delivery Years, and cleared the last such auction only because it was considered existing and its mitigated offer cap was accepted when its price offer would not have otherwise been accepted, shall be deemed to be a Planned Generation Capacity Resource.

(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 in writing by the Office of the Interconnection by no later than one (1) business day after the close of the offer period for the applicable RPM Auction and allowed an opportunity to submit a revised Sell Offer that does not exceed such threshold within one business (1) day of the Office of the Interconnection's rejection of such Sell Offer. If such revised Sell Offer is accepted by the Office of the Interconnection, 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 of the installed capacity of all Existing Generation Capacity Resources located in the PJM Region shall be offered by the Capacity Market Seller that owns or controls all or part of such resource (which may include submission as Self-Supply) in all RPM Auctions for each Delivery Year, less any amount determined by the Office of the Interconnection to be eligible for an exception to the must-offer requirement, where installed capacity is determined as of the date on which bidding commences for each RPM Auction pursuant to Section 5.6.6 of Attachment DD of the Tariff. The Unforced Capacity of such resources is determined using the EFORD value that is submitted by the Capacity Market Seller in its Sell Offer, which shall not exceed the maximum EFORD for that resource as defined in Section 6.6(b). If a resource should be included on the list of Existing Generation Capacity Resources subject to the must-offer requirement that is maintained by the Market Monitoring

Unit pursuant to Section II.C.1 of Attachment M – Appendix of the Tariff, but is omitted therefrom whether by mistake of the Market Monitoring Unit or failure of the Capacity Market Seller that owns or controls all or part of such resource to provide information about the resource to the Market Monitoring Unit, this shall not excuse such resource from the must-offer requirement.

(b) For each Existing Generation Capacity Resource, a potential Capacity Market Seller must timely provide to the Market Monitoring Unit and the Office of the Interconnection all data and documentation required under section 6.6 to establish the maximum EFORD applicable to each resource in accordance with standards and procedures specified in the PJM Manuals. The maximum EFORD that may be used in a Sell Offer for RPM Auctions held prior to the date on which the final EFORDs used for a Delivery Year are posted, is the greater of (i) the average EFORD for the five consecutive years ending on the September 30 that last precedes the Base Residual Auction, or (ii) the EFORD for the 12 months ending on the September 30 that last precedes the Base Residual Auction.

Notwithstanding the foregoing, a Capacity Market Seller may request an alternate maximum EFORD for Sell Offers submitted in such auctions if it has a documented, known reason that would result in an increase in its EFORD, by submitting a written request to the Market Monitoring Unit and Office of the Interconnection, along with data and documentation required to support the request for an alternate maximum EFORD, by no later one hundred twenty (120) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year. The Capacity Market Seller must address any concerns identified by the Market Monitoring Unit and/or the Office of the Interconnection regarding the data and documentation provided and attempt to reach agreement with the Market Monitoring Unit on the level of the alternate maximum EFORD by no later than ninety (90) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year. As further described in Section II.C of Attachment M-Appendix, the Market Monitoring Unit shall notify the Capacity Market Seller and the Office of the Interconnection in writing of its determination of the requested alternate maximum EFORD by no later than ninety (90) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year. By no later than eighty (80) days prior to the commencement of the offer period for the Base Residual Auction for the applicable Delivery Year, the Capacity Market Seller shall notify the Office of the Interconnection and the Market Monitoring Unit in writing whether it agrees with the Market Monitoring Unit on the alternate maximum EFORD or, if no agreement has been reached, specifying the level of alternate maximum EFORD to which it commits. If a Capacity Market Seller fails to request an alternate maximum EFORD prior to the specified deadlines, the maximum EFORD for the applicable RPM Auction shall be deemed to be the default EFORD calculated pursuant to this section.

The maximum EFORD that may be used in a Sell Offer for Third Incremental Auctions, and for Conditional Incremental Auctions held after the date on which the final EFORD used for a Delivery Year is posted, is the EFORD for the 12 months ending on the September 30 that last precedes the submission of such offers.

(c) [Reserved for Future Use]

(d) In the event that a Capacity Market Seller and the Market Monitoring Unit cannot agree on the maximum level of the alternate EFORD that may be used in a Sell Offer for RPM Auctions held prior to the date on which the final EFORDs used for a Delivery Year are posted, the Office of the Interconnection shall make its own determination of the maximum level of the alternate EFORD based on the requirements of the Tariff and the PJM Manuals, per Section 5.8 of Attachment DD, by no later than sixty-five (65) days prior to the commencement of the offer period for the Base Residual for the applicable Delivery Year, and shall notify the Capacity Market Seller and the Market Monitoring Unit in writing of such determination.

(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 for an RPM Auction held prior to the date on which the final EFORD used for a Delivery Year is posted, 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) A Capacity Market Seller that owns or controls an existing generation resource in the PJM Region that is capable of qualifying as an Existing Generation Capacity Resource as of the date on which bidding commences for an RPM Auction may not avoid the rule in subsection (a) or be removed from Capacity Resource status 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 for that RPM Auction. However, generation resource may qualify for an exception to the must-offer requirement, as shown by appropriate documentation, if the Capacity Market Seller that owns or controls such resource demonstrates that it: (i) is reasonably expected to be physically unable to participate in the relevant Delivery Year; (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.

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, without regard to whether the Office of the Interconnection has requested the Capacity Market Seller to continue to operate the resource beyond its desired deactivation date in accordance with Section 113.2 of the PJM Tariff for the purpose of maintaining the reliability of the PJM Transmission System and the Capacity Market Seller has agreed to do so;



- B. Significant physical operational restrictions 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;
- C. The Capacity 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; or
- D. A resource considered an Existing Generating Capacity Resource because it cleared an RPM Auction for a Delivery Year prior to the Delivery Year of the relevant auction, but which is not yet in service, is unable to achieve full commercial operation prior to the Delivery Year of the relevant auction. The Capacity Market Seller must submit to the Office of the Interconnection and the Market Monitoring Unit a written sworn, notarized statement of a corporate officer certifying that the resource will not be in full commercial operation prior to the referenced Delivery Year.

In order to establish that a resource has a financially and physically firm commitment to an external sale of its capacity as set forth in (ii) above, the Capacity Market Seller must demonstrate that it has entered into a unit-specific bilateral transaction for service to load located outside the PJM Region, by a demonstration that such resource is identified on a unit-specific basis as a network resource under the transmission tariff for the control area applicable to such external load, or by an equivalent demonstration of a financially and physically firm commitment to an external sale. The Capacity Market Seller additionally shall identify the megawatt amount, export zone, and time period (in days) of the export.

A Capacity Market Seller that seeks to remove a Generation Capacity Resource from PJM Capacity Resource status and/or seeks approval for an exception to the must-offer requirement, for any reason other than the reason specified in Paragraph A above, shall first submit such request in writing, along with all supporting data and documentation, to the Market Monitoring Unit for evaluation, notifying the Office of the Interconnection by copy of the same, by no later than one hundred twenty (120) days prior to the commencement of the offer period for the applicable RPM Auction.

In order to obtain an exception to the must-offer requirement for the reason specified in Paragraph A above, a Capacity Market Seller shall first submit a preliminary exception request in writing, along with supporting data and documentation indicating the reasons and conditions upon which the Capacity Market Seller is relying in its analysis of whether to retire such resource, to the Market Monitoring Unit for evaluation, notifying the Office of the Interconnection by copy of the same, by no later than (a) November 1, 2013 for the Base Residual Auction for the 2017/2018 Delivery Year, (b) the September 1 that last precedes the Base Residual Auction for the 2018/2019 and subsequent Delivery Years, and (c) two hundred forty (240) days prior to the commencement of the offer period for the applicable Incremental Auction. By no later than five (5) business days after receipt of any such preliminary exception requests, the Office of the Interconnection will post on its website a summary of the number of megawatts of Generation Capacity Resources for which it has received notification of

preliminary exception requests, on an aggregate basis by Zone and Locational Deliverability Area that comprises a subset of a Zone, as specified in the PJM Manuals.

Thereafter, as applicable, such Capacity Market Seller shall by no later than (a) the December 1 that last precedes the Base Residual Auction for the applicable Delivery Year, or (b) one hundred twenty (120) days prior to the commencement of the offer period for the applicable Incremental Auction, either (a) notify the Office of the Interconnection and the Market Monitoring Unit in writing that it is withdrawing its preliminary exception request and explaining the changes to its analysis of whether to retire such resource that support its decision to withdraw, or (b) demonstrate that it has met the requirements specified under Paragraph A above. By no later than five (5) business days after receipt of such notification, the Office of the Interconnection will post on its website a revised summary of the number of megawatts of Generation Capacity Resources for which it has received requests for exceptions to the must-offer requirement for the reason specified in Paragraph A above, on an aggregate basis by Zone and Locational Deliverability Area that comprises a subset of a Zone, as specified in the PJM Manuals.

A Capacity Market Seller may only remove the Generation Capacity Resource from PJM Capacity Resource status if (i) the Market Monitoring Unit has determined that the Generation Capacity Resource meets the applicable criteria set forth in Sections 5.6.6 and 6.6 of Attachment DD and the Office of the Interconnection agrees with this determination, or (ii) the Commission has issued an order terminating the Capacity Resource status of the resource. Nothing herein shall require a Market Seller to offer its resource into an RPM Auction prior to seeking to remove a resource from Capacity Resource status, subject to satisfaction of Section 6.6.

If the Capacity Market Seller disagrees with the Market Monitoring Unit's determination of its request to remove a resource from Capacity Resource status or its request for an exception to the must-offer requirement, it must notify the Market Monitoring Unit in writing, with a copy to the Office of the Interconnection, of the same by no later than eighty (80) days prior to the commencement of the offer period for the applicable RPM Auction. After the Market Monitoring Unit has made its determination of whether a resource has satisfied the must-offer requirement or meets one of the exceptions thereto and has notified the Capacity Market Seller and the Office of the Interconnection of the same pursuant to Section II.C.4 of Attachment M – Appendix, the Office of the Interconnection shall approve or deny the exception request. The exception request shall be deemed to be approved by the Office of the Interconnection, consistent with the determination of the Market Monitoring Unit, unless the Office of the Interconnection notifies the Capacity Market Seller and Market Monitoring Unit, by no later than sixty-five (65) days prior to the date on which the offer period for the applicable RPM Auction commences, that the exception request is denied.

If the Market Monitoring Unit does not timely notify the Capacity Market Seller and the Office of the Interconnection of its determination of the request to remove a Generation Capacity Resource from Capacity Resource status or for an exception to the must-offer requirement, the Office of the Interconnection shall make the determination whether the request shall be approved or denied, and will notify the Capacity Market Seller of its determination in writing, with a copy to the Market Monitoring Unit, by no later than sixty-five (65) days prior to the date on which the offer period for the applicable RPM Auction commences.

After the Market Monitoring Unit and the Office of the Interconnection have made their determinations of whether a resource meets the criteria to qualify for an exception to the must-offer requirement, the Capacity Market Seller must notify the Market Monitoring Unit and the Office of the Interconnection whether it intends to exclude from its Sell Offer some or all of the subject capacity on the basis of an identified exception by no later than sixty-five (65) days prior to the date on which the offer period for the applicable RPM Auction commences. PJM does not make determinations of whether withholding of capacity constitutes market power. 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.

If a Capacity Market Seller doesn't timely seek to remove a Generation Capacity Resource from Capacity Resource status or timely submit a request for an exception to the must-offer requirement, the Generation Capacity Resource shall only be removed from Capacity Resource status, and may only be approved for an exception to the must-offer requirement, upon the Capacity Market Seller requesting and receiving an order from FERC, prior to the close of the offer period for the applicable RPM Auction, directing the Office of the Interconnection to remove the resource from Capacity Resource status and/or granting an exception to the must-offer requirement or a waiver of the must-offer requirement as to such resource.

(h) Any existing generation resource located in the PJM Region that satisfies the criteria in the definition of Existing Generation Capacity Resource as of the date on which bidding commences for the Base Residual Auction for a Delivery Year, that is not offered into such Base Residual Auction, and that does not meet any of the exceptions stated in the prior subsection (g): (i) may not participate in any subsequent Incremental Auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year for the capacity of such Generation Capacity Resources; 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.

All generation resources located in the PJM Region that satisfy the criteria in the definition of Existing Generation Capacity Resource as of the date on which bidding commences for an Incremental Auction for a particular Delivery Year, but that did not satisfy such criteria as of the date that on which bidding commenced in the Base Residual Auction for that Delivery Year, that is not offered into that Incremental Auction, and that does not meet any of the exceptions stated in the prior subsection (g): (i) may not participate in any subsequent Incremental Auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year for the capacity of such Generation Capacity Resources; 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.

All Existing Generation Capacity Resources that are offered into a Base Residual Auction or Incremental Auction for a particular Delivery Year but do not clear in such auction, that are not offered into each subsequent Incremental Auction, and that do not meet any of the exceptions stated in the prior subsection (g): (i) may not participate in any Incremental Auctions conducted for such Delivery Year subsequent to such failure to offer; (ii) shall not receive any payments under section 5.14 for such Delivery Year for the capacity of such Generation Capacity Resources; 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.

Any such Existing Generation Capacity Resources may also be subject to further action by the Market Monitoring Unit under the terms of Attachment M and Attachment M – Appendix.

(i) In addition to the remedies set forth in subsections (g) and (h) above, 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, for which the Office of the Interconnection has not approved an exception to the must-offer requirement, into an RPM Auction as required by this Section 6.6 would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction, and the Office of the Interconnection agrees with that determination, 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 relevant RPM Auction, or for other appropriate relief, and PJM will postpone clearing the auction pending FERC's decision on the matter. If the Office of the Interconnection disagrees with the Market Monitoring Unit's determination and does not apply to FERC for an order directing the Capacity Market Seller to participate in the auction or for other appropriate relief, the Market Monitoring Unit may exercise its powers to inform Commission staff of its concerns and to seek appropriate relief.

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

(a) For the 2018/2019 Delivery Year and subsequent Delivery Years, the installed capacity of every Generation Capacity Resource located in the PJM Region that is capable (or that reasonably can become capable) of qualifying as a Capacity Performance Resource shall be offered as a Capacity Performance Resource by the Capacity Market Seller that owns or controls all or part of such resource (which may include submission as Self-Supply) in all RPM Auctions for each such Delivery Year, less any amount determined by the Office of the Interconnection to be eligible for an exception to the must-offer requirement, where installed capacity is determined as of the date on which bidding commences for each RPM Auction pursuant to Section 5.6.6 of Attachment DD of the Tariff.

(b) Determinations of EFORD and Unforced Capacity made under section 6.6 hereof as to a Generation Capacity Resource shall govern the offers required under this section as to the same Generation Capacity Resource.

(c) Exceptions to the requirement in subsection (a) shall be permitted only for a resource which the Capacity Market Seller demonstrates is reasonably expected to be physically incapable of satisfying the requirements of a Capacity Performance Resource. Intermittent Resources, Capacity Storage Resources, Demand Resources, and Energy Efficiency Resources

shall not be required to offer as a Capacity Performance Resource, but shall not be precluded from being offered as a Capacity Performance Resource at a level that demonstrably satisfies such requirements. Exceptions shall be determined using the same timeline and procedures as specified in section 6.6.

(d) A resource not exempted or excepted under subsection (c) hereof that is capable of qualifying as a Capacity Performance Resource and does not offer into an RPM Auction as a Capacity Performance Resource shall be subject to the same restrictions on subsequent offers, and other possible remedies, as specified in section 6.6.

## **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 and the Office of the Interconnection no later than one hundred twenty (120) days 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. A potential participant intending to offer any Capacity Performance Resource choosing an offer cap at or below the Net Cost of New Entry must provide the associated offer cap and the MW to which the offer cap applies.

(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 request a unit specific Avoidable Cost Rate shall, in addition, submit the following data, together with supporting documentation for each item, to the Market Monitoring Unit no later than one hundred twenty (120) days prior to the commencement of the offer period for 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 applicable default 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 as outlined in section II.G of Attachment M-Appendix. Any Sell Offer submitted in any auction that is inconsistent with any agreement or commitment made pursuant to this subsection shall be rejected, and the Capacity Market Seller shall be required to resubmit a Sell Offer that complies with such agreement or commitment within one (1) business day of the Office of the Interconnection’s rejection of such Sell Offer. If the Capacity Market Seller does not timely resubmit its Sell Offer, fails to request a unit-specific Avoidable Cost Rate by the specified deadline, or if the Office of the Interconnection determines that the information provided by the Capacity Market Seller in support of the requested unit-specific Avoidable Cost Rate or Sell Offer is incomplete, the Capacity Market Seller shall be deemed to have submitted a Sell Offer that complies with the commitments made under this subsection, with a default offer for the applicable class of resource or nearest comparable class of resource determined under this subsection (c)(ii). 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 retirement and mothball Avoidable Cost Rates (“ACR”) referenced in this subsection (c)(ii) are as set forth in the tables below for the 2013/2014 Delivery Year through the 2016/2017 Delivery Year. 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.

<b>Maximum Avoidable Cost Rates by Technology Class</b>								
<b>Technology</b>	<b>2013/14 Mothball ACR (\$/MW-Day)</b>	<b>2013/14 Retirement ACR (\$/MW-Day)</b>	<b>2014/15 Mothball ACR (\$/MW-Day)</b>	<b>2014/15 Retirement ACR (\$/MW-Day)</b>	<b>2015/16 Mothball ACR (\$/MW-Day)</b>	<b>2015/16 Retirement ACR (\$/MW-Day)</b>	<b>2016/2017 Mothball ACR (\$/MW-Day)</b>	<b>2016/2017 Retirement ACR (\$/MW-Day)</b>
Nuclear	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pumped Storage	\$23.64	\$33.19	\$24.56	\$34.48	\$25.56	\$35.89	\$24.05	\$33.78
Hydro	\$80.80	\$105.67	\$83.93	\$109.76	\$87.35	\$114.24	\$82.23	\$107.55
Sub-Critical Coal	\$193.98	\$215.02	\$201.49	\$223.35	\$209.71	\$232.46	\$197.43	\$218.84
Super Critical Coal	\$200.41	\$219.21	\$208.17	\$227.70	\$216.66	\$236.99	\$203.96	\$223.10
Waste Coal - Small	\$255.81	\$309.83	\$265.72	\$321.83	\$276.56	\$334.96	\$260.35	\$315.34
Waste Coal – Large	\$94.61	\$114.29	\$98.27	\$118.72	\$102.28	\$123.56	\$96.29	\$116.32
Wind	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CC-2 on 1 Frame F	\$35.18	\$49.90	\$36.54	\$51.83	\$38.03	\$53.94	\$35.81	\$50.79

CC-3 on 1 Frame E/Siemens	\$39.06	\$52.89	\$40.57	\$54.94	\$42.23	\$57.18	\$39.75	\$53.83
CC-3 or More on 1 or More Frame F	\$30.46	\$42.28	\$31.64	\$43.92	\$32.93	\$45.71	\$30.99	\$43.03
CC-NUG Cogen. Frame B or E Technology	\$130.76	\$175.71	\$135.82	\$182.52	\$141.36	\$189.97	\$133.09	\$178.83
CT - 1st & 2nd Gen. Aero (P&W FT 4)	\$27.96	\$37.19	\$29.04	\$38.63	\$30.22	\$40.21	\$28.45	\$37.85
CT - 1st & Gen. Frame B	\$27.63	\$36.87	\$28.70	\$38.30	\$29.87	\$39.86	\$28.11	\$37.52
CT - 2nd Gen. Frame E	\$26.26	\$35.14	\$27.28	\$36.50	\$28.39	\$37.99	\$26.73	\$35.77
CT - 3rd Gen. Aero (GE LM 6000)	\$63.57	\$93.70	\$66.03	\$97.33	\$68.72	\$101.30	\$64.70	\$95.37
CT - 3rd Gen. Aero (P&W FT - 8 TwinPak)	\$33.34	\$49.16	\$34.63	\$51.06	\$36.04	\$53.14	\$33.93	\$50.03
CT - 3rd Gen. Frame F	\$26.96	\$38.83	\$28.00	\$40.33	\$29.14	\$41.98	\$27.43	\$39.52
Diesel	\$29.92	\$37.98	\$31.08	\$39.45	\$32.35	\$41.06	\$30.44	\$38.66
Oil and Gas Steam	\$74.20	\$90.33	\$77.07	\$93.83	\$80.21	\$97.66	\$75.51	\$91.94

Commencing with the Base Residual Auction for the 2017/2018 Delivery Year, the Office of the Interconnection shall determine the default retirement and mothball Avoidable Cost Rates referenced in section (c)(ii) above, and post them on its website, by no later than one hundred fifty (150) days prior to the commencement of the offer period for each Base Residual Auction. To determine the applicable ACR rates, the Office of the Interconnection shall use the actual rate of change in the historical values from the Handy-Whitman Index of Public Utility Construction Costs or a comparable index approved by the Commission (“Handy-Whitman Index”) to the extent they are available to update the base values for the Delivery Year, and for future Delivery Years for which the updated Handy-Whitman Index values are not yet available the Office of the Interconnection shall update the base values for the Delivery Year using the most recent ten-calendar-year annual average rate of change. The ACR rates shall be expressed in dollar values for the applicable Delivery Year.

<b>Maximum Avoidable Cost Rates by Technology Class (Expressed in 2011 Dollars for the 2011/2012 Delivery Year)</b>		
<b>Technology</b>	<b>Mothball ACR (\$/MW-Day)</b>	<b>Retirement ACR (\$/MW-Day)</b>
Combustion Turbine - Industrial Frame	\$24.13	\$33.04
Coal Fired	\$136.91	\$157.83
Combined Cycle	\$29.58	\$40.69
Combustion Turbine - Aero Derivative	\$26.13	\$37.18
Diesel	\$25.46	\$32.33
Hydro	\$68.78	\$89.96
Oil and Gas Steam	\$63.16	\$76.90
Pumped Storage	\$20.12	\$28.26

To determine the default retirement and mothball ACR values for the 2017/2018 Delivery Year, the Office of the Interconnection shall multiply the base default retirement and mothball ACR values in the table above by a factor equal to one plus the most recent annual average rate of change in the July Handy-Whitman Indices for the 2011 to 2013 calendar years to determine updated base default retirement and mothball ACR values. The updated base default retirement and mothball ACR values shall then be multiplied by a factor equal to one plus the most recent ten-calendar-year annual average rate of change in the applicable Handy-Whitman Index, taken to the fourth power, as calculated by the Office of the Interconnection and posted to its website.

To determine the default retirement and mothball ACR values for the 2018/2019 and subsequent Delivery Years, the Office of the Interconnection shall multiply the updated base default retirement and mothball ACR values from the immediately preceding Delivery Year by a factor equal to one plus the most recent annual average rate of change in the July Handy-Whitman Index. These values become the new adjusted base default retirement and mothball ACR values, as calculated by the Office of the Interconnection and posted to its website. These resulting adjusted base values for the Delivery Year shall be multiplied by a factor equal to one plus the most recent ten-calendar-year annual average rate of change in the applicable Handy-Whitman



Index, taken to the fourth power, as calculated by the Office of the Interconnection and posted to its website; provided, however, that after the Handy-Whitman indexing methodology has been employed to determine the default retirement and mothball ACR values for the RPM Auctions for the 2017/2018 through 2020/2021 Delivery Years, the Office of the Interconnection shall: i) review the default retirement and mothball 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 June 1, 2017; and ii) file with FERC resulting changes, if any, to this section no later than October 1, 2017, to be effective for the Base Residual Auction for the 2021/2022 Delivery Year; provided further, that nothing herein precludes the Office of the Interconnection from filing with FERC changes to the default retirement and mothball ACR values or any other provision of this section prior to the deadline stated in the previous clause, or at any other time.

PJM shall also publish on its website the number of Generation Capacity Resources and megawatts per LDA that use the retirement Avoidable Cost Rates.

After the Market Monitoring Unit conducts its annual review of the table of default Avoidable 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 determines that the values should be updated, the Office of the Interconnection shall file its proposed values with the Commission by no later than October 30th prior to the commencement of the offer period for the first RPM Auction for which it proposes to apply the updated 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 and the Office of the Interconnection relevant unit-specific cost data concerning each data item specified as set forth in section 6 by no later than one hundred twenty (120) days prior to the commencement of the offer period for the applicable RPM Auction. 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, as may be further specified in the PJM Manuals. 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 and the Office of the Interconnection in writing of its determination pursuant to section II.E of Attachment M-Appendix.

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 less the Projected Market Revenues for such resource (as defined in Section 6.4). 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(e) below.

iii. **Projected PJM Market Revenues:** Projected PJM Market Revenues are 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, by no later than one hundred twenty (120) days prior to the commencement of the offer period for the applicable RPM Auction, a Capacity Market Seller must 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:

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

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.
- **AFAE (Avoidable Fuel Availability Expenses)** consists of avoidable operating expenses related directly to fuel availability and delivery for the generating unit that can be demonstrated by the Capacity Market Seller based on data for the twelve months preceding the month in which the data must be provided , or on reasonable projections for the Delivery Year supported by executed contracts, published tariffs, or other data sufficient to demonstrate with reasonable certainty the level of costs that have been or shall be incurred for such purpose. The categories of expenses included in AFAE are those incurred for: (a) firm gas pipeline transportation; (b) natural gas storage costs; (c) costs of gas balancing agreements; and (d) costs of gas park and loan services. AFAE expenses are for firm fuel supply and apply solely for offers for a Capacity Performance Resource
- **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.
- **CPQR (Capacity Performance Quantifiable Risk)** consists of the quantifiable and reasonably-supported costs of mitigating the risks of non-performance associated with submission of a Capacity Performance Resource offer (or of a Base Capacity Resource offer for the 2018/19 or 2019/20 Delivery Years), such as insurance expenses associated with resource non-performance risks. CPQR shall be considered reasonably supported if it is based on actuarial practices generally used by the industry to model or value risk and if it is based on actuarial practices used by the Capacity Market Seller to model or value risk in other aspects of the Capacity Market Seller's business. Such reasonable support shall also include an officer certification that the modeling and valuation of the CPQR was developed in accord with such practices. Provision of such reasonable support shall be sufficient to establish the CPQR.
- **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 25 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.

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 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 Plus Alternative 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.



## **9. PEAK SEASON MAINTENANCE COMPLIANCE PENALTY CHARGE.**

### **a) Purpose**

To preserve and maintain the reliability of the PJM Region and to recognize the impact of planned outages and maintenance outages of Generation Capacity Resources during the Peak Season, 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. The provisions of this section 9 do not apply to Capacity Performance Resources.

### **b) Peak Season Requirement**

To the extent the Generation Capacity Resource will not be available due to a planned or maintenance outage that occurs during the Peak Season without the approval of the Office of the Interconnection, the Capacity Market Seller or Locational UCAP Seller must obtain replacement Unforced Capacity meeting the same locational requirements and same or better temporal availability characteristics (i.e., Annual Resources) from a Capacity Resource that is not already committed for such Delivery Year and that meets all characteristics specified in the Sell Offer or Locational UCAP transaction, including the megawatt quantity of Unforced Capacity committed for such Delivery Year (with such Unforced Capacity, in the case of a Generation Capacity Resource, determined on the basis of such Generation Capacity Resource's EFORD for the twelve months ending on the September 30 last preceding the Delivery Year), or otherwise, for Delivery Years through May 31, 2018, pay a Peak Season Maintenance Compliance Penalty Charge. The Capacity Market Seller or Locational UCAP Seller shall commit such replacement Capacity Resource in accordance with the procedure set forth in the PJM Manuals.

### **c) Peak Season Planned and Maintenance Outages**

The Office of the Interconnection shall adopt and maintain rules and procedures for determining the allowable Peak Season planned and maintenance outages.

### **d) Peak Season Maintenance Compliance Penalty Charge**

The Peak Season Maintenance Compliance Penalty Charge 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 peak season day.

e) Allocation of Revenue Collected from Peak Season Maintenance Compliance Penalty Charges

The revenue collected from assessment of a Peak Season Maintenance Compliance Penalty Charge shall be distributed on a pro-rata basis to all LSEs that were charged a Locational Reliability Charge for the day for which the Capacity Resource Deficiency Charge was assessed. Such revenues shall be distributed on a pro-rata basis to all such LSEs based on their Daily Unforced Capacity Obligation.

## 10. PEAK-HOUR-PERIOD AVAILABILITY CHARGES AND CREDITS

(a) To preserve and maintain the reliability of the PJM Region and to encourage Capacity Market Sellers and Locational UCAP Sellers to maintain the availability of Generation Capacity Resources during critical peak hours of the Delivery Year, each Capacity Market Seller that commits a Generation Capacity Resource for the 2017/2018 Delivery Year and any prior Delivery Year, and each Locational UCAP Seller that sells Locational UCAP from a Generation Capacity Resource for the 2017/2018 Delivery Year and any prior Delivery Year, shall be credited or charged to the extent the critical peak-period availability of its committed Generation Capacity Resources exceeds or falls short, respectively, of the expected availability of such resources. Charges and credits hereunder shall not apply to wind, solar resources, or Capacity Performance Resources.

(b) Critical peak periods for purposes of this assessment (“Peak-Hour Periods”) shall be the hour ending 1500 local prevailing time through the hour ending 1900 local prevailing time on any day during the calendar months of June through August that is not a Saturday, Sunday, or federal holiday, and the hour ending 800 local prevailing time through the hour ending 900 local prevailing time and the hour ending 1900 local prevailing time through the hour ending 2000 local prevailing time on any day during the calendar months of January and February that is not a Saturday, Sunday or federal holiday.

(c) Peak-Period Equivalent Forced Outage Rate and Peak-Period Capacity Calculations

The Peak-Period Equivalent Forced Outage Rate shall be calculated for Peak-Hour Periods based on the following formula:

$$\text{EFORP (\%)} = (\text{FOH} + \text{EFPOH}) / (\text{SH} + \text{FOH})$$

where

FOH = full forced outage hours when the unit was called upon, excluding those outages deemed as OMC (as defined below);

EFPOH = equivalent forced partial outage hours when the unit was called upon, excluding those outages deemed as OMC (as defined below); and

SH = service hours as defined pursuant to NERC GADS standards.

The Peak-Period Capacity of a Generation Capacity Resource shall be calculated as follows:

$$\text{PCAP} = \text{ICAP} * (1.0 - \text{EFOR}_p)$$

where

ICAP = the installed capacity rating of such Generation Capacity Resource

(d) Determination of Expected EFOR<sub>P</sub> and PCAP for Generation Capacity Resources

For each Delivery Year, the expected EFOR<sub>P</sub> and PCAP of each Generation Capacity Resource committed to serve load in such Delivery Year shall be the EFORD and UCAP, respectively, calculated on a rolling-average basis using such resource's service history during the five consecutive annual periods of twelve consecutive months ending September 30 last preceding such Delivery Year. Such EFOR<sub>D</sub> and UCAP shall be determined in accordance with Schedule 5 of the Reliability Assurance Agreement, which excludes (for purposes of Capacity Resource UCAP calculations) outages deemed outside management control in accordance with the standards and guidelines of NERC, as defined in the Generating Availability Data System, Data Reporting Instructions in Attachment K or its successor ("Outside Plant Management Control" or "OMC").

(e) For each Delivery Year, the actual EFOR<sub>P</sub> and PCAP of each Generation Capacity Resource shall be calculated during the Peak-Hour Periods of such Delivery Year, provided however, that such calculation shall not include any day such a resource was unavailable if such unavailability resulted in a charge or penalty due to delay, cancellation, retirement, de-rating, or rating test failure. The full or partial forced outage hours when called upon shall be those outage hours during which the cost-based offer for energy from the resource would have been less than the applicable Locational Marginal Price for such resource, or when the Office of the Interconnection would have called upon the resource (absent the outage) for Operating Reserves, in both cases as determined by the Office of the Interconnection in accordance with the procedures specified in the PJM Manuals (including, without limitation, respecting such unit's current operating constraints). In addition, for single-fueled, natural gas-fired units, a failure to perform during the winter Peak-Hour Period shall be excused for purposes of this section if the Capacity Market Seller, or Locational UCAP Seller, as applicable, can demonstrate to the Office of the Interconnection that such failure was due to non-availability of gas to supply the unit.

(f) If the calculation under subsection (e) for any Generation Capacity Resource for a Delivery Year results in fewer than fifty total Service Hours during Peak Hours, then the actual EFOR<sub>P</sub> for purposes of such calculation shall be the lower of the resource's EFOR<sub>D</sub> (based on Delivery Year outage data) and its EFOR<sub>P</sub> and the actual PCAP for purposes of such calculation shall be, respectively, the resource's UCAP or its PCAP.

(g) For each Delivery Year, the excess or shortfall in Peak-Hour Period availability for each Generation Capacity Resource shall be determined by comparing such resource's expected and actual PCAP, subject to the limitation under subsection (i) below. The net Peak-Hour Period availability shortfall or excess for each Capacity Market Seller and FRR Entity in each Locational Deliverability Area shall be the net of the shortfalls and excesses of all Generation Capacity Resources in such Locational Deliverability Area committed by such Capacity Market Seller or Locational UCAP Seller for such Delivery Year. If there is a net positive Peak Hour Period availability shortfall in the LDA for such committed resources in the LDA, the sum of the excesses of all Generation Capacity Resources in such Locational Deliverability Area owned or controlled by such Capacity Market Seller, available for the

Delivery Year but not committed for such Delivery Year, and satisfying all obligations of a committed Capacity Resource for such Delivery Year shall be used to reduce the net positive Peak Hour Period availability shortfall in the LDA of committed resources by the amount of the sum of the excesses of such available uncommitted resources; however, such reduction shall not result in a net Peak Hour Period availability excess in the LDA.

(h) As to any Generation Capacity Resource experiencing or expected to experience a full or partial outage during any Peak-Hour Period that would or could result in a shortfall under subsection (g) above, a Capacity Market Seller or Locational UCAP Seller may obtain and commit Unforced Capacity from a replacement Capacity Resource (not previously committed) meeting the same locational requirements and same or better temporal availability characteristics (i.e., Annual Resources) as such resource. Such Unforced Capacity shall be recognized for purposes of this section prospectively from the effective date of commitment of such replacement resource, and to the extent such replacement Unforced Capacity thereafter is available during Peak-Hour Periods, any shortfall that otherwise would have been calculated shall be reduced to that extent. Any such commitment of replacement capacity shall be effective upon no less than one day's notice to the Office of the Interconnection.

(i) The shortfall determined for any Generation Capacity Resource shall not exceed an amount equal to 0.50 times the Unforced Capacity of such resource; provided, however, that if such limitation is triggered as to any Generation Capacity Resource for a Delivery Year, then the decimal multiplier for this calculation as to such resource in the immediately succeeding Delivery Year shall be increased to 0.75, and if such limitation again is triggered in such succeeding Delivery Year, then the multiplier shall be increased to 1.00. The multiplier shall remain at either such elevated level for each succeeding Delivery Year until the shortfall experienced by such resource is less than 0.50 times the Unforced Capacity of such resource for three consecutive Delivery Years.

(j) A Peak-Hour Period Availability Charge shall be assessed on each Capacity Market Seller or Locational UCAP Seller with a net shortfall in PCAP in an LDA, where such charge is equal to such shortfall times the Capacity Resource Clearing Price determined for such Locational Deliverability Area for such Delivery Year.

(k) The revenues from such charges shall be distributed to the Capacity Market Sellers, Locational UCAP Sellers, and FRR Entities that committed Generation Capacity Resources, in such Locational Deliverability Area that have net excess PCAP for such Delivery Year, provided however that any such seller shall be paid no more than the product of such seller's net excess PCAP times the Capacity Clearing Price determined for such Locational Deliverability Area for such Delivery Year. Any excess revenues remaining after such distribution shall be distributed on a pro-rata basis to all LSEs in the Zone that were charged the same Locational Reliability Charge for the Delivery Year for which the Peak Hour Availability Charge was assessed, and to all FRR Entities in the Zone that are LSEs and whose FRR Capacity Plan resources over-performed in the Delivery Year, on a pro-rata basis in accordance with each LSE's Daily Unforced Capacity Obligation.

(1) The Office of the Interconnection shall provide estimated charges and credits based on the summer Peak-Hour Periods within three calendar months after the end of the summer period. Final charges and credits for the Delivery Year shall be billed within three calendar months following the end of the Delivery Year.

## 10A. CHARGES FOR NON-PERFORMANCE AND CREDITS FOR PERFORMANCE

(a) For the 2018/2019 Delivery Year and any subsequent Delivery Year (and for certain purposes for the 2016/2017 and 2017/2018 Delivery Years as provided in subsections (h) and (i) hereof), each Capacity Market Seller that commits a Capacity Resource for a Delivery Year (whether through an RPM Auction, a bilateral transaction, or as Locational UCAP), and each Locational UCAP Seller that sells Locational UCAP from a Capacity Resource for a Delivery Year, shall be charged to the extent the performance of each of its committed Capacity Resources during all or any part of a clock-hour when an Emergency Action is in effect falls short of the expected performance of such resources (as determined herein) and the revenue from such charges shall be provided to Market Participants with generation or demand response resources that perform during such hour in excess of the level expected based on commitments (if any) of such resources.

(b) Performance shall be measured for purposes of this assessment during each Performance Assessment Hour.

(c) For each Performance Assessment Hour, the Office of the Interconnection shall determine whether, and the extent to which, the actual performance of each Capacity Resource and Locational UCAP has fallen short of the performance expected of such committed Capacity Resource, and the magnitude of any such shortfall, based on the following formula:

Performance Shortfall = Expected Performance - Actual Performance

Where the result of such formula is a positive number and where:  
Expected Performance =

for Generation Capacity Resources (including external Generation Capacity Resources for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region) and Capacity Storage Resources: [(Resource Committed Capacity \* the Balancing Ratio)];

where

Resource Committed Capacity = the total megawatts of Unforced Capacity of the Capacity Resource committed by such Capacity Market Seller or Locational UCAP Seller; and

The Balancing Ratio = (All Actual Generation Performance, Storage Resource Performance, Net Energy Imports and Demand Response Bonus Performance) / (All Committed Generation and Storage Capacity); provided, however, that Net Energy Imports shall be included in the calculation of the Balancing Ratio only for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region; and provided further that the Balancing Ratio shall not exceed a value of 1.0.

for purposes of which

All Committed Generation and Storage Capacity = the total megawatts of Unforced Capacity of all Generation Capacity Resources (including external Generation Capacity Resources for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region) and all Capacity Storage Resources committed by all Capacity Market Sellers, FRR Entities, Locational UCAP Sellers;

All Actual Generation Performance and Storage Resource Performance = the total amount of Actual Performance for all generation resources (including external Generation Capacity Resources for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region) and storage resources during the interval;

Net Energy Imports = the sum of interchange transactions importing energy into PJM (not including those associated with external Generation Capacity Resources and therefore included in All Actual Generation Performance) minus the sum of interchange transactions exporting energy out of PJM, but not less than zero;

Demand Response Bonus Performance = the sum of Bonus performance provided by Demand Response resources as calculated in (g) below;

and for Demand Resources, Energy Efficiency Resources, and Qualifying Transmission Upgrades: Resource Committed Capacity;

where

Resource Committed Capacity = the total megawatts of capacity committed from such Capacity Resource committed capacity without making any adjustment for the Forecast Pool Requirement

and

Actual Performance =

for each generation resource, the metered output of energy delivered by such resource plus the resource's real-time reserve or regulation assignment, if any, during the Performance Assessment Hour;

for each storage resource, the metered output of energy delivered by such resource plus the resource's real-time reserve or regulation assignment, if any, during the Performance Assessment Hour;

for each Demand Resource, the demand response provided by such resource, plus such resource's real-time reserve or regulation assignment, if any, during the



Performance Assessment Hour, as established through the PJM demand response settlement procedure consistent with the standards specified in Schedule 6 of the RAA;

for each Energy Efficiency Resource, the load reduction quantity approved by PJM subsequent to the pre-delivery year submittal of a post-installation measurement and verification report; and

for each Qualified Transmission Upgrade, the megawatt quantity cleared by such Qualified Transmission Upgrade if it is in service during the Performance Assessment Hour, and zero if it is not in service during such Performance Assessment Hour.

Such calculation shall encompass all resources located in the area defined by the Emergency Action; provided, however, that Performance Shortfall shall be calculated for external Generation Capacity Resources for any Performance Assessment Hour for which the Emergency Action was declared for the entire PJM Region. For purposes of this provision, Qualifying Transmission Upgrades shall be deemed to be located in the Locational Deliverability Area into which such upgrade increased the Capacity Emergency Transfer Limit, and a Qualifying Transmission Upgrade shall be included in calculations of Expected Performance and Actual Performance only if, and to the extent that, the declared Emergency Action encompasses the Locational Deliverability Area into which such upgrade increased the Capacity Emergency Transfer Limit. The Performance Shortfall shall be calculated for each Performance Assessment Hour, and any committed Capacity Resource for which the above calculation produces a negative number for a Performance Assessment Hour shall not have a Performance Shortfall for such Performance Assessment Hour. For any resource that is partially committed as a Capacity Performance Resource and partially committed as a Base Capacity Resource, the performance of such resource during a Performance Assessment Hour shall first be attributed to the resource's Capacity Performance Resource obligation; any performance by such resource in excess of the Capacity Performance Resource's Expected Performance shall be attributed to the resource's Base Capacity Resource obligation.

(d) Notwithstanding subsection (c) above, a Capacity Resource or Locational UCAP of a Capacity Market Seller or Locational UCAP Seller shall not be considered in the calculation of a Performance Shortfall for a Performance Assessment Hour to the extent such Capacity Resource or Locational UCAP was unavailable during such Performance Assessment Hour solely because the resource on which such Capacity Resource or Locational UCAP is based was on a Generator Planned Outage or Generator Maintenance Outage approved by the Office of the Interconnection, or was not scheduled to operate by the Office of the Interconnection, or was online but was scheduled down, by the Office of the Interconnection, based on a determination by the Office of the Interconnection that such scheduling action was appropriate to the security-constrained economic dispatch of the PJM Region. Subject to the foregoing, such resource shall be considered in the calculation of a Performance Shortfall if it would otherwise have been scheduled by the Office of the Interconnection to perform, but was not scheduled to operate, or was scheduled down, solely due to: (i) any operating parameter limitations submitted in the resource's offer, or (ii) the seller's submission of a market-based offer higher than its cost-based.

(e) Subject to the Non-Performance Charge Limit specified in subsection (f) hereof, each Capacity Market Seller and Locational UCAP Seller shall be assessed a Non-Performance Charge for each of its Capacity Resources or Locational UCAP that has a Performance Shortfall for a Performance Assessment Hour based on the following formula, applied to each such resource:

$$\text{Non-Performance Charge} = \text{Performance Shortfall} * \text{Non-Performance Charge Rate}$$

Where

For Capacity Performance Resources the Non-Performance Charge Rate = (Net Cost of New Entry (stated in terms of installed capacity) for the LDA and Delivery Year for which such calculation is performed \* (365 / 30)

and for Base Capacity Resources the Non-Performance Charge Rate = (Weighted Average Resource Clearing Price applicable to the resource \* (365 / 30)

(f) The Non-Performance Charges for each Capacity Performance Resource or (including Locational UCAP from such a resource) for a Delivery Year shall not exceed a Non-Performance Charge Limit equal to 1.5 times the Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365. All references to Net Cost of New Entry in this section 10A shall be to the Net Cost of New Entry for the LDA and Delivery Year for which the calculation is performed. The total Non-Performance Charges for each Base Capacity Resource (including Locational UCAP from such a resource) for a Delivery Year shall not exceed a Non-Performance Charge Limit equal to the total payments due such Capacity Resource or Locational UCAP under section 5.14 of this Attachment DD for such Delivery Year.

(g) Revenues collected from assessment of Non-Performance Charges for a Performance Assessment Hour shall be distributed to each Market Participant, whether or not such Market Participant committed a Capacity Resource or Locational UCAP for a Performance Assessment Hour, that provided energy or load reductions above the levels expected for such resource during such hour. For purposes of this provision, the performance expected of a resource, and the revenue distribution payment, if any, for a resource, shall be determined in accordance with the following formulae:

Formula 1: Market Participant Bonus Performance = Actual Performance – Expected Performance

And

Formula 2: Performance Payment = (Market Participant Bonus Performance / All Market Participants Bonus Performance) \* Non-Performance Charge Revenues.

Where the result of Formula 1 is a positive number and where:

Actual Performance is as defined in subsection (c), provided, however, that Actual Performance for purposes of this calculation shall not exceed the megawatt level at which such resource was scheduled by the Office of the Interconnection during the Performance Assessment Hours; and provided further that Actual Performance for a Market Participant that imports energy into the PJM Region during such Performance Assessment Hour shall be the net import, if any, from all interchange transactions scheduled by such Market Participant during such Performance Assessment Hour;

Expected Performance is as defined in subsection (c), provided, however, that for purposes of this calculation, Expected Performance shall be zero for any resource that is not a Capacity Resource or Locational UCAP, or that is a Capacity Resource or Locational UCAP, but for which the Performance Assessment Hour occurs outside the resource's capacity obligation period, including, without limitation, a Base Capacity Demand Resource providing demand response during non-summer months; and

All Market Participants Bonus Performance is the sum of the results of calculating Formula 1 of this subsection (g) for all Market Participants that have Bonus Performance during such Performance Assessment Hour.

(h) The provisions of this section 10A shall apply during the 2016/2017 Delivery Year, provided that:

- (i) Non-Performance Charges shall be determined solely for and assessed solely on, Capacity Performance Resources committed for such Delivery Year;
- (ii) The Non-Performance Charge shall be 0.5 times the Non-Performance Charge calculated under subsection (e) hereof; and
- (iii) The Non-Performance Charge Limit for a Delivery Year shall be 0.75 times Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365.

(i) The provisions of this section 10A shall apply during the 2017-2018 Delivery Year, provided that:

- (i) Non-Performance Charges shall be determined solely for, and assessed solely on, Capacity Performance Resources committed for such Delivery Year;
- (ii) The Non-Performance Charge shall be 0.6 times the Non-Performance Charge calculated under subsection (e) hereof; and
- (iii) The Non-Performance Charge Limit for a Delivery Year shall be 0.9 times Net Cost of New Entry times the megawatts of Unforced Capacity committed by such resource times 365.

(j) The Office of the Interconnection shall bill charges and credits for performance during Performance Assessment Hours within three calendar months after the calendar month that included such Performance Assessment Hours, provided, for any Non-Performance Charge, the

amount shall be divided by the number of months remaining in the Delivery Year for which no invoice has been issued, and the resulting amount shall be invoiced each such remaining month in the Delivery Year.

## ATTACHMENT DD-1

Preface: The provisions of this Attachment incorporate into the Tariff for ease of reference the provisions of Schedule 6 of the Reliability Assurance Agreement among Load Serving Entities in the PJM Region. As a result, this Attachment will be modified, subject to FERC approval, so that the terms and conditions set forth herein remain consistent with the corresponding terms and conditions of Schedule 6 of the RAA. Capitalized terms used herein that are not otherwise defined in Attachment DD or elsewhere in this Tariff have the meaning set forth in the RAA.

### PROCEDURES FOR DEMAND RESOURCES AND ENERGY EFFICIENCY

A. Parties can partially or wholly offset the amounts payable for the Locational Reliability Charge with Demand Resources that are operated under the direction of the Office of the Interconnection. FRR Entities may reduce their capacity obligations with Demand Resources that are operated under the direction of the Office of the Interconnection and detailed in such entity's FRR Capacity Plan. Demand Resources qualifying under the criteria set forth below may be offered for sale or designated as Self-Supply in the Base Residual Auction, included in an FRR Capacity Plan, or offered for sale in any Incremental Auction, for any Delivery Year for which such resource qualifies. Qualified Demand Resources generally fall in one of three categories, i.e., Guaranteed Load Drop, Firm Service Level, or Direct Load Control, as further specified in section G and the PJM Manuals. Qualified Demand Resources may be provided by a Curtailment Service Provider, notwithstanding that such Curtailment Service Provider is not a Party to this Agreement. Such Curtailment Service Providers must satisfy the requirements hereof and the PJM Manuals.

1. A Party must formally notify, in accordance with the requirements of the PJM Manuals and section F hereof, as applicable, the Office of the Interconnection of the Demand Resource that it is placing under the direction of the Office of the Interconnection. A Party must further notify the Office of the Interconnection whether the resource is a Limited Demand Resource, an Extended Summer Demand Resource, a Base Capacity Demand Resource, or an Annual Demand Resource.

2. A Demand Resource must achieve its full load reduction within the following time period:

(a) For the 2014/2015 Delivery Year, Curtailment Service Providers may elect a notification time period from the Office of the Interconnection of 30, 60 or 120 minutes prior to their Demand Resources being required to fully respond to a Load Management Event.

(b) For the 2015/2016 Delivery Year and subsequent Delivery Years, a Demand Resource must be able to fully respond to a Load Management Event within 30 minutes of notification from the Office of the Interconnection. This default 30 minute prior notification shall apply unless a Curtailment Service Provider obtains an exception from the Office of the Interconnection due to physical operational limitations that prevent the Demand Resource from reducing load within that timeframe. In such case, the Curtailment Service Provider shall submit a request for an exception to the 30 minute prior notification requirement to the Office of the Interconnection, at the time the Registration Form for that resource is submitted in accordance

with Attachment K-Appendix of this Tariff. The only alternative notification times that the Office of Interconnection will permit, upon approval of an exception request, are 60 minutes and 120 minutes prior to a Load Management Event. The Curtailment Service Provider shall indicate in writing, in the appropriate application, that it seeks an exception to permit a prior notification time of 60 minutes or 120 minutes, and the reason(s) for the requested exception. A Curtailment Service Provider shall not submit a request for an exception to the default 30 minute notification period unless it has done its due diligence to confirm that the Demand Resource is physically incapable of responding within that timeframe based on one or more of the reasons set forth below and as may be further defined in the PJM Manuals and has obtained detailed data and documentation to support this determination.

In order to establish that a Demand Resource is reasonably expected to be physically unable to reduce load in that timeframe, the Curtailment Service Provider that registered the resource must demonstrate that:

- 1) The manufacturing processes for the Demand Resource require gradual reduction to avoid damaging major industrial equipment used in the manufacturing process, or damage to the product generated or feedstock used in the manufacturing process;
- 2) Transfer of load to back-up generation requires time-intensive manual process taking more than 30 minutes;
- 3) On-site safety concerns prevent location from implementing reduction plan in less than 30 minutes; or,
- 4) The Demand Resource is comprised of mass market residential customers or Small Commercial Customers which collectively cannot be notified of a Load Management Event within a 30-minute timeframe due to unavoidable communications latency, in which case the requested notification time shall be no longer than 120 minutes.

The Office of the Interconnection may request data and documentation from the Curtailment Service Provider and such Curtailment Service Provider shall provide to the Office of the Interconnection within three (3) business days of a request therefor, a copy of all of the data and documentation supporting the exception request. Failure to provide a timely response to such request shall cause the exception to terminate the following Operating Day.

At its sole option and discretion, the Office of the Interconnection may review the data and documentation provided by the Curtailment Service Provider to determine if the Demand Resource has met one or more of the criteria above. The Office of the Interconnection will notify the Curtailment Service Provider in writing of its determination by no later than ten (10) business days after receipt of the data and documentation.

The Curtailment Service Provider shall provide written notification to the Office of the Interconnection of a material change to the facts that supported its exception request within three (3) business days of becoming aware of such material change in facts, and, if the Office of Interconnection determines that the physical limitation criteria above are no longer being met, the

Demand Resource shall be subject to the default notification period of 30 minutes immediately upon such determination.

3. The initiation of load reduction, upon the request of the Office of the Interconnection, must be within the authority of the dispatchers of the Party. No additional approvals should be required.

4. The initiation of load reduction upon the request of the Office of the Interconnection is considered a pre-emergency or emergency action and must be implementable prior to a voltage reduction.

5. A Curtailment Service Provider intending to offer for sale or designate for self-supply, a Demand Resource in any RPM Auction, or intending to include a Demand Resource in any FRR Capacity Plan must demonstrate, to PJM's satisfaction, that such resource shall have the capability to provide a reduction in demand, or otherwise control load, on or before the start of the Delivery Year for which such resource is committed. As part of such demonstration, each such Curtailment Service Provider shall submit a Demand Resource Sell Offer Plan in accordance with the standards and procedures set forth in section A-1 of Schedule 6, Schedule 8.1 (as to FRR Capacity Plans) and the PJM Manuals, no later than 15 business days prior to, as applicable, the RPM Auction in which such resource is to be offered, or the deadline for submission of the FRR Capacity Plan in which such resource is to be included. PJM may verify the Curtailment Service Provider's adherence to the Demand Resource Sell Offer Plan at any time. A Curtailment Service Provider with a PJM-approved Demand Resource Sell Offer Plan will be permitted to offer up to the approved Demand Resource quantity into the subject RPM Auction or include such resource in its FRR Capacity Plan.

6. Selection of a Demand Resource in an RPM Auction results in commitment of capacity to the PJM Region. Demand Resources that are so committed must be registered to participate in the Full Program Option or as a Capacity Only resource of the Emergency Load Response and Pre-Emergency Load Response Program and thus available for dispatch during PJM-declared pre-emergency events and emergency events.

A-1. A Demand Resource Sell Offer Plan shall consist of a completed template document in the form posted on the PJM website, requiring the information set forth below and in the PJM Manuals, and a Demand Resource Officer Certification Form signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification. The Demand Resource Sell Offer Plan must provide information that supports the Demand Resource Provider's intended Demand Resource Sell Offers and demonstrates that the Demand Resources are being offered with the intention that the MW quantity that clears the auction is reasonably expected to be physically delivered through Demand Resource registrations for the relevant Delivery Year. The Demand Resource Sell Offer Plan shall include all Existing Demand Resources and all Planned Demand Resources that the Demand Resource Provider intends to offer into an RPM Auction or include in an FRR Capacity Plan.

1. Demand Resource Sell Offer Plan Template. The Demand Resource Sell Offer Plan template, in the form provided on the PJM website, shall require the Demand

Resource Provider to provide the following information and such other information as specified in the PJM Manuals:

(a) **Summary Information.** The completed template shall include the Demand Resource Provider's company name, contact information, and the Nominated DR Value in ICAP MWs by Zone/sub-Zone that the Demand Resource Provider intends to offer, stated separately for Existing Demand Resources and Planned Demand Resources. The total Nominated DR Value in MWs for each Zone/sub-Zone shall be the sum of the Nominated DR Value of Existing Demand Resources and the Nominated DR Value of Planned Demand Resources, and shall be the maximum MW amount the Provider intends to offer in the RPM Auction for the indicated Zone/sub-Zone, provided that nothing herein shall preclude the Demand Resource Provider from offering in the auction a lesser amount than the total Nominated DR Value shown in its Demand Resource Sell Offer Plan.

(b) **Existing Demand Resources.** The Demand Resource Provider shall identify all Existing Demand Resources by identifying end-use customer sites that are currently registered with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the auction Delivery Year.

(c) **Planned Demand Resources.** The Demand Resource Provider shall provide the details of, and key assumptions underlying, the Planned Demand Resource quantities (i.e., all Demand Resource quantities in excess of Existing Demand Resource quantities) contained in the Demand Resource Sell Offer Plan, including:

(i) key program attributes and assumptions used to develop the Planned Demand Resource quantities, including, but not limited to, discussion of:

- method(s) of achieving load reduction at customer site(s);
- equipment to be controlled or installed at customer site(s), if any;
- plan and ability to acquire customers;
- types of customer targeted;
- support of market potential and market share for the target customer base, with adjustments for Existing Demand Resource customers within this market and the potential for other Demand Resource Providers targeting the same customers;
- assumptions regarding regulatory approval of program(s), if applicable; and
- if applicable, Direct Load Control (DLC) program details such as: a description of the cycling control strategy, any assumptions regarding switch operability rate, and a list (and copy) of all load research studies used to develop the estimated nominated ICAP value per customer (i.e., the per-participant impact).

(ii) Zone/sub-Zone information by end-use customer segment for all Nominated DR Values for which an end-use customer site is not



identified, to include the number in each segment of end-use customers expected to be registered for the subject Delivery Year, the average Peak Load Contribution per end-use customer for such segment, and the average Nominated DR Value per customer for such segment. End-use customer segments may include residential, commercial, small industrial, medium industrial, and large industrial, as identified and defined in the PJM Manuals, provided that nothing herein or in the Manuals shall preclude the Provider from identifying more specific customer segments within the commercial and industrial categories, if known.

(iii) Information by end-use customer site to the extent required by subsection A-1(1)(c)(iv) or, if not required by such subsection, to the extent known at the time of the submittal of the Demand Resource Sell Offer Plan, to include: customer EDC account number (if known), customer name, customer premise address, Zone/sub-Zone in which the customer is located, end-use customer segment, current Peak Load Contribution value (or an estimate if actual value not known) and an estimate of expected Peak Load Contribution for the subject Delivery Year, and an estimated Nominated DR Value.

(iv) End-use customer site-specific information shall be required for any Zones or sub-Zones identified by PJM pursuant to this subsection for the portion, if any, of a Demand Resource Provider's intended offer in such Zones or sub-Zones that exceeds a Sell Offer threshold determined pursuant to this subsection, as any such excess quantity under such conditions should reflect Planned Demand Resources from end-use customer sites that the Provider has a high degree of certainty it will physically deliver for the subject Delivery Year. In accordance with the procedures in subsection A-1(3) below, PJM shall identify, as requiring site-specific information, all Zones and sub-Zones that comprise any LDA group (from a list of LDA groups stated in the PJM Manuals) in which [the quantity of cleared Demand Resources from the most recent Base Residual Auction] plus [the quantity of Demand Resources included in FRR Capacity Plans for the Delivery Year addressed by the most recent Base Residual Auction] in any Zone or sub-Zone of such LDA group exceeds the greater of:

- the maximum Demand Resources quantity registered with PJM for such Zone for any Delivery Year from the current (at time of plan submission) Delivery Year and the two preceding Delivery Years; and
- the potential Demand Resource quantity for such Zone estimated by PJM based on an independent published assessment of demand response potential that is reasonably applicable to such Zone, as identified in the PJM Manuals.

For each such Zone and sub-Zone, the Sell Offer threshold for each Demand Resource Provider shall be the higher of:

- the Demand Resource Provider's maximum Demand Resource quantity registered with PJM for such Zone/sub-Zone over the current Delivery Year (at the time of plan submission) and two preceding Delivery Years;
- the Demand Resource Provider's maximum for any single Delivery Year of [such provider's cleared Demand Resource quantity] plus [such provider's quantity of Demand Resources included in FRR Capacity Plans] from the three forward Delivery Years addressed by the three most recent Base Residual Auctions for such Zone/sub-Zone; and
- 10 MW.

(d) Schedule. The Demand Resource Provider shall provide an approximate timeline for procuring end-use customer sites as needed to physically deliver the total Nominated DR Value (for both Existing Demand Resources and Planned Demand Resources) by Zone/sub-Zone in the Demand Resource Sell Offer Plan. The Demand Resource Provider must specify the cumulative number of customers and the cumulative Nominated DR Value associated with each end-use customer segment within each Zone/sub-Zone that the Demand Resource Provider expects (at the time of plan submission) to have under contract as of June 1 each year between the time of the auction and the subject Delivery Year.

2. Demand Resource Officer Certification Form. Each Demand Resource Sell Offer Plan must include a Demand Resource Officer Certification, signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification, in the form shown in the PJM Manuals, which form shall include the following certifications:

(a) that the signing officer has reviewed the Demand Resource Sell Offer Plan and the information supplied to PJM in support of the Plan is true and correct as of the date of the certification; and

(b) that the Demand Resource Provider is submitting the Plan with the reasonable expectation, based upon its analyses as of the date of the certification, to physically deliver all megawatts that clear the RPM Auction through Demand Resource registrations by the specified Delivery Year.

As set forth in the form provided in the PJM manuals, the certification shall specify that it does not in any way abridge, expand, or otherwise modify the current provisions of the PJM Tariff, Operating Agreement and/or RAA, or the Demand Resource Provider's rights and obligations thereunder, including the Demand Resource Provider's ability to adjust capacity obligations through participation in PJM incremental auctions and bilateral transactions.

3. Procedures. No later than December 1 prior to the Base Residual Auction for a Delivery Year, PJM shall post to the PJM website a list of Zones and sub-Zones, if any, for which end-use customer site-specific information shall be required under the conditions specified in subsection A-1(1)(c)(iv) above for all RPM Auctions conducted for such Delivery Year. Once so identified, a Zone or sub-Zone shall remain on the list for future Delivery Years until the threshold determined under subsection A-1(1)(c)(iv) above is not exceeded for three consecutive Delivery Years. No later than 15 business days prior to the RPM Auction in which a Demand Resource Provider intends to offer a Demand Resource, the Demand Resource Provider shall submit to PJM a completed Demand Resource Sell Offer Plan template and a Demand Resource Officer Certification Form signed by a duly authorized officer of the Provider. PJM will review all submitted DR Sell Offer Plans. No later than 10 business days prior to the subject RPM Auction, PJM shall notify any Demand Resource Providers that have identified the same end-use customer site(s) in their respective DR Sell Offer Plans for the same Delivery Year. In such event, the MWs associated with such site(s) will not be approved for inclusion in a Sell Offer in an RPM Auction by any of the Demand Resource Providers, unless a Demand Resource Provider provides a letter of support from the end-use customer indicating that it is likely to execute a contract with that Demand Resource Provider for the relevant Delivery Year, or provides other comparable evidence of likely commitment. Such letter of support or other supporting evidence must be provided to PJM no later than 7 business days prior to the subject RPM Auction. If an end-use customer provides letters of support for the same site for the same Delivery Year to multiple Demand Resource Providers, the MWs associated with such end-use customer site shall not be approved as a Demand Resource for any of the Demand Resource Providers. No later than 5 business days prior to the subject RPM Auction, PJM will notify each Demand Resource Provider of the approved Demand Resource quantity, by Zone/sub-Zone, that such Demand Resource Provider is permitted to offer into such RPM Auction.

B. The Unforced Capacity value of a Demand Resource will be determined as:

for the Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the product of the Nominated Value of the Demand Resource, times the DR Factor, times the Forecast Pool Requirement, and for the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans the 2019/2020 Delivery Year and subsequent Delivery Years, the product of the Nominated Value of the Demand Resource times the Forecast Pool Requirement. Nominated Values shall be determined and reviewed in accordance with sections I and J, respectively, and the PJM Manuals. The DR Factor is a factor established by the PJM Board with the advice of the Members Committee to reflect the increase in the peak load carrying capability in the PJM Region due to Demand Resources. Peak load carrying capability is defined to be the peak load that the PJM Region is able to serve at the loss of load expectation defined in the Reliability Principles and Standards. The DR Factor is the increase in the peak load carrying capability in the PJM Region due to Demand Resources, divided by the total Nominated Value of Demand Resources in the PJM Region. The DR Factor will be determined using an analytical program that uses a probabilistic approach to determine reliability. The determination of the DR Factor will consider the reliability of Demand Resources, the number of interruptions, and the total amount of load reduction.

C. Demand Resources offered and cleared in a Base Residual or Incremental Auction shall receive the corresponding Capacity Resource Clearing Price as determined in such auction, in accordance with Attachment DD of the PJM Tariff. For Delivery Years beginning with the Delivery Year that commences on June 1, 2013, any Demand Resources located in a Zone with multiple LDAs shall receive the Capacity Resource Clearing Price applicable to the location of such resource within such Zone, as identified in such resource's offer. Further, the Curtailment Service Provider shall register its resource in the same location within the Zone as specified in its cleared sell offer, and shall be subject to deficiency charges under Attachment DD of this Tariff to the extent it fails to provide the resource in such location consistent with its cleared offer. For either of the Delivery Year commencing on June 1, 2010 or commencing on June 1, 2012, if the location of a Demand Resource is not specified by a Seller in the Sell Offer on an individual LDA basis in a Zone with multiple LDAs, then Demand Resources cleared by such Seller will be paid a DR Weighted Zonal Resource Clearing Price, determined as follows: (i) for a Zone that includes non-overlapping LDAs, calculated as the weighted average of the Resource Clearing Prices for such LDAs, weighted by the cleared Demand Resources registered by such Seller in each such LDA; or (ii) for a Zone that contains a smaller LDA within a larger LDA, calculated treating the smaller LDA and the remaining portion of the larger LDA as if they were separate LDAs, and weight-averaging in the same manner as (i) above.

D. The Party, Electric Distributor, or Curtailment Service Provider that establishes a contractual relationship (by contract or tariff rate) with a customer for load reductions is entitled to receive the compensation specified in section C for a committed Demand Resource, notwithstanding that such provider is not the customer's energy supplier.

E. Any Party hereto shall demonstrate that its Demand Resources performed during periods when load management procedures were invoked by the Office of the Interconnection. The Office of the Interconnection shall adopt and maintain rules and procedures for verifying the performance of such resources, as set forth in section K hereof and the PJM Manuals. In addition, committed Demand Resources that do not comply with the directions of the Office of the Interconnection to reduce load during an emergency shall be subject to the penalty charge set forth in Attachment DD to the PJM Tariff.

F. Parties may elect to place Demand Resources associated with Behind The Meter Generation under the direction of the Office of the Interconnection for a Delivery Year by submitting a Sell Offer for such resource (as Self Supply, or with an offer price) in the Base Residual Auction for such Delivery Year. This election shall remain in effect for the entirety of such Delivery Year. In the event such an election is made, such Behind The Meter Generation will not be netted from load for the purposes of calculating the Daily Unforced Capacity Obligations under this Agreement.

G. PJM measures Demand Resources in the following four ways:

Direct Load Control (DLC) – Load management that is initiated directly by the Curtailment Service Provider's market operations center or its agent, employing a communication signal to cycle equipment (typically water heaters or central air conditioners). DLC programs are qualified based on load research and customer subscription data. Curtailment Service Providers

may rely on the results of load research studies identified in the PJM Manuals to set the per-participant load reduction for DLC programs. Each Curtailment Service Provider relying on DLC load management must periodically update its DLC switch operability rates, in accordance with the PJM Manuals.

**Firm Service Level (FSL)** – Load management achieved by an end-use customer reducing its load to a pre-determined level (the Firm Service Level), upon notification from the Curtailment Service Provider’s market operations center or its agent.

**Guaranteed Load Drop (GLD)** – Load management achieved by an end-use customer reducing its load by a pre-determined amount (the Guaranteed Load Drop), upon notification from the Curtailment Service Provider’s market operations center or its agent. Typically, the load reduction is achieved through running customer-owned backup generators, or by shutting down process equipment.

**Customer Baseline Load (CBL)** - Load management achieved by an end-use customer as measured by 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 of the Operating Agreement.

H. Each Curtailment Service Provider must satisfy (or contract with another LSE, Curtailment Service Provider, or electric distribution company to provide) the following requirements:

- A point of contact with appropriate backup to ensure single call notification from PJM and timely execution of the notification process;
- Supplemental status reports, detailing Demand Resources available, as requested by PJM;
- Entry of customer-specific Demand Resource credit information, for planning and verification purposes, into the designated PJM electronic system.
- Customer-specific compliance and verification information for each PJM-initiated Demand Resource event, as well as aggregated Provider load drop data for Provider-initiated events, in accordance with established reporting guidelines.
- Load drop estimates for all Demand Resource events, prepared in accordance with the PJM Manuals.

I. The Nominated Value of each Demand Resource shall be determined consistent with the process for determination of the capacity obligation for the customer.

The Nominated Value for a Firm Service Level customer will be based on the peak load contribution for the customer, as determined by the 5CP methodology utilized to determine other

ICAP obligation values. The maximum Demand Resource load reduction value for a Firm Service Level customer will be equal to Peak Load Contribution – Firm Contract Level adjusted for system losses.

The Nominated Value for a Guaranteed Load Drop customer will be the guaranteed load drop amount, adjusted for system losses, as established by the customer’s contract with the Curtailment Service Provider. The maximum credit nominated shall not exceed the customer’s Peak Load Contribution.

The Nominated Value for a Direct Load Control program will be based on load research and customer subscription. The maximum value of the program is equal to the approved per-participant load reduction multiplied by the number of active participants, adjusted for system losses. The per-participant impact is to be estimated at long-term average local weather conditions at the time of the summer peak.

Customer-specific Demand Resource information (EDC account number, peak load, notification period, etc.) will be entered into the designated PJM electronic system to establish credit values. Additional data may be required, as defined in sections J and K.

J. Nominated Values shall be reviewed based on documentation of customer-specific data and Demand Resource information, to verify the amount of load management available and to set a maximum allowable Nominated Value. Data is provided by both the zone EDC and the Curtailment Service Provider on templates supplied by PJM, and must include the EDC meter number or other unique customer identifier, Peak Load Contribution (5CP), contract firm service level or guaranteed load drop values, applicable loss factor, zone/area location of the load drop, LSE contact information, number of active participants, etc. Such data must be uploaded and approved prior to the first day of the Delivery Year for such resource as a Demand Resource. Curtailment Service Providers must provide this information concurrently to host EDCs.

For Firm Service Level and Guaranteed Load Drop customers, the 5CP values, for the zone and affected customers, will be adjusted to reflect an “unrestricted” peak for a zone, based on information provided by the Curtailment Service Provider. Load drop levels shall be estimated in accordance with guidelines in the PJM Manuals.

For Direct Load Control programs, the Curtailment Service Provider must provide information detailing the number of active participants in each program. Other information on approved DLC programs will be provided by PJM.

K. Compliance is the process utilized to review Provider performance during PJM-initiated Demand Resource events. Compliance will be established for each Provider on an event specific basis for the Curtailment Service Provider’s Demand Resources dispatched by the Office of the Interconnection during such event. PJM will establish and communicate reasonable deadlines for the timely submittal of event data to expedite compliance reviews. Compliance reviews will be completed as soon after the event as possible, with the expectation that reviews of a single event will be completed within two months of the end of the month in which the event

took place. Curtailment Service Providers are responsible for the submittal of compliance information to PJM for each PJM-initiated event during the compliance period.

For Load Management Events occurring through the May 31, 2018 and for Load Management Events occurring during the months of June through September of the 2018/2019 Delivery Year and subsequent Delivery Years:

Compliance for Direct Load Control programs will consider only the transmission of the control signal. Curtailment Service Providers are required to report the time period (during the Demand Resource event) that the control signal was actually sent.

Compliance is checked on an individual customer basis for FSL, by comparing actual load during the event to the firm service level. Curtailment Service Providers must submit actual customer load levels (for the event period) for the compliance report. Compliance for FSL will be based on:

End use customer's current Delivery Year peak load contribution ("PLC") minus the metered load ("Load") multiplied by the loss factor ("LF"). The calculation is represented by:

$(PLC) - (Load * LF)$

Compliance is checked on an individual customer basis for GLD, and will be based on:

- (i) the lesser of (a) comparison load used to best represent what the load would have been if PJM did not declare a Load Management Event or the CSP did not initiate a test as outlined in the PJM Manuals, minus the Load and then multiplied by the LF, or (b) the PLC minus the Load multiplied by the LF. A load reduction will only be recognized for capacity compliance if the Load multiplied by the LF is less than the PLC.
- (iii) Curtailment Service Providers must submit actual loads and comparison loads for all hours during the day of the Load Management Event or the Load Management performance test, and for all hours during any other days as required by the Office of the Interconnection to calculate the load reduction. Comparison loads must be developed from the guidelines in the PJM Manuals, and note which method was employed.

Compliance is averaged over the Load Management Event for non-interval metered DLC programs. Compliance is averaged over the Load Management Event, for each FSL and GLD customer dispatched by the Office of the Interconnection, for at least 30 minutes of the clock hour (i.e., "partial dispatch compliance hour"). The registered capacity commitment for the partial dispatch compliance hour will be prorated based on the number of minutes dispatched during the clock hour and as defined in the Manuals. Curtailment Service Provider may submit 1 minute load data for use in capacity compliance calculations for partial dispatch compliance hours subject to PJM approval and in accordance with the PJM Manuals where: (a) metering meets all Tariff and Manual requirements, (b) 1 minute load data shall be submitted to PJM for

all locations on the registration, and (c) 1 minute load data measures energy consumption over the minute.

For Load Management Events occurring during the months of October through May of the 2018/2019 Delivery Year and subsequent Delivery Years:

Compliance is determined on an individual customer basis by 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 of the Operating Agreement.

For all Delivery Years:

Demand Resources may not reduce their load below zero (i.e., export energy into the system). No compliance credit will be given for an incremental load drop below zero. Compliance will be totaled over all FSL and GLD customers and DLC programs to determine a net compliance position for the event for each Provider by Zone, for all Demand Resources committed by such Provider and dispatched by the Office of the Interconnection in the zone. Deficiencies shall be as further determined in accordance with section 11 of Schedule DD to the PJM Tariff.

#### L. Energy Efficiency Resources

1. An Energy Efficiency Resource is a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during peak summer and winter periods as described herein) reduction in electric energy consumption at the End-Use Customer's retail site that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

2. An Energy Efficiency Resource may be offered as a Capacity Resource in the Base Residual or Incremental Auctions for any Delivery Year beginning on or after June 1, 2012. No later than 30 days prior to the auction in which the resource is to be offered, the Capacity Market Seller shall submit to the Office of the Interconnection a notice of intent to offer the resource into such auction and a measurement and verification plan. The notice of intent shall include all pertinent project design data, including but not limited to the peak-load contribution of affected customers, a full description of the equipment, device, system or process intended to achieve the load reduction, the load reduction pattern, the project location, the project development timeline, and any other relevant data. Such notice also shall state the seller's proposed Nominated Energy Efficiency Value.

- For Delivery Years through May 31, 2018, the seller's proposed Nominated Energy Efficiency Value shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday;



- For the 2018/2019 and 2019/2020 Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Base Capacity Energy Efficiency Resource shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday; and

The measurement and verification plan shall describe the methods and procedures, consistent with the PJM Manuals, for determining the amount of the load reduction and confirming that such reduction is achieved. The Office of the Interconnection shall determine, upon review of such notice, the Nominated Energy Efficiency Value that may be offered in the Reliability Pricing Model Auction.

- For the 2018/2019 Delivery Year and subsequent Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Annual Energy Efficiency Resources, shall be the expected average load reduction, for all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 15:00 EPT and the hour ending 18:00 EPT. In addition, the expected average load reduction for all days from January 1 through February 28, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 8:00 EPT and the hour ending 9:00 EPT and between the hour ending 19:00 EPT and the hour ending 20:00 EPT shall not be less than the Nominated Energy Efficiency Value.

3. An Energy Efficiency Resource may be offered with a price offer or as Self-Supply. If an Energy Efficiency Resource clears the auction, it shall receive the applicable Capacity Resource Clearing Price, subject to section 5 below. A Capacity Market Seller offering an Energy Efficiency Resource must comply with all applicable credit requirements as set forth in Attachment Q to the PJM Tariff. For Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency value times the DR Factor and the Forecast Pool Requirement. For the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans the 2019/2020 Delivery Year and subsequent Delivery Years, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency Value times the Forecast Pool Requirement.

4. An Energy Efficiency Resource that clears an auction for a Delivery Year may be offered in auctions for up to three additional consecutive Delivery Years, but shall not be assured of clearing in any such auction; provided, however, an Energy Efficiency Resource may not be offered for any Delivery Year in which any part of the peak season is beyond the expected life of the equipment, device, system, or process providing the expected load reduction; and provided further that a Capacity Market Seller that offers and clears an Energy Efficiency Resource in a BRA may elect a New Entry Price Adjustment on the same terms as set forth in section 5.14(c) of this Attachment DD.

5. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than 30 days prior to each Auction an updated project status and measurement and verification plan subject to the criteria set forth in the PJM Manuals.

6. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than the start of such Delivery Year, an updated project status and detailed measurement and verification data meeting the standards for precision and accuracy set forth in the PJM Manuals. The final value of the Energy Efficiency Resource during such Delivery Year shall be as determined by the Office of the Interconnection based on the submitted data.

7. The Office of the Interconnection may audit, at the Capacity Market Seller's expense, any Energy Efficiency Resource committed to the PJM Region. The audit may be conducted any time including the Performance Hours of the Delivery Year.

Section(s) of the  
PJM Reliability Assurance Agreement  
(Clean Format)

## **ARTICLE 1 – DEFINITIONS**

Unless the context otherwise specifies or requires, capitalized terms used herein shall have the respective meanings assigned herein or in the Schedules hereto for all purposes of this Agreement (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Articles, Sections or Schedules, are to Articles, Sections or Schedules of this Agreement. As used in this Agreement:

### **1.1 Agreement**

Agreement shall mean this Reliability Assurance Agreement, together with all Schedules hereto, as amended from time to time.

#### **1.1A Annual Demand Resource**

Annual Demand Resource shall mean a resource that is placed under the direction of the Office of the Interconnection during the Delivery Year, and will be available for an unlimited number of interruptions during such Delivery Year by the Office of the Interconnection, and will be capable of maintaining each such interruption between the hours of 10:00AM to 10:00PM Eastern Prevailing Time for the months of June through October and the following May, and 6:00AM through 9:00PM Eastern Prevailing Time for the months of November through April unless there is an Office of the Interconnection approved maintenance outage during October through April. The Annual Demand Resource must be available in the corresponding Delivery year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Annual Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

#### **1.1B Annual Energy Efficiency Resource**

Annual Energy Efficiency Resource shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Schedule 6 of this Agreement and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer and winter periods described in Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

### **1.2 Applicable Regional Entity**

Applicable Regional Entity shall have the same meaning as in the PJM Tariff.

#### **1.2A Base Capacity Demand Resource**

Base Capacity Demand Resource shall mean, for the 2018/2019 and 2019/2020 Delivery

Years, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through September of a Delivery Year, and will be available to the Office of the Interconnection for an unlimited number of interruptions during such months, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Base Capacity Demand Resource must be available June through September in the corresponding Delivery Year to be offered for sale or self-supplied in an RPM Auction, or included as an Base Capacity Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

### **1.2B Base Capacity Energy Efficiency Resource**

Base Capacity Energy Efficiency Resource shall mean, for the 2018/2019 and 2019/2020 Delivery Years, a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Schedule 6 of this Agreement and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the summer peak periods as described in Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Base Capacity Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.

### **1.2C Base Capacity Resource**

Base Capacity Resource shall have the same meaning as in Attachment DD to the PJM Tariff.

### **1.3 Base Residual Auction**

Base Residual Auction shall have the same meaning as in Attachment DD to the PJM Tariff.

### **1.4 Behind The Meter Generation**

Behind The Meter Generation shall mean a generating unit that delivers energy to load without using the Transmission System or any distribution facilities (unless the entity that owns or leases the distribution facilities consented to such use of the distribution facilities and such consent has been demonstrated to the satisfaction of the Office of the Interconnection; provided, however, that Behind The Meter Generation does not include (i) at any time, any portion of such generating unit's capacity that is designated as a Capacity Resource or (ii) in any hour, any portion of the output of such generating unit that is sold to another entity for consumption at another electrical location or into the PJM Interchange Energy Market.

### **1.5 Black Start Capability**

Black Start Capability shall mean the ability of a generating unit or station to go from a shutdown condition to an operating condition and start delivering power without assistance from the power system.

### **1.6 Capacity Emergency Transfer Objective (“CETO”)**

Capacity Emergency Transfer Objective (“CETO”) shall mean the amount of electric energy that a given area must be able to import in order to remain within a loss of load expectation of one event in 25 years when the area is experiencing a localized capacity emergency, as determined in accordance with the PJM Manuals. Without limiting the foregoing, CETO shall be calculated based in part on EFORD determined in accordance with Paragraph C of Schedule 5.

### **1.7 Capacity Emergency Transmission Limit (“CETL”)**

Capacity Emergency Transmission Limit (“CETL”) shall mean the capability of the transmission system to support deliveries of electric energy to a given area experiencing a localized capacity emergency as determined in accordance with the PJM Manuals.

#### **1.7A Capacity Import Limit**

Capacity Import Limit shall mean, (a) for the PJM Region, (1) the maximum megawatt quantity of external Generation Capacity Resources that PJM determines for each Delivery Year, through appropriate modeling and the application of engineering judgment, the transmission system can receive, in aggregate at the interface of the PJM Region with all external balancing authority areas and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus (2) the then-applicable Capacity Benefit Margin; and (b) for certain source zones identified in the PJM manuals as groupings of one or more balancing authority areas, (1) the maximum megawatt quantity of external Generation Capacity Resources that PJM determines the transmission system can receive at the interface of the PJM Region with each such source zone and deliver to load in the PJM Region under capacity emergency conditions without violating applicable reliability criteria on any bulk electric system facility of 100kV or greater, internal or external to the PJM Region, that has an electrically significant response to transfers on such interface, minus the then-applicable Capacity Benefit Margin times (2) the ratio of the maximum import quantity from each such source zone divided by the PJM total maximum import quantity. As more fully set forth in the PJM Manuals, PJM shall make such determination based on the latest peak load forecast for the studied period, the same computer simulation model of loads, generation and transmission topography employed in the determination of Capacity Emergency Transmission Limit for such Delivery Year, including external facilities from an industry standard model of the loads, generation, and transmission topography of the Eastern Interconnection under peak conditions. PJM shall specify in the PJM Manuals the areas and minimum distribution factors for identifying monitored bulk electric system facilities that have an electrically significant response to such transfers on the PJM interface. Employing such tools, PJM shall model increased power transfers from external areas

into PJM to determine the transfer level at which one or more reliability criteria is violated on any monitored bulk electric system facilities that have an electrically significant response to such transfers. For the PJM Region Capacity Import Limit, PJM shall optimize transfers from other source areas not experiencing any reliability criteria violations as appropriate to increase the Capacity Import Limit. The aggregate megawatt quantity of transfers into PJM at the point where any increase in transfers on the interface would violate reliability criteria will establish the Capacity Import Limit. Notwithstanding the foregoing, a Capacity Resource located outside the PJM Region shall not be subject to the Capacity Import Limit if the Capacity Market Seller seeks an exception thereto by demonstrating to PJM, by no later than five (5) business days prior to the commencement of the offer period for the relevant RPM Auction, that such resource meets all of the following requirements:

(i) it has, at the time such exception is requested, met all applicable requirements to be treated as equivalent to PJM Region internal generation that is not subject to NERC tagging as an interchange transaction, or the Capacity Market Seller has committed in writing that it will meet such requirements, unless prevented from doing so by circumstances beyond the control of the Capacity Market Seller, prior to the relevant Delivery Year;

(ii) at the time such exception is requested, it has long-term firm transmission service confirmed on the complete transmission path from such resource into PJM; and

(iii) it is, by written commitment of the Capacity Market Seller, subject to the same obligations imposed on Generation Capacity Resources located in the PJM Region by section 6.6 of Attachment DD of the PJM Tariff to offer their capacity into RPM Auctions;

provided, however, that (a) the total megawatt quantity of all exceptions granted hereunder for a Delivery Year, plus the Capacity Import Limit for the applicable interface determined for such Delivery Year, may not exceed the total megawatt quantity of Network External Designated Transmission Service on such interface that PJM has confirmed for such Delivery Year; and (b) if granting a qualified exception would result in a violation of the rule in clause (a), PJM shall grant the requested exception but reduce the Capacity Import Limit by the quantity necessary to ensure that the total quantity of Network External Designated Transmission Service is not exceeded.

### **1.7B Capacity Performance Resource**

Capacity Performance Resource shall have the same meaning as in Attachment DD to the PJM Tariff.

### **1.8 Capacity Resources**

Capacity Resources shall mean megawatts of (i) net capacity from Existing Generation Capacity Resources or Planned Generation Capacity Resources meeting the requirements of Schedules 9 and 10 that are or will be owned by or contracted to a Party and that are or will be committed to satisfy that Party's obligations under this Agreement, or to satisfy the reliability requirements of the PJM Region, for a Delivery Year; (ii) net capacity from Existing Generation

Capacity Resources or Planned Generation Capacity Resources not owned or contracted for by a Party which are accredited to the PJM Region pursuant to the procedures set forth in Schedules 9 and 10; and (iii) load reduction capability provided by Demand Resources or Energy Efficiency Resources that are accredited to the PJM Region pursuant to the procedures set forth in Schedule 6.

## **1.9 Capacity Transfer Right**

Capacity Transfer Right shall have the meaning specified in Attachment DD to the PJM Tariff.

### **1.9.1 Compliance Aggregation Area (CAA)**

“Compliance Aggregation Area” or “CAA” shall have the same meaning as in the PJM Tariff.

## **1.10 Control Area**

Control Area shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common generation control scheme is applied in order to:

- (a) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);
- (b) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;
- (c) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice and the criteria of NERC and each Applicable Regional Entity;
- (d) maintain power flows on transmission facilities within appropriate limits to preserve reliability; and
- (e) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

## **1.11 Daily Unforced Capacity Obligation**

Daily Unforced Capacity Obligation shall have the meaning set forth in Schedule 8 or, as to an FRR Entity, in Schedule 8.1.

## **1.12 Delivery Year**



Delivery Year shall mean a Planning Period for which a Capacity Resource is committed pursuant to the auction procedures specified in Attachment DD to the Tariff or pursuant to an FRR Capacity Plan.

### **1.13 Demand Resource**

Demand Resource or “DR” shall mean a Limited Demand Resource, Extended Summer Demand Resource, Annual Demand Resource, or Base Capacity Demand Resource with a demonstrated capability to provide a reduction in demand or otherwise control load in accordance with the requirements of Schedule 6 that offers and that clears load reduction capability in a Base Residual Auction or Incremental Auction or that is committed through an FRR Capacity Plan.

#### **1.13A Demand Resource Officer Certification Form**

Demand Resource Officer Certification Form shall mean a certification as to an intended Demand Resource Sell Offer, in accordance with Schedules 6 and 8.1 of this Agreement and the PJM Manuals.

### **1.14 [Reserved for Future Use]**

#### **1.14A Demand Resource Sell Offer Plan**

Demand Resource Sell Offer Plan shall mean the plan required by Schedules 6 and 8.1 of this Agreement in support of an intended offer of Demand Resources in an RPM Auction, or an intended inclusion of Demand Resources in an FRR Capacity Plan.

### **1.15 DR Factor**

DR Factor (“Demand Resource Factor”) shall mean, for Delivery Years through May 31, 2018, that factor approved from time to time by the PJM Board used to determine the unforced capacity value of a Demand Resource in accordance with Schedule 6.

### **1.16 [Reserved for Future Use]**

### **1.17 Electric Cooperative**

Electric Cooperative shall mean an entity owned in cooperative form by its customers that is engaged in the generation, transmission, and/or distribution of electric energy.

### **1.18 Electric Distributor**

Electric Distributor shall mean an entity that owns or leases with rights equivalent to ownership electric distribution facilities that are providing electric distribution service to electric load within the PJM Region.

## **1.19 Emergency**

Emergency shall mean (i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals.

## **1.20 End-Use Customer**

End-Use Customer shall mean a Member that is a retail end-user of electricity within the PJM Region.

### **1.20A Energy Efficiency Resource**

Energy Efficiency Resource shall mean a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, meeting the requirements of Schedule 6 of this Agreement and exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during the periods described in Schedule 6 and the PJM Manuals) reduction in electric energy consumption that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention. Annual Energy Efficiency Resources and Base Capacity Energy Efficiency Resources are types of Energy Efficiency Resources.

#### **1.20A.1 Existing Demand Resource**

Existing Demand Resource shall mean a Demand Resource for which the Demand Resource Provider has identified existing end-use customer sites that are registered for the current Delivery Year with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the Delivery Year for which such resource is offered.

#### **1.20B Existing Generation Capacity Resource**

Existing Generation Capacity Resource shall mean, for purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource that, as of the date on which bidding commences for such auction: (a) is in service; or (b) is not yet in service, but has cleared any RPM Auction for any prior Delivery Year. Notwithstanding the foregoing, a Generation Capacity Resource for which construction has not commenced and which would otherwise have been treated as a Planned Generation Capacity Resource but for the fact that it was bid into RPM Auctions for at least two consecutive

Delivery Years, and cleared the last such auction only because it was considered existing and its mitigated offer cap was accepted when its price offer would not have otherwise been accepted, shall be deemed to be a Planned Generation Capacity Resource. A Generation Capacity Resource shall be deemed to be in service if interconnection service has ever commenced (for resources located in the PJM Region), or if it is physically and electrically interconnected to an external Control Area and is in full commercial operation (for resources not located in the PJM Region). The additional megawatts of a Generation Capacity Resource that is being, or has been, modified to increase the number of megawatts of available installed capacity thereof shall not be deemed to be an Existing Generation Capacity Resource until such time as those megawatts (a) are in service; or (b) are not yet in service, but have cleared any RPM Auction for any prior Delivery Year.

### **1.20C Extended Summer Demand Resource**

Extended Summer Demand Resource shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will be available June through October and the following May, and will be available for an unlimited number of interruptions during such months by the Office of the Interconnection, and will be capable of maintaining each such interruption for at least a 10-hour duration between the hours of 10:00AM to 10:00PM Eastern Prevailing Time. The Extended Summer Demand Resource must be available June through October and the following May in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as an Extended Summer Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

### **1.21 Facilities Study Agreement**

Facilities Study Agreement shall have the same meaning as in the PJM Tariff

### **1.22 FERC**

FERC shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department.

### **1.23 Firm Point-To-Point Transmission Service**

Firm Point-To-Point Transmission Service shall mean Firm Transmission Service provided pursuant to the rates, terms and conditions set forth in Part II of the PJM Tariff.

### **1.24 Firm Transmission Service**

Firm Transmission Service shall mean transmission service that is intended to be available at all times to the maximum extent practicable, subject to an Emergency, an unanticipated failure of a facility, or other event beyond the control of the owner or operator of the facility or the Office of the Interconnection.

### **1.25 Fixed Resource Requirement Alternative or FRR Alternative**

Fixed Resource Requirement Alternative or FRR Alternative shall mean an alternative method for a Party to satisfy its obligation to provide Unforced Capacity hereunder, as set forth in Schedule 8.1 to this Agreement.

### **1.26 Forecast Pool Requirement**

Forecast Pool Requirement or FPR shall mean the amount equal to one plus the unforced reserve margin (stated as a decimal number) for the PJM Region required pursuant to this Agreement, as approved by the PJM Board pursuant to Schedule 4.1.

### **1.27 [Reserved]**

### **1.28 [Reserved]**

### **1.29 FRR Capacity Plan or FRR Plan**

FRR Capacity Plan or FRR Plan shall mean a long-term plan for the commitment of Capacity Resources to satisfy the capacity obligations of a Party that has elected the FRR Alternative, as more fully set forth in Schedule 8.1 to this Agreement.

### **1.30 FRR Entity**

FRR Entity shall mean, for the duration of such election, a Party that has elected the FRR Alternative hereunder.

### **1.31 FRR Service Area**

FRR Service Area shall mean (a) the service territory of an IOU as recognized by state law, rule or order; (b) the service area of a Public Power Entity or Electric Cooperative as recognized by franchise or other state law, rule, or order; or (c) a separately identifiable geographic area that is: (i) bounded by wholesale metering, or similar appropriate multi-site aggregate metering, that is visible to, and regularly reported to, the Office of the Interconnection, or that is visible to, and regularly reported to an Electric Distributor and such Electric Distributor agrees to aggregate the load data from such meters for such FRR Service Area and regularly report such aggregated information, by FRR Service Area, to the Office of the Interconnection; and (ii) for which the FRR Entity has or assumes the obligation to provide capacity for all load (including load growth) within such area. In the event that the service obligations of an Electric Cooperative or Public Power Entity are not defined by geographic boundaries but by physical connections to a defined set of customers, the FRR Service Area in such circumstances shall be defined as all customers physically connected to transmission or distribution facilities of such Electric Cooperative or Public Power Entity within an area bounded by appropriate wholesale aggregate metering as described above.

### **1.32 Full Requirements Service**

Full Requirements Service shall mean wholesale service to supply all of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

### **1.33 Generation Capacity Resource**

Generation Capacity Resource shall mean a generation unit, or the contractual right to capacity from a specified generation unit, that meets the requirements of Schedules 9 and 10 of this Agreement, and, for generation units that are committed to an FRR Capacity Plan, that meets the requirements of Schedule 8.1 of this Agreement. A Generation Capacity Resource may be an Existing Generation Capacity Resource or a Planned Generation Capacity Resource.

### **1.34 Generation Owner**

Generation Owner shall mean a Member that owns or leases with rights equivalent to ownership, facilities for the generation of electric energy that are located within the PJM Region. Purchasing all or a portion of the output of a generation facility shall not be sufficient to qualify a Member as a Generation Owner.

### **1.35 Generator Forced Outage**

Generator Forced Outage shall mean an immediate reduction in output or capacity or removal from service, in whole or in part, of a generating unit by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the facility, as specified in the relevant portions of the PJM Manuals. A reduction in output or removal from service of a generating unit in response to changes in market conditions shall not constitute a Generator Forced Outage.

### **1.36 Generator Maintenance Outage**

Generator Maintenance Outage shall mean the scheduled removal from service, in whole or in part, of a generating unit in order to perform repairs on specific components of the facility, if removal of the facility qualifies as a maintenance outage pursuant to the PJM Manuals.

### **1.37 Generator Planned Outage**

Generator Planned Outage shall mean the scheduled removal from service, in whole or in part, of a generating unit for inspection, maintenance or repair with the approval of the Office of the Interconnection in accordance with the PJM Manuals.

### **1.38 Good Utility Practice**

Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light

of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region.

**1.39 [Reserved]**

**1.40 Incremental Auction**

Incremental Auction shall mean the First Incremental Auction, the Second Incremental Auction, the Third Incremental Auction, or the Conditional Incremental Auction, each as defined in Attachment DD to the PJM Tariff.

**1.41 Interconnection Agreement**

Interconnection Agreement shall have the same meaning as in the PJM Tariff.

**1.42 [Reserved]**

**1.43 IOU**

IOU shall mean an investor-owned utility with substantial business interest in owning and/or operating electric facilities in any two or more of the following three asset categories: generation, transmission, distribution.

**1.43A Limited Demand Resource**

Limited Demand Resource shall mean, for Delivery Years through May 31, 2018, and for FRR Capacity Plans Delivery Years through May 31, 2019, a resource that is placed under the direction of the Office of the Interconnection and that will, at a minimum, be available for interruption for at least 10 Load Management Events during the summer period of June through September in the Delivery Year, and will be capable of maintaining each such interruption for at least a 6-hour duration. At a minimum, the Limited Demand Resource shall be available for such interruptions on weekdays, other than NERC holidays, from 12:00PM (noon) to 8:00PM Eastern Prevailing Time. The Limited Demand Resource must be available during the summer period of June through September in the corresponding Delivery Year to be offered for sale or Self-Supplied in an RPM Auction, or included as a Limited Demand Resource in an FRR Capacity Plan for the corresponding Delivery Year.

**1.44 Load Serving Entity or LSE**

Load Serving Entity or LSE shall mean any entity (or the duly designated agent of such an entity), including a load aggregator or power marketer, (i) serving end-users within the PJM Region, and (ii) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Region.

Load Serving Entity shall include any end-use customer that qualifies under state rules or a utility retail tariff to manage directly its own supply of electric power and energy and use of transmission and ancillary services.

#### **1.45 Locational Reliability Charge**

Locational Reliability Charge shall mean the charge determined pursuant to Schedule 8.

#### **1.46 Markets and Reliability Committee**

Markets and Reliability Committee shall mean the committee established pursuant to the Operating Agreement as a Standing Committee of the Members Committee.

#### **1.46A Maximum Emergency Service Level**

Maximum Emergency Service Level or MESL of Price Responsive Demand shall mean the level, determined at a PRD Substation level, to which Price Responsive Demand shall be reduced during the Delivery Year when a Maximum Generation Emergency is declared and the Locational Marginal Price exceeds the price associated with such Price Responsive Demand identified by the PRD Provider in its PRD Plan.

#### **1.47 Member**

Member shall mean an entity that satisfies the requirements of Sections 1.24 and 11.6 of the PJM Operating Agreement. In accordance with Article 4 of this Agreement, each Party to this Agreement also is a Member.

#### **1.48 Members Committee**

Members Committee shall mean the committee specified in Section 8 of the PJM Operating Agreement composed of the representatives of all the Members.

#### **1.49 NERC**

NERC shall mean the North American Electric Reliability Council or any successor thereto.

#### **1.49A Network External Designated Transmission Service**

Network External Designated Transmission Service shall mean the quantity of network transmission service confirmed by PJM for use by a market participant to import power and energy from an identified Generation Capacity Resource located outside the PJM Region, upon demonstration by such market participant that it owns such Generation Capacity Resource, has an executed contract to purchase power and energy from such Generation Capacity Resource, or has a contract to purchase power and energy from such Generation Capacity Resource contingent upon securing firm transmission service from such resource.

## **1.50 Network Resources**

Network Resources shall have the meaning set forth in the PJM Tariff.

### **1.51 Network Transmission Service**

Network Transmission Service shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Part III of the PJM Tariff or transmission service comparable to such service that is provided to a Load Serving Entity that is also a Transmission Owner (as that term is defined in the PJM Tariff).

#### **1.51A Nominal PRD Value**

Nominal PRD Value shall mean, as to any PRD Provider, an adjustment, determined in accordance with Schedule 6.1 of this Agreement, to the peak-load forecast used to determine the quantity of capacity sought through an RPM Auction, reflecting the aggregate effect of Price Responsive Demand on peak load resulting from the Price Responsive Demand to be provided by such PRD Provider.

### **1.52 Nominated Demand Resource Value**

Nominated Demand Resource Value shall have the meaning specified in Attachment DD to the PJM Tariff.

### **1.53 [Reserved]**

### **1.54 Non-Retail Behind the Meter Generation**

Non-Retail Behind the Meter Generation shall mean Behind the Meter Generation that is used by municipal electric systems, electric cooperatives, and electric distribution companies to serve load.

### **1.55 Obligation Peak Load**

Obligation Peak Load shall have the meaning specified in Schedule 8 of this Agreement.

### **1.56 Office of the Interconnection**

Office of the Interconnection shall mean the employees and agents of PJM Interconnection, L.L.C., subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

### **1.57 Operating Agreement of PJM Interconnection, L.L.C. or Operating Agreement**



Operating Agreement of PJM Interconnection, L.L.C. or Operating Agreement shall mean that certain agreement, dated April 1, 1997 and as amended and restated June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

#### **1.57A Operating Day**

Operating Day shall have the same meaning as provided in the Operating Agreement.

#### **1.58 Operating Reserve**

Operating Reserve shall mean the amount of generating capacity scheduled to be available for a specified period of an Operating Day to ensure the reliable operation of the PJM Region, as specified in the PJM Manuals.

#### **1.59 Other Supplier**

Other Supplier shall mean a Member that is (i) a seller, buyer or transmitter of electric capacity or energy in, from or through the PJM Region, and (ii) is not a Generation Owner, Electric Distributor, Transmission Owner or End-Use Customer.

#### **1.60 Partial Requirements Service**

Partial Requirements Service shall mean wholesale service to supply a specified portion, but not all, of the power needs of a Load Serving Entity to serve end-users within the PJM Region that are not satisfied by its own generating facilities.

#### **1.60A Performance Assessment Hour**

Performance Assessment Hour shall have the meaning specified in Attachment DD of the PJM Tariff.

#### **1.61 Percentage Internal Resources Required**

Percentage Internal Resources Required shall mean, for purposes of an FRR Capacity Plan, the percentage of the LDA Reliability Requirement for an LDA that must be satisfied with Capacity Resources located in such LDA.

#### **1.62 Party**

Party shall mean an entity bound by the terms of this Agreement.

#### **1.63 PJM**

PJM shall mean the PJM Board and the Office of the Interconnection.

#### **1.64 PJM Board**

PJM Board shall mean the Board of Managers of the PJM Interconnection, L.L.C., acting pursuant to the Operating Agreement.

#### **1.65 PJM Manuals**

PJM Manuals shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning and accounting requirements of the PJM Region.

#### **1.66 PJM Open Access Transmission Tariff or PJM Tariff**

PJM Open Access Transmission Tariff or PJM Tariff shall mean the tariff for transmission service within the PJM Region, as in effect from time to time, including any schedules, appendices, or exhibits attached thereto.

#### **1.67 PJM Region**

PJM Region shall have the same meaning as provided in the Operating Agreement.

#### **1.68 PJM Region Installed Reserve Margin**

PJM Region Installed Reserve Margin shall mean the percent installed reserve margin for the PJM Region required pursuant to this Agreement, as approved by the PJM Board pursuant to Schedule 4.1.

#### **1.69 Planned Demand Resource**

Planned Demand Resource shall mean any Demand Resource that does not currently have the capability to provide a reduction in demand or to otherwise control load, but that is scheduled to be capable of providing such reduction or control on or before the start of the Delivery Year for which such resource is to be committed, as determined in accordance with the requirements of Schedule 6. As set forth in Schedules 6 and 8.1 of this Agreement, a Demand Resource Provider submitting a DR Sell Offer Plan shall identify as Planned Demand Resources in such plan all Demand Resources in excess of those that qualify as Existing Demand Resources.

#### **1.69A Planned External Generation Capacity Resource**

Planned External Generation Capacity Resource shall mean a proposed Generation Capacity Resource, or a proposed increase in the capability of a Generation Capacity Resource, that (a) is to be located outside the PJM Region, (b) participates in the generation interconnection process of a Control Area external to PJM, (c) is scheduled to be physically and electrically interconnected to the transmission facilities of such Control Area on or before the first day of the Delivery Year for which such resource is to be committed to satisfy the reliability requirements

of the PJM Region, and (d) is in full commercial operation prior to the first day of such Delivery Year, such that it is sufficient to provide the Installed Capacity set forth in the Sell Offer forming the basis of such resource's commitment to the PJM Region. Prior to participation in any Base Residual Auction for such Delivery Year, the Capacity Market Seller must demonstrate that it has a fully executed system impact study agreement (or other documentation which is functionally equivalent to a System Impact Study Agreement under the PJM Tariff) or, for resources which are greater than 20MWs participating in a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, an agreement or other documentation which is functionally equivalent to a Facilities Study Agreement under the PJM Tariff), with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. Prior to participating in any Incremental Auction for such Delivery Year, the Capacity Market Seller must demonstrate it has entered into an interconnection agreement, or such other documentation that is functionally equivalent to an Interconnection Service Agreement under the PJM Tariff, with the transmission owner to whose transmission facilities or distribution facilities the resource is being directly connected, and, as applicable, the transmission provider. A Planned External Generation Capacity Resource must provide evidence to PJM that it has been studied as a Network Resource, or such other similar interconnection product in such external Control Area, must provide contractual evidence that it has applied for or purchased transmission service to be deliverable to the PJM border, and must provide contractual evidence that it has applied for transmission service to be deliverable to the bus at which energy is to be delivered, the agreements for which must have been executed prior to participation in any Reliability Pricing Model Auction for such Delivery Year. Any such resource shall cease to be considered a Planned External Generation Capacity Resource as of the earlier of (i) the date that interconnection service commences as to such resource; or (ii) the resource has cleared an RPM Auction, in which case it shall become an Existing Generation Capacity Resource for purposes of the mitigation of offers for any RPM Auction for all subsequent Delivery Years.

### **1.70 Planned Generation Capacity Resource**

Planned Generation Capacity Resource shall mean a Generation Capacity Resource, or additional megawatts to increase the size of a Generation Capacity Resource that is being or has been modified to increase the number of megawatts of available installed capacity thereof, participating in the generation interconnection process under Part IV, Subpart A of the PJM Tariff, as applicable, for which: (i) Interconnection Service is scheduled to commence on or before the first day of the Delivery Year for which such resource is to be committed to RPM or to an FRR Capacity Plan; (ii) for any such resource seeking to offer into a Base Residual Auction, or for any such resource of 20 MWs or less seeking to offer into a Base Residual Auction, a System Impact Study Agreement (or, for resources for which a System Impact Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a System Impact Study Agreement) has been executed prior to the Base Residual Auction for such Delivery Year; (iii) for any such resource of more than 20 MWs seeking to offer into a Base Residual Auction for the 2019/2020 Delivery Year and subsequent Delivery Years, a Facilities Study Agreement (or, for resources for which a Facilities Study Agreement is not required, has such other agreement or documentation that is functionally equivalent to a Facility Studies Agreement) has been executed prior to the Base Residual Auction for such

Delivery Year; (iv) an Interconnection Service Agreement has been executed prior to any Incremental Auction for such Delivery Year in which such resource plans to participate; and (iv) no megawatts of capacity have cleared an RPM Auction for any prior Delivery Year. For purposes of the must-offer requirement and mitigation of offers for any RPM Auction for a Delivery Year, a Generation Capacity Resource shall cease to be considered a Planned Generation Capacity Resource as of the earlier of (i) the date that Interconnection Service commences as to such resource; or (ii) the resource has cleared an RPM Auction for any Delivery Year. Notwithstanding the foregoing, a Generation Capacity Resource for which construction has not commenced and which would otherwise have been treated as a Planned Generation Capacity Resource but for the fact that it was bid into RPM Auctions for at least two consecutive Delivery Years, and cleared the last such auction only because it was considered existing and its mitigated offer cap was accepted when its price offer would not have otherwise been accepted, shall be deemed to be a Planned Generation Capacity Resource.

### **1.71 Planning Period**

Planning Period shall mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period approved by the Members Committee.

#### **1.71A PRD Curve**

PRD Curve shall mean a price-consumption curve at a PRD Substation level, if available, and otherwise at a Zonal (or sub-Zonal LDA, if applicable) level, that details the base consumption level of Price Responsive Demand and the decreasing consumption levels at increasing prices.

#### **1.71B PRD Provider**

PRD Provider shall mean (i) a Load Serving Entity that provides PRD; or (ii) an entity without direct load serving responsibilities that has entered contractual arrangements with end-use customers served by a Load Serving Entity that satisfy the eligibility criteria for Price Responsive Demand.

#### **1.71C PRD Provider's Zonal Expected Peak Load Value of PRD**

PRD Provider's Zonal Expected Peak Load Value of PRD shall mean the expected contribution to Delivery Year peak load of a PRD Provider's Price Responsive Demand, were such demand not to be reduced in response to price, based on the contribution of the end-use customers comprising such Price Responsive Demand to the most recent prior Delivery Year's peak demand, escalated to the Delivery Year in question, as determined in a manner consistent with the Office of the Interconnection's load forecasts used for purposes of the RPM Auctions.

#### **1.71D PRD Reservation Price**

PRD Reservation Price shall mean an RPM Auction clearing price identified in a PRD Plan for Price Responsive Demand load below which the PRD Provider desires not to commit the identified load as Price Responsive Demand.

#### **1.71E PRD Substation**

PRD Substation shall mean an electrical substation that is located in the same Zone or in the same sub-Zonal LDA as the end-use customers identified in a PRD Plan or PRD registration and that, in terms of the electrical topography of the Transmission Facilities comprising the PJM Region, is as close as practicable to such loads.

#### **1.71F Price Responsive Demand**

Price Responsive Demand or PRD shall mean end-use customer load registered by a PRD Provider pursuant to Schedule 6.1 of the PJM Reliability Assurance Agreement that have, as set forth in more detail in the PJM Manuals, the metering capability to record electricity consumption at an interval of one hour or less, Supervisory Control capable of curtailing such load (consistent with applicable RERRA requirements) at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection, and a retail rate structure, or equivalent contractual arrangement, capable of changing retail rates as frequently as an hourly basis, that is linked to or based upon changes in real-time Locational Marginal Prices at a PRD Substation level and that results in a predictable automated response to varying wholesale electricity prices.

#### **1.71G Price Responsive Demand Credit**

Price Responsive Demand Credit shall mean a credit, based on committed Price Responsive Demand, as determined under Schedule 6.1 of this Agreement.

#### **1.71H Price Responsive Demand Plan or PRD Plan**

Price Responsive Demand Plan or PRD Plan shall mean a plan, submitted by a PRD Provider and received by the Office of the Interconnection in accordance with Schedule 6.1 of this Agreement and procedures specified in the PJM Manuals, claiming a peak demand limitation due to Price Responsive Demand to support the determination of such PRD Provider's Nominal PRD Value.

#### **1.72 Public Power Entity**

Public Power Entity shall mean any agency, authority, or instrumentality of a state or of a political subdivision of a state, or any corporation wholly owned by any one or more of the foregoing, that is engaged in the generation, transmission, and/or distribution of electric energy.

#### **1.73 Qualifying Transmission Upgrades**

Qualifying Transmission Upgrades shall have the meaning specified in Attachment DD to the PJM Tariff.

**1.74 [Reserved for Future Use]**

**1.74A Relevant Electric Retail Regulatory Authority**

Relevant Electric Retail Regulatory Authority or RERRA shall have the meaning specified in the PJM Operating Agreement.

**1.75 Reliability Principles and Standards**

Reliability Principles and Standards shall mean the principles and standards established by NERC or an Applicable Regional Entity to define, among other things, an acceptable probability of loss of load due to inadequate generation or transmission capability, as amended from time to time.

**1.76 Required Approvals**

Required Approvals shall mean all of the approvals required for this Agreement to be modified or to be terminated, in whole or in part, including the acceptance for filing by FERC and every other regulatory authority with jurisdiction over all or any part of this Agreement.

**1.77 Self-Supply**

Self-Supply shall have the meaning provided in Attachment DD to the PJM Tariff.

**1.77A Small Commercial Customer**

“Small Commercial Customer” shall have the same meaning as in the PJM Tariff.

**1.78 [Reserved for Future Use]**

**1.79 [Reserved for Future Use]**

**1.80 State Consumer Advocate**

State Consumer Advocate shall mean a legislatively created office from any State, all or any part of the territory of which is within the PJM Region, and the District of Columbia established, inter alia, for the purpose of representing the interests of energy consumers before the utility regulatory commissions of such states and the District of Columbia and the FERC.

**1.81 State Regulatory Structural Change**

State Regulatory Structural Change shall mean as to any Party, a state law, rule, or order that, after September 30, 2006, initiates a program that allows retail electric consumers served by such Party to choose from among alternative suppliers on a competitive basis, terminates such a program, expands such a program to include classes of customers or localities served by such Party that were not previously permitted to participate in such a program, or that modifies retail electric market structure or market design rules in a manner that materially increases the likelihood that a substantial proportion of the customers of such Party that are eligible for retail choice under such a program (a) that have not exercised such choice will exercise such choice; or (b) that have exercised such choice will no longer exercise such choice, including for example, without limitation, mandating divestiture of utility-owned generation or structural changes to such Party's default service rules that materially affect whether retail choice is economically viable.

### **1.81A Supervisory Control**

Supervisory Control shall mean the capability to curtail, in accordance with applicable RERRA requirements, load registered as Price Responsive Demand at each PRD Substation identified in the relevant PRD Plan or PRD registration in response to a Maximum Generation Emergency declared by the Office of the Interconnection. Except to the extent automation is not required by the provisions of this Agreement, the curtailment shall be automated, meaning that load shall be reduced automatically in response to control signals sent by the PRD Provider or its designated agent directly to the control equipment where the load is located without the requirement for any action by the end-use customer.

### **1.82 Threshold Quantity**

Threshold Quantity shall mean, as to any FRR Entity for any Delivery Year, the sum of (a) the Unforced Capacity equivalent (determined using the Pool-Wide Average EFORD) of the Installed Reserve Margin for such Delivery Year multiplied by the Preliminary Forecast Peak Load for which such FRR Entity is responsible under its FRR Capacity Plan for such Delivery Year, plus (b) the lesser of (i) 3% of the Unforced Capacity amount determined in (a) above or (ii) 450 MW. If the FRR Entity is not responsible for all load within a Zone, the Preliminary Forecast Peak Load for such entity shall be the FRR Entity's Obligation Peak Load last determined prior to the Base Residual Auction for such Delivery Year, times the Base FRR Scaling Factor (as determined in accordance with Schedule 8.1).

### **1.83 Transmission Facilities**

Transmission Facilities shall mean facilities that: (i) are within the PJM Region; (ii) meet the definition of transmission facilities pursuant to FERC's Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities; and (iii) have been demonstrated to the satisfaction of the Office of the Interconnection to be integrated with the PJM Region transmission system and integrated into the planning and operation of the PJM Region to serve all of the power and transmission customers within the PJM Region.

### **1.84 Transmission Owner**

Transmission Owner shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner.

**1.85 Transmission Owners Agreement**

Transmission Owners Agreement shall mean that certain Consolidated Transmission Owners Agreement, dated as of December 15, 2005 and as amended from time to time, among transmission owners within the PJM Region.

**1.86 Unforced Capacity**

Unforced Capacity shall mean installed capacity rated at summer conditions that is not on average experiencing a forced outage or forced derating, calculated for each Capacity Resource on the 12-month period from October to September without regard to the ownership of or the contractual rights to the capacity of the unit.

**1.87 [Reserved for Future Use]**

**1.88 Zonal Capacity Price**

Zonal Capacity Price shall mean the price of Unforced Capacity in a Zone that an LSE that has not elected the FRR Alternative is obligated to pay for a Delivery Year as determined pursuant to Attachment DD to the PJM Tariff.

**1.89 Zone or Zonal**

Zone or Zonal shall refer to an area within the PJM Region, as set forth in Schedule 15, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Region. A Zone shall include any Non-Zone Network Load (as defined in the PJM Tariff) located outside the PJM Region that is served from such Zone under Schedule H-A of the PJM Tariff.



## SCHEDULE 6

### **PROCEDURES FOR DEMAND RESOURCES AND ENERGY EFFICIENCY**

A. Parties can partially or wholly offset the amounts payable for the Locational Reliability Charge with Demand Resources that are operated under the direction of the Office of the Interconnection. FRR Entities may reduce their capacity obligations with Demand Resources that are operated under the direction of the Office of the Interconnection and detailed in such entity's FRR Capacity Plan. Demand Resources qualifying under the criteria set forth below may be offered for sale or designated as Self-Supply in the Base Residual Auction, included in an FRR Capacity Plan, or offered for sale in any Incremental Auction, for any Delivery Year for which such resource qualifies. Qualified Demand Resources generally fall in one of three categories, i.e., Guaranteed Load Drop, Firm Service Level, or Direct Load Control, as further specified in section G and the PJM Manuals. Qualified Demand Resources may be provided by a Curtailment Service Provider, notwithstanding that such Curtailment Service Provider is not a Party to this Agreement. Such Curtailment Service Providers must satisfy the requirements hereof and the PJM Manuals.

1. A Party must formally notify, in accordance with the requirements of the PJM Manuals and section F hereof, as applicable, the Office of the Interconnection of the Demand Resource that it is placing under the direction of the Office of the Interconnection. A Party must further notify the Office of the Interconnection whether the resource is a Limited Demand Resource, an Extended Summer Demand Resource, a Base Capacity Demand Resource or an Annual Demand Resource.

2. A Demand Resource must achieve its full load reduction within the following time period:

(a) For the 2014/2015 Delivery Year, Curtailment Service Providers may elect a notification time period from the Office of the Interconnection of 30, 60 or 120 minutes prior to their Demand Resources being required to fully respond to a Load Management Event.

(b) For the 2015/2016 Delivery Year and subsequent Delivery Years, a Demand Resource must be able to fully respond to a Load Management Event within 30 minutes of notification from the Office of the Interconnection. This default 30 minute prior notification shall apply unless a Curtailment Service Provider obtains an exception from the Office of the Interconnection due to physical operational limitations that prevent the Demand Resource from reducing load within that timeframe. In such case, the Curtailment Service Provider shall submit a request for an exception to the 30 minute prior notification requirement to the Office of the Interconnection, at the time the Registration Form for that resource is submitted in accordance with Attachment K-Appendix of this Tariff. The only alternative notification times that the Office of Interconnection will permit, upon approval of an exception request, are 60 minutes and 120 minutes prior to a Load Management Event. The Curtailment Service Provider shall indicate in writing, in the appropriate application, that it seeks an exception to permit a prior notification time of 60 minutes or 120 minutes, and the reason(s) for the requested exception. A Curtailment Service Provider shall not submit a request for an exception to the default 30 minute notification period unless it has done its due diligence to confirm that the Demand Resource is physically

incapable of responding within that timeframe based on one or more of the reasons set forth below and as may be further defined in the PJM Manuals and has obtained detailed data and documentation to support this determination.

In order to establish that a Demand Resource is reasonably expected to be physically unable to reduce load in that timeframe, the Curtailment Service Provider that registered the resource must demonstrate that:

1) The manufacturing processes for the Demand Resource require gradual reduction to avoid damaging major industrial equipment used in the manufacturing process, or damage to the product generated or feedstock used in the manufacturing process;

2) Transfer of load to back-up generation requires time-intensive manual process taking more than 30 minutes;

3) On-site safety concerns prevent location from implementing reduction plan in less than 30 minutes; or,

4) The Demand Resource is comprised of mass market residential customers or Small Commercial Customers which collectively cannot be notified of a Load Management Event within a 30-minute timeframe due to unavoidable communications latency, in which case the requested notification time shall be no longer than 120 minutes.

The Office of the Interconnection may request data and documentation from the Curtailment Service Provider and such Curtailment Service Provider shall provide to the Office of the Interconnection within three (3) business days of a request therefor, a copy of all of the data and documentation supporting the exception request. Failure to provide a timely response to such request shall cause the exception to terminate the following Operating Day.

At its sole option and discretion, the Office of the Interconnection may review the data and documentation provided by the Curtailment Service Provider to determine if the Demand Resource has met one or more of the criteria above. The Office of the Interconnection will notify the Curtailment Service Provider in writing of its determination by no later than ten (10) business days after receipt of the data and documentation.

The Curtailment Service Provider shall provide written notification to the Office of the Interconnection of a material change to the facts that supported its exception request within three (3) business days of becoming aware of such material change in facts, and, if the Office of Interconnection determines that the physical limitation criteria above are no longer being met, the Demand Resource shall be subject to the default notification period of 30 minutes immediately upon such determination.

3. The initiation of load reduction, upon the request of the Office of the Interconnection, must be within the authority of the dispatchers of the Party. No additional approvals should be required.

4. The initiation of load reduction upon the request of the Office of the Interconnection is considered a pre-emergency or emergency action and must be implementable prior to a voltage reduction.

5. A Curtailment Service Provider intending to offer for sale or designate for self-supply, a Demand Resource in any RPM Auction, or intending to include a Demand Resource in any FRR Capacity Plan must demonstrate, to PJM's satisfaction, that such resource shall have the capability to provide a reduction in demand, or otherwise control load, on or before the start of the Delivery Year for which such resource is committed. As part of such demonstration, each such Curtailment Service Provider shall submit a Demand Resource Sell Offer Plan in accordance with the standards and procedures set forth in section A-1 of Schedule 6, Schedule 8.1 (as to FRR Capacity Plans) and the PJM Manuals, no later than 15 business days prior to, as applicable, the RPM Auction in which such resource is to be offered, or the deadline for submission of the FRR Capacity Plan in which such resource is to be included. PJM may verify the Curtailment Service Provider's adherence to the Demand Resource Sell Offer Plan at any time. A Curtailment Service Provider with a PJM-approved Demand Resource Sell Offer Plan will be permitted to offer up to the approved Demand Resource quantity into the subject RPM Auction or include such resource in its FRR Capacity Plan.

6. Selection of a Demand Resource in an RPM Auction results in commitment of capacity to the PJM Region. Demand Resources that are so committed must be registered to participate in the Full Program Option or as a Capacity Only resource of the Emergency Load Response and Pre-Emergency Load Response Program and thus available for dispatch during PJM-declared pre-emergency events and emergency events.

A-1. A Demand Resource Sell Offer Plan shall consist of a completed template document in the form posted on the PJM website, requiring the information set forth below and in the PJM Manuals, and a Demand Resource Officer Certification Form signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification. The Demand Resource Sell Offer Plan must provide information that supports the Demand Resource Provider's intended Demand Resource Sell Offers and demonstrates that the Demand Resources are being offered with the intention that the MW quantity that clears the auction is reasonably expected to be physically delivered through Demand Resource registrations for the relevant Delivery Year. The Demand Resource Sell Offer Plan shall include all Existing Demand Resources and all Planned Demand Resources that the Demand Resource Provider intends to offer into an RPM Auction or include in an FRR Capacity Plan.

1. Demand Resource Sell Offer Plan Template. The Demand Resource Sell Offer Plan template, in the form provided on the PJM website, shall require the Demand Resource Provider to provide the following information and such other information as specified in the PJM Manuals:

(a) Summary Information. The completed template shall include the Demand Resource Provider's company name, contact information, and the Nominated DR Value in ICAP MWs by Zone/sub-Zone that the Demand Resource Provider intends to offer, stated separately for Existing Demand Resources and Planned Demand Resources. The total

Nominated DR Value in MWs for each Zone/sub-Zone shall be the sum of the Nominated DR Value of Existing Demand Resources and the Nominated DR Value of Planned Demand Resources, and shall be the maximum MW amount the Provider intends to offer in the RPM Auction for the indicated Zone/sub-Zone, provided that nothing herein shall preclude the Demand Resource Provider from offering in the auction a lesser amount than the total Nominated DR Value shown in its Demand Resource Sell Offer Plan.

(b) Existing Demand Resources. The Demand Resource Provider shall identify all Existing Demand Resources by identifying end-use customer sites that are currently registered with PJM (even if not registered by such Demand Resource Provider) and that the Demand Resource Provider reasonably expects to have under a contract to reduce load based on PJM dispatch instructions by the start of the auction Delivery Year.

(c) Planned Demand Resources. The Demand Resource Provider shall provide the details of, and key assumptions underlying, the Planned Demand Resource quantities (i.e., all Demand Resource quantities in excess of Existing Demand Resource quantities) contained in the Demand Resource Sell Offer Plan, including:

(i) key program attributes and assumptions used to develop the Planned Demand Resource quantities, including, but not limited to, discussion of:

- method(s) of achieving load reduction at customer site(s);
- equipment to be controlled or installed at customer site(s), if any;
- plan and ability to acquire customers;
- types of customer targeted;
- support of market potential and market share for the target customer base, with adjustments for Existing Demand Resource customers within this market and the potential for other Demand Resource Providers targeting the same customers;
- assumptions regarding regulatory approval of program(s), if applicable; and
- if applicable, Direct Load Control (DLC) program details such as: a description of the cycling control strategy, any assumptions regarding switch operability rate, and a list (and copy) of all load research studies used to develop the estimated nominated ICAP value per customer (i.e., the per-participant impact).

(ii) Zone/sub-Zone information by end-use customer segment for all Nominated DR Values for which an end-use customer site is not identified, to include the number in each segment of end-use customers expected to be registered for the subject Delivery Year, the average Peak Load Contribution per end-use customer for such segment, and the average Nominated DR Value per customer for such segment. End-use customer segments may include residential, commercial, small industrial, medium industrial, and large industrial, as identified and defined in the PJM Manuals, provided that nothing herein or in the Manuals shall

preclude the Provider from identifying more specific customer segments within the commercial and industrial categories, if known.

(iii) Information by end-use customer site to the extent required by subsection A-1(1)(c)(iv) or, if not required by such subsection, to the extent known at the time of the submittal of the Demand Resource Sell Offer Plan, to include: customer EDC account number (if known), customer name, customer premise address, Zone/sub-Zone in which the customer is located, end-use customer segment, current Peak Load Contribution value (or an estimate if actual value not known) and an estimate of expected Peak Load Contribution for the subject Delivery Year, and an estimated Nominated DR Value.

(iv) End-use customer site-specific information shall be required for any Zones or sub-Zones identified by PJM pursuant to this subsection for the portion, if any, of a Demand Resource Provider's intended offer in such Zones or sub-Zones that exceeds a Sell Offer threshold determined pursuant to this subsection, as any such excess quantity under such conditions should reflect Planned Demand Resources from end-use customer sites that the Provider has a high degree of certainty it will physically deliver for the subject Delivery Year. In accordance with the procedures in subsection A-1(3) below, PJM shall identify, as requiring site-specific information, all Zones and sub-Zones that comprise any LDA group (from a list of LDA groups stated in the PJM Manuals) in which [the quantity of cleared Demand Resources from the most recent Base Residual Auction] plus [the quantity of Demand Resources included in FRR Capacity Plans for the Delivery Year addressed by the most recent Base Residual Auction] in any Zone or sub-Zone of such LDA group exceeds the greater of:

- the maximum Demand Resources quantity registered with PJM for such Zone for any Delivery Year from the current (at time of plan submission) Delivery Year and the two preceding Delivery Years; and
- the potential Demand Resource quantity for such Zone estimated by PJM based on an independent published assessment of demand response potential that is reasonably applicable to such Zone, as identified in the PJM Manuals.

For each such Zone and sub-Zone, the Sell Offer threshold for each Demand Resource Provider shall be the higher of:

- the Demand Resource Provider's maximum Demand Resource quantity registered with PJM for such Zone/sub-Zone over the

current Delivery Year (at the time of plan submission) and two preceding Delivery Years;

- the Demand Resource Provider's maximum for any single Delivery Year of [such provider's cleared Demand Resource quantity] plus [such provider's quantity of Demand Resources included in FRR Capacity Plans] from the three forward Delivery Years addressed by the three most recent Base Residual Auctions for such Zone/sub-Zone; and
- 10 MW.

(d) Schedule. The Demand Resource Provider shall provide an approximate timeline for procuring end-use customer sites as needed to physically deliver the total Nominated DR Value (for both Existing Demand Resources and Planned Demand Resources) by Zone/sub-Zone in the Demand Resource Sell Offer Plan. The Demand Resource Provider must specify the cumulative number of customers and the cumulative Nominated DR Value associated with each end-use customer segment within each Zone/sub-Zone that the Demand Resource Provider expects (at the time of plan submission) to have under contract as of June 1 each year between the time of the auction and the subject Delivery Year.

2. Demand Resource Officer Certification Form. Each Demand Resource Sell Offer Plan must include a Demand Resource Officer Certification, signed by an officer of the Demand Resource Provider that is duly authorized to provide such a certification, in the form shown in the PJM Manuals, which form shall include the following certifications:

(a) that the signing officer has reviewed the Demand Resource Sell Offer Plan and the information supplied to PJM in support of the Plan is true and correct as of the date of the certification; and

(b) that the Demand Resource Provider is submitting the Plan with the reasonable expectation, based upon its analyses as of the date of the certification, to physically deliver all megawatts that clear the RPM Auction through Demand Resource registrations by the specified Delivery Year.

As set forth in the form provided in the PJM manuals, the certification shall specify that it does not in any way abridge, expand, or otherwise modify the current provisions of the PJM Tariff, Operating Agreement and/or RAA, or the Demand Resource Provider's rights and obligations thereunder, including the Demand Resource Provider's ability to adjust capacity obligations through participation in PJM incremental auctions and bilateral transactions.

3. Procedures. No later than December 1 prior to the Base Residual Auction for a Delivery Year, PJM shall post to the PJM website a list of Zones and sub-Zones, if any, for which end-use customer site-specific information shall be required under the conditions specified in subsection A-1(1)(c)(iv) above for all RPM Auctions conducted for such Delivery Year. Once so identified, a Zone or sub-Zone shall remain on the list for future Delivery Years until the

threshold determined under subsection A-1(1)(c)(iv) above is not exceeded for three consecutive Delivery Years. No later than 15 business days prior to the RPM Auction in which a Demand Resource Provider intends to offer a Demand Resource, the Demand Resource Provider shall submit to PJM a completed Demand Resource Sell Offer Plan template and a Demand Resource Officer Certification Form signed by a duly authorized officer of the Provider. PJM will review all submitted DR Sell Offer Plans. No later than 10 business days prior to the subject RPM Auction, PJM shall notify any Demand Resource Providers that have identified the same end-use customer site(s) in their respective DR Sell Offer Plans for the same Delivery Year. In such event, the MWs associated with such site(s) will not be approved for inclusion in a Sell Offer in an RPM Auction by any of the Demand Resource Providers, unless a Demand Resource Provider provides a letter of support from the end-use customer indicating that it is likely to execute a contract with that Demand Resource Provider for the relevant Delivery Year, or provides other comparable evidence of likely commitment. Such letter of support or other supporting evidence must be provided to PJM no later than 7 business days prior to the subject RPM Auction. If an end-use customer provides letters of support for the same site for the same Delivery Year to multiple Demand Resource Providers, the MWs associated with such end-use customer site shall not be approved as a Demand Resource for any of the Demand Resource Providers. No later than 5 business days prior to the subject RPM Auction, PJM will notify each Demand Resource Provider of the approved Demand Resource quantity, by Zone/sub-Zone, that such Demand Resource Provider is permitted to offer into such RPM Auction.

B. The Unforced Capacity value of a Demand Resource will be determined as:

for the Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the product of the Nominated Value of the Demand Resource, times the DR Factor, times the Forecast Pool Requirement, and for the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans the 2019/2020 Delivery Year and subsequent Delivery Years, the product of the Nominated Value of the Demand Resource times the Forecast Pool Requirement. Nominated Values shall be determined and reviewed in accordance with sections I and J, respectively, and the PJM Manuals. The DR Factor is a factor established by the PJM Board with the advice of the Members Committee to reflect the increase in the peak load carrying capability in the PJM Region due to Demand Resources. Peak load carrying capability is defined to be the peak load that the PJM Region is able to serve at the loss of load expectation defined in the Reliability Principles and Standards. The DR Factor is the increase in the peak load carrying capability in the PJM Region due to Demand Resources, divided by the total Nominated Value of Demand Resources in the PJM Region. The DR Factor will be determined using an analytical program that uses a probabilistic approach to determine reliability. The determination of the DR Factor will consider the reliability of Demand Resources, the number of interruptions, and the total amount of load reduction.

C. Demand Resources offered and cleared in a Base Residual or Incremental Auction shall receive the corresponding Capacity Resource Clearing Price as determined in such auction, in accordance with Attachment DD of the PJM Tariff. For Delivery Years beginning with the Delivery Year that commences on June 1, 2013, any Demand

Resources located in a Zone with multiple LDAs shall receive the Capacity Resource Clearing Price applicable to the location of such resource within such Zone, as identified in such resource's offer. Further, the Curtailment Service Provider shall register its resource in the same location within the Zone as specified in its cleared sell offer, and shall be subject to deficiency charges under Attachment DD of this Tariff to the extent it fails to provide the resource in such location consistent with its cleared offer. For either of the Delivery Year commencing on June 1, 2010 or commencing on June 1, 2012, if the location of a Demand Resource is not specified by a Seller in the Sell Offer on an individual LDA basis in a Zone with multiple LDAs, then Demand Resources cleared by such Seller will be paid a DR Weighted Zonal Resource Clearing Price, determined as follows: (i) for a Zone that includes non-overlapping LDAs, calculated as the weighted average of the Resource Clearing Prices for such LDAs, weighted by the cleared Demand Resources registered by such Seller in each such LDA; or (ii) for a Zone that contains a smaller LDA within a larger LDA, calculated treating the smaller LDA and the remaining portion of the larger LDA as if they were separate LDAs, and weight-averaging in the same manner as (i) above.

- D. The Party, Electric Distributor, or Curtailment Service Provider that establishes a contractual relationship (by contract or tariff rate) with a customer for load reductions is entitled to receive the compensation specified in section C for a committed Demand Resource, notwithstanding that such provider is not the customer's energy supplier.
- E. Any Party hereto shall demonstrate that its Demand Resources performed during periods when load management procedures were invoked by the Office of the Interconnection. The Office of the Interconnection shall adopt and maintain rules and procedures for verifying the performance of such resources, as set forth in section K hereof and the PJM Manuals. In addition, committed Demand Resources that do not comply with the directions of the Office of the Interconnection to reduce load during an emergency shall be subject to the penalty charge set forth in Attachment DD to the PJM Tariff.
- F. Parties may elect to place Demand Resources associated with Behind The Meter Generation under the direction of the Office of the Interconnection for a Delivery Year by submitting a Sell Offer for such resource (as Self Supply, or with an offer price) in the Base Residual Auction for such Delivery Year. This election shall remain in effect for the entirety of such Delivery Year. In the event such an election is made, such Behind The Meter Generation will not be netted from load for the purposes of calculating the Daily Unforced Capacity Obligations under this Agreement.
- G. PJM measures Demand Resources in the following four ways:
  - Direct Load Control (DLC) – Load management that is initiated directly by the Curtailment Service Provider's market operations center or its agent, employing a communication signal to cycle equipment (typically water heaters or central air conditioners). DLC programs are qualified based on load research and customer subscription data. Curtailment Service Providers may rely on the results of load research studies identified in the PJM Manuals to set the per-participant load reduction for DLC



programs. Each Curtailment Service Provider relying on DLC load management must periodically update its DLC switch operability rates, in accordance with the PJM Manuals.

Firm Service Level (FSL) – Load management achieved by an end-use customer reducing its load to a pre-determined level (the Firm Service Level), upon notification from the Curtailment Service Provider’s market operations center or its agent.

Guaranteed Load Drop (GLD) – Load management achieved by an end-use customer reducing its load by a pre-determined amount (the Guaranteed Load Drop), upon notification from the Curtailment Service Provider’s market operations center or its agent. Typically, the load reduction is achieved through running customer-owned backup generators, or by shutting down process equipment.

Customer Baseline Load (CBL) - Load management achieved by an end-use customer as measured by 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 of the Operating Agreement.

- H. Each Curtailment Service Provider must satisfy (or contract with another LSE, Curtailment Service Provider, or electric distribution company to provide) the following requirements:
- A point of contact with appropriate backup to ensure single call notification from PJM and timely execution of the notification process;
  - Supplemental status reports, detailing Demand Resources available, as requested by PJM;
  - Entry of customer-specific Demand Resource credit information, for planning and verification purposes, into the designated PJM electronic system.
  - Customer-specific compliance and verification information for each PJM-initiated Demand Resource event, as well as aggregated Provider load drop data for Provider-initiated events, in accordance with established reporting guidelines.
  - Load drop estimates for all Demand Resource events, prepared in accordance with the PJM Manuals.
- I. The Nominated Value of each Demand Resource shall be determined consistent with the process for determination of the capacity obligation for the customer.

The Nominated Value for a Firm Service Level customer will be based on the peak load contribution for the customer, as determined by the 5CP methodology utilized to determine other ICAP obligation values. The maximum Demand Resource load

reduction value for a Firm Service Level customer will be equal to Peak Load Contribution – Firm Contract Level adjusted for system losses.

The Nominated Value for a Guaranteed Load Drop customer will be the guaranteed load drop amount, adjusted for system losses, as established by the customer's contract with the Curtailment Service Provider. The maximum credit nominated shall not exceed the customer's Peak Load Contribution.

The Nominated Value for a Direct Load Control program will be based on load research and customer subscription. The maximum value of the program is equal to the approved per-participant load reduction multiplied by the number of active participants, adjusted for system losses. The per-participant impact is to be estimated at long-term average local weather conditions at the time of the summer peak.

Customer-specific Demand Resource information (EDC account number, peak load, notification period, etc.) will be entered into the designated PJM electronic system to establish credit values. Additional data may be required, as defined in sections J and K.

- J. Nominated Values shall be reviewed based on documentation of customer-specific data and Demand Resource information, to verify the amount of load management available and to set a maximum allowable Nominated Value. Data is provided by both the zone EDC and the Curtailment Service Provider on templates supplied by PJM, and must include the EDC meter number or other unique customer identifier, Peak Load Contribution (5CP), contract firm service level or guaranteed load drop values, applicable loss factor, zone/area location of the load drop, LSE contact information, number of active participants, etc. Such data must be uploaded and approved prior to the first day of the Delivery Year for such resource as a Demand Resource. Curtailment Service Providers must provide this information concurrently to host EDCs.

For Firm Service Level and Guaranteed Load Drop customers, the 5CP values, for the zone and affected customers, will be adjusted to reflect an "unrestricted" peak for a zone, based on information provided by the Curtailment Service Provider. Load drop levels shall be estimated in accordance with guidelines in the PJM Manuals.

For Direct Load Control programs, the Curtailment Service Provider must provide information detailing the number of active participants in each program. Other information on approved DLC programs will be provided by PJM.

- K. Compliance is the process utilized to review Provider performance during PJM-initiated Demand Resource events. Compliance will be established for each Provider on an event specific basis for the Curtailment Service Provider's Demand Resources dispatched by the Office of the Interconnection during such event. PJM will establish and communicate reasonable deadlines for the timely submittal of event data to expedite compliance reviews. Compliance reviews will be completed as soon after the event as possible, with the expectation that reviews of a single event will be completed within two months of the end of the month in which the event took place. Curtailment Service Providers are

responsible for the submittal of compliance information to PJM for each PJM-initiated event during the compliance period.

For Load Management Events occurring through the May 31, 2018 and for Load Management Events occurring during the months of June through September of the 2018/2019 Delivery Year and subsequent Delivery Years:

Compliance for Direct Load Control programs will consider only the transmission of the control signal. Curtailment Service Providers are required to report the time period (during the Demand Resource event) that the control signal was actually sent.

Compliance is checked on an individual customer basis for FSL, by comparing actual load during the event to the firm service level. Curtailment Service Providers must submit actual customer load levels (for the event period) for the compliance report. Compliance for FSL will be based on:

End use customer's current Delivery Year peak load contribution ("PLC") minus the metered load ("Load") multiplied by the loss factor ("LF"). The calculation is represented by:

$$(PLC) - (Load * LF)$$

Compliance is checked on an individual customer basis for GLD, and will be based on:

- (i) the lesser of (a) comparison load used to best represent what the load would have been if PJM did not declare a Load Management Event or the CSP did not initiate a test as outlined in the PJM Manuals, minus the Load and then multiplied by the LF, or (b) the PLC minus the Load multiplied by the LF. A load reduction will only be recognized for capacity compliance if the Load multiplied by the LF is less than the PLC.
- (iii) Curtailment Service Providers must submit actual loads and comparison loads for all hours during the day of the Load Management Event or the Load Management performance test, and for all hours during any other days as required by the Office of the Interconnection to calculate the load reduction. Comparison loads must be developed from the guidelines in the PJM Manuals, and note which method was employed.

Compliance is averaged over the Load Management Event for non-interval metered DLC programs. Compliance is averaged over the Load Management Event, for each FSL and GLD customer dispatched by the Office of the Interconnection for at least 30 minutes of the clock hour (i.e., "partial dispatch compliance hour". The registered capacity commitment for the partial dispatch compliance hour will be prorated based on the number of minutes dispatched during the clock hour and as defined in the Manual. Curtailment Service Provider may submit 1 minute load data for use in capacity compliance calculations for partial dispatch compliance hours subject to PJM approval and in accordance with the PJM Manuals where: (a) metering meets all Tariff and Manual requirements, (b) 1 minute load data shall be submitted to PJM for all locations

on the registration, and (c) 1 minute load data measures energy consumption over the minute.

For Load Management Events occurring during the months of October through May of the 2018/2019 Delivery Year and subsequent Delivery Years:

Compliance is determined on an individual customer basis by 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 of the Operating Agreement.

For all Delivery Years:

Demand Resources may not reduce their load below zero (i.e., export energy into the system). No compliance credit will be given for an incremental load drop below zero. Compliance will be totaled over all FSL and GLD customers and DLC programs to determine a net compliance position for the event for each Provider by Zone, for all Demand Resources committed by such Provider and dispatched by the Office of the Interconnection in the zone. Deficiencies shall be as further determined in accordance with section 11 of Schedule DD to the PJM Tariff.

#### L. Energy Efficiency Resources

1. An Energy Efficiency Resource is a project, including installation of more efficient devices or equipment or implementation of more efficient processes or systems, exceeding then-current building codes, appliance standards, or other relevant standards, designed to achieve a continuous (during peak summer and winter periods as described herein) reduction in electric energy consumption at the End-Use Customer's retail site that is not reflected in the peak load forecast prepared for the Delivery Year for which the Energy Efficiency Resource is proposed, and that is fully implemented at all times during such Delivery Year, without any requirement of notice, dispatch, or operator intervention.
2. An Energy Efficiency Resource may be offered as a Capacity Resource in the Base Residual or Incremental Auctions for any Delivery Year beginning on or after June 1, 2011. No later than 30 days prior to the auction in which the resource is to be offered, the Capacity Market Seller shall submit to the Office of the Interconnection a notice of intent to offer the resource into such auction and a measurement and verification plan. The notice of intent shall include all pertinent project design data, including but not limited to the peak-load contribution of affected customers, a full description of the equipment, device, system or process intended to achieve the load reduction, the load reduction pattern, the project location, the project development timeline, and any other relevant data. Such notice also shall state the seller's proposed Nominated Energy Efficiency Value,
  - For Delivery Years through May 31, 2018, the seller's proposed Nominated Energy Efficiency Value shall be the expected average load reduction between the

hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday;

- For the 2018/2019 and 2019/2020 Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Base Capacity Energy Efficiency Resource shall be the expected average load reduction between the hour ending 15:00 EPT and the hour ending 18:00 EPT during all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday; and
- For the 2018/2019 Delivery Year and subsequent Delivery Years, the seller's proposed Nominated Energy Efficiency Value for any Annual Energy Efficiency Resources, shall be the expected average load reduction, for all days from June 1 through August 31, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 15:00 EPT and the hour ending 18:00 EPT. In addition, the expected average load reduction for all days from January 1 through February 28, inclusive, of such Delivery Year that is not a weekend or federal holiday, between the hour ending 8:00 EPT and the hour ending 9:00 EPT and between the hour ending 19:00 EPT and the hour ending 20:00 EPT shall not be less than the Nominated Energy Efficiency Value.

The measurement and verification plan shall describe the methods and procedures, consistent with the PJM Manuals, for determining the amount of the load reduction and confirming that such reduction is achieved. The Office of the Interconnection shall determine, upon review of such notice, the Nominated Energy Efficiency Value that may be offered in the Reliability Pricing Model Auction.

3. An Energy Efficiency Resource may be offered with a price offer or as Self-Supply. If an Energy Efficiency Resource clears the auction, it shall receive the applicable Capacity Resource Clearing Price, subject to section 5 below. A Capacity Market Seller offering an Energy Efficiency Resource must comply with all applicable credit requirements as set forth in Attachment Q to the PJM Tariff. For Delivery Years through May 31, 2018, or for FRR Capacity Plans for Delivery Years through May 31, 2019, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency value times the DR Factor and the Forecast Pool Requirement. For the 2018/2019 Delivery Year and subsequent Delivery Years, or for FRR Capacity Plans the 2019/2020 Delivery Year and subsequent Delivery Years, the Unforced Capacity value of an Energy Efficiency Resource offered into an RPM Auction shall be the Nominated Energy Efficiency Value times the Forecast Pool Requirement.
4. An Energy Efficiency Resource that clears an auction for a Delivery Year may be offered in auctions for up to three additional consecutive Delivery Years, but shall not be assured of clearing in any such auction; provided, however, an Energy Efficiency Resource may not be offered for any Delivery Year in which any part

of the peak season is beyond the expected life of the equipment, device, system, or process providing the expected load reduction; and provided further that a Capacity Market Seller that offers and clears an Energy Efficiency Resource in a BRA may elect a New Entry Price Adjustment on the same terms as set forth in section 5.14(c) of this Attachment DD.

5. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than 30 days prior to each Auction an updated project status and measurement and verification plan subject to the criteria set forth in the PJM Manuals.
6. For every Energy Efficiency Resource clearing an RPM Auction for a Delivery Year, the Capacity Market Seller shall submit to the Office of the Interconnection, by no later than the start of such Delivery Year, an updated project status and detailed measurement and verification data meeting the standards for precision and accuracy set forth in the PJM Manuals. The final value of the Energy Efficiency Resource during such Delivery Year shall be as determined by the Office of the Interconnection based on the submitted data.
7. The Office of the Interconnection may audit, at the Capacity Market Seller's expense, any Energy Efficiency Resource committed to the PJM Region. The audit may be conducted any time including the Performance Hours of the Delivery Year.

## SCHEDULE 8

### DETERMINATION OF UNFORCED CAPACITY OBLIGATIONS

- A. For each billing month during a Delivery Year, the Daily Unforced Capacity Obligation of a Party that has not elected the FRR Alternative for such Delivery Year shall be determined on a daily basis for each Zone as follows:

Daily Unforced Capacity Obligation = OPL x Final Zonal RPM Scaling Factor x FPR

Where:

OPL =Obligation Peak Load, defined as the daily summation of the weather-adjusted coincident summer peak, last preceding the Delivery Year, of the end-users in such Zone (net of operating Behind The Meter Generation, but not to be less than zero) for which such Party was responsible on that billing day, as determined in accordance with the procedures set forth in the PJM Manuals

Final Zonal RPM Scaling Factor = the factor determined as set forth in sections B and C of this Schedule

FPR = the Forecast Pool Requirement

Netting of Behind the Meter Generation for a Party with regard to Non-Retail Behind the Meter Generation shall be subject to the following limitation:

For the 2006/2007 Planning Period, 100 percent of the operating Non-Retail Behind the Meter Generation shall be netted, provided that the total amount of Non-Retail Behind the Meter Generation in the PJM Region does not exceed 1500 megawatts (“Non-Retail Threshold”). For each Planning Period/Delivery Year thereafter, the Non-Retail threshold shall be proportionately increased based on load growth in the PJM Region but shall not be greater than 3000 megawatts. Load growth shall be determined by the Office of the Interconnection based on the most recent forecasted weather-adjusted coincident summer peak for the PJM Region divided by the weather-adjusted coincident peak for the previous summer for the same area. After the load growth factor is applied, the Non-Retail Threshold will be rounded up or down to the nearest whole megawatt and the rounded number shall be the Non-Retail Threshold for the current Planning Period and the base amount for calculating the Non-Retail Threshold for the succeeding planning period. If the Non-Retail Threshold is exceeded, the amount of operating Non-Retail Behind the Meter Generation that a Party may net shall be adjusted according to the following formula:

Party Netting Credit = (NRT/ PJM NRBTMG) \* Party Operating NRBTMG

Where: NRBTMG is Non-Retail Behind the Meter Generation

NRT is the Non-Retail Threshold

PJM NRBTMG is the total amount of Non-Retail Behind the Meter Generation in the PJM Region

The total amount of Non-Retail Behind the Meter Generation that is eligible for netting in the PJM Region is 3000 megawatts. Once this 3000 megawatt limit is reached, any additional Non-Retail Behind the Meter Generation which operates in the PJM Region will be ineligible for netting under this section.

In addition, the Party NRBTMG Netting Credit shall be adjusted pursuant to Schedule 16 of this Agreement, if applicable.

A Party shall be required to report to PJM such information as is required to facilitate the determination of its NRBTMG Netting Credit in accordance with the procedures set forth in the PJM Manuals.

B. Following the Base Residual Auction for a Delivery Year, the Office of the Interconnection shall determine the Base Zonal RPM Scaling Factor and the Base Zonal Unforced Capacity Obligation for each Zone for such Delivery Year as follows:

For Delivery Years through May 31, 2018, Base Zonal Unforced Capacity Obligation = (ZWNSP \* Base Zonal RPM Scaling Factor \* FPR) + Zonal Short-Term Resource Procurement Target

For the 2018/2019 Delivery Year and subsequent Delivery Years, Base Zonal Unforced Capacity Obligation = (ZWNSP \* Base Zonal RPM Scaling Factor \* FPR)

and

Base Zonal RPM Scaling Factor =  $ZPLDY/ZWNSP \times [RUCO / (RPLDY \times FPR)]$

Where:

ZPLDY = Preliminary Zonal Peak Load Forecast for such Delivery Year

ZWNSP = Zonal Weather-Normalized Summer Peak for the summer season concluding four years prior to the commencement of such Delivery Year



RUCO = the RTO Unforced Capacity Obligation satisfied in the Base Residual Auction for such Delivery Year.

RPLDY = RTO Preliminary Peak Load Forecast for such Delivery Year.

For purposes of such determination, PJM shall determine the Preliminary RTO Peak Load Forecast, and the Preliminary Zonal Peak Load Forecasts for each Zone, in accordance with the PJM Manuals for each Delivery Year no later than one month prior to the Base Residual Auction for such Delivery Year. PJM shall determine the Updated RTO and Zonal Peak Load Forecasts in accordance with the PJM Manuals for each Delivery Year no later than one month prior to each of the First, Second, and Third Incremental Auctions for such Delivery Year. PJM shall determine the most recent Weather Normalized Summer Peak for each Zone no later than seven months prior to the start of the Delivery Year, and shall calculate the RTO Weather Normalized Summer Peak as the sum of the Weather Normalized Summer Peaks for all Zones.

- C. The Final RTO Unforced Capacity Obligation for a Delivery Year shall be equal to the sum of the unforced capacity obligations satisfied through the Base Residual Auction and the First, Second, Third, and any Conditional Incremental Auctions for such Delivery Year. The unforced capacity obligation satisfied in an Incremental Auction may be negative if capacity is decommitted in such auction. The Final Zonal Unforced Capacity Obligation for a Zone shall be equal to such Zone's pro rata share of the Final RTO Unforced Capacity Obligation for the Delivery Year based on the Final Zonal Peak Load Forecast made one month prior to the Third Incremental Auction. The Final Zonal RPM Scaling Factor shall be equal to the Final Zonal Unforced Capacity Obligation divided by (FPR times the Zonal Weather Normalized Summer Peak for the summer concluding prior to the commencement of such Delivery Year).
- D.
  - 1. No later than five months prior to the start of each Delivery Year, the Electric Distributor for a Zone shall allocate the most recent Weather Normalized Summer Peak for such Zone to determine the Obligation Peak Load for each end-use customer within such Zone.
  - 2. During the Delivery Year, no later than 36 hours prior to the start of each Operating Day, the Electric Distributor shall provide to PJM for each Party to this Agreement serving load in such Electric Distributor's Zone the Obligation Peak Load for all end-use customers served by such Party in such Zone. The Electric Distributor may submit corrections to the Obligation Peak Load data up to 12:00PM Eastern Prevailing Time of the next business day following the Operating Day.
  - 3. For purposes of such allocations, the daily sum of the Obligation Peak Loads of all Parties serving load in a Zone must equal the Zonal Obligation Peak Load for such Zone.



### **C. Election, and Termination of Election, of FRR Alternative**

1. No less than two months before the conduct of the Base Residual Auction for the first Delivery Year for which such election is to be effective, any Party seeking to elect the FRR Alternative shall notify the Office of the Interconnection in writing of such election. Such election shall be for a minimum term of five consecutive Delivery Years. No later than one month before such Base Residual Auction, such Party shall submit its FRR Capacity Plan demonstrating its commitment of Capacity Resources for the term of such election sufficient to meet such Party's Daily Unforced Capacity Obligation (and all other applicable obligations under this Schedule) for the load identified in such plan. No later than the last business day prior to the start of the relevant Delivery Year in which Capacity Performance requirements shall apply to such FRR Entity, the FRR Entity must also elect whether it seeks to be subject to the Non-Performance Charge for both Capacity Performance Resources and Base Capacity Resources, as provided in section 10A of Attachment DD of the PJM Tariff, and described in section G.1 of this Schedule 8.1, or to physical non-performance assessments, as described in section G.2 of this Schedule 8.1.

2. An FRR Entity may terminate its election of the FRR Alternative effective with the commencement of any Delivery Year following the minimum five Delivery Year commitment by providing written notice of such termination to the Office of the Interconnection no later than two months prior to the Base Residual Auction for such Delivery Year. An FRR Entity that has terminated its election of the FRR Alternative shall not be eligible to re-elect the FRR Alternative for a period of five consecutive Delivery Years following the effective date of such termination.

3. Notwithstanding subsections C.1 and C.2 of this Schedule, in the event of a State Regulatory Structural Change, a Party may elect, or terminate its election of, the FRR Alternative effective as to any Delivery Year by providing written notice of such election or termination to the Office of the Interconnection in good faith as soon as the Party becomes aware of such State Regulatory Structural Change but in any event no later than two months prior to the Base Residual Auction for such Delivery Year.

4. To facilitate the elections and notices required by this Schedule, the Office of the Interconnection shall post, in addition to the information required by Section 5.11(a) of Attachment DD to the PJM Tariff, the percentage of Capacity Resources required to be located in each Locational Deliverability Area by no later than one month prior to the deadline for a Party to provide such elections and notices.

## **D. FRR Capacity Plans**

1. Each FRR Entity shall submit its initial FRR Capacity Plan as required by subsection C.1 of this Schedule, and shall annually extend and update such plan by no later than one month prior to the Base Residual Auction for each succeeding Delivery Year in such plan. Each FRR Capacity Plan shall indicate the nature and current status of each resource, including the status of each Planned Generation Capacity Resource or Planned Demand Resource, the planned deactivation or retirement of any Generation Capacity Resource or Demand Resource, and the status of commitments for each sale or purchase of capacity included in such plan.

1.1 Beginning with the 2020/2021 Delivery Year and for all subsequent Delivery Years, the FRR Capacity Plan shall comprise only Capacity Performance Resources as defined in section 5.5A of Attachment DD of the PJM Tariff.

2. The FRR Capacity Plan of each FRR Entity that commits that it will not sell surplus Capacity Resources as a Capacity Market Seller in any auction conducted under Attachment DD of the PJM Tariff, or to any direct or indirect purchaser that uses such resource as the basis of any Sell Offer in such auction, shall designate Capacity Resources in a megawatt quantity no less than the Forecast Pool Requirement for each applicable Delivery Year times the FRR Entity's allocated share of the Preliminary Zonal Peak Load Forecast for such Delivery Year, as determined in accordance with procedures set forth in the PJM Manuals. For the 2016/2017 Delivery Year and prior Delivery Years, the set of Capacity Resources designated in the FRR Capacity Plan must meet the Minimum Annual Resource Requirement and the Minimum Extended Summer Resource Requirement associated with the FRR Entity's capacity obligation. For the 2017/2018 and 2018/2019 Delivery Years, the set of Capacity Resources designated in the FRR Capacity Plan must satisfy the Limited Resource Constraints and the Sub-Annual Resource Constraints applicable to the FRR Entity's capacity obligation. For the 2019/2020 Delivery Year, the set of Capacity Resources designated in the FRR Capacity Plan must satisfy the Base Capacity Resource Constraints and Base Capacity Demand Resource Constraints applicable to the FRR Entity's capacity obligation. If the FRR Entity is not responsible for all load within a Zone, the Preliminary Forecast Peak Load for such entity shall be the FRR Entity's Obligation Peak Load last determined prior to the Base Residual Auction for such Delivery Year, times the Base Zonal FRR Scaling Factor. The FRR Capacity Plan of each FRR Entity that does not commit that it will not sell surplus Capacity Resources as set forth above shall designate Capacity Resources at least equal to the Threshold Quantity. To the extent the FRR Entity's allocated share of the Final Zonal Peak Load Forecast exceeds the FRR Entity's allocated share of the Preliminary Zonal Peak Load Forecast, such FRR Entity's FRR Capacity Plan shall be updated to designate additional Capacity Resources in an amount no less than the Forecast Pool Requirement times such increase; provided, however, any excess megawatts of Capacity Resources included in such FRR Entity's previously designated Threshold Quantity, if any, may be used to satisfy the capacity obligation for such increased load. To the extent the FRR Entity's allocated share of the Final Zonal Peak Load Forecast is less than the FRR Entity's allocated share of the Preliminary Zonal Peak Load Forecast, such FRR Entity's FRR Capacity Plan may be updated to release previously designated Capacity Resources in an amount no greater than the Forecast Pool Requirement times such decrease. Peak load values referenced in this section shall be adjusted as necessary to take into account any applicable Nominal PRD Values approved

pursuant to Schedule 6.1 of this Agreement. Any FRR Entity seeking an adjustment to peak load for Price Responsive Demand must submit a separate PRD Plan in compliance with Section 6.1 (provided that the FRR Entity shall not specify any PRD Reservation Price), and shall register all PRD-eligible load needed to satisfy its PRD commitment and be subject to compliance charges as set forth in that Schedule under the circumstances specified therein; provided that for non-compliance by an FRR Entity, the compliance charge rate shall be equal to 1.20 times the Capacity Resource Clearing Price resulting from all RPM Auctions for such Delivery Year for the LDA encompassing the FRR Entity's Zone, weight-averaged for the Delivery Year based on the prices established and quantities cleared in the RPM auctions for such Delivery Year; and provided further that an alternative PRD Provider may provide PRD in an FRR Service Area by agreement with the FRR Entity responsible for the load in such FRR Service Area, subject to the same terms and conditions as if the FRR Entity had provided the PRD.

3. As to any FRR Entity, the Base Zonal FRR Scaling Factor for each Zone in which it serves load for a Delivery Year shall equal  $ZPLDY/ZWNSP$ , where:

$ZPLDY$  = Preliminary Zonal Peak Load Forecast for such Zone for such Delivery Year; and

$ZWNSP$  = Zonal Weather-Normalized Summer Peak Load for such Zone for the summer concluding four years prior to the commencement of such Delivery Year.

4. Capacity Resources identified and committed in an FRR Capacity Plan shall meet all requirements under this Agreement, the PJM Tariff, and the PJM Operating Agreement applicable to Capacity Resources, including, as applicable, requirements and milestones for Planned Generation Capacity Resources and Planned Demand Resources. A Capacity Resource submitted in an FRR Capacity Plan must be on a unit-specific basis, and may not include "slice of system" or similar agreements that are not unit specific. An FRR Capacity Plan may include bilateral transactions that commit capacity for less than a full Delivery Year only if the resources included in such plan in the aggregate satisfy all obligations for all Delivery Years. All demand response, load management, energy efficiency, or similar programs on which such FRR Entity intends to rely for a Delivery Year must be included in the FRR Capacity Plan, subject to applicable demand resource constraints for the relevant Delivery Year, submitted three years in advance of such Delivery Year and must satisfy all requirements applicable to Demand Resources or Energy Efficiency Resources, as applicable, including, without limitation, those set forth in Schedule 6 to this Agreement and the PJM Manuals; provided, however, that previously uncommitted Unforced Capacity from such programs may be used to satisfy any increased capacity obligation for such FRR Entity resulting from a Final Zonal Peak Load Forecast applicable to such FRR Entity. Without limiting the generality of the foregoing, the FRR Entity must submit a Demand Resource Sell Offer Plan 15 business days before the deadline for submitting an FRR Capacity Plan as to any Demand Resources it intends to include in such FRR Capacity Plan and may only include in such FRR Capacity Plan Demand Resources that are approved by PJM following review of such Demand Resource Sell Offer Plan. The requirements, standards, and procedures for a Demand Resource Sell Offer Plan shall be as set forth in Schedule 6 of this Agreement, provided that all references (including deadlines) in Schedule 6, section A-1 to submission or clearing of a Demand Resource offer in an RPM Auction shall be understood for purposes of FRR Entities as referring to inclusion of a Demand

Resource in an FRR Capacity Plan, and a distinct Demand Resource Officer Certification Form shall be applicable to FRR Entities, as shown in the PJM Manuals and provided on the PJM website.

5. For each LDA for which the Office of the Interconnection has established a separate Variable Resource Requirement Curve for any Delivery Year addressed by such FRR Capacity Plan, the plan must include a Percentage Internal Resources Required, subject to subsections D.1.1 and D.2 of this Schedule. The Percentage Internal Resources Required will be calculated as the LDA Reliability Requirement less the CETL for the Delivery Year, as determined by the RTEP process as set forth in the PJM Manuals. Such requirement shall be expressed as a percentage of the Unforced Capacity Obligation based on the Preliminary Zonal Peak Load Forecast multiplied by the Forecast Pool Requirement.

6. An FRR Entity may reduce the Percentage Internal Resources Required as to any LDA to the extent the FRR Entity commits to a transmission upgrade that increases the capacity emergency transfer limit for such LDA. Any such transmission upgrade shall adhere to all requirements for a Qualified Transmission Upgrade as set forth in Attachment DD to the PJM Tariff. The increase in CETL used in the FRR Capacity Plan shall be that approved by PJM prior to inclusion of any such upgrade in an FRR Capacity Plan. The FRR Entity shall designate specific additional Capacity Resources located in the LDA from which the CETL was increased, to the extent of such increase.

7. The Office of the Interconnection will review the adequacy of all submittals hereunder both as to timing and content. A Party that seeks to elect the FRR Alternative that submits an FRR Capacity Plan which, upon review by the Office of the Interconnection, is determined not to satisfy such Party's capacity obligations hereunder, shall not be permitted to elect the FRR Alternative. If a previously approved FRR Entity submits an FRR Capacity Plan that, upon review by the Office of the Interconnection, is determined not to satisfy such Party's capacity obligations hereunder, the Office of the Interconnection shall notify the FRR Entity, in writing, of the insufficiency within five (5) business days of the submittal of the FRR Capacity Plan. If the FRR Entity does not cure such insufficiency within five (5) business days after receiving such notice of insufficiency, then such FRR Entity shall be assessed an FRR Commitment Insufficiency Charge, in an amount equal to two times the Cost of New Entry for the relevant location, in \$/MW-day, times the shortfall of Capacity Resources below the FRR Entity's capacity obligation (including any Threshold Quantity requirement) in such FRR Capacity Plan, for the remaining term of such plan.

8. In a state regulatory jurisdiction that has implemented retail choice, the FRR Entity must include in its FRR Capacity Plan all load, including expected load growth, in the FRR Service Area, notwithstanding the loss of any such load to or among alternative retail LSEs. In the case of load reflected in the FRR Capacity Plan that switches to an alternative retail LSE, where the state regulatory jurisdiction requires switching customers or the LSE to compensate the FRR Entity for its FRR capacity obligations, such state compensation mechanism will prevail. In the absence of a state compensation mechanism, the applicable alternative retail LSE shall compensate the FRR Entity at the capacity price in the unconstrained portions of the PJM Region, as determined in accordance with Attachment DD to the PJM Tariff, provided that the

FRR Entity may, at any time, make a filing with FERC under Sections 205 of the Federal Power Act proposing to change the basis for compensation to a method based on the FRR Entity's cost or such other basis shown to be just and reasonable, and a retail LSE may at any time exercise its rights under Section 206 of the FPA.

9. Notwithstanding the foregoing, in lieu of providing the compensation described above, such alternative retail LSE may, for any Delivery Year subsequent to those addressed in the FRR Entity's then-current FRR Capacity Plan, provide to the FRR Entity Capacity Resources sufficient to meet the capacity obligation described in paragraph D.2 for the switched load. Such Capacity Resources shall meet all requirements applicable to Capacity Resources pursuant to this Agreement, the PJM Tariff, and the PJM Operating Agreement, all requirements applicable to resources committed to an FRR Capacity Plan under this Agreement, and shall be committed to service to the switched load under the FRR Capacity Plan of such FRR Entity. The alternative retail LSE shall provide the FRR Entity all information needed to fulfill these requirements and permit the resource to be included in the FRR Capacity Plan. The alternative retail LSE, rather than the FRR Entity, shall be responsible for any performance charges or compliance penalties related to the performance of the resources committed by such LSE to the switched load. For any Delivery Year, or portion thereof, the foregoing obligations apply to the alternative retail LSE serving the load during such time period. PJM shall manage the transfer accounting associated with such compensation and shall administer the collection and payment of amounts pursuant to the compensation mechanism.

Such load shall remain under the FRR Capacity Plan until the effective date of any termination of the FRR Alternative and, for such period, shall not be subject to Locational Reliability Charges under Section 7.2 of this Agreement.

## **F. FRR Daily Unforced Capacity Obligations and Deficiency Charges**

1. For each billing month during a Delivery Year, the Daily Unforced Capacity Obligation of an FRR Entity shall be determined on a daily basis for each Zone as follows:

Daily Unforced Capacity Obligation = [(OPL \* Final Zonal FRR Scaling Factor) – Nominal PRD Value committed by the FRR Entity] \* FPR

where:

OPL =Obligation Peak Load, defined as:

the daily summation of the weather-adjusted coincident summer peak, last preceding the Delivery Year, of the end-users in such Zone (net of operating Behind The Meter Generation, but not to be less than zero) for which such Party was responsible on that billing day, as determined in accordance with the procedures set forth in the PJM Manuals

Final Zonal FRR Scaling Factor = FZPLDY/FZWNSP;

FZPLDY = Final Zonal Peak Load Forecast for such Delivery Year; and

FZWNSP = Zonal Weather-Normalized Peak Load for the summer concluding prior to the commencement of such Delivery Year.

2. An FRR Entity shall be assessed an FRR Capacity Deficiency Charge in each Zone addressed in such entity's FRR Capacity Plan for each day during a Delivery Year that it fails to satisfy its Daily Unforced Capacity Obligation in each Zone. Such FRR Capacity Deficiency Charge shall be in an amount equal to the deficiency below such FRR Entity's Daily Unforced Capacity Obligation for such Zone times (1.20 times the Capacity Resource Clearing Price resulting from all RPM Auctions for such Delivery Year for the LDA encompassing such Zone, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions).

3. If an FRR Entity acquires load that is not included in the Preliminary Zonal Peak Load Forecast such acquired load shall be treated in the same manner as provided in Sections H.1 and H.2 of this Schedule.

4. The shortages in meeting the minimum requirement within the constrained zones and the shortage in meeting the total obligation are first calculated. The shortage in the unconstrained area is calculated as the total shortage less shortages in constrained zones and excesses in constrained zones (the shortage is zero if this is a negative number). The Capacity Deficiency Charge is charged to the shortage in each zone and in the unconstrained area separately. This procedure is used to allow the use of capacity excesses from constrained zones to reduce shortage in the unconstrained area and to disallow the use of capacity excess from unconstrained area to reduce shortage in constrained zones.



5. For Delivery Years during the period starting June 1, 2014 and ending May 31, 2017, the shortages in meeting the Minimum Annual Resource Requirement and the Minimum Extended Summer Resource Requirement associated with the FRR Entity's capacity obligation are calculated separately. For such period, the applicable penalty rate is calculated for Annual Resources, Extended Summer Demand Resources, and Limited Resources as (1.20 times the Capacity Resource Clearing Price resulting from all RPM Auctions for such Delivery Year for the LDA encompassing such Zone, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions). For Delivery Years beginning June 1, 2017, the FRR Entity shall receive no credit for Limited Demand Resources to the extent committed in excess of the applicable Limited Resource Constraint and shall receive no credit for the sum of Limited Demand Resources and Extended Summer Demand Resources to the extent the sum of the Unforced Capacity of such resources exceeds the applicable Sub-Annual Resource Constraint.

## **G. Capacity Resource Performance**

1. Any Capacity Resource committed by an FRR Entity in an FRR Capacity Plan for a Delivery Year shall be subject during such Delivery Year to the charges set forth in sections 7, 9, 10, 10A, 11, and 13 of Attachment DD to the PJM Tariff; provided, however: (i) the Daily Deficiency Rate under sections 7, 9, and 13 thereof shall be 1.20 times the Capacity Resource Clearing Price resulting from all RPM Auctions for such Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions); (ii) the charges set forth in section 10A of Attachment DD to the PJM Tariff shall apply only for the 2019/2020 and subsequent Delivery Years and only to those FRR Entities which opted to be subject to the Non-Performance Charge under section C.1 of this Schedule 8.1 and the charge rates under section 10A thereof for Base Capacity Resources shall be the Capacity Resource Clearing Price resulting from the RPM Auctions for the Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged as described above; and (iii) the charge rates under section 10 thereof, shall be the Capacity Resource Clearing Price resulting from the RPM Auctions for the Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged as described above. An FRR Entity shall have the same opportunities to cure deficiencies and avoid or reduce associated charges during the Delivery Year that a Market Seller has under sections 7, 9, 10, and 10A of Attachment DD to the PJM Tariff. An FRR Entity may cure deficiencies and avoid or reduce associated charges prior to the Delivery Year by procuring replacement Unforced Capacity outside of any RPM Auction and committing such capacity in its FRR Capacity Plan.

2. For any FRR Entity which opted to be subject to physical non-performance assessments under section C.1. of this Schedule 8.1, such FRR Entity will not be subject to charges under section 10A of Attachment DD of the PJM Tariff, but, rather, it will be required to update its FRR Capacity Plan with additional megawatts of Capacity Performance Resources determined in accordance with the following: For each Performance Assessment Hour, the Actual Performance and Expected Performance of each resource contained in an FRR Entity's FRR Capacity Plan will be determined in the same fashion as prescribed by the PJM Tariff, Attachment DD, section 10A, and for such hour, a net Performance Shortfall shall be determined separately for Capacity Performance Resources and for Base Capacity Resources. If, for a Performance Assessment Hour, the combined Actual Performance of all an FRR Entity's committed Capacity Performance Resources exceeds the Expected Performance of such resources, then such over-performance may be applied to any Performance Shortfall experienced by such FRR Entity's Base Capacity Resources for such hour. If, for a Performance Assessment Hour, the combined Actual Performance of all an FRR Entity's committed Base Capacity Resources exceeds the Expected Performance of such resources, then such over-performance may be applied to any Performance Shortfall experienced by such FRR Entity's Capacity Performance Resources for such hour.

The FRR Entity's net Performance Shortfall among Capacity Performance Resources, if any, for each such Performance Assessment Hour shall be multiplied by a rate of 0.01667 MWs/Performance Assessment Hour to establish the additional MW quantities of Capacity Performance Resources that such FRR Entity must add to its FRR Capacity Plan for the next Delivery Year. Notwithstanding the foregoing, the total additional MWs required as a result of non-performance by the FRR Entity's Capacity Performance Resources in any Delivery Year

shall not exceed a MW quantity equal to 0.5 times the MW quantity of the Capacity Performance Resources that were committed in the FRR Capacity Plan for such Delivery Year. The FRR Entity's net Performance Shortfall among Base Capacity Resources, if any, for each such Performance Assessment Hour shall be multiplied by a rate of  $[(0.01667 \text{ MWs/Performance Assessment Hour}) \times (\text{the Base Capacity Resource Clearing Price resulting from the RPM Auctions for the Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions, divided by the Net CONE established for such LDA for the Delivery Year})]$  to establish the additional MW quantities of Capacity Performance Resources that such FRR Entity must add to its FRR Capacity Plan for the next Delivery Year. Notwithstanding the foregoing, the total additional MWs required as a result of non-performance by the FRR Entity's Base Capacity Resources in any Delivery Year shall not exceed a MW quantity equal to  $[(0.5 \text{ times the MW quantity of the Base Capacity Resources that were committed in the FRR Capacity Plan for such Delivery Year}) \times (\text{the Base Capacity Resource Clearing Price resulting from the RPM Auctions for the Delivery Year for the LDA encompassing the Zone of the FRR Entity, weight-averaged for the Delivery Year based on the prices established and quantities cleared in such auctions, divided by the Net CONE established for such LDA for the Delivery Year})]$ .

An FRR Entity that elects the physical option shall not be eligible for, or subject to, the revenue allocation described in section 10A(g) of Attachment DD of the PJM Tariff.