2.4 Determination of Energy Offers Used in Calculating Real-time Prices.

(a) During the Operating Day, real-time Locational Marginal Prices derived in accordance with this section shall be determined every five minutes.

(b) To determine the energy offers submitted to the PJM Interchange Energy Market that shall be used during the Operating Day to calculate the Real-time Prices, the Office of the Interconnection shall determine the applicable marginal energy offer based on the latest approved real-time security constrained economic dispatch solution available for the target time for the resources being dispatched by the Office of the Interconnection using the offer schedule on which the resource is committed in the dispatch run.

The Office of the Interconnection will determine a resource's applicable marginal energy offer, as described in the PJM Manuals, based on the latest approved real-time security constrained economic dispatch solution available for the target time and the Market Seller's Incremental Energy Offer curve or, for Eligible Fast-Start Resources, the Market Seller's Composite Energy Offer in which the resource is evaluated in the Pricing Run. For Eligible Fast-Start Resources, the amortized Start-Up Costs and amortized No-load Costs, expressed in dollars per megawatt-hour, are added to the resource's Incremental Energy Offer to determine a Composite Energy Offer, as described below:

(i) The amortized Start-Up Cost for a generation resource shall equal the resource's applicable Start-Up Cost, as determined in accordance with the PJM Manuals, amortized over (A) the resource's Economic Maximum, Effective Economic Maximum, or Emergency Maximum output, whichever is applicable, and (B) the resource's Minimum Run Time, rounded up to the nearest twelfth of an hour. The amortized Start-Up Cost is included in the resource's Composite Energy Offer in each five-minute interval in which the resource is pool-scheduled during the resource's Minimum Run Time. If the Minimum Run Time is less than 5 minutes, the Minimum Run Time used to calculate the amortized Start-Up Cost is 5 minutes and the amortized Start-Up Cost is added to the Incremental Energy Offer for the first five minute interval in which the resource runs. After the Minimum Run Time has been met, the amortized Start-Up Cost is not included in the Composite Energy Offer. To determine the amortized Start-Up Cost for Economic Load Response Participant resources, the Minimum Down Time is used in place of Minimum Run Time and shutdown cost is used in place of Start-Up Cost in the above equation.

The amortized Start-Up Cost, to the extent it is reviewed pursuant to Operating Agreement, Schedule 1, section 6.4.3A, shall be *adjusted* if the resource's applicable Start-Up Cost exceeds the reasonably expected cost*, as described in subsection (iii) below*.

(ii) The amortized No-load Cost shall equal the resource's applicable No-load Cost, amortized over the resource's Economic Maximum, Effective Economic Maximum, or Emergency Maximum output, whichever is applicable, and

included in the Composite Energy Offer for each interval in which the resource is pool-scheduled.

The amortized No-load Cost, to the extent it is reviewed pursuant to Operating Agreement, Schedule 1, section 6.4.3A, shall be *adjusted* if the resource's applicable Incremental Energy Offer and No-load Cost exceed the reasonably expected cost*, as described in subsection (iii) below*.

(iii) *To the extent a Composite Energy Offer of a generation resource that is an Eligible Fast-Start Resource is less than $2,000/megawatt-hour and is reviewed pursuant to Operating Agreement, Schedule 1, 6.4.3A, pursuant to which the Office of the Interconnection evaluates the resource's submitted Start-Up Cost and No-load Cost against the resource's reasonably expected Start-Up Cost and No-load Cost, adjustments may be applied to yield a Composite Energy Offer no lower than $1,000/megawatt-hour at the Economic Maximum or Effective Economic Maximum output, whichever is applicable, as follows:*

1) *If the submitted Start-Up Cost and No-load Cost do not exceed the respective reasonably expected costs, no adjustments shall be made to the submitted Composite Energy Offer.*

2) *If the submitted Start-Up Cost does not exceed the resource's reasonably expected Start-Up Cost but the submitted No-load Cost does exceed the reasonably expected No-load Cost, then the Composite Energy offer shall equal the Incremental Energy Offer plus the amortized submitted Start-Up Cost; provided, however, if the resulting Composite Energy Offer at Economic Maximum or Effective Economic Maximum, whichever is applicable yields a value less than $1,000/megawatt-hour, then the Composite Energy Offer shall include an amortized No-load Cost value sufficient to make the Composite Energy Offer equal to $1,000/megawatt-hour at Economic Maximum or Effective Economic Maximum, whichever is applicable.*

3) *If the submitted Start-Up Cost exceeds the resource's reasonably expected Start-Up Cost but the submitted No-load Cost does not exceed the reasonably expected No-load Cost, then the Composite Energy Offer shall equal the Incremental Energy Offer plus the amortized No-load Cost; provided, however, if the resulting Composite Energy Offer at Economic Maximum- or Effective Economic Maximum, whichever is applicable yields a value less than $1,000/megawatt-hour, then the Composite Energy Offer shall include an amortized Start-Up Cost value sufficient to make the Composite Energy Offer equal to $1,000/megawatt-hour at Economic Maximum or Effective Economic Maximum, whichever is applicable.*

4) If both the submitted Start-Up Cost and No-load Cost exceed the respective reasonably expected costs and the Incremental Energy Offer is below $1,000 MWh, then the Composite Energy Offer shall equal $1,000/megawatt-hour and be composed of the resource's: (i) Incremental Energy Offer, (ii) a No-load Cost value equal to the lesser of the resource's amortized submitted No-load Cost or a value sufficient to make the Composite Energy Offer at Economic Maximum or Effective Economic Maximum, whichever is applicable equal to $1,000/megawatt-hour, and (iii) to the extent the sum of the foregoing is less than $1,000/megawatt-hour, an amortized Start-Up Cost value sufficient to make the Composite Energy Offer equal to $1,000/megawatt-hour at Economic Maximum or Effective Economic Maximum, whichever is applicable.

(c) *If a generation resource that is* an Eligible Fast-Start Resource submits a market-based offer that results in a Composite Energy Offer that exceeds $1,000/megawatt-hour *at the resource's Economic Maximum or Effective Economic Maximum, whichever is applicable*:

(i) If the Incremental Energy Offer of the market-based schedule exceeds the Incremental Energy Offer of the associated cost-based offer*, then the amortized Start-Up Cost and the amortized No-load Cost for the market-based schedule shall both be considered to exceed their respective reasonably expected cost, and the Composite Energy Offer shall be equal to $1,000/megawatt-hour and be composed of the resource's (i) Incremental Energy Offer, (ii) a No-load Cost value equal to the lesser of the resource's amortized submitted No-load Cost or a value sufficient to make the Composite Energy Offer at Economic Maximum or Effective Economic Maximum, whichever is applicable equal to $1,000/megawatt-hour, and (iii) to the extent the sum of the foregoing is less than $1,000/megawatt-hour, an amortized Start-Up Cost value sufficient to make the Composite Energy Offer equal to $1,000/megawatt-hour at Economic Maximum or Effective Economic Maximum, whichever is applicable*.

(ii) *If the Incremental Energy Offer of the market-based schedule is not greater than the Incremental Energy Offer of the associated cost-based offer and:*

(*1*) *If* the amortized No-load Cost for the market-based schedule *exceeds* the No-load Cost of the associated cost-based offer *or*, exceeds the reasonably expected cost *of such cost-based offer, then the amortized No-load Cost shall be adjusted in the matter set forth in subsections (b)(iii)(2) and (4) above, as applicable.*

(2) If the amortized Start-Up Cost for the market-based schedule exceeds the Start-Up Cost of the specified on the associated cost-based offer or exceeds the reasonably expected cost of the Start-Up Cost of such cost-based offer, then the amortized Start-Up Cost shall be adjusted in the manner set forth in subsections (b)(iii)(3) and (4), as applicable.

(3) To the extent the Composite Energy Offer resulting from subsections (c)(ii)(1) and (2) above would exceed $2,000/MWh, then the Composite Energy Offer shall equal $2,000/megawatt-hour and the submitted Start-Up Cost and No-load Cost shall be adjusted in the manner set forth in subsection (e) below.

(d) For purposes of calculating Real-time Prices, the applicable marginal Incremental Energy Offer used in the calculation of Real-time Prices shall not exceed $2,000/megawatt-hour.

(e) *If a generation* resource that is an Eligible Fast-Start Resource submits an offer that results in a Composite Energy Offer with a maximum segment that exceeds $2,000/megawatt-hour *and such offer is reviewed pursuant to Operating Agreement, Schedule 1, 6.4.3A, pursuant to which the Office of the Interconnection evaluates the resource's submitted Start-Up Cost and No-load Cost against the resource's reasonably expected Start-Up Cost and No-load Cost, the following adjustments will be made to cap the offer at no higher than $2,000/megawatt-hour:*

(i) If the submitted Start-Up Cost and No-load Cost do not exceed the respective reasonably expected costs, the Composite Energy Offer shall equal $2,000/megawatt-hour and be composed of: (i) the resource's Incremental Energy Offer, (ii) to the extent the Incremental Energy Offer is less than $2,000/megawatt-hour, a No-load Cost value equal to the lesser of the resource's amortized submitted No-load Cost or a value sufficient to make the Composite Energy Offer at Economic Maximum or Effective Economic Maximum, whichever is applicable, equal to $2,000/megawatt-hour, and (iii) to the extent the sum of the foregoing is less than $2,000/megawatt-hour, a Start-Up Cost value an amortized Start-Up Cost value sufficient to make the Composite Energy Offer at Economic Maximum or Effective Economic Maximum, whichever is applicable, equal to $2,000/megawatt-hour.

(ii) If the submitted Start-Up Cost does not exceed the resource's reasonably expected Start-Up Cost but the submitted No-load Cost does exceed the reasonably expected No-load Cost, then the Composite Energy offer shall equal the Incremental Energy Offer plus the amortized submitted Start-Up Cost; provided, however, if the resulting Composite Energy Offer at Economic Maximum or Effective Economic Maximum, whichever is applicable, yields a value greater than $2,000/megawatt-hour, then the Composite Energy Offer shall include an amortized Start Up Cost value sufficient to make the Composite Energy Offer equal to $2,000/megawatt-hour.

(iii) If the submitted Start-Up Cost exceeds the resource's reasonably expected Start-Up Cost but the submitted No-load Cost does not exceed the reasonably expected No-load Cost, then the Composite Energy Offer shall equal the Incremental Energy Offer plus the amortized No-load Cost; provided, however, if the resulting Composite Energy Offer at Economic Maximum or Effective Economic Maximum, whichever is applicable yields a value greater than $2,000/megawatt-hour, then

the Composite Energy Offer shall include an amortized No-load Cost value sufficient to make the Composite Energy Offer equal to $2,000/megawatt-hour.

(iv) If the submitted Start-Up Cost and No-load Cost both exceed the respective reasonably expected costs, the Composite Energy Offer shall equal the lesser of the resource's Incremental Energy Offer or $2,000/megawatt-hour.

(v) To the extent any of the foregoing subsections (e)(ii) through (e)(iv) would result in a Composite Energy Offer less than $1,000/MWh at Economic Maximum or Effective Economic Maximum, whichever is applicable, the Composite Energy Offer shall equal $1,000/megawatt-hour and be composed of the resource's: (i) Incremental Energy Offer, (ii) a No-load Cost value equal to the lesser of the resource's amortized submitted No-load Cost or a value sufficient to make the Composite Energy Offer equal to $1,000/megawatt-hour at Economic Maximum or Effective Economic Maximum, whichever is applicable, and (iii) to the extent the sum of the foregoing is less than $1,000/megawatt-hour, an amortized Start-Up Cost value sufficient to make the Composite Energy Offer equal to $1,000/megawatt-hour at Economic Maximum or Effective Economic Maximum, whichever is applicable.

(f) To the extent an Economic Load Response Participant resource's Composite Energy Offer is reviewed pursuant to Operating Agreement, Schedule 1, 6.4.3A, pursuant to which the Office of the Interconnection evaluates the resource's submitted shutdown cost against the resource's reasonably expected shutdown costs, adjustments may be applied to yield a Composite Energy Offer, at Economic Maximum no lower than $1,000/megawatt-hour and no greater than $2,000/megawatt-hour as follows:

(i) If a Composite Energy Offer at Economic Maximum is greater than $1,000/megawatt-hour but does not exceed $2,000/megawatt-hour, and the amortized shutdown cost, to the extent that it is reviewed pursuant to Operating Agreement, Schedule 1, section 6.4.3A, does not exceed the resource's reasonably expected shutdown cost, then no adjustments shall be made to the submitted Composite Energy Offer.

(ii) If the amortized shutdown cost, to the extent that it is reviewed pursuant to Operating Agreement, Schedule 1, section 6.4.3A, exceeds the resource's reasonably expected shutdown cost, then the Composite Energy Offer shall equal: (i) the resource's Incremental Energy Offer, and (ii) to the extent the Incremental Energy Offer is less than $1,000/megawatt-hour, a shutdown value equal to the lesser of the resource's amortized submitted shutdown cost or a value sufficient to make the Composite Energy Offer at Economic Maximum equal to $1,000/megawatt-hour.

(iii) If the Composite Energy Offer at Economic Maximum exceeds $2,000/megawatt-hour and the amortized shutdown cost, to the extent that it is reviewed pursuant to Operating Agreement, Schedule 1, section 6.4.3A, does not exceed the resource's

reasonably expected shutdown cost, then the Composite Energy Offer shall equal $2,000/megawatt-hour: (i) the resource's Incremental Energy Offer, and (ii) to the extent the Incremental Energy Offer is less than $2,000/megawatt-hour, a shutdown value sufficient to make the Composite Energy Offer equal to $2,000/megawatt-hour.

(g) Units that must be run for local area protection shall not be considered in the calculation of Real-time Prices.