SCHEDULE 2 -
COMPONENTS OF COST

1. GENERAL COST PROVISIONS

1.1 Permissible Components of Cost-based Offers of Energy.

Each Market Participant obligated to sell energy on the PJM Interchange Energy Market at cost-based rates may include the following components or their equivalent in the determination of costs for energy supplied to or from the PJM Region:

(a) For generating units powered by boilers
Start-Up Costs (including Start Fuel)
Peak-prepared-for maintenance cost

(b) For generating units powered by machines
Start-Up Cost (including Start Fuel)

(c) For all generating units
Incremental maintenance cost
No-load cost during period of operation
Labor cost
Operating costs
Opportunity Costs
Emission allowances/adders
Maintenance Adders
Ten percent adder
Charging costs for Energy Storage Resources
Fuel Cost

1.2 Method of Determining Cost Components.

The PJM Board, upon consideration of the advice and recommendations of the Members Committee, shall from time to time define in detail the method of determining the costs entering into the said components, and the Members shall adhere to such definitions in the preparation of incremental costs used on the Interconnection.

1.3 Application of Cost Components to Three-Part Cost-based Offers.

A cost-based offer, as defined in Operating Agreement, Schedule 1, section 1.2, is a three-part offer consisting of Start-up Costs, No-load Costs, and the Incremental Energy Offer. These terms are as defined in Operating Agreement, section 1.

The following lists the categories of cost that may be applicable to a Market Participant's three-part cost-based offer:

(a) For Start-up Costs
Fuel cost
Emission allowances/adders
Maintenance Adders
Operating costs
Station service

(b) For No-load Costs
Fuel cost
Emission allowances/adders
Maintenance Adders
Operating costs

(c) Incremental Costs in Incremental Energy Offers
Fuel cost
Emission allowances/adders
Maintenance Adders
Operating costs
Opportunity Costs

(d) All fuel costs shall employ the marginal fuel price experienced by the Member.

2. FUEL COST POLICY

2.1 Approved Fuel Cost Policy Requirement for Non-Zero Cost-based Offer.

A Market Seller may only submit a non-zero cost-based offer into the PJM Interchange Energy Market for a generation resource if it has a PJM-approved Fuel Cost Policy, or follows the temporary cost offer methodology set forth in Operating Agreement, Schedule 2, section 6.3, consistent with each fuel type for such generation resource.

2.2 Fuel Cost Policy Approval Process.

(a) A Market Seller shall provide a Fuel Cost Policy to PJM and the Market Monitoring Unit for each generation resource that it intends to submit with a non-zero cost-based offer into the PJM Interchange Energy Market, for each fuel type utilized by the resource. The Market Seller shall submit its initial Fuel Cost Policy for a generation resource to PJM and the Market Monitoring Unit for review and shall update existing Fuel Cost Policies consistent with the requirements set forth below in Operating Agreement, Schedule 2, section 2.6.

(i) For each new generation resource for which the Market Seller intends to submit a non-zero cost-based offer, the Market Seller may also:

A. Submit a provisional Fuel Cost Policy to PJM and the Market Monitoring Unit for review and approval when it does not have commercial operating data. The

provisional Fuel Cost Policy shall describe the Market Seller's methodology to procure and price fuel and include all available operating data. Within 90 calendar days of the commercial operation date of such generation resource, the Market Seller shall submit to PJM and the Market Monitoring Unit for review an updated Fuel Cost Policy reflecting actual commercial operating data of the resource; or

B. Follow the temporary cost offer methodology set forth in Operating Agreement, Schedule 2, section 6.3, until PJM approves a new Fuel Cost Policy.

(ii) A Market Seller of a generation resource that is transferred from another Market Seller that intends to submit a non-zero cost-based offer must:

A. Affirm the currently approved Fuel Cost Policy on file for such generation resource prior to the submission of a cost-based offer; or

B. Submit an updated Fuel Cost Policy for review, which must be approved prior to the submission of a cost-based offer developed in accordance with such policy; or

C. Follow the temporary cost offer methodology set forth in Operating Agreement, Schedule 2, section 6.3, until PJM approved a new Fuel Cost Policy.

(b) PJM and the Market Monitoring Unit will have an initial thirty (30) Business Days for review of a submitted policy.

(c) The basis for the Market Monitoring Unit's review is described in Tariff, Attachment M-Appendix. PJM shall consult with the Market Monitoring Unit, and consider any input and advice timely received from the Market Monitoring Unit, in its determination of whether to approve a Market Seller's Fuel Cost Policy.

(d) After it has completed its evaluation of the submitted Fuel Cost Policy, PJM shall notify the Market Seller in writing, with a copy to the Market Monitoring Unit, whether the Fuel Cost Policy is approved or rejected. If PJM rejects a Market Seller's Fuel Cost Policy, PJM shall include an explanation for why the Fuel Cost Policy was rejected in its written notification.

(e) PJM shall establish an expiration date for each Fuel Cost Policy, with timely input and advice from the Market Monitoring Unit and Market Seller, and notify the Market Seller of such date at the time of the Fuel Cost Policy approval. Upon such expiration, the Fuel Cost Policy will no longer be deemed approved by PJM and the provisions of Operating Agreement, Schedule 2, section 2.4(b) shall apply.

2.3 Standard of Review.

(a) PJM shall review and approve a Fuel Cost Policy if it meets the requirements set forth in subsections (a)(i) through (vii) of this section. PJM shall reject Fuel Cost Policies that fail to meet such requirements and that do not accurately reflect the applicable costs, such as the fuel

source, transportation cost, procurement process used, applicable adders, commodity cost, or provide sufficient information for PJM to verify the Market Seller's fuel cost at the time of the Market Seller's cost-based offer. If PJM rejects a Market Seller's Fuel Cost Policy, PJM shall include an explanation for why the Fuel Cost Policy was rejected in its written notification. A Fuel Cost Policy must:

(i) Provide information sufficient for the verification of the Market Seller's fuel pricing and/or cost estimation method, as further described below and in PJM Manual 15, and how those practices are utilized to determine cost-based offers the Market Seller submits into the PJM Interchange Energy Market;

(ii) Reflect the Market Seller's applicable commodity and/or transportation contracts (to the extent it holds such contracts) and the Market Seller's method of calculating delivered fossil fuel cost, limited to inventoried cost, replacement cost or a combination thereof, that reflect the way fuel is purchased or scheduled for purchase, and set forth all applicable indices as a measure that PJM can use to verify how anticipated spot market purchases are utilized in determining fuel costs;

(iii) Provide a detailed explanation of the basis for and reasonableness of any applicable adders included in determining fuel costs in accordance with PJM Manual 15;

(iv) Account for situations where applicable indices or other objective market measures are not sufficiently liquid by documenting the alternative means actually utilized by the Market Seller to price the applicable fuel used in the determination of its cost-based offers, such as documented quotes for the procurement of natural gas;

(v) Adhere to all requirements of PJM Manual 15 applicable to the generation resource:

(vi) Specify a source for fuel price that can be verified by the Office of the Interconnection or the Market Monitoring Unit after the fact with the same data available to the Market Seller at the time the fuel price estimation was made; and

(vii) Document a standardized method or methods for calculating fuel costs including defining objective triggers for optional fuel cost updates.

(b) To the extent a Market Seller proposes alternative measures to document its fuel costs in its Fuel Cost Policy for a generation resource, the Market Seller shall explain how such alternative measures are consistent with or superior to the standard specified in subsection (a) of this section, accounting for the unique circumstances associated with procurement of fuel to supply the generation resource.

(c) If PJM determines that a Fuel Cost Policy submitted for review does not contain adequate support for PJM to make a determination as to the acceptability of any portion of the proposed policy consistent with the standards set forth above, PJM shall reject the Fuel Cost Policy. If PJM rejects the Fuel Cost Policy, the Market Seller may use:

(i) The existing approved Fuel Cost Policy, if the policy is not expired and is still reflective of the Market Sellers current fuel pricing and/or cost estimation method; or

(ii) The temporary cost offer methodology provided in Operating Agreement, Schedule 2, section 6.3 to develop its cost-based offers until such time as PJM approves a new Fuel Cost Policy for the Market Seller.

2.4 Expiration of Approved Fuel Cost Policies.

(a) PJM, in consultation with the Market Seller and with timely input and advice from the Market Monitoring Unit, may:

(i) Update the Market Seller's Fuel Cost Policy expiration date, with at least 90 days notification to the Market Seller, due to a business rule change in the PJM Governing Documents.

(ii) Immediately expire the Market Seller's Fuel Cost Policy with written notification to the Market Seller when a change in circumstance causes the Market Seller's fuel pricing and/or cost estimation method to be no longer consistent with the approved Fuel Cost Policy, this Operating Agreement, Schedule 2 or PJM Manual 15.

(b) If the Market Seller of a generation resource that has been transferred from another Market Seller does not affirm the current approved Fuel Cost Policy on file for that generation resource, then such Fuel Cost Policy shall terminate as of the date on which the generation resource was transferred to the new Market Seller.

(c) PJM shall notify the Market Seller and the Market Monitoring Unit in writing when it has approved or denied a requested update to a Fuel Cost Policy expiration date and the rationale for its determination.

(d) On the next Business Day following the expiration of a Fuel Cost Policy, the Market Seller may only submit a cost-based offer of zero or a cost-based offer that is consistent with the temporary cost offer methodology in Operating Agreement, Schedule 2, section 6.3 until a new Fuel Cost Policy is approved by PJM for the relevant resource. If PJM expires a Market Seller's previously approved Fuel Cost Policy under Operating Agreement, Schedule 2, section 2.4(a)(i) or (ii), PJM shall notify the Market Seller in writing, with a copy to the Market Monitoring Unit, and include an explanation for the expiration, along with relevant documentation to support the expiration of a Fuel Cost Policy. Upon expiration, the Market Seller may rebut the expiration pursuant to Operating Agreement, Schedule 2, section 6.2

2.5 Information Required To Be Included In Fuel Cost Policies.

(a) Each Market Seller shall include in its Fuel Cost Policy the following information, as further described in the applicable provisions of PJM Manual 15:

(i) For all Fuel Cost Policies, regardless of fuel type, the Market Seller shall provide a detailed explanation of the Market Seller's established method of calculating or estimating fuel costs, indicating whether fuel purchases are subject to a contract price and/or spot pricing, and specifying how it is determined which of the contract prices and/or spot market prices to use. The Market Seller shall include its method for determining commodity, handling and transportation costs.

(ii) For Fuel Cost Policies applicable to generation resources using a fuel source other than natural gas, the Market Seller shall adhere to the following guidelines:

1. Fuel costs for solar and run-of-river hydro resources shall be zero.

2. Fuel costs for nuclear resources shall not include in-service interest charges whether related to fuel that is leased or capitalized.

3. For Pumped Storage Hydro resources, fuel cost shall be determined based on the amount of energy necessary to pump from the lower reservoir to the upper reservoir.

4. For all resources receiving renewable energy credits and/or production tax credits that plan to submit a non-zero cost based offer into the energy market, the Market Seller shall identify how it accounts for renewable energy credits and production tax credits.

5. For solid waste, bio-mass and landfill gas resources, the Market Seller shall include the costs of such fuels even when the cost is negative.

6. For Energy Storage Resources, fuel cost shall include costs to charge for later injection to the grid.

(iii) Market Sellers shall report, for all of the generation resource's operating modes, fuels, and at various operating temperatures, the incremental, no load and start heat requirements, the method of developing heat inputs, and the frequency of updating heat inputs when requested by the Office of the Interconnection.

(iv) Market Sellers shall include any applicable unit specific performance factors, and the method used to determine them, which may be modified seasonally to reflect ambient conditions when requested by the Office of the Interconnection.

(v) Market Sellers shall include the cost-based Start-Up Cost calculation for the generation resource, and identify for each temperature state the starting fuel (MMBtu), station service (MWh), and start Maintenance Adder, when requested by the Office of the Interconnection.

(vi) A Fuel Cost Policy shall also include any other incremental operating costs included in a Market Seller's cost-based offer for a resource, including but not limited to the consumables used for operation and the marginal value of costs in terms of dollars per MWh or dollars per unit of fuel, along with all applicable descriptions, calculation methodologies associated with such costs, and frequency of updating such costs.

2.6 Periodic Update and Review of Fuel Cost Policies.

Prior to expiration of a Fuel Cost Policy, all Market Sellers will be required to either submit to PJM and the Market Monitoring Unit an updated Fuel Cost Policy that complies with this Operating Agreement, Schedule 2 and PJM Manual 15, or confirm that their expiring Fuel Cost Policy remains compliant, pursuant to the procedures and deadlines specified in PJM Manual 15. PJM shall consult with the Market Monitoring Unit, and consider any input timely received from the Market Monitoring Unit, in its determination of whether to approve a Market Seller's updated Fuel Cost Policy. After it has completed its evaluation of the request, PJM shall notify the Market Seller in writing, with a copy to the Market Monitoring Unit, of its determination whether the updated Fuel Cost Policy is approved or rejected. If PJM rejects a Market Seller's updated Fuel Cost Policy, in its written notification, PJM shall provide an explanation for why the Fuel Cost Policy was rejected.

The Market Seller shall follow the applicable processes and deadlines specified in this Operating Agreement, Schedule 2 and the PJM Manual 15 to submit an updated Fuel Cost Policy:

(a) If the Market Seller's fuel pricing or cost estimation method is no longer consistent with the approved Fuel Cost Policy, or

(b) If a Market Seller desires to update its Fuel Cost Policy.

2.7 Market Monitoring Unit Review For Market Power Concerns.

Nothing in this Operating Agreement, Schedule 2 is intended to abrogate or in any way alter the responsibility of the Market Monitoring Unit to make determinations about market power pursuant to Tariff, Attachment M and Attachment M-Appendix.

3. EMISSION ALLOWANCES/ADDERS

3.1 Review of Emissions Allowances/Adders.

(a) For emissions costs, Market Sellers shall specify the emissions rate of each generation resource, the method for determining the emissions allowance cost, and the frequency of updating emission rates in the resource's Fuel Cost Policy. Emissions rates must be submitted to PJM and the Market Monitoring Unit. Emissions rates must be updated when they are no longer accurate. PJM shall establish an expiration date for emissions rates, with timely input and advice from the Market Monitoring Unit and Market Seller, and notify the Market Seller of such date at the time of the emissions rate approval. Market Sellers must submit updated rates prior to the expiration of the current adder. The Market Seller of a generation resource with an expired

emission rate, or otherwise does not have an approved emission rate, may not include an emission adder in the cost-based offer associated with such generation resource.

(b) Market Sellers may submit emissions cost information to PJM and the Market Monitoring Unit as part of the information it submits during the annual Fuel Cost Policy review process, described in Operating Agreement, Schedule 2, section 2.6. The basis for the Market Monitoring Unit's review is described in Tariff, Attachment M-Appendix, section II.A.2. PJM shall consult with the Market Monitoring Unit, and consider any input and advice timely received from the Market Monitoring Unit, in its determination of whether to approve emissions costs.

4. MAINTENANCE ADDERS & OPERATING COSTS

4.1 Maintenance Adders.

Maintenance Adders are expenses directly related to electric production and can be a function of starts and/or run hours. Allowable expenses may include repair, replacement, and major inspection, and overhaul expenses including variable long term service agreement expenses. Maintenance Adders are calculated as the 10 or 20 year average cost of a unit's maintenance history, or all available actual maintenance history if a unit has less than 20 years of maintenance history. Maintenance Adders are comprised of major maintenance and minor maintenance. Market Sellers that wish to include major maintenance and/or unit specific minor maintenance in the Maintenance Adder shall submit and receive approval of the requested adder from the Office of Interconnection, prior to the inclusion of such adder (or prior to the expiration of a previously approved adder) in cost-based offers. Notwithstanding, Market Sellers may utilize the default minor maintenance adder provided in this Operating Agreement, Schedule 2, section 4.5 in lieu of submitting unit-specific minor maintenance adder. The major inspection and overhaul costs listed below in sections (a)-(c) are not exhaustive. A Market Seller may include costs in cost-based offers if those costs are similar to the costs outlined in this provision, so long as they are variable costs that are directly attributable to the production of electricity.

(a) Major maintenance are overhauls, repairs, or refurbishments that require disassembly to complete of boiler, reactor, heat recovery steam generator, steam turbine, gas turbine, hydro turbine, generator, or engine. Major maintenance includes, but is not limited to, the following costs:

- turbine blade repair/replacement;
- turbine diaphragm repair;
- turbine casing repair/replacement;
- turbine bearing repair/refurbishment;
- turbine seal repair/replacement and generator refurbishment;
- selective catalytic reduction and carbon monoxide reduction catalyst replacement;

- compressor blade repair/replacement;
- hot gas path inspections, repairs, or replacements;
- steam stop valve repairs;

- steam throttle valve repairs;
- steam nozzle block repairs;
- steam intercept valve repairs;
- generator stator or rotor rewind, refurbishment, or replacement;
- scrubber refurbishment;
- water wall panel replacement;
- pendant or super heater replacement;
- economizer replacement;
- diesel/reciprocating engine overhaul;
- reactor refueling;
- steam generator overhaul/replacement.

(b) Minor maintenance are repairs or refurbishments on equipment and components directly related to electric production and not otherwise classified as major maintenance, such as main steam, feed water, condensate, condenser, cooling towers, transformers, gas turbine inlet air and exhaust, and fuel systems. Minor maintenance include, but are not limited to, the following costs associated with the aforementioned systems:

- heat transfer replacement and cleaning;
- cooling tower fan motor and gearbox inspection;
- cooling tower fill and drift eliminators replacement;
- air filter replacement;
- repair and replacement of valves and piping components, control equipment, pumps, motors, condenser components, transformers, cabling, breakers, motor control centers, switch gear, fuel and ash handling, selective catalytic reduction and scrubber emission control equipment and components, mills burners, boiler components, fan components, reactor recirculation components, hydraulic control rod drive system components and reactor components.

(c) Maintenance costs that cannot be included in a Market Seller's cost-based offer are preventative maintenance and routine maintenance on auxiliary equipment like buildings, HVAC, compressed air, closed cooling water, heat tracing/freeze protection, and water treatment.

4.2 Operating Costs.

(a) Operating costs are expenses related to consumable materials used during unit operation and include, but are not limited to, lubricants, chemicals, limestone, trona, ammonia, acids, caustics, water injection, activated carbon for mercury control, and demineralizers usage. These operating costs not exhaustive. A Market Seller may include other operating costs in cost-based offers so long as they are operating costs that are directly attributable to the production of energy.

(b) Operating costs may be calculated based on a fixed or rolling average of values from one to five years in length, reviewed (and updated if changed) annually, or a rolling average from twelve to sixty months in length, reviewed (and updated if changed) monthly.

(c) Market Sellers that wish to include unit-specific operating costs adder shall submit and receive approval of the requested unit-specific fixed average adder or the most recent month rolling average adder from the Office of Interconnection prior to the inclusion of such adder (or prior to the expiration of a previously approved adder) in cost-based offers. Notwithstanding, Market Sellers may utilize the default operating costs adder provided in this Operating Agreement, Schedule 2, section 4.5 in lieu of submitting unit-specific operating costs adder.

4.3 Labor Costs.

Labor costs included in cost-based offers do not include straight-time labor costs and are limited to contractor labor or plant personnel overtime labor included in the Maintenance Adder associated with maintenance activities directly related to electric production. Straight time labor expenses may be included under an Avoidable Cost Rate in the RPM auction.

4.4 Review of Maintenance Adders & Operating Costs.

(a) Maintenance Adders and operating costs may be submitted and reviewed annually by the Office of Interconnection and the Market Monitor Unit, if the Market Seller does not use the default adders described in Operating Agreement, Schedule 2, section 4.5. The Market Seller must submit Maintenance Adders if they are no longer accurate due to major maintenance rolling off the cost history. Maintenance Adders and operating costs cannot include any costs that are included in the generation resource's Avoidable Cost Rate pursuant to Tariff, Attachment DD, section 6.8(c).

(b) Market Sellers must specify the maintenance history years utilized in calculating Maintenance Adders during the review.

(c) Market Sellers must specify the years used to calculate Operating Costs during the review. Market Sellers that elect to use a twelve month to sixty month rolling average must submit these costs for a monthly review.

(d) The basis for the Market Monitoring Unit's review is described in Tariff, Attachment M-Appendix, section II.A.2. PJM shall consult with the Market Monitoring Unit, and consider any input and advice timely received from the Market Monitoring Unit, in its determination of whether to approve Maintenance Adders and operating costs.

(e) PJM shall establish an expiration date for each Maintenance Adder and operating costs, and notify the Market Seller of such date at the time of the Maintenance Adders and operating costs approval.

4.5 Default Adder.

A Market Seller may elect to utilize a default minor maintenance adder or submit unit-specific minor maintenance costs to the Office of Interconnection and the Market Monitoring Unit. All

major maintenance costs on a unit-specific basis must be submitted to the Office of Interconnection and the Market Monitoring Unit.

A Market Seller may include a default operating costs adder in the cost-based energy offer in lieu of submitting unit-specific operating costs for review and approval.

The default adders are as follows:

Technology Type	Default Minor Maintenance Adders ($/MWh)	Default Operating Costs Adders ($/MWh)
Combined Cycle	0.98	0.40
Combustion Turbine	3.59	0.75
Reciprocating Engine	4.03	1.62
Fossil Steam	1.71	2.87

The default adders shown above shall be escalated annually utilizing the Handy-Whitman Index and shall be posted annually by the Office of Interconnection. The default adders may not be utilized by a Market Seller prior to the expiration of a unit-specific maintenance adder or operating costs adder previously approved by the Office of Interconnection.

5. OPPORTUNITY COSTS

(a) For a generating unit that is subject to operational limitations due to energy or environmental limitations imposed on the generating unit by Applicable Laws and Regulations, the Market Participant may include a calculation of its "Opportunity Costs" which is an amount reflecting the unit-specific Energy Market Opportunity Costs expected to be incurred. Such unit-specific Energy Market Opportunity Costs are calculated by forecasting Locational Marginal Prices based on future contract prices for electricity using PJM Western Hub forward prices, taking into account historical variability and basis differentials for the bus at which the generating unit is located for the prior three year period immediately preceding the relevant compliance period, and subtract therefrom the forecasted costs to generate energy at the bus at which the generating unit is located, as specified in more detail in PJM Manual 15. If the difference between the forecasted Locational Marginal Prices and forecasted costs to generate energy is negative, the resulting Energy Market Opportunity Cost shall be zero. Notwithstanding the foregoing, a Market Participant may submit a request to PJM for consideration and approval of an alternative method of calculating its Energy Market Opportunity Cost if the standard methodology described herein does not accurately represent the Market Participant's Energy Market Opportunity Cost.

(b) For a generating unit that is subject to operational limitations because it only has a limited number of starts or available run hours resulting from (i) the physical equipment limitations of the unit, for up to one year, due to original equipment manufacturer recommendations or insurance carrier restrictions, or (ii) a fuel supply limitation, for up to one year, resulting from an event of Catastrophic Force Majeure, the Market Participant may include

a calculation of its "Opportunity Costs" which is an amount reflecting the unit-specific Non-Regulatory Opportunity Costs expected to be incurred. Such unit-specific Non-Regulatory Opportunity Costs are calculated by forecasting Locational Marginal Prices based on future contract prices for electricity using PJM Western Hub forward prices, taking into account historical variability and basis differentials for the bus at which the generating unit is located for the prior three year period immediately preceding the period of time in which the unit is bound by the referenced restrictions, and subtract therefrom the forecasted costs to generate energy at the bus at which the generating unit is located, as specified in more detail in PJM Manual 15. If the difference between the forecasted Locational Marginal Prices and forecasted costs to generate energy is negative, the resulting Non-Regulatory Opportunity Cost shall be zero.

6. PENALTY PROVISIONS

6.1 Penalties.

(a) If upon review of a Market Seller's cost-based offer, PJM determines that the offer is not in compliance with the Market Seller's PJM-approved Fuel Cost Policy or this Operating Agreement, Schedule 2 and the Market Monitoring Unit agrees with that determination, or the Market Monitoring Unit determines that the offer is not in compliance with the Market Seller's PJM-approved Fuel Cost Policy and PJM agrees with the Market Monitoring Unit's determination, or PJM determines that any portion of the cost-based offer is not in compliance with this Operating Agreement, Schedule 2, the Market Seller shall be subject to a penalty. If:

1. The Market Seller ceased submitting the non-compliant offer either prior to, or upon notification from PJM, or the Market Seller reports such error to PJM after ceasing submission of the non-compliant cost-based offer then the penalty calculation will use the average hourly MWh and LMP for each hour of the day across the non-compliant period, as shown in the equation below. For the purposes of this equation, the non-compliant period is defined as the first hour of the Operating Day for which the non-compliant offer was first submitted through the earlier of: a) the last hour of the Operating Day for which the non-compliant offer was submitted (inclusive of all hours, even where the offer was correct, in between the same non-compliant offer); or b) notification of the non-compliant offer from PJM (inclusive of all hours, even where the offer was correct, in between the same non-compliant offer).

$$\text{Non-Escalating Penalty} = \sum_{h=1}^{24} \left(\left(\frac{1}{20} \right) \text{x } LMP_h \text{ x } MW_h \text{ x E x I} \right)$$

where:

$_h$ is the applicable hour of the Operating Day.

LMP_h is the average hourly real-time LMP at the applicable location of the resource for the given hour across the non-compliant period.

MW_h is the average hourly available capacity of the resource for the given hour across the non-compliant period, where available capacity is defined as the greater of the real-time megawatt output and emergency maximum of the generation resource.

E is the Market Seller error identification factor. The Market Seller error identification factor shall be equal 0.25 when the non-compliant offer is identified by the Market Seller without inquiry from or being prompted by PJM or the Market Monitoring Unit, and PJM, with timely input and advice from the Market Monitoring Unit, agrees that the Market Seller first identified the error. The Market Seller error identification shall equal 1 in the absence of a valid self-identified error.

I is the market impact factor over the duration of the non-compliant cost-based offer. The market impact factor shall be equal to 1 if the Market Seller continued submitting non-compliant offers after receiving notice from PJM of its non-compliant offer, or if the Market Seller continued submitting non-compliant offers after notifying PJM of the non-compliant cost-based offer, or when any of the following conditions exist for any hour throughout the duration of the non-compliant cost-based offer:

A. The generation resource clears in the Day-ahead Energy Market on the non-compliant cost-based offer, or runs in Real-time Energy Market on the non-compliant cost-based offer and is either:

(i) paid day-ahead or balancing operating reserves as described in Operating Agreement, Schedule 1, section 3.2.3; or

(ii) The marginal resource for energy, transmission constraint control, regulation or reserves.

B. The Market Seller does not pass the three pivotal supplier test as described in Operating Agreement, Schedule 1, section 6.4.1(e) and any of the following conditions apply:

(i) The generation resource is not committed

(ii) The generation resource runs on its cost-based offer

(iii) The generation resource is running on its market-based offer and it did not pass the three pivotal supplier test at the time of commitment

C. The non-compliant incremental cost-based offer is greater than $1,000.MWh

If none of the above conditions apply, then the market impact factor shall be equal to 0.1

2. In addition to being issued the penalty described in 6.1(a)(1), a Market Seller will be subject to a daily escalating penalty for each day beyond which the Market Seller continues submitting the non-compliant cost-based offer after notification from PJM, or after the Market Seller reports such error to PJM. Escalating daily penalty will be calculated as shown in the equation below:

$$\text{Escalating Daily Penalty} = \sum_{h=1}^{24} \left(\left(\frac{d}{20} \right) \text{x } LMP_h \text{ x } MW_h \right)$$

where:

d is the the number of days, starting at 2 and increasing by 1 for each additional day of non-compliance following notification, and capped at a value of 15.

$_h$ is the applicable hour of the Operating Day.

LMP_h is the hourly real-time LMP at the applicable pricing location for the resource for the applicable hour of the Operating Day.

MW_h is the hourly available capacity of the resource for the applicable hour of the Operating Day, where available capacity is defined as the greater of the real-time megawatt output and emergency maximum of the generation resource.

(b) All charges collected pursuant to this provision shall be allocated to Market Participants based on each Market Participant's real-time load ratio share for each applicable hour, as determined based on the Market Participant's total hourly load (net of operating Behind The Meter Generation, but not to be less than zero) to the total hourly load of all Market Participants in the PJM Region.

(c) Market Sellers that are assessed a penalty for a cost-based offer not in compliance with the Market Seller's PJM-approved Fuel Cost Policy, the temporary cost offer methodology, or this Schedule 2 shall be assessed penalties until the day after PJM determines that the Market Seller's cost-based offers are in compliance with the Market Seller's approved Fuel Cost Policy or in compliance with this Schedule 2. Such penalties will be assessed for no less than one (1) Operating Day.

6.2 Rebuttal Period To Challenge Expiration of Fuel Cost Policy.

Market Sellers who have a Fuel Cost Policy that has been immediately expired by PJM will be provided a three (3) Business Day rebuttal period, starting from the date of expiration, to submit supporting documentation to PJM demonstrating that the expired Fuel Cost Policy accurately reflects the fuel pricing and/or cost estimation method documented in the previously approved Fuel Cost Policy that was expired. However, if, upon review of the Market Seller's supporting documentation, PJM determines that the expired policy accurately reflects the Market Seller's actual methodology used to develop the cost-based offer that was submitted at the time of expiration and that the Market Seller has not violated its Fuel Cost Policy, then PJM will make whole the Market Seller via uplift payments for the time period for which the applicable Fuel Cost Policy had been expired and the generation resource was mitigated to its cost-based offer.

6.3 Exemption From Penalty

(a) A Market Seller will not be subject to a penalty under Operating Agreement, Schedule 2, section 6.1 for utilizing a fuel pricing and/or cost estimation method inconsistent with the methodology in the Market Seller's PJM-approved Fuel Cost Policy or this Operating Agreement, Schedule 2 if the reason for fuel pricing and/or cost estimation deviation is due to an unforeseen event outside of the control of the Market Seller, its agents, and its affiliated fuel suppliers which, by exercise of due diligence the Market Seller could not reasonably have contemplated at the time the Fuel Cost Policy was developed, such as:

(i) physical events such as acts of God, landslides, lightning, earthquakes, fires, storms or storm warnings, such as hurricanes, which result in evacuation of the affected area, floods, washouts, explosions, breakage or accident or necessity of repairs to machinery or equipment or lines of pipe;

(ii) weather related events affecting an entire geographic region, such as low temperatures which cause freezing or failure of wells or lines of pipe or other fuel delivery infrastructure;

(iii) interruption and/or curtailment of firm transportation and/or storage by transporters;

(iv) acts of unaffiliated third parties including but not limited to strikes, lockouts or other industrial disturbances, riots, sabotage, insurrections or wars, or acts of terror; and

(v) governmental actions such as necessity for compliance with any court order, law, statute, ordinance, regulation, or policy having the effect of law promulgated by a governmental authority having jurisdiction.

(b) Market Seller shall provide evidence of the event and direct impact on the Market Seller's ability to utilize a fuel pricing and/or cost estimation method consistent with the methodology in the Market Seller's PJM-approved Fuel Cost Policy or this Operating Agreement, Schedule 2. Such evidence shall be provided to PJM and the Market Monitoring Unit. Upon providing such evidence to PJM and the Market Monitoring Unit, and after receiving timely comments from the Market Monitoring Unit, PJM shall determine and notify the Market Seller as to whether the evidence sufficiently demonstrates that the force majeure event directly impacted the Market

Seller's ability to conform to the methodology described in the applicable PJM-approved Fuel Cost Policy. The applicability of this provision shall not apply for economic hardship nor obviate the requirement for a Market Seller to submit cost-based offers that are just and reasonable, and utilize best available information to develop fuel costs during a force majeure event.

6.4 Temporary Cost Offer Methodology

(a) As an option, Market Sellers may utilize the temporary cost offer methodology to calculate a generation resource's cost-based offer while developing a new Fuel Cost Policy in good faith for the following:

(i) Generation resources that initiate participation in the PJM Energy Market

(ii) Generation resources transferring from one Market Seller to another Market Seller

(iii) Generation resources that have an expired Fuel Cost Policy

(b) The temporary cost offer methodology shall be comprised of the index settle price, described below, at the PJM-assigned commodity pricing point multiplied by heat input curves submitted by the Market Seller, as described in Manual 15.

For generation resources that opt-out of intraday offers, the last published closing index settle price shall be used for all hours of the Operating Day.

For generation resources that opt-in to intraday offers, index settle prices shall be based on the last published closing settle price for all hours of the Operating Day , and updated to reflect the:

1. last published closing settle price, if decreased, for hours ending 11 through 24 for natural gas

2. last published closing settle price, if decreased, for all hours of the Operating Day for all other fuel types

(c) The commodity pricing point and index publication source shall be assigned by PJM in consultation with the Market Seller and with timely input and advice from the Market Monitoring Unit.

(d) A Market Seller may not include any of the other permissible components for cost-based offers that listed in this Operating Agreement, section 1.1.

(e) If a Market Seller without a PJM-approved Fuel Cost Policy does not utilize this temporary cost offer methodology to calculate its cost-based offer, the Market Seller shall only submit a zero cost-based offer.