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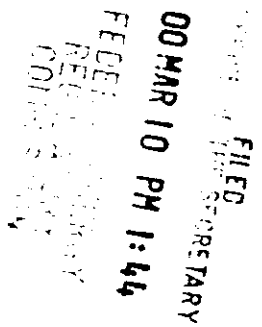
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ER00-1849-000

ORIGINAL

March 10, 2000

Honorable David P. Boergers
Federal Energy Regulatory Commission
888 First Street, N.E. Room 1A
Washington, D.C. 20426



Re: PJM Interconnection, L.L.C., Docket No. ER00-____

Dear Mr. Boergers:

Description Of Filing

In accordance with the Commission's order in PJM Interconnection, L.L.C., 86 FERC ¶ 61,147 (1999) ("Order"), PJM Interconnection, L.L.C. ("PJM"), tenders revised pages to the PJM Open Access Transmission Tariff ("PJM Tariff") and the Amended and Restated Operating Agreement of the PJM Interconnection, L.L.C. ("Operating Agreement") setting forth procedures for a two-settlement system.

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Background and Stakeholder Process

On December 31, 1997, the PJM Supporting Companies[1] filed a proposed amendment to Schedule 1 of the Operating Agreement[2] to implement a multi-settlement system allowing, among other things, transmission customers to fix transmission costs ahead of the actual transmission transaction. In the Order, the Commission rejected the PJM Supporting Companies' December 31, 1999 filing. It directed PJM rather than the PJM Supporting Companies to file new multi-settlement system procedures within eighteen months of the date of the Order (February 11, 1999). Order at 61,523 & 61,530.

In response to the Order, PJM commenced an extensive stakeholder process to develop an appropriate multi-settlement proposal. The PJM Energy Market Committee promptly formed a working group to discuss business rules and other issues concerning multi-settlement.[3] The working group worked diligently over the next nine months to develop a two-settlement system. It met monthly and regularly reported its progress to the PJM Energy Market Committee. A first draft of PJM Tariff and Operating Agreement changes necessary to implement a two-settlement market was distributed to

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1 The PJM Supporting Companies consist of Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power & Light Company, Jersey Central Power & Light Company, Metropolitan Edison Company, Pennsylvania Electric Company, PP&L, Inc., Potomac Electric Power Company and Public Service Electric and Gas Company.

2 Schedule 1 to the Operating Agreement is identical to the Appendix to Attachment K to the PJM Tariff.

3 See PJM Interconnection Energy Market Committee Minutes of the Thirteenth Meeting, March 24, 1999 (available on the PJM website – www.pjm.com).

the PJM Energy Market Committee and the working group on November 8, 1999.[4] The working group reviewed and revised the draft and then presented a new draft to the PJM Tariff Advisory Committee at its December 20, 1999 meeting.[5] The PJM Tariff Advisory Committee agreed to revise the proposal to reflect the discussions at its December 20, 1999 meeting as well as additional comments from the working group.[6] At its January 14, 2000 meeting, the PJM Tariff Advisory Committee further modified the proposed amendments. It then forwarded the amendments as modified to the PJM Members Committee.[7] At its meeting on January 27, 2000, the PJM Members Committee unanimously approved the revisions to the PJM Tariff and Operating Agreement necessary to implement the two-settlement system.

Overview of the Two-Settlement System

PJM's two-settlement system was developed in response to the Commission's concern for "the lack of price certainty transmission customers face when they reserve transmission service." Order at 61,525. Specifically, in the order that initially approved locational marginal pricing ("LMP"), the Commission had expressed concern that the Supporting Companies' proposal may not have provided sufficient price certainty. Pennsylvania-New Jersey-Maryland Interconnection, 81 FERC ¶ 61,257, at 62,256-57

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4 See Two-Settlement Working Group Meeting Notes 11/12/99 (available on the PJM website – www.pjm.com).

5 See Two-Settlement Working Group Meeting Notes 12/14/99 (available on the PJM website – www.pjm.com).

6 See PJM Interconnection, L.L.C. Tariff Advisory Committee Minutes of the 33rd Meeting, December 20, 1999 (available on the PJM website – www.pjm.com).

7 See PJM Interconnection, L.L.C. Tariff Advisory Committee Minutes of the 34rd Meeting, January 14, 2000 (available on the PJM website – www.pjm.com).

(1997) ("PJM Order"); see also Order at 61,525. As the Commission further explained in its order rejecting the Supporting Companies' multi-settlement proposal,

> Because energy schedules, and flows associated with them, can change up to the hour of service, spot prices under LMP do not become known for any hour until after the hour has begun. This uncertainty creates a problem for transmission customers because they cannot submit fully informed bids or otherwise adequately express their willingness to pay for transmission service at the time they request PJM to schedule their transactions.

Id. The Commission noted in the PJM Order that a "multi-settlement system could provide another possible vehicle for addressing the risks of uncertain congestion charges." PJM Order, 81 FERC at 62,257.

With the Commission's concerns and guidance in mind, PJM, through its stakeholder process, developed a two-settlement system that provides: (1) an option for market participants to "lock in" day-ahead scheduled quantities at day-ahead prices; (2) a means for market participants to obtain increased price certainty; (3) financial incentive for resources and demand to submit day-ahead schedules that match their actual schedules; and (4) financial incentive for generation to follow real-time dispatch. PJM's two-settlement system will "assist market participants in hedging financial risk between day ahead conditions and real time dispatch." New England Power Pool, 88 FERC ¶ 61,147, at 61,491 & n.10 (1999).

PJM's two-settlement system consists of two markets – a day-ahead market and a real-time balancing market. The day-ahead market is a forward market in which hourly clearing prices are calculated for each hour of the next Operating Day based on generation offers, demand bids, and bilateral transaction schedules submitted into the

day-ahead market. The balancing market is the real-time energy market in which hourly clearing prices are determined by the actual security-constrained economic dispatch.

Separate accounting settlements are performed for each market.[8] The day-ahead market settlement is based on scheduled hourly quantities and on day-ahead hourly prices. The balancing settlement is based on actual hourly quantity deviations from day-ahead scheduled hourly quantities and on real-time prices integrated over the hour. The price calculations for both day-ahead prices and the balancing (real-time) prices are based on LMP.

As the Commission has recognized, important to creating more price certainty is the ability of market participants to lock in prices in the day-ahead market. See, e.g., Order at 61,528 ("a multi-settlement system could increase price certainty in that it allows customers . . . to lock in the congestion price for a specific reservation"); see also New England Power Pool, 85 FERC ¶ 61,379, at 62,462 (1998) ("[multi-settlement system] would allow buyers a greater opportunity to reduce their loads when prices exceed specified levels, by providing some advanced notice of the price"); New England Power Pool, 87 FERC ¶ 61,045, at 61,192 (1999) ("[single-settlement] does not provide an opportunity for market participants to enter into financially binding commitments on the basis of the day-ahead bids as would a multi-settlement system."). PJM's day-ahead market enables market participants to purchase and sell energy at binding day-ahead prices. It further permits customers to schedule bilateral transactions at binding day-

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[8] PJM's multi-settlement system is referred to as a "two-settlement system" because "there are separate financial settlements for each of the two markets." Central Hudson Gas & Elec. Corp., 86 FERC ¶ 61,062, at 61,222 (1999).

ahead congestion charges based on the differences in the LMP between a transaction's source and sink locations.

In the day-ahead market, LSEs will submit hourly demand schedules, including any price sensitive demand bids, for the amount of demand that they wish to lock-in at day-ahead prices. Generators that are designated as Capacity Resources[9] must submit an offer schedule into the day-ahead market unless they are self-scheduled or unavailable due to outage. Non-capacity resources have the option to make offers into the day-ahead market (but are not required to do so). Transmission customers may submit fixed or dispatchable bilateral transaction schedules into the day-ahead market and may specify the maximum amount of congestion charges they are willing to pay between the transaction source and sink if congestion occurs in the day-ahead schedule.

The bidding mechanisms in the day-ahead market ensure price certainty. There will be several types of bids: price-sensitive demand bids, decrement and increment bids, and "up-to" congestion charge bids. These mechanisms are available to all day-ahead market participants including those engaged in bilateral transactions.

Price sensitive demand bids are bids made by entities with actual physical demand such as an LSE. These bids allow a customer to place a bid to purchase a certain quantity of energy at a certain location if the day-ahead price is at or below a certain price.

Decrement bids are similar to price-sensitive demand bids. They allow a marketer or other similar entity (transmission customer) without physical demand to

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[9] A Capacity Resource is the net capacity from owned or contracted for generating facilities which are accredited pursuant to the procedures set forth in the Reliability Assurance Agreement Among Load Serving Entities in the PJM Control Area. PJM Tariff § 1.3c.

place a bid to purchase a certain quantity of energy at a certain location if the day-ahead price is at or below a certain price. Increment bids are essentially the flip side of decrement bids. They allow a market participant to offer to sell a certain quantity of energy at a certain location if the day-ahead price is at or above a certain price. The PJM day-ahead market allows all Market Participants to use increment and decrement bidding as financial hedging tools to provide additional price certainty in a variety of situations.

"Up-to" congestion bids permit transmission customers to specify how much they are willing to pay for congestion by bidding a certain maximum amount for congestion between the transaction source and sink. If the congestion charges are less than the amount specified in the bid, then the transaction will be scheduled in the day-ahead schedule. These "up-to" bids protect transmission customers from paying uncertain congestion charges by guarantying that they will pay no more than the amount reflected in their bids. Transmission customers also may use an increment and decrement bid pair to accomplish the same type of hedging strategy, which further enhances their price certainty options. In the Commission's words, these types of bids "allow transmission customers to specify the maximum price they are willing to pay for congestion in much the same way that energy market participants place bids for energy." Order at 61,529.

All spot purchases and sales in the day-ahead market will be settled at the day-ahead prices. PJM will calculate the day-ahead schedule based on the bids, offers and schedules submitted using scheduling programs that perform least-cost, security constrained unit commitment and dispatch for each hour of the next operating day. The day-ahead scheduling process will incorporate PJM reliability requirements and reserve

obligations into the analysis. The resulting hourly schedules and LMPs represent binding financial commitments to market participants.[10]

The real-time balancing market is based on actual real-time operations. As in the day-ahead market, generators that are Capacity Resources must participate in the real-time balancing market or may self-schedule. However, Capacity Resources that are available but were not selected in the day-ahead scheduling (e.g., the offer price was higher than other generators and therefore the resource was not economically dispatched) may alter their bids for use in the balancing market. If a generator chooses not to alter its bid, its original bid in the day-ahead market remains in effect.

Balancing prices are calculated based on actual system operating conditions as described by the PJM state estimator. LSEs will pay balancing prices (real-time LMP) for any demand that exceeds their day-ahead scheduled amounts but will receive revenue (real-time LMP) for demand deviations below their day-ahead scheduled amounts. Similarly, generators are paid balancing prices for any generation that exceeds their day-ahead scheduled amounts and will pay for any generation deficit below their day-ahead scheduled amounts. Transmission customers will pay congestion charges (or may receive congestion credits) for bilateral transaction quantity deviations from day-ahead schedules. All spot purchases and sales in the balancing market will be settled at the balancing prices. Like the day-ahead settlement practice based on day-ahead commitments, this balancing market payment practice based on derivations from the day-ahead schedules

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[10] By basing the day-ahead settlement on day-ahead commitments rather than real-time operations, the two-settlement system removes any incentive that may exist under a single-settlement system for a generator that would be paid its own above-market bid at its minimum load to "overstate minimum load requirements." New England Power Pool, 87 FERC at 61,192.

provides a financial incentive for day-ahead market participants to submit day-ahead schedules that match their actual schedules.[11]

The time-line for the day-ahead and balancing markets is as follows:

- 12:00 p.m. the day before the Operating Day (or other such deadline as PJM may specify): Day-ahead Market Bid period closes.
- 4:00 p.m. the day before the Operating Day (or other such earlier deadline as PJM may specify): Day-ahead hourly schedules and LMPs posted (day-ahead market settles). Balancing market bid opens.
- 4:00 p.m. the day before the Operating Day: Rebidding period for generation resources not selected as a pool-scheduled resource in the day-ahead market or not self-scheduled in the day-ahead market.
- 6:00 p.m. the day before the Operating Day: Balancing market bid period closes (as does the Regulation market bid period).
- 6:00 p.m. the day before the Operating Day through the Operating Day: PJM communicates by telephone individual generation schedule updates to specific generation owners as required.[12]

PJM's two-settlement system will achieve the benefits recognized by the Commission. It will "allow buyers a greater opportunity to reduce their loads when prices exceed specified levels, by providing advanced notice of the price." New England

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11 See supra note10.

12 Nothing in the new two-settlement system procedures prohibits Market Participants not participating in the day-ahead market from purchasing or selling Spot Market Energy at LMP on an hourly basis. See PJM Tariff, Attach. K, App. § 1.10.9 (iii).

Power Pool, 85 FERC at 62,246. Furthermore, PJM's two-settlement system will ameliorate any price uncertainty created by PJM's use of locational pricing rather than another pricing option. Id. Finally, PJM anticipates that its two-settlement system will "reduce the need to rely on penalties and sanctions to discourage certain types of market behavior." Id.

Detailed Description of Amendments

To implement PJM's two-settlement system, the following modifications are made to both Schedule 1 of the Operating Agreement and the Appendix to Attachment K of the PJM Tariff.

Definitional Sections: Seven new definitional sections are added to define terms used in other sections relating to the two-settlement system: (i) § 1.3.1 – Day-ahead Energy Market; (ii) § 1.3.1a – Day-ahead Prices; (iii) § 1.3.1b – Decrement Bid; (iv) 1.3.9a – Increment Bid; (v) § 1.3.30a – Real-time Prices; (vi) § 1.3.30b – Real-time Energy Market; and (vii) § 1.3.33a – State Estimator.

Scheduling Provisions: Several provisions are revised or added relating to scheduling procedures for the day-ahead and balancing markets.

Subsection 1.10.1 (Scheduling - General): Subpart (a) of this subsection is added to state that PJM will administer the scheduling process to implement the day-ahead and real-time energy markets.

Subpart (b) is added to explain that the day-ahead energy market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at day-ahead prices and to enable transmission customers to reserve transmission service with congestion charges based on locational differences in day-ahead prices. It

also specifies that day-ahead Market Participants are obligated to purchase or sell energy or pay for congestion at the applicable day-ahead prices for the amounts scheduled.

Relatedly, subpart (c) is added to require that Market Participants that deviate from the amounts of energy purchases or sales, or transmission customers that deviate from the transmission uses scheduled in the day-ahead market, are obligated in the real-time market to purchase or sell energy, or pay congestion charges for the amount of the deviation, at the applicable real-time prices or price differences unless otherwise specified.

Subpart (d) is amended to apply the existing scheduling procedures that govern commitment of resources to the day-ahead and real-time markets.

Subsection 1.10.1a (Day-Ahead Energy Market Scheduling): This subsection amends the former subsection 1.10.1 (Day-Ahead Scheduling). It provides that, unless otherwise specified by PJM, the following actions must occur no later than noon on the day before the Operating Day for which transactions are scheduled to comply with objectives of the scheduling process.

Subpart (a) of this subsection is amended to specify that each Market Participant shall submit to PJM specifications of the amount and location of the customer loads and energy purchases to be included in the day-ahead market for each hour of the next Operating Day. Each Market Participant also shall inform PJM of the prices, if any, at which it will curtail load in the day-ahead market rather than pay the day-ahead price.

Subpart (c) (formerly (d))[13] is amended to permit the "up-to" congestion bids. A Market Participant that elects to include a bilateral transaction in the day-ahead market

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[13] Subpart (b) of the former 1.10.1 (Day-Ahead Scheduling) is deleted.

may specify the price, if any, at which it will be wholly or partially curtailed rather than the Market Participant paying congestion charges. Such price specification shall apply only to the price difference between the specified bilateral transaction source and sink points in the day-ahead market. Market Participants must inform PJM whether or not a bilateral transaction is to be included in the day-ahead market. In the event that parties to a bilateral transaction elect not to include a transaction in the day-ahead market and are not willing to incur congestion charges in the real-time market, such Market Participants must inform PJM of such facts.

Subpart (h) (formerly (i)) is modified to provide that PJM will post on its OASIS the total hourly loads scheduled in the day-ahead market as well as its estimate of the combined hourly load of the Market Buyers in the next four days, and peak load forecasts for an additional three days.

A new subpart (i) is added to specify that all Market Participants may submit Increment and Decrement Bids in the day-ahead market. Such bids must comply with the PJM manuals and specify the amount, location, and price at which the Market Participant desires to sell or purchase energy in the day-ahead market.

Subsection 1.10.2 (Pool-Scheduled Resources): This subsection is revised to define "pool-scheduled resources" as including those resources for which Market Participants submitted offers to sell energy in the day-ahead market and those generators PJM commits subsequent to the day-ahead market. Pool-scheduled resources shall be committed to provide energy in the real-time dispatch unless the schedules for such resources are revised pursuant to the hourly scheduling provisions (§ 1.10.9) or the dispatch (§ 1.11) provisions.

Subsection 1.10.3 (Self-scheduled Resources): Subpart (d) is added to require that Market Participants that self-schedule resources in the day-ahead market but fail to deliver the energy in the real-time market shall replace the energy not delivered with energy from the real-time market at the applicable real-time prices.

Subsection 1.10.4 (Capacity Resources): Subpart (a) of this subsection is revised to provide that Market Participants offering a Capacity Resource in the day-ahead market but which do not deliver all of the energy offered must replace the energy not delivered in the real-time market at the applicable real-time price.

Subpart (b) is modified to indicate that a Capacity Resource that has not been scheduled in the day-ahead market may be sold on a bilateral basis, be self-scheduled, or offered for dispatch during the Operating Day. It also requires that Capacity Resources not designated for the day-ahead market and sold on a bilateral basis be available upon PJM's request for scheduling and dispatch during the Operating Day. In the event such a resource subsequently is scheduled or dispatched, it would receive the real-time price for energy delivered.

Subsection 1.10.5 (External Resources): Subpart (a) of this subsection is amended to specify that a Market Participant whose pool-scheduled resource fails to deliver the energy scheduled in the day-ahead market will be required to replace such energy from the real-time market at real-time prices.

Subsection 1.10.6 (External Market Buyers): Subpart (a) of this subsection is amended to specify that External Market Buyers shall be charged or credited at day-ahead or real-time prices, whichever is applicable.

Subsection 1.10.7 (Bilateral Transactions): This subsection is modified to provide that bilateral transactions not included in the day-ahead market and for which the parties are not willing to pay congestion shall be curtailed in the real-time market as necessary to alleviate transmission congestion. But, if such parties are willing to pay for congestion, the bilateral transaction will be implemented during congestion, except as necessary to respond to emergencies.

Subsection 1.10.8 (Office of the Interconnection Responsibilities): Subpart (a) of this subsection is modified to provide that PJM shall use its best efforts to determine the least cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers in the day ahead market, and the least cost means of satisfying the Operating Reserves and other ancillary service requirements for any portion of the load forecast for the Operating Day in excess of that scheduled in the day ahead market. Subpart (a) also now provides that PJM will determine the new day-ahead prices.

Subpart (b) is amended to provide that, no later than 4:00 p.m. of the day before each Operating Day (or as otherwise specified in the PJM Manuals), PJM will post the aggregate day-ahead market and the day-ahead prices, and it will inform the Market Sellers and Market Buyers of their scheduled injections and withdrawals.

Subpart (d) is added to provide that Market Buyers will pay, and Market Sellers will receive, day-ahead prices for energy scheduled in the day-ahead market.

Subsection 1.10.9 (Hourly Scheduling): Subpart (a) of this subsection is amended to provide that there will be a generation rebidding period from 4:00 p.m. to 6:00 p.m. on the day before each Operating Day during which Market Participants may

submit revisions to the generation offer data for any generation resource not selected as a pool-scheduled resource in the day-ahead market. Adjustments to the day-ahead markets shall be settled at the applicable real-time prices.

A new subpart (c) is added to specify that Market Sellers that have pool-scheduled resources included in the day-ahead market may not change their offers to sell energy.

Subpart (d) (formerly subpart (c)) is modified to provide an External Market Buyer with the ability to refuse some or all of the energy it requested in the day-ahead market by notifying PJM of such adjustment no later than 60 minutes prior to the hour in which the adjustment is to take place. Any such adjustment will not affect the External Market Buyer's obligation to pay for energy scheduled in the day-ahead market at the applicable day-ahead prices.

A new subpart (e) is added to specify that, as soon as practicable, PJM will notify External Market Buyers, External Market Sellers, and parties to bilateral transactions of any revisions to their schedules for the hour.

Price Calculation Provisions: Several provisions are revised or added to provide the methods by which prices in the day-ahead and balancing markets will be calculated.

Subsection 2.1(Calculation of Locational Marginal Prices -- Introduction): This subsection is modified to specify that LMPs shall be calculated on a day-ahead basis for each hour of the day-ahead market and every five minutes during the Operating Day for the real-time market.

Subsection 2.1A (Calculation of Day-ahead Prices) is deleted.

Subsection 2.4 (Determination of Energy Offers Used in Calculating Real-time Prices): This subsection (formerly titled "Determination of Energy Offers Used in Calculating Locational Marginal Prices") is modified by adding a new subpart (a) which specifies that, during the Operating Day, real-time LMP shall be determined every five minutes, and that integrated hourly values shall be the basis of sales and purchases of energy in the real-time market and of congestion charges under the PJM Tariff not covered by the day-ahead market.

Subsection 2.5 (Calculation of Real-time Prices): This subsection (formerly titled "Calculation of Locational Marginal Prices") is amended to apply this section only to real-time prices.

Subsection 2.6 (Calculation of Day-ahead Prices): This new subsection is added to set forth the method for calculating day-ahead prices. For the day-ahead market, day-ahead LMPs shall be determined on the basis of the least-cost, security-constrained dispatch, model flows, and system conditions resulting from the load specifications, offers for generation, dispatchable load, Increment Bids, Decrement Bids, and bilateral transactions scheduled in the day-ahead market. The calculation shall be made for each hour in the day-ahead market by applying PJM's linear optimization model to minimize energy costs. In performing this calculation, PJM shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of (i) the price at which the Market Seller has offered to supply an additional increment of energy from the resource; and (ii) the effect on transmission congestion costs (whether positive or negative) associated with increasing output of the resource.

The energy offer or offers that can serve an increment of load at a bus at the lowest cost shall determine the day-ahead price at the bus.

Accounting and Billing Provisions: Several provisions are revised or added to specify the accounting and billing practices for the day-ahead and real-time markets.

Subsection 3.2.1 (Market Buyers – Spot Market Energy): This subsection is amended by adding two new subparts (a) and (b). Subpart (a) provides that Market Buyers shall be charged for all load scheduled to be served from the PJM Interchange Energy Market in the day-ahead market at the day-ahead prices applicable to each bus. Subpart (b) provides that generating Market Buyers will be paid for all scheduled energy to be delivered to the PJM Interchange Energy Market in the day-ahead market at the day-ahead price applicable to the relevant bus.

Subpart (c) (formerly (a)) is modified to specify that at the end of each hour during an Operating Day, PJM shall calculate the load payment at each Market Buyer's load bus to be charged at real-time prices determined by the product of the hourly real-time price at the relevant bus times the Market Buyer's megawatts of load at the bus in the hour in excess of the load scheduled to be served at the load bus in that hour in the day ahead market. To the extent that the load actually served is less than the load scheduled, the Market Buyer will be credited at the real-time price for the shortfall.

Similarly, subpart (d) (formerly (b)) is modified to set forth how generation revenues will be determined. Generation will be paid at real-time prices determined by the product of the hourly real-time price at the relevant bus times the Generating Market Buyer's megawatts of generation at such bus in that hour as determined by the State Estimator. To the extent that the energy actually injected at a bus is less than the

scheduled amount in the day-ahead market, the Generating Market Buyer will be debited for the difference at real-time prices at the time of the shortfall. The total generation revenue for each Generating Market Buyer shall be the sum, for each of the buyers' busses, of the revenues at day-ahead prices plus the revenues at real-time prices, net any debits associated with the busses.

Subpart (f) (formerly (d)) is amended to add element to the calculation of the total amount of net hourly PJM Interchange for Internal Market Buyers that are LSEs or purchasers on behalf of LSEs. The added element is an adjustment to account for the day-ahead PJM Interchange, calculated as the difference between scheduled withdrawals and injections by that Market Buyer in the day-ahead market. This subpart also sets forth the calculations for External Market Buyers that are not LSEs.

Subpart (h) (formerly (f)) is modified to specify how External Market Buyers will be charged for Spot Market Energy. PJM will calculate an hourly weighted average real-time price for each External Market Buyer, based on the hourly average of the Market Buyer's real-time prices at each bus, weighted by the Market Buyer's load deviations at the bus. The total charge to the External Market Buyer for Spot Market Energy will be determined by the product of the hourly net amount of PJM Interchange Purchases times the hourly weighted-average real-time price for that Market Buyer.

Subpart (g) is deleted and a new subpart (i) is added. The new subpart (i) provides that a Generating Market Buyer shall be credited for sales of Spot Market Energy to the extent of its hourly net sales into the PJM Interchange Energy Market. The total credit shall be determined by the product of the hourly net amount of PJM Interchange sales times the weighted average real-time price for the Market Buyer.

Subsection 3.2.3 (Operating Reserves): A new subpart (b) is added to specify that for each pool-scheduled resource that is scheduled in the day-ahead market: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the resource's scheduled output, shall be compared to the total value of that resource's Spot Market Energy as determined by the day-ahead market and the day-ahead prices applicable to the relevant generation bus. If the total offered price summed over all hours exceeds the total value summed over all hours, the difference will be credited to the Market Seller.

A new subpart (c) is added to specify that the sum of the credits determined in new subpart (b) shall be the cost of Operating Reserves in the day-ahead market.

A new subpart (d) is added to provide that the cost of Operating Reserves in the day-ahead energy market will be allocated and charged to each Market Participant in proportion to the sum of its (i) scheduled energy sales and accepted Decrement Bids in megawatt hours; and (ii) scheduled energy sales in the day-ahead market from within the PJM control area to load outside the PJM control hour in megawatt-hours for that Operating Day (not including bilateral transactions dynamically scheduled to outside the PJM control area).

Subpart (e) (formerly (b)) is amended to specify that, for each synchronized pool-scheduled resource that is not committed solely for the purpose of providing spinning reserves, the total offered price for start-up, no load fees, and Spot Market Energy will be determined on the basis of the lesser of the resource's hourly output as determined by the State Estimator or requested output determined by the PJM dispatch. The total offered price shall be compared to the total value of that resource's energy in the day-ahead

market plus any credit or charge for quantity deviation at PJM dispatch direction from the day-ahead market during the Operating Day. If the total offered price exceeds the total value, the difference less any credit, as determined pursuant to new subpart (b), and less any amounts credited for Regulation service in excess of the Regulation offer plus the resources opportunity costs, will be credited to the Market Seller.

Subpart (h) (formerly (e)) is amended to set forth how the cost of Operating Reserves for the real-time market will be allocated and charged. Each Market Participant will be allocated and charged Operating Reserves in proportion to the sum of (i) the absolute values of its load deviations from the day-ahead market in megawatt hours during the Operating Day, (ii) generation deviations from the day-ahead market for non-dispatchable generating resources, including External Resources, in megawatt-hours during the Operating Day, (iii) deviations from the day-ahead market for bilateral transactions for bilateral transaction from outside the PJM control area for delivery in the PJM control area in megawatt-hours during the Operating Day, and (iv) deviations of energy sales from the day-ahead market from within the PJM control area to load outside the PJM control area in megawatt-hours during the Operating Day (not including dynamically scheduled bilateral transactions).

A new subpart (i) is added to provide that Market Sellers will be credited at the end of each Operating Day based on their offered prices for synchronized condensing for any hydropower or combustion turbine units operated as synchronous condensers but producing no energy.

A new subpart (j) is added to specify that the cost of Operating Reserves for synchronized condensing for the Operating Day will be the sum of the credits described in § 3.2.3(b).

A new subpart (k) is added to set forth how the cost of Operating Reserves for synchronized condensing will be allocated and charged to each Market Participant. These costs will be charged and allocated to a Market Participant in proportion to the sum of: its deliveries of energy to load in the PJM control area, served under network service, in megawatt-hours the Operating Day; and deliveries of energy sales from within the PJM control area to load outside the PJM control area in megawatt-hours during the Operating Day (not including bilateral transactions dynamically scheduled).

Subsection 3.3.1 (Spot Market Energy): A new subpart (a) is added to this section to specify that Market Sellers will be paid for all energy scheduled to be delivered in the day-ahead market at day-ahead prices applicable to each relevant generation bus.

Subpart (d) (formerly (c)) is modified to specify that a Market Seller shall be credited for real-time sales of Spot Market Energy to the extent its hourly net deliveries to the PJM control area are in excess of the amounts scheduled in the day-ahead market. The total real-time generation revenues for each Market Seller shall be the sum of its credits determined by the product of its hourly net amount of energy delivered to the PJM control area at the applicable generation or interface bus in excess of the amount scheduled to be delivered in that hour at that bus in the day-ahead market. This subpart also provides that, to the extent that less energy is injected at the generation or interface bus in any hour than the amount of energy scheduled in the day-ahead market, the Market

Seller shall be debited for the difference at the real-time price applicable to the bus at the time of the shortfall times the amount of the shortfall.

Congestion Charges and Credits Provisions: Several provisions are revised to set forth the methods for calculating congestion charges and credits for the day-ahead and real-time markets.

Subsection 5.1.4 (Transmission Customer Calculation): This subsection is amended to provide that a Transmission Congestion Charge shall be assessed for transmission use scheduled in the day-ahead market calculated as the amount to be delivered multiplied by the difference between the day-ahead price at the delivery point or at PJM control area boundary delivery interface and the day-ahead price at the source point or PJM control area boundary source interface. Transmission Congestion Charges will be assessed similarly in the real-time market but using real time prices. A Transmission Customer will be credited for Transmission Congestion Charges for real-time transmission use falling below the amounts scheduled for each hour in the day-ahead market.

Subsection 5.1.7 (Total Transmission Congestion Charges) is amended to change the total Transmission Congestion charges collected by PJM each hour to the "aggregate net" amounts determined in Schedule 1 instead of the "sum of the amounts" determined.

Miscellaneous Modifications: Several sections are modified slightly for consistency with the changes described above. Many sections have been renumbered with no other substantive change because other sections are added or deleted.

Other sections are modified to clarify that they now apply to some aspect of the day-ahead market or real-time market. See, e.g., Subsection 1.7.6 (Scheduling and

Dispatching); subpart (d) of subsection 1.10.1a (Day-Ahead Energy Market Scheduling); subpart (b)(i) of subsection 1.10.9 (Hourly Scheduling); subpart (b) (formerly (a)) of subsection 2.4 (Determination of Energy Offers Used in Calculating Real-Time Prices); subpart (e) of subsection 3.2.1 (Market Buyers - Spot Market Energy); subparts (e) and (g) (formerly (c) and (e) respectively) of subsection 3.2.3 (Operating Reserves); subpart (b) of subsection 3.2.6 (Emergency Energy); subparts (b) and (c) (formerly (a) and (b) respectively) of subsection 3.3.1 (Market Sellers – Spot Market Energy); subpart (b) of subsection 3.4.2 (Transmission Customers – Transmission Losses); subsection 3.5.1 (Other Control Areas – Energy Sales); subsection 5.1.5 (Operating Margin Customer Calculation); subsection 5.2.3 (Target Allocation for Network Service Users); subsection 5.2.4 (Target Allocation for other Holders); and subparts (a) and (b) of subsection 5.2.5 (Calculation of Transmission Congestion Credits).

A subpart (d) is added to subsection 1.4.1 (Market Buyers – Qualification) to specify that an applicant is not required to obtain transmission service for purchases from the PJM Interchange Energy Market to cover quantity deviations from its sales at a bus in the day-ahead market. These are, in effect, generation imbalances.

Other sections are modified to refer to new or revised subsections relevant to aspects of the two-settlement system. See, e.g., subpart (a) of subsection 1.10.2 (Pool-scheduled Resources); subpart (c) of subsection 1.10.8 (Office of the Interconnection Responsibilities); subsection 3.3.3 (Operating Reserves).

Subsection 1.7.21 (Multi-settlement System) is deleted because it is no longer applicable. Similarly, in subsection 1.7.20 (Communication and Operating

Requirements), a phrase is deleted from subpart (d) that requires LSEs to provide load forecasts because it is no longer necessary.

Finally, subsection 5.1.2 (Transmission Congestion Charge Calculation – General) is modified slightly to clarify the basis for Transmission Congestion Charges. Subpart (h) of subsection 11.3.3 (Electric Distributors) of the Operating Agreement (not Schedule 1) also is modified slightly to clarify that load forecasting data includes all load to be served from the Electric Distributor's system.[14]

Although PJM is amending substantively only the sections described above, it is filing Schedule 1 of the Operating Agreement and the Appendix to Attachment K of the PJM Tariff in their entireties. Because of the large number of sections that are amended or added to implement PJM's two-settlement procedures, many pages have been revised or have repaginated. Therefore, to avoid confusion, PJM is filing the entire documents. The revised documents also include the amendments filed in Docket No. ER00-1630 providing for market-based pricing of Regulation service.[15]

Effective Date

PJM requests an effective date for the amendments of May 31, 2000. This effective date will permit PJM to implement fully both the day-ahead and balancing markets on June 1, 2000. PJM requests, however, that the Commission act on this filing

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[14] Additionally subsection 1.8.1 is modified to correct a typographical error. Subpart (b) of subsection 1.11.4 also is amended to add the words "or uneconomically energy that would be produced." These words were inadvertently left out of the changes filed in Docket Number ER00-1630 regarding market-based rates for Regulation service. Like the changes filed in Docket No. ER00-1630, the PJM Members Committee approved this change.

[15] The Commission has not yet acted in Docket No. ER00-1630.

within 60 days in order that PJM and market participants will have advance notice of the Commission's approval of the implementation of the two-settlement system.

Documents Enclosed

PJM encloses the original and five copies of the following:

1. Transmittal letter.

2. Revised pages for the PJM Tariff and Operating Agreement, including redlined versions of same.

3. Federal Register Notice (also enclosed on diskette).

Correspondence And Communications

Correspondence and communications with respect to this filing should be sent to, and PJM requests the Secretary to include on the official service list, the following:

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Service and Federal Register Notice

PJM has served a copy of this filing on all members of PJM and each electric utility regulatory commission in the PJM control area. A form of notice suitable for publication in the Federal Register is attached and enclosed on diskette.

Respectfully submitted,



Barry S. Spector
Carrie L. Bumgarner
Counsel for PJM Interconnection, L.L.C.

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Tariff Revisions

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TABLE OF CONTENTS

I. **COMMON SERVICE PROVISIONS** 15

1 **Definitions** 15

1.1 Ancillary Services 15
1.2 Annual Transmission Costs 15
1.3 Application 15
1.3a Attachment Facilities 15
1.3b Capacity Interconnection Rights 15
1.3c Capacity Resources 15
1.4 Commission 15
1.5 Completed Application 15
1.6 Control Area 15
1.7 Curtailment 16
1.8 Delivering Party 16
1.9 Designated Agent 16
1.10 Direct Assignment Facilities 16
1.11 Eligible Customer 17
1.11a Energy Resource 17
1.12 Facilities Study 17
1.12a Feasibility Study 17
1.13 Firm Point-To-Point Transmission Service 17
1.14 Good Utility Practice 17
1.14a Interconnection Agreement 17a
1.14b Interconnection Customer 17a
1.14c Interconnection Request 17a
1.14d Interconnection Service Agreement 17a
1.15 Interruption 17a
1.16 Load Ratio Share 17a
1.17 Load Shedding 17a
1.17a Local Upgrades 17a
1.18 Long-Term Firm Point-To-Point Transmission Service 17a
1.18a MAAC 17b
1.19 Native Load Customers 17b
1.19a NERC 18
1.20 Network Customer 18
1.21 Network Integration Transmission Service 18
1.22 Network Load 18
1.23 Network Operating Agreement 18
1.24 Network Operating Committee 18
1.25 Network Resource 18
1.26 Network Upgrades 19
1.27 Non-Firm Point-To-Point Transmission Service 19
1.27a Non-Zone Network Load 19
1.27b Office of the Interconnection 19

1.28 Open Access Same-Time Information System (OASIS) 19
1.28a Operating Agreement of the PJM Interconnection, L.L.C 19
1.29 Part I 19
1.30 Part II 19
1.31 Part III 19
1.32 Parties 20
1.32a PJM Control Area 20
1.32b PJM Manuals 20
1.33 Point(s) of Delivery 20
1.34 Point(s) of Receipt 20
1.35 Point-To-Point Transmission Service 20
1.36 Power Purchaser 20
1.37 Receiving Party 20
1.37a Regional Transmission Extension Plan 20
1.38 Regional Transmission Group (RTG) 21
1.38a Regional Transmission Owner or RTO 21
1.38b Reliability Assurance Agreement 21
1.39 Reserved Capacity 21
1.40 Service Agreement 21
1.41 Service Commencement Date 21
1.42 Short-Term Firm Point-To-Point Transmission Service 21
1.42a State 21a
1.43 System Impact Study 21a
1.44 Third-Party Sale 21a
1.45 Transmission Customer 21a
1.46 Transmission Provider 22
1.47 Transmission Provider's Monthly Transmission System Peak 22
1.48 Transmission Service 22
1.49 Transmission System 22
1.49a Zone 22

2 Initial Allocation and Renewal Procedures 22a
2.1 Initial Allocation of Available Transmission Capability 22a
2.2 Reservation Priority For Existing Firm Service Customers 22a
2.3 Reservation Priority For State Regional Retail Access Program Load 23

3 Ancillary Services 23
3.1 Scheduling, System Control and Dispatch Service 24
3.2 Reactive Supply and Voltage Control from Generation Sources Service 24
3.3 Regulation and Frequency Response Service 24
3.4 Energy Imbalance Service 24
3.5 Operating Reserve - Spinning Reserve Service 24
3.6 Operating Reserve - Supplemental Reserve Service 24

4 Open Access Same-Time Information System (OASIS) 24

5 Local Furnishing Bonds 25
5.1 RTOs That Own Facilities Financed by Local Furnishing Bonds 25
5.2 Alternative Procedures for Requesting Transmission Service 25

6 Reciprocity 26
7 Billing and Payment 26
7.1 Billing Procedure 26
7.2 Interest on Unpaid Balances 27
7.3 Customer Default 27
8 Accounting for an RTO's Use of the Tariff 27a
8.1 Transmission Revenues 27a
8.2 Study Costs and Revenues 27a
8.3 Generation Interconnection Costs 28
9 Regulatory Filings 28
10 Force Majeure and Indemnification 28
10.1 Force Majeure 28
10.2 Indemnification 29
11 Creditworthiness 29
12 Dispute Resolution Procedures 29
12.1 Internal Dispute Resolution Procedures 29
12.2 External Arbitration Procedures 30
12.3 Arbitration Decisions 30
12.4 Costs 30
12.5 Rights Under The Federal Power Act 31

II. POINT-TO-POINT TRANSMISSION SERVICE

Preamble 32
13 Nature of Firm Point-To-Point Transmission Service 32
13.1 Term. 32
13.2 Reservation Priority. 32
13.3 Use of Firm Transmission Service by an RTO 33
13.4 Service Agreements 33
13.5 Transmission Customer Obligations for Facility Additions or Redispatch Costs 33
13.6 Curtailment of Firm Transmission Service. 34
13.6a Load Shedding 34
13.7 Classification of Firm Transmission Service 34a
13.8 Scheduling of Firm Point-To-Point Transmission Service. 36
14 Nature of Non-Firm Point-To-Point Transmission Service 36
14.1 Term. 36
14.2 Reservation Priority 36
14.3 Use of Non-Firm Point-To-Point Transmission Service by an RTO 37
14.4 Service Agreements 37
14.5 Classification of Non-Firm Point-To-Point Transmission Service. 37
14.6 Scheduling of Non-Firm Point-To-Point Transmission Service. 38
14.7 Curtailment or Interruption of Service 38
15 Service Availability 39
15.1 General Conditions 39

15.2 Determination of Available Transmission Capability. 40
15.3 Initiating Service in the Absence of an Executed Service Agreement. 40
15.4 Obligation to Provide Transmission Service that Requires Expansion or Modification of the Transmission System 40
15.5 Deferral of Service 41
15.6 Other Transmission Service Schedules 41
15.7 Real Power Losses 41
16 Transmission Customer Responsibilities 41
16.1 Conditions Required of Transmission Customers 41
16.2 Transmission Customer Responsibility for Third-Party Arrangements 42
17 Procedures for Arranging Firm Point-To-Point Transmission Service. 42
17.1 Application 42
17.2 Completed Application 43
17.3 Deposit 44
17.4 Notice of Deficient Application 45
17.5 Response to a Completed Application 45
17.6 Execution of Service Agreement 45
17.7 Extensions for Commencement of Service. 45a
17.8 Reservation of Short-Term Firm Point-To-Point Transmission Service 46
17.9 Increases in Transmission Capability for Short-Term Transmission Service 46
18 Procedures for Arranging Non-Firm Point-To-Point Transmission Service. 46a
18.1 Application 46a
18.2 Completed Application 46a
18.3 Reservation of Non-Firm Point-To-Point Transmission Service 47
18.4 Determination of Available Transmission Capability 47a
19 Additional Study Procedures For Firm Point-To-Point Transmission Service Requests 48
19.1 Notice of Need for System Impact Study 48
19.2 System Impact Study Agreement and Cost Reimbursement 48
19.3 System Impact Study Procedures 49
19.4 Facilities Study Procedures 49a
19.5 Facilities Study Modifications 50
19.6 Due Diligence in Completing New Facilities 51
19.7 Partial Interim Service 51
19.8 Expedited Procedures for New Facilities 51
19.9 Supply of Data 51a
20 Procedures if The Affected RTOs Are Unable to Complete New Transmission Facilities for Firm Point-To-Point Transmission Service 52
20.1 Delays in Construction of New Facilities 52

20.2 Alternatives to the Original Facility Additions 52
20.3 Refund Obligation for Unfinished Facility Additions 52
20.4 Supply of Data 53
21 Provisions Relating to Transmission Construction and Services on the Systems of Other Utilities 53
21.1 Responsibility for Third-Party System Additions 53
21.2 Coordination of Third-Party System Additions 53
22 Changes in Service Specifications 54
22.1 Modifications On a Non-Firm Basis 54
22.2 Modification On a Firm Basis 54
23 Sale or Assignment of Transmission Service 55
23.1 Procedures for Assignment or Transfer of Service. 55
23.2 Limitations on Assignment or Transfer of Service 55
23.3 Information on Assignment or Transfer of Service 56
24 Metering and Power Factor Correction at Receipt and Delivery Points(s) 56
24.1 Transmission Customer Obligations 56
24.2 Transmission Provider Access to Metering Data 56
24.3 Power Factor 56
25 Compensation for Transmission Service 56
26 Stranded Cost Recovery 56
27 Compensation for New Facilities and Redispatch Costs 56
27.1 New Facilities and Redispatch 57
27.2 Redispatch Using Locational Marginal Prices 57
27a Distribution of Revenues from Non-Firm Point-to-Point Transmission Service 57

III. NETWORK INTEGRATION TRANSMISSION SERVICE

Preamble 58
28 Nature of Network Integration Transmission Service 58
28.1 Scope of Service 58
28.2 Transmission Provider Responsibilities. 58
28.3 Network Integration Transmission Service. 59
28.4 Secondary Service 59
28.5 Real Power Losses 59
28.6 Restrictions on Use of Service 59
29 Initiating Service 59
29.1 Condition Precedent for Receiving Service 59
29.2 Application Procedures. 60
29.3 Technical Arrangements to be Completed Prior to Commencement of Service 63
29.4 Network Customer Facilities 63
29.5 Filing of Service Agreement 63
30 Network Resources 63a
30.1 Designation of Network Resources 63a

30.2 Designation of New Network Resources. 63a
30.3 Termination of Network Resources. 64
30.4 Operation of Network Resources. 64
30.5 Network Customer Redispatch Obligation. 64
30.6 Transmission Arrangements for Network Resources Not Physically Interconnected With The Transmission Provider 64
30.7 Limitation on Designation of Network Resources 64
30.8 Use of Interface Capacity by the Network Customer 65
30.9 Network Customer Owned Transmission Facilities. 65
31 Designation of Network Load 65
31.1 Network Load. 65
31.2 New Network Loads Connected With the Transmission Provider 65a
31.3 Network Load Not Physically Interconnected with the Transmission Provider 66
31.4 New Interconnection Points. 66
31.5 Changes in Service Requests 66
31.6 Annual Load and Resource Information Updates. 66
32 Additional Study Procedures For Network Integration Transmission Service Requests 67
32.1 Notice of Need for System Impact Study. 67
32.2 System Impact Study Agreement and Cost Reimbursement 67
32.3 System Impact Study Procedures. 68
32.4 Facilities Study Procedures 69
32.5 Supply of Data 69a
33 Load Shedding and Curtailments 69a
33.1 Procedures 69a
33.2 Transmission Constraints 70
33.3 Cost Responsibility for Relieving Transmission Constraints. 70
33.4 Curtailments of Scheduled Deliveries 70
33.5 Allocation of Curtailments. 70
33.6 Load Shedding. 71
33.7 System Reliability. 71
34 Rates and Charges 71
34.1 Monthly Demand Charge 72
34.2 [Reserved]. 72a
34.3 [Reserved] 72a
34.4 Redispatch Charge 73
34.5 Stranded Cost Recovery 73
35 Operating Arrangements 73
35.1 Operation under The Network Operating Agreement 73
35.2 Network Operating Agreement 73
35.3 Network Operating Committee 74

IV. GENERATION INTERCONNECTION 74a
Preamble 74a
36 Interconnection Request 74a
36.1 Interconnection Request 74a
36.2 Feasibility Study 74b
36.3 System Impact Study Agreement 74b
36.3.1 Study Agreement 74c
36.3.2 Deposit and Other Information 74c
36.4 System Impact Study Procedures 74c
36.4.1 Scope of Studies 74d
36.4.2 Completion of Studies 74d
36.5 Initial System Impact Studies 74e
36.6 Facilities Study Agreement 74e
36.6.1 Study Agreement 74e
36.6.2 Deposit and Allocation of Costs 74e
36.7 Facilities Study Procedures 74f
36.8 Interconnection Service Agreement 74f
36.8.1 Cost Reimbursement 74g
36.8.2 Capacity Interconnection Rights 74g
36.8.3 Specification of RTOs Responsible for Facilities and Upgrades 74g
36.8.4 Retaining Priority and Security 74g
36.8.5 Milestones 74i
36.8.6 Filing of Interconnection Service Agreement and Commencement of Construction 74i
36.9 Interconnection Agreement 74j
36.10 Priority of Requests 74j
36.11 Responsibilities of the Transmission Provider and RTOs 74j
36.12 Requests Under 10 Megawatts 74j
37 Cost Responsibility for Necessary Facilities and Upgrades 74k
37.1 Attachment Facilities 74k
37.2 Local and Network Upgrades 74k
37.3 Additional Upgrades 74k
37.4 Specification of Costs in Interconnection Service Agreement 74l
37.5 Addition to the Regional Transmission Expansion Plan 74l
38 Confidentiality 74l
39 Grandfathered Requests 74l
39.1 Priority Assigned 74l
39.2 Procedures for Assigning Earlier Priority to Pre-existing Interconnection Plans 74m
40 Transmission Owner Construction Obligation for Necessary Facilities and Upgrades 74m
40.1 Construction Obligation 74m
40.2 Alternative Facilities and Upgrades 74n
41 Capacity Interconnection Rights 74n
41.1 Purpose 74n

41.2 Receipt of Capacity Interconnection Rights 74n
41.3 Loss of Capacity Interconnection Rights 74o
41.3.1 Operational Standards 74o
41.3.2 Failure to Meet Operational Standards 74o
41.3.3 Replacement of Generation 74o
41.4 Transfer of Capacity Interconnection Rights 74o

SCHEDULE 1 75
Scheduling, System Control and Dispatch Service 75

SCHEDULE 1A 75a
RTO Scheduling, System Control and Dispatch Service 75a

SCHEDULE 2 76
Reactive Supply and Voltage Control from Generation Sources Service 76

SCHEDULE 3 77
Regulation and Frequency Response Service 77

SCHEDULE 4 80
Energy Imbalance Service 80

SCHEDULE 5 82
Operating Reserve - Spinning Reserve Service 82

SCHEDULE 6 83
Operating Reserve - Supplemental Reserve Service 83

SCHEDULE 7 84
Long-Term Firm and Short-Term Firm Point-To-Point Transmission Service 84

SCHEDULE 8 86
Non-Firm Point-To-Point Transmission Service 86

ATTACHMENT A
Form of Service Agreement For
Firm Point-To-Point Transmission Service 88

ATTACHMENT B
Form of Service Agreement For Non-Firm Point-To-Point Transmission Service 93

ATTACHMENT C
Methodology To Assess Available Transfer Capability 97

Revised:
Effective:

ATTACHMENT D
Methodology for Completing a System Impact Study 100

ATTACHMENT E
Index of Point-To-Point Transmission Service Customers 102

ATTACHMENT F
Service Agreement For
Network Integration Transmission Service 103

ATTACHMENT F-1
Form of Umbrellas Service Agreement for
Network Integration Transmission Service
Under State Required Retail Access Programs 108a

ATTACHMENT G
Network Operating Agreement 109

ATTACHMENT H-1
Annual Transmission Rates -- Atlantic City Electric Company
for Network Integration Transmission Service 110

ATTACHMENT H-2
Annual Transmission Rates -- Baltimore Gas and Electric Company
for Network Integration Transmission Service 111

ATTACHMENT H-3
Annual Transmission Rates -- Delmarva Power & Light Company
for Network Integration Transmission Service 112

ATTACHMENT H-4
Annual Transmission Rates -- Jersey Central Power & Light Company
for Network Integration Transmission Service 113

ATTACHMENT H-5
Annual Transmission Rates -- Metropolitan Edison Company
for Network Integration Transmission Service 114

ATTACHMENT H-6
Annual Transmission Rates -- Pennsylvania Electric Company
for Network Integration Transmission Service 115

ATTACHMENT H-7
Annual Transmission Rates -- PECO Energy Company
for Network Integration Transmission Service 116

ATTACHMENT H-8
Annual Transmission Rates -- Pennsylvania Power & Light Company Group for Network Integration Transmission Service 117

ATTACHMENT H-9
Annual Transmission Rates -- Potomac Electric Power Company for Network Integration Transmission Service 118

ATTACHMENT H-10
Annual Transmission Rates -- Public Service Electric and Gas Company for Network Integration Transmission Service 119

ATTACHMENT H-11
Annual Transmission Rate -- Non-Zone Network Load for Network Integration Transmission Service 119a

ATTACHMENT I
Index of Network Integration Transmission Service Customers 120

ATTACHMENT J
PJM Control Area Transmission Zones 121

ATTACHMENT K
Transmission Congestion Charges and Credits 122
ATTACHMENT K -- APPENDIX 129
1. MARKET OPERATIONS 129
1.1 Introduction 129
1.2 Cost-based Offers 129
1.3 Definitions 129
1.3.1 Day-ahead Energy Market 129
1.3.1a Day-ahead Prices 129
1.3.1b Decrement Bid 129
1.3.1c Dispatch Rate 130
1.3.2 Equivalent Load 130
1.3.3 External Market Buyer 130
1.3.4 External Resource 130
1.3.5 Fixed Transmission Right 130
1.3.6 Generating Market Buyer 130
1.3.7 Generator Forced Outage 130
1.3.8 Generator Maintenance Outage 130
1.3.9 Generator Planned Outage 131
1.3.9a Increment Bid 131
1.3.10 Internal Market Buyer 131
1.3.11 Inadvertent Interchange 131
1.3.12 Market Operations Center 131
1.3.13 Maximum Generation Emergency 131

1.3.14 Minimum Generation Emergency 131
1.3.14aNERC Interchange Distribution Calculator 131
1.3.15 Network Resource 132
1.3.16 Network Service User 132
1.3.17 Network Transmission Service 132
1.3.18 Normal Maximum Generation 132
1.3.19 Normal Minimum Generation 132
1.3.20 Offer Data 132
1.3.21 Office of the Interconnection Control Center 132
1.3.22 Operating Day 132
1.3.23 Operating Margin 133
1.3.24 Operating Margin Customer 133
1.3.25 PJM Interchange 133
1.3.26 PJM Interchange Export 133
1.3.27 PJM Interchange Import 134
1.3.28 PJM Open Access Same-time Information System 134
1.3.29 Point-to-Point Transmission Service 134
1.3.30 Ramping Capability 134
1.3.30a Real-time Prices 134
1.3.30b Real-time Energy Market 134
1.3.31 Regulation 134
1.3.32 Spot Market Backup 135
1.3.33 Spot Market Energy 135
1.3.33a State Estimator 135
1.3.34 Transmission Congestion Charge 135
1.3.35 Transmission Congestion Credit 135
1.3.36 Transmission Customer 135
1.3.37 Transmission Forced Outage 135
1.3.37aTransmission Loading Relief 135
1.3.37bTransmission Loading Relief Customer 136
1.3.38 Transmission Planned Outage 136
1.4 Market Buyers 136
1.4.1 Qualification 136
1.4.2 Submission of Information 137
1.4.3 Fees and Costs 138
1.4.4 Office of the Interconnection Determination 138
1.4.5 Existing Participants 138
1.4.6 Withdrawal 138
1.5 Market Sellers 139
1.5.1 Qualification 139
1.5.2 Withdrawal 139
1.6 Office of the Interconnection 139
1.6.1 Operation of the PJM Interchange Energy Market 139
1.6.2 Scope of Services 140

1.6.3 Records and Reports 141
1.6.4 PJM Manuals 141
1.7 General 141
1.7.1 Market Sellers 141
1.7.2 Market Buyers 141
1.7.3 Agents 141
1.7.4 General Obligations of the Market Participants 142
1.7.5 Market Operations Center 143
1.7.6 Scheduling and Dispatching 143
1.7.7 Pricing 144
1.7.8 Generating Market Buyer Resources 144
1.7.9 Delivery to an External Market Buyer 144
1.7.10 Other Transactions 144
1.7.11 Emergencies 145
1.7.12 Fees and Charges 145
1.7.13 Relationship to PJM Control Area 145
1.7.14 PJM Manuals 145
1.7.15 Corrective Action 145
1.7.16 Recording 146
1.7.17 Operating Reserves 146
1.7.18 Regulation 147
1.7.19 Ramping 147
1.7.20 Communication and Operating Requirements 147
1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process 149
1.8.1 PJM Dispute Resolution Agreement 149
1.8.2 Market or Control Area Hourly Operational Disputes 149
1.9 Prescheduling 150
1.9.1 Outage Scheduling 150
1.9.2 Planned Outages 150
1.9.3 Generator Maintenance Outages 151
1.9.4 Forced Outages 151
1.9.5 Market Participant Responsibilities 152
1.9.6 Internal Market Buyer Responsibilities 152
1.9.7 Market Seller Responsibilities 152
1.9.8 Office of the Interconnection Responsibilities 152
1.10 Scheduling 153
1.10.1 General 153
1.10.1aDay-Ahead Energy Market Scheduling 154
1.10.2 Pool-Scheduled Resources 157
1.10.3 Self-scheduled Resources 157
1.10.4 Capacity Resources 158
1.10.5 External Resources 158
1.10.6 External Market Buyers 159
1.10.6A Transmission Loading Relief Customers 159
1.10.7 Bilateral Transactions 160

1.10.8 Office of the Interconnection Responsibilities 160
1.10.9 Hourly Scheduling 161
1.11 Dispatch 162
1.11.1 Resource Output 163
1.11.2 Operating Basis 163
1.11.3 Pool-dispatched Resources 163
1.11.3aMaximum Generation Emergency 163
1.11.4 Regulation 163
1.11.5 PJM Open Access Same-time Information System 164
1.12 Dynamic Scheduling 164

2. CALCULATION OF LOCATIONAL MARGINAL PRICES 165
2.1 Introduction 165
2.2 General 165
2.3 Determination of System Conditions Using the State Estimator 166
2.4 Determination of Energy Offers Used in Calculating Real-time Prices 166
2.5 Calculation of Real-time Prices 167
2.6 Calculation of Day-ahead Prices 168
2.7 Performance Evaluation 168

3. ACCOUNTING AND BILLING 169
3.1 Introduction 169
3.2 Market Buyers 169
3.2.1 Spot Market Energy 169
3.2.2 Regulation 171
3.2.3 Operating Reserves 172
3.2.4 Transmission Congestion 174
3.2.5 Transmission Losses 174
3.2.6 Emergency Energy 175
3.2.7 Billing 175
3.3 Market Sellers 175
3.3.1 Spot Market Energy 176
3.3.2 Regulation 176
3.3.3 Operating Reserves 177
3.3.4 Emergency Energy 177
3.3.5 Billing 177
3.4 Transmission Customers 177
3.4.1 Transmission Congestion 177
3.4.2 Transmission Losses 177
3.4.3 Billing 178
3.5 Other Control Areas 178
3.5.1 Energy Sales 178
3.5.2 Operating Margin Sales 178
3.5.3 Transmission Congestion 178
3.5.4 Billing 179

3.6 Metering Reconciliation 179
3.6.1 Meter Correction Billing 179
3.6.2 Meter Corrections Between Market Participants 179
3.6.3 500 kV Meter Errors 179
3.6.4 Meter Corrections Between Control Areas 179
3.6.5 Meter Correction Data 179
3.6.6 Correction Limits 180

4. RATE TABLE 181
4.1 Offered Price Rates 181
4.2 Transmission Losses 181
4.3 Emergency Energy Purchases 181

ANNUAL REVENUE REQUIREMENT FOR UGI UTILITIES, INC 181a

5. CALCULATION OF TRANSMISSION CONGESTION CHARGES AND CREDITS 181b
5.1 Transmission Congestion Charge Calculation 181b
5.1.1 Calculation by Office of the Interconnection 181b
5.1.2 General 181b
5.1.3 Network Service User Calculation 181b
5.1.4 Transmission Customer Calculation 181b
5.1.5 Operating Margin Customer Calculation 181c
5.1.6 Transmission Loading Relief Customer Calculation 181c
5.1.7 Total Transmission Congestion Charges 181d
5.2 Transmission Congestion Credit Calculation 181d
5.2.1 Eligibility 181d
5.2.2 Fixed Transmission Rights 181d
5.2.3 Target Allocation for Network Service Users 181e
5.2.4 Target Allocation for other Holders 181e
5.2.5 Calculation of Transmission Congestion Credits 181e
5.2.6 Distribution of Excess Congestion Charges 181e
5.3 Unscheduled Transmission Service (Loop Flow) 181f

6. "MUST-RUN" FOR RELIABILITY GENERATION 181g
6.1 Introduction 181g
6.2 Identification of Facility Outages 181g
6.3 Dispatch for Local Reliability 181g
6.3.1 Request and Dispatch 181g
6.3.2 Designation of Facilities 181g
6.4 Price Caps 181h
6.4.1 Applicability 181h
6.4.2 Level 181i

7. FIXED TRANSMISSION RIGHTS AUCTIONS 181j
7.1 Auctions of Fixed Transmission Rights 181j
7.1.1 Auction Period and Scope of Auctions 181j
7.1.2 Frequency and Time of Auctions 181j

Revised:
Effective:

7.1.3 Duration of Fixed Transmission Rights 181j
7.2 Fixed Transmission Rights Characteristics 181j
7.2.1 Reconfiguration of Fixed Transmission Rights 181j
7.2.2 Specified Buses 181k
7.2.3 Transmission Congestion Charges 181k
7.3 Auction Procedures 181k
7.3.1 Role of the Office of the Interconnection 181k
7.3.2 Notice of Offer 181k
7.3.3 Pending Applications for Firm Service 181k
7.3.4 On-Peak and Off-Peak Periods 181l
7.3.5 Offers and Bids 181l
7.3.6 Determination of Winning Bids and Clearing Price 181m
7.3.7 Announcements of Winners and Prices 181n
7.3.8 Auction Settlements 181n
7.3.9 Allocation of Auction Revenues 181n
7.4 Simultaneous Feasibility 181n

ATTACHMENT L
List of Regional Transmission Owners 182

NOTICE OF AMENDMENT OF THE PJM INTERCONNECTION L.L.C. TARIFF TO ADOPT NERC TRANSMISSION LOADING RELIEF PROCEDURES 183

ATTACHMENT M
PJM Market Monitoring Plan 184

ATTACHMENT M GPU
Energy Procedure Manual for Determining
Supplier Total Hourly Energy Obligation 191

ATTACHMENT N GPU
Energy Procedure Manual for Determining
Supplier Peak Load Share 205

ATTACHMENT N
Form of
Feasibility Study Agreement 241

ANNEX 1
NERC Transmission Loading
Relief Procedure

ATTACHMENT K -- APPENDIX

Preface. The provisions of the Appendix incorporate into the Tariff for ease of reference the provisions of Schedule 1 of the Operating Agreement. As a result, this Appendix will be modified, subject to the approval of the Federal Energy Regulatory Commission, so that the terms and conditions set forth herein remain consistent with the corresponding terms and conditions of Schedule 1 of the Operating Agreement. All references in this Appendix to "Agreement" or "Schedules" are references to the Operating Agreement and the schedules thereto unless otherwise noted. References to Schedule 1 are references to this Appendix.

1. MARKET OPERATIONS

1.1 Introduction.

This Schedule sets forth the scheduling, other procedures, and certain general provisions applicable to the operation of the PJM Interchange Energy Market within the PJM Control Area. This Schedule addresses each of the three time-frames pertinent to the daily operation of the PJM Interchange Energy Market: Prescheduling, Scheduling, and Dispatch.

1.2 Cost-based Offers.

Unless and until the FERC shall authorize the use of market-based prices in the PJM Interchange Energy Market, all offers for energy or other services to be sold on the PJM Interchange Energy Market from generating resources located within the PJM Control Area shall not exceed the variable cost of producing such energy or other service, as determined in accordance with Schedule 2 to this Agreement and applicable regulatory standards, requirements and determinations; provided that, a Market Seller may offer to the PJM Interchange Energy Market the right to call on energy from a resource the output of which has been sold on a bilateral basis, with the rate for such energy if called equal to the curtailment rate specified in the bilateral contract.

1.3 Definitions.

1.3.1 Day-ahead Energy Market.

"Day-ahead Energy Market" shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Section 1.10 of this Schedule.

1.3.1a Day-ahead Prices.

"Day-ahead Prices" shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

1.3.1b Decrement Bid.

"Decrement Bid" shall mean a bid to purchase energy at a specified location in the Day-ahead Energy Market. An accepted Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

1.3.1c Dispatch Rate.

"Dispatch Rate" shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

1.3.2 Equivalent Load.

"Equivalent Load" shall mean the sum of a Market Participant's net system requirements to serve its customer load in the PJM Control Area, if any, plus its net bilateral transactions.

1.3.3 External Market Buyer.

"External Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users outside the PJM Control Area, or for load in the Control Area that is not served by Network Transmission Service.

1.3.4 External Resource.

"External Resource" shall mean a generation resource located outside the metered boundaries of the PJM Control Area.

1.3.5 Fixed Transmission Right.

"Fixed Transmission Right" shall mean a right to receive Transmission Congestion Credits as specified in Section 5.2.2 of this Schedule.

1.3.6 Generating Market Buyer.

"Generating Market Buyer" shall mean an Internal Market Buyer that is a Load Serving Entity that owns or has contractual rights to the output of generation resources capable of serving the Market Buyer's load in the PJM Control Area, or of selling energy or related services in the PJM Interchange Energy Market or elsewhere.

1.3.7 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.

1.3.8 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 necessary repairs on specific components of the facility, if removal of the facility meets the guidelines specified in the PJM Manuals.

1.3.9 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.

1.3.9a Increment Bid.

"Increment Bid" shall mean an offer to sell energy at a specified location in the Day-ahead Energy Market. An accepted Increment Bid results in scheduled generation at the specified location in the Day-ahead Energy Market.

1.3.10 Internal Market Buyer.

"Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for ultimate consumption by end-users inside the PJM Control Area that are served by Network Transmission Service.

1.3.11 Inadvertent Interchange.

"Inadvertent Interchange" shall mean the difference between net actual energy flow and net scheduled energy flow into or out of the PJM Control Area, as determined and allocated each hour by the Office of the Interconnection in accordance with the procedures set forth in the PJM Manuals to each Electric Distributor that reports to the Office of the Interconnection its hourly net energy flows from metered tie lines.

1.3.12 Market Operations Center.

"Market Operations Center" shall mean the equipment, facilities and personnel used by or on behalf of a Market Participant to communicate and coordinate with the Office of the Interconnection in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Control Area.

1.3.13 Maximum Generation Emergency.

"Maximum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more Capacity Resources to operate at its maximum net or gross electrical power output, subject to the equipment stress limits for such Capacity Resource, in order to manage, alleviate, or end the Emergency.

1.3.14 Minimum Generation Emergency.

"Minimum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more generating resources to operate at or below Normal Minimum Generation, in order to manage, alleviate, or end the Emergency.

1.3.14a NERC Interchange Distribution Calculator.

"NERC Interchange Distribution Calculator" shall mean the NERC mechanism that is in effect and being used to calculate the distribution of energy, over specific transmission interfaces, from energy transactions.

1.3.15 Network Resource.

"Network Resource" shall have the meaning specified in the PJM Tariff.

1.3.16 Network Service User.

"Network Service User" shall mean an entity using Network Transmission Service.

1.3.17 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 Regional Transmission Owner as that term is defined in the PJM Tariff.

1.3.18 Normal Maximum Generation.

"Normal Maximum Generation" shall mean the highest output level of a generating resource under normal operating conditions.

1.3.19 Normal Minimum Generation.

"Normal Minimum Generation" shall mean the lowest output level of a generating resource under normal operating conditions.

1.3.20 Offer Data.

"Offer Data" shall mean the scheduling, operations planning, dispatch, new resource, and other data and information necessary to schedule and dispatch generation resources for the provision of energy and other services and the maintenance of the reliability and security of the transmission system in the PJM Control Area, and specified for submission to the PJM Interchange Energy Market for such purposes by the Office of the Interconnection.

1.3.21 Office of the Interconnection Control Center.

"Office of the Interconnection Control Center" shall mean the equipment, facilities and personnel used by the Office of the Interconnection to coordinate and direct the operation of the PJM Control Area and to administer the PJM Interchange Energy Market, including facilities and equipment used to communicate and coordinate with the Market Participants in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Control Area.

1.3.22 Operating Day.

"Operating Day" shall mean the daily 24 hour period beginning at midnight for which transactions on the PJM Interchange Energy Market are scheduled.

1.3.23 Operating Margin.

"Operating Margin" shall mean the incremental adjustments, measured in megawatts, required in PJM Control Area operations in order to accommodate, on a first contingency basis, an operating contingency in the PJM Control Area resulting from operations in an interconnected Control Area. Such adjustments may result in constraints causing Transmission Congestion Charges, or may result in Ancillary Services charges pursuant to the PJM Tariff.

1.3.24 Operating Margin Customer.

"Operating Margin Customer" shall mean a Control Area purchasing Operating Margin pursuant to an agreement between such other Control Area and the LLC.

1.3.25 PJM Interchange.

"PJM Interchange" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load exceeds, or is exceeded by, the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup; or (c) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the hourly net metered output of any other Market Seller; or (e) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer; or (f) the hourly scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

1.3.26 PJM Interchange Export.

"PJM Interchange Export" shall mean the following, as determined in accordance with Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load is exceeded by the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup sales; or (c) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the hourly net metered output of any other Market Seller.

1.3.27 PJM Interchange Import.

"PJM Interchange Import" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load exceeds the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup purchases; or (c) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer; or (d) the hourly scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

1.3.28 PJM Open Access Same-time Information System.

"PJM Open Access Same-time Information System" shall mean the electronic communication system for the collection and dissemination of information about transmission services in the PJM Control Area, established and operated by the Office of the Interconnection in accordance with FERC standards and requirements.

1.3.29 Point-to-Point Transmission Service.

"Point-to-Point Transmission Service" shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Part II of the PJM Tariff.

1.3.30 Ramping Capability.

"Ramping Capability" shall mean the sustained rate of change of generator output, in megawatts per minute.

1.3.30a Real-time Prices.

"Real-time Prices" shall mean the Locational Marginal Prices resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

1.3.30b Real-time Energy Market.

"Real-time Energy Market" shall mean the purchase or sale of energy and payment of Transmission Congestion Charges for quantity deviations from the Day-ahead Energy Market in the Operating Day.

1.3.31 Regulation.

"Regulation" shall mean the capability of a specific generating unit with appropriate telecommunications, control and response capability to increase or decrease its output in response to a regulating control signal, in accordance with the specifications in the PJM Manuals.

1.3.32 Spot Market Backup.

"Spot Market Backup" shall mean the purchase of energy from, or the delivery of energy to, the PJM Interchange Energy Market in quantities sufficient to complete the delivery or receipt obligations of a bilateral contract that has been curtailed or interrupted for any reason.

1.3.33 Spot Market Energy.

"Spot Market Energy" shall mean energy bought or sold by Market Participants through the PJM Interchange Energy Market at Locational Marginal Prices determined as specified in Section 2 of this Schedule.

1.3.33a State Estimator.

"State Estimator" shall mean the computer model of power flows specified in Section 2.3 of this Schedule.

1.3.34 Transmission Congestion Charge.

"Transmission Congestion Charge" shall mean a charge attributable to the increased cost of energy delivered at a given load bus when the transmission system serving that load bus is operating under constrained conditions, which shall be calculated and allocated as specified in Section 5.1 of this Schedule.

1.3.35 Transmission Congestion Credit.

"Transmission Congestion Credit" shall mean the allocated share of total Transmission Congestion Charges credited to each holder of Fixed Transmission Rights, calculated and allocated as specified in Section 5.2 of this Schedule.

1.3.36 Transmission Customer.

"Transmission Customer" shall mean an entity using Point-to-Point Transmission Service.

1.3.37 Transmission Forced Outage.

"Transmission Forced Outage" shall mean an immediate removal from service of a transmission facility by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the transmission facility, as specified in the relevant portions of the PJM Manuals. A removal from service of a transmission facility at the request of the Office of the Interconnection to improve transmission capability shall not constitute a Forced Transmission Outage.

1.3.37a Transmission Loading Relief.

"Transmission Loading Relief" shall mean NERC's procedures for preventing operating security limit violations, as implemented by PJM as the security coordinator responsible for maintaining transmission security for the PJM Control Area.

1.3.37b Transmission Loading Relief Customer.

"Transmission Loading Relief Customer" shall mean an entity that, in accordance with Section 1.10.6A, has elected to pay Transmission Congestion Charges during Transmission Loading Relief in order to continue energy schedules over contract paths outside the PJM Control Area that are increasing the cost of energy in the PJM Control Area.

1.3.38 Transmission Planned Outage.

"Transmission Planned Outage" shall mean any transmission outage scheduled in advance for a pre-determined duration and which meets the notification requirements for such outages specified in the PJM Manuals.

1.4 Market Buyers.

1.4.1 Qualification.

(a) To become a Market Buyer, an entity shall submit an application to the Office of the Interconnection, in such form as shall be established by the Office of the Interconnection.

(b) An applicant that is a Load Serving Entity or that will purchase on behalf of or for ultimate delivery to a Load Serving Entity shall establish to the satisfaction of the Office of the Interconnection that the end-users that will be served through energy and related services purchased in the PJM Interchange Energy Market, are located electrically within the PJM Control Area, or will be brought within the PJM Control Area prior to any purchases from the PJM Interchange Energy Market. Such applicant shall further demonstrate that:

i) The Load Serving Entity for the end users is obligated to meet the requirements of the Reliability Assurance Agreement; and

ii) The Load Serving Entity for the end users has arrangements in place for Network Transmission Service or Point-To-Point Transmission Service for all PJM Interchange Energy Market purchases.

(c) An applicant that is not a Load Serving Entity or purchasing on behalf of or for ultimate delivery to a Load Serving Entity shall demonstrate that:

i) The applicant has obtained or will obtain Network Transmission Service or Point-To-Point Transmission Service for all PJM Interchange Energy Market purchases; and

ii) The applicant's PJM Interchange Energy Market purchases will ultimately be delivered to a load in another Control Area that is recognized by NERC and that complies with NERC's standards for operating and planning reliable bulk electric systems.

(d) An applicant shall not be required to obtain transmission service for purchases from the PJM Interchange Energy Market to cover quantity deviations from its sales in the Day-ahead Energy Market.

(e) All applicants shall demonstrate that:

i) The applicant is capable of complying with all applicable metering, data storage and transmission, and other reliability, operation, planning and accounting standards and requirements for the operation of the PJM Control Area and the PJM Interchange Energy Market;

ii) The applicant meets the creditworthiness standards established by the Office of the Interconnection, or has provided a letter of credit or other form of security acceptable to the Office of the Interconnection; and

iii) The applicant has paid all applicable fees and reimbursed the Office of the Interconnection for all unusual or extraordinary costs of processing and evaluating its application to become a Market Buyer, and has agreed in its application to subject any disputes arising from its application to the PJM Dispute Resolution Procedures.

(f) The applicant shall become a Market Buyer upon a final favorable determination on its application by the Office of the Interconnection as specified below, and execution by the applicant of counterparts of this Agreement.

1.4.2 Submission of Information.

The applicant shall furnish all information reasonably requested by the Office of the Interconnection in order to determine the applicant's qualification to be a Market Buyer. The Office of the Interconnection may waive the submission of information relating to any of the foregoing criteria, to the extent the information in the Office of the Interconnection's possession is sufficient to evaluate the application against such criteria.

1.4.3 Fees and Costs.

The Office of the Interconnection shall require all applicants to become a Market Buyer to pay a uniform application fee, initially in the amount of $1,500, to defray the ordinary costs of processing such applications. The application fee shall be revised from time to time as the Office of the Interconnection shall determine to be necessary to recover its ordinary costs of processing applications. Any unusual or extraordinary costs incurred by the Office of the Interconnection in processing an application shall be reimbursed by the applicant.

1.4.4 Office of the Interconnection Determination.

Upon submission of the information specified above, and such other information as shall reasonably be requested by the Office of the Interconnection, the Office of the Interconnection shall undertake an evaluation and investigation to determine whether the applicant meets the criteria specified above. As soon as practicable, but in any event not later than 60 days after submission of the foregoing information, or such later date as may be necessary to satisfy the requirements of the Reliability Assurance Agreement, the Office of the Interconnection shall notify the applicant and the members of the Members Committee of its determination, along with a written summary of the basis for the determination. The Office of the Interconnection shall respond promptly to any reasonable and timely request by a Member for additional information regarding the basis for the Office of the Interconnection's determination, and shall take such action as it shall deem appropriate in response to any request for reconsideration or other action submitted to the Office of the Interconnection not later than 30 days from the initial notification to the Members Committee.

1.4.5 Existing Participants.

Any entity that was qualified to participate as a Market Buyer in the PJM Interchange Energy Market under the Operating Agreement of PJM Interconnection L.L.C. in effect immediately prior to the Effective Date shall continue to be qualified to participate as a Market Buyer in the PJM Interchange Energy Market under this Agreement.

1.4.6 Withdrawal.

(a) An Internal Market Buyer that is a Load Serving Entity may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal not earlier than the effective date of (i) its withdrawal from the Reliability Assurance Agreement, or (ii) the assumption of its obligations under the Reliability Assurance Agreement by an agent that is a Market Buyer.

(b) An External Market Buyer or an Internal Market Buyer that is not a Load Serving Entity may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal at least one day after the date of the notice.

(c) Withdrawal from this Agreement shall not relieve a Market Buyer of any obligation to pay for electric energy or related services purchased from the PJM Interchange Energy Market prior to such withdrawal, to pay its share of any fees and charges incurred or assessed by the Office of the Interconnection prior to the date of such withdrawal, or to fulfill any obligation to provide indemnification for the consequences of acts, omissions or events occurring prior to such withdrawal; and provided, further, that withdrawal from this Agreement shall not relieve any Market Buyer of any obligations it may have under, or constitute withdrawal from, any other Related PJM Agreement.

(d) A Market Buyer that has withdrawn from this Agreement may reapply to become a Market Buyer in accordance with the provisions of this Section 1.4, provided it is not in default of any obligation incurred under this Agreement.

1.5 Market Sellers.

1.5.1 Qualification.

A Member that demonstrates to the Office of the Interconnection that the Member meets the standards for the issuance of an order mandating the provision of transmission service under section 211 of the Federal Power Act, as amended by the Energy Policy Act of 1992, may become a Market Seller upon execution of this Agreement and submission to the Office of the Interconnection of the applicable Offer Data in accordance with the provisions of this Schedule. All Members that are Market Buyers shall become Market Sellers upon submission to the Office of the Interconnection of the applicable Offer Data in accordance with the provisions of this Schedule.

1.5.2 Withdrawal.

(a) A Market Seller may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal at least one day after the date of the notice; provided, however, that withdrawal shall not relieve a Market Seller of any obligation to deliver electric energy or related services to the PJM Interchange Energy Market pursuant to an offer made prior to such withdrawal, to pay its share of any fees and charges incurred or assessed by the Office of the Interconnection prior to the date of such withdrawal, or to fulfill any obligation to provide indemnification for the consequences of acts, omissions, or events occurring prior to such withdrawal; and provided, further, that withdrawal shall not relieve any entity that is a Market Seller and is also a Market Buyer of any obligations it may have as a Market Buyer under, or constitute withdrawal as a Market Buyer from, this Agreement or any other Related PJM Agreement.

(b) A Market Seller that has withdrawn from this Agreement may reapply to become a Market Seller at any time, provided it is not in default with respect to any obligation incurred under this Agreement.

1.6 Office of the Interconnection.

1.6.1 Operation of the PJM Interchange Energy Market.

The Office of the Interconnection shall operate the PJM Interchange Energy Market in accordance with this Agreement.

1.6.2 Scope of Services.

The Office of the Interconnection shall, on behalf of the Market Participants, perform the services pertaining to the PJM Interchange Energy Market specified in this Agreement, including but not limited to the following:

i) Administer the PJM Interchange Energy Market as part of the PJM Control Area, including scheduling and dispatching of generation resources, accounting for transactions, rendering bills to the Market Participants, receiving payments from and disbursing payments to the Market Participants, maintaining appropriate records, and monitoring the compliance of Market Participants with the provisions of this Agreement, all in accordance with applicable provisions of the Office of the Interconnection Agreement, and the Schedules to this Agreement;

ii) Review and evaluate the qualification of entities to be Market Buyers or Market Sellers under applicable provisions of this Agreement;

iii) Coordinate, in accordance with applicable provisions of this Agreement, the Reliability Assurance Agreement, and the Transmission Owners Agreement, maintenance schedules for generation and transmission resources operated as part of the PJM Control Area;

iv) Provide or coordinate the provision of ancillary services necessary for the operation of PJM Control Area or the PJM Interchange Energy Market;

v) Determine and declare that an Emergency is expected to exist, exists, or has ceased to exist, in all or any part of the PJM Control Area, or in another Control Area interconnected directly or indirectly with the PJM Control Area, and serve as a primary point of contact for interested state or federal agencies;

vi) Enter into (a) agreements for the transfer of energy in conditions constituting an Emergency in the PJM Control Area or in a Control Area interconnected with it, and the mutual provision of other support in such Emergency conditions with other Control Areas interconnected with the PJM Control Area and (b) purchases of Emergency energy offered by Members from resources that are not Capacity Resources in conditions constituting an Emergency in the PJM Control Area;

vii) Coordinate the curtailment or shedding of load, or other measures appropriate to alleviate an Emergency, in order to preserve reliability in accordance with NERC and MAAC principles, guidelines and standards, and to ensure the operation of the PJM Control Area in accordance with Good Utility Practice and the this Agreement;

viii) Protect confidential information as specified in this Agreement; and

ix) Send a representative to meetings of the Members Committee or other Committees, subcommittees, or working groups specified in this Agreement or formed by the Members Committee when requested to do so by the chair or other head of such committee or other group.

1.6.3 Records and Reports.

The Office of the Interconnection shall prepare and maintain such records and prepare such reports, including, but not limited to quarterly budget reports, as are required to document the performance of its obligations to the Market Participants hereunder in a form adopted by the Office of the Interconnection upon consideration of the advice and recommendations of the Members Committee. The Office of the Interconnection shall also produce special reports reasonably requested by the Members Committee and consistent with FERC's standards of conduct; provided, however, the Market Participants shall reimburse the Office of the Interconnection for the costs of producing any such report. Notwithstanding the foregoing, the Office of the Interconnection shall not be required to disclose confidential or commercially sensitive information in any such report.

1.6.4 PJM Manuals.

The Office of the Interconnection shall prepare, maintain and update the PJM Manuals consistent with this Agreement. The PJM Manuals shall be available for inspection by the Market Participants, regulatory authorities with jurisdiction over the LLC or any Member, and the public.

1.7 General.

1.7.1 Market Sellers.

Only Market Sellers shall be eligible to submit offers to the Office of the Interconnection for the sale of electric energy or related services in the PJM Interchange Energy Market. Market Sellers shall comply with the prices, terms, and operating characteristics of all Offer Data submitted to and accepted by the PJM Interchange Energy Market.

1.7.2 Market Buyers.

Only Market Buyers shall be eligible to purchase energy or related services in the PJM Interchange Energy Market. Market Buyers shall comply with all requirements for making purchases from the PJM Interchange Energy Market.

1.7.3 Agents.

A Market Participant may participate in the PJM Interchange Energy Market through an agent, provided that the Market Participant informs the Office of the Interconnection in advance in writing of the appointment of such agent. A Market Participant participating in the PJM Interchange Energy Market through an agent shall be bound by all of the acts or representations of such agent with respect to transactions in the PJM Interchange Energy Market, and shall ensure that any such agent complies with the requirements of this Agreement.

1.7.4 General Obligations of the Market Participants.

(a) In performing its obligations to the Office of the Interconnection hereunder, each Market Participant shall at all times (i) follow Good Utility Practice, (ii) comply with all applicable laws and regulations, (iii) comply with the applicable principles, guidelines, standards and requirements of FERC, NERC and MAAC, (iv) comply with the procedures established for operation of the PJM Interchange Energy Market and PJM Control Area and (v) cooperate with the Office of the Interconnection as necessary for the operation of the PJM Control Area in a safe, reliable manner consistent with Good Utility Practice.

(b) Market Participants shall undertake all operations in or affecting the PJM Interchange Energy Market and the PJM Control Area, including but not limited to compliance with all Emergency procedures, in accordance with the power and authority of the Office of the Interconnection with respect to the operation of the PJM Interchange Energy Market and the PJM Control Area as established in this Agreement, and as specified in the Schedules to this Agreement and the PJM Manuals. Failure to comply with the foregoing operational requirements shall subject a Market Participant to such reasonable charges or other remedies or sanctions for non-compliance as may be established by the PJM Board, including legal or regulatory proceedings as authorized by the PJM Board to enforce the obligations of this Agreement.

The Office of the Interconnection may establish such committees with a representative of each Market Participant, and the Market Participants agree to provide appropriately qualified personnel for such committees, as may be necessary for the Office of the Interconnection to perform its obligations hereunder.

(d) All Market Participants shall provide to the Office of the Interconnection the scheduling and other information specified in the Schedules to this Agreement, and such other information as the Office of the Interconnection may reasonably require for the reliable and efficient operation of the PJM Control Area and the PJM Interchange Energy Market, and for compliance with applicable regulatory requirements for posting market and related information. Such information shall be provided as much in advance as possible, but in no event later than the deadlines established by the Schedules to this Agreement, or by the Office of the Interconnection in conformance with such Schedules. Such information shall include, but not be limited to, maintenance and other anticipated outages of generation or transmission facilities, scheduling and related information on bilateral transactions and self-scheduled resources, and implementation of active load management, interruption of load, and other load reduction measures. The Office of the Interconnection shall abide by appropriate requirements for the non-disclosure and protection of any confidential or proprietary information given to the Office of the Interconnection by a Market Participant. Each Market Participant shall maintain or cause to be maintained compatible information and communications systems, as specified by the Office of the Interconnection, required to transmit scheduling, dispatch, or other time-sensitive information to the Office of the Interconnection in a timely manner.

(e) Each Market Participant shall install and operate, or shall otherwise arrange for, metering and related equipment capable of recording and transmitting all voice and data communications reasonably necessary for the Office of the Interconnection to perform the services specified in this Agreement. A Market Participant that elects to be separately billed for its PJM Interchange shall, to the extent necessary, be individually metered in accordance with Section 14 of this Agreement, or shall agree upon an allocation of PJM Interchange between it and the Market Participant through whose meters the unmetered Market Participant's PJM Interchange is delivered. The Office of the Interconnection shall be notified of the allocation by the foregoing Market Participants.

(f) Each Market Participant shall operate, or shall cause to be operated, any generating resources owned or controlled by such Market Participant that are within the PJM Control Area or otherwise supplying energy to or through the PJM Control Area in a manner that is consistent with the standards, requirements or directions of the Office of the Interconnection and that will permit the Office of the Interconnection to perform its obligations under this Agreement; provided, however, no Market Participant shall be required to take any action that is inconsistent with Good Utility Practice or applicable law.

(g) Each Market Participant shall follow the directions of the Office of the Interconnection to take actions to prevent, manage, alleviate or end an Emergency in a manner consistent with this Agreement and the procedures of the PJM Control Area as specified in the PJM Manuals.

Each Market Participant shall obtain and maintain all permits, licenses or approvals required for the Market Participant to participate in the PJM Interchange Energy Market in the manner contemplated by this Agreement.

1.7.5 Market Operations Center.

Each Market Participant shall maintain a Market Operations Center, or shall make appropriate arrangements for the performance of such services on its behalf. A Market Operations Center shall meet the performance, equipment, communications, staffing and training standards and requirements specified in this Agreement for the scheduling and completion of transactions in the PJM Interchange Energy Market and the maintenance of the reliable operation of the PJM Control Area, and shall be sufficient to enable (i) a Market Seller to perform all terms and conditions of its offers to the PJM Interchange Energy Market, and (ii) a Market Buyer to conform to the requirements for purchasing from the PJM Interchange Energy Market.

1.7.6 Scheduling and Dispatching.

(a) The Office of the Interconnection shall schedule and dispatch in real-time generation economically on the basis of least-cost, security-constrained dispatch and the prices and operating characteristics offered by Market Sellers, continuing until sufficient generation is dispatched to serve the PJM Interchange Energy Market energy purchase requirements under normal system conditions of the Market Buyers, as well as the requirements of the PJM Control Area for ancillary services provided by such generation, in accordance with this Agreement. Scheduling and dispatch shall be conducted in accordance with this Agreement.

(b) The Office of the Interconnection shall undertake to identify any conflict or incompatibility between the scheduling or other deadlines or specifications applicable to the PJM Interchange Energy Market, and any relevant procedures of another Control Area, or any tariff (including the PJM Tariff). Upon determining that any such conflict or incompatibility exists, the Office of the Interconnection shall propose tariff or procedural changes, and undertake such other efforts as may be appropriate, to resolve any such conflict or incompatibility.

1.7.7 Pricing.

The price paid for energy bought and sold in the PJM Interchange Energy Market will reflect the hourly Locational Marginal Price at each load and generation bus, determined by the Office of the Interconnection in accordance with this Agreement. Transmission Congestion Charges, which shall be determined by differences in Locational Marginal Prices in an hour caused by transmission constraints, shall be calculated and collected, and the revenues therefrom shall be disbursed, by the Office of the Interconnection in accordance with this Schedule.

1.7.8 Generating Market Buyer Resources.

A Generating Market Buyer may elect to self-schedule its generation resources up to that Generating Market Buyer's Equivalent Load, in accordance with and subject to the procedures specified in this Schedule, and the accounting and billing requirements specified in Section 3 to this Agreement.

1.7.9 Delivery to an External Market Buyer.

A purchase of Spot Market Energy by an External Market Buyer shall be delivered to a bus or busses at the border of the PJM Control Area specified by the Office of the Interconnection, or to load in the Control Area that is not served by Network Transmission Service, using Point-to-Point Transmission Service paid for by the External Market Buyer. Further delivery of such energy shall be the responsibility of the External Market Buyer.

1.7.10 Other Transactions.

(a) Market Participants may enter into bilateral contracts for the purchase or sale of electric energy to or from each other or any other entity, subject to the obligations of Market Participants to make Capacity Resources available for dispatch by the Office of the Interconnection. Bilateral arrangements that contemplate the physical transfer of energy to or from a Market Participant shall be reported to and coordinated with the Office of the Interconnection in accordance with this Schedule.

(b) Market Participants shall have Spot Market Backup with respect to all bilateral transactions that are not dynamically scheduled pursuant to Section 1.12 and that are curtailed or interrupted for any reason (except for curtailments or interruptions through active load management for load located within the PJM Control Area.

(c) To the extent the Office of the Interconnection dispatches a Generating Market Buyer's generation resources, such Generating Market Buyer may elect to net the output of such resources against its hourly Equivalent Load. Such a Generating Market Buyer shall be deemed a buyer from the PJM Interchange Energy Market to the extent of its PJM Interchange Imports, and shall be deemed a seller to the PJM Interchange Energy Market to the extent of its PJM Interchange Exports.

1.7.11 Emergencies.

The Office of the Interconnection, with the assistance of the Members' dispatchers as it may request, shall be responsible for monitoring the operation of the PJM Control Area, for declaring the existence of an Emergency, and for directing the operations of Market Participants as necessary to manage, alleviate or end an Emergency. The standards, policies and procedures of the Office of the Interconnection for declaring the existence of an Emergency, including but not limited to a Minimum Generation Emergency, and for managing, alleviating or ending an Emergency, shall apply to all Members on a non-discriminatory basis. Actions by the Office of the Interconnection and the Market Participants shall be carried out in accordance with this Agreement, the NERC Operating Policies, MAAC reliability principles and standards, Good Utility Practice, and the PJM Manuals. A declaration that an Emergency exists or is likely to exist by the Office of the Interconnection shall be binding on all Market Participants until the Office of the Interconnection announces that the actual or threatened Emergency no longer exists. Consistent with existing contracts, all Market Participants shall comply with all directions from the Office of the Interconnection for the purpose of managing, alleviating or ending an Emergency. The Market Participants shall authorize the Office of the Interconnection to purchase or sell energy on their behalf to meet an Emergency, and otherwise to implement agreements with other Control Areas interconnected with the PJM Control Area for the mutual provision of service to meet an Emergency, in accordance with this Agreement.

1.7.12 Fees and Charges.

Each Market Participant shall pay all fees and charges of the Office of the Interconnection for operation of the PJM Interchange Energy Market as determined by and allocated to the Market Participant by the Office of the Interconnection in accordance with Schedule 3.

1.7.13 Relationship to PJM Control Area.

The PJM Interchange Energy Market operates within and subject to the requirements for the operation of the PJM Control Area.

1.7.14 PJM Manuals.

The Office of the Interconnection shall be responsible for maintaining, updating, and promulgating the PJM Manuals as they relate to the operation of the PJM Interchange Energy Market. The PJM Manuals, as they relate to the operation of the PJM Interchange Energy Market, shall conform and comply with this Agreement, NERC operating policies, and MAAC reliability principles, guidelines and standards, and shall be designed to facilitate administration of an efficient energy market within industry reliability standards and the physical capabilities of the PJM Control Area.

1.7.15 Corrective Action.

Consistent with Good Utility Practice, the Office of the Interconnection shall be authorized to direct or coordinate corrective action, whether or not specified in the PJM Manuals, as necessary to alleviate unusual conditions that threaten the integrity or reliability of the PJM Control Area or the regional power system.

1.7.16 Recording.

Subject to the requirements of applicable State or federal law, all voice communications with the Office of the Interconnection Control Center may be recorded by the Office of the Interconnection and any Market Participant communicating with the Office of the Interconnection Control Center, and each Market Participant hereby consents to such recording.

1.7.17 Operating Reserves.

(a) The following procedures shall apply to any generation unit subject to the dispatch of the Office of the Interconnection for which construction commenced before July 9, 1996.

(b) The Office of the Interconnection shall schedule to the Operating Reserve and load-following objectives of the PJM Control Area and the PJM Interchange Energy Market in scheduling resources pursuant to this Schedule. A table of Operating Reserve objectives is calculated seasonally for various peak load levels and eight weekly periods and is published in the PJM Manuals. Reserve levels are probabilistically determined based on the season's historical load forecasting error and expected generation mix (including typical Planned and Forced/Unplanned Outages). Generating Units with quick start capability, as specified in the PJM Manuals, that are dispatched to maintain reliability by providing or maintaining spinning reserves or providing load following capability shall receive energy payments at the levels specified below. The energy payments specified below shall be considered the offered price for Spot Market Energy for purposes of Section 3.2.3(b) of this Schedule. The price offered or paid for the energy of units so dispatched shall not be considered in determining Locational Marginal Prices.

(c) Payments for energy produced by a quick start generating unit dispatched as specified above shall be at the higher of the applicable Locational Marginal Price or one of the amounts specified below, as specified in advance by the Market Seller for the affected unit:

(i) The weighted average Locational Marginal Price at the generation bus at which energy from the capped resource was delivered during a specified number of hours during which the resource was dispatched for energy in economic merit order, the specified number of hours to be determined by the Office of the Interconnection and to be a number of hours sufficient to result in a price cap that reflects reasonably contemporaneous competitive market conditions for that unit;

(ii) The incremental operating cost of the generation resource as determined in accordance with Schedule 2 of this Agreement and the PJM Manuals, plus 10% of such costs; or

(iii) An amount determined by agreement between the Office of the Interconnection and the Market Seller.

1.7.18 Regulation.

(a) Regulation shall be supplied from generators located within the metered electrical boundaries of the PJM Control Area. Generating Market Buyers, and Market Sellers offering Regulation, shall comply with applicable standards and requirements for Regulation capability and dispatch specified in the PJM Manuals.

(b) The Office of the Interconnection shall obtain and maintain an amount of Regulation equal to the PJM Control Area Regulation objective as specified in the PJM Manuals.

The Regulation range of a unit shall be at least twice the amount of Regulation assigned.

(d) A unit capable of automatic energy dispatch that is also providing Regulation shall have its energy dispatch range reduced by twice the amount of the Regulation provided. The amount of Regulation provided by a unit shall serve to redefine the Normal Minimum Generation and Normal Maximum Generation energy limits of that unit, in that the amount of Regulation shall be added to the unit's Normal Minimum Generation energy limit, and subtracted from its Normal Maximum Generation energy limit.

(e) Qualified Regulation must satisfy the verification tests described in the PJM Manuals.

1.7.19 Ramping.

A generator dispatched by the Office of the Interconnection pursuant to a control signal appropriate to increase or decrease the generator's megawatt output level shall be able to change output at the ramping rate specified in the Offer Data submitted to the Office of the Interconnection for that generator.

1.7.20 Communication and Operating Requirements.

(a) Market Participants. Each Market Participant shall have, or shall arrange to have, its transactions in the PJM Interchange Energy Market subject to control by a Market Operations Center, with staffing and communications systems capable of real-time communication with the Office of the Interconnection during normal and Emergency conditions and of control of the Market Participant's relevant load or facilities sufficient to meet the requirements of the Market Participant's transactions with the PJM Interchange Energy Market, including but not limited to the following requirements as applicable.

(b) Market Sellers selling from resources within the PJM Control Area shall: report to the Office of the Interconnection sources of energy available for operation; supply to the Office of the Interconnection all applicable Offer Data; report to the Office of the Interconnection units that are self-scheduled; report to the Office of the Interconnection bilateral sales transactions to buyers not within the PJM Control Area; confirm to the Office of the Interconnection bilateral sales to Market Buyers within the PJM Control Area; respond to the Office of the Interconnection's directives to start, shutdown or change output levels of generation units, or change scheduled voltages or reactive output levels; continuously maintain all Offer Data concurrent with on-line operating information; and ensure that, where so equipped, generating equipment is operated with control equipment functioning as specified in the PJM Manuals.

(c) Market Sellers selling from resources outside the PJM Control Area shall: provide to the Office of the Interconnection all applicable Offer Data, including offers specifying amounts of energy available, hours of availability and prices of energy and other services; respond to Office of the Interconnection directives to schedule delivery or change delivery schedules; and communicate delivery schedules to the Market Seller's Control Area.

(d) Market Participants that are Load Serving Entities or purchasing on behalf of Load Serving Entities shall: respond to Office of the Interconnection directives for load management steps; report to the Office of the Interconnection Capacity Resources to satisfy capacity obligations that are available for pool operation; report to the Office of the Interconnection all bilateral purchase transactions; respond to other Office of the Interconnection directives such as those required during Emergency operation.

(e) Market Participants that are not Load Serving Entities or purchasing on behalf of Load Serving Entities shall: provide to the Office of the Interconnection requests to purchase specified amounts of energy for each hour of the Operating Day during which it intends to purchase from the PJM Interchange Energy Market, along with Dispatch Rate levels above which it does not desire to purchase; respond to other Office of the Interconnection directives such as those required during Emergency operation.

1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process.

1.8.1 PJM Dispute Resolution Agreement.

Subject to the condition specified below, any Member adversely affected by a decision of the Office of the Interconnection with respect to the operation of the PJM Interchange Energy Market, including the qualification of an entity to participate in that market as a buyer or seller, may seek such relief as may be appropriate under the PJM Dispute Resolution Procedures on the grounds that such decision does not have an adequate basis in fact or does not conform to the requirements of this Agreement.

1.8.2 Market or Control Area Hourly Operational Disputes.

(a) Market Participants shall comply with all determinations of the Office of the Interconnection on the selection, scheduling or dispatch of resources in the PJM Interchange Energy Market, or to meet the operational requirements of the PJM Control Area. Complaints arising from or relating to such determinations shall be brought to the attention of the Office of the Interconnection not later than the end of the fifth business day after the end of the Operating Day to which the selection or scheduling relates, or in which the scheduling or dispatch took place, and shall include, if practicable, a proposed resolution of the complaint. Upon receiving notification of the dispute, the Office of the Interconnection and the Market Participant raising the dispute shall exert their best efforts to obtain and retain all data and other information relating to the matter in dispute, and to notify other Market Participants that are likely to be affected by the proposed resolution. Subject to confidentiality or other non-disclosure requirements, representatives of the Office of the Interconnection, the Market Participant raising the dispute, and other interested Market Participants, shall meet within three business days of the foregoing notification, or at such other or further times as the Office of the Interconnection and the Market Participants may agree, to review the relevant facts, and to seek agreement on a resolution of the dispute.

(b) If the Office of the Interconnection determines that the matter in dispute discloses a defect in operating policies, practices or procedures subject to the discretion of the Office of the Interconnection, the Office of the Interconnection shall implement such changes as it deems appropriate and shall so notify the Members Committee. Alternatively, the Office of the Interconnection may notify the Members Committee of a proposed change and solicit the comments or other input of the Members.

(c) If either the Office of the Interconnection, the Market Participant raising the dispute, or another affected Market Participant believes that the matter in dispute has not been adequately resolved, or discloses a need for changes in standards or policies established in or pursuant to the Operating Agreement, any of the foregoing parties may make a written request for review of the matter by the Members Committee, and shall include with the request the forwarding party's recommendation and such data or information (subject to confidentiality or other non-disclosure requirements) as would enable the Members Committee to assess the matter and the recommendation. The Members Committee shall take such action on the recommendation as it shall deem appropriate.

(d) Subject to the right of a Market Participant to obtain correction of accounting or billing errors, the LLC or a Market Participant shall not be entitled to actual, compensatory, consequential or punitive damages, opportunity costs, or other form of reimbursement from the LLC or any other Market Participant for any loss, liability or claim, including any claim for lost profits, incurred as a result of a mistake, error or other fault by the Office of the Interconnection in the selection, scheduling or dispatch of resources.

1.9 Prescheduling.

The following procedures and principles shall govern the prescheduling activities necessary to plan for the reliable operation of the PJM Control Area and for the efficient operation of the PJM Interchange Energy Market.

1.9.1 Outage Scheduling.

The Office of the Interconnection shall be responsible for coordinating and approving requests for outages of generation and transmission facilities as necessary for the reliable operation of the PJM Control Area, in accordance with the PJM Manuals. The Office of the Interconnection shall maintain records of outages and outage requests of these facilities.

1.9.2 Planned Outages.

(a) A Generator Planned Outage shall be included in Generator Planned Outage schedules established prior to the scheduled start date for the outage, in accordance with standards and procedures specified in the PJM Manuals.

(b) The Office of the Interconnection shall conduct Generator Planned Outage scheduling for Capacity Resources in accordance with the Reliability Assurance Agreement and the PJM Manuals and in consultation with the Members owning or controlling the output of Capacity Resources. A Market Participant shall not be expected to submit offers for the sale of energy or other services, or to satisfy delivery obligations, from all or part of a generation resource undergoing an approved Generator Planned Outage. If the Office of the Interconnection determines that approval of a Generator Planned Outage would significantly affect the reliable operation of the PJM Control Area, the Office of the Interconnection may withhold approval or withdraw a prior approval. Approval for a Generator Planned Outage of a Capacity Resource shall be withheld or withdrawn only as necessary to ensure the adequacy of reserves or the reliability of the PJM Control Area in connection with anticipated implementation or avoidance of Emergency procedures. If the Office of the Interconnection withholds or withdraws approval, it shall coordinate with the Market Participant owning or controlling the resource to reschedule the Generator Planned Outage of the Capacity Resource at the earliest practical time. The Office of the Interconnection shall if possible propose alternative schedules with the intent of minimizing the economic impact on the Market Participant of a Generator Planned Outage.

(c) The Office of the Interconnection shall conduct Planned Transmission Outage scheduling in accordance with procedures specified in the Transmission Owners Agreement and the PJM Manuals. If the Office of the Interconnection determines that transmission maintenance schedules proposed by one or more Members would significantly affect the efficient and reliable operation of the PJM Control Area, the Office of the Interconnection may propose alternative schedules, but such alternative shall minimize the economic impact on the Member or Members whose maintenance schedules the Office of the Interconnection proposes to modify.

(d) The Office of the Interconnection shall coordinate resolution of outage or other planning conflicts that may give rise to unreliable system conditions. The Members shall comply with all maintenance schedules established by the Office of the Interconnection.

1.9.3 Generator Maintenance Outages.

A Market Participant may request approval for a Generator Maintenance Outage of any Capacity Resource from the Office of the Interconnection in accordance with the timetable and other procedures specified in the PJM Manuals. The Office of the Interconnection shall approve requests for Generator Maintenance Outages for a Capacity Resource unless the outage would threaten the adequacy of reserves in, or the reliability of, the PJM Control Area. A Market Participant shall not be expected to submit offers for the sale of energy or other services, or to satisfy delivery obligations, from a generation resource undergoing an approved full or partial Generator Maintenance Outage.

1.9.4 Forced Outages.

(a) Each Market Seller that owns or controls a pool-scheduled resource, or Capacity Resource whether or not pool-scheduled, shall: (i) advise the Office of the Interconnection of a Generator Forced Outage suffered or anticipated to be suffered by any such resource as promptly as possible; (ii) provide the Office of the Interconnection with the expected date and time that the resource will be made available; and (iii) make a record of the events and circumstances giving rise to the Generator Forced Outage. A Market Seller shall not be expected to submit offers for the sale of energy or other services, or satisfy delivery obligations, from a generation resource undergoing a Generator Forced Outage. A Capacity Resource that does not deliver all or part of its scheduled energy shall be deemed to have experienced a Generator Forced Outage with respect to such undelivered energy, in accordance with standards and procedures for full and partial Generator Forced Outages specified in the Reliability Assurance Agreement and the PJM Manuals.

(b) The Office of the Interconnection shall receive notification of Forced Transmission Outages, and information on the return to service, of Transmission Facilities in the PJM Control Area in accordance with standards and procedures specified in the Transmission Owners Agreement and the PJM Manuals.

1.9.5 Market Participant Responsibilities.

Each Market Participant making a bilateral sale covering a period greater than the following Operating Day from a generating resource located within the PJM Control Area for delivery outside the PJM Control Area shall furnish to the Office of the Interconnection, in the form and manner specified in the PJM Manuals, information regarding the source of the energy, the load sink, the energy schedule, and the amount of energy being delivered.

1.9.6 Internal Market Buyer Responsibilities.

Each Internal Market Buyer making a bilateral purchase covering a period greater than the following Operating Day shall furnish to the Office of the Interconnection, in the form and manner specified in the PJM Manuals, information regarding the source of the energy, the load sink, the energy schedule, and the amount of energy being delivered. Each Internal Market Buyer shall provide the Office of the Interconnection with details of any load management agreements with customers that allow the Office of the Interconnection to reduce load under specified circumstances.

1.9.7 Market Seller Responsibilities.

(a) Not less than 30 days before a Market Seller's initial offer to sell energy from a given generation resource on the PJM Interchange Energy Market, the Market Seller shall furnish to the Office of the Interconnection the information specified in the Offer Data for new generation resources.

(b) Market Sellers authorized and intending to request market-based start-up and no-load fees in their Offer Data shall submit a specification of such fees to the Office of the Interconnection for each generating unit as to which the Market Seller intends to request such fees. Any such specification shall be submitted on or before March 31 for the period April 1 through September 30, and on or before September 30 for the period October 1 through March 31, and shall remain in effect without change throughout each such period for which a specification was submitted. The Office of the Interconnection shall reject any request for start-up and no-load fees in a Market Seller's Offer Data that does not conform to the Market Seller's specification on file with the Office of the Interconnection.

1.9.8 Office of the Interconnection Responsibilities.

(a) The Office of the Interconnection shall perform seasonal operating studies to assess the forecasted adequacy of generating reserves and of the transmission system, in accordance with the procedures specified in the PJM Manuals.

(b) The Office of the Interconnection shall maintain and update tables setting forth Operating Reserve and other reserve objectives as specified in the PJM Manuals.

(c) The Office of the Interconnection shall receive and process requests for firm and non-firm transmission service in accordance with procedures specified in the PJM Tariff.

(d) The Office of the Interconnection shall maintain such data and information relating to generation and transmission facilities in the PJM Control Area as may be necessary or appropriate to conduct the scheduling and dispatch of the PJM Interchange Energy Market and PJM Control Area.

(e) The Office of the Interconnection shall coordinate with other interconnected Control Area as necessary to manage, alleviate or end an Emergency.

1.10 Scheduling.

1.10.1 General.

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

(b) The Day-ahead Energy Market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at Day-ahead Prices and enable transmission customers to reserve transmission service with Transmission Congestion Charges based on locational differences in Day-ahead Prices. Market Participants whose purchases and sales, and transmission customers whose transmission uses are scheduled in the Day-ahead Energy Market, shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges, at the applicable Day-ahead Prices for the amounts scheduled.

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

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

1.10.1a Day-Ahead Energy Market Scheduling.

The following actions shall occur not later than 12:00 noon on the day before the Operating Day for which transactions are being scheduled, or such other deadline as may be specified by the Office of the Interconnection in order to comply with the practical requirements and the economic and efficiency objectives of the scheduling process specified in this Schedule.

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

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

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

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

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

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

(d) Market Sellers wishing to sell into the Day-ahead Energy Market shall submit offers for the supply of energy (including energy from hydropower units), Regulation, Operating Reserves or other services for the following Operating Day. Offers shall be submitted to the Office of the Interconnection in the form specified by the Office of the Interconnection and shall contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Market Sellers owning or controlling the output of a Capacity Resource that has not been rendered unavailable by a Generation Planned Outage, a Generator Maintenance Outage, or a Generation Forced Outage shall submit offers for the available capacity of such Capacity Resource, including any portion that is self-scheduled by the Generating Market Buyer claiming the resource as a Capacity Resource. The submission of offers for resource increments that are not Capacity Resources shall be optional, but any such offers must contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Energy offered from generation resources that are not Capacity Resources shall not be supplied from resources that are included in or otherwise committed to supply the Operating Reserves of another Control Area. The foregoing offers:

i) Shall specify the generation resource and energy for each hour in the offer period;

ii) Shall specify the amounts and prices for the entire Operating Day for each resource component offered by the Market Seller to the Office of the Interconnection;

iii) If based on energy from a specific generating unit, may specify start-up and no-load fees equal to the specification of such fees for such unit on file with the Office of the Interconnection;

iv) Shall set forth any special conditions upon which the Market Seller proposes to supply a resource increment, including any curtailment rate specified in a bilateral contract for the output of the resource, or any cancellation fees;

v) May include a schedule of offers for prices and operating data contingent on acceptance by the deadline specified in this Schedule, with a second schedule applicable if accepted after the foregoing deadline;

vi) Shall constitute an offer to submit the resource increment to the Office of the Interconnection for scheduling and dispatch in accordance with the terms of the offer, which offer shall remain open through the Operating Day for which the offer is submitted;

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

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

(e) A Market Seller that wishes to make a resource available to sell Regulation service shall submit an offer for Regulation that shall specify the MW of Regulation being offered, the price of the offer in dollars per MWh, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the resource's opportunity costs. The price of the offer shall not exceed $100 per MWh. Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

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

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

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

(i) All Market Participants may submit Increment Bids and/or Decrement Bids that apply to the Day-ahead Energy Market only. Such bids must comply with the requirements set forth in the PJM Manuals and must specify amount, location and price, if any, at which the Market Participant desires to purchase or sell energy in the Day-ahead Energy Market.

1.10.2 Pool-Scheduled Resources.

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

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

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

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

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

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

1.10.3 Self-scheduled Resources.

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

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

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

(c) Market Participants shall make available their self-scheduled resources to the Office of the Interconnection for coordinated operation to supply the needs of the PJM Control Area for Operating Reserves.

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

1.10.4 Capacity Resources.

(a) A Capacity Resource selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection. A Capacity Resource that does not deliver energy as scheduled shall be deemed to have experienced a Generator Forced Outage to the extent of such energy not delivered. A Market Participant offering such Capacity Resource in the Day-ahead Energy Market shall replace the energy not delivered with energy from the Real-time Energy market and shall pay for such energy at the applicable Real-time Price.

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

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

1.10.5 External Resources.

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

(b) Offers for External Resources from an aggregation of two or more generating units shall so indicate, and shall specify, in accordance with the Offer Data requirements specified by the Office of the Interconnection: (i) energy prices; (ii) hours of energy availability; (iii) a minimum dispatch level; (iv) a maximum dispatch level; and (v) unless such information has previously been made available to the Office of the Interconnection, sufficient information, as specified in the PJM Manuals, to enable the Office of the Interconnection to model the flow into the PJM Control Area of any energy from the External Resources scheduled in accordance with the Offer Data. If a Market Seller submits more than one offer on an aggregated resource basis, the withdrawal of any such offer shall be deemed a withdrawal of all higher priced offers for the same period.

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

1.10.6 External Market Buyers.

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

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

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

1.10.6A Transmission Loading Relief Customers.

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

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

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

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

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

1.10.7 Bilateral Transactions.

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

1.10.8 Office of the Interconnection Responsibilities.

(a) The Office of the Interconnection shall use its best efforts to determine (i) the least-cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers, including the reliability requirements of the PJM Control Area, of the Day-ahead Energy Market, and (ii) the least-cost means of satisfying the Operating Reserve and other ancillary service requirements for any portion of the load forecast of the Office of the Interconnection for the Operating Day in excess of that scheduled in the Day-ahead Energy Market. In making these determinations, the Office of the Interconnection shall take into account: (i) the Office of the Interconnection's forecasts of PJM Interchange Energy Market and PJM Control Area energy requirements, giving due consideration to the energy requirement forecasts and purchase requests submitted by Market Buyers; (ii) the offers submitted by Market Sellers; (iii) the availability of limited energy resources; (iv) the capacity, location, and other relevant characteristics of self-scheduled resources; (v) the objectives of the PJM Control Area for Operating Reserves, as specified in the PJM Manuals; (vi) the requirements of the PJM Control Area for Regulation and other ancillary

services, as specified in the PJM Manuals; (vii) the benefits of avoiding or minimizing transmission constraint control operations, as specified in the PJM Manuals; and (viii) such other factors as the Office of the Interconnection reasonably concludes are relevant to the foregoing determination. The Office of the Interconnection shall develop a Day-ahead Energy Market based on the foregoing determination, and shall determine the Day-ahead Prices resulting from such schedule. The Office of the Interconnection shall report the planned schedule for a hydropower resource to the operator of that resource as necessary for plant safety and security, and legal limitations on pond elevations.

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

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

(d) Market Buyers shall pay and Market Sellers shall be paid for the quantities of energy scheduled in the Day-ahead Energy Market at the Day-ahead Prices.

1.10.9 Hourly Scheduling

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

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

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

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

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

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

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

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

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

1.11 Dispatch.

The following procedures and principles shall govern the dispatch of the resources available to the Office of the Interconnection.

1.11.1 Resource Output.

The Office of the Interconnection shall have the authority to direct any Market Seller to adjust the output of any pool-scheduled resource increment within the operating characteristics specified in the Market Seller's offer. The Office of the Interconnection may cancel its selection of, or otherwise release, pool-scheduled resources, subject to an obligation to pay any applicable start-up, no-load or cancellation fees. The Office of the Interconnection shall adjust the output of pool-scheduled resource increments as necessary: (a) to maintain reliability, and subject to that constraint, to minimize the cost of supplying the energy, reserves, and other services required by the Market Buyers and the operation of the PJM Control Area; (b) to balance load and generation, maintain scheduled tie flows, and provide frequency support within the PJM Control Area; and (c) to minimize unscheduled interchange not frequency related between the PJM Control Area and other Control Areas.

1.11.2 Operating Basis.

In carrying out the foregoing objectives, the Office of the Interconnection shall conduct the operation of the PJM Control Area in accordance with the PJM Manuals, and shall: (i) utilize available generating reserves and obtain required replacements; and (ii) monitor the availability of adequate reserves.

1.11.3 Pool-dispatched Resources.

(a) The Office of the Interconnection shall implement the dispatch of energy from pool-scheduled resources with limited energy by direct request. In implementing mandatory or economic use of limited energy resources, the Office of the Interconnection shall use its best efforts to select the most economic hours of operation for limited energy resources, in order to make optimal use of such resources consistent with the dynamic load-following requirements of the PJM Control Area and the availability of other resources to the Office of the Interconnection.

(b) The Office of the Interconnection shall implement the dispatch of energy from other pool-dispatched resource increments, including generation increments from Capacity Resources the remaining increments of which are self-scheduled, by sending appropriate signals and instructions to the entity controlling such resources, in accordance with the PJM Manuals. Each Market Seller shall ensure that the entity controlling a pool-dispatched resource offered or made available by that Market Seller complies with the energy dispatch signals and instructions transmitted by the Office of the Interconnection.

1.11.3a Maximum Generation Emergency.

If the Office of the Interconnection declares a Maximum Generation Emergency, all deliveries to load that is served by Point-to-Point Transmission Service outside the PJM Control Area from Capacity Resources may be interrupted in order to serve load in the PJM Control Area.

1.11.4 Regulation.

(a) A Market Buyer may satisfy its Regulation obligation from its own resources capable of performing Regulation service, by contractual arrangements with other Market Participants able to provide Regulation service, or by purchases from the PJM Interchange Energy Market at the rates set forth in Section 3.2.2.

(b) The Office of the Interconnection shall obtain Regulation service from the least-cost alternatives available from either pool-scheduled or self-scheduled resources as needed to meet PJM Control Area requirements not otherwise satisfied by the Market Buyers. Resources offering to sell Regulation shall be selected to provide Regulation on the basis of each resource's regulation offer and the estimated opportunity cost of the resource providing regulation and in accordance with the Office of the Interconnection's obligation to minimize the total cost of energy, Operating Reserves, Regulation, and other ancillary services. Estimated opportunity costs shall be determined by the Office of the Interconnection on the basis of the expected value of the energy sales that would be foregone or uneconomic energy that would be produced by the resource in order to provide Regulation, in accordance with procedures specified in the PJM Manuals. If the Office of the Interconnection is not able to distinguish resources offering Regulation on the basis of their regulation offers and estimated opportunity costs, resources shall be selected on the basis of the quality of Regulation provided by the resource as determined by tests administered by the Office of the Interconnection.

(c) The Office of the Interconnection shall dispatch resources for Regulation by sending Regulation signals and instructions to resources from which Regulation service has been offered by Market Sellers, in accordance with the PJM Manuals. Market Sellers shall comply with Regulation dispatch signals and instructions transmitted by the Office of the Interconnection and, in the event of conflict, Regulation dispatch signals and instructions shall take precedence over energy dispatch signals and instructions. Market Sellers shall exert all reasonable efforts to operate, or ensure the operation of, their resources supplying load in the PJM Control Area as close to desired output levels as practical, consistent with Good Utility Practice.

1.11.5 PJM Open Access Same-time Information System.

The Office of the Interconnection shall update the information posted on the PJM Open Access Same-time Information System to reflect its dispatch of generation resources.

1.12 Dynamic Scheduling.

(a) An entity that owns or controls a generating resource in the PJM Control Area may electrically remove all or part of the generating resource's output from the PJM Control Area through dynamic scheduling of the output to load outside the PJM Control Area. Such output shall not be available for economic dispatch by the Office of the Interconnection.

(b) An entity requesting dynamic scheduling shall be responsible for arranging for the provision of signal processing and communications from the generator to the Office of the Interconnection and other participating control areas and complying with any other procedures established by the Office of the Interconnection regarding dynamic scheduling as set forth in the PJM Manuals.

(c) An entity requesting dynamic scheduling shall be responsible for reserving amounts of firm transmission service necessary to deliver the range of the dynamic transfer and any required ancillary services.

2. CALCULATION OF LOCATIONAL MARGINAL PRICES

2.1 Introduction.

The Office of the Interconnection shall calculate the price of energy at the load busses and generation busses in the PJM Control Area and at the interface busses between the PJM Control Area and adjacent Control Areas on the basis of Locational Marginal Prices. Locational Marginal Prices determined in accordance with this Section shall be calculated on a day-ahead basis for each hour of the Day-ahead Energy Market, and every five minutes during the Operating Day for the Real-time Energy Market.

2.2 General.

The Office of the Interconnection shall determine the least cost security-constrained dispatch, which is the least costly means of serving load at different locations in the PJM Control Area based on actual operating conditions existing on the power grid and on the prices at which Market Sellers have offered to supply energy in the PJM Interchange Energy Market. Locational Marginal Prices for the generation and load busses in the PJM Control Area, including interconnections with other Control Areas, will be calculated based on the actual economic dispatch and the prices of energy offers. The process for the determination of Locational Marginal Prices shall be as follows:

(a) To determine actual operating conditions on the power grid in the PJM Control Area, the Office of the Interconnection shall use a computer model of the interconnected grid that uses available metered inputs regarding generator output, loads, and power flows to model remaining flows and conditions, producing a consistent representation of power flows on the network. The computer model employed for this purpose, referred to as the State Estimator program, is a standard industry tool and is described in Section 2.3 below. It will be used to obtain information regarding the output of generation supplying energy to the PJM Control Area, loads at buses in the PJM Control Area, transmission losses, and power flows on binding transmission constraints for use in the calculation of Locational Marginal Prices. Additional information used in the calculation, including Dispatch Rates and real time schedules for external transactions between PJM and other Control Areas, will be obtained from the Office of the Interconnection's dispatchers.

(b) Using the prices at which energy is offered by Market Sellers to the PJM Interchange Energy Market, the Office of the Interconnection shall determine the offers of energy that will be considered in the calculation of Locational Marginal Prices. As described in Section 2.4 below, every offer of energy by a Market Seller from a resource that is following economic dispatch instructions of the Office of the Interconnection will be utilized in the calculation of Locational Marginal Prices.

(c) Based on the system conditions on the PJM power grid, determined as described in (a), and the eligible energy offers, determined as described in (b), the Office of the Interconnection shall determine the least costly means of obtaining energy to serve the next increment of load at each bus in the PJM Control Area, in the manner described in Section 2.5 below. The result of that calculation shall be a set of Locational Marginal Prices based on the system conditions at the time.

2.3 Determination of System Conditions Using the State Estimator.

Power system operations, including, but not limited to, the determination of the least costly means of serving load, depend upon the availability of a complete and consistent representation of generator outputs, loads, and power flows on the network. In calculating Locational Marginal Prices, the Office of the Interconnection shall obtain a complete and consistent description of conditions on the electric network in the PJM Control Area by using the most recent power flow solution produced by the State Estimator, which is also used by the Office of the Interconnection for other functions within power system operations. The State Estimator is a standard industry tool that produces a power flow model based on available real-time metering information, information regarding the current status of lines, generators, transformers, and other equipment, bus load distribution factors, and a representation of the electric network, to provide a complete description of system conditions, including conditions at busses for which real-time information is unavailable. The current version of the State Estimator includes over 1600 busses in the PJM Control Area, as well as interface busses with adjacent Control Areas. The Office of the Interconnection shall obtain a State Estimator solution every five minutes, which shall provide the megawatt output of generators and the loads at busses in the PJM Control Area, transmission line losses, and actual flows or loadings on constrained transmission facilities. External transactions between PJM and other Control Areas shall be included in the Locational Marginal Price calculation on the basis of the real time transaction schedules implemented by the Office of the Interconnection's dispatcher.

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 and integrated hourly values of such determinations shall be the basis of sales and purchases of energy in the Real-time Energy Market and of Transmission Congestion Charges under the PJM Tariff not covered by the Day-ahead Energy Market.

(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 which resources are following its economic dispatch instructions. A resource will be considered to be following economic dispatch instructions and shall be included in the calculation of Real-time Prices if:

i) the applicable price bid by a Market Seller for energy from the resource is less than or equal to the Dispatch Rate for the area of the PJM Control Area in which the resource is located; or

ii) the resource is specifically requested to operate by the Office of the Interconnection's dispatcher.

(c) In determining whether a resource satisfies the condition described in (b), the Office of the Interconnection will determine the bid price associated with an energy offer by comparing the actual megawatt output of the resource with the Market Seller's offer price curve. Because of practical generator response limitations, a resource whose megawatt output is not ten percent more than the megawatt level specified on the offer price curve for the applicable Dispatch Rate shall be deemed to be following economic dispatch instructions, but the energy price offer used in the calculation of Real-time Prices shall not exceed the applicable Dispatch Rate. Units that must be run for local area protection shall not be considered in the calculation of Real-time Prices.

2.5 Calculation of Real-time Prices.

(a) The Office of the Interconnection shall determine the least costly means of obtaining energy to serve the next increment of load at each bus in the PJM Control Area represented in the State Estimator and each interface bus between the PJM Control Area and an adjacent Control Area, based on the system conditions described by the most recent power flow solution produced by the State Estimator program and the energy offers that are the basis for the Day-ahead Energy Market, or that are determined to be eligible for consideration under Section 2.4 in connection with the real-time dispatch, as applicable. This calculation shall be made by applying an incremental linear optimization method to minimize energy costs, given actual system conditions, a set of energy offers, and any binding transmission constraints that may exist. In performing this calculation, the Office of the Interconnection shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of: (1) the price at which the Market Seller has offered to supply an additional increment of energy from the resource, and (2) the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of the resource, based on the effect of increased generation from that resource on transmission line loadings. The energy offer or offers that can serve an increment of load at a bus at the lowest cost, calculated in this manner, shall determine the Real-time Price at that bus.

(b) During the Operating Day, the calculation set forth in (a) shall be performed every five minutes, using the Office of the Interconnection's Locational Marginal Price program, producing a set of Real-time Prices based on system conditions during the preceding interval. The prices produced at five-minute intervals during an hour will be integrated to determine the Real-time Prices for that hour.

2.6 Calculation of Day-ahead Prices.

For the Day-ahead Energy Market, day-ahead Locational Marginal Prices shall be determined on the basis of the least-cost, security-constrained dispatch, model flows and system conditions resulting from the load specifications, offers for generation, dispatchable load, Increment Bids, Decrement Bids, and bilateral transactions submitted to the Office of the Interconnection and scheduled in the Day-ahead Energy Market. Such prices shall be determined in accordance with the provisions of this Section applicable to the Day-ahead Energy Market and shall be the basis for purchases and sales of energy and Transmission Congestion Charges resulting from the Day-ahead Energy Market. This calculation shall be made for each hour in the Day-ahead Energy Market by applying a linear optimization method to minimize energy costs, given scheduled system conditions, scheduled transmission outages, and any transmission limitations that may exist. In performing this calculation, the Office of the Interconnection shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of: (1) the price at which the Market Seller has offered to supply an additional increment of energy from the resource, and (2) the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of the resource, based on the effect of increased generation from that resource on transmission line loadings. The energy offer or offers that can serve an increment of load at a bus at the lowest cost, calculated in this manner, shall determine the Day-ahead Price at that bus.

2.7 Performance Evaluation.

The Office of the Interconnection shall undertake an evaluation of the foregoing procedures for the determination of Locational Marginal Prices, as well as the procedures for determining and allocating Fixed Transmission Rights and associated Transmission Congestion Charges and Credits, not less often than every two years, in accordance with the PJM Manuals. To the extent practical, the Office of the Interconnection shall retain all data needed to perform comparisons and other analyses of locational marginal pricing. The Office of the Interconnection shall report the results of its evaluation to the Market Participants, along with its recommendations, if any, for changes in the procedures.

3. ACCOUNTING AND BILLING

3.1 Introduction.

This schedule sets forth the accounting and billing principles and procedures for the purchase and sale of services on the PJM Interchange Energy Market and for the operation of the PJM Control Area.

3.2 Market Buyers.

3.2.1 Spot Market Energy.

(a) Market Buyers shall be charged for all load scheduled to be served from the PJM Interchange Energy Market in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant load bus.

(b) Generating Market Buyers shall be paid for all energy scheduled to be delivered to the PJM Interchange Energy Market in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant generation bus.

(c) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the load payment at each Market Buyer's load bus to be charged at Real-time Prices determined by the product of the hourly Real-time Price at the relevant bus times the Market Buyer's megawatts of load at the bus in the hour in excess of the load scheduled to be served at that bus in that hour in the Day-ahead Energy Market. To the extent that the load actually served at a load bus is less than the load scheduled to be served at that bus in the Day-ahead Energy Market, the Market Buyer shall be credited for the difference at the Real-time Price for the load bus at the time of the shortfall. The megawatts of load at each load bus shall be the sum of the megawatts of load for that bus of that Market Buyer as determined by the State Estimator, plus an allocated share of transmission losses, plus any megawatts of that Market Buyer's bilateral sales to purchasers outside the PJM Control Area attributable to that bus. The total load charge for each Market Buyer shall be the sum, for each of a Market Buyer's load buses, of the charges at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 1.10.1a plus the charges at Real-time Prices determined as specified herein, net of any credits specified herein for each of the Market Buyer's load buses.

(d) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the generation revenue at each Generating Market Buyer's generation bus to be paid at Real-time Prices, determined by the product of the hourly Real-time Price at the relevant bus times the Generating Market Buyer's megawatts of generation at such generation bus in the hour, as determined by the State Estimator, in excess of the energy scheduled to be injected at that bus in that hour in the Day-ahead Energy Market. To the extent that the energy actually injected at the generation bus is less than the energy scheduled to be injected at that bus in the Day-ahead Energy Market, the Generating Market Buyer shall be debited for the difference at the Real-time Price for the generation bus at the time of the shortfall.

The megawatts of generation at each generation bus shall be the sum of the megawatts of generation for that bus of that Generating Market Buyer as determined by the State Estimator, plus any megawatts of bilateral purchases of that Generating Market Buyer from sellers outside the PJM Control Area attributable to that bus. The total generation revenue for each Generating Market Buyer shall be the sum, for each of the Generating Market Buyer's generation busses, of the revenues at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 1.10.1a plus the revenues at Real-time Prices determined as specified herein, net of any debits specified herein for each of the Market Buyer's generation buses.

(e) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate a net bill for each Market Buyer, determined as the difference between its total load charges and its total generation revenue. The portions of the net bill attributable to net hourly PJM Interchange and to Transmission Congestion Charges in the Day-ahead Energy Market and the Real-time Energy Market shall be determined as set forth in this Section and in Section 5.1.3.

(f) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the total amount of net hourly PJM Interchange for each Market Buyer, including Generating Market Buyers, in accordance with the PJM Manuals. For Internal Market Buyers that are Load Serving Entities or purchasing on behalf of Load Serving Entities, this calculation shall include determination of the net energy flows from: (i) tie lines; (ii) any generation resource the output of which is controlled by the Market Buyer but delivered to it over another entity's Transmission Facilities; (iii) any generation resource the output of which is controlled by another entity but which is directly interconnected with the Market Buyer's transmission system; (iv) deliveries pursuant to bilateral energy sales; (v) receipts pursuant to bilateral energy purchases; (vi) the Market Buyer's allocated share of energy purchased from another Control Area in connection with a Minimum Generation Emergency in such other Control Area as specified in Section 3.2.6(c); and (vii) an adjustment to account for the day-ahead PJM Interchange, calculated as the difference between scheduled withdrawals and injections by that Market Buyer in the Day-ahead Energy Market. For Electric Distributors that report hourly net energy flows from metered tie lines, this calculation also shall include 500 kV transmission losses and Inadvertent Interchange allocated to the Electric Distributor and shall exclude the energy delivered to load of other Network Customers and Transmission Customers. For External Market Buyers and Internal Market Buyers that are not Load Serving Entities or purchasing on behalf of Load Serving Entities, this calculation shall determine the energy scheduled hourly for delivery to the Market Buyernet of the amounts scheduled by the External Market Buyer in the Day-ahead Energy Market.

(g) The Office of the Interconnection shall calculate Locational Marginal Prices in the form of Day-ahead Prices and Real-time Prices for each load and generation bus in the PJM Control Area, in accordance with Section 2 of this Schedule.

(h) An Internal Market Buyer shall be charged for Spot Market Energy purchases to the extent of its hourly net purchases from the PJM Interchange Energy Market, determined as specified in Section 3.2.1(f) above. An External Market Buyer shall be charged for its Spot Market Energy purchases based on the energy delivered to it, determined as specified in Section 3.2.1(f) above. The Office of the Interconnection shall calculate an hourly weighted average Real-time Price for each such Market Buyer, based on the hourly average of the Market Buyer's Real-time Prices at each bus weighted by the Market Buyer's load deviations at the bus. The total charge shall be determined by the product of the hourly net amount of PJM Interchange Purchases times the hourly weighted-average Real-time Price for that Market Buyer.

(i) A Generating Market Buyer shall be credited as a Market Seller for sales of Spot Market Energy to the extent of its hourly net sales into the PJM Interchange Energy Market, determined as specified in Section 3.2.1(f) above. The Office of the Interconnection shall calculate an hourly weighted average Real-time Price for each such Market Seller, based on the hourly average of the Market Sellers Real-time Prices at each bus weighted by the Market Buyer's generation deviations at each bus. The total credit shall be determined by the product of the hourly net amount of PJM Interchange Sales times the hourly weighted average Real-time Price for that Market Seller.

3.2.2 Regulation.

(a) Each Internal Market Buyer that is a Load Serving Entity shall have an hourly Regulation objective equal to its *pro rata* share of the PJM Control Area Regulation requirements for the hour, based on the Market Buyer's total load in the PJM Control Area for the hour. An Internal Market Buyer that does not meet its hourly Regulation obligation shall be charged for Regulation dispatched by the Office of the Interconnection to meet such obligation at the Regulation market-clearing price determined in accordance with paragraph (c) of this section, plus the amounts, if any, described in paragraph (f) of this section.

(b) A Generating Market Buyer supplying Regulation at the direction of the Office of the Interconnection in excess of its hourly Regulation obligation shall be credited for each increment of such Regulation at the higher of (i) the Regulation market-clearing price or (ii) the sum of the regulation offer and the unit-specific opportunity cost of the resource supplying the increment of Regulation, as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

(c) The Regulation market-clearing price shall be determined at a time to be determined by the Office of the Interconnection which shall be no earlier than the day before the Operating Day and the market-clearing price each hour shall be equal to the highest sum of a resource's Regulation offer plus its estimated unit-specific opportunity costs from among the resources selected to provide Regulation.

(d) In determining the Regulation market-clearing price, the estimated unit-specific opportunity costs of a resource offering to sell Regulation each hour shall be equal to the product of (i) the deviation of the set point of the resource that is expected to be required in order to provide Regulation from the resource's expected output level if it had been dispatched in economic merit order times (ii) the absolute value of the difference between the expected Locational Marginal Price at the generation bus for the resource and the offer price for energy from the resource (at the megawatt level of the Regulation set point for the resource) in the PJM Interchange Energy Market.

(e) In determining the credit under subsection (b) to a Generating Market Buyer selected to provide Regulation and that actively follows the Office of the Interconnection's Regulation signals and instructions, the unit-specific opportunity cost of a resource shall be determined for each hour that the Office of the Interconnection requires a resource to provide Regulation and shall be equal to the product of (i) the deviation of the resource's output necessary to follow the Office of the Interconnection's Regulation signals from the resource's expected output level if it had been dispatched in economic merit order times (ii) the absolute value of the difference between the Locational Marginal Price at the generation bus for the resource and the offer price for energy from the resource (at the megawatt level of the Regulation set point for the resource) in the PJM Interchange Energy Market.

(f) Any amounts credited for Regulation in an hour in excess of the Regulation market-clearing price in that hour shall be allocated and charged to each Internal Market Buyer that does not meet its hourly Regulation obligation in proportion to its purchases of Regulation in megawatt-hours during that hour.

3.2.3 Operating Reserves.

(a) A Market Seller's pool-scheduled resources capable of providing operating reserves shall be credited as specified below based on the prices offered for the operation of such resource, provided that the resource was available for the entire time specified in the Offer Data for such resource.

(b) The following determination shall be made for each pool-scheduled resource that is scheduled in the Day-ahead Energy Market: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the resource's scheduled output, shall be compared to the total value of that resource's Spot Market Energy as determined by the Day-ahead Energy Market and the Day-ahead Prices applicable to the relevant generation bus in the Day-ahead Energy Market. If the total offered price summed over all hours exceeds the total value summed over all hours, the difference shall be credited to the Market Seller.

(c) The sum of the foregoing credits calculated in accordance with Section 3.2.3(b) plus any unallocated charges from Section 3.2.3(h) and 5.1.7, shall be the cost of Operating Reserves in the Day-ahead Energy Market.

(d) The cost of Operating Reserves in the Day-ahead Energy Market shall be allocated and charged to each Market Participant in proportion to the sum of its (i) scheduled load and accepted Decrement Bids in the Day-ahead Energy Market in megawatt-hours for that Operating Day; and (ii) scheduled energy sales in the Day-ahead Energy Market from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours for that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

(e) At the end of each Operating Day, the following determination shall be made for each synchronized pool-scheduled resource of each Market Seller that operates as requested by the Office of the Interconnection and that is not committed solely for the purpose of providing spinning reserves: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the lesser of the resource's (i) hourly output as determined by the State Estimator or (ii) requested output as determined by the PJM dispatch. The total offered price shall be compared to the total value of that resource's energy in the Day-ahead Energy Market plus any credit or charge for quantity deviations, at PJM dispatch direction, from the Day-ahead Energy Market during the Operating Day. If the total offered price exceeds the total value, the difference less any credit as determined pursuant to Section 3.2.3(b) and less any amounts credited for Regulation in excess of the Regulation offer plus the resources opportunity cost, shall be credited to the Market Seller.

(f) A Market Seller's pool scheduled resource the output of which is reduced or suspended at the request of the Office of the Interconnection for the purpose of managing an Emergency within the PJM Control Area, shall be credited in an amount equal to (PAG - AG) x LT x (ULMP - UB) where:

PAG equals the actual generation of the unit for the five minute period preceding the request;

AG equals the actual generation of the unit until PJM cancels the request to reduce output;

LT equals the length of time that the request to reduce output was effective;

ULMP equals the LMP at the unit's bus;

UB equals the unit bid for the unit whose output is reduced or suspended; and

where ULMP - UB shall not be negative.

(g) The sum of the foregoing credits, plus any cancellation fees paid in accordance with Section 1.10.2(d) such cancellation fees to be applied to the Operating Day for which the unit was scheduled, less any payments received from another Control Area for Operating Reserves, shall be the cost of Operating Reserves for the Real-time Energy Market in each Operating Day.

(h) The cost of Operating Reserves for the Real-time Energy Market for each Operating Day shall be allocated and charged to each Market Participant in proportion to the sum of the absolute values of its (i) load deviations from the Day-ahead Energy Market in megawatt-hours during that Operating Day; (ii) generation deviations from the Day-ahead Energy Market for non-dispatchable generation resources, including External Resources, in megawatt-hours during the Operating Day; (iii) deviations from the Day-ahead Energy Market for bilateral transactions from outside the PJM Control Area for delivery within the PJM Control Area in megawatt-hours during the Operating Day; and (iv) deviations of energy sales from the Day-ahead Energy Market from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours during that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

(i) At the end of each Operating Day, Market Sellers shall be credited on the basis of their offered prices for synchronized condensing for any hydropower or combustion turbine units operated as synchronous condensers but producing no energy, as well as the credits calculated as specified in Section 3.2.3(b) for those generators committed solely for the purpose of providing spinning reserves, at the request of the Office of the Interconnection.

(j) The sum of the foregoing credits as specified in Section 3.2.3(b) shall be the cost of Operating Reserves for synchronized condensing for the Operating Day in the PJM Control Area.

(k) The cost of Operating Reserves for synchronized condensing for each Operating Day shall be allocated and charged to each Market Participant in proportion to the sum of its (i) deliveries of energy to load in the PJM Control Area, served under Network Transmission Service, in megawatt-hours during that Operating Day; and (ii) deliveries of energy sales from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours during that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

3.2.4 Transmission Congestion.

Each Market Buyer shall be charged or credited for Transmission Congestion Charges as specified in Section 5 of this Schedule.

3.2.5 Transmission Losses.

(a) Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for losses shall apply.

(b) Each Internal Market Buyer that is a Load Serving Entity or purchasing on behalf of a Load Serving Entity shall be credited in an amount equal to its pro rata share of the hourly total amounts collected from Transmission Customers either as charges for transmission losses in the PJM Control Area as specified in Section 3.4.2 or for transmission losses supplied in kind in accordance with Section 3.4.2(c) based on the Locational Marginal Price at the interface where such losses were delivered. This credit shall be determined by the ratio of the Internal Market Buyer's total hourly load, divided by the total hourly load in the PJM Control Area.

(c) PJM Control Area 500 kV losses shall be allocated to each Electric Distributor that reports hourly net energy flows from metered tie lines in proportion to its hourly load in the PJM Control Area.

3.2.6 Emergency Energy.

(a) Internal Market Buyers shall be allocated a proportionate share of the net cost of Emergency energy purchased by the Office of the Interconnection. Such allocated share shall be determined in proportion to the amount of net PJM Interchange Imports by each Internal Market Buyer during the hour of each such energy purchase.

(b) Net revenues in excess of Real-time Prices attributable to sales of energy in connection with Emergencies to other Control Areas shall be credited to Internal Market Buyers in proportion to the amount of net PJM Interchange Imports by each Internal Market Buyer during each hour of such energy sales.

(c) The costs, revenues, and energy associated with hourly energy purchased from another Control Area in connection with a Minimum Generation Emergency in such other Control Area, shall be allocated to each Internal Market Buyer in proportion to its load in the PJM Control Area during the hour of such purchases.

3.2.7 Billing.

(a) The Office of the Interconnection shall prepare a billing statement each billing cycle for each Market Buyer in accordance with the charges and credits specified in Sections 3.2.1 through 3.2.6 of this Schedule, and showing the net amount to be paid or received by the Market Buyer. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Market Buyer's internal accounting.

(b) If deliveries to a Market Buyer that has PJM Interchange meters in accordance with Section 14 of the Operating Agreement include amounts delivered for a Market Participant that does not have PJM Interchange meters separate from those of the metered Market Buyer, the Office of the Interconnection shall prepare a separate billing statement for the unmetered Market Participant based on the allocation of deliveries agreed upon between the Market Buyer and the unmetered Market Participant specified by them to the Office of the Interconnection.

3.3 Market Sellers.

Except as provided in the following sentence, the accounting and billing principles and procedures applicable to Generating Market Buyers functioning as Market Sellers shall be as set forth in Section 3.2. This Section sets forth the accounting and billing principles and procedures applicable to all other Market Sellers, and to Generating Market Buyers functioning as Market Sellers with respect to any matters not specified in Section 3.2.

3.3.1 Spot Market Energy.

(a) Market Sellers shall be paid for all energy scheduled to be delivered in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant generation bus.

(b) At the end of each hour during an Operating Day, the Office of the Interconnection shall determine the total net amount of energy delivered in the hour to the PJM Control Area by each of the Market Seller's resources, in accordance with the PJM Manuals and the calculation described in Section 3.2.1(f).

(c) The Office of the Interconnection shall calculate Day-ahead and Real-time Prices for each generation and load bus in the PJM Control Area, including the bus at each point of interconnection between the PJM Control Area and each adjacent Control Area, in accordance with Section 2 of this Schedule.

(d) A Market Seller shall be credited for real-time sales of Spot Market Energy to the extent of its hourly net deliveries to the PJM Control Area of energy in excess of amounts scheduled in the Day-ahead Energy Market from the Market Seller's resources. For pool External Resources, the Office of the Interconnection shall model, based on an appropriate flow analysis, the hourly amounts delivered from each such resource to the corresponding interface point between the PJM Control Area and adjacent Control Areas. The total real-time generation revenues for each Market Seller shall be the sum of its credits determined by the product of (i) the hourly net amount of energy delivered to the PJM Control Area at the applicable generation or interface bus in excess of the amount scheduled to be delivered in that hour at that bus in the Day-ahead Energy Market from each of the Market Seller's resources, times (ii) the hourly Real-time Price at that bus. To the extent that the energy actually injected at a generation or interface bus in any hour is less than the energy scheduled to be injected at that bus in the Day-ahead Energy Market, the Market Seller shall be debited for the difference at the Real-time Price for the applicable bus at the time of the shortfall times the amount of the shortfall. The total generation revenue for each Market Seller shall be the sum, for each of the Market Seller's generation or interface buses, of the revenues at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 3.3.1(a) plus the revenues at Real-time Prices determined as specified herein, net of any debits specified herein for each of the Market Seller's generation or interface buses.

3.3.2 Regulation.

Each Market Seller that is also an Internal Market Buyer shall have an hourly Regulation objective and shall be credited or charged in connection therewith as specified in Section 3.2.2. All other Market Sellers supplying Regulation at the direction of the Office of the Interconnection shall be credited for each increment of such Regulation at the price specified in Section 3.2.2(b), as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

3.3.3 Operating Reserves.

A Market Seller shall be credited for its pool-scheduled resources based on the prices offered for the operation of such resource, provided that the resource was available for the entire time specified in the Offer Data for such resource, in accordance with the procedures set forth in Section 3.2.3.

3.3.4 Emergency Energy.

The costs and net revenues associated with hourly energy sales to other Control Areas in connection with a Minimum Generation Emergency in the PJM Control Area shall be allocated to Market Sellers in proportion to their sales to the PJM Interchange Energy Market from generation resources within the metered boundaries of the PJM Control Area in each hour in which such energy was sold to other Control Areas.

3.3.5 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Market Seller in accordance with the charges and credits specified in Sections 3.3.1 through 3.3.4 of this Schedule, and showing the net amount to be paid or received by the Market Seller. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Market Seller's internal accounting.

3.4 Transmission Customers.

3.4.1 Transmission Congestion.

Each Transmission Customer shall be charged and credited for Transmission Congestion Charges as specified in Section 5 of this Schedule.

3.4.2 Transmission Losses.

(a) Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for losses shall apply.

(b) Transmission Customers shall be charged for transmission losses in an amount equal to the product of (i) the Transmission Customer's megawatt-hours of deliveries using Point-to-Point Transmission Service, times (ii) the appropriate loss factor for deliveries using Point-to-Point Transmission Service, times (iii) the weighted average Day-ahead or Real-time Price, as applicable, for all load busses in the PJM Control Area. The foregoing average hourly loss factor shall be: (i) determined by the Office of the Interconnection from time to time as conditions affecting losses shall warrant; and (ii) calculated separately for on-peak and off-peak hours on the basis of the average ratio of losses to load served in each such period.

(c) A Transmission Customer may elect to pay for losses in kind, rounded off to the nearest whole megawatt, rather than as specified above if its total deliveries in an hour using Point-to-Point Transmission Service are greater than 200 megawatts. If it so elects, the Transmission Customer's specified source for the energy to be delivered using Point-to-Point Transmission Service may be scheduled to supply to the PJM Control Area boundary an amount of energy equal to the delivery schedule plus the amount of losses determined by applying the appropriate hourly loss factor as specified above to the delivered amount.

3.4.3 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Transmission Customer in accordance with the charges and credits specified in Sections 3.4.1 through 3.4.2 of this Schedule, and showing the net amount to be paid or received by the Transmission Customer. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Transmission Customer's internal accounting.

3.5 Other Control Areas.

3.5.1 Energy Sales.

To the extent appropriate in accordance with Good Utility Practice, the Office of the Interconnection may sell energy to an interconnected Control Area as necessary to alleviate or end an Emergency in that Control Area. Such sales shall be made (i) only to Control Areas that have undertaken a commitment pursuant to a written agreement with the LLC to sell energy on a comparable basis to the PJM Control Area, and (ii) only to the extent consistent with the maintenance of reliability in the PJM Control Area. The Office of the Interconnection may decline to make such sales to a Control Area that the Office of the Interconnection determines does not have in place and implement Emergency procedures that are comparable to those followed in the PJM Control Area. If the Office of the Interconnection sells energy to an interconnected Control Area as necessary to alleviate or end an Emergency in that Control Area, such energy shall be sold at 150% of the Real-time Price at the bus or busses at the border of the PJM Control Area at which such energy is delivered.

3.5.2 Operating Margin Sales.

The extent appropriate in accordance with Good Utility Practice, the Office of the Interconnection may sell Operating Margin to an interconnected Control Area as requested to alleviate an operating contingency resulting from the affect of the purchasing Control Area's operations on the dispatch of resources in the PJM Control Area. Such sales shall be made only to Control Areas that have undertaken a commitment pursuant to a written agreement with the Office of the Interconnection (i) to purchase Operating Margin whenever the purchasing Control Area's operations will affect the dispatch of resources in the PJM Control Area, and (ii) to sell Operating Margin on a comparable basis to the LLC.

3.5.3 Transmission Congestion.

Each Control Area purchasing Operating Margin shall be assessed Transmission Congestion Charges as specified in Section 5.1.5 of this Schedule.

3.5.4 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Control Area to which Emergency energy or Operating Margin was sold, and showing the net amount to be paid by such Control Area. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts.

3.6 Metering Reconciliation.

3.6.1 Meter Correction Billing.

Metering errors and corrections will be reconciled at the end of each month by a meter correction charge or credit. The monthly meter correction charge or credit shall be determined by the product of the positive or negative deviation in energy amounts, times the weighted average Locational Marginal Price for all load busses in the PJM Control Area.

3.6.2 Meter Corrections Between Market Participants.

If a Market Participant or the Office of the Interconnection discovers a meter error affecting an interchange of energy with another Market Participant and makes the error known to such other Market Participant prior to the completion by the Office of the Interconnection of the accounting for the interchange, and if both Market Participants are willing to adjust hourly load records to compensate for the error and such adjustment does not affect other parties, an adjustment in load records may be made by the Market Participants in order to correct for the meter error, provided corrected information is furnished to the Office of the Interconnection in accordance with the Office of the Interconnection's accounting deadlines. No such adjustment may be made if the accounting for the Operating Day in which the interchange occurred has been completed by the Office of the Interconnection.

3.6.3 500 kV Meter Errors.

Billing cycle accounting for 500 kV transmission losses shall be adjusted to account for errors in meters on 500 kV Transmission Facilities.

3.6.4 Meter Corrections Between Control Areas.

An error between accounted for and metered interchange between a Party in the PJM Control Area and an entity in another Control Area shall be corrected by adjusting the hourly meter readings. If this is not practical, the error shall be accounted for by a correction at the end of the billing cycle. The Market Participant with ties to such other Control Area experiencing the error shall account for the full amount of the discrepancy and an appropriate debit or credit shall be applied equally among all Market Buyers. The Office of the Interconnection will adjust the actual interchange between the PJM Control Area and the other Control Area to maintain a proper record of inadvertent energy flow. Meter corrections on the 500 kV system between the PJM Control Area and other Control Areas shall be accounted for through the internal 500 kV system meter error allocation at the end of the billing cycle.

3.6.5 Meter Correction Data.

Meter error data shall be submitted to the Office of the Interconnection not later than noon on the second working day of the Office of the Interconnection after the end of the billing cycle applicable to the meter correction.

3.6.6 Correction Limits.

A Market Participant may not assert a claim for an adjustment in billing as a result of a meter error for any error discovered more than two years after the date on which the metering occurred. Any claim for an adjustment in billing as a result of a meter error shall be limited to bills for transactions occurring in the most recent annual accounting period of the billing Market Participant in which the meter error occurred, and the prior annual accounting period.

4. RATE TABLE

4.1 Offered Price Rates.

Spot Market Energy, Regulation, Operating Reserve, and Transmission Congestion are based on offers to the Office of the Interconnection specified in this Agreement.

4.2 Transmission Losses.

Average loss factors shall be as specified in the PJM Tariff.

4.3 Emergency Energy Purchases.

The pricing for Emergency energy purchases will be determined by the Office of the Interconnection and: (a) an adjacent Control Area, in accordance with an agreement between the Office of the Interconnection and such adjacent Control Area, or (b) a Member, in accordance with arrangements made by the Office of Interconnection to purchase energy offered by such Member from resources that are not Capacity Resources.

ANNUAL REVENUE REQUIREMENT FOR UGI UTILITIES, INC.

The revenue requirement for the UGI Utilities, Inc. transmission facilities included in the PP&L Group Zone under the pool-wide open-access transmission tariff of the Pennsylvania-New Jersey-Maryland Interconnection, L.L.C. shall be $2,896,000, subject to the outcome of the hearing in consolidated Dockets Nos. ER97-4829-000, *et al.*

The revenue requirement set forth above shall be modified if necessary to comply with the outcome of Dockets Nos. ER97-4829-000, *et al.*

The revenue requirement set forth herein (as it may be modified to comply with the outcome of Dockets Nos. ER97-4829-000, *et al.*) shall be UGI's revenue requirement for purposes of the distribution of revenues by PJM under Section 5.3 of the Transmission Owners Agreement, PJM Rate Schedule No. 22.

5. CALCULATION OF TRANSMISSION CONGESTION CHARGES AND CREDITS

5.1 Transmission Congestion Charge Calculation.

5.1.1 Calculation by Office of the Interconnection.

When the transmission system is operating under constrained conditions, the Office of the Interconnection shall calculate Transmission Congestion Charges for each Network Service User, the PJM Interchange Energy Market, and each Transmission Customer.

5.1.2 General.

The basis for the Transmission Congestion Charges shall be the differences in the Locational Marginal Prices between points of delivery and points of receipt, as determined in accordance with Section 2 of this Schedule.

5.1.3 Network Service User Calculation.

Each Network Service User shall be charged for the increased cost of energy incurred by it during each constrained hour to deliver the output of its firm Capacity Resources or other owned or contracted for resources, its firm bilateral purchases, and its non-firm bilateral purchases as to which it has elected to pay Transmission Congestion Charges. The Transmission Congestion Charge for deliveries from each such source shall be the Network Service User's hourly net bill less its hourly net PJM Interchange payments or sales as determined in accordance with Section 3.2.1 or Sections 3.3 and 3.3.1 of this Schedule.

5.1.4 Transmission Customer Calculation.

Each Transmission Customer using Firm Point-to-Point Transmission Service (as defined in the PJM Tariff), and each Transmission Customer using Non-Firm Point-to-Point Transmission Service (as defined in the PJM Tariff) that has elected to pay Transmission Congestion Charges, shall be charged for the increased cost of energy during constrained hours for the delivery of energy using Point-to-Point Transmission Service. Except as specified in this subsection, a Transmission Congestion Charge shall be assessed for transmission use scheduled in the Day-ahead Energy Market, calaculated as the amount to be delivered multiplied by the difference between the Day-ahead Price at the delivery point or PJM Control Area boundary delivery interface and the Day-ahead Price at the source point or PJM Control Area boundary source interface. Transmission Congestion Charges shall be assessed for real-time transmission use in excess of the amounts scheduled for each hour in the Day-ahead Energy Market, calculated as the excess amount multiplied by the difference between the Real-time Prices at the delivery point or PJM Control Area boundary delivery interface, and the Real-time Price at the source point or PJM Control Area boundary source interface. A Transmission Customer shall be credited for Transmission Congestion Charges for real-time transmission use falling below the amounts scheduled for each hour in the Day-ahead Energy Market, calculated as the shortfall amount multiplied by the difference between the Real-time Price at the delivery

point or PJM Control Area boundary delivery interface, and the Real-time Price at the source point or PJM Control Area boundary source interface. Real-time deviations from the Point-to-Point Transmission Service scheduled in the Day-ahead Energy Market shall be determined by the lesser of the real-time injection or withdrawal associated with such transmission service. The Transmission Congestion Charge for Market Sellers using point-to-point transmission service for deliveries out of the PJM Control Area from generating resources within the PJM Control Area shall be the amount of its net bill less the Market Seller's net hourly PJM Interchange payments or sales as determined in accordance with Section 3.3 of this Schedule.

5.1.5 Operating Margin Customer Calculation.

Each Control Area purchasing Operating Margin shall be assessed Transmission Congestion Charges for any the increase in the cost of energy resulting from the provision of Operating Margin. The Transmission Congestion Charge shall be the amount of Operating Margin purchased in an hour multiplied by the difference in the Locational Marginal Price at what would be the delivery interface and the Locational Marginal Price at what would be the source interface, if the operating contingency that was the basis for the purchase of Operating Margin had occurred in that hour. Operating Margin may be allocated among multiple source and delivery interfaces in accordance with an applicable load flow study.

5.1.6 Transmission Loading Relief Customer Calculation.

(a) Each Transmission Loading Relief Customer shall be assessed Transmission Congestion Charges for any increase in the cost of energy in the PJM Control Area resulting from its energy schedules over contract paths outside the PJM Control Area during Transmission Loading Relief.

(b) The Transmission Congestion Charge shall be the total amount of energy specified in such energy schedules multiplied by the difference between a Locational Marginal Price calculated by the Office of the Interconnection for the energy schedule source location specified in the NERC Interchange Distribution Calculator and a Locational Marginal Price calculated by the Office of the Interconnection for the energy schedule sink location specified in the NERC Interchange Distribution Calculator. Transmission Congestion Charges that are less than zero shall be set equal to zero for Transmission Loading Relief Customers.

(c) The Office of the Interconnection will determine the Locational Marginal Prices at the energy schedule source and sink locations external to PJM with reference to and based solely on the prices of energy in the PJM Control Area and at the interface buses between the PJM Control Area and adjacent Control Areas and the system conditions and actual power flow distributions as described by the PJM State Estimator program. The Office of the Interconnection will determine the Locational Marginal Prices at the external energy schedule source and sink locations and the resulting Congestion Charge based on the portion of the energy schedule that flows through the PJM Control Area as reflected by the flow distributions from the PJM State Estimator Program.

5.1.7 Total Transmission Congestion Charges.

The total Transmission Congestion Charges collected by the Office of the Interconnection each hour will be the aggregate net amounts determined as specified in this Schedule. The Office of the Interconnection shall collect Transmission Congestion Charges for each hour the transmission system operates under constrained conditions.

5.2 Transmission Congestion Credit Calculation.

5.2.1 Eligibility.

Each holder of a Fixed Transmission Right shall receive as a Transmission Congestion Credit a proportional share of the total Transmission Congestion Charges collected for each constrained hour.

5.2.2 Fixed Transmission Rights

(a) Transmission Congestion Credits will be calculated based upon the Fixed Transmission Rights held at the time of the constrained hour. Initial assignments of a Fixed Transmission Rights shall be made to each Network Service User and Transmission Customer, determined as specified below.

(b) On a periodic schedule established by the Office of the Interconnection, each Network Service User shall designate a subset of its Network Resources for which Fixed Transmission Rights will be assigned. Fixed Transmission Rights shall be assigned for each Network Resource in a number of megawatts equal to or less than the installed capacity summer megawatt rating of each designated Network Resource, determined at the PJM Control Area transmission bus at which the designated Network Resource is connected. Each Fixed Transmission Right shall be to the aggregate load busses of the Network Service User in a Zone or, with respect to Non-Zone Network Load, to the border of the PJM Control Area. The sum of each Network Service User's assigned Fixed Transmission Rights for a Zone must be equal to or less than the Network Service User's peak load for that Zone as determined under Section 34.1 of the Tariff. The sum of each Network Service User's Fixed Transmission Rights for Non-Zone Network Load must be equal to or less than the Network Service User's transmission responsibility for Non-Zone Network Load as determined under Section 34.1 of the Tariff.

(c) Each Transmission Customer receiving firm Point-to-Point Transmission Service shall be assigned Fixed Transmission Rights; provided, however, that a Transmission Customer may notify the Office of Interconnection that it does not wish to receive any FTRs or wishes to receive FTRs only for certain Point or Points of Receipt and Point or Points of Delivery, in which event no FTRs or such reduced amount of FTRs shall be issued to the Transmission Customer. The Fixed Transmission Right for each instance of Point-to-Point Transmission Service shall be a number of megawatts equal to the megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer has firm Point-to-Point Transmission Service.

(d) A Fixed Transmission Right, or the right to Transmission Congestion Credits attributable to a Fixed Transmission Right, may be sold or otherwise transferred by agreement, subject to compliance with such procedures as may be established by the Office of the Interconnection for verification of the rights of the purchaser or transferee.

5.2.3 Target Allocation for Network Service Users.

A target allocation of Transmission Congestion Credits for each Network Service User shall be determined for each of its Fixed Transmission Rights. Each Fixed Transmission Right shall be multiplied by the percent of the Network Service User's annual peak load assigned to each load bus multiplied by the difference calculated as the Network Service User's load bus Day-ahead Price minus the generation bus Day-ahead Price of the Network Resource associated with the Fixed Transmission Right. The total target allocation for each Fixed Transmission Right is the sum of the target allocations for each load bus. The total target allocation for each Network Service User for each hour is the sum of the total target allocations for each of the Network Service User's Fixed Transmission Rights.

5.2.4 Target Allocation for other Holders.

A target allocation of Transmission Congestion Credits for each Transmission Customer or entity holding an FTR acquired by other means shall be determined for each Fixed Transmission Right. Each Fixed Transmission Right shall be multiplied by the Day-ahead Price differences for the receipt and delivery points associated with the Fixed Transmission Right, calculated as the Day-ahead Price at the delivery point(s) minus the Locational Marginal Price at the receipt point(s). The total target allocation for the Transmission Customer for each hour shall be the sum of the target allocations associated with all of the Transmission Customer's Fixed Transmission Rights.

5.2.5 Calculation of Transmission Congestion Credits.

(a) The total of all the target allocations determined as specified above shall be compared to the total Transmission Congestion Charges in each hour resulting from both the Day-ahead Energy Market and the Real-time Energy Market. If the total of the target allocations is less than the total of the Transmission Congestion Charges, the Transmission Congestion Credit for each Network Service User and Transmission Customer shall be equal to its target allocation. All remaining Transmission Congestion Charges shall be distributed as described below in Section 5.2.6 "Distribution of Excess Congestion Charges."

(b) If the total of the target allocations is greater than the total Transmission Congestion Charges for the hour resulting from both the Day-ahead Energy Market and the Real-time Energy Market, each holder of Fixed Transmission Rights shall be assigned a share of the total Transmission Congestion Charges in proportion to its target allocations.

5.2.6 Distribution of Excess Congestion Charges.

(a) Excess Transmission Congestion Charges accumulated in a month shall be distributed to each holder of Fixed Transmission Rights in proportion to, but not more than, any deficiency in the share of Transmission Congestion Charges received by the holder during that month as compared to its total target allocations for the month.

Any excess Transmission Congestion Charges remaining at the end of a month shall be distributed to Network Service Users and Transmission Customers purchasing Firm Point-to-Point Transmission Service in proportion to their Demand Charges for Network Service and their charges for Reserved Capacity for Firm Point-to-Point Transmission Service.

5.3 Unscheduled Transmission Service (Loop Flow).

(a) When there are agreements between the Members (or the Office of the Interconnection on behalf of the Members) and others for compensation to be paid or received for unscheduled transmission service (loop flow) into or out of the PJM Control Area, the net compensation received shall be included in the total Transmission Congestion Charges that are distributed in accordance with Section 5.2.

(b) With respect to payments by the Office of Interconnection to the New York Power Pool for the installation and operation of phase angle regulating facilities at Ramapo to control or limit unscheduled transmission service (loop flow), each Transmission Owner with revenue requirements under the PJM Tariff shall pay a share of the charges on a transmission revenue requirements ratio share basis.

6. "MUST-RUN" FOR RELIABILITY GENERATION

6.1 Introduction.

The following procedures shall apply to any generation resource subject to the dispatch of the Office of the Interconnection that (a) is a generation resource for which construction commenced before July 9, 1996, and (b) as a result of transmission constraints, the Office of the Interconnection determines, in the exercise of Good Utility Practice, must be run in order to maintain the reliability of service in the PJM Control Area. The provisions of this Schedule shall otherwise apply to the scheduling, dispatch, operation and accounting treatment of such resources, to the extent not inconsistent with the provisions of this Section 6.

6.2 Identification of Facility Outages.

Not later than one hour prior to the deadline specified in Section 1.10.1 of this Schedule, the Office of the Interconnection shall identify on the PJM Open Access Same-Time Information System any facility outage or other system condition which it has determined may give rise to a transmission constraint that may require, in order to maintain system reliability, the dispatch of one or more generation resources that otherwise would not be dispatched based on the merits of their offers to the PJM Interchange Energy Market.

6.3 Dispatch for Local Reliability.

6.3.1 Request and Dispatch.

In addition to the dispatch of generation by the Office of the Interconnection to maintain reliability on transmission facilities directly monitored by it, a Member that owns or leases with rights equivalent to ownership Transmission Facilities as defined in this Agreement or the Transmission Owners Agreement and that operates a local control center in accordance with Section 11.3.3 of this Agreement or a Market Operations Center in accordance with Section 1.7.5 of this Schedule, may request the Office of the Interconnection to dispatch generation in order to maintain reliability on any such Transmission Facilities that are not then directly monitored by the Office of the Interconnection, subject to the rules and procedures in Section 6.3.2. The Office of the Interconnection shall dispatch generation to maintain reliability on such Transmission Facilities by incorporating the facilities in the State Estimator program described in Section 2.3 as set forth below, unless the Office of the Interconnection determines that such dispatch would adversely affect reliability in the PJM Control Area or would otherwise not be in accordance with Good Utility Practice.

6.3.2 Designation of Facilities.

The following rules and procedures shall apply to a Member request that the Office of the Interconnection dispatch generation on one or more Transmission Facilities that are not then directly monitored by the Office of the Interconnection.

a) The Transmission Facilities that are the subject of the request must be among the facilities that comprise the Transmission System under the PJM Tariff;

b) The Member shall provide modeling information for such Transmission Facilities and provide sufficient telemetry to the Office of the Interconnection such that power flows are observable by the State Estimator program described in Section 2.3; provided, however, that if an unreliable constrained condition exists and time does not permit such modeling and telemetry, the Member and the Office of the Interconnection may agree to use a representative surrogate for such Transmission Facilities in order to allocate the costs of the dispatch of generation using Locational Marginal Prices to maintain reliability on such Transmission Facilities, provided further that the Member shall expeditiously provide the modeling data and install the necessary facilities to incorporate the Transmission Facilities into the State Estimator program;

c) The request shall constitute a request that such Transmission Facilities become and remain monitored by the Office of the Interconnection and subject to its dispatch control for a period of not less than ninety (90) days;

d) The Member shall comply with all other operating procedures established by the Office of the Interconnection regarding dispatch for local reliability as set forth in the PJM Manuals.

6.4 Price Caps.

6.4.1 Applicability.

(a) Except as specified below, if in the day-ahead schedule determined by the Office of the Interconnection in accordance with Sections 1.10.8(a) and (b) of this Schedule any generation resource may be dispatched out of economic merit order to maintain system reliability as a result of limits on transmission capability, the prices for energy offered by such resource shall be capped at the levels specified below. If the Office of the Interconnection is able to do so, such prices shall be capped only during each hour when the transmission limit affects the schedule of the affected resource, and otherwise shall be capped for the entire Operating Day. The energy prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(b) The energy bid price offered by any generation resource requested to be dispatched in accordance with Section 6.3 of this Schedule shall be capped at the levels specified below. If the Office of the Interconnection is able to do so, such prices shall be capped only during each hour when the affected resource is so scheduled, and otherwise shall be capped for the entire Operating Day. The energy prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(c) Generation resources subject to a price cap shall be paid for energy at the applicable Locational Marginal Price.

(d) Price caps shall not be applicable to generation resources used to relieve the Western, Central and Eastern reactive limits in the PJM Control Area. In addition, price caps shall not be applicable to generation resources used to relieve any other transmission limit as to which the FERC has authorized the used of market based rates.

6.4.2 Level.

The price cap shall be one of the amounts specified below, as specified in advance by the Market Seller for the affected unit:

(i) The weighted average Locational Marginal Price at the generation bus at which energy from the capped resource was delivered during a specified number of hours during which the resource was dispatched for energy in economic merit order, the specified number of hours to be determined by the Office of the Interconnection and to be a number of hours sufficient to result in a price cap that reflects reasonably contemporaneous competitive market conditions for that unit;

(ii) The incremental operating cost of the generation resource as determined in accordance with Schedule 2 of this Agreement and the PJM Manuals, plus 10% of such costs; or

(ii) An amount determined by agreement between the Office of the Interconnection and the Market Seller.

7. FIXED TRANSMISSION RIGHTS AUCTIONS

7.1 Auctions of Fixed Transmission Rights.

Periodic auctions to allow Market Participants to acquire or sell Fixed Transmission Rights shall be conducted by the Office of the Interconnection in accordance with the provisions of this Section.

7.1.1 Auction Period and Scope of Auctions.

The period covered by an auction shall be the one-month period next following the date that the auction is conducted. The Office of the Interconnection shall offer for sale in the auction any remaining Fixed Transmission Rights capability for the month after taking into account all of the Fixed Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Fixed Transmission Right for the period covered by an auction may offer such Fixed Transmission Right for sale in such auction. Each monthly auction will consist of a separate auction for on-peak Fixed Transmission Rights and a separate auction for off-peak Fixed Transmission Rights. Market Participants may bid for and acquire any number of Fixed Transmission Rights, provided that all Fixed Transmission Rights awarded are simultaneously feasible with each other and with all Fixed Transmission Rights outstanding at the time of the auction and not sold into the auction.

7.1.2 Frequency and Time of Auctions.

Fixed Transmission Rights auctions shall be held monthly. The bid and offer period shall open at 12:00 midnight (Eastern Prevailing Time) on the fifteenth (15th) business day preceding the month for which Fixed Transmission Rights are being auctioned and shall close at 12:00 midnight (Eastern Prevailing Time) on the tenth (10th) business day preceding the month for which Fixed Transmission Rights are being auctioned.

7.1.3 Duration of Fixed Transmission Rights.

Each Fixed Transmission Right acquired in a Fixed Transmission Rights auction shall entitle the holder to credits of Transmission Congestion Charges for the one-month period for which the Fixed Transmission Rights were auctioned.

7.2 Fixed Transmission Rights Characteristics.

7.2.1 Reconfiguration of Fixed Transmission Rights.

Through an appropriate linear programming model, the Office of the Interconnection shall reconfigure the Fixed Transmission Rights offered or otherwise available for sale in any auction to maximize the value to the bidders of the Fixed Transmission Rights sold, provided that any Fixed Transmission Rights acquired at auction shall be simultaneously feasible in combination with those Fixed Transmission Rights outstanding at the time of the auction and not sold in the auction. The linear programming model shall, while respecting transmission constraints and the maximum MW quantities of the bids and offers, select the set of simultaneously feasible Fixed Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers.

7.2.2 Specified Buses.

Auction bids for Fixed Transmission Rights may specify any combination of receipt and delivery buses represented in the State Estimator model for which the Office of the Interconnection calculates and posts Locational Marginal Prices. Auction bids may specify receipt and delivery points from locations outside of the PJM Control Area to locations inside the PJM Control Area, from locations within the PJM Control Area to locations outside of the PJM Control Area, or to and from locations within the PJM Control Area.

7.2.3 Transmission Congestion Charges.

Fixed Transmission Rights, whether acquired at auction or otherwise, shall entitle holders thereof to credits only for Transmission Congestion Charges, and shall not confer a right to credits for payments arising from or relating to transmission congestion made to any entity other than the Office of the Interconnection.

7.3 Auction Procedures.

7.3.1 Role of the Office of the Interconnection.

Fixed Transmission Rights auctions shall be conducted by the Office of the Interconnection in accordance with standards and procedures set forth in the PJM Manuals, such standards and procedures to be consistent with the requirements of this Schedule.

7.3.2 Notice of Offer.

A holder of a Fixed Transmission Right wishing to offer the Fixed Transmission Right for sale shall notify the Office of the Interconnection of any Fixed Transmission Rights to be offered. Each Fixed Transmission Rights sold in an auction shall, at the end of the period for which the Fixed Transmission Rights were auctioned, revert to the offering holder or the entity to which the offering holder has transferred such Fixed Transmission Right, subject to the term of the Fixed Transmission Right itself and to the right of such holder or transferee to offer the Fixed Transmission Right in the next or any subsequent auction during the term of the Fixed Transmission Right.

7.3.3 Pending Applications for Firm Service.

(a) Prior to the start of each auction bidding period, the Office of the Interconnection shall exert reasonable effort to complete its review of pending applications for Network Transmission Service and Firm Point-to-Point Transmission Service and to ascertain the corresponding Fixed Transmission Rights to be assigned to the entities receiving such service, subject to compliance with all applicable deadlines and other procedures by the applicant. Fixed Transmission Rights so assigned shall be included in the simultaneous feasibility test performed by the Office of the Interconnection for the auction.

(b) Fixed Transmission Rights may be assigned to entities requesting Network Transmission Service or Firm Point-to-Point Transmission Service only if such Fixed Transmission Rights are simultaneously feasible with all outstanding Fixed Transmission Rights, including Fixed Transmission Rights effective for the then-current auction period. If an assignment of Fixed Transmission Rights pursuant to a pending application for Network Transmission Service or Firm Point-to-Point Transmission Service cannot be completed prior to an auction, Fixed Transmission Rights attributable to such transmission service shall not be assigned for the then-current auction period. If a Fixed Transmission Right cannot be assigned for this reason, the applicant may withdraw its application, or request that the Fixed Transmission Right be assigned effective with the start of the next auction period.

7.3.4 On-Peak and Off-Peak Periods.

The Office of the Interconnection will conduct separate auctions simultaneously for on-peak and off-peak periods. On-Peak Fixed Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending at 11:00 p.m. on Mondays through Fridays, except holidays as defined in the PJM Manuals. Off-Peak Fixed Transmission Rights shall cover the periods from 11:00 p.m. up to the hour ending 7:00 a.m. on Mondays through Fridays and all hours on Saturdays, Sundays, and holidays as defined in the PJM Manuals. Each bid shall specify whether it is for an on-peak or off-peak period.

7.3.5 Offers and Bids.

(a) Offers to sell and bids to purchase Fixed Transmission Rights shall be submitted during the period set forth in Section 7.1.2, and shall be in the form specified by the Office of the Interconnection in accordance with the requirements set forth below.

(b) Offers to sell shall identify the specific Fixed Transmission Right, by megawatt quantity and receipt and delivery points, offered for sale. An offer to sell a specified megawatt quantity of Fixed Transmission Rights shall constitute an offer to sell a quantity of Fixed Transmission Rights equal to or less than the specified quantity. An offer to sell may not specify a minimum quantity being offered. Each offer may specify a reservation price, below which the offeror does not wish to sell the Fixed Transmission Right. Offers submitted by entities holding rights to Fixed Transmission Rights acquired other than by assignment in connection with reservations of Network Transmission Service or Firm Point-to-Point Transmission Service shall be subject to such reasonable standards for the verification of the rights of the offeror as may be established by the Office of the Interconnection. Offers shall be subject to such reasonable standards for the creditworthiness of the offeror or for the posting of security for performance as the Office of the Interconnection shall establish.

(c) Bids to purchase shall specify the megawatt quantity, price per megawatt, and receipt and delivery points of the Fixed Transmission Right that the bidder wishes to purchase. A bid to purchase a specified megawatt quantity of Fixed Transmission Rights shall constitute a bid to purchase a quantity of Fixed Transmission Rights equal to or less than the specified quantity. A bid to purchase may not specify a minimum quantity that the bidder whishes to purchase. A bid may specify as receipt or delivery points any bus for which the Office of the Interconnection calculates and posts Locational Marginal Prices in accordance with Section 2 of this Schedule and may include Fixed Transmission Rights for which the associated Transmission Congestion Credits may have negative values. Bids shall be subject to such reasonable standards for the creditworthiness of the bidder or for the posting of security for performance as the Office of the Interconnection shall establish.

(d) Bids and offers shall be specified to the nearest tenth of a megawatt and shall be greater than zero.

7.3.6 Determination of Winning Bids and Clearing Price.

(a) At the close of the bidding period each month, the Office of the Interconnection will create a base Fixed Transmission Rights power flow model that includes all outstanding Fixed Transmission Rights that have been approved and confirmed for any portion of the month for which the auction was conducted and that were not offered for sale in the auction. The base Fixed Transmission Rights model also will include estimated uncompensated parallel flows into each interface point of the PJM Control Area and estimated scheduled transmission outages.

(b) In accordance with the requirements of Section 7.4 of this Schedule and subject to all applicable transmission constraints and reliability requirements, the Office of the Interconnection shall determine the simultaneous feasibility of all outstanding Fixed Transmission Rights not offered for sale in the auction and of all Fixed Transmission Rights that could be awarded in the auction for which bids were submitted. The winning bids shall be determined from an appropriate linear programming model that, while respecting transmission constraints and the maximum MW quantities of the bids and offers, selects the set of simultaneously feasible Fixed Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers. In the event that there are two or more identical bids for the selected Fixed Transmission Rights and there are insufficient Fixed Transmission Rights to accommodate all of the identical bids, then each such bidder will receive a pro rata share of the Fixed Transmission Rights that can be awarded.

(c) Fixed Transmission Rights shall be sold at the market-clearing price for Fixed Transmission Rights between specified pairs of receipt and delivery points, as determined by the bid value of the marginal Fixed Transmission Right that could not be awarded because it would not be simultaneously feasible. The linear programming model shall determine the clearing prices of all Fixed Transmission Rights paths based on the bid value of the marginal Fixed Transmission Rights, which are those Fixed Transmission Rights with the highest bid values that could not be awarded fully because they were not simultaneously feasible, and based on the flow sensitivities of each Fixed Transmission Rights path relative to the marginal Fixed Transmission Rights paths flow sensitivities on the binding transmission constraints.

7.3.7 Announcement of Winners and Prices.

Within two (2) business days after the close of an auction, the Office of the Interconnection shall post the winning bidders, the megawatt quantity, and the receipt and delivery points for each Fixed Transmission Right awarded in the auction and the price at which each Fixed Transmission Right was awarded. Results of the on-peak auction and off-peak auction will be posted separately. The Office of the Interconnection shall not disclose the price specified in any bid to purchase or the reservation price specified in any offer to sell.

7.3.8 Auction Settlements.

All buyers and sellers of Fixed Transmission Rights between the same points of receipt and delivery shall pay or be paid the market-clearing price, as determined in the auction, for such Fixed Transmission Rights.

7.3.9 Allocation of Auction Revenues.

All auction revenues, net of payments to entities selling Fixed Transmission Rights into the auction, shall be allocated among the Regional Transmission owners in proportion to their respective transmission revenue requirements.

7.4 Simultaneous Feasibility.

The Office of the Interconnection shall make the simultaneous feasibility determinations specified herein using appropriate powerflow models of contingency-constrained dispatch. Such determinations shall take into account outages of both individual generation units and transmission facilities and shall be based on reasonable assumptions about the configuration and availability of transmission capability during the period covered by the auction that are not inconsistent with the determination of the deliverability of Capacity Resources under the Reliability Assurance Agreement. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Transmission Congestion Charges to satisfy all Fixed Transmission Rights obligations for the auction period under expected conditions.

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TABLE OF CONTENTS

I. COMMON SERVICE PROVISIONS 15

1 Definitions 15

1.1 Ancillary Services 15
1.2 Annual Transmission Costs 15
1.3 Application 15
1.3a Attachment Facilities 15
1.3b Capacity Interconnection Rights 15
1.3c Capacity Resources 15
1.4 Commission 15
1.5 Completed Application 15
1.6 Control Area 15
1.7 Curtailment 16
1.8 Delivering Party 16
1.9 Designated Agent 16
1.10 Direct Assignment Facilities 16
1.11 Eligible Customer ..... ~~16~~17
1.11a Energy Resource 17
1.12 Facilities Study 17
1.12a Feasibility Study 17
1.13 Firm Point-To-Point Transmission Service 17
1.14 Good Utility Practice 17
1.14a Interconnection Agreement 17a
1.14b Interconnection Customer 17a
1.14c Interconnection Request 17a
1.14d Interconnection Service Agreement 17a
1.15 Interruption 17a
1.16 Load Ratio Share 17a
1.17 Load Shedding 17a
1.17a Local Upgrades 17a
1.18 Long-Term Firm Point-To-Point Transmission Service 17a
1.18a MAAC 17b
1.19 Native Load Customers 17b
1.19a NERC 18
1.20 Network Customer 18
1.21 Network Integration Transmission Service 18
1.22 Network Load 18
1.23 Network Operating Agreement 18
1.24 Network Operating Committee 18
1.25 Network Resource 18
1.26 Network Upgrades 19
1.27 Non-Firm Point-To-Point Transmission Service 19
1.27a Non-Zone Network Load 19
1.27b Office of the Interconnection 19

1.28 Open Access Same-Time Information System (OASIS) 19
1.28a Operating Agreement of the PJM Interconnection, L.L.C 19
1.29 Part I 19
1.30 Part II 19
1.31 Part III 19
1.32 Parties 20
1.32a PJM Control Area 20
1.32b PJM Manuals 20
1.33 Point(s) of Delivery 20
1.34 Point(s) of Receipt 20
1.35 Point-To-Point Transmission Service 20
1.36 Power Purchaser 20
1.37 Receiving Party 20
1.37a Regional Transmission Extension Plan 20
1.38 Regional Transmission Group (RTG) 21
1.38a Regional Transmission Owner or RTO 21
1.38b Reliability Assurance Agreement 21
1.39 Reserved Capacity 21
1.40 Service Agreement 21
1.41 Service Commencement Date 21
1.42 Short-Term Firm Point-To-Point Transmission Service 21
1.42a State 21a
1.43 System Impact Study 21a
1.44 Third-Party Sale 21a
1.45 Transmission Customer 21a
1.46 Transmission Provider 22
1.47 Transmission Provider's Monthly Transmission System Peak 22
1.48 Transmission Service 22
1.49 Transmission System 22
1.49a Zone 22

2 Initial Allocation and Renewal Procedures 22a
2.1 Initial Allocation of Available Transmission Capability 22a
2.2 Reservation Priority For Existing Firm Service Customers 22a
2.3 Reservation Priority For State Regional Retail Access Program Load 23

3 Ancillary Services 23
3.1 Scheduling, System Control and Dispatch Service 24
3.2 Reactive Supply and Voltage Control from Generation Sources Service 24
3.3 Regulation and Frequency Response Service 24
3.4 Energy Imbalance Service 24
3.5 Operating Reserve - Spinning Reserve Service 24
3.6 Operating Reserve - Supplemental Reserve Service 24

4 Open Access Same-Time Information System (OASIS) 24

5 Local Furnishing Bonds 25
5.1 RTOs That Own Facilities Financed by Local Furnishing Bonds 25
5.2 Alternative Procedures for Requesting Transmission Service 25

6 **Reciprocity** 26
7 **Billing and Payment** 26
7.1 Billing Procedure 26
7.2 Interest on Unpaid Balances 27
7.3 Customer Default 27
8 **Accounting for an RTO's Use of the Tariff** 27a
8.1 Transmission Revenues 27a
8.2 Study Costs and Revenues 27a
8.3 Generation Interconnection Costs 28
9 **Regulatory Filings** 28
10 **Force Majeure and Indemnification** 28
10.1 Force Majeure 28
10.2 Indemnification 29
11 **Creditworthiness** 29
12 **Dispute Resolution Procedures** 29
12.1 Internal Dispute Resolution Procedures 29
12.2 External Arbitration Procedures 30
12.3 Arbitration Decisions 30
12.4 Costs 30
12.5 Rights Under The Federal Power Act 31

II. **POINT-TO-POINT TRANSMISSION SERVICE**

Preamble 32
13 **Nature of Firm Point-To-Point Transmission Service** 32
13.1 Term. 32
13.2 Reservation Priority. 32
13.3 Use of Firm Transmission Service by an RTO 33
13.4 Service Agreements 33
13.5 Transmission Customer Obligations for Facility Additions or Redispatch Costs 33
13.6 Curtailment of Firm Transmission Service. 34
13.6a Load Shedding 34
13.7 Classification of Firm Transmission Service 34a
13.8 Scheduling of Firm Point-To-Point Transmission Service. 36
14 **Nature of Non-Firm Point-To-Point Transmission Service** 36
14.1 Term. 36
14.2 Reservation Priority 36
14.3 Use of Non-Firm Point-To-Point Transmission Service by an RTO 37
14.4 Service Agreements 37
14.5 Classification of Non-Firm Point-To-Point Transmission Service. 37
14.6 Scheduling of Non-Firm Point-To-Point Transmission Service. 38
14.7 Curtailment or Interruption of Service 38
15 **Service Availability** 39
15.1 General Conditions 39

15.2 Determination of Available Transmission Capability. 40
15.3 Initiating Service in the Absence of an Executed Service Agreement. 40
15.4 Obligation to Provide Transmission Service that Requires Expansion or Modification of the Transmission System 40
15.5 Deferral of Service 41
15.6 Other Transmission Service Schedules 41
15.7 Real Power Losses 41
16 Transmission Customer Responsibilities 41
16.1 Conditions Required of Transmission Customers 41
16.2 Transmission Customer Responsibility for Third-Party Arrangements 42
17 Procedures for Arranging Firm Point-To-Point Transmission Service. 42
17.1 Application 42
17.2 Completed Application 43
17.3 Deposit 44
17.4 Notice of Deficient Application 45
17.5 Response to a Completed Application 45
17.6 Execution of Service Agreement 45
17.7 Extensions for Commencement of Service. 45a
17.8 Reservation of Short-Term Firm Point-To-Point Transmission Service 46
17.9 Increases in Transmission Capability for Short-Term Transmission Service.....46
18 Procedures for Arranging Non-Firm Point-To-Point Transmission Service. 46a
18.1 Application 46a
18.2 Completed Application 46a
18.3 Reservation of Non-Firm Point-To-Point Transmission Service 47
18.4 Determination of Available Transmission Capability 47a
19 Additional Study Procedures For Firm Point-To-Point Transmission Service Requests 48
19.1 Notice of Need for System Impact Study 48
19.2 System Impact Study Agreement and Cost Reimbursement 48
19.3 System Impact Study Procedures 49
19.4 Facilities Study Procedures.....49a
19.5 Facilities Study Modifications 50
19.6 Due Diligence in Completing New Facilities 51
19.7 Partial Interim Service 51
19.8 Expedited Procedures for New Facilities 51
19.9 Supply of Data 51a
20 Procedures if The Affected RTOs Are Unable to Complete New Transmission Facilities for Firm Point-To-Point Transmission Service 52
20.1 Delays in Construction of New Facilities 52

20.2 Alternatives to the Original Facility Additions 52
20.3 Refund Obligation for Unfinished Facility Additions 52
20.4 Supply of Data 53
21 Provisions Relating to Transmission Construction and Services on the Systems of Other Utilities 53
21.1 Responsibility for Third-Party System Additions 53
21.2 Coordination of Third-Party System Additions 53
22 Changes in Service Specifications 54
22.1 Modifications On a Non-Firm Basis 54
22.2 Modification On a Firm Basis 54
23 Sale or Assignment of Transmission Service 55
23.1 Procedures for Assignment or Transfer of Service. 55
23.2 Limitations on Assignment or Transfer of Service 55
23.3 Information on Assignment or Transfer of Service 56
24 Metering and Power Factor Correction at Receipt and Delivery Points(s) 56
24.1 Transmission Customer Obligations 56
24.2 Transmission Provider Access to Metering Data 56
24.3 Power Factor 56
25 Compensation for Transmission Service 56
26 Stranded Cost Recovery 56
27 Compensation for New Facilities and Redispatch Costs 56
27.1 New Facilities and Redispatch 57
27.2 Redispatch Using Locational Marginal Prices 57
27a Distribution of Revenues from Non-Firm Point-to-Point Transmission Service 57

III. NETWORK INTEGRATION TRANSMISSION SERVICE

Preamble 58
28 Nature of Network Integration Transmission Service 58
28.1 Scope of Service 58
28.2 Transmission Provider Responsibilities. 58
28.3 Network Integration Transmission Service. 59
28.4 Secondary Service 59
28.5 Real Power Losses 59
28.6 Restrictions on Use of Service 59
29 Initiating Service 59
29.1 Condition Precedent for Receiving Service 59
29.2 Application Procedures. 60
29.3 Technical Arrangements to be Completed Prior to Commencement of Service 63
29.4 Network Customer Facilities 63
29.5 Filing of Service Agreement 63
30 Network Resources 63a
30.1 Designation of Network Resources 63a

30.2 Designation of New Network Resources. 63a
30.3 Termination of Network Resources. 64
30.4 Operation of Network Resources. 64
30.5 Network Customer Redispatch Obligation. 64
30.6 Transmission Arrangements for Network Resources Not Physically Interconnected With The Transmission Provider 64
30.7 Limitation on Designation of Network Resources 64
30.8 Use of Interface Capacity by the Network Customer 65
30.9 Network Customer Owned Transmission Facilities. 65
31 Designation of Network Load 65
31.1 Network Load. 65
31.2 New Network Loads Connected With the Transmission Provider 65a
31.3 Network Load Not Physically Interconnected with the Transmission Provider 66
31.4 New Interconnection Points. 66
31.5 Changes in Service Requests 66
31.6 Annual Load and Resource Information Updates. 66
32 Additional Study Procedures For Network Integration Transmission Service Requests 67
32.1 Notice of Need for System Impact Study. 67
32.2 System Impact Study Agreement and Cost Reimbursement 67
32.3 System Impact Study Procedures. 68
32.4 Facilities Study Procedures 69
32.5 Supply of Data 69a
33 Load Shedding and Curtailments 69a
33.1 Procedures 69a
33.2 Transmission Constraints 70
33.3 Cost Responsibility for Relieving Transmission Constraints. 70
33.4 Curtailments of Scheduled Deliveries 70
33.5 Allocation of Curtailments. 70
33.6 Load Shedding. 71
33.7 System Reliability. 71
34 Rates and Charges 71
34.1 Monthly Demand Charge 72
34.2 ~~Determination of Network Customer's Monthly Network Load~~[Reserved]. 72a
34.3 ~~Determination of Transmission Provider's Monthly Transmission System Load~~ [Reserved] 72a
34.4 Redispatch Charge 73
34.5 Stranded Cost Recovery 73
35 Operating Arrangements 73
35.1 Operation under The Network Operating Agreement 73
35.2 Network Operating Agreement 73
35.3 Network Operating Committee 74

IV. GENERATION INTERCONNECTION 74a
Preamble 74a
36 Interconnection Request 74a
36.1 Interconnection Request 74a
36.2 Feasibility Study 74b
36.3 System Impact Study Agreement 74b
36.3.1 Study Agreement 74c
36.3.2 Deposit and Other Information 74c
36.4 System Impact Study Procedures 74c
36.4.1 Scope of Studies 74d
36.4.2 Completion of Studies 74d
36.5 Initial System Impact Studies 74e
36.6 Facilities Study Agreement 74e
36.6.1 Study Agreement 74e
36.6.2 Deposit and Allocation of Costs 74e
36.7 Facilities Study Procedures 74f
36.8 Interconnection Service Agreement 74f
36.8.1 Cost Reimbursement 74g
36.8.2 Capacity Interconnection Rights 74g
36.8.3 Specification of RTOs Responsible for Facilities and Upgrades 74g
36.8.4 Retaining Priority and Security 74g
36.8.5 Milestones 74i
36.8.6 Filing of Interconnection Service Agreement and Commencement of Construction 74i
36.9 Interconnection Agreement 74j
36.10 Priority of Requests 74j
36.11 Responsibilities of the Transmission Provider and RTOs 74j
36.12 Requests Under 10 Megawatts 74j
37 Cost Responsibility for Necessary Facilities and Upgrades 74k
37.1 Attachment Facilities 74k
37.2 Local and Network Upgrades 74k
37.3 Additional Upgrades 74k
37.4 Specification of Costs in Interconnection Service Agreement 74l
37.5 Addition to the Regional Transmission Expansion Plan 74l
38 Confidentiality 74l
39 Grandfathered Requests 74l
39.1 Priority Assigned 74l
39.2 Procedures for Assigning Earlier Priority to Pre-existing Interconnection Plans 74m
40 Transmission Owner Construction Obligation for Necessary Facilities and Upgrades 74m
40.1 Construction Obligation 74m
40.2 Alternative Facilities and Upgrades 74n
41 Capacity Interconnection Rights 74n
41.1 Purpose 74n

41.2 Receipt of Capacity Interconnection Rights 74n
41.3 Loss of Capacity Interconnection Rights 74o
41.3.1 Operational Standards 74o
41.3.2 Failure to Meet Operational Standards 74o
41.3.3 Replacement of Generation 74o
41.4 Transfer of Capacity Interconnection Rights 74o

SCHEDULE 1 75
Scheduling, System Control and Dispatch Service 75

SCHEDULE 1A 75a
RTO Scheduling, System Control and Dispatch Service 75a

SCHEDULE 2 76
Reactive Supply and Voltage Control from Generation Sources Service 76

SCHEDULE 3 77
Regulation and Frequency Response Service 77

SCHEDULE 4 80
Energy Imbalance Service 80

SCHEDULE 5 82
Operating Reserve - Spinning Reserve Service 82

SCHEDULE 6 83
Operating Reserve - Supplemental Reserve Service 83

SCHEDULE 7 84
Long-Term Firm and Short-Term Firm Point-To-Point Transmission Service 84

SCHEDULE 8 86
Non-Firm Point-To-Point Transmission Service 86

ATTACHMENT A
Form of Service Agreement For
Firm Point-To-Point Transmission Service 88

ATTACHMENT B
Form of Service Agreement For Non-Firm Point-To-Point
Transmission Service 93

ATTACHMENT C
Methodology To Assess Available Transfer Capability 97

Revised:
Effective:

ATTACHMENT D
Methodology for Completing a System Impact Study 100

ATTACHMENT E
Index of Point-To-Point Transmission Service Customers 102

ATTACHMENT F
Service Agreement For
Network Integration Transmission Service 103

ATTACHMENT F-1
Form of Umbrellas Service Agreement for
Network Integration Transmission Service
Under State Required Retail Access Programs 108a

ATTACHMENT G
Network Operating Agreement 109

ATTACHMENT H-1
Annual Transmission Rates -- Atlantic City Electric Company
for Network Integration Transmission Service 110

ATTACHMENT H-2
Annual Transmission Rates -- Baltimore Gas and Electric Company
for Network Integration Transmission Service 111

ATTACHMENT H-3
Annual Transmission Rates -- Delmarva Power & Light Company
for Network Integration Transmission Service 112

ATTACHMENT H-4
Annual Transmission Rates -- Jersey Central Power & Light Company
for Network Integration Transmission Service 113

ATTACHMENT H-5
Annual Transmission Rates -- Metropolitan Edison Company
for Network Integration Transmission Service 114

ATTACHMENT H-6
Annual Transmission Rates -- Pennsylvania Electric Company
for Network Integration Transmission Service 115

ATTACHMENT H-7
Annual Transmission Rates -- PECO Energy Company
for Network Integration Transmission Service 116

ATTACHMENT H-8
Annual Transmission Rates -- Pennsylvania Power & Light Company Group
for Network Integration Transmission Service 117

ATTACHMENT H-9
Annual Transmission Rates -- Potomac Electric Power Company
for Network Integration Transmission Service 118

ATTACHMENT H-10
Annual Transmission Rates -- Public Service Electric and Gas Company
for Network Integration Transmission Service 119

ATTACHMENT H-11
Annual Transmission Rate -- Non-Zone Network Load
for Network Integration Transmission Service 119a

ATTACHMENT I
Index of Network Integration Transmission Service Customers 120

ATTACHMENT J
PJM Control Area Transmission Zones 121

ATTACHMENT K
Transmission Congestion Charges and Credits 122
ATTACHMENT K -- APPENDIX 129
1. MARKET OPERATIONS 129
1.1 Introduction 129
1.2 Cost-based Offers 129
1.3 Definitions 129
1.3.1 Day-ahead Energy Market 129
1.3.1a Day-ahead Prices 129
1.3.1b Decrement Bid 129
1.3.1c Dispatch Rate ..... ~~129~~ 130
1.3.2 Equivalent Load 130
1.3.3 External Market Buyer 130
1.3.4 External Resource 130
1.3.5 Fixed Transmission Right 130
1.3.6 Generating Market Buyer 130
1.3.7 Generator Forced Outage 130
1.3.8 Generator Maintenance Outage 130
1.3.9 Generator Planned Outage 131
1.3.9a Increment Bid 131
1.3.10 Internal Market Buyer 131
1.3.11 Inadvertent Interchange 131
1.3.12 Market Operations Center 131
1.3.13 Maximum Generation Emergency 131

Revised:
Effective:

1.3.14 Minimum Generation Emergency 131
1.3.14aNERC Interchange Distribution Calculator 131
1.3.15 Network Resource .....~~131~~132
1.3.16 Network Service User 132
1.3.17 Network Transmission Service 132
1.3.18 Normal Maximum Generation 132
1.3.19 Normal Minimum Generation 132
1.3.20 Offer Data 132
1.3.21 Office of the Interconnection Control Center 132
1.3.22 Operating Day 132
1.3.23 Operating Margin 133
1.3.24 Operating Margin Customer 133
1.3.25 PJM Interchange 133
1.3.26 PJM Interchange Export 133
1.3.27 PJM Interchange Import 134
1.3.28 PJM Open Access Same-time Information System 134
1.3.29 Point-to-Point Transmission Service 134
1.3.30 Ramping Capability 134
1.3.30a Real-time Prices 134
1.3.30b Real-time Energy Market 134
1.3.31 Regulation 134
~~1.3.32 Regulation Class~~ .....~~134~~
1.3.32aSpot Market Backup .....~~134a~~135
1.3.33 Spot Market Energy .....~~134a~~135
1.3.33a State Estimator 135
1.3.34 Transmission Congestion Charge .....~~134a~~135
1.3.35 Transmission Congestion Credit 135
1.3.36 Transmission Customer 135
1.3.37 Transmission Forced Outage 135
1.3.37aTransmission Loading Relief 135
1.3.37bTransmission Loading Relief Customer .....~~135~~136
1.3.38 Transmission Planned Outage .....~~135~~136
1.4 Market Buyers .....~~135~~136
1.4.1 Qualification .....~~135~~136
1.4.2 Submission of Information .....~~136~~137
1.4.3 Fees and Costs .....~~137~~138
1.4.4 Office of the Interconnection Determination .....~~137~~138
1.4.5 Existing Participants .....~~137~~138
1.4.6 Withdrawal .....~~137~~138
1.5 Market Sellers .....~~138~~139
1.5.1 Qualification .....~~138~~139
1.5.2 Withdrawal .....~~138~~139
1.6 Office of the Interconnection 139
1.6.1 Operation of the PJM Interchange Energy Market 139
1.6.2 Scope of Services .....~~139~~140

1.6.3 Records and Reports ..... ~~140~~141
1.6.4 PJM Manuals ..... ~~140~~141
1.7 General ..... ~~140~~141
1.7.1 Market Sellers ..... ~~140~~141
1.7.2 Market Buyers 141
1.7.3 Agents 141
1.7.4 General Obligations of the Market Participants ..... ~~141~~142
1.7.5 Market Operations Center 143
1.7.6 Scheduling and Dispatching 143
1.7.7 Pricing ..... ~~143~~144
1.7.8 Generating Market Buyer Resources ..... ~~143~~144
1.7.9 Delivery to an External Market Buyer 144
1.7.10 Other Transactions 144
1.7.11 Emergencies ..... ~~144~~145
1.7.12 Fees and Charges 145
1.7.13 Relationship to PJM Control Area 145
1.7.14 PJM Manuals 145
1.7.15 Corrective Action 145
1.7.16 Recording ..... ~~145~~146
1.7.17 Operating Reserves ..... ~~145~~146
1.7.18 Regulation ..... ~~146~~147
1.7.19 Ramping ..... ~~146~~147
1.7.20 Communication and Operating Requirements ..... ~~146~~147
~~1.7.21 Multi-settlement System ..... 147~~
1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process ..... ~~148~~149
1.8.1 PJM Dispute Resolution Agreement ..... ~~148~~149
1.8.2 Market or Control Area Hourly Operational Disputes ..... ~~148~~149
1.9 Prescheduling ..... ~~149~~150
1.9.1 Outage Scheduling ..... ~~149~~150
1.9.2 Planned Outages ..... ~~149~~150
1.9.3 Generator Maintenance Outages ..... ~~150~~151
1.9.4 Forced Outages ..... ~~150~~151
1.9.5 Market Participant Responsibilities ..... ~~151~~152
1.9.6 Internal Market Buyer Responsibilities ..... ~~151~~152
1.9.7 Market Seller Responsibilities ..... ~~151~~152
1.9.8 Office of the Interconnection Responsibilities 152
1.10 Scheduling ..... ~~152~~153
1.10.1 General 153
1.10.1a Day-Ahead Energy Market Scheduling ..... ~~152~~154
1.10.2 Pool-Scheduled Resources ..... ~~155~~157
1.10.3 Self-scheduled Resources ..... ~~156~~157
1.10.4 Capacity Resources ..... ~~156~~158
1.10.5 External Resources ..... ~~157~~158
1.10.6 External Market Buyers ..... ~~158~~159
1.10.6A Transmission Loading Relief Customers ..... ~~158~~159
1.10.7 Bilateral Transactions ..... ~~159~~160

1.10.8 Office of the Interconnection Responsibilities ..... ~~159~~160
1.10.9 Hourly Scheduling ..... ~~160~~161
1.11 Dispatch ..... ~~160~~162
1.11.1 Resource Output ..... ~~161~~163
1.11.2 Operating Basis ..... ~~161~~163
1.11.3 Pool-dispatched Resources ..... ~~161~~163
1.11.3aMaximum Generation Emergency ..... ~~161~~163
1.11.4 Regulation ..... ~~162~~163
1.11.5 PJM Open Access Same-time Information System ..... ~~162~~164
1.12 Dynamic Scheduling 164

2. CALCULATION OF LOCATIONAL MARGINAL PRICES ..... ~~163~~165
2.1 Introduction ..... ~~163~~165
2.2 General ..... ~~163~~165
2.3 Determination of System Conditions Using the State Estimator ..... ~~164~~166
2.4 Determination of Energy Offers Used in Calculating ~~Locational Marginal~~ Real-time Prices ..... ~~164~~166
2.5 Calculation of ~~Locational Marginal~~ Real-time Prices ..... ~~165~~167
2.6 Calculation of Day-ahead Prices 168
2.~~6~~7 Performance Evaluation ..... ~~166~~168

3. ACCOUNTING AND BILLING ..... ~~167~~169
3.1 Introduction ..... ~~167~~169
3.2 Market Buyers ..... ~~167~~169
3.2.1 Spot Market Energy ..... ~~167~~169
3.2.2 Regulation ..... ~~169~~171
3.2.3 Operating Reserves ..... ~~169~~172
3.2.4 Transmission Congestion ..... ~~170~~174
3.2.5 Transmission Losses ..... ~~170~~174
3.2.6 Emergency Energy ..... ~~170~~175
3.2.7 Billing ..... ~~171~~175
3.3 Market Sellers ..... ~~171~~175
3.3.1 Spot Market Energy ..... ~~171~~176
3.3.2 Regulation ..... ~~172~~176
3.3.3 Operating Reserves ..... ~~172~~177
3.3.4 Emergency Energy ..... ~~172~~177
3.3.5 Billing ..... ~~172~~177
3.4 Transmission Customers ..... ~~173~~177
3.4.1 Transmission Congestion ..... ~~173~~177
3.4.2 Transmission Losses ..... ~~173~~177
3.4.3 Billing ..... ~~173~~178
3.5 Other Control Areas ..... ~~174~~178
3.5.1 Energy Sales ..... ~~174~~178
3.5.2 Operating Margin Sales ..... ~~174~~178
3.5.3 Transmission Congestion ..... ~~174~~178
3.5.4 Billing ..... ~~174~~179

Revised:
Effective:

3.6 Metering Reconciliation ..... ~~175~~179
3.6.1 Meter Correction Billing ..... ~~175~~179
3.6.2 Meter Corrections Between Market Participants ..... ~~175~~179
3.6.3 500 kV Meter Errors ..... ~~175~~179
3.6.4 Meter Corrections Between Control Areas ..... ~~175~~179
3.6.5 Meter Correction Data ..... ~~175~~179
3.6.6 Correction Limits ..... ~~176~~180

4. RATE TABLE ..... ~~177~~181
4.1 Offered Price Rates ..... ~~177~~181
4.2 Transmission Losses ..... ~~177~~181
4.3 Emergency Energy Purchases ..... ~~177~~181

ANNUAL REVENUE REQUIREMENT FOR UGI UTILITIES, INC ..... ~~177a~~181a

5. CALCULATION OF TRANSMISSION CONGESTION CHARGES AND CREDITS ..... ~~178~~181b
5.1 Transmission Congestion Charge Calculation ..... ~~178~~181b
5.1.1 Calculation by Office of the Interconnection ..... ~~178~~181b
5.1.2 General ..... ~~178~~181b
5.1.3 Network Service User Calculation ..... ~~178~~181b
5.1.4 Transmission Customer Calculation ..... ~~178~~181b
5.1.5 Operating Margin Customer Calculation ..... ~~179~~181c
5.1.6 Transmission Loading Relief Customer Calculation ..... ~~179~~181c
5.1.7 Total Transmission Congestion Charges ..... ~~179~~181d
5.2 Transmission Congestion Credit Calculation ..... ~~179~~181d
5.2.1 Eligibility ..... ~~179~~181d
5.2.2 Fixed Transmission Rights ..... ~~179a~~181d
5.2.3 Target Allocation for Network Service Users ..... ~~180~~181e
5.2.4 Target Allocation for other Holders ..... ~~180~~181e
5.2.5 Calculation of Transmission Congestion Credits 181e
5.2.6 Distribution of Excess Congestion Charges 181e
5.3 Unscheduled Transmission Service (Loop Flow) 181f

6. "MUST-RUN" FOR RELIABILITY GENERATION ..... 181~~a~~g
6.1 Introduction ..... 181~~a~~g
6.2 Identification of Facility Outages ..... 181~~a~~g
6.3 Dispatch for Local Reliability ..... 181~~a~~g
6.3.1 Request and Dispatch ..... 181~~a~~g
6.3.2 Designation of Facilities ..... 181~~a~~g
6.4 Price Caps ..... 181~~a~~h
6.4.1 Applicability ..... 181~~a~~h
6.4.2 Level ..... 181~~a~~i

7. FIXED TRANSMISSION RIGHTS AUCTIONS ..... 181~~b~~j
7.1 Auctions of Fixed Transmission Rights ..... 181~~b~~j
7.1.1 Auction Period and Scope of Auctions ..... 181~~b~~j
7.1.2 Frequency and Time of Auctions ..... 181~~b~~j

7.1.3 Duration of Fixed Transmission Rights ..... 181~~b~~j
7.2 Fixed Transmission Rights Characteristics ..... 181~~c~~j
7.2.1 Reconfiguration of Fixed Transmission Rights ..... 181~~c~~j
7.2.2 Specified Buses ..... 181~~c~~k
7.2.3 Transmission Congestion Charges ..... 181~~c~~k
7.3 Auction Procedures ..... 181~~c~~k
7.3.1 Role of the Office of the Interconnection ..... 181~~c~~k
7.3.2 Notice of Offer ..... 181~~c~~k
7.3.3 Pending Applications for Firm Service ..... 181~~d~~k
7.3.4 On-Peak and Off-Peak Periods ..... 181~~d~~l
7.3.5 Offers and Bids ..... 181~~e~~l
7.3.6 Determination of Winning Bids and Clearing Price ..... 181~~f~~m
7.3.7 Announcements of Winners and Prices ..... 181~~f~~n
7.3.8 Auction Settlements ..... 181~~g~~n
7.3.9 Allocation of Auction Revenues ..... 181~~g~~n
7.4 Simultaneous Feasibility ..... 181~~g~~n

ATTACHMENT L
List of Regional Transmission Owners 182

NOTICE OF AMENDMENT OF THE PJM INTERCONNECTION L.L.C. TARIFF TO ADOPT NERC TRANSMISSION LOADING RELIEF PROCEDURES 183

ATTACHMENT M
PJM Market Monitoring Plan 184

ATTACHMENT M GPU
Energy Procedure Manual for Determining
Supplier Total Hourly Energy Obligation 191

ATTACHMENT N GPU
Energy Procedure Manual for Determining
Supplier Peak Load Share 205

ATTACHMENT N
Form of
Feasibility Study Agreement 241

ANNEX 1
NERC Transmission Loading
Relief Procedure

ATTACHMENT K -- APPENDIX

Preface. The provisions of the Appendix incorporate into the Tariff for ease of reference the provisions of Schedule 1 of the Operating Agreement. As a result, this Appendix will be modified, subject to the approval of the Federal Energy Regulatory Commission, so that the terms and conditions set forth herein remain consistent with the corresponding terms and conditions of Schedule 1 of the Operating Agreement. All references in this Appendix to "Agreement" or "Schedules" are references to the Operating Agreement and the schedules thereto unless otherwise noted. References to Schedule 1 are references to this Appendix.

1. MARKET OPERATIONS

1.1 Introduction.

This Schedule sets forth the scheduling, other procedures, and certain general provisions applicable to the operation of the PJM Interchange Energy Market within the PJM Control Area. This Schedule addresses each of the three time-frames pertinent to the daily operation of the PJM Interchange Energy Market: Prescheduling, Scheduling, and Dispatch.

1.2 Cost-based Offers.

Unless and until the FERC shall authorize the use of market-based prices in the PJM Interchange Energy Market, all offers for energy or other services to be sold on the PJM Interchange Energy Market from generating resources located within the PJM Control Area shall not exceed the variable cost of producing such energy or other service, as determined in accordance with Schedule 2 to this Agreement and applicable regulatory standards, requirements and determinations; provided that, a Market Seller may offer to the PJM Interchange Energy Market the right to call on energy from a resource the output of which has been sold on a bilateral basis, with the rate for such energy if called equal to the curtailment rate specified in the bilateral contract.

1.3 Definitions.

1.3.1 Day-ahead Energy Market.

"Day-ahead Energy Market" shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Section 1.10 of this Schedule.

1.3.1a Day-ahead Prices.

"Day-ahead Prices" shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

1.3.1b Decrement Bid.

"Decrement Bid" shall mean a bid to purchase energy at a specified location in the Day-ahead Energy Market. An accepted Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

1.3.1c **Dispatch Rate.**

"Dispatch Rate" shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

1.3.2 Equivalent Load.

"Equivalent Load" shall mean the sum of a Market Participant's net system requirements to serve its customer load in the PJM Control Area, if any, plus its net bilateral transactions.

1.3.3 External Market Buyer.

"External Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users outside the PJM Control Area, or for load in the Control Area that is not served by Network Transmission Service.

1.3.4 External Resource.

"External Resource" shall mean a generation resource located outside the metered boundaries of the PJM Control Area.

1.3.5 Fixed Transmission Right.

"Fixed Transmission Right" shall mean a right to receive Transmission Congestion Credits as specified in Section 5.2.2 of this Schedule.

1.3.6 Generating Market Buyer.

"Generating Market Buyer" shall mean an Internal Market Buyer that is a Load Serving Entity that owns or has contractual rights to the output of generation resources capable of serving the Market Buyer's load in the PJM Control Area, or of selling energy or related services in the PJM Interchange Energy Market or elsewhere.

1.3.7 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.

1.3.8 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 necessary repairs on specific components of the facility, if removal of the facility meets the guidelines specified in the PJM Manuals.

1.3.9 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.

1.3.9a Increment Bid.

"Increment Bid" shall mean an offer to sell energy at a specified location in the Day-ahead Energy Market. An accepted Increment Bid results in scheduled generation at the specified location in the Day-ahead Energy Market.

1.3.10 Internal Market Buyer.

"Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for ultimate consumption by end-users inside the PJM Control Area that are served by Network Transmission Service.

1.3.11 Inadvertent Interchange.

"Inadvertent Interchange" shall mean the difference between net actual energy flow and net scheduled energy flow into or out of the PJM Control Area, as determined and allocated each hour by the Office of the Interconnection in accordance with the procedures set forth in the PJM Manuals to each Electric Distributor that reports to the Office of the Interconnection its hourly net energy flows from metered tie lines.

1.3.12 Market Operations Center.

"Market Operations Center" shall mean the equipment, facilities and personnel used by or on behalf of a Market Participant to communicate and coordinate with the Office of the Interconnection in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Control Area.

1.3.13 Maximum Generation Emergency.

"Maximum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more Capacity Resources to operate at its maximum net or gross electrical power output, subject to the equipment stress limits for such Capacity Resource, in order to manage, alleviate, or end the Emergency.

1.3.14 Minimum Generation Emergency.

"Minimum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more generating resources to operate at or below Normal Minimum Generation, in order to manage, alleviate, or end the Emergency.

1.3.14a NERC Interchange Distribution Calculator.

"NERC Interchange Distribution Calculator" shall mean the NERC mechanism that is in effect and being used to calculate the distribution of energy, over specific transmission interfaces, from energy transactions.

1.3.15 Network Resource.

"Network Resource" shall have the meaning specified in the PJM Tariff.

1.3.16 Network Service User.

"Network Service User" shall mean an entity using Network Transmission Service.

1.3.17 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 Regional Transmission Owner as that term is defined in the PJM Tariff.

1.3.18 Normal Maximum Generation.

"Normal Maximum Generation" shall mean the highest output level of a generating resource under normal operating conditions.

1.3.19 Normal Minimum Generation.

"Normal Minimum Generation" shall mean the lowest output level of a generating resource under normal operating conditions.

1.3.20 Offer Data.

"Offer Data" shall mean the scheduling, operations planning, dispatch, new resource, and other data and information necessary to schedule and dispatch generation resources for the provision of energy and other services and the maintenance of the reliability and security of the transmission system in the PJM Control Area, and specified for submission to the PJM Interchange Energy Market for such purposes by the Office of the Interconnection.

1.3.21 Office of the Interconnection Control Center.

"Office of the Interconnection Control Center" shall mean the equipment, facilities and personnel used by the Office of the Interconnection to coordinate and direct the operation of the PJM Control Area and to administer the PJM Interchange Energy Market, including facilities and equipment used to communicate and coordinate with the Market Participants in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Control Area.

1.3.22 Operating Day.

"Operating Day" shall mean the daily 24 hour period beginning at midnight for which transactions on the PJM Interchange Energy Market are scheduled.

1.3.23 Operating Margin.

"Operating Margin" shall mean the incremental adjustments, measured in megawatts, required in PJM Control Area operations in order to accommodate, on a first contingency basis, an operating contingency in the PJM Control Area resulting from operations in an interconnected Control Area. Such adjustments may result in constraints causing Transmission Congestion Charges, or may result in Ancillary Services charges pursuant to the PJM Tariff.

1.3.24 Operating Margin Customer.

"Operating Margin Customer" shall mean a Control Area purchasing Operating Margin pursuant to an agreement between such other Control Area and the LLC.

1.3.25 PJM Interchange.

"PJM Interchange" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load exceeds, or is exceeded by, the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup; or (c) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the hourly net metered output of any other Market Seller; or (e) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer; or (f) the hourly scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

1.3.26 PJM Interchange Export.

"PJM Interchange Export" shall mean the following, as determined in accordance with Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load is exceeded by the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup sales; or (c) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the hourly net metered output of any other Market Seller.

1.3.27 PJM Interchange Import.

"PJM Interchange Import" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load exceeds the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup purchases; or (c) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer; or (d) the hourly scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

1.3.28 PJM Open Access Same-time Information System.

"PJM Open Access Same-time Information System" shall mean the electronic communication system for the collection and dissemination of information about transmission services in the PJM Control Area, established and operated by the Office of the Interconnection in accordance with FERC standards and requirements.

1.3.29 Point-to-Point Transmission Service.

"Point-to-Point Transmission Service" shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Part II of the PJM Tariff.

1.3.30 Ramping Capability.

"Ramping Capability" shall mean the sustained rate of change of generator output, in megawatts per minute.

1.3.30a Real-time Prices.

"Real-time Prices" shall mean the Locational Marginal Prices resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

1.3.30b Real-time Energy Market.

"Real-time Energy Market" shall mean the purchase or sale of energy and payment of Transmission Congestion Charges for quantity deviations from the Day-ahead Energy Market in the Operating Day.

1.3.31 Regulation.

"Regulation" shall mean the capability of a specific generating unit with appropriate telecommunications, control and response capability to increase or decrease its output in response to a regulating control signal, in accordance with the specifications in the PJM Manuals.

1.3.32 Spot Market Backup.

"Spot Market Backup" shall mean the purchase of energy from, or the delivery of energy to, the PJM Interchange Energy Market in quantities sufficient to complete the delivery or receipt obligations of a bilateral contract that has been curtailed or interrupted for any reason.

1.3.33 Spot Market Energy.

"Spot Market Energy" shall mean energy bought or sold by Market Participants through the PJM Interchange Energy Market at Locational Marginal Prices determined as specified in Section 2 of this Schedule.

1.3.33a State Estimator.

"State Estimator" shall mean the computer model of power flows specified in Section 2.3 of this Schedule.

1.3.34 Transmission Congestion Charge.

"Transmission Congestion Charge" shall mean a charge attributable to the increased cost of energy delivered at a given load bus when the transmission system serving that load bus is operating under constrained conditions, which shall be calculated and allocated as specified in Section 5.1 of this Schedule.

1.3.35 Transmission Congestion Credit.

"Transmission Congestion Credit" shall mean the allocated share of total Transmission Congestion Charges credited to each holder of Fixed Transmission Rights, calculated and allocated as specified in Section 5.2 of this Schedule.

1.3.36 Transmission Customer.

"Transmission Customer" shall mean an entity using Point-to-Point Transmission Service.

1.3.37 Transmission Forced Outage.

"Transmission Forced Outage" shall mean an immediate removal from service of a transmission facility by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the transmission facility, as specified in the relevant portions of the PJM Manuals. A removal from service of a transmission facility at the request of the Office of the Interconnection to improve transmission capability shall not constitute a Forced Transmission Outage.

1.3.37a Transmission Loading Relief.

"Transmission Loading Relief" shall mean NERC's procedures for preventing operating security limit violations, as implemented by PJM as the security coordinator responsible for maintaining transmission security for the PJM Control Area.

1.3.37b Transmission Loading Relief Customer.

"Transmission Loading Relief Customer" shall mean an entity that, in accordance with Section 1.10.6A, has elected to pay Transmission Congestion Charges during Transmission Loading Relief in order to continue energy schedules over contract paths outside the PJM Control Area that are increasing the cost of energy in the PJM Control Area.

1.3.38 Transmission Planned Outage.

"Transmission Planned Outage" shall mean any transmission outage scheduled in advance for a pre-determined duration and which meets the notification requirements for such outages specified in the PJM Manuals.

1.4 Market Buyers.

1.4.1 Qualification.

(a) To become a Market Buyer, an entity shall submit an application to the Office of the Interconnection, in such form as shall be established by the Office of the Interconnection.

(b) An applicant that is a Load Serving Entity or that will purchase on behalf of or for ultimate delivery to a Load Serving Entity shall establish to the satisfaction of the Office of the Interconnection that the end-users that will be served through energy and related services purchased in the PJM Interchange Energy Market, are located electrically within the PJM Control Area, or will be brought within the PJM Control Area prior to any purchases from the PJM Interchange Energy Market. Such applicant shall further demonstrate that:

i) The Load Serving Entity for the end users is obligated to meet the requirements of the Reliability Assurance Agreement; and

ii) The Load Serving Entity for the end users has arrangements in place for Network Transmission Service or Point-To-Point Transmission Service for all PJM Interchange Energy Market purchases.

(c) An applicant that is not a Load Serving Entity or purchasing on behalf of or for ultimate delivery to a Load Serving Entity shall demonstrate that:

i) The applicant has obtained or will obtain Network Transmission Service or Point-To-Point Transmission Service for all PJM Interchange Energy Market purchases; and

ii) The applicant's PJM Interchange Energy Market purchases will ultimately be delivered to a load in another Control Area that is recognized by NERC and that complies with NERC's standards for operating and planning reliable bulk electric systems.

(d) An applicant shall not be required to obtain transmission service for purchases from the PJM Interchange Energy Market to cover quantity deviations from its sales in the Day-ahead Energy Market.

(e) All applicants shall demonstrate that:

i) The applicant is capable of complying with all applicable metering, data storage and transmission, and other reliability, operation, planning and accounting standards and requirements for the operation of the PJM Control Area and the PJM Interchange Energy Market;

ii) The applicant meets the creditworthiness standards established by the Office of the Interconnection, or has provided a letter of credit or other form of security acceptable to the Office of the Interconnection; and

iii) The applicant has paid all applicable fees and reimbursed the Office of the Interconnection for all unusual or extraordinary costs of processing and evaluating its application to become a Market Buyer, and has agreed in its application to subject any disputes arising from its application to the PJM Dispute Resolution Procedures.

(e) The applicant shall become a Market Buyer upon a final favorable determination on its application by the Office of the Interconnection as specified below, and execution by the applicant of counterparts of this Agreement.

1.4.2 Submission of Information.

The applicant shall furnish all information reasonably requested by the Office of the Interconnection in order to determine the applicant's qualification to be a Market Buyer. The Office of the Interconnection may waive the submission of information relating to any of the foregoing criteria, to the extent the information in the Office of the Interconnection's possession is sufficient to evaluate the application against such criteria.

1.4.3 Fees and Costs.

The Office of the Interconnection shall require all applicants to become a Market Buyer to pay a uniform application fee, initially in the amount of $1,500, to defray the ordinary costs of processing such applications. The application fee shall be revised from time to time as the Office of the Interconnection shall determine to be necessary to recover its ordinary costs of processing applications. Any unusual or extraordinary costs incurred by the Office of the Interconnection in processing an application shall be reimbursed by the applicant.

1.4.4 Office of the Interconnection Determination.

Upon submission of the information specified above, and such other information as shall reasonably be requested by the Office of the Interconnection, the Office of the Interconnection shall undertake an evaluation and investigation to determine whether the applicant meets the criteria specified above. As soon as practicable, but in any event not later than 60 days after submission of the foregoing information, or such later date as may be necessary to satisfy the requirements of the Reliability Assurance Agreement, the Office of the Interconnection shall notify the applicant and the members of the Members Committee of its determination, along with a written summary of the basis for the determination. The Office of the Interconnection shall respond promptly to any reasonable and timely request by a Member for additional information regarding the basis for the Office of the Interconnection's determination, and shall take such action as it shall deem appropriate in response to any request for reconsideration or other action submitted to the Office of the Interconnection not later than 30 days from the initial notification to the Members Committee.

1.4.5 Existing Participants.

Any entity that was qualified to participate as a Market Buyer in the PJM Interchange Energy Market under the Operating Agreement of PJM Interconnection L.L.C. in effect immediately prior to the Effective Date shall continue to be qualified to participate as a Market Buyer in the PJM Interchange Energy Market under this Agreement.

1.4.6 Withdrawal.

(a) An Internal Market Buyer that is a Load Serving Entity may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal not earlier than the effective date of (i) its withdrawal from the Reliability Assurance Agreement, or (ii) the assumption of its obligations under the Reliability Assurance Agreement by an agent that is a Market Buyer.

(b) An External Market Buyer or an Internal Market Buyer that is not a Load Serving Entity may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal at least one day after the date of the notice.

(c) Withdrawal from this Agreement shall not relieve a Market Buyer of any obligation to pay for electric energy or related services purchased from the PJM Interchange Energy Market prior to such withdrawal, to pay its share of any fees and charges incurred or assessed by the Office of the Interconnection prior to the date of such withdrawal, or to fulfill any obligation to provide indemnification for the consequences of acts, omissions or events occurring prior to such withdrawal; and provided, further, that withdrawal from this Agreement shall not relieve any Market Buyer of any obligations it may have under, or constitute withdrawal from, any other Related PJM Agreement.

(d) A Market Buyer that has withdrawn from this Agreement may reapply to become a Market Buyer in accordance with the provisions of this Section 1.4, provided it is not in default of any obligation incurred under this Agreement.

1.5 Market Sellers.

1.5.1 Qualification.

A Member that demonstrates to the Office of the Interconnection that the Member meets the standards for the issuance of an order mandating the provision of transmission service under section 211 of the Federal Power Act, as amended by the Energy Policy Act of 1992, may become a Market Seller upon execution of this Agreement and submission to the Office of the Interconnection of the applicable Offer Data in accordance with the provisions of this Schedule. All Members that are Market Buyers shall become Market Sellers upon submission to the Office of the Interconnection of the applicable Offer Data in accordance with the provisions of this Schedule.

1.5.2 Withdrawal.

(a) A Market Seller may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal at least one day after the date of the notice; provided, however, that withdrawal shall not relieve a Market Seller of any obligation to deliver electric energy or related services to the PJM Interchange Energy Market pursuant to an offer made prior to such withdrawal, to pay its share of any fees and charges incurred or assessed by the Office of the Interconnection prior to the date of such withdrawal, or to fulfill any obligation to provide indemnification for the consequences of acts, omissions, or events occurring prior to such withdrawal; and provided, further, that withdrawal shall not relieve any entity that is a Market Seller and is also a Market Buyer of any obligations it may have as a Market Buyer under, or constitute withdrawal as a Market Buyer from, this Agreement or any other Related PJM Agreement.

(b) A Market Seller that has withdrawn from this Agreement may reapply to become a Market Seller at any time, provided it is not in default with respect to any obligation incurred under this Agreement.

1.6 Office of the Interconnection.

1.6.1 Operation of the PJM Interchange Energy Market.

The Office of the Interconnection shall operate the PJM Interchange Energy Market in accordance with this Agreement.

1.6.2 Scope of Services.

The Office of the Interconnection shall, on behalf of the Market Participants, perform the services pertaining to the PJM Interchange Energy Market specified in this Agreement, including but not limited to the following:

i) Administer the PJM Interchange Energy Market as part of the PJM Control Area, including scheduling and dispatching of generation resources, accounting for transactions, rendering bills to the Market Participants, receiving payments from and disbursing payments to the Market Participants, maintaining appropriate records, and monitoring the compliance of Market Participants with the provisions of this Agreement, all in accordance with applicable provisions of the Office of the Interconnection Agreement, and the Schedules to this Agreement;

ii) Review and evaluate the qualification of entities to be Market Buyers or Market Sellers under applicable provisions of this Agreement;

iii) Coordinate, in accordance with applicable provisions of this Agreement, the Reliability Assurance Agreement, and the Transmission Owners Agreement, maintenance schedules for generation and transmission resources operated as part of the PJM Control Area;

iv) Provide or coordinate the provision of ancillary services necessary for the operation of PJM Control Area or the PJM Interchange Energy Market;

v) Determine and declare that an Emergency is expected to exist, exists, or has ceased to exist, in all or any part of the PJM Control Area, or in another Control Area interconnected directly or indirectly with the PJM Control Area, and serve as a primary point of contact for interested state or federal agencies;

vi) Enter into (a) agreements for the transfer of energy in conditions constituting an Emergency in the PJM Control Area or in a Control Area interconnected with it, and the mutual provision of other support in such Emergency conditions with other Control Areas interconnected with the PJM Control Area and (b) purchases of Emergency energy offered by Members from resources that are not Capacity Resources in conditions constituting an Emergency in the PJM Control Area;

vii) Coordinate the curtailment or shedding of load, or other measures appropriate to alleviate an Emergency, in order to preserve reliability in accordance with NERC and MAAC principles, guidelines and standards, and to ensure the operation of the PJM Control Area in accordance with Good Utility Practice and the this Agreement;

viii) Protect confidential information as specified in this Agreement; and

ix) Send a representative to meetings of the Members Committee or other Committees, subcommittees, or working groups specified in this Agreement or formed by the Members Committee when requested to do so by the chair or other head of such committee or other group.

1.6.3 Records and Reports.

The Office of the Interconnection shall prepare and maintain such records and prepare such reports, including, but not limited to quarterly budget reports, as are required to document the performance of its obligations to the Market Participants hereunder in a form adopted by the Office of the Interconnection upon consideration of the advice and recommendations of the Members Committee. The Office of the Interconnection shall also produce special reports reasonably requested by the Members Committee and consistent with FERC's standards of conduct; provided, however, the Market Participants shall reimburse the Office of the Interconnection for the costs of producing any such report. Notwithstanding the foregoing, the Office of the Interconnection shall not be required to disclose confidential or commercially sensitive information in any such report.

1.6.4 PJM Manuals.

The Office of the Interconnection shall prepare, maintain and update the PJM Manuals consistent with this Agreement. The PJM Manuals shall be available for inspection by the Market Participants, regulatory authorities with jurisdiction over the LLC or any Member, and the public.

1.7 General.

1.7.1 Market Sellers.

Only Market Sellers shall be eligible to submit offers to the Office of the Interconnection for the sale of electric energy or related services in the PJM Interchange Energy Market. Market Sellers shall comply with the prices, terms, and operating characteristics of all Offer Data submitted to and accepted by the PJM Interchange Energy Market.

1.7.2 Market Buyers.

Only Market Buyers shall be eligible to purchase energy or related services in the PJM Interchange Energy Market. Market Buyers shall comply with all requirements for making purchases from the PJM Interchange Energy Market.

1.7.3 Agents.

A Market Participant may participate in the PJM Interchange Energy Market through an agent, provided that the Market Participant informs the Office of the Interconnection in advance in writing of the appointment of such agent. A Market Participant participating in the PJM Interchange Energy Market through an agent shall be bound by all of the acts or representations of such agent with respect to transactions in the PJM Interchange Energy Market, and shall ensure that any such agent complies with the requirements of this Agreement.

1.7.4 General Obligations of the Market Participants.

(a) In performing its obligations to the Office of the Interconnection hereunder, each Market Participant shall at all times (i) follow Good Utility Practice, (ii) comply with all applicable laws and regulations, (iii) comply with the applicable principles, guidelines, standards and requirements of FERC, NERC and MAAC, (iv) comply with the procedures established for operation of the PJM Interchange Energy Market and PJM Control Area and (v) cooperate with the Office of the Interconnection as necessary for the operation of the PJM Control Area in a safe, reliable manner consistent with Good Utility Practice.

(b) Market Participants shall undertake all operations in or affecting the PJM Interchange Energy Market and the PJM Control Area, including but not limited to compliance with all Emergency procedures, in accordance with the power and authority of the Office of the Interconnection with respect to the operation of the PJM Interchange Energy Market and the PJM Control Area as established in this Agreement, and as specified in the Schedules to this Agreement and the PJM Manuals. Failure to comply with the foregoing operational requirements shall subject a Market Participant to such reasonable charges or other remedies or sanctions for non-compliance as may be established by the PJM Board, including legal or regulatory proceedings as authorized by the PJM Board to enforce the obligations of this Agreement.

The Office of the Interconnection may establish such committees with a representative of each Market Participant, and the Market Participants agree to provide appropriately qualified personnel for such committees, as may be necessary for the Office of the Interconnection to perform its obligations hereunder.

(d) All Market Participants shall provide to the Office of the Interconnection the scheduling and other information specified in the Schedules to this Agreement, and such other information as the Office of the Interconnection may reasonably require for the reliable and efficient operation of the PJM Control Area and the PJM Interchange Energy Market, and for compliance with applicable regulatory requirements for posting market and related information. Such information shall be provided as much in advance as possible, but in no event later than the deadlines established by the Schedules to this Agreement, or by the Office of the Interconnection in conformance with such Schedules. Such information shall include, but not be limited to, maintenance and other anticipated outages of generation or transmission facilities, scheduling and related information on bilateral transactions and self-scheduled resources, and implementation of active load management, interruption of load, and other load reduction measures. The Office of the Interconnection shall abide by appropriate requirements for the non-disclosure and protection of any confidential or proprietary information given to the Office of the Interconnection by a Market Participant. Each Market Participant shall maintain or cause to be maintained compatible information and communications systems, as specified by the Office of the Interconnection, required to transmit scheduling, dispatch, or other time-sensitive information to the Office of the Interconnection in a timely manner.

(e) Each Market Participant shall install and operate, or shall otherwise arrange for, metering and related equipment capable of recording and transmitting all voice and data communications reasonably necessary for the Office of the Interconnection to perform the services specified in this Agreement. A Market Participant that elects to be separately billed for its PJM Interchange shall, to the extent necessary, be individually metered in accordance with Section 14 of this Agreement, or shall agree upon an allocation of PJM Interchange between it and the Market Participant through whose meters the unmetered Market Participant's PJM Interchange is delivered. The Office of the Interconnection shall be notified of the allocation by the foregoing Market Participants.

(f) Each Market Participant shall operate, or shall cause to be operated, any generating resources owned or controlled by such Market Participant that are within the PJM Control Area or otherwise supplying energy to or through the PJM Control Area in a manner that is consistent with the standards, requirements or directions of the Office of the Interconnection and that will permit the Office of the Interconnection to perform its obligations under this Agreement; provided, however, no Market Participant shall be required to take any action that is inconsistent with Good Utility Practice or applicable law.

(g) Each Market Participant shall follow the directions of the Office of the Interconnection to take actions to prevent, manage, alleviate or end an Emergency in a manner consistent with this Agreement and the procedures of the PJM Control Area as specified in the PJM Manuals.

Each Market Participant shall obtain and maintain all permits, licenses or approvals required for the Market Participant to participate in the PJM Interchange Energy Market in the manner contemplated by this Agreement.

1.7.5 Market Operations Center.

Each Market Participant shall maintain a Market Operations Center, or shall make appropriate arrangements for the performance of such services on its behalf. A Market Operations Center shall meet the performance, equipment, communications, staffing and training standards and requirements specified in this Agreement for the scheduling and completion of transactions in the PJM Interchange Energy Market and the maintenance of the reliable operation of the PJM Control Area, and shall be sufficient to enable (i) a Market Seller to perform all terms and conditions of its offers to the PJM Interchange Energy Market, and (ii) a Market Buyer to conform to the requirements for purchasing from the PJM Interchange Energy Market.

1.7.6 Scheduling and Dispatching.

(a) The Office of the Interconnection shall schedule and dispatch in real-time generation economically on the basis of least-cost, security-constrained dispatch and the prices and operating characteristics offered by Market Sellers, continuing until sufficient generation is dispatched to serve the PJM Interchange Energy Market energy purchase requirements under normal system conditions of the Market Buyers, as well as the requirements of the PJM Control Area for ancillary services provided by such generation, in accordance with this Agreement. Scheduling and dispatch shall be conducted in accordance with this Agreement.

(b) The Office of the Interconnection shall undertake to identify any conflict or incompatibility between the scheduling or other deadlines or specifications applicable to the PJM Interchange Energy Market, and any relevant procedures of another Control Area, or any tariff (including the PJM Tariff). Upon determining that any such conflict or incompatibility exists, the Office of the Interconnection shall propose tariff or procedural changes, and undertake such other efforts as may be appropriate, to resolve any such conflict or incompatibility.

1.7.7 Pricing.

The price paid for energy bought and sold in the PJM Interchange Energy Market will reflect the hourly Locational Marginal Price at each load and generation bus, determined by the Office of the Interconnection in accordance with this Agreement. Transmission Congestion Charges, which shall be determined by differences in Locational Marginal Prices in an hour caused by transmission constraints, shall be calculated and collected, and the revenues therefrom shall be disbursed, by the Office of the Interconnection in accordance with this Schedule.

1.7.8 Generating Market Buyer Resources.

A Generating Market Buyer may elect to self-schedule its generation resources up to that Generating Market Buyer's Equivalent Load, in accordance with and subject to the procedures specified in this Schedule, and the accounting and billing requirements specified in Section 3 to this Agreement.

1.7.9 Delivery to an External Market Buyer.

A purchase of Spot Market Energy by an External Market Buyer shall be delivered to a bus or busses at the border of the PJM Control Area specified by the Office of the Interconnection, or to load in the Control Area that is not served by Network Transmission Service, using Point-to-Point Transmission Service paid for by the External Market Buyer. Further delivery of such energy shall be the responsibility of the External Market Buyer.

1.7.10 Other Transactions.

(a) Market Participants may enter into bilateral contracts for the purchase or sale of electric energy to or from each other or any other entity, subject to the obligations of Market Participants to make Capacity Resources available for dispatch by the Office of the Interconnection. Bilateral arrangements that contemplate the physical transfer of energy to or from a Market Participant shall be reported to and coordinated with the Office of the Interconnection in accordance with this Schedule.

(b) Market Participants shall have Spot Market Backup with respect to all bilateral transactions that are not dynamically scheduled pursuant to Section 1.12 and that are curtailed or interrupted for any reason (except for curtailments or interruptions through active load management for load located within the PJM Control Area.

(c) To the extent the Office of the Interconnection dispatches a Generating Market Buyer's generation resources, such Generating Market Buyer may elect to net the output of such resources against its hourly Equivalent Load. Such a Generating Market Buyer shall be deemed a buyer from the PJM Interchange Energy Market to the extent of its PJM Interchange Imports, and shall be deemed a seller to the PJM Interchange Energy Market to the extent of its PJM Interchange Exports.

1.7.11 Emergencies.

The Office of the Interconnection, with the assistance of the Members' dispatchers as it may request, shall be responsible for monitoring the operation of the PJM Control Area, for declaring the existence of an Emergency, and for directing the operations of Market Participants as necessary to manage, alleviate or end an Emergency. The standards, policies and procedures of the Office of the Interconnection for declaring the existence of an Emergency, including but not limited to a Minimum Generation Emergency, and for managing, alleviating or ending an Emergency, shall apply to all Members on a non-discriminatory basis. Actions by the Office of the Interconnection and the Market Participants shall be carried out in accordance with this Agreement, the NERC Operating Policies, MAAC reliability principles and standards, Good Utility Practice, and the PJM Manuals. A declaration that an Emergency exists or is likely to exist by the Office of the Interconnection shall be binding on all Market Participants until the Office of the Interconnection announces that the actual or threatened Emergency no longer exists. Consistent with existing contracts, all Market Participants shall comply with all directions from the Office of the Interconnection for the purpose of managing, alleviating or ending an Emergency. The Market Participants shall authorize the Office of the Interconnection to purchase or sell energy on their behalf to meet an Emergency, and otherwise to implement agreements with other Control Areas interconnected with the PJM Control Area for the mutual provision of service to meet an Emergency, in accordance with this Agreement.

1.7.12 Fees and Charges.

Each Market Participant shall pay all fees and charges of the Office of the Interconnection for operation of the PJM Interchange Energy Market as determined by and allocated to the Market Participant by the Office of the Interconnection in accordance with Schedule 3.

1.7.13 Relationship to PJM Control Area.

The PJM Interchange Energy Market operates within and subject to the requirements for the operation of the PJM Control Area.

1.7.14 PJM Manuals.

The Office of the Interconnection shall be responsible for maintaining, updating, and promulgating the PJM Manuals as they relate to the operation of the PJM Interchange Energy Market. The PJM Manuals, as they relate to the operation of the PJM Interchange Energy Market, shall conform and comply with this Agreement, NERC operating policies, and MAAC reliability principles, guidelines and standards, and shall be designed to facilitate administration of an efficient energy market within industry reliability standards and the physical capabilities of the PJM Control Area.

1.7.15 Corrective Action.

Consistent with Good Utility Practice, the Office of the Interconnection shall be authorized to direct or coordinate corrective action, whether or not specified in the PJM Manuals, as necessary to alleviate unusual conditions that threaten the integrity or reliability of the PJM Control Area or the regional power system.

1.7.16 Recording.

Subject to the requirements of applicable State or federal law, all voice communications with the Office of the Interconnection Control Center may be recorded by the Office of the Interconnection and any Market Participant communicating with the Office of the Interconnection Control Center, and each Market Participant hereby consents to such recording.

1.7.17 Operating Reserves.

(a) The following procedures shall apply to any generation unit subject to the dispatch of the Office of the Interconnection for which construction commenced before July 9, 1996.

(b) The Office of the Interconnection shall schedule to the Operating Reserve and load-following objectives of the PJM Control Area and the PJM Interchange Energy Market in scheduling resources pursuant to this Schedule. A table of Operating Reserve objectives is calculated seasonally for various peak load levels and eight weekly periods and is published in the PJM Manuals. Reserve levels are probabilistically determined based on the season's historical load forecasting error and expected generation mix (including typical Planned and Forced/Unplanned Outages). Generating Units with quick start capability, as specified in the PJM Manuals, that are dispatched to maintain reliability by providing or maintaining spinning reserves or providing load following capability shall receive energy payments at the levels specified below. The energy payments specified below shall be considered the offered price for Spot Market Energy for purposes of Section 3.2.3(b) of this Schedule. The price offered or paid for the energy of units so dispatched shall not be considered in determining Locational Marginal Prices.

(c) Payments for energy produced by a quick start generating unit dispatched as specified above shall be at the higher of the applicable Locational Marginal Price or one of the amounts specified below, as specified in advance by the Market Seller for the affected unit:

(i) The weighted average Locational Marginal Price at the generation bus at which energy from the capped resource was delivered during a specified number of hours during which the resource was dispatched for energy in economic merit order, the specified number of hours to be determined by the Office of the Interconnection and to be a number of hours sufficient to result in a price cap that reflects reasonably contemporaneous competitive market conditions for that unit;

(ii) The incremental operating cost of the generation resource as determined in accordance with Schedule 2 of this Agreement and the PJM Manuals, plus 10% of such costs; or

(iii) An amount determined by agreement between the Office of the Interconnection and the Market Seller.

1.7.18 Regulation.

(a) Regulation shall be supplied from generators located within the metered electrical boundaries of the PJM Control Area. Generating Market Buyers, and Market Sellers offering Regulation, shall comply with applicable standards and requirements for Regulation capability and dispatch specified in the PJM Manuals.

(b) The Office of the Interconnection shall obtain and maintain an amount of Regulation equal to the PJM Control Area Regulation objective as specified in the PJM Manuals.

The Regulation range of a unit shall be at least twice the amount of Regulation assigned.

(d) A unit capable of automatic energy dispatch that is also providing Regulation shall have its energy dispatch range reduced by twice the amount of the Regulation provided. The amount of Regulation provided by a unit shall serve to redefine the Normal Minimum Generation and Normal Maximum Generation energy limits of that unit, in that the amount of Regulation shall be added to the unit's Normal Minimum Generation energy limit, and subtracted from its Normal Maximum Generation energy limit.

(e) Qualified Regulation must satisfy the verification tests described in the PJM Manuals.

1.7.19 Ramping.

A generator dispatched by the Office of the Interconnection pursuant to a control signal appropriate to increase or decrease the generator's megawatt output level shall be able to change output at the ramping rate specified in the Offer Data submitted to the Office of the Interconnection for that generator.

1.7.20 Communication and Operating Requirements.

(a) Market Participants. Each Market Participant shall have, or shall arrange to have, its transactions in the PJM Interchange Energy Market subject to control by a Market Operations Center, with staffing and communications systems capable of real-time communication with the Office of the Interconnection during normal and Emergency conditions and of control of the Market Participant's relevant load or facilities sufficient to meet the requirements of the Market Participant's transactions with the PJM Interchange Energy Market, including but not limited to the following requirements as applicable.

(b) Market Sellers selling from resources within the PJM Control Area shall: report to the Office of the Interconnection sources of energy available for operation; supply to the Office of the Interconnection all applicable Offer Data; report to the Office of the Interconnection units that are self-scheduled; report to the Office of the Interconnection bilateral sales transactions to buyers not within the PJM Control Area; confirm to the Office of the Interconnection bilateral sales to Market Buyers within the PJM Control Area; respond to the Office of the Interconnection's directives to start, shutdown or change output levels of generation units, or change scheduled voltages or reactive output levels; continuously maintain all Offer Data concurrent with on-line operating information; and ensure that, where so equipped, generating equipment is operated with control equipment functioning as specified in the PJM Manuals.

(c) Market Sellers selling from resources outside the PJM Control Area shall: provide to the Office of the Interconnection all applicable Offer Data, including offers specifying amounts of energy available, hours of availability and prices of energy and other services; respond to Office of the Interconnection directives to schedule delivery or change delivery schedules; and communicate delivery schedules to the Market Seller's Control Area.

(d) Market Participants that are Load Serving Entities or purchasing on behalf of Load Serving Entities shall: ~~provide to the Office of the Interconnection forecasts of load to be served as required by the Office of the Interconnection;~~ respond to Office of the Interconnection directives for load management steps; report to the Office of the Interconnection Capacity Resources to satisfy capacity obligations that are available for pool operation; report to the Office of the Interconnection all bilateral purchase transactions; respond to other Office of the Interconnection directives such as those required during Emergency operation.

(e) Market Participants that are not Load Serving Entities or purchasing on behalf of Load Serving Entities shall: provide to the Office of the Interconnection requests to purchase specified amounts of energy for each hour of the Operating Day during which it intends to purchase from the PJM Interchange Energy Market, along with Dispatch Rate levels above which it does not desire to purchase; respond to other Office of the Interconnection directives such as those required during Emergency operation.

~~1.7.21 Multi-settlement System.~~

~~The PJM Interchange Energy Market shall be enhanced by an amendment to this Schedule, to be filed with FERC not later than December 31, 1997, that will provide for the implementation of a multi-settlement system as soon thereafter as shall be determined by the Office of the Interconnection to be reasonably practical. Such a system will provide an opportunity for Market Participants to commit and obtain commitments to energy price and transmission congestion charges at certain specified deadlines in advance of the Office of the Interconnection's real time dispatch. The Members specified in Section 11.5(e) of the Operating Agreement, working with the Office of the Interconnection, shall develop the details of the implementation of such a multi-settlement system.~~

1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process.

1.8.1 PJM Dispute Resolution Agreement.

Subject to the condition specified below, any Member adversely affected by a decision of the Office of the Interconnection with respect to the operation of the PJM Interchange Energy Market, including the qualification of an entity to participate in that market as a buyer or seller, may ~~file~~ seek such relief as may be appropriate under the PJM Dispute Resolution Procedures on the grounds that such decision does not have an adequate basis in fact or does not conform to the requirements of this Agreement.

1.8.2 Market or Control Area Hourly Operational Disputes.

(a) Market Participants shall comply with all determinations of the Office of the Interconnection on the selection, scheduling or dispatch of resources in the PJM Interchange Energy Market, or to meet the operational requirements of the PJM Control Area. Complaints arising from or relating to such determinations shall be brought to the attention of the Office of the Interconnection not later than the end of the fifth business day after the end of the Operating Day to which the selection or scheduling relates, or in which the scheduling or dispatch took place, and shall include, if practicable, a proposed resolution of the complaint. Upon receiving notification of the dispute, the Office of the Interconnection and the Market Participant raising the dispute shall exert their best efforts to obtain and retain all data and other information relating to the matter in dispute, and to notify other Market Participants that are likely to be affected by the proposed resolution. Subject to confidentiality or other non-disclosure requirements, representatives of the Office of the Interconnection, the Market Participant raising the dispute, and other interested Market Participants, shall meet within three business days of the foregoing notification, or at such other or further times as the Office of the Interconnection and the Market Participants may agree, to review the relevant facts, and to seek agreement on a resolution of the dispute.

(b) If the Office of the Interconnection determines that the matter in dispute discloses a defect in operating policies, practices or procedures subject to the discretion of the Office of the Interconnection, the Office of the Interconnection shall implement such changes as it deems appropriate and shall so notify the Members Committee. Alternatively, the Office of the Interconnection may notify the Members Committee of a proposed change and solicit the comments or other input of the Members.

(c) If either the Office of the Interconnection, the Market Participant raising the dispute, or another affected Market Participant believes that the matter in dispute has not been adequately resolved, or discloses a need for changes in standards or policies established in or pursuant to the Operating Agreement, any of the foregoing parties may make a written request for review of the matter by the Members Committee, and shall include with the request the forwarding party's recommendation and such data or information (subject to confidentiality or other non-disclosure requirements) as would enable the Members Committee to assess the matter and the recommendation. The Members Committee shall take such action on the recommendation as it shall deem appropriate.

(d) Subject to the right of a Market Participant to obtain correction of accounting or billing errors, the LLC or a Market Participant shall not be entitled to actual, compensatory, consequential or punitive damages, opportunity costs, or other form of reimbursement from the LLC or any other Market Participant for any loss, liability or claim, including any claim for lost profits, incurred as a result of a mistake, error or other fault by the Office of the Interconnection in the selection, scheduling or dispatch of resources.

1.9 Prescheduling.

The following procedures and principles shall govern the prescheduling activities necessary to plan for the reliable operation of the PJM Control Area and for the efficient operation of the PJM Interchange Energy Market.

1.9.1 Outage Scheduling.

The Office of the Interconnection shall be responsible for coordinating and approving requests for outages of generation and transmission facilities as necessary for the reliable operation of the PJM Control Area, in accordance with the PJM Manuals. The Office of the Interconnection shall maintain records of outages and outage requests of these facilities.

1.9.2 Planned Outages.

(a) A Generator Planned Outage shall be included in Generator Planned Outage schedules established prior to the scheduled start date for the outage, in accordance with standards and procedures specified in the PJM Manuals.

(b) The Office of the Interconnection shall conduct Generator Planned Outage scheduling for Capacity Resources in accordance with the Reliability Assurance Agreement and the PJM Manuals and in consultation with the Members owning or controlling the output of Capacity Resources. A Market Participant shall not be expected to submit offers for the sale of energy or other services, or to satisfy delivery obligations, from all or part of a generation resource undergoing an approved Generator Planned Outage. If the Office of the Interconnection determines that approval of a Generator Planned Outage would significantly affect the reliable operation of the PJM Control Area, the Office of the Interconnection may withhold approval or withdraw a prior approval. Approval for a Generator Planned Outage of a Capacity Resource shall be withheld or withdrawn only as necessary to ensure the adequacy of reserves or the reliability of the PJM Control Area in connection with anticipated implementation or avoidance of Emergency procedures. If the Office of the Interconnection withholds or withdraws approval, it shall coordinate with the Market Participant owning or controlling the resource to reschedule the Generator Planned Outage of the Capacity Resource at the earliest practical time. The Office of the Interconnection shall if possible propose alternative schedules with the intent of minimizing the economic impact on the Market Participant of a Generator Planned Outage.

(c) The Office of the Interconnection shall conduct Planned Transmission Outage scheduling in accordance with procedures specified in the Transmission Owners Agreement and the PJM Manuals. If the Office of the Interconnection determines that transmission maintenance schedules proposed by one or more Members would significantly affect the efficient and reliable operation of the PJM Control Area, the Office of the Interconnection may propose alternative schedules, but such alternative shall minimize the economic impact on the Member or Members whose maintenance schedules the Office of the Interconnection proposes to modify.

(d) The Office of the Interconnection shall coordinate resolution of outage or other planning conflicts that may give rise to unreliable system conditions. The Members shall comply with all maintenance schedules established by the Office of the Interconnection.

1.9.3 Generator Maintenance Outages.

A Market Participant may request approval for a Generator Maintenance Outage of any Capacity Resource from the Office of the Interconnection in accordance with the timetable and other procedures specified in the PJM Manuals. The Office of the Interconnection shall approve requests for Generator Maintenance Outages for a Capacity Resource unless the outage would threaten the adequacy of reserves in, or the reliability of, the PJM Control Area. A Market Participant shall not be expected to submit offers for the sale of energy or other services, or to satisfy delivery obligations, from a generation resource undergoing an approved full or partial Generator Maintenance Outage.

1.9.4 Forced Outages.

(a) Each Market Seller that owns or controls a pool-scheduled resource, or Capacity Resource whether or not pool-scheduled, shall: (i) advise the Office of the Interconnection of a Generator Forced Outage suffered or anticipated to be suffered by any such resource as promptly as possible; (ii) provide the Office of the Interconnection with the expected date and time that the resource will be made available; and (iii) make a record of the events and circumstances giving rise to the Generator Forced Outage. A Market Seller shall not be expected to submit offers for the sale of energy or other services, or satisfy delivery obligations, from a generation resource undergoing a Generator Forced Outage. A Capacity Resource that does not deliver all or part of its scheduled energy shall be deemed to have experienced a Generator Forced Outage with respect to such undelivered energy, in accordance with standards and procedures for full and partial Generator Forced Outages specified in the Reliability Assurance Agreement and the PJM Manuals.

(b) The Office of the Interconnection shall receive notification of Forced Transmission Outages, and information on the return to service, of Transmission Facilities in the PJM Control Area in accordance with standards and procedures specified in the Transmission Owners Agreement and the PJM Manuals.

1.9.5 Market Participant Responsibilities.

Each Market Participant making a bilateral sale covering a period greater than the following Operating Day from a generating resource located within the PJM Control Area for delivery outside the PJM Control Area shall furnish to the Office of the Interconnection, in the form and manner specified in the PJM Manuals, information regarding the source of the energy, the load sink, the energy schedule, and the amount of energy being delivered.

1.9.6 Internal Market Buyer Responsibilities.

Each Internal Market Buyer making a bilateral purchase covering a period greater than the following Operating Day shall furnish to the Office of the Interconnection, in the form and manner specified in the PJM Manuals, information regarding the source of the energy, the load sink, the energy schedule, and the amount of energy being delivered. Each Internal Market Buyer shall provide the Office of the Interconnection with details of any load management agreements with customers that allow the Office of the Interconnection to reduce load under specified circumstances.

1.9.7 Market Seller Responsibilities.

(a) Not less than 30 days before a Market Seller's initial offer to sell energy from a given generation resource on the PJM Interchange Energy Market, the Market Seller shall furnish to the Office of the Interconnection the information specified in the Offer Data for new generation resources.

(b) Market Sellers authorized and intending to request market-based start-up and no-load fees in their Offer Data shall submit a specification of such fees to the Office of the Interconnection for each generating unit as to which the Market Seller intends to request such fees. Any such specification shall be submitted on or before March 31 for the period April 1 through September 30, and on or before September 30 for the period October 1 through March 31, and shall remain in effect without change throughout each such period for which a specification was submitted. The Office of the Interconnection shall reject any request for start-up and no-load fees in a Market Seller's Offer Data that does not conform to the Market Seller's specification on file with the Office of the Interconnection.

1.9.8 Office of the Interconnection Responsibilities.

(a) The Office of the Interconnection shall perform seasonal operating studies to assess the forecasted adequacy of generating reserves and of the transmission system, in accordance with the procedures specified in the PJM Manuals.

(b) The Office of the Interconnection shall maintain and update tables setting forth Operating Reserve and other reserve objectives as specified in the PJM Manuals.

(c) The Office of the Interconnection shall receive and process requests for firm and non-firm transmission service in accordance with procedures specified in the PJM Tariff.

(d) The Office of the Interconnection shall maintain such data and information relating to generation and transmission facilities in the PJM Control Area as may be necessary or appropriate to conduct the scheduling and dispatch of the PJM Interchange Energy Market and PJM Control Area.

(e) The Office of the Interconnection shall coordinate with other interconnected Control Area as necessary to manage, alleviate or end an Emergency.

1.10 Scheduling.

1.10.1 General.

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

(b) The Day-ahead Energy Market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at Day-ahead Prices and enable transmission customers to reserve transmission service with Transmission Congestion Charges based on locational differences in Day-ahead Prices. Market Participants whose purchases and sales, and transmission customers whose transmission uses are scheduled in the Day-ahead Energy Market, shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges, at the applicable Day-ahead Prices for the amounts scheduled.

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

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

1.10.1a Day-Ahead Energy Market Scheduling.

The following actions shall occur not later than 12:00 noon on the day before the Operating Day for which transactions are being scheduled, or such other deadline as may be specified by the Office of the Interconnection in order to comply with the practical requirements and the economic and efficiency objectives of the scheduling process specified in this Schedule.

(a) Each Market Participant ~~that is a Load Serving Entity or purchasing on behalf of a Load Serving Entity~~ may shall submit to the Office of the Interconnection ~~forecasts~~ specifications of the amount and location of its customer loads ~~for~~ and/or energy purchases to be included in the Day-ahead Energy Market for each hour of the next Operating Day, ~~as required by~~ such specifications to comply with the requirements set forth in the PJM Manuals. ~~If a Market Participant expects to curtail load at a specific Dispatch Rate, it should specify the Dispatch Rate and estimated load curtailment.~~ Each Market Buyer shall inform the Office of the Interconnection of the prices, if any, at which it desires not to include its load in the Day-ahead Energy Market rather than pay the Day-ahead Price.

(b) ~~Each Market Participant that is not a Load Serving Entity or purchasing on behalf of a Load Serving Entity shall submit to the Office of the Interconnection requests to purchase specified amounts of energy for each hour of the Operating Day during which it intends to purchase from the PJM Interchange Energy Market, along with Dispatch Rate levels above which it does not desire to purchase, in accordance with the specifications set forth in the PJM Manuals.~~

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

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

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

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

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

(ed) Market Sellers wishing to sell ~~in~~ into the ~~PJM Interchange~~ Day-ahead Energy Market shall submit offers for the supply of energy (including energy from hydropower units), Regulation, Operating Reserves or other services for the following Operating Day. Offers shall be submitted to the Office of the Interconnection in the form specified by the Office of the Interconnection and shall contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Market Sellers owning or controlling the output of a Capacity Resource that has not been rendered unavailable by a Generation Planned Outage, a Generator Maintenance Outage, or a Generation Forced Outage shall submit offers for the available capacity of such Capacity Resource, including any portion that is self-scheduled by the Generating Market Buyer claiming the resource as a Capacity Resource. The submission of offers for resource increments that are not Capacity Resources shall be optional, but any such offers must contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Energy offered from generation resources that are not Capacity Resources shall not be supplied from resources that are included in or otherwise committed to supply the Operating Reserves of another Control Area. The foregoing offers:

i) Shall specify the generation resource and energy for each hour in the offer period;

ii) Shall specify the amounts and prices for the entire Operating Day for each resource component offered by the Market Seller to the Office of the Interconnection;

iii) If based on energy from a specific generating unit, may specify start-up and no-load fees equal to the specification of such fees for such unit on file with the Office of the Interconnection;

iv) Shall set forth any special conditions upon which the Market Seller proposes to supply a resource increment, including any curtailment rate specified in a bilateral contract for the output of the resource, or any cancellation fees;

v) May include a schedule of offers for prices and operating data contingent on acceptance by the deadline specified in this Schedule, with a second schedule applicable if accepted after the foregoing deadline;

vi) Shall constitute an offer to submit the resource increment to the Office of the Interconnection for scheduling and dispatch in accordance with the terms of the offer, which offer shall remain open through the Operating Day for which the offer is submitted;

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

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

(~~f~~e) A Market Seller that wishes to make a resource available to sell Regulation service shall submit an offer for Regulation that shall specify the MW of Regulation being offered, the price of the offer in dollars per MWh, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the resource's opportunity costs. The price of the offer shall not exceed $100 per MWh. Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

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

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

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

(i) All Market Participants may submit Increment Bids and/or Decrement Bids that apply to the Day-ahead Energy Market only. Such bids must comply with the requirements set forth in the PJM Manuals and must specify amount, location and price, if any, at which the Market Participant desires to purchase or sell energy in the Day-ahead Energy Market.

1.10.2 Pool-Scheduled Resources.

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

(a) Pool-scheduled resources shall be selected by the Office of the Interconnection on the basis of the prices offered for energy and related services, start-up, no-load and cancellation fees, and the specified operating characteristics, offered by Market Sellers to the Office of the Interconnection by the ~~12:00 noon~~ offer deadline specified in Section 1.10.1a.

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

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

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

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

1.10.3 Self-scheduled Resources.

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

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

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

(c) Market Participants shall make available their self-scheduled resources to the Office of the Interconnection for coordinated operation to supply the needs of the PJM Control Area for Operating Reserves.

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

1.10.4 Capacity Resources.

(a) A Capacity Resource selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection. A Capacity Resource that does not deliver energy as scheduled shall be deemed to have experienced a Generator Forced Outage to the extent of such energy not delivered. A Market Participant offering such Capacity Resource in the Day-ahead Energy Market shall replace the energy not delivered with energy from the Real-time Energy market and shall pay for such energy at the applicable Real-time Price.

(b) Energy from a Capacity Resource that has not been ~~selected as a pool-~~scheduled ~~resource~~in the Day-ahead Energy Market may be sold on a bilateral basis by the Market Seller, ~~it~~ may be self-scheduled, or may be offered for dispatch during the Operating Day in accordance with the procedures specified in this Schedule. A Capacity Resource that has not been ~~selected as a pool-~~scheduled ~~resource~~ in the Day-ahead Energy Market and that has been sold on a bilateral basis must be made available upon request to the Office of the Interconnection for scheduling and dispatch during the Operating Day if the Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable ~~Locational Marginal~~Real-time Price for energy delivered.

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

1.10.5 External Resources.

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

(b) Offers for External Resources from an aggregation of two or more generating units shall so indicate, and shall specify, in accordance with the Offer Data requirements specified by the Office of the Interconnection: (i) energy prices; (ii) hours of energy availability; (iii) a minimum dispatch level; (iv) a maximum dispatch level; and (v) unless such information has previously been made available to the Office of the Interconnection, sufficient information, as specified in the PJM Manuals, to enable the Office of the Interconnection to model the flow into the PJM Control Area of any energy from the External Resources scheduled in accordance with the Offer Data. If a Market Seller submits more than one offer on an aggregated resource basis, the withdrawal of any such offer shall be deemed a withdrawal of all higher priced offers for the same period.

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

1.10.6 External Market Buyers.

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

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

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

1.10.6A Transmission Loading Relief Customers.

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

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

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

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

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

1.10.7 Bilateral Transactions.

Bilateral transactions as to which the parties have notified the Office of the Interconnection by ~~12:00 p.m.~~the deadline specified in Section 1.10.1a ~~of the day before the Operating Day~~ that they elect not to be included in the Day-ahead Energy Market and that they are not willing to incur Transmission Congestion Charges in the Real-time Energy Market shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions that were not included in the Day-ahead Energy Market and that are willing to incur congestion charges and bilateral transactions that were accepted in the Day-ahead Energy Market shall continue to be implemented during periods of congestion, except as may be necessary to respond to Emergencies.

1.10.8 Office of the Interconnection Responsibilities.

(a) The Office of the Interconnection shall use its best efforts to determine (i) the least-cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers, including the reliability requirements of the PJM Control Area, of the Day-ahead Energy Market, and (ii) the least-cost means of satisfying the Operating Reserve and other ancillary service requirements for any portion of the load forecast of the Office of the Interconnection for the Operating Day in excess of that scheduled in the Day-ahead Energy Market. In making ~~this~~ these determinations, the Office of the Interconnection shall take into account: (i) the Office of the Interconnection's forecasts of PJM Interchange Energy Market and PJM Control Area energy requirements, giving due consideration to the energy requirement forecasts and purchase requests submitted by Market Buyers; (ii) the offers submitted by Market Sellers; (iii) the availability of limited energy resources; (iv) the capacity, location, and other relevant characteristics of self-scheduled resources; (v) the objectives of the PJM Control Area for Operating Reserves, as specified in the PJM Manuals; (vi) the requirements of the PJM Control Area for Regulation and other ancillary

services, as specified in the PJM Manuals; (vii) the benefits of avoiding or minimizing transmission constraint control operations, as specified in the PJM Manuals; and (viii) such other factors as the Office of the Interconnection reasonably concludes are relevant to the foregoing determination. The Office of the Interconnection shall develop a ~~schedule of generation resources~~Day-ahead Energy Market based on the foregoing determination, and shall determine the Day-ahead Prices resulting from such schedule. The Office of the Interconnection shall report the planned schedule for a hydropower resource to the operator of that resource as necessary for plant safety and security, and legal limitations on pond elevations.

(b) Not later than 4:00 p.m. of the day before each Operating Day, or such earlier deadline as may be specified by the Office of the Interconnection in the PJM Manuals, the Office of the Interconnection shall: (i) ~~post on the PJM Open Access Same-time Information System its forecast of the location and duration of any expected transmission congestion, and of the range of differences in Locational Marginal Prices between major subareas of the PJM Control Area expected to result from such transmission congestion; and (ii) inform each Market Seller whether its offer or offers have been accepted~~post the aggregate Day-ahead Energy Market; (ii) post the Day-ahead Prices; and (iii) inform the Market Sellers and Market Buyers of their scheduled injections and withdrawals respectively.

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

(d) Market Buyers shall pay and Market Sellers shall be paid for the quantities of energy scheduled in the Day-ahead Energy Market at the Day-ahead Prices.

1.10.9 Hourly Scheduling

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

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

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

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

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

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

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

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

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

1.11 Dispatch.

The following procedures and principles shall govern the dispatch of the resources available to the Office of the Interconnection.

1.11.1 Resource Output.

The Office of the Interconnection shall have the authority to direct any Market Seller to adjust the output of any pool-scheduled resource increment within the operating characteristics specified in the Market Seller's offer. The Office of the Interconnection may cancel its selection of, or otherwise release, pool-scheduled resources, subject to an obligation to pay any applicable start-up, no-load or cancellation fees. The Office of the Interconnection shall adjust the output of pool-scheduled resource increments as necessary: (a) to maintain reliability, and subject to that constraint, to minimize the cost of supplying the energy, reserves, and other services required by the Market Buyers and the operation of the PJM Control Area; (b) to balance load and generation, maintain scheduled tie flows, and provide frequency support within the PJM Control Area; and (c) to minimize unscheduled interchange not frequency related between the PJM Control Area and other Control Areas.

1.11.2 Operating Basis.

In carrying out the foregoing objectives, the Office of the Interconnection shall conduct the operation of the PJM Control Area in accordance with the PJM Manuals, and shall: (i) utilize available generating reserves and obtain required replacements; and (ii) monitor the availability of adequate reserves.

1.11.3 Pool-dispatched Resources.

(a) The Office of the Interconnection shall implement the dispatch of energy from pool-scheduled resources with limited energy by direct request. In implementing mandatory or economic use of limited energy resources, the Office of the Interconnection shall use its best efforts to select the most economic hours of operation for limited energy resources, in order to make optimal use of such resources consistent with the dynamic load-following requirements of the PJM Control Area and the availability of other resources to the Office of the Interconnection.

(b) The Office of the Interconnection shall implement the dispatch of energy from other pool-dispatched resource increments, including generation increments from Capacity Resources the remaining increments of which are self-scheduled, by sending appropriate signals and instructions to the entity controlling such resources, in accordance with the PJM Manuals. Each Market Seller shall ensure that the entity controlling a pool-dispatched resource offered or made available by that Market Seller complies with the energy dispatch signals and instructions transmitted by the Office of the Interconnection.

1.11.3a Maximum Generation Emergency.

If the Office of the Interconnection declares a Maximum Generation Emergency, all deliveries to load that is served by Point-to-Point Transmission Service outside the PJM Control Area from Capacity Resources may be interrupted in order to serve load in the PJM Control Area.

1.11.4 Regulation.

(a) A Market Buyer may satisfy its Regulation obligation from its own resources capable of performing Regulation service, by contractual arrangements with other Market Participants able to provide Regulation service, or by purchases from the PJM Interchange Energy Market at the rates set forth in Section 3.2.2.

(b) The Office of the Interconnection shall obtain Regulation service from the least-cost alternatives available from either pool-scheduled or self-scheduled resources as needed to meet PJM Control Area requirements not otherwise satisfied by the Market Buyers. Resources offering to sell Regulation shall be selected to provide Regulation on the basis of each resource's regulation offer and the estimated opportunity cost of the resource providing regulation and in accordance with the Office of the Interconnection's obligation to minimize the total cost of energy, Operating Reserves, Regulation, and other ancillary services. Estimated opportunity costs shall be determined by the Office of the Interconnection on the basis of the expected value of the energy sales that would be foregone or uneconomic energy that would be produced by the resource in order to provide Regulation, in accordance with procedures specified in the PJM Manuals. If the Office of the Interconnection is not able to distinguish resources offering Regulation on the basis of their regulation offers and estimated opportunity costs, resources shall be selected on the basis of the quality of Regulation provided by the resource as determined by tests administered by the Office of the Interconnection.

(c) The Office of the Interconnection shall dispatch resources for Regulation by sending Regulation signals and instructions to resources from which Regulation service has been offered by Market Sellers, in accordance with the PJM Manuals. Market Sellers shall comply with Regulation dispatch signals and instructions transmitted by the Office of the Interconnection and, in the event of conflict, Regulation dispatch signals and instructions shall take precedence over energy dispatch signals and instructions. Market Sellers shall exert all reasonable efforts to operate, or ensure the operation of, their resources supplying load in the PJM Control Area as close to desired output levels as practical, consistent with Good Utility Practice.

1.11.5 PJM Open Access Same-time Information System.

The Office of the Interconnection shall update the information posted on the PJM Open Access Same-time Information System to reflect its dispatch of generation resources.

1.12 Dynamic Scheduling.

(a) An entity that owns or controls a generating resource in the PJM Control Area may electrically remove all or part of the generating resource's output from the PJM Control Area through dynamic scheduling of the output to load outside the PJM Control Area. Such output shall not be available for economic dispatch by the Office of the Interconnection.

(b) An entity requesting dynamic scheduling shall be responsible for arranging for the provision of signal processing and communications from the generator to the Office of the Interconnection and other participating control areas and complying with any other procedures established by the Office of the Interconnection regarding dynamic scheduling as set forth in the PJM Manuals.

(c) An entity requesting dynamic scheduling shall be responsible for reserving amounts of firm transmission service necessary to deliver the range of the dynamic transfer and any required ancillary services.

2. CALCULATION OF LOCATIONAL MARGINAL PRICES

2.1 Introduction.

The Office of the Interconnection shall calculate the price of energy at the load busses and generation busses in the PJM Control Area and at the interface busses between the PJM Control Area and adjacent Control Areas on the basis of Locational Marginal Prices. Locational Marginal Prices determined in accordance with this Section shall be calculated ~~every five minutes and integrated hourly values of such calculations shall be the basis of sales and purchases of energy in the PJM Interchange Energy Market and of Transmission Congestion Charges under the PJM Tariff~~on a day-ahead basis for each hour of the Day-ahead Energy Market, and every five minutes during the Operating Day for the Real-time Energy Market.

2.2 General.

The Office of the Interconnection shall determine the least cost security-constrained dispatch, which is the least costly means of serving load at different locations in the PJM Control Area based on actual operating conditions existing on the power grid and on the prices at which Market Sellers have offered to supply energy in the PJM Interchange Energy Market. Locational Marginal Prices for the generation and load busses in the PJM Control Area, including interconnections with other Control Areas, will be calculated based on the actual economic dispatch and the prices of energy offers. The process for the determination of Locational Marginal Prices shall be as follows:

(a) To determine actual operating conditions on the power grid in the PJM Control Area, the Office of the Interconnection shall use a computer model of the interconnected grid that uses available metered inputs regarding generator output, loads, and power flows to model remaining flows and conditions, producing a consistent representation of power flows on the network. The computer model employed for this purpose, referred to as the State Estimator program, is a standard industry tool and is described in Section 2.3 below. It will be used to obtain information regarding the output of generation supplying energy to the PJM Control Area, loads at buses in the PJM Control Area, transmission losses, and power flows on binding transmission constraints for use in the calculation of Locational Marginal Prices. Additional information used in the calculation, including Dispatch Rates and real time schedules for external transactions between PJM and other Control Areas, will be obtained from the Office of the Interconnection's dispatchers.

(b) Using the prices at which energy is offered by Market Sellers to the PJM Interchange Energy Market, the Office of the Interconnection shall determine the offers of energy that will be considered in the calculation of Locational Marginal Prices. As described in Section 2.4 below, every offer of energy by a Market Seller from a resource that is following economic dispatch instructions of the Office of the Interconnection will be utilized in the calculation of Locational Marginal Prices.

(c) Based on the system conditions on the PJM power grid, determined as described in (a), and the eligible energy offers, determined as described in (b), the Office of the Interconnection shall determine the least costly means of obtaining energy to serve the next increment of load at each bus in the PJM Control Area, in the manner described in Section 2.5 below. The result of that calculation shall be a set of Locational Marginal Prices based on the system conditions at the time.

2.3 Determination of System Conditions Using the State Estimator.

Power system operations, including, but not limited to, the determination of the least costly means of serving load, depend upon the availability of a complete and consistent representation of generator outputs, loads, and power flows on the network. In calculating Locational Marginal Prices, the Office of the Interconnection shall obtain a complete and consistent description of conditions on the electric network in the PJM Control Area by using the most recent power flow solution produced by the State Estimator, which is also used by the Office of the Interconnection for other functions within power system operations. The State Estimator is a standard industry tool that produces a power flow model based on available real-time metering information, information regarding the current status of lines, generators, transformers, and other equipment, bus load distribution factors, and a representation of the electric network, to provide a complete description of system conditions, including conditions at busses for which real-time information is unavailable. The current version of the State Estimator includes over 1600 busses in the PJM Control Area, as well as interface busses with adjacent Control Areas. The Office of the Interconnection shall obtain a State Estimator solution every five minutes, which shall provide the megawatt output of generators and the loads at busses in the PJM Control Area, transmission line losses, and actual flows or loadings on constrained transmission facilities. External transactions between PJM and other Control Areas shall be included in the Locational Marginal Price calculation on the basis of the real time transaction schedules implemented by the Office of the Interconnection's dispatcher.

2.4 Determination of Energy Offers Used in Calculating ~~Locational Marginal~~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 and integrated hourly values of such determinations shall be the basis of sales and purchases of energy in the Real-time Energy Market and of Transmission Congestion Charges under the PJM Tariff not covered by the Day-ahead Energy Market.

(b) To determine the energy offers submitted to the PJM Interchange Energy Market that shall be used during the Operating Day to calculate the ~~Locational Marginal~~Real-time Prices, the Office of the Interconnection shall determine which resources are following its economic dispatch instructions. A resource will be considered to be following economic dispatch instructions and shall be included in the calculation of ~~Locational Marginal~~Real-time Prices if:

i) the applicable price bid by a Market Seller for energy from the resource is less than or equal to the Dispatch Rate for the area of the PJM Control Area in which the resource is located; or

ii) the resource is specifically requested to operate by the Office of the Interconnection's dispatcher.

(~~b~~c) In determining whether a resource satisfies the condition described in (~~a~~b), the Office of the Interconnection will determine the bid price associated with an energy offer by comparing the actual megawatt output of the resource with the Market Seller's offer price curve. Because of practical generator response limitations, a resource whose megawatt output is not ten percent more than the megawatt level specified on the offer price curve for the applicable Dispatch Rate shall be deemed to be following economic dispatch instructions, but the energy price offer used in the calculation of ~~Locational Marginal~~Real-time Prices shall not exceed the applicable Dispatch Rate. Units that must be run for local area protection shall not be considered in the calculation of ~~Locational Marginal~~Real-time Prices.

2.5 Calculation of ~~Locational Marginal~~Real-time Prices.

(a) The Office of the Interconnection shall determine the least costly means of obtaining energy to serve the next increment of load at each bus in the PJM Control Area represented in the State Estimator and each interface bus between the PJM Control Area and an adjacent Control Area, based on the system conditions described by the most recent power flow solution produced by the State Estimator program and the energy offers that are the basis for the Day-ahead Energy Market, or that are determined to be eligible for consideration under Section 2.4 in connection with the real-time dispatch, as applicable. This calculation shall be made by applying an incremental linear optimization method to minimize energy costs, given actual system conditions, a set of energy offers, and any binding transmission constraints that may exist. In performing this calculation, the Office of the Interconnection shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of: (1) the price at which the Market Seller has offered to supply an additional increment of energy from the resource, and (2) the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of the resource, based on the effect of increased generation from that resource on transmission line loadings. The energy offer or offers that can serve an increment of load at a bus at the lowest cost, calculated in this manner, shall determine the ~~Locational Marginal~~Real-time Price at that bus.

(b) During the Operating Day, ~~T~~the calculation set forth in (a) shall be performed every five minutes, using the Office of the Interconnection's Locational Marginal Price program, producing a set of ~~Locational Marginal~~Real-time Prices based on system conditions during the preceding interval. The prices produced at five-minute intervals during an hour will be integrated to determine the ~~Locational Marginal~~Real-time Prices for that hour~~, which will determine prices in the PJM Interchange Energy Market and Transmission Congestion Costs under the PJM Tariff~~.

2.6 Calculation of Day-ahead Prices.

For the Day-ahead Energy Market, day-ahead Locational Marginal Prices shall be determined on the basis of the least-cost, security-constrained dispatch, model flows and system conditions resulting from the load specifications, offers for generation, dispatchable load, Increment Bids, Decrement Bids, and bilateral transactions submitted to the Office of the Interconnection and scheduled in the Day-ahead Energy Market. Such prices shall be determined in accordance with the provisions of this Section applicable to the Day-ahead Energy Market and shall be the basis for purchases and sales of energy and Transmission Congestion Charges resulting from the Day-ahead Energy Market. This calculation shall be made for each hour in the Day-ahead Energy Market by applying a linear optimization method to minimize energy costs, given scheduled system conditions, scheduled transmission outages, and any transmission limitations that may exist. In performing this calculation, the Office of the Interconnection shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of: (1) the price at which the Market Seller has offered to supply an additional increment of energy from the resource, and (2) the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of the resource, based on the effect of increased generation from that resource on transmission line loadings. The energy offer or offers that can serve an increment of load at a bus at the lowest cost, calculated in this manner, shall determine the Day-ahead Price at that bus.

2.67 Performance Evaluation.

The Office of the Interconnection shall undertake an evaluation of the foregoing procedures for the determination of Locational Marginal Prices, as well as the procedures for determining and allocating Fixed Transmission Rights and associated Transmission Congestion Charges and Credits, not less often than every two years, in accordance with the PJM Manuals. To the extent practical, the Office of the Interconnection shall retain all data needed to perform comparisons and other analyses of locational marginal pricing. The Office of the Interconnection shall report the results of its evaluation to the Market Participants, along with its recommendations, if any, for changes in the procedures.

3. ACCOUNTING AND BILLING

3.1 Introduction.

This schedule sets forth the accounting and billing principles and procedures for the purchase and sale of services on the PJM Interchange Energy Market and for the operation of the PJM Control Area.

3.2 Market Buyers.

3.2.1 Spot Market Energy.

(a) Market Buyers shall be charged for all load scheduled to be served from the PJM Interchange Energy Market in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant load bus.

(b) Generating Market Buyers shall be paid for all energy scheduled to be delivered to the PJM Interchange Energy Market in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant generation bus.

(c) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the load payment ~~for~~ at each Market Buyer's load bus to be charged at Real-time Prices determined by ~~The load payment at each bus shall be~~ the product of the hourly Real-time Price at the relevant bus times the Market Buyer's megawatts of load at ~~such load~~the bus in the hour ~~times the Locational Marginal Price at the bus~~ in excess of the load scheduled to be served at that bus in that hour in the Day-ahead Energy Market. To the extent that the load actually served at a load bus is less than the load scheduled to be served at that bus in the Day-ahead Energy Market, the Market Buyer shall be credited for the difference at the Real-time Price for the load bus at the time of the shortfall. The megawatts of load at each load bus shall be the sum of the megawatts of load for that bus of that Market Buyer as determined by the State Estimator, plus an allocated share of transmission losses, plus any megawatts of that Market Buyer's bilateral sales to purchasers outside the PJM Control Area attributable to that bus. The total load ~~payment~~ charge for each Market Buyer shall be the sum ~~of the load payments~~ for each of a Market Buyer's load bus~~es~~ of the charges at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 1.10.1a plus the charges at Real-time Prices determined as specified herein, net of any credits specified herein for each of the Market Buyer's load buses.

(~~b~~d) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the generation revenue ~~for~~ at each Generating Market Buyer's generation bus to be paid at Real-time Prices, determined by ~~The generation revenue at each generation bus shall be~~ the product of the hourly Real-time Price at the relevant bus times the Generating Market Buyer's megawatts of generation at such generation bus in the hour ~~times the Locational Marginal Price at the bus~~, as determined by the State Estimator, in excess of the energy scheduled to be injected at that bus in that hour in the Day-ahead Energy Market. To the extent that the energy actually injected at the generation bus is less than the energy scheduled to be injected at that bus in the Day-ahead Energy Market, the Generating Market Buyer shall be debited for the difference at the Real-time Price for the generation bus at the time of the shortfall.

The megawatts of generation at each generation bus shall be the sum of the megawatts of generation for that bus of that Generating Market Buyer as determined by the State Estimator, plus any megawatts of bilateral purchases of that Generating Market Buyer from sellers outside the PJM Control Area attributable to that bus. The total generation revenue for each Generating Market Buyer shall be the sum, ~~of the generation revenues~~ for each of the Generating Market Buyer's generation busses, of the revenues at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 1.10.1a plus the revenues at Real-time Prices determined as specified herein, net of any debits specified herein for each of the Market Buyer's generation buses.

(~~c~~) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate a net bill for each Market Buyer, determined as the difference between its total load ~~payment~~ charges and its total generation revenue. The portions of the net bill attributable to net hourly PJM Interchange and to Transmission Congestion Charges in the Day-ahead Energy Market and the Real-time Energy Market shall be determined as set forth ~~below~~ in this Section and in Section 5.1.3.

(~~d~~) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the total amount of net hourly PJM Interchange for each Market Buyer, including Generating Market Buyers, in accordance with the PJM Manuals. For Internal Market Buyers that are Load Serving Entities or purchasing on behalf of Load Serving Entities, this calculation shall include determination of the net energy flows from: (i) tie lines; (ii) any generation resource the output of which is controlled by the Market Buyer but delivered to it over another entity's Transmission Facilities; (iii) any generation resource the output of which is controlled by another entity but which is directly interconnected with the Market Buyer's transmission system; (iv) deliveries pursuant to bilateral energy sales; (v) receipts pursuant to bilateral energy purchases; ~~and~~ (vi) the Market Buyer's allocated share of energy purchased from another Control Area in connection with a Minimum Generation Emergency in such other Control Area as specified in Section 3.2.6(c); and (vii) an adjustment to account for the day-ahead PJM Interchange, calculated as the difference between scheduled withdrawals and injections by that Market Buyer in the Day-ahead Energy Market. For Electric Distributors that report hourly net energy flows from metered tie lines, this calculation also shall include 500 kV transmission losses and Inadvertent Interchange allocated to the Electric Distributor and shall exclude the energy delivered to load of other Network Customers and Transmission Customers. For External Market Buyers and Internal Market Buyers that are not Load Serving Entities or purchasing on behalf of Load Serving Entities, this calculation shall determine the energy ~~delivered pursuant~~ scheduled hourly for delivery to the Market Buyer ~~a purchase request~~ net of the amounts scheduled by the External Market Buyer in the Day-ahead Energy Market.

(~~e~~) The Office of the Interconnection shall calculate Locational Marginal Prices in the form of Day-ahead Prices and Real-time Prices for each load and generation bus in the PJM Control Area, in accordance with Section 2 of this Schedule.

(~~f~~h) An Internal Market Buyer shall be charged for Spot Market Energy purchases to the extent of its hourly net purchases from the PJM Interchange ~~Import~~ Energy Market, determined as specified in Section 3.2.1(f) above. An External Market Buyer shall be charged for its Spot Market Energy purchases based on the energy delivered to it, determined as specified in Section 3.2.1(f) above. ~~The Office of the Interconnection shall calculate an hourly weighted average Locational Marginal Price for each such Market Buyer, based on the Locational Marginal Price at each load bus and the Market Buyer's load at that bus. The total charge shall be the Market Buyer's total net PJM Interchange Import, times the weighted average Locational Marginal Price.~~ The Office of the Interconnection shall calculate an hourly weighted average Real-time Price for each such Market Buyer, based on the hourly average of the Market Buyer's Real-time Prices at each bus weighted by the Market Buyer's load deviations at the bus. The total charge shall be determined by the product of the hourly net amount of PJM Interchange Purchases times the hourly weighted-average Real-time Price for that Market Buyer.

~~(g) A Generating Market Buyer shall be credited as a Market Seller for sales of Spot Market Energy to the extent of its hourly net PJM Interchange Export, determined as specified above. The total credit shall be the sum of the credits determined by the product of (i) the hourly net amount of energy of PJM Interchange Exports at the applicable generation bus from each of the Generating Market Buyer's generation resources determined to be making such deliveries, times (ii) the hourly Locational Marginal Price at that generation bus. The generation resources determined to be making deliveries into PJM Interchange of each Generating Market Buyer shall be those that have the highest Locational Marginal Prices of the Market Seller's generation resources.~~

(i) A Generating Market Buyer shall be credited as a Market Seller for sales of Spot Market Energy to the extent of its hourly net sales into the PJM Interchange Energy Market, determined as specified in Section 3.2.1(f) above. The Office of the Interconnection shall calculate an hourly weighted average Real-time Price for each such Market Seller, based on the hourly average of the Market Sellers Real-time Prices at each bus weighted by the Market Buyer's generation deviations at each bus. The total credit shall be determined by the product of the hourly net amount of PJM Interchange Sales times the hourly weighted average Real-time Price for that Market Seller.

3.2.2 Regulation.

(a) Each Internal Market Buyer that is a Load Serving Entity shall have an hourly Regulation objective equal to its *pro rata* share of the PJM Control Area Regulation requirements for the hour, based on the Market Buyer's total load in the PJM Control Area for the hour. An Internal Market Buyer that does not meet its hourly Regulation obligation shall be charged for Regulation dispatched by the Office of the Interconnection to meet such obligation at the Regulation market-clearing price determined in accordance with paragraph (c) of this section, plus the amounts, if any, described in paragraph (f) of this section.

(b) A Generating Market Buyer supplying Regulation at the direction of the Office of the Interconnection in excess of its hourly Regulation obligation shall be credited for each increment of such Regulation at the higher of (i) the Regulation market-clearing price or (ii) the sum of the regulation offer and the unit-specific opportunity cost of the resource supplying the increment of Regulation, as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

(c) The Regulation market-clearing price shall be determined at a time to be determined by the Office of the Interconnection which shall be no earlier than the day before the Operating Day and the market-clearing price each hour shall be equal to the highest sum of a resource's Regulation offer plus its estimated unit-specific opportunity costs from among the resources selected to provide Regulation.

(d) In determining the Regulation market-clearing price, the estimated unit-specific opportunity costs of a resource offering to sell Regulation each hour shall be equal to the product of (i) the deviation of the set point of the resource that is expected to be required in order to provide Regulation from the resource's expected output level if it had been dispatched in economic merit order times (ii) the absolute value of the difference between the expected Locational Marginal Price at the generation bus for the resource and the offer price for energy from the resource (at the megawatt level of the Regulation set point for the resource) in the PJM Interchange Energy Market.

(e) In determining the credit under subsection (b) to a Generating Market Buyer selected to provide Regulation and that actively follows the Office of the Interconnection's Regulation signals and instructions, the unit-specific opportunity cost of a resource shall be determined for each hour that the Office of the Interconnection requires a resource to provide Regulation and shall be equal to the product of (i) the deviation of the resource's output necessary to follow the Office of the Interconnection's Regulation signals from the resource's expected output level if it had been dispatched in economic merit order times (ii) the absolute value of the difference between the Locational Marginal Price at the generation bus for the resource and the offer price for energy from the resource (at the megawatt level of the Regulation set point for the resource) in the PJM Interchange Energy Market.

(f) Any amounts credited for Regulation in an hour in excess of the Regulation market-clearing price in that hour shall be allocated and charged to each Internal Market Buyer that does not meet its hourly Regulation obligation in proportion to its purchases of Regulation in megawatt-hours during that hour.

3.2.3 Operating Reserves.

(a) A Market Seller's pool-scheduled resources capable of providing operating reserves shall be credited as specified below based on the prices offered for the operation of such resource, provided that the resource was available for the entire time specified in the Offer Data for such resource.

(b) The following determination shall be made for each pool-scheduled resource that is scheduled in the Day-ahead Energy Market: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the resource's scheduled output, shall be compared to the total value of that resource's Spot Market Energy as determined by the Day-ahead Energy Market and the Day-ahead Prices applicable to the relevant generation bus in the Day-ahead Energy Market. If the total offered price summed over all hours exceeds the total value summed over all hours, the difference shall be credited to the Market Seller.

(c) The sum of the foregoing credits calculated in accordance with Section 3.2.3(b) plus any unallocated charges from Section 3.2.3(h) and 5.1.7, shall be the cost of Operating Reserves in the Day-ahead Energy Market.

(d) The cost of Operating Reserves in the Day-ahead Energy Market shall be allocated and charged to each Market Participant in proportion to the sum of its (i) scheduled load and accepted Decrement Bids in the Day-ahead Energy Market in megawatt-hours for that Operating Day; and (ii) scheduled energy sales in the Day-ahead Energy Market from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours for that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

(e) At the end of each Operating Day, the following determination shall be made for each synchronized pool-scheduled resource of each Market Seller that operates as requested by the Office of the Interconnection and that is not committed solely for the purpose of providing spinning reserves: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the lesser of the resource's (i) hourly ~~actual~~ output ~~at available and requested time and type of operation~~ as determined by the State Estimator or (ii) requested output as determined by the PJM dispatch. The total offered price shall be compared to the total value of that resource's ~~Spot Market Energy~~ energy in the Day-ahead Energy Market plus any credit or charge for quantity deviations, at PJM dispatch direction, from the Day-ahead Energy Market during the Operating Day. If the total offered price exceeds the total value, the difference less any credit as determined pursuant to Section 3.2.3(b) and less any amounts credited for Regulation in excess of the Regulation offer plus the resources opportunity cost, shall be credited to the Market Seller. ~~Market Seller shall also be credited on the basis of their offered prices for synchronized condensing for any hydropower or combustion turbine units operated as synchronous condensers at the request of Office of the Interconnection but producing no energy.~~

(~~e~~f) A Market Seller's pool scheduled resource the output of which is reduced or suspended at the request of the Office of the Interconnection for the purpose of managing an Emergency within the PJM Control Area, shall be credited in an amount equal to (PAG - AG) x LT x (ULMP - UB) where:

PAG equals the actual generation of the unit for the five minute period preceding the request;

AG equals the actual generation of the unit until PJM cancels the request to reduce output;

LT equals the length of time that the request to reduce output was effective;

ULMP equals the LMP at the unit's bus;

UB equals the unit bid for the unit whose output is reduced or suspended; and

where ULMP - UB shall not be negative.

(~~f~~g) The sum of the foregoing credits, plus any cancellation fees paid in accordance with Section 1.10.2(d) such cancellation fees to be applied to the Operating Day for which the unit was scheduled, less any payments received from another Control Area for Operating Reserves, shall be the cost of Operating Reserves ~~for the PJM Control Area~~ for the Real-time Energy Market in each Operating Day.

(~~e~~h) The cost of Operating Reserves for the Real-time Energy Market for each Operating Day shall be allocated and charged to each Market Participant in proportion to the sum of the absolute values of its (i) ~~deliveries of energy to load in the PJM Control Area~~load deviations from the Day-ahead Energy Market in megawatt-hours during that Operating Day; (ii) generation deviations from the Day-ahead Energy Market for non-dispatchable generation resources, including External Resources, in megawatt-hours during the Operating Day; (iii) deviations from the Day-ahead Energy Market for bilateral transactions from outside the PJM Control Area for delivery within the PJM Control Area in megawatt-hours during the Operating Day; and (~~i~~iv) ~~deliveries~~deviations of energy sales from the Day-ahead Energy Market from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours during that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

(i) At the end of each Operating Day, Market Sellers shall be credited on the basis of their offered prices for synchronized condensing for any hydropower or combustion turbine units operated as synchronous condensers but producing no energy, as well as the credits calculated as specified in Section 3.2.3(b) for those generators committed solely for the purpose of providing spinning reserves, at the request of the Office of the Interconnection.

(j) The sum of the foregoing credits as specified in Section 3.2.3(b) shall be the cost of Operating Reserves for synchronized condensing for the Operating Day in the PJM Control Area.

(k) The cost of Operating Reserves for synchronized condensing for each Operating Day shall be allocated and charged to each Market Participant in proportion to the sum of its (i) deliveries of energy to load in the PJM Control Area, served under Network Transmission Service, in megawatt-hours during that Operating Day; and (ii) deliveries of energy sales from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours during that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

3.2.4 Transmission Congestion.

Each Market Buyer shall be charged or credited for Transmission Congestion Charges as specified in Section 5 of this Schedule.

3.2.5 Transmission Losses.

(a) Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for losses shall apply.

(b) Each Internal Market Buyer that is a Load Serving Entity or purchasing on behalf of a Load Serving Entity shall be credited in an amount equal to its pro rata share of the hourly total amounts collected from Transmission Customers either as charges for transmission losses in the PJM Control Area as specified in Section 3.4.2 or for transmission losses supplied in kind in accordance with Section 3.4.2(c) based on the Locational Marginal Price at the interface where such losses were delivered. This credit shall be determined by the ratio of the Internal Market Buyer's total hourly load, divided by the total hourly load in the PJM Control Area.

(c) PJM Control Area 500 kV losses shall be allocated to each Electric Distributor that reports hourly net energy flows from metered tie lines in proportion to its hourly load in the PJM Control Area.

3.2.6 Emergency Energy.

(a) Internal Market Buyers shall be allocated a proportionate share of the net cost of Emergency energy purchased by the Office of the Interconnection. Such allocated share shall be determined in proportion to the amount of net PJM Interchange Imports by each Internal Market Buyer during the hour of each such energy purchase.

(b) Net revenues in excess of ~~Locational Marginal~~Real-time Prices attributable to sales of energy in connection with Emergencies to other Control Areas shall be credited to Internal Market Buyers in proportion to the amount of net PJM Interchange Imports by each Internal Market Buyer during each hour of such energy sales.

(c) The costs, revenues, and energy associated with hourly energy purchased from another Control Area in connection with a Minimum Generation Emergency in such other Control Area, shall be allocated to each Internal Market Buyer in proportion to its load in the PJM Control Area during the hour of such purchases.

3.2.7 Billing.

(a) The Office of the Interconnection shall prepare a billing statement each billing cycle for each Market Buyer in accordance with the charges and credits specified in Sections 3.2.1 through 3.2.6 of this Schedule, and showing the net amount to be paid or received by the Market Buyer. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Market Buyer's internal accounting.

(b) If deliveries to a Market Buyer that has PJM Interchange meters in accordance with Section 14 of the Operating Agreement include amounts delivered for a Market Participant that does not have PJM Interchange meters separate from those of the metered Market Buyer, the Office of the Interconnection shall prepare a separate billing statement for the unmetered Market Participant based on the allocation of deliveries agreed upon between the Market Buyer and the unmetered Market Participant specified by them to the Office of the Interconnection.

3.3 Market Sellers.

Except as provided in the following sentence, the accounting and billing principles and procedures applicable to Generating Market Buyers functioning as Market Sellers shall be as set forth in Section 3.2. This Section sets forth the accounting and billing principles and procedures applicable to all other Market Sellers, and to Generating Market Buyers functioning as Market Sellers with respect to any matters not specified in Section 3.2.

3.3.1 Spot Market Energy.

(a) Market Sellers shall be paid for all energy scheduled to be delivered in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant generation bus.

(b) At the end of each hour during an Operating Day, the Office of the Interconnection shall determine the total net amount of ~~hourly~~ energy delivered in the hour to the PJM Control Area by each ~~pool-scheduled or pool-dispatched resource~~ of each Market Seller of the Market Seller's resources, in accordance with the PJM Manuals and the calculation described in Section 3.2.1(~~d~~).

(~~b~~c) The Office of the Interconnection shall calculate ~~Locational Marginal~~ Day-ahead and Real-time Prices for each generation and load bus in the PJM Control Area, including the bus at each point of interconnection between the PJM Control Area and each adjacent Control Area, in accordance with Section 2 of this Schedule.

(~~c~~d) A Market Seller shall be credited for real-time sales of Spot Market Energy to the extent of its hourly net deliveries ~~of energy~~ to the PJM Control Area of energy in excess of amounts scheduled in the Day-ahead Energy Market from the Market Seller's ~~pool-scheduled or pool-dispatched~~ resources. For ~~pool-scheduled resources that are~~ External Resources, the Office of the Interconnection shall model, based on an appropriate flow analysis, the hourly amounts delivered from each such resource to the corresponding interface point between the PJM Control Area and adjacent Control Areas. The total ~~credit~~ real-time generation revenues for each Market Seller shall be the sum of its credits determined by the product of (i) the hourly net amount of energy delivered to the PJM Control Area at the applicable generation or interface bus in excess of the amount scheduled to be delivered in that hour at that bus in the Day-ahead Energy Market from each of the Market Seller's ~~pool-scheduled or pool-dispatched~~ resources, times (ii) the hourly ~~Locational Marginal~~ Real-time Price at that bus. To the extent that the energy actually injected at a generation or interface bus in any hour is less than the energy scheduled to be injected at that bus in the Day-ahead Energy Market, the Market Seller shall be debited for the difference at the Real-time Price for the applicable bus at the time of the shortfall times the amount of the shortfall. The total generation revenue for each Market Seller shall be the sum, for each of the Market Seller's generation or interface buses, of the revenues at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 3.3.1(a) plus the revenues at Real-time Prices determined as specified herein, net of any debits specified herein for each of the Market Seller's generation or interface buses.

3.3.2 Regulation.

Each Market Seller that is also an Internal Market Buyer shall have an hourly Regulation objective and shall be credited or charged in connection therewith as specified in Section 3.2.2. All other Market Sellers supplying Regulation at the direction of the Office of the Interconnection shall be credited for each increment of such Regulation at the price specified in Section 3.2.2(b), as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

3.3.3 Operating Reserves.

A Market Seller shall be credited for its pool-scheduled resources based on the prices offered for the operation of such resource, provided that the resource was available for the entire time specified in the Offer Data for such resource, in accordance with the procedures set forth in Section 3.2.3.

3.3.4 Emergency Energy.

The costs and net revenues associated with hourly energy sales to other Control Areas in connection with a Minimum Generation Emergency in the PJM Control Area shall be allocated to Market Sellers in proportion to their sales to the PJM Interchange Energy Market from generation resources within the metered boundaries of the PJM Control Area in each hour in which such energy was sold to other Control Areas.

3.3.5 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Market Seller in accordance with the charges and credits specified in Sections 3.3.1 through 3.3.4 of this Schedule, and showing the net amount to be paid or received by the Market Seller. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Market Seller's internal accounting.

3.4 Transmission Customers.

3.4.1 Transmission Congestion.

Each Transmission Customer shall be charged and credited for Transmission Congestion Charges as specified in Section 5 of this Schedule.

3.4.2 Transmission Losses.

(a) Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for losses shall apply.

(b) Transmission Customers shall be charged for transmission losses in an amount equal to the product of (i) the Transmission Customer's megawatt-hours of deliveries using Point-to-Point Transmission Service, times (ii) the appropriate loss factor for deliveries using Point-to-Point Transmission Service, times (iii) the weighted average ~~Locational Marginal~~Day-ahead or Real-time Price, as applicable, for all load busses in the PJM Control Area. The foregoing average hourly loss factor shall be: (i) determined by the Office of the Interconnection from time to time as conditions affecting losses shall warrant; and (ii) calculated separately for on-peak and off-peak hours on the basis of the average ratio of losses to load served in each such period.

(c) A Transmission Customer may elect to pay for losses in kind, rounded off to the nearest whole megawatt, rather than as specified above if its total deliveries in an hour using Point-to-Point Transmission Service are greater than 200 megawatts. If it so elects, the Transmission Customer's specified source for the energy to be delivered using Point-to-Point Transmission Service may be scheduled to supply to the PJM Control Area boundary an amount of energy equal to the delivery schedule plus the amount of losses determined by applying the appropriate hourly loss factor as specified above to the delivered amount.

3.4.3 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Transmission Customer in accordance with the charges and credits specified in Sections 3.4.1 through 3.4.2 of this Schedule, and showing the net amount to be paid or received by the Transmission Customer. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Transmission Customer's internal accounting.

3.5 Other Control Areas.

3.5.1 Energy Sales.

To the extent appropriate in accordance with Good Utility Practice, the Office of the Interconnection may sell energy to an interconnected Control Area as necessary to alleviate or end an Emergency in that Control Area. Such sales shall be made (i) only to Control Areas that have undertaken a commitment pursuant to a written agreement with the LLC to sell energy on a comparable basis to the PJM Control Area, and (ii) only to the extent consistent with the maintenance of reliability in the PJM Control Area. The Office of the Interconnection may decline to make such sales to a Control Area that the Office of the Interconnection determines does not have in place and implement Emergency procedures that are comparable to those followed in the PJM Control Area. If the Office of the Interconnection sells energy to an interconnected Control Area as necessary to alleviate or end an Emergency in that Control Area, such energy shall be sold at 150% of the ~~Locational Marginal~~Real-time Price at the bus or busses at the border of the PJM Control Area at which such energy is delivered.

3.5.2 Operating Margin Sales.

The extent appropriate in accordance with Good Utility Practice, the Office of the Interconnection may sell Operating Margin to an interconnected Control Area as requested to alleviate an operating contingency resulting from the affect of the purchasing Control Area's operations on the dispatch of resources in the PJM Control Area. Such sales shall be made only to Control Areas that have undertaken a commitment pursuant to a written agreement with the Office of the Interconnection (i) to purchase Operating Margin whenever the purchasing Control Area's operations will affect the dispatch of resources in the PJM Control Area, and (ii) to sell Operating Margin on a comparable basis to the LLC.

3.5.3 Transmission Congestion.

Each Control Area purchasing Operating Margin shall be assessed Transmission Congestion Charges as specified in Section 5.1.5 of this Schedule.

3.5.4 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Control Area to which Emergency energy or Operating Margin was sold, and showing the net amount to be paid by such Control Area. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts.

3.6 Metering Reconciliation.

3.6.1 Meter Correction Billing.

Metering errors and corrections will be reconciled at the end of each month by a meter correction charge or credit. The monthly meter correction charge or credit shall be determined by the product of the positive or negative deviation in energy amounts, times the weighted average Locational Marginal Price for all load busses in the PJM Control Area.

3.6.2 Meter Corrections Between Market Participants.

If a Market Participant or the Office of the Interconnection discovers a meter error affecting an interchange of energy with another Market Participant and makes the error known to such other Market Participant prior to the completion by the Office of the Interconnection of the accounting for the interchange, and if both Market Participants are willing to adjust hourly load records to compensate for the error and such adjustment does not affect other parties, an adjustment in load records may be made by the Market Participants in order to correct for the meter error, provided corrected information is furnished to the Office of the Interconnection in accordance with the Office of the Interconnection's accounting deadlines. No such adjustment may be made if the accounting for the Operating Day in which the interchange occurred has been completed by the Office of the Interconnection.

3.6.3 500 kV Meter Errors.

Billing cycle accounting for 500 kV transmission losses shall be adjusted to account for errors in meters on 500 kV Transmission Facilities.

3.6.4 Meter Corrections Between Control Areas.

An error between accounted for and metered interchange between a Party in the PJM Control Area and an entity in another Control Area shall be corrected by adjusting the hourly meter readings. If this is not practical, the error shall be accounted for by a correction at the end of the billing cycle. The Market Participant with ties to such other Control Area experiencing the error shall account for the full amount of the discrepancy and an appropriate debit or credit shall be applied equally among all Market Buyers. The Office of the Interconnection will adjust the actual interchange between the PJM Control Area and the other Control Area to maintain a proper record of inadvertent energy flow. Meter corrections on the 500 kV system between the PJM Control Area and other Control Areas shall be accounted for through the internal 500 kV system meter error allocation at the end of the billing cycle.

3.6.5 Meter Correction Data.

Meter error data shall be submitted to the Office of the Interconnection not later than noon on the second working day of the Office of the Interconnection after the end of the billing cycle applicable to the meter correction.

3.6.6 Correction Limits.

A Market Participant may not assert a claim for an adjustment in billing as a result of a meter error for any error discovered more than two years after the date on which the metering occurred. Any claim for an adjustment in billing as a result of a meter error shall be limited to bills for transactions occurring in the most recent annual accounting period of the billing Market Participant in which the meter error occurred, and the prior annual accounting period.

4. RATE TABLE

4.1 Offered Price Rates.

Spot Market Energy, Regulation, Operating Reserve, and Transmission Congestion are based on offers to the Office of the Interconnection specified in this Agreement.

4.2 Transmission Losses.

Average loss factors shall be as specified in the PJM Tariff.

4.3 Emergency Energy Purchases.

The pricing for Emergency energy purchases will be determined by the Office of the Interconnection and: (a) an adjacent Control Area, in accordance with an agreement between the Office of the Interconnection and such adjacent Control Area, or (b) a Member, in accordance with arrangements made by the Office of Interconnection to purchase energy offered by such Member from resources that are not Capacity Resources.

ANNUAL REVENUE REQUIREMENT FOR UGI UTILITIES, INC.

The revenue requirement for the UGI Utilities, Inc. transmission facilities included in the PP&L Group Zone under the pool-wide open-access transmission tariff of the Pennsylvania-New Jersey-Maryland Interconnection, L.L.C. shall be $2,896,000, subject to the outcome of the hearing in consolidated Dockets Nos. ER97-4829-000, *et al.*

The revenue requirement set forth above shall be modified if necessary to comply with the outcome of Dockets Nos. ER97-4829-000, *et al.*

The revenue requirement set forth herein (as it may be modified to comply with the outcome of Dockets Nos. ER97-4829-000, *et al.*) shall be UGI's revenue requirement for purposes of the distribution of revenues by PJM under Section 5.3 of the Transmission Owners Agreement, PJM Rate Schedule No. 22.

Effective: April 1, 1998

5. CALCULATION OF TRANSMISSION CONGESTION CHARGES AND CREDITS

5.1 Transmission Congestion Charge Calculation.

5.1.1 Calculation by Office of the Interconnection.

When the transmission system is operating under constrained conditions, the Office of the Interconnection shall calculate Transmission Congestion Charges for each Network Service User, the PJM Interchange Energy Market, and each Transmission Customer.

5.1.2 General.

The basis for the Transmission Congestion Charges shall be the differences in the Locational Marginal Prices between points of delivery and points of receipt, as determined in accordance with Section 2 of this Schedule.

5.1.3 Network Service User Calculation.

Each Network Service User shall be charged for the increased cost of energy incurred by it during each constrained hour to deliver the output of its firm Capacity Resources or other owned or contracted for resources, its firm bilateral purchases, and its non-firm bilateral purchases as to which it has elected to pay Transmission Congestion Charges. The Transmission Congestion Charge for deliveries from each such source shall be the Network Service User's hourly net bill less its hourly net PJM Interchange payments or sales as determined in accordance with Section 3.2.1 or Sections 3.3 and 3.3.1 of this Schedule.

5.1.4 Transmission Customer Calculation.

Each Transmission Customer using Firm Point-to-Point Transmission Service (as defined in the PJM Tariff), and each Transmission Customer using Non-Firm Point-to-Point Transmission Service (as defined in the PJM Tariff) that has elected to pay Transmission Congestion Charges, shall be charged for the increased cost of energy during constrained hours for the delivery of energy using Point-to-Point Transmission Service. ~~The~~ Except as specified in this subsection, a Transmission Congestion Charge ~~for each such delivery~~ shall be ~~the delivery amount~~ assessed for transmission use scheduled in the Day-ahead Energy Market, calculated as the amount to be delivered multiplied by the difference between the ~~Locational Marginal~~ Day-ahead Price at the delivery point or PJM Control Area boundary delivery interface and the ~~Locational Marginal~~ Day-ahead Price at the source ~~interface, or~~ point or PJM Control Area boundary source interface. Transmission Congestion Charges shall be assessed for real-time transmission use in excess of the amounts scheduled for each hour in the Day-ahead Energy Market, calculated as the excess amount multiplied by the difference between the Real-time Prices at the delivery point or PJM Control Area boundary delivery interface, and the Real-time Price at the source point or PJM Control Area boundary source interface. A Transmission Customer shall be credited for Transmission Congestion Charges for real-time transmission use falling below the amounts scheduled for each hour in the Day-ahead Energy Market, calculated as the shortfall amount multiplied by the difference between the Real-time Price at the delivery

point or PJM Control Area boundary delivery interface, and the Real-time Price at the source point or PJM Control Area boundary source interface. Real-time deviations from the Point-to-Point Transmission Service scheduled in the Day-ahead Energy Market shall be determined by the lesser of the real-time injection or withdrawal associated with such transmission service. The Transmission Congestion Charge for Market Sellers using point-to-point transmission service for deliveries out of the PJM Control Area from generating resources within the PJM Control Area shall be the amount of its net bill less ~~i.~~ the Market Seller's net hourly PJM Interchange payments or sales as determined in accordance with Section 3.3 of this Schedule.

5.1.5 Operating Margin Customer Calculation.

Each Control Area purchasing Operating Margin shall be assessed Transmission Congestion Charges for any the increase in the cost of energy resulting from the provision of Operating Margin. The Transmission Congestion Charge shall be the amount of Operating Margin purchased in an hour multiplied by the difference in the Locational Marginal Price at what would be the delivery interface and the Locational Marginal Price at what would be the source interface, if the operating contingency that was the basis for the purchase of Operating Margin had occurred in that hour. Operating Margin may be allocated among multiple source and delivery interfaces in accordance with an applicable load flow study.

5.1.6 Transmission Loading Relief Customer Calculation.

(a) Each Transmission Loading Relief Customer shall be assessed Transmission Congestion Charges for any increase in the cost of energy in the PJM Control Area resulting from its energy schedules over contract paths outside the PJM Control Area during Transmission Loading Relief.

(b) The Transmission Congestion Charge shall be the total amount of energy specified in such energy schedules multiplied by the difference between a Locational Marginal Price calculated by the Office of the Interconnection for the energy schedule source location specified in the NERC Interchange Distribution Calculator and a Locational Marginal Price calculated by the Office of the Interconnection for the energy schedule sink location specified in the NERC Interchange Distribution Calculator. Transmission Congestion Charges that are less than zero shall be set equal to zero for Transmission Loading Relief Customers.

(c) The Office of the Interconnection will determine the Locational Marginal Prices at the energy schedule source and sink locations external to PJM with reference to and based solely on the prices of energy in the PJM Control Area and at the interface buses between the PJM Control Area and adjacent Control Areas and the system conditions and actual power flow distributions as described by the PJM State Estimator program. The Office of the Interconnection will determine the Locational Marginal Prices at the external energy schedule source and sink locations and the resulting Congestion Charge based on the portion of the energy schedule that flows through the PJM Control Area as reflected by the flow distributions from the PJM State Estimator Program.

5.1.7 Total Transmission Congestion Charges.

The total Transmission Congestion Charges collected by the Office of the Interconnection each hour will be the ~~sum of the~~aggregate net amounts determined as specified in this Schedule. The Office of the Interconnection shall collect Transmission Congestion Charges for each hour the transmission system operates under constrained conditions.

5.2 Transmission Congestion Credit Calculation.

5.2.1 Eligibility.

Each holder of a Fixed Transmission Right shall receive as a Transmission Congestion Credit a proportional share of the total Transmission Congestion Charges collected for each constrained hour.

5.2.2 Fixed Transmission Rights

(a) Transmission Congestion Credits will be calculated based upon the Fixed Transmission Rights held at the time of the constrained hour. Initial assignments of a Fixed Transmission Rights shall be made to each Network Service User and Transmission Customer, determined as specified below.

(b) On a periodic schedule established by the Office of the Interconnection, each Network Service User shall designate a subset of its Network Resources for which Fixed Transmission Rights will be assigned. Fixed Transmission Rights shall be assigned for each Network Resource in a number of megawatts equal to or less than the installed capacity summer megawatt rating of each designated Network Resource, determined at the PJM Control Area transmission bus at which the designated Network Resource is connected. Each Fixed Transmission Right shall be to the aggregate load busses of the Network Service User in a Zone or, with respect to Non-Zone Network Load, to the border of the PJM Control Area. The sum of each Network Service User's assigned Fixed Transmission Rights for a Zone must be equal to or less than the Network Service User's peak load for that Zone as determined under Section 34.1 of the Tariff. The sum of each Network Service User's Fixed Transmission Rights for Non-Zone Network Load must be equal to or less than the Network Service User's transmission responsibility for Non-Zone Network Load as determined under Section 34.1 of the Tariff.

(c) Each Transmission Customer receiving firm Point-to-Point Transmission Service shall be assigned Fixed Transmission Rights; provided, however, that a Transmission Customer may notify the Office of Interconnection that it does not wish to receive any FTRs or wishes to receive FTRs only for certain Point or Points of Receipt and Point or Points of Delivery, in which event no FTRs or such reduced amount of FTRs shall be issued to the Transmission Customer. The Fixed Transmission Right for each instance of Point-to-Point Transmission Service shall be a number of megawatts equal to the megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer has firm Point-to-Point Transmission Service.

(d) A Fixed Transmission Right, or the right to Transmission Congestion Credits attributable to a Fixed Transmission Right, may be sold or otherwise transferred by agreement, subject to compliance with such procedures as may be established by the Office of the Interconnection for verification of the rights of the purchaser or transferee.

5.2.3 Target Allocation for Network Service Users.

A target allocation of Transmission Congestion Credits for each Network Service User shall be determined for each of its Fixed Transmission Rights. Each Fixed Transmission Right shall be multiplied by the percent of the Network Service User's annual peak load assigned to each load bus multiplied by the difference calculated as the Network Service User's load bus ~~Locational Marginal~~Day-ahead Price minus the generation bus ~~Locational Marginal~~Day-ahead Price of the Network Resource associated with the Fixed Transmission Right. The total target allocation for each Fixed Transmission Right is the sum of the target allocations for each load bus. The total target allocation for each Network Service User for each hour is the sum of the total target allocations for each of the Network Service User's Fixed Transmission Rights.

5.2.4 Target Allocation for other Holders.

A target allocation of Transmission Congestion Credits for each Transmission Customer or entity holding an FTR acquired by other means shall be determined for each Fixed Transmission Right. Each Fixed Transmission Right shall be multiplied by the ~~hourly Locational Marginal~~Day-ahead Price differences for the receipt and delivery points associated with the Fixed Transmission Right, calculated as the ~~Locational Marginal~~Day-ahead Price at the delivery point(s) minus the Locational Marginal Price at the receipt point(s). The total target allocation for the Transmission Customer for each hour shall be the sum of the target allocations associated with all of the Transmission Customer's Fixed Transmission Rights.

5.2.5 Calculation of Transmission Congestion Credits.

(a) The total of all the target allocations determined as specified above shall be compared to the total Transmission Congestion Charges in each hour resulting from both the Day-ahead Energy Market and the Real-time Energy Market. If the total of the target allocations is less than the total of the Transmission Congestion Charges, the Transmission Congestion Credit for each Network Service User and Transmission Customer shall be equal to its target allocation. All remaining Transmission Congestion Charges shall be distributed as described below in Section 5.2.6 "Distribution of Excess Congestion Charges."

(b) If the total of the target allocations is greater than the total Transmission Congestion Charges for the hour resulting from both the Day-ahead Energy Market and the Real-time Energy Market, each holder of Fixed Transmission Rights shall ~~receive~~ be assigned a share of the total Transmission Congestion Charges in proportion to its target allocations.

5.2.6 Distribution of Excess Congestion Charges.

(a) Excess Transmission Congestion Charges accumulated in a month shall be distributed to each holder of Fixed Transmission Rights in proportion to, but not more than, any deficiency in the share of Transmission Congestion Charges received by the holder during that month as compared to its total target allocations for the month.

Any excess Transmission Congestion Charges remaining at the end of a month shall be distributed to Network Service Users and Transmission Customers purchasing Firm Point-to-Point Transmission Service in proportion to their Demand Charges for Network Service and their charges for Reserved Capacity for Firm Point-to-Point Transmission Service.

5.3 Unscheduled Transmission Service (Loop Flow).

(a) When there are agreements between the Members (or the Office of the Interconnection on behalf of the Members) and others for compensation to be paid or received for unscheduled transmission service (loop flow) into or out of the PJM Control Area, the net compensation received shall be included in the total Transmission Congestion Charges that are distributed in accordance with Section 5.2.

(b) With respect to payments by the Office of Interconnection to the New York Power Pool for the installation and operation of phase angle regulating facilities at Ramapo to control or limit unscheduled transmission service (loop flow), each Transmission Owner with revenue requirements under the PJM Tariff shall pay a share of the charges on a transmission revenue requirements ratio share basis.

6. "MUST-RUN" FOR RELIABILITY GENERATION

6.1 Introduction.

The following procedures shall apply to any generation resource subject to the dispatch of the Office of the Interconnection that (a) is a generation resource for which construction commenced before July 9, 1996, and (b) as a result of transmission constraints, the Office of the Interconnection determines, in the exercise of Good Utility Practice, must be run in order to maintain the reliability of service in the PJM Control Area. The provisions of this Schedule shall otherwise apply to the scheduling, dispatch, operation and accounting treatment of such resources, to the extent not inconsistent with the provisions of this Section 6.

6.2 Identification of Facility Outages.

Not later than one hour prior to the deadline specified in Section 1.10.1 of this Schedule, the Office of the Interconnection shall identify on the PJM Open Access Same-Time Information System any facility outage or other system condition which it has determined may give rise to a transmission constraint that may require, in order to maintain system reliability, the dispatch of one or more generation resources that otherwise would not be dispatched based on the merits of their offers to the PJM Interchange Energy Market.

6.3 Dispatch for Local Reliability.

6.3.1 Request and Dispatch.

In addition to the dispatch of generation by the Office of the Interconnection to maintain reliability on transmission facilities directly monitored by it, a Member that owns or leases with rights equivalent to ownership Transmission Facilities as defined in this Agreement or the Transmission Owners Agreement and that operates a local control center in accordance with Section 11.3.3 of this Agreement or a Market Operations Center in accordance with Section 1.7.5 of this Schedule, may request the Office of the Interconnection to dispatch generation in order to maintain reliability on any such Transmission Facilities that are not then directly monitored by the Office of the Interconnection, subject to the rules and procedures in Section 6.3.2. The Office of the Interconnection shall dispatch generation to maintain reliability on such Transmission Facilities by incorporating the facilities in the State Estimator program described in Section 2.3 as set forth below, unless the Office of the Interconnection determines that such dispatch would adversely affect reliability in the PJM Control Area or would otherwise not be in accordance with Good Utility Practice.

6.3.2 Designation of Facilities.

The following rules and procedures shall apply to a Member request that the Office of the Interconnection dispatch generation on one or more Transmission Facilities that are not then directly monitored by the Office of the Interconnection.

a) The Transmission Facilities that are the subject of the request must be among the facilities that comprise the Transmission System under the PJM Tariff;

b) The Member shall provide modeling information for such Transmission Facilities and provide sufficient telemetry to the Office of the Interconnection such that power flows are observable by the State Estimator program described in Section 2.3; provided, however, that if an unreliable constrained condition exists and time does not permit such modeling and telemetry, the Member and the Office of the Interconnection may agree to use a representative surrogate for such Transmission Facilities in order to allocate the costs of the dispatch of generation using Locational Marginal Prices to maintain reliability on such Transmission Facilities, provided further that the Member shall expeditiously provide the modeling data and install the necessary facilities to incorporate the Transmission Facilities into the State Estimator program;

c) The request shall constitute a request that such Transmission Facilities become and remain monitored by the Office of the Interconnection and subject to its dispatch control for a period of not less than ninety (90) days;

d) The Member shall comply with all other operating procedures established by the Office of the Interconnection regarding dispatch for local reliability as set forth in the PJM Manuals.

6.4 Price Caps.

6.4.1 Applicability.

(a) Except as specified below, if in the day-ahead schedule determined by the Office of the Interconnection in accordance with Sections 1.10.8(a) and (b) of this Schedule any generation resource may be dispatched out of economic merit order to maintain system reliability as a result of limits on transmission capability, the prices for energy offered by such resource shall be capped at the levels specified below. If the Office of the Interconnection is able to do so, such prices shall be capped only during each hour when the transmission limit affects the schedule of the affected resource, and otherwise shall be capped for the entire Operating Day. The energy prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(b) The energy bid price offered by any generation resource requested to be dispatched in accordance with Section 6.3 of this Schedule shall be capped at the levels specified below. If the Office of the Interconnection is able to do so, such prices shall be capped only during each hour when the affected resource is so scheduled, and otherwise shall be capped for the entire Operating Day. The energy prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(c) Generation resources subject to a price cap shall be paid for energy at the applicable Locational Marginal Price.

(d) Price caps shall not be applicable to generation resources used to relieve the Western, Central and Eastern reactive limits in the PJM Control Area. In addition, price caps shall not be applicable to generation resources used to relieve any other transmission limit as to which the FERC has authorized the used of market based rates.

6.4.2 Level.

The price cap shall be one of the amounts specified below, as specified in advance by the Market Seller for the affected unit:

(i) The weighted average Locational Marginal Price at the generation bus at which energy from the capped resource was delivered during a specified number of hours during which the resource was dispatched for energy in economic merit order, the specified number of hours to be determined by the Office of the Interconnection and to be a number of hours sufficient to result in a price cap that reflects reasonably contemporaneous competitive market conditions for that unit;

(ii) The incremental operating cost of the generation resource as determined in accordance with Schedule 2 of this Agreement and the PJM Manuals, plus 10% of such costs; or

(ii) An amount determined by agreement between the Office of the Interconnection and the Market Seller.

7. FIXED TRANSMISSION RIGHTS AUCTIONS

7.1 Auctions of Fixed Transmission Rights.

Periodic auctions to allow Market Participants to acquire or sell Fixed Transmission Rights shall be conducted by the Office of the Interconnection in accordance with the provisions of this Section.

7.1.1 Auction Period and Scope of Auctions.

The period covered by an auction shall be the one-month period next following the date that the auction is conducted. The Office of the Interconnection shall offer for sale in the auction any remaining Fixed Transmission Rights capability for the month after taking into account all of the Fixed Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Fixed Transmission Right for the period covered by an auction may offer such Fixed Transmission Right for sale in such auction. Each monthly auction will consist of a separate auction for on-peak Fixed Transmission Rights and a separate auction for off-peak Fixed Transmission Rights. Market Participants may bid for and acquire any number of Fixed Transmission Rights, provided that all Fixed Transmission Rights awarded are simultaneously feasible with each other and with all Fixed Transmission Rights outstanding at the time of the auction and not sold into the auction.

7.1.2 Frequency and Time of Auctions.

Fixed Transmission Rights auctions shall be held monthly. The bid and offer period shall open at 12:00 midnight (Eastern Prevailing Time) on the fifteenth (15th) business day preceding the month for which Fixed Transmission Rights are being auctioned and shall close at 12:00 midnight (Eastern Prevailing Time) on the tenth (10th) business day preceding the month for which Fixed Transmission Rights are being auctioned.

7.1.3 Duration of Fixed Transmission Rights.

Each Fixed Transmission Right acquired in a Fixed Transmission Rights auction shall entitle the holder to credits of Transmission Congestion Charges for the one-month period for which the Fixed Transmission Rights were auctioned.

7.2 Fixed Transmission Rights Characteristics.

7.2.1 Reconfiguration of Fixed Transmission Rights.

Through an appropriate linear programming model, the Office of the Interconnection shall reconfigure the Fixed Transmission Rights offered or otherwise available for sale in any auction to maximize the value to the bidders of the Fixed Transmission Rights sold, provided that any Fixed Transmission Rights acquired at auction shall be simultaneously feasible in combination with those Fixed Transmission Rights outstanding at the time of the auction and not sold in the auction. The linear programming model shall, while respecting transmission constraints and the maximum MW quantities of the bids and offers, select the set of simultaneously feasible Fixed Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers.

7.2.2 Specified Buses.

Auction bids for Fixed Transmission Rights may specify any combination of receipt and delivery buses represented in the State Estimator model for which the Office of the Interconnection calculates and posts Locational Marginal Prices. Auction bids may specify receipt and delivery points from locations outside of the PJM Control Area to locations inside the PJM Control Area, from locations within the PJM Control Area to locations outside of the PJM Control Area, or to and from locations within the PJM Control Area.

7.2.3 Transmission Congestion Charges.

Fixed Transmission Rights, whether acquired at auction or otherwise, shall entitle holders thereof to credits only for Transmission Congestion Charges, and shall not confer a right to credits for payments arising from or relating to transmission congestion made to any entity other than the Office of the Interconnection.

7.3 Auction Procedures.

7.3.1 Role of the Office of the Interconnection.

Fixed Transmission Rights auctions shall be conducted by the Office of the Interconnection in accordance with standards and procedures set forth in the PJM Manuals, such standards and procedures to be consistent with the requirements of this Schedule.

7.3.2 Notice of Offer.

A holder of a Fixed Transmission Right wishing to offer the Fixed Transmission Right for sale shall notify the Office of the Interconnection of any Fixed Transmission Rights to be offered. Each Fixed Transmission Rights sold in an auction shall, at the end of the period for which the Fixed Transmission Rights were auctioned, revert to the offering holder or the entity to which the offering holder has transferred such Fixed Transmission Right, subject to the term of the Fixed Transmission Right itself and to the right of such holder or transferee to offer the Fixed Transmission Right in the next or any subsequent auction during the term of the Fixed Transmission Right.

7.3.3 Pending Applications for Firm Service.

(a) Prior to the start of each auction bidding period, the Office of the Interconnection shall exert reasonable effort to complete its review of pending applications for Network Transmission Service and Firm Point-to-Point Transmission Service and to ascertain the corresponding Fixed Transmission Rights to be assigned to the entities receiving such service, subject to compliance with all applicable deadlines and other procedures by the applicant. Fixed Transmission Rights so assigned shall be included in the simultaneous feasibility test performed by the Office of the Interconnection for the auction.

(b) Fixed Transmission Rights may be assigned to entities requesting Network Transmission Service or Firm Point-to-Point Transmission Service only if such Fixed Transmission Rights are simultaneously feasible with all outstanding Fixed Transmission Rights, including Fixed Transmission Rights effective for the then-current auction period. If an assignment of Fixed Transmission Rights pursuant to a pending application for Network Transmission Service or Firm Point-to-Point Transmission Service cannot be completed prior to an auction, Fixed Transmission Rights attributable to such transmission service shall not be assigned for the then-current auction period. If a Fixed Transmission Right cannot be assigned for this reason, the applicant may withdraw its application, or request that the Fixed Transmission Right be assigned effective with the start of the next auction period.

7.3.4 On-Peak and Off-Peak Periods.

The Office of the Interconnection will conduct separate auctions simultaneously for on-peak and off-peak periods. On-Peak Fixed Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending at 11:00 p.m. on Mondays through Fridays, except holidays as defined in the PJM Manuals. Off-Peak Fixed Transmission Rights shall cover the periods from 11:00 p.m. up to the hour ending 7:00 a.m. on Mondays through Fridays and all hours on Saturdays, Sundays, and holidays as defined in the PJM Manuals. Each bid shall specify whether it is for an on-peak or off-peak period.

7.3.5 Offers and Bids.

(a) Offers to sell and bids to purchase Fixed Transmission Rights shall be submitted during the period set forth in Section 7.1.2, and shall be in the form specified by the Office of the Interconnection in accordance with the requirements set forth below.

(b) Offers to sell shall identify the specific Fixed Transmission Right, by megawatt quantity and receipt and delivery points, offered for sale. An offer to sell a specified megawatt quantity of Fixed Transmission Rights shall constitute an offer to sell a quantity of Fixed Transmission Rights equal to or less than the specified quantity. An offer to sell may not specify a minimum quantity being offered. Each offer may specify a reservation price, below which the offeror does not wish to sell the Fixed Transmission Right. Offers submitted by entities holding rights to Fixed Transmission Rights acquired other than by assignment in connection with reservations of Network Transmission Service or Firm Point-to-Point Transmission Service shall be subject to such reasonable standards for the verification of the rights of the offeror as may be established by the Office of the Interconnection. Offers shall be subject to such reasonable standards for the creditworthiness of the offeror or for the posting of security for performance as the Office of the Interconnection shall establish.

(c) Bids to purchase shall specify the megawatt quantity, price per megawatt, and receipt and delivery points of the Fixed Transmission Right that the bidder wishes to purchase. A bid to purchase a specified megawatt quantity of Fixed Transmission Rights shall constitute a bid to purchase a quantity of Fixed Transmission Rights equal to or less than the specified quantity. A bid to purchase may not specify a minimum quantity that the bidder whishes to purchase. A bid may specify as receipt or delivery points any bus for which the Office of the Interconnection calculates and posts Locational Marginal Prices in accordance with Section 2 of this Schedule and may include Fixed Transmission Rights for which the associated Transmission Congestion Credits may have negative values. Bids shall be subject to such reasonable standards for the creditworthiness of the bidder or for the posting of security for performance as the Office of the Interconnection shall establish.

(d) Bids and offers shall be specified to the nearest tenth of a megawatt and shall be greater than zero.

7.3.6 Determination of Winning Bids and Clearing Price.

(a) At the close of the bidding period each month, the Office of the Interconnection will create a base Fixed Transmission Rights power flow model that includes all outstanding Fixed Transmission Rights that have been approved and confirmed for any portion of the month for which the auction was conducted and that were not offered for sale in the auction. The base Fixed Transmission Rights model also will include estimated uncompensated parallel flows into each interface point of the PJM Control Area and estimated scheduled transmission outages.

(b) In accordance with the requirements of Section 7.4 of this Schedule and subject to all applicable transmission constraints and reliability requirements, the Office of the Interconnection shall determine the simultaneous feasibility of all outstanding Fixed Transmission Rights not offered for sale in the auction and of all Fixed Transmission Rights that could be awarded in the auction for which bids were submitted. The winning bids shall be determined from an appropriate linear programming model that, while respecting transmission constraints and the maximum MW quantities of the bids and offers, selects the set of simultaneously feasible Fixed Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers. In the event that there are two or more identical bids for the selected Fixed Transmission Rights and there are insufficient Fixed Transmission Rights to accommodate all of the identical bids, then each such bidder will receive a pro rata share of the Fixed Transmission Rights that can be awarded.

(c) Fixed Transmission Rights shall be sold at the market-clearing price for Fixed Transmission Rights between specified pairs of receipt and delivery points, as determined by the bid value of the marginal Fixed Transmission Right that could not be awarded because it would not be simultaneously feasible. The linear programming model shall determine the clearing prices of all Fixed Transmission Rights paths based on the bid value of the marginal Fixed Transmission Rights, which are those Fixed Transmission Rights with the highest bid values that could not be awarded fully because they were not simultaneously feasible, and based on the flow sensitivities of each Fixed Transmission Rights path relative to the marginal Fixed Transmission Rights paths flow sensitivities on the binding transmission constraints.

7.3.7 Announcement of Winners and Prices.

Within two (2) business days after the close of an auction, the Office of the Interconnection shall post the winning bidders, the megawatt quantity, and the receipt and delivery points for each Fixed Transmission Right awarded in the auction and the price at which each Fixed Transmission Right was awarded. Results of the on-peak auction and off-peak auction will be posted separately. The Office of the Interconnection shall not disclose the price specified in any bid to purchase or the reservation price specified in any offer to sell.

7.3.8 Auction Settlements.

All buyers and sellers of Fixed Transmission Rights between the same points of receipt and delivery shall pay or be paid the market-clearing price, as determined in the auction, for such Fixed Transmission Rights.

7.3.9 Allocation of Auction Revenues.

All auction revenues, net of payments to entities selling Fixed Transmission Rights into the auction, shall be allocated among the Regional Transmission owners in proportion to their respective transmission revenue requirements.

7.4 Simultaneous Feasibility.

The Office of the Interconnection shall make the simultaneous feasibility determinations specified herein using appropriate powerflow models of contingency-constrained dispatch. Such determinations shall take into account outages of both individual generation units and transmission facilities and shall be based on reasonable assumptions about the configuration and availability of transmission capability during the period covered by the auction that are not inconsistent with the determination of the deliverability of Capacity Resources under the Reliability Assurance Agreement. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Transmission Congestion Charges to satisfy all Fixed Transmission Rights obligations for the auction period under expected conditions.

Operating Agreement Revisions

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SCHEDULE 1 - PJM INTERCHANGE ENERGY MARKET 1
1. MARKET OPERATIONS 1
1.1 Introduction. 1
1.2 Cost-based Offers. 1
1.3 Definitions. 1
1.3.1 Day-ahead Energy Market 1
1.3.1a Day-ahead Prices 1
1.3.1b Decrement Bid 1
1.3.1c Dispatch Rate. 2
1.3.2 Equivalent Load. 2
1.3.3 External Market Buyer. 2
1.3.4 External Resource. 2
1.3.5 Fixed Transmission Right. 2
1.3.6 Generating Market Buyer. 2
1.3.7 Generator Forced Outage. 2
1.3.8 Generator Maintenance Outage. 2
1.3.9 Generator Planned Outage. 3
1.3.9a Increment Bid 3
1.3.10 Internal Market Buyer. 3
1.3.11 Inadvertent Interchange. 3
1.3.12 Market Operations Center 3
1.3.13 Maximum Generation Emergency 3
1.3.14 Minimum Generation Emergency. 3
1.3.14a NERC Interchange Distribution Calculator 3
1.3.15 Network Resource 4
1.3.16 Network Service User. 4
1.3.17 Network Transmission Service 4
1.3.18 Normal Maximum Generation 4
1.3.19 Normal Minimum Generation. 4
1.3.20 Offer Data. 4
1.3.21 Office of the Interconnection Control Center. 4
1.3.22 Operating Day. 4
1.3.23 Operating Margin. 5
1.3.24 Operating Margin Customer. 5
1.3.25 PJM Interchange. 5
1.3.26 PJM Interchange Export. 5
1.3.27 PJM Interchange Import. 5
1.3.28 PJM Open Access Same-time Information System. 6
1.3.29 Point-to-Point Transmission Service. 6
1.3.30 Ramping Capability. 6
1.3.30a Real-time Prices 6
1.3.30b Real-time Energy Market 6
1.3.31 Regulation. 6
1.3.32 Spot Market Backup 6
1.3.33 Spot Market Energy. 6

1.3.33a State Estimator 6
1.3.34 Transmission Congestion Charge. 7
1.3.35 Transmission Congestion Credit 7
1.3.36 Transmission Customer. 7
1.3.37 Transmission Forced Outage. 7
1.3.37a Transmission Loading Relief 7
1.3.37b Transmission Loading Relief Customer 7
1.3.38 Transmission Planned Outage. 7
1.4 Market Buyers. 7
1.4.1 Qualification 7
1.4.2 Submission of Information. 9
1.4.3 Fees and Costs 9
1.4.4 Office of the Interconnection Determination 9
1.4.5 Existing Participants. 9
1.4.6 Withdrawal 9
1.5 Market Sellers. 10
1.5.1 Qualification 10
1.5.2 Withdrawal 10
1.6 Office of the Interconnection. 10
1.6.1 Operation of the PJM Interchange Energy Market 10
1.6.2 Scope of Services. 11
1.6.3 Records and Reports. 12
1.6.4 PJM Manuals. 12
1.7 General 12
1.7.1 Market Sellers. 12
1.7.2 Market Buyers. 12
1.7.3 Agents. 12
1.7.4 General Obligations of the Market Participants. 12
1.7.5 Market Operations Center 14
1.7.6 Scheduling and Dispatching. 14
1.7.7 Pricing. 14
1.7.8 Generating Market Buyer Resources 15
1.7.9 Delivery to an External Market Buyer 15
1.7.10 Other Transactions. 15
1.7.11 Emergencies. 15
1.7.12 Fees and Charges. 16
1.7.13 Relationship to PJM Control Area 16
1.7.14 PJM Manuals. 16
1.7.15 Corrective Action. 16
1.7.16 Recording. 16
1.7.17 Operating Reserves. 16
1.7.18 Regulation. 17
1.7.19 Ramping. 18
1.7.20 Communication and Operating Requirements. 18

1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process. 19
1.8.1 PJM Dispute Resolution Agreement. 19
1.8.2 Market or Control Area Hourly Operational Disputes. 19

1.9 Prescheduling 20
1.9.1 Outage Scheduling. 20
1.9.2 Planned Outages 20
1.9.3 Generator Maintenance Outages 21
1.9.4 Forced Outages 21
1.9.5 Market Participant Responsibilities. 21
1.9.6 Internal Market Buyer Responsibilities. 22
1.9.7 Market Seller Responsibilities 22
1.9.8 Office of the Interconnection Responsibilities 22
1.10 Scheduling. 23
1.10.1 General 23
1.10.1a Day-Ahead Energy Market Scheduling. 23
1.10.2 Pool-Scheduled Resources 26
1.10.3 Self-scheduled Resources. 27
1.10.4 Capacity Resources. 27
1.10.5 External Resources 28
1.10.6 External Market Buyers. 28
1.10.6A Transmission Loading Relief Customers 29
1.10.7 Bilateral Transactions. 29
1.10.8 Office of the Interconnection Responsibilities. 29
1.10.9 Hourly Scheduling 30
1.11 Dispatch. 31
1.11.1 Resource Output 31
1.11.2 Operating Basis. 32
1.11.3 Pool-dispatched Resources 32
1.11.3a Maximum Generation Emergency 32
1.11.4 Regulation 32
1.11.5 PJM Open Access Same-time Information System. 33
1.12 Dynamic Scheduling 33
2. CALCULATION OF LOCATIONAL MARGINAL PRICES 34
2.1 Introduction. 34
2.2 General 34
2.3 Determination of System Conditions Using the State Estimator 35
2.4 Determination of Energy Offers Used in Calculating Real-time Prices 35
2.5 Calculation of Real-time Prices 36
2.6 Calculation of Day-ahead Prices 36
2.7 Performance Evaluation. 37
3. ACCOUNTING AND BILLING 38
3.1 Introduction. 38
3.2 Market Buyers. 38
3.2.1 Spot Market Energy. 38
3.2.2 Regulation. 40
3.2.3 Operating Reserves. 41
3.2.4 Transmission Congestion 43
3.2.5 Transmission Losses. 43

3.2.6 Emergency Energy. 44
3.2.7 Billing. 44
3.3 Market Sellers. 44
3.3.1 Spot Market Energy. 45
3.3.2 Regulation. 45
3.3.3 Operating Reserves. 46
3.3.4 Emergency Energy. 46
3.3.5 Billing. 46
3.4 Transmission Customers. 46
3.4.1 Transmission Congestion. 46
3.4.2 Transmission Losses 46
3.4.3 Billing. 47
3.5 Other Control Areas. 47
3.5.1 Energy Sales. 47
3.5.2 Operating Margin Sales. 47
3.5.3 Transmission Congestion. 47
3.5.4 Billing. 47
3.6 Metering Reconciliation. 48
3.6.1 Meter Correction Billing. 48
3.6.2 Meter Corrections Between Market Participants. 48
3.6.3 500 kV Meter Errors. 48
3.6.4 Meter Corrections Between Control Areas. 48
3.6.5 Meter Correction Data. 48
3.6.6 Correction Limits. 48
4. RATE TABLE 49
4.1 Offered Price Rates. 49
4.2 Transmission Losses. 49
4.3 Emergency Energy Purchases. 49
5. CALCULATION OF TRANSMISSION CONGESTION CHARGES AND CREDITS 50
5.1 Transmission Congestion Charge Calculation 50
5.1.1 Calculation by Office of the Interconnection. 50
5.1.2 General. 50
5.1.3 Network Service User Calculation. 50
5.1.4 Transmission Customer Calculation. 50
5.1.5 Operating Margin Customer Calculation. 51
5.1.6 Transmission Loading Relief Customer Calculation 51
5.1.7 Total Transmission Congestion Charges. 51
5.2 Transmission Congestion Credit Calculation. 52
5.2.1 Eligibility. 52
5.2.2 Fixed Transmission Rights 52
5.2.3 Target Allocation for Network Service Users. 53
5.2.4 Target Allocation for other Holders. 53
5.2.5 Calculation of Transmission Congestion Credits 53
5.2.6 Distribution of Excess Congestion Charges 53
5.3 Unscheduled Transmission Service (Loop Flow) 54
6. "MUST-RUN" FOR RELIABILITY GENERATION 55

6.1 Introduction 55
6.2 Identification of Facility Outages 55
6.3 Dispatch for Local Reliability 55
6.3.1 Request and Dispatch 55
6.3.2 Designation of Facilities 55
6.4 Price Caps 56
6.4.1 Applicability 56
6.4.2 Level 57
7. FIXED TRANSMISSION RIGHTS AUCTIONS 58
7.1 Auctions of Fixed Transmission Rights 58
7.1.1 Auction Period and Scope of Auctions 58
7.1.2 Frequency and Time of Auctions 58
7.1.3 Duration of Fixed Transmission Rights 58
7.2 Fixed Transmission Rights Characteristics 58
7.2.1 Reconfiguration of Fixed Transmission Rights 58
7.2.2 Specified Buses 59
7.2.3 Transmission Congestion Charges 59
7.3 Auction Procedures 59
7.3.1 Role of the Office of the Interconnection 59
7.3.2 Notice of Offer 59
7.3.3 Pending Applications for Firm Service 59
7.3.4 On-Peak and Off-Peak Periods 60
7.3.5 Offers and Bids 60
7.3.6 Determination of Winning Bids and Clearing Price 61
7.3.7 Announcements of Winners and Prices 61
7.3.8 Auction Settlements 62
7.3.9 Allocation of Auction Revenues 62
7.4 Simultaneous Feasibility 62
SCHEDULE 2 - COMPONENTS OF COST 1
SCHEDULE 2A - EXPLANATION OF THE TREATMENT OF THE COSTS OF EMISSIONS ALLOWANCES 1
SCHEDULE 3 - ALLOCATION OF THE COST AND EXPENSES OF THE OFFICE OF THE INTERCONNECTION 1
SCHEDULE 4 - STANDARD FORM OF AGREEMENT TO BECOME A MEMBER OF THE LLC 1

(h) Provide to the Office of the Interconnection all System, accounting, customer tracking, load forecasting (including all load to be served from its System) and other data necessary or appropriate to implement or administer this Agreement or the Reliability Assurance Agreement; and

(i) Comply with the underfrequency relay obligations and charges specified in Schedule 7 of this Agreement.

11.3.4 Reports to the Office of the Interconnection.

Each Member shall report as promptly as possible to the Office of the Interconnection any changes in its operating practices and procedures relating to the reliability of the bulk power supply facilities of the Interconnection. The Office of the Interconnection shall review such reports, and if any change in an operating practice or procedure of the Member is not in accord with the established operating principles, practices and procedures for the Interconnection and such change adversely affects the Interconnection and regional reliability, it shall so inform such Member, and the other Members through their representative on the Operating Committee, and shall direct that such change be modified to conform to the established operating principles, practices and procedures.

11.4 Regional Transmission Expansion Planning Protocol.

The Members shall participate in regional transmission expansion planning in accordance with the Regional Transmission Expansion Planning Protocol set forth in Schedule 6 to this Agreement.

11.5 Member Right to Petition.

(a) Nothing herein shall deprive any Member of the right to petition FERC to modify any provision of this Agreement or any Schedule or practice hereunder that the petitioning Member believes to be unjust, unreasonable, or unduly discriminatory under Section 206 of the Federal Power Act, subject to the right of any other Member (a) to oppose said proposal, or (b) to withdraw from the LLC pursuant to Section 4.1.

(b) Nothing herein shall be construed as affecting in any way the right of the Members, acting pursuant to a vote of the Members Committee as specified in Section 8.4, unilaterally to make an application to FERC for a change in any rate, charge, classification, tariff or service, or any rule or regulation related thereto, under section 205 of the Federal Power Act and pursuant to the rules and regulations promulgated by FERC thereunder, subject to the right of any Member that voted against such change in any rate, charge, classification, tariff or service, or any rule or regulation related thereto, in intervene in opposition to any such application.

(c) Nothing in this Agreement shall preclude those Members joining in the proposal to utilize Locational Marginal Prices to deal with transmission congestion from (i) filing amendments to the Agreement necessary to implement the use of Locational Marginal Prices in the PJM Control Area in accordance with such orders or other directives as may be issued by FERC relating thereto, or (ii) implementing the provisions of Sections 1.7.21 and 5.2.2(d) of Schedule 1 to this Agreement, without further authorization or approval by the Members Committee.

SCHEDULE 1

PJM INTERCHANGE ENERGY MARKET

(Revises and replaces former Schedules 7.01 and 7.03)

Issued: June 2, 1997
Effective: April 1, 1998

1. MARKET OPERATIONS

1.1 Introduction.

This Schedule sets forth the scheduling, other procedures, and certain general provisions applicable to the operation of the PJM Interchange Energy Market within the PJM Control Area. This Schedule addresses each of the three time-frames pertinent to the daily operation of the PJM Interchange Energy Market: Prescheduling, Scheduling, and Dispatch.

1.2 Cost-based Offers.

Unless and until the FERC shall authorize the use of market-based prices in the PJM Interchange Energy Market, all offers for energy or other services to be sold on the PJM Interchange Energy Market from generating resources located within the PJM Control Area shall not exceed the variable cost of producing such energy or other service, as determined in accordance with Schedule 2 to this Agreement and applicable regulatory standards, requirements and determinations; provided that, a Market Seller may offer to the PJM Interchange Energy Market the right to call on energy from a resource the output of which has been sold on a bilateral basis, with the rate for such energy if called equal to the curtailment rate specified in the bilateral contract.

1.3 Definitions.

1.3.1 Day-ahead Energy Market.

"Day-ahead Energy Market" shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Section 1.10 of this Schedule.

1.3.1a Day-ahead Prices.

"Day-ahead Prices" shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

1.3.1b Decrement Bid.

"Decrement Bid" shall mean a bid to purchase energy at a specified location in the Day-ahead Energy Market. An accepted Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

1.3.1c Dispatch Rate.

"Dispatch Rate" shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

1.3.2 Equivalent Load.

"Equivalent Load" shall mean the sum of a Market Participant's net system requirements to serve its customer load in the PJM Control Area, if any, plus its net bilateral transactions.

1.3.3 External Market Buyer.

"External Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users outside the PJM Control Area, or for load in the Control Area that is not served by Network Transmission Service.

1.3.4 External Resource.

"External Resource" shall mean a generation resource located outside the metered boundaries of the PJM Control Area.

1.3.5 Fixed Transmission Right.

"Fixed Transmission Right" shall mean a right to receive Transmission Congestion Credits as specified in Section 5.2.2 of this Schedule.

1.3.6 Generating Market Buyer.

"Generating Market Buyer" shall mean an Internal Market Buyer that is a Load Serving Entity that owns or has contractual rights to the output of generation resources capable of serving the Market Buyer's load in the PJM Control Area, or of selling energy or related services in the PJM Interchange Energy Market or elsewhere.

1.3.7 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.

1.3.8 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 necessary repairs on specific components of the facility, if removal of the facility meets the guidelines specified in the PJM Manuals.

1.3.9 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.

1.3.9a Increment Bid.

"Increment Bid" shall mean an offer to sell energy at a specified location in the Day-ahead Energy Market. An accepted Increment Bid results in scheduled generation at the specified location in the Day-ahead Energy Market.

1.3.10 Internal Market Buyer.

"Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for ultimate consumption by end-users inside the PJM Control Area that are served by Network Transmission Service.

1.3.11 Inadvertent Interchange.

"Inadvertent Interchange" shall mean the difference between net actual energy flow and net scheduled energy flow into or out of the PJM Control Area, as determined and allocated each hour by the Office of the Interconnection in accordance with the procedures set forth in the PJM Manuals to each Electric Distributor that reports to the Office of the Interconnection its hourly net energy flows from metered tie lines.

1.3.12 Market Operations Center.

"Market Operations Center" shall mean the equipment, facilities and personnel used by or on behalf of a Market Participant to communicate and coordinate with the Office of the Interconnection in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Control Area.

1.3.13 Maximum Generation Emergency.

"Maximum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more Capacity Resources to operate at its maximum net or gross electrical power output, subject to the equipment stress limits for such Capacity Resource, in order to manage, alleviate, or end the Emergency.

1.3.14 Minimum Generation Emergency.

"Minimum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more generating resources to operate at or below Normal Minimum Generation, in order to manage, alleviate, or end the Emergency.

1.3.14a NERC Interchange Distribution Calculator.

"NERC Interchange Distribution Calculator" shall mean the NERC mechanism that is in effect and being used to calculate the distribution of energy, over specific transmission interfaces, from energy transactions.

1.3.15 Network Resource.

"Network Resource" shall have the meaning specified in the PJM Tariff.

1.3.16 Network Service User.

"Network Service User" shall mean an entity using Network Transmission Service.

1.3.17 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 Regional Transmission Owner as that term is defined in the PJM Tariff.

1.3.18 Normal Maximum Generation.

"Normal Maximum Generation" shall mean the highest output level of a generating resource under normal operating conditions.

1.3.19 Normal Minimum Generation.

"Normal Minimum Generation" shall mean the lowest output level of a generating resource under normal operating conditions.

1.3.20 Offer Data.

"Offer Data" shall mean the scheduling, operations planning, dispatch, new resource, and other data and information necessary to schedule and dispatch generation resources for the provision of energy and other services and the maintenance of the reliability and security of the transmission system in the PJM Control Area, and specified for submission to the PJM Interchange Energy Market for such purposes by the Office of the Interconnection.

1.3.21 Office of the Interconnection Control Center.

"Office of the Interconnection Control Center" shall mean the equipment, facilities and personnel used by the Office of the Interconnection to coordinate and direct the operation of the PJM Control Area and to administer the PJM Interchange Energy Market, including facilities and equipment used to communicate and coordinate with the Market Participants in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Control Area.

1.3.22 Operating Day.

"Operating Day" shall mean the daily 24 hour period beginning at midnight for which transactions on the PJM Interchange Energy Market are scheduled.

1.3.23 Operating Margin.

"Operating Margin" shall mean the incremental adjustments, measured in megawatts, required in PJM Control Area operations in order to accommodate, on a first contingency basis, an operating contingency in the PJM Control Area resulting from operations in an interconnected Control Area. Such adjustments may result in constraints causing Transmission Congestion Charges, or may result in Ancillary Services charges pursuant to the PJM Tariff.

1.3.24 Operating Margin Customer.

"Operating Margin Customer" shall mean a Control Area purchasing Operating Margin pursuant to an agreement between such other Control Area and the LLC.

1.3.25 PJM Interchange.

"PJM Interchange" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load exceeds, or is exceeded by, the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup; or (c) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the hourly net metered output of any other Market Seller; or (e) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer; or (f) the hourly scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

1.3.26 PJM Interchange Export.

"PJM Interchange Export" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load is exceeded by the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup sales; or (c) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the hourly net metered output of any other Market Seller.

1.3.27 PJM Interchange Import.

"PJM Interchange Import" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load exceeds the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup purchases; or (c) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer; or (d) the hourly scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

1.3.28 PJM Open Access Same-time Information System.

"PJM Open Access Same-time Information System" shall mean the electronic communication system for the collection and dissemination of information about transmission services in the PJM Control Area, established and operated by the Office of the Interconnection in accordance with FERC standards and requirements.

1.3.29 Point-to-Point Transmission Service.

"Point-to-Point Transmission Service" shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Part II of the PJM Tariff.

1.3.30 Ramping Capability.

"Ramping Capability" shall mean the sustained rate of change of generator output, in megawatts per minute.

1.3.30a Real-time Prices.

"Real-time Prices" shall mean the Locational Marginal Prices resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

1.3.30b Real-time Energy Market.

"Real-time Energy Market" shall mean the purchase or sale of energy and payment of Transmission Congestion Charges for quantity deviations from the Day-ahead Energy Market in the Operating Day.

1.3.31 Regulation.

"Regulation" shall mean the capability of a specific generating unit with appropriate telecommunications, control and response capability to increase or decrease its output in response to a regulating control signal, in accordance with the specifications in the PJM Manuals.

1.3.32 Spot Market Backup.

"Spot Market Backup" shall mean the purchase of energy from, or the delivery of energy to, the PJM Interchange Energy Market in quantities sufficient to complete the delivery or receipt obligations of a bilateral contract that has been curtailed or interrupted for any reason.

1.3.33 Spot Market Energy.

"Spot Market Energy" shall mean energy bought or sold by Market Participants through the PJM Interchange Energy Market at Locational Marginal Prices determined as specified in Section 2 of this Schedule.

1.3.33a State Estimator.

"State Estimator" shall mean the computer model of power flows specified in Section 2.3 of this Schedule.

1.3.34 Transmission Congestion Charge.

"Transmission Congestion Charge" shall mean a charge attributable to the increased cost of energy delivered at a given load bus when the transmission system serving that load bus is operating under constrained conditions, which shall be calculated and allocated as specified in Section 5.1 of this Schedule.

1.3.35 Transmission Congestion Credit.

"Transmission Congestion Credit" shall mean the allocated share of total Transmission Congestion Charges credited to each holder of Fixed Transmission Rights, calculated and allocated as specified in Section 5.2 of this Schedule.

1.3.36 Transmission Customer.

"Transmission Customer" shall mean an entity using Point-to-Point Transmission Service.

1.3.37 Transmission Forced Outage.

"Transmission Forced Outage" shall mean an immediate removal from service of a transmission facility by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the transmission facility, as specified in the relevant portions of the PJM Manuals. A removal from service of a transmission facility at the request of the Office of the Interconnection to improve transmission capability shall not constitute a Forced Transmission Outage.

1.3.37a Transmission Loading Relief.

"Transmission Loading Relief" shall mean NERC's procedures for preventing operating security limit violations, as implemented by PJM as the security coordinator responsible for maintaining transmission security for the PJM Control Area.

1.3.37b Transmission Loading Relief Customer.

"Transmission Loading Relief Customer" shall mean an entity that, in accordance with Section 1.10.6A, has elected to pay Transmission Congestion Charges during Transmission Loading Relief in order to continue energy schedules over contract paths outside the PJM Control Area that are increasing the cost of energy in the PJM Control Area.

1.3.38 Transmission Planned Outage.

"Transmission Planned Outage" shall mean any transmission outage scheduled in advance for a pre-determined duration and which meets the notification requirements for such outages specified in the PJM Manuals.

1.4 Market Buyers.

1.4.1 Qualification.

(a) To become a Market Buyer, an entity shall submit an application to the Office of the Interconnection, in such form as shall be established by the Office of the Interconnection.

(b) An applicant that is a Load Serving Entity or that will purchase on behalf of or for ultimate delivery to a Load Serving Entity shall establish to the satisfaction of the Office of the Interconnection that the end-users that will be served through energy and related services purchased in the PJM Interchange Energy Market, are located electrically within the PJM Control Area, or will be brought within the PJM Control Area prior to any purchases from the PJM Interchange Energy Market. Such applicant shall further demonstrate that:

i) The Load Serving Entity for the end users is obligated to meet the requirements of the Reliability Assurance Agreement; and

ii) The Load Serving Entity for the end users has arrangements in place for Network Transmission Service or Point-To-Point Transmission Service for all PJM Interchange Energy Market purchases.

(c) An applicant that is not a Load Serving Entity or purchasing on behalf of or for ultimate delivery to a Load Serving Entity shall demonstrate that:

i) The applicant has obtained or will obtain Network Transmission Service or Point-to-Point Transmission Service for all PJM Interchange Energy Market purchases; and

ii) The applicant's PJM Interchange Energy Market purchases will ultimately be delivered to a load in another Control Area that is recognized by NERC and that complies with NERC's standards for operating and planning reliable bulk electric systems.

(d) An applicant shall not be required to obtain transmission service for purchases from the PJM Interchange Energy Market to cover quantity deviations from its sales in the Day-ahead Energy Market.

(e) All applicants shall demonstrate that:

i) The applicant is capable of complying with all applicable metering, data storage and transmission, and other reliability, operation, planning and accounting standards and requirements for the operation of the PJM Control Area and the PJM Interchange Energy Market;

ii) The applicant meets the creditworthiness standards established by the Office of the Interconnection, or has provided a letter of credit or other form of security acceptable to the Office of the Interconnection; and

iii) The applicant has paid all applicable fees and reimbursed the Office of the Interconnection for all unusual or extraordinary costs of processing and evaluating its application to become a Market Buyer, and has agreed in its application to subject any disputes arising from its application to the PJM Dispute Resolution Procedures.

(f) The applicant shall become a Market Buyer upon a final favorable determination on its application by the Office of the Interconnection as specified below, and execution by the applicant of counterparts of this Agreement.

1.4.2 Submission of Information.

The applicant shall furnish all information reasonably requested by the Office of the Interconnection in order to determine the applicant's qualification to be a Market Buyer. The Office of the Interconnection may waive the submission of information relating to any of the foregoing criteria, to the extent the information in the Office of the Interconnection's possession is sufficient to evaluate the application against such criteria.

1.4.3 Fees and Costs.

The Office of the Interconnection shall require all applicants to become a Market Buyer to pay a uniform application fee, initially in the amount of $1,500, to defray the ordinary costs of processing such applications. The application fee shall be revised from time to time as the Office of the Interconnection shall determine to be necessary to recover its ordinary costs of processing applications. Any unusual or extraordinary costs incurred by the Office of the Interconnection in processing an application shall be reimbursed by the applicant.

1.4.4 Office of the Interconnection Determination.

Upon submission of the information specified above, and such other information as shall reasonably be requested by the Office of the Interconnection, the Office of the Interconnection shall undertake an evaluation and investigation to determine whether the applicant meets the criteria specified above. As soon as practicable, but in any event not later than 60 days after submission of the foregoing information, or such later date as may be necessary to satisfy the requirements of the Reliability Assurance Agreement, the Office of the Interconnection shall notify the applicant and the members of the Members Committee of its determination, along with a written summary of the basis for the determination. The Office of the Interconnection shall respond promptly to any reasonable and timely request by a Member for additional information regarding the basis for the Office of the Interconnection's determination, and shall take such action as it shall deem appropriate in response to any request for reconsideration or other action submitted to the Office of the Interconnection not later than 30 days from the initial notification to the Members Committee.

1.4.5 Existing Participants.

Any entity that was qualified to participate as a Market Buyer in the PJM Interchange Energy Market under the Operating Agreement of PJM Interconnection L.L.C. in effect immediately prior to the Effective Date shall continue to be qualified to participate as a Market Buyer in the PJM Interchange Energy Market under this Agreement.

1.4.6 Withdrawal.

(a) An Internal Market Buyer that is a Load Serving Entity may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal not earlier than the effective date of (i) its withdrawal from the Reliability Assurance Agreement, or (ii) the assumption of its obligations under the Reliability Assurance Agreement by an agent that is a Market Buyer.

(b) An External Market Buyer or an Internal Market Buyer that is not a Load Serving Entity may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal at least one day after the date of the notice.

(c) Withdrawal from this Agreement shall not relieve a Market Buyer of any obligation to pay for electric energy or related services purchased from the PJM Interchange Energy Market prior to such withdrawal, to pay its share of any fees and charges incurred or assessed by the Office of the Interconnection prior to the date of such withdrawal, or to fulfill any obligation to provide indemnification for the consequences of acts, omissions or events occurring prior to such withdrawal; and provided, further, that withdrawal from this Agreement shall not relieve any Market Buyer of any obligations it may have under, or constitute withdrawal from, any other Related PJM Agreement.

(d) A Market Buyer that has withdrawn from this Agreement may reapply to become a Market Buyer in accordance with the provisions of this Section 1.4, provided it is not in default of any obligation incurred under this Agreement.

1.5 Market Sellers.

1.5.1 Qualification.

A Member that demonstrates to the Office of the Interconnection that the Member meets the standards for the issuance of an order mandating the provision of transmission service under section 211 of the Federal Power Act, as amended by the Energy Policy Act of 1992, may become a Market Seller upon execution of this Agreement and submission to the Office of the Interconnection of the applicable Offer Data in accordance with the provisions of this Schedule. All Members that are Market Buyers shall become Market Sellers upon submission to the Office of the Interconnection of the applicable Offer Data in accordance with the provisions of this Schedule.

1.5.2 Withdrawal.

(a) A Market Seller may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal at least one day after the date of the notice; provided, however, that withdrawal shall not relieve a Market Seller of any obligation to deliver electric energy or related services to the PJM Interchange Energy Market pursuant to an offer made prior to such withdrawal, to pay its share of any fees and charges incurred or assessed by the Office of the Interconnection prior to the date of such withdrawal, or to fulfill any obligation to provide indemnification for the consequences of acts, omissions, or events occurring prior to such withdrawal; and provided, further, that withdrawal shall not relieve any entity that is a Market Seller and is also a Market Buyer of any obligations it may have as a Market Buyer under, or constitute withdrawal as a Market Buyer from, this Agreement or any other Related PJM Agreement.

(b) A Market Seller that has withdrawn from this Agreement may reapply to become a Market Seller at any time, provided it is not in default with respect to any obligation incurred under this Agreement.

1.6 Office of the Interconnection.

1.6.1 Operation of the PJM Interchange Energy Market.

The Office of the Interconnection shall operate the PJM Interchange Energy Market in accordance with this Agreement.

1.6.2 Scope of Services.

The Office of the Interconnection shall, on behalf of the Market Participants, perform the services pertaining to the PJM Interchange Energy Market specified in this Agreement, including but not limited to the following:

i) Administer the PJM Interchange Energy Market as part of the PJM Control Area, including scheduling and dispatching of generation resources, accounting for transactions, rendering bills to the Market Participants, receiving payments from and disbursing payments to the Market Participants, maintaining appropriate records, and monitoring the compliance of Market Participants with the provisions of this Agreement, all in accordance with applicable provisions of the Office of the Interconnection Agreement, and the Schedules to this Agreement;

ii) Review and evaluate the qualification of entities to be Market Buyers or Market Sellers under applicable provisions of this Agreement;

iii) Coordinate, in accordance with applicable provisions of this Agreement, the Reliability Assurance Agreement, and the Transmission Owners Agreement, maintenance schedules for generation and transmission resources operated as part of the PJM Control Area;

iv) Provide or coordinate the provision of ancillary services necessary for the operation of PJM Control Area or the PJM Interchange Energy Market;

v) Determine and declare that an Emergency is expected to exist, exists, or has ceased to exist, in all or any part of the PJM Control Area, or in another Control Area interconnected directly or indirectly with the PJM Control Area, and serve as a primary point of contact for interested state or federal agencies;

vi) Enter into (a) agreements for the transfer of energy in conditions constituting an Emergency in the PJM Control Area or in a Control Area interconnected with it, and the mutual provision of other support in such Emergency conditions with other Control Areas interconnected with the PJM Control Area, and (b) purchases of Emergency energy offered by Members from resources that are not Capacity Resources in conditions constituting an Emergency in the PJM Control Area;

vii) Coordinate the curtailment or shedding of load, or other measures appropriate to alleviate an Emergency, in order to preserve reliability in accordance with NERC and MAAC principles, guidelines and standards, and to ensure the operation of the PJM Control Area in accordance with Good Utility Practice and the this Agreement;

viii) Protect confidential information as specified in this Agreement; and

ix) Send a representative to meetings of the Members Committee or other Committees, subcommittees, or working groups specified in this Agreement or formed by the Members Committee when requested to do so by the chair or other head of such committee or other group.

1.6.3 Records and Reports.

The Office of the Interconnection shall prepare and maintain such records and prepare such reports, including, but not limited to quarterly budget reports, as are required to document the performance of its obligations to the Market Participants hereunder in a form adopted by the Office of the Interconnection upon consideration of the advice and recommendations of the Members Committee. The Office of the Interconnection shall also produce special reports reasonably requested by the Members Committee and consistent with FERC's standards of conduct; provided, however, the Market Participants shall reimburse the Office of the Interconnection for the costs of producing any such report. Notwithstanding the foregoing, the Office of the Interconnection shall not be required to disclose confidential or commercially sensitive information in any such report.

1.6.4 PJM Manuals.

The Office of the Interconnection shall prepare, maintain and update the PJM Manuals consistent with this Agreement. The PJM Manuals shall be available for inspection by the Market Participants, regulatory authorities with jurisdiction over the LLC or any Member, and the public.

1.7 General.

1.7.1 Market Sellers.

Only Market Sellers shall be eligible to submit offers to the Office of the Interconnection for the sale of electric energy or related services in the PJM Interchange Energy Market. Market Sellers shall comply with the prices, terms, and operating characteristics of all Offer Data submitted to and accepted by the PJM Interchange Energy Market.

1.7.2 Market Buyers.

Only Market Buyers shall be eligible to purchase energy or related services in the PJM Interchange Energy Market. Market Buyers shall comply with all requirements for making purchases from the PJM Interchange Energy Market.

1.7.3 Agents.

A Market Participant may participate in the PJM Interchange Energy Market through an agent, provided that the Market Participant informs the Office of the Interconnection in advance in writing of the appointment of such agent. A Market Participant participating in the PJM Interchange Energy Market through an agent shall be bound by all of the acts or representations of such agent with respect to transactions in the PJM Interchange Energy Market, and shall ensure that any such agent complies with the requirements of this Agreement.

1.7.4 General Obligations of the Market Participants.

(a) In performing its obligations to the Office of the Interconnection hereunder, each Market Participant shall at all times (i) follow Good Utility Practice, (ii) comply with all applicable laws and regulations, (iii) comply with the applicable principles, guidelines, standards and requirements of FERC, NERC and MAAC, (iv) comply with the procedures established for operation of the PJM Interchange Energy Market and PJM Control Area and (v) cooperate with the Office of the Interconnection as necessary for the operation of the PJM Control Area in a safe, reliable manner consistent with Good Utility Practice.

(b) Market Participants shall undertake all operations in or affecting the PJM Interchange Energy Market and the PJM Control Area, including but not limited to compliance with all Emergency procedures, in accordance with the power and authority of the Office of the Interconnection with respect to the operation of the PJM Interchange Energy Market and the PJM Control Area as established in this Agreement, and as specified in the Schedules to this Agreement and the PJM Manuals. Failure to comply with the foregoing operational requirements shall subject a Market Participant to such reasonable charges or other remedies or sanctions for non-compliance as may be established by the PJM Board, including legal or regulatory proceedings as authorized by the PJM Board to enforce the obligations of this Agreement.

(c) The Office of the Interconnection may establish such committees with a representative of each Market Participant, and the Market Participants agree to provide appropriately qualified personnel for such committees, as may be necessary for the Office of the Interconnection to perform its obligations hereunder.

(d) All Market Participants shall provide to the Office of the Interconnection the scheduling and other information specified in the Schedules to this Agreement, and such other information as the Office of the Interconnection may reasonably require for the reliable and efficient operation of the PJM Control Area and the PJM Interchange Energy Market, and for compliance with applicable regulatory requirements for posting market and related information. Such information shall be provided as much in advance as possible, but in no event later than the deadlines established by the Schedules to this Agreement, or by the Office of the Interconnection in conformance with such Schedules. Such information shall include, but not be limited to, maintenance and other anticipated outages of generation or transmission facilities, scheduling and related information on bilateral transactions and self-scheduled resources, and implementation of active load management, interruption of load, and other load reduction measures. The Office of the Interconnection shall abide by appropriate requirements for the non-disclosure and protection of any confidential or proprietary information given to the Office of the Interconnection by a Market Participant. Each Market Participant shall maintain or cause to be maintained compatible information and communications systems, as specified by the Office of the Interconnection, required to transmit scheduling, dispatch, or other time-sensitive information to the Office of the Interconnection in a timely manner.

(e) Each Market Participant shall install and operate, or shall otherwise arrange for, metering and related equipment capable of recording and transmitting all voice and data communications reasonably necessary for the Office of the Interconnection to perform the services specified in this Agreement. A Market Participant that elects to be separately billed for its PJM Interchange shall, to the extent necessary, be individually metered in accordance with Section 14 of this Agreement, or shall agree upon an allocation of PJM Interchange between it and the Market Participant through whose meters the unmetered Market Participant's PJM Interchange is delivered. The Office of the Interconnection shall be notified of the allocation by the foregoing Market Participants.

(f) Each Market Participant shall operate, or shall cause to be operated, any generating resources owned or controlled by such Market Participant that are within the PJM Control Area or otherwise supplying energy to or through the PJM Control Area in a manner that is consistent with the standards, requirements or directions of the Office of the Interconnection and that will permit the Office of the Interconnection to perform its obligations under this Agreement; provided, however, no Market Participant shall be required to take any action that is inconsistent with Good Utility Practice or applicable law.

(g) Each Market Participant shall follow the directions of the Office of the Interconnection to take actions to prevent, manage, alleviate or end an Emergency in a manner consistent with this Agreement and the procedures of the PJM Control Area as specified in the PJM Manuals.

(h) Each Market Participant shall obtain and maintain all permits, licenses or approvals required for the Market Participant to participate in the PJM Interchange Energy Market in the manner contemplated by this Agreement.

1.7.5 Market Operations Center.

Each Market Participant shall maintain a Market Operations Center, or shall make appropriate arrangements for the performance of such services on its behalf. A Market Operations Center shall meet the performance, equipment, communications, staffing and training standards and requirements specified in this Agreement for the scheduling and completion of transactions in the PJM Interchange Energy Market and the maintenance of the reliable operation of the PJM Control Area, and shall be sufficient to enable (i) a Market Seller to perform all terms and conditions of its offers to the PJM Interchange Energy Market, and (ii) a Market Buyer to conform to the requirements for purchasing from the PJM Interchange Energy Market.

1.7.6 Scheduling and Dispatching.

(a) The Office of the Interconnection shall schedule and dispatch in real-time generation economically on the basis of least-cost, security-constrained dispatch and the prices and operating characteristics offered by Market Sellers, continuing until sufficient generation is dispatched to serve the PJM Interchange Energy Market energy purchase requirements under normal system conditions of the Market Buyers, as well as the requirements of the PJM Control Area for ancillary services provided by such generation, in accordance with this Agreement. Scheduling and dispatch shall be conducted in accordance with this Agreement.

(b) The Office of the Interconnection shall undertake to identify any conflict or incompatibility between the scheduling or other deadlines or specifications applicable to the PJM Interchange Energy Market, and any relevant procedures of another Control Area, or any tariff (including the PJM Tariff). Upon determining that any such conflict or incompatibility exists, the Office of the Interconnection shall propose tariff or procedural changes, and undertake such other efforts as may be appropriate, to resolve any such conflict or incompatibility.

1.7.7 Pricing.

The price paid for energy bought and sold in the PJM Interchange Energy Market will reflect the hourly Locational Marginal Price at each load and generation bus, determined by the Office of the Interconnection in accordance with this Agreement. Transmission Congestion Charges, which shall be determined by differences in Locational Marginal Prices in an hour caused by transmission constraints, shall be calculated and collected, and the revenues therefrom shall be disbursed, by the Office of the Interconnection in accordance with this Schedule.

1.7.8 Generating Market Buyer Resources.

A Generating Market Buyer may elect to self-schedule its generation resources up to that Generating Market Buyer's Equivalent Load, in accordance with and subject to the procedures specified in this Schedule, and the accounting and billing requirements specified in Section 3 to this Schedule.

1.7.9 Delivery to an External Market Buyer.

A purchase of Spot Market Energy by an External Market Buyer shall be delivered to a bus or busses at the border of the PJM Control Area specified by the Office of the Interconnection, or to load in the Control Area that is not served by Network Transmission Service, using Point-to-Point Transmission Service paid for by the External Market Buyer. Further delivery of such energy shall be the responsibility of the External Market Buyer.

1.7.10 Other Transactions.

(a) Market Participants may enter into bilateral contracts for the purchase or sale of electric energy to or from each other or any other entity, subject to the obligations of Market Participants to make Capacity Resources available for dispatch by the Office of the Interconnection. Bilateral arrangements that contemplate the physical transfer of energy to or from a Market Participant shall be reported to and coordinated with the Office of the Interconnection in accordance with this Schedule.

(b) Market Participants shall have Spot Market Backup with respect to all bilateral transactions that are not dynamically scheduled pursuant to Section 1.12 and that are curtailed or interrupted for any reason (except for curtailments or interruptions through active load management for load located within the PJM Control Area).

(c) To the extent the Office of the Interconnection dispatches a Generating Market Buyer's generation resources, such Generating Market Buyer may elect to net the output of such resources against its hourly Equivalent Load. Such a Generating Market Buyer shall be deemed a buyer from the PJM Interchange Energy Market to the extent of its PJM Interchange Imports, and shall be deemed a seller to the PJM Interchange Energy Market to the extent of its PJM Interchange Exports.

1.7.11 Emergencies.

The Office of the Interconnection, with the assistance of the Members' dispatchers as it may request, shall be responsible for monitoring the operation of the PJM Control Area, for declaring the existence of an Emergency, and for directing the operations of Market Participants as necessary to manage, alleviate or end an Emergency. The standards, policies and procedures of the Office of the Interconnection for declaring the existence of an Emergency, including but not limited to a Minimum Generation Emergency, and for managing, alleviating or ending an Emergency, shall apply to all Members on a non-discriminatory basis. Actions by the Office of the Interconnection and the Market Participants shall be carried out in accordance with this Agreement, the NERC Operating Policies, MAAC reliability principles and standards, Good Utility Practice, and the PJM Manuals. A declaration that an Emergency exists or is likely to exist by the Office of the Interconnection shall be binding on all Market Participants until the Office of the Interconnection

announces that the actual or threatened Emergency no longer exists. Consistent with existing contracts, all Market Participants shall comply with all directions from the Office of the Interconnection for the purpose of managing, alleviating or ending an Emergency. The Market Participants shall authorize the Office of the Interconnection to purchase or sell energy on their behalf to meet an Emergency, and otherwise to implement agreements with other Control Areas interconnected with the PJM Control Area for the mutual provision of service to meet an Emergency, in accordance with this Agreement.

1.7.12 Fees and Charges.

Each Market Participant shall pay all fees and charges of the Office of the Interconnection for operation of the PJM Interchange Energy Market as determined by and allocated to the Market Participant by the Office of the Interconnection in accordance with Schedule 3.

1.7.13 Relationship to PJM Control Area.

The PJM Interchange Energy Market operates within and subject to the requirements for the operation of the PJM Control Area.

1.7.14 PJM Manuals.

The Office of the Interconnection shall be responsible for maintaining, updating, and promulgating the PJM Manuals as they relate to the operation of the PJM Interchange Energy Market. The PJM Manuals, as they relate to the operation of the PJM Interchange Energy Market, shall conform and comply with this Agreement, NERC operating policies, and MAAC reliability principles, guidelines and standards, and shall be designed to facilitate administration of an efficient energy market within industry reliability standards and the physical capabilities of the PJM Control Area.

1.7.15 Corrective Action.

Consistent with Good Utility Practice, the Office of the Interconnection shall be authorized to direct or coordinate corrective action, whether or not specified in the PJM Manuals, as necessary to alleviate unusual conditions that threaten the integrity or reliability of the PJM Control Area or the regional power system.

1.7.16 Recording.

Subject to the requirements of applicable State or federal law, all voice communications with the Office of the Interconnection Control Center may be recorded by the Office of the Interconnection and any Market Participant communicating with the Office of the Interconnection Control Center, and each Market Participant hereby consents to such recording.

1.7.17 Operating Reserves.

(a) The following procedures shall apply to any generation unit subject to the dispatch of the Office of the Interconnection for which construction commenced before July 9, 1996.

(b) The Office of the Interconnection shall schedule to the Operating Reserve and load-following objectives of the PJM Control Area and the PJM Interchange Energy Market in scheduling resources pursuant to this Schedule. A table of Operating Reserve objectives is calculated seasonally for various peak load levels and eight weekly periods and is published in the PJM Manuals. Reserve levels are probabilistically determined based on the season's historical load forecasting error and expected generation mix (including typical Planned and Forced/Unplanned Outages). Generating Units with quick start capability, as specified in the PJM Manuals, that are dispatched to maintain reliability by providing or maintaining spinning reserves or providing load following capability shall receive energy payments at the levels specified below. The energy payments specified below shall be considered the offered price for Spot Market Energy for purposes of Section 3.2.3(b) of this Schedule. The price offered or paid for the energy of units so dispatched shall not be considered in determining Locational Marginal Prices.

(c) Payments for energy produced by a quick start generating unit dispatched as specified above shall be at the higher of the applicable Locational Marginal Price or one of the amounts specified below, as specified in advance by the Market Seller for the affected unit:

(i) The weighted average Locational Marginal Price at the generation bus at which energy from the capped resource was delivered during a specified number of hours during which the resource was dispatched for energy in economic merit order, the specified number of hours to be determined by the Office of the Interconnection and to be a number of hours sufficient to result in a price cap that reflects reasonably contemporaneous competitive market conditions for that unit;

(ii) The incremental operating cost of the generation resource as determined in accordance with Schedule 2 of this Agreement and the PJM Manuals, plus 10% of such costs; or

(iii) An amount determined by agreement between the Office of the Interconnection and the Market Seller.

1.7.18 Regulation.

(a) Regulation shall be supplied from generators located within the metered electrical boundaries of the PJM Control Area. Generating Market Buyers, and Market Sellers offering Regulation, shall comply with applicable standards and requirements for Regulation capability and dispatch specified in the PJM Manuals.

(b) The Office of the Interconnection shall obtain and maintain an amount of Regulation equal to the PJM Control Area Regulation objective as specified in the PJM Manuals.

(c) The Regulation range of a unit shall be at least twice the amount of Regulation assigned.

(d) A unit capable of automatic energy dispatch that is also providing Regulation shall have its energy dispatch range reduced by twice the amount of the Regulation provided. The amount of Regulation provided by a unit shall serve to redefine the Normal Minimum Generation and Normal Maximum Generation energy limits of that unit, in that the amount of Regulation shall be added to the unit's Normal Minimum Generation energy limit, and subtracted from its Normal Maximum Generation energy limit.

(e) Qualified Regulation must satisfy the verification tests described in the PJM Manuals.

1.7.19 Ramping.

A generator dispatched by the Office of the Interconnection pursuant to a control signal appropriate to increase or decrease the generator's megawatt output level shall be able to change output at the ramping rate specified in the Offer Data submitted to the Office of the Interconnection for that generator.

1.7.20 Communication and Operating Requirements.

(a) Market Participants. Each Market Participant shall have, or shall arrange to have, its transactions in the PJM Interchange Energy Market subject to control by a Market Operations Center, with staffing and communications systems capable of real-time communication with the Office of the Interconnection during normal and Emergency conditions and of control of the Market Participant's relevant load or facilities sufficient to meet the requirements of the Market Participant's transactions with the PJM Interchange Energy Market, including but not limited to the following requirements as applicable.

(b) Market Sellers selling from resources within the PJM Control Area shall: report to the Office of the Interconnection sources of energy available for operation; supply to the Office of the Interconnection all applicable Offer Data; report to the Office of the Interconnection units that are self-scheduled; report to the Office of the Interconnection bilateral sales transactions to buyers not within the PJM Control Area; confirm to the Office of the Interconnection bilateral sales to Market Buyers within the PJM Control Area; respond to the Office of the Interconnection's directives to start, shutdown or change output levels of generation units, or change scheduled voltages or reactive output levels; continuously maintain all Offer Data concurrent with on-line operating information; and ensure that, where so equipped, generating equipment is operated with control equipment functioning as specified in the PJM Manuals.

(c) Market Sellers selling from resources outside the PJM Control Area shall: provide to the Office of the Interconnection all applicable Offer Data, including offers specifying amounts of energy available, hours of availability and prices of energy and other services; respond to Office of the Interconnection directives to schedule delivery or change delivery schedules; and communicate delivery schedules to the Market Seller's Control Area.

(d) Market Participants that are Load Serving Entities or purchasing on behalf of Load Serving Entities shall: respond to Office of the Interconnection directives for load management steps; report to the Office of the Interconnection Capacity Resources to satisfy capacity obligations that are available for pool operation; report to the Office of the Interconnection all bilateral purchase transactions; respond to other Office of the Interconnection directives such as those required during Emergency operation.

(e) Market Participants that are not Load Serving Entities or purchasing on behalf of Load Serving Entities shall: provide to the Office of the Interconnection requests to purchase specified amounts of energy for each hour of the Operating Day during which it intends to purchase from the PJM Interchange Energy Market, along with Dispatch Rate levels above which it does not desire to purchase; respond to other Office of the Interconnection directives such as those required during Emergency operation.

1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process.

1.8.1 PJM Dispute Resolution Agreement.

Subject to the condition specified below, any Member adversely affected by a decision of the Office of the Interconnection with respect to the operation of the PJM Interchange Energy Market, including the qualification of an entity to participate in that market as a buyer or seller, may seek such relief as may be appropriate under the PJM Dispute Resolution Procedures on the grounds that such decision does not have an adequate basis in fact or does not conform to the requirements of this Agreement.

1.8.2 Market or Control Area Hourly Operational Disputes.

(a) Market Participants shall comply with all determinations of the Office of the Interconnection on the selection, scheduling or dispatch of resources in the PJM Interchange Energy Market, or to meet the operational requirements of the PJM Control Area. Complaints arising from or relating to such determinations shall be brought to the attention of the Office of the Interconnection not later than the end of the fifth business day after the end of the Operating Day to which the selection or scheduling relates, or in which the scheduling or dispatch took place, and shall include, if practicable, a proposed resolution of the complaint. Upon receiving notification of the dispute, the Office of the Interconnection and the Market Participant raising the dispute shall exert their best efforts to obtain and retain all data and other information relating to the matter in dispute, and to notify other Market Participants that are likely to be affected by the proposed resolution. Subject to confidentiality or other non-disclosure requirements, representatives of the Office of the Interconnection, the Market Participant raising the dispute, and other interested Market Participants, shall meet within three business days of the foregoing notification, or at such other or further times as the Office of the Interconnection and the Market Participants may agree, to review the relevant facts, and to seek agreement on a resolution of the dispute.

(b) If the Office of the Interconnection determines that the matter in dispute discloses a defect in operating policies, practices or procedures subject to the discretion of the Office of the Interconnection, the Office of the Interconnection shall implement such changes as it deems appropriate and shall so notify the Members Committee. Alternatively, the Office of the Interconnection may notify the Members Committee of a proposed change and solicit the comments or other input of the Members.

(c) If either the Office of the Interconnection, the Market Participant raising the dispute, or another affected Market Participant believes that the matter in dispute has not been adequately resolved, or discloses a need for changes in standards or policies established in or pursuant to the Operating Agreement, any of the foregoing parties may make a written request for review of the matter by the Members Committee, and shall include with the request the forwarding party's recommendation and such data or information (subject to confidentiality or other non-disclosure requirements) as would enable the Members Committee to assess the matter and the recommendation. The Members Committee shall take such action on the recommendation as it shall deem appropriate.

(d) Subject to the right of a Market Participant to obtain correction of accounting or billing errors, the LLC or a Market Participant shall not be entitled to actual, compensatory, consequential or punitive damages, opportunity costs, or other form of reimbursement from the LLC or any other Market Participant for any loss, liability or claim, including any claim for lost profits, incurred as a result of a mistake, error or other fault by the Office of the Interconnection in the selection, scheduling or dispatch of resources.

1.9 Prescheduling.

The following procedures and principles shall govern the prescheduling activities necessary to plan for the reliable operation of the PJM Control Area and for the efficient operation of the PJM Interchange Energy Market.

1.9.1 Outage Scheduling.

The Office of the Interconnection shall be responsible for coordinating and approving requests for outages of generation and transmission facilities as necessary for the reliable operation of the PJM Control Area, in accordance with the PJM Manuals. The Office of the Interconnection shall maintain records of outages and outage requests of these facilities.

1.9.2 Planned Outages.

(a) A Generator Planned Outage shall be included in Generator Planned Outage schedules established prior to the scheduled start date for the outage, in accordance with standards and procedures specified in the PJM Manuals.

(b) The Office of the Interconnection shall conduct Generator Planned Outage scheduling for Capacity Resources in accordance with the Reliability Assurance Agreement and the PJM Manuals and in consultation with the Members owning or controlling the output of Capacity Resources. A Market Participant shall not be expected to submit offers for the sale of energy or other services, or to satisfy delivery obligations, from all or part of a generation resource undergoing an approved Generator Planned Outage. If the Office of the Interconnection determines that approval of a Generator Planned Outage would significantly affect the reliable operation of the PJM Control Area, the Office of the Interconnection may withhold approval or withdraw a prior approval. Approval for a Generator Planned Outage of a Capacity Resource shall be withheld or withdrawn only as necessary to ensure the adequacy of reserves or the reliability of the PJM Control Area in connection with anticipated implementation or avoidance of Emergency procedures. If the Office of the Interconnection withholds or withdraws approval, it shall coordinate with the Market Participant owning or controlling the resource to reschedule the Generator Planned Outage of the Capacity Resource at the earliest practical time. The Office of the Interconnection shall if possible propose alternative schedules with the intent of minimizing the economic impact on the Market Participant of a Generator Planned Outage.

(c) The Office of the Interconnection shall conduct Planned Transmission Outage scheduling in accordance with procedures specified in the Transmission Owners Agreement and the PJM Manuals. If the Office of the Interconnection determines that transmission maintenance schedules proposed by one or more Members would significantly affect the efficient and reliable operation of the PJM Control Area, the Office of the Interconnection may propose alternative schedules, but such alternative shall minimize the economic impact on the Member or Members whose maintenance schedules the Office of the Interconnection proposes to modify.

The Office of the Interconnection shall coordinate resolution of outage or other planning conflicts that may give rise to unreliable system conditions. The Members shall comply with all maintenance schedules established by the Office of the Interconnection.

1.9.3 Generator Maintenance Outages.

A Market Participant may request approval for a Generator Maintenance Outage of any Capacity Resource from the Office of the Interconnection in accordance with the timetable and other procedures specified in the PJM Manuals. The Office of the Interconnection shall approve requests for Generator Maintenance Outages for a Capacity Resource unless the outage would threaten the adequacy of reserves in, or the reliability of, the PJM Control Area. A Market Participant shall not be expected to submit offers for the sale of energy or other services, or to satisfy delivery obligations, from a generation resource undergoing an approved full or partial Generator Maintenance Outage.

1.9.4 Forced Outages.

(a) Each Market Seller that owns or controls a pool-scheduled resource, or Capacity Resource whether or not pool-scheduled, shall: (i) advise the Office of the Interconnection of a Generator Forced Outage suffered or anticipated to be suffered by any such resource as promptly as possible; (ii) provide the Office of the Interconnection with the expected date and time that the resource will be made available; and (iii) make a record of the events and circumstances giving rise to the Generator Forced Outage. A Market Seller shall not be expected to submit offers for the sale of energy or other services, or satisfy delivery obligations, from a generation resource undergoing a Generator Forced Outage. A Capacity Resource that does not deliver all or part of its scheduled energy shall be deemed to have experienced a Generator Forced Outage with respect to such undelivered energy, in accordance with standards and procedures for full and partial Generator Forced Outages specified in the Reliability Assurance Agreement and the PJM Manuals.

(b) The Office of the Interconnection shall receive notification of Forced Transmission Outages, and information on the return to service, of Transmission Facilities in the PJM Control Area in accordance with standards and procedures specified in the Transmission Owners Agreement and the PJM Manuals.

1.9.5 Market Participant Responsibilities.

Each Market Participant making a bilateral sale covering a period greater than the following Operating Day from a generating resource located within the PJM Control Area for delivery outside the PJM Control Area shall furnish to the Office of the Interconnection, in the form and manner specified in the PJM Manuals, information regarding the source of the energy, the load sink, the energy schedule, and the amount of energy being delivered.

1.9.6 Internal Market Buyer Responsibilities.

Each Internal Market Buyer making a bilateral purchase covering a period greater than the following Operating Day shall furnish to the Office of the Interconnection, in the form an manner specified in the PJM Manuals, information regarding the source of the energy, the load sink, the energy schedule, and the amount of energy being delivered. Each Internal Market Buyer shall provide the Office of the Interconnection with details of any load management agreements with customers that allow the Office of the Interconnection to reduce load under specified circumstances.

1.9.7 Market Seller Responsibilities.

(a) Not less than 30 days before a Market Seller's initial offer to sell energy from a given generation resource on the PJM Interchange Energy Market, the Market Seller shall furnish to the Office of the Interconnection the information specified in the Offer Data for new generation resources.

(b) Market Sellers authorized and intending to request market-based start-up and no-load fees in their Offer Data shall submit a specification of such fees to the Office of the Interconnection for each generating unit as to which the Market Seller intends to request such fees. Any such specification shall be submitted on or before March 31 for the period April 1 through September 30, and on or before September 30 for the period October 1 through March 31, and shall remain in effect without change throughout each such period for which a specification was submitted. The Office of the Interconnection shall reject any request for start-up and no-load fees in a Market Seller's Offer Data that does not conform to the Market Seller's specification on file with the Office of the Interconnection.

1.9.8 Office of the Interconnection Responsibilities.

(a) The Office of the Interconnection shall perform seasonal operating studies to assess the forecasted adequacy of generating reserves and of the transmission system, in accordance with the procedures specified in the PJM Manuals.

(b) The Office of the Interconnection shall maintain and update tables setting forth Operating Reserve and other reserve objectives as specified in the PJM Manuals.

(c) The Office of the Interconnection shall receive and process requests for firm and non-firm transmission service in accordance with procedures specified in the PJM Tariff.

(d) The Office of the Interconnection shall maintain such data and information relating to generation and transmission facilities in the PJM Control Area as may be necessary or appropriate to conduct the scheduling and dispatch of the PJM Interchange Energy Market and PJM Control Area.

(e) The Office of the Interconnection shall coordinate with other interconnected Control Area as necessary to manage, alleviate or end an Emergency.

1.10 Scheduling.

1.10.1 General.

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

(b) The Day-ahead Energy Market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at Day-ahead Prices and enable transmission customers to reserve transmission service with Transmission Congestion Charges based on locational differences in Day-ahead Prices. Market Participants whose purchases and sales, and transmission customers whose transmission uses are scheduled in the Day-ahead Energy Market, shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges, at the applicable Day-ahead Prices for the amounts scheduled.

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

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

1.10.1a Day-Ahead Energy Market Scheduling.

The following actions shall occur not later than 12:00 noon on the day before the Operating Day for which transactions are being scheduled, or such other deadline as may be specified by the Office of the Interconnection in order to comply with the practical requirements and the economic and efficiency objectives of the scheduling process specified in this Schedule.

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

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

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

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

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

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

(d) Market Sellers wishing to sell into the Day-ahead Energy Market shall submit offers for the supply of energy (including energy from hydropower units), Regulation, Operating Reserves or other services for the following Operating Day. Offers shall be submitted to the Office of the Interconnection in the form specified by the Office of the Interconnection and shall contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Market Sellers owning or controlling the output of a Capacity Resource that has not been rendered unavailable by a Generation Planned Outage, a Generator Maintenance Outage, or a Generation Forced Outage shall submit offers for the available

capacity of such Capacity Resource, including any portion that is self-scheduled by the Generating Market Buyer claiming the resource as a Capacity Resource. The submission of offers for resource increments that are not Capacity Resources shall be optional, but any such offers must contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Energy offered from generation resources that are not Capacity Resources shall not be supplied from resources that are included in or otherwise committed to supply the Operating Reserves of another Control Area. The foregoing offers:

i) Shall specify the generation resource and energy for each hour in the offer period;

ii) Shall specify the amounts and prices for the entire Operating Day for each resource component offered by the Market Seller to the Office of the Interconnection;

iii) If based on energy from a specific generating unit, may specify start-up and no-load fees equal to the specification of such fees for such unit on file with the Office of the Interconnection;

iv) Shall set forth any special conditions upon which the Market Seller proposes to supply a resource increment, including any curtailment rate specified in a bilateral contract for the output of the resource, or any cancellation fees;

v) May include a schedule of offers for prices and operating data contingent on acceptance by the deadline specified in this Schedule, with a second schedule applicable if accepted after the foregoing deadline;

vi) Shall constitute an offer to submit the resource increment to the Office of the Interconnection for scheduling and dispatch in accordance with the terms of the offer, which offer shall remain open through the Operating Day for which the offer is submitted;

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

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

(e) A Market Seller that wishes to make a resource available to sell Regulation service shall submit an offer for Regulation that shall specify the MW of Regulation being offered, the price of the offer in dollars per MWh, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the resource's opportunity costs. The price of the offer shall not exceed $100 per MWh. Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

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

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

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

(i) All Market Participants may submit Increment Bids and/or Decrement Bids that apply to the Day-ahead Energy Market only. Such bids must comply with the requirements set forth in the PJM Manuals and must specify amount, location and price, if any, at which the Market Participant desires to purchase or sell energy in the Day-ahead Energy Market.

1.10.2 Pool-Scheduled Resources.

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

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

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

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

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

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

1.10.3 Self-scheduled Resources.

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

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

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

(c) Market Participants shall make available their self-scheduled resources to the Office of the Interconnection for coordinated operation to supply the needs of the PJM Control Area for Operating Reserves.

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

1.10.4 Capacity Resources.

(a) A Capacity Resource selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection. A Capacity Resource that does not deliver energy as scheduled shall be deemed to have experienced a Generator Forced Outage to the extent of such energy not delivered. A Market Participant offering such Capacity Resource in the Day-ahead Energy Market shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

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

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

1.10.5 External Resources.

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

(b) Offers for External Resources from an aggregation of two or more generating units shall so indicate, and shall specify, in accordance with the Offer Data requirements specified by the Office of the Interconnection: (i) energy prices; (ii) hours of energy availability; (iii) a minimum dispatch level; (iv) a maximum dispatch level; and (v) unless such information has previously been made available to the Office of the Interconnection, sufficient information, as specified in the PJM Manuals, to enable the Office of the Interconnection to model the flow into the PJM Control Area of any energy from the External Resources scheduled in accordance with the Offer Data. If a Market Seller submits more than one offer on an aggregated resource basis, the withdrawal of any such offer shall be deemed a withdrawal of all higher priced offers for the same period.

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

1.10.6 External Market Buyers.

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

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

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

1.10.6A Transmission Loading Relief Customers.

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

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

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

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

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

1.10.7 Bilateral Transactions.

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

1.10.8 Office of the Interconnection Responsibilities.

(a) The Office of the Interconnection shall use its best efforts to determine (i) the least-cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers, including the reliability requirements of the PJM Control Area, of the Day-ahead Energy Market, and (ii) the least-cost means of satisfying the Operating Reserve and other ancillary service requirements for any portion of the load forecast of the Office of the Interconnection for the Operating Day in excess of that scheduled in the Day-ahead Energy Market. In making these determinations, the Office of the Interconnection shall take into account: (i) the Office of the Interconnection's forecasts of PJM Interchange Energy Market and PJM Control Area energy requirements, giving due consideration to the energy requirement forecasts and purchase requests submitted by Market Buyers; (ii) the offers submitted by Market

Sellers; (iii) the availability of limited energy resources; (iv) the capacity, location, and other relevant characteristics of self-scheduled resources; (v) the objectives of the PJM Control Area for Operating Reserves, as specified in the PJM Manuals; (vi) the requirements of the PJM Control Area for Regulation and other ancillary services, as specified in the PJM Manuals; (vii) the benefits of avoiding or minimizing transmission constraint control operations, as specified in the PJM Manuals; and (viii) such other factors as the Office of the Interconnection reasonably concludes are relevant to the foregoing determination. The Office of the Interconnection shall develop a Day-ahead Energy Market based on the foregoing determination, and shall determine the Day-ahead Prices resulting from such schedule. The Office of the Interconnection shall report the planned schedule for a hydropower resource to the operator of that resource as necessary for plant safety and security, and legal limitations on pond elevations.

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

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

(d) Market Buyers shall pay and Market Sellers shall be paid for the quantities of energy scheduled in the Day-ahead Energy Market at the Day-ahead Prices.

1.10.9 Hourly Scheduling

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

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

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

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

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

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

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

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

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

1.11 Dispatch.

The following procedures and principles shall govern the dispatch of the resources available to the Office of the Interconnection.

1.11.1 Resource Output.

The Office of the Interconnection shall have the authority to direct any Market Seller to adjust the output of any pool-scheduled resource increment within the operating characteristics specified in the Market Seller's offer. The Office of the Interconnection may cancel its selection of, or otherwise release, pool-scheduled resources, subject to an obligation to pay any applicable start-up, no-load or cancellation fees. The Office of the Interconnection shall adjust the output of

pool-scheduled resource increments as necessary: (a) to maintain reliability, and subject to that constraint, to minimize the cost of supplying the energy, reserves, and other services required by the Market Buyers and the operation of the PJM Control Area; (b) to balance load and generation, maintain scheduled tie flows, and provide frequency support within the PJM Control Area; and (c) to minimize unscheduled interchange not frequency related between the PJM Control Area and other Control Areas.

1.11.2 Operating Basis.

In carrying out the foregoing objectives, the Office of the Interconnection shall conduct the operation of the PJM Control Area in accordance with the PJM Manuals, and shall: (i) utilize available generating reserves and obtain required replacements; and (ii) monitor the availability of adequate reserves.

1.11.3 Pool-dispatched Resources.

(a) The Office of the Interconnection shall implement the dispatch of energy from pool-scheduled resources with limited energy by direct request. In implementing mandatory or economic use of limited energy resources, the Office of the Interconnection shall use its best efforts to select the most economic hours of operation for limited energy resources, in order to make optimal use of such resources consistent with the dynamic load-following requirements of the PJM Control Area and the availability of other resources to the Office of the Interconnection.

(b) The Office of the Interconnection shall implement the dispatch of energy from other pool-dispatched resource increments, including generation increments from Capacity Resources the remaining increments of which are self-scheduled, by sending appropriate signals and instructions to the entity controlling such resources, in accordance with the PJM Manuals. Each Market Seller shall ensure that the entity controlling a pool-dispatched resource offered or made available by that Market Seller complies with the energy dispatch signals and instructions transmitted by the Office of the Interconnection.

1.11.3a Maximum Generation Emergency.

If the Office of the Interconnection declares a Maximum Generation Emergency, all deliveries to load that is served by Point-to-Point Transmission Service outside the PJM Control Area from Capacity Resources may be interrupted in order to serve load in the PJM Control Area.

1.11.4 Regulation

(a) A Market Buyer may satisfy its Regulation obligation from its own resources capable of performing Regulation service, by contractual arrangements with other Market Participants able to provide Regulation service, or by purchases from the PJM Interchange Energy Market at the rates set forth in Section 3.2.2.

(b) The Office of the Interconnection shall obtain Regulation service from the least-cost alternatives available from either pool-scheduled or self-scheduled resources as needed to meet PJM Control Area requirements not otherwise satisfied by the Market Buyers. Resources offering to sell Regulation shall be selected to provide Regulation on the basis of each resource's regulation offer and the estimated opportunity cost of the resource providing regulation and in accordance with the Office of the Interconnection's obligation to minimize the total cost of energy, Operating Reserves, Regulation, and other ancillary services. Estimated opportunity costs shall be determined by the Office of the Interconnection on the basis of the expected value of the energy sales that would be foregone or uneconomic energy that would be produced by the resource in order to provide Regulation, in accordance with procedures specified in the PJM Manuals. If the Office of the Interconnection is not able to distinguish resources offering Regulation on the basis of their regulation offers and estimated opportunity costs, resources shall be selected on the basis of the quality of Regulation provided by the resource as determined by tests administered by the Office of the Interconnection.

(c) The Office of the Interconnection shall dispatch resources for Regulation by sending Regulation signals and instructions to resources from which Regulation service has been offered by Market Sellers, in accordance with the PJM Manuals. Market Sellers shall comply with Regulation dispatch signals and instructions transmitted by the Office of the Interconnection and, in the event of conflict, Regulation dispatch signals and instructions shall take precedence over energy dispatch signals and instructions. Market Sellers shall exert all reasonable efforts to operate, or ensure the operation of, their resources supplying load in the PJM Control Area as close to desired output levels as practical, consistent with Good Utility Practice.

1.11.5 PJM Open Access Same-time Information System.

The Office of the Interconnection shall update the information posted on the PJM Open Access Same-time Information System to reflect its dispatch of generation resources.

1.12 Dynamic Scheduling.

(a) An entity that owns or controls a generating resource in the PJM Control Area may electrically remove all or part of the generating resource's output from the PJM Control Area through dynamic scheduling of the output to load outside the PJM Control Area. Such output shall not be available for economic dispatch by the Office of the Interconnection.

(b) An entity requesting dynamic scheduling shall be responsible for arranging for the provision of signal processing and communications from the generator to the Office of the Interconnection and the other participating control area and complying with any other procedures established by the Office of the Interconnection regarding dynamic scheduling as set forth in the PJM Manuals.

(c) An entity requesting dynamic scheduling shall be responsible for reserving amounts of firm transmission service necessary to deliver the range of the dynamic transfer and any required ancillary services.

2. CALCULATION OF LOCATIONAL MARGINAL PRICES

2.1 Introduction.

The Office of the Interconnection shall calculate the price of energy at the load busses and generation busses in the PJM Control Area and at the interface busses between the PJM Control Area and adjacent Control Areas on the basis of Locational Marginal Prices. Locational Marginal Prices determined in accordance with this Section shall be calculated on a day-ahead basis for each hour of the Day-ahead Energy Market, and every five minutes during the Operating Day for the Real-time Energy Market.

2.2 General.

The Office of the Interconnection shall determine the least cost security-constrained dispatch, which is the least costly means of serving load at different locations in the PJM Control Area based on actual operating conditions existing on the power grid and on the prices at which Market Sellers have offered to supply energy in the PJM Interchange Energy Market. Locational Marginal Prices for the generation and load busses in the PJM Control Area, including interconnections with other Control Areas, will be calculated based on the actual economic dispatch and the prices of energy offers. The process for the determination of Locational Marginal Prices shall be as follows:

(a) To determine actual operating conditions on the power grid in the PJM Control Area, the Office of the Interconnection shall use a computer model of the interconnected grid that uses available metered inputs regarding generator output, loads, and power flows to model remaining flows and conditions, producing a consistent representation of power flows on the network. The computer model employed for this purpose, referred to as the State Estimator program, is a standard industry tool and is described in Section 2.3 below. It will be used to obtain information regarding the output of generation supplying energy to the PJM Control Area, loads at buses in the PJM Control Area, transmission losses, and power flows on binding transmission constraints for use in the calculation of Locational Marginal Prices. Additional information used in the calculation, including Dispatch Rates and real time schedules for external transactions between PJM and other Control Areas, will be obtained from the Office of the Interconnection's dispatchers.

(b) Using the prices at which energy is offered by Market Sellers to the PJM Interchange Energy Market, the Office of the Interconnection shall determine the offers of energy that will be considered in the calculation of Locational Marginal Prices. As described in Section 2.4 below, every offer of energy by a Market Seller from a resource that is following economic dispatch instructions of the Office of the Interconnection will be utilized in the calculation of Locational Marginal Prices.

(c) Based on the system conditions on the PJM power grid, determined as described in (a), and the eligible energy offers, determined as described in (b), the Office of the Interconnection shall determine the least costly means of obtaining energy to serve the next increment of load at each bus in the PJM Control Area, in the manner described in Section 2.5 below. The result of that calculation shall be a set of Locational Marginal Prices based on the system conditions at the time.

2.3 Determination of System Conditions Using the State Estimator.

Power system operations, including, but not limited to, the determination of the least costly means of serving load, depend upon the availability of a complete and consistent representation of generator outputs, loads, and power flows on the network. In calculating Locational Marginal Prices, the Office of the Interconnection shall obtain a complete and consistent description of conditions on the electric network in the PJM Control Area by using the most recent power flow solution produced by the State Estimator, which is also used by the Office of the Interconnection for other functions within power system operations. The State Estimator is a standard industry tool that produces a power flow model based on available real-time metering information, information regarding the current status of lines, generators, transformers, and other equipment, bus load distribution factors, and a representation of the electric network, to provide a complete description of system conditions, including conditions at busses for which real-time information is unavailable. The current version of the State Estimator includes over 1600 busses in the PJM Control Area, as well as interface busses with adjacent Control Areas. The Office of the Interconnection shall obtain a State Estimator solution every five minutes, which shall provide the megawatt output of generators and the loads at busses in the PJM Control Area, transmission line losses, and actual flows or loadings on constrained transmission facilities. External transactions between PJM and other Control Areas shall be included in the Locational Marginal Price calculation on the basis of the real time transaction schedules implemented by the Office of the Interconnection's dispatcher.

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 and integrated hourly values of such determinations shall be the basis of sales and purchases of energy in the Real-time Energy Market and of Transmission Congestion Charges under the PJM Tariff not covered by the Day-ahead Energy Market.

(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 which resources are following its economic dispatch instructions. A resource will be considered to be following economic dispatch instructions and shall be included in the calculation of Real-time Prices if:

i) the applicable price bid by a Market Seller for energy from the resource is less than or equal to the Dispatch Rate for the area of the PJM Control Area in which the resource is located; or

ii) the resource is specifically requested to operate by the Office of the Interconnection's dispatcher.

(c) In determining whether a resource satisfies the condition described in (b), the Office of the Interconnection will determine the bid price associated with an energy offer by comparing the actual megawatt output of the resource with the Market Seller's offer price curve. Because of practical generator response limitations, a resource whose megawatt output is not ten percent more than the megawatt level specified on the offer price curve for the applicable Dispatch Rate shall be deemed to be following economic dispatch instructions, but the energy price offer used in the calculation of Real-time Prices shall not exceed the applicable Dispatch Rate. Units that must be run for local area protection shall not be considered in the calculation of Real-time Prices.

2.5 Calculation of Real-time Prices.

(a) The Office of the Interconnection shall determine the least costly means of obtaining energy to serve the next increment of load at each bus in the PJM Control Area represented in the State Estimator and each interface bus between the PJM Control Area and an adjacent Control Area, based on the system conditions described by the most recent power flow solution produced by the State Estimator program and the energy offers that are the basis for the Day-ahead Energy Market, or that are determined to be eligible for consideration under Section 2.4 in connection with the real-time dispatch, as applicable. This calculation shall be made by applying an incremental linear optimization method to minimize energy costs, given actual system conditions, a set of energy offers, and any binding transmission constraints that may exist. In performing this calculation, the Office of the Interconnection shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of: (1) the price at which the Market Seller has offered to supply an additional increment of energy from the resource, and (2) the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of the resource, based on the effect of increased generation from that resource on transmission line loadings. The energy offer or offers that can serve an increment of load at a bus at the lowest cost, calculated in this manner, shall determine the Real-time Price at that bus.

(b) During the Operating Day, the calculation set forth in (a) shall be performed every five minutes, using the Office of the Interconnection's Locational Marginal Price program, producing a set of Real-time Prices based on system conditions during the preceding interval. The prices produced at five-minute intervals during an hour will be integrated to determine the Real-time Prices for that hour.

2.6 Calculation of Day-ahead Prices.

For the Day-ahead Energy Market, day-ahead Locational Marginal Prices shall be determined on the basis of the least-cost, security-constrained dispatch, model flows and system conditions resulting from the load specifications, offers for generation, dispatchable load, Increment Bids, Decrement Bids, and bilateral transactions submitted to the Office of the Interconnection and scheduled in the Day-ahead Energy Market. Such prices shall be determined in accordance with the provisions of this Section applicable to the Day-ahead Energy Market and shall be the basis for purchases and sales of energy and Transmission Congestion Charges resulting from the Day-ahead Energy Market. This calculation shall be made for each hour in the Day-ahead Energy Market by applying a linear optimization method to minimize energy costs, given scheduled system conditions, scheduled transmission outages, and any transmission limitations that may exist. In performing this calculation, the Office of the Interconnection shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of: (1) the price at which the Market Seller has offered to supply an additional increment of energy from the resource, and (2) the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of the resource, based on the effect of increased generation from that resource on transmission line loadings. The energy offer or offers that can serve an increment of load at a bus at the lowest cost, calculated in this manner, shall determine the Day-ahead Price at that bus.

2.7 Performance Evaluation.

The Office of the Interconnection shall undertake an evaluation of the foregoing procedures for the determination of Locational Marginal Prices, as well as the procedures for determining and allocating Fixed Transmission Rights and associated Transmission Congestion Charges and Credits, not less often than every two years, in accordance with the PJM Manuals. To the extent practical, the Office of the Interconnection shall retain all data needed to perform comparisons and other analyses of locational marginal pricing. The Office of the Interconnection shall report the results of its evaluation to the Market Participants, along with its recommendations, if any, for changes in the procedures.

3. ACCOUNTING AND BILLING

3.1 Introduction.

This schedule sets forth the accounting and billing principles and procedures for the purchase and sale of services on the PJM Interchange Energy Market and for the operation of the PJM Control Area.

3.2 Market Buyers.

3.2.1 Spot Market Energy.

(a) Market Buyers shall be charged for all load scheduled to be served from the PJM Interchange Energy Market in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant load bus.

(b) Generating Market Buyers shall be paid for all energy scheduled to be delivered at the PJM Interchange Energy Market in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant generation bus.

(c) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the load payment at each Market Buyer's load bus to be charged at Real-time Prices determined by the product of the hourly Real-time Price at the relevant bus times the Market Buyer's megawatts of load at the bus in the hour in excess of the load scheduled to be served at that bus in the hour in the Day-ahead Energy Market. To the extent that the load actually served at a load bus is less than the load scheduled to be served at that bus in the Day-ahead Energy Market, the Market Buyer shall be credited for the difference at the Real-time Price for the load bus at the time of the shortfall. The megawatts of load at each load bus shall be the sum of the megawatts of load for that bus of that Market Buyer as determined by the State Estimator, plus an allocated share of transmission losses, plus any megawatts of that Market Buyer's bilateral sales to purchasers outside the PJM Control Area attributable to that bus. The total load charge for each Market Buyer shall be the sum, for each of a Market Buyer's load buses, of the charges at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 1.10.1a plus the charges at Real-time Prices determined as specified herein, net of any credits specified herein for each of the Market Buyer's load buses.

(d) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the generation revenue at each Generating Market Buyer's generation bus to be paid at Real-time Prices, determined by the product of the hourly Real-time Price at the relevant bus times the Generating Market Buyer's megawatts of generation at such generation bus in the hour, as determined by the State Estimator, in excess of the energy scheduled to be injected at that bus in that hour in the Day-ahead Energy Market. To the extent that the energy actually injected at the generation bus is less than the energy scheduled to be injected at that bus in the Day-ahead Energy Market, the Generating Market Buyer shall be debited for the difference at the Real-time Price for the generation bus at the time of the shortfall. The megawatts of generation at each generation bus shall be the sum of the megawatts of generation for that bus of

that Generating Market Buyer as determined by the State Estimator, plus any megawatts of bilateral purchases of that Generating Market Buyer from sellers outside the PJM Control Area attributable to that bus. The total generation revenue for each Generating Market Buyer shall be the sum, for each of the Generating Market Buyer's generation busses, of the revenues at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 1.10.1a plus the revenues at Real-time Prices determined as specified herein, net of any debits specified herein for each of the Market Buyer's generation buses.

(e) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate a net bill for each Market Buyer, determined as the difference between its total load charges and its total generation revenue. The portions of the net bill attributable to net hourly PJM Interchange and to Transmission Congestion Charges in the Day-ahead Energy Market and the Real-time Energy Market shall be determined as set forth in this Section and in Section 5.1.3.

(f) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the total amount of net hourly PJM Interchange for each Market Buyer, including Generating Market Buyers, in accordance with the PJM Manuals. For Internal Market Buyers that are Load Serving Entities or purchasing on behalf of Load Serving Entities, this calculation shall include determination of the net energy flows from: (i) tie lines; (ii) any generation resource the output of which is controlled by the Market Buyer but delivered to it over another entity's Transmission Facilities; (iii) any generation resource the output of which is controlled by another entity but which is directly interconnected with the Market Buyer's transmission system; (iv) deliveries pursuant to bilateral energy sales; (v) receipts pursuant to bilateral energy purchases; (vi) the Market Buyer's allocated share of energy purchased from another Control Area in connection with a Minimum Generation Emergency in such other Control Area as specified in Section 3.2.6(c); and (vii) an adjustment to account for the day-ahead PJM Interchange, calculated as the difference between scheduled withdrawals and injections by that Market Buyer in the Day-ahead Energy Market. For Electric Distributors that report hourly net energy flows from metered tie lines, this calculation also shall include 500 kV transmission losses and Inadvertent Interchange allocated to the Electric Distributor and shall exclude the energy delivered to load of other Network Customers and Transmission Customers. For External Market Buyers and Internal Market Buyers that are not Load Serving Entities or purchasing on behalf of Load Serving Entities, this calculation shall determine the energy scheduled hourly for delivery to the Market Buyer net of the amounts scheduled by the External Market Buyer in the Day-ahead Energy Market.

(g) The Office of the Interconnection shall calculate Locational Marginal Prices in the form of Day-ahead Prices and Real-time Prices for each load and generation bus in the PJM Control Area, in accordance with Section 2 of this Schedule.

(h) An Internal Market Buyer shall be charged for Spot Market Energy purchases to the extent of its hourly net purchases from the PJM Interchange Energy Market, determined as specified in Section 3.2.1(f) above. An External Market Buyer shall be charged for its Spot Market Energy purchases based on the energy delivered to it, determined as specified in Section 3.2.1(f) above. The Office of the Interconnection shall calculate an hourly weighted average Real-time Price for each such Market Buyer, based on the hourly average of the Market Buyer's Real-time Prices at each bus weighted by the Market Buyer's load deviations at the bus. The total charge shall be determined by the product of the hourly net amount of PJM Interchange Purchases times the hourly weighted-average Real-time Price for that Market Buyer.

(i) A Generating Market Buyer shall be credited as a Market Seller for sales of Spot Market Energy to the extent of its hourly net sales into the PJM Interchange Energy Market, determined as specified in Section 3.2.1(f) above. The Office of the Interconnection shall calculate an hourly weighted average Real-time Price for each such Market Seller, based on the hourly average of the Market Sellers Real-time Prices at each bus weighted by the Market Buyer's generation deviations at each bus. The total credit shall be determined by the product of the hourly net amount of PJM Interchange Sales times the hourly weighted average Real-time Price for that Market Seller.

3.2.2 Regulation.

(a) Each Internal Market Buyer that is a Load Serving Entity shall have an hourly Regulation objective equal to its *pro rata* share of the PJM Control Area Regulation requirements for the hour, based on the Market Buyer's total load in the PJM Control Area for the hour. An Internal Market Buyer that does not meet its hourly Regulation obligation shall be charged for Regulation dispatched by the Office of the Interconnection to meet such obligation at the Regulation market-clearing price determined in accordance with paragraph (c) of this section, plus the amounts, if any, described in paragraph (f) of this section.

(b) A Generating Market Buyer supplying Regulation at the direction of the Office of the Interconnection in excess of its hourly Regulation obligation shall be credited for each increment of such Regulation at the higher of (i) the Regulation market-clearing price or (ii) the sum of the regulation offer and the unit-specific opportunity cost of the resource supplying the increment of Regulation, as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

(c) The Regulation market-clearing price shall be determined at a time to be determined by the Office of the Interconnection which shall be no earlier than the day before the Operating Day and the market-clearing price each hour shall be equal to the highest sum of a resource's Regulation offer plus its estimated unit-specific opportunity costs from among the resources selected to provide Regulation.

(d) In determining the Regulation market-clearing price, the estimated unit-specific opportunity costs of a resource offering to sell Regulation each hour shall be equal to the product of (i) the deviation of the set point of the resource that is expected to be required in order to provide Regulation from the resource's expected output level if it had been dispatched in economic merit order times (ii) the absolute value of the difference between the expected Locational Marginal Price at the generation bus for the resource and the offer price for energy from the resource (at the megawatt level of the Regulation set point for the resource) in the PJM Interchange Energy Market.

(e) In determining the credit under subsection (b) to a Generating Market Buyer selected to provide Regulation and that actively follows the Office of the Interconnection's Regulation signals and instructions, the unit-specific opportunity cost of a resource shall be determined for each hour that the Office of the Interconnection requires a resource to provide Regulation and shall be equal to the product of (i) the deviation of the resource's output necessary to follow the Office of the Interconnection's Regulation signals from the resource's expected output level if it had been dispatched in economic merit order times (ii) the absolute value of the difference between the Locational Marginal Price at the generation bus for the resource and the offer price for energy from the resource (at the megawatt level of the Regulation set point for the resource) in the PJM Interchange Energy Market.

(f) Any amounts credited for Regulation in an hour in excess of the Regulation market-clearing price in that hour shall be allocated and charged to each Internal Market Buyer that does not meet its hourly Regulation obligation in proportion to its purchases of Regulation in megawatt-hours during that hour.

3.2.3 Operating Reserves.

(a) A Market Seller's pool-scheduled resources capable of providing operating reserves shall be credited as specified below based on the prices offered for the operation of such resource, provided that the resource was available for the entire time specified in the Offer Data for such resource.

(b) The following determination shall be made for each pool-scheduled resource that is scheduled in the Day-ahead Energy Market: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the resource's scheduled output, shall be compared to the total value of that resource's Spot Market Energy as determined by the Day-ahead Energy Market and the Day-ahead Prices applicable to the relevant generation bus in the Day-ahead Energy Market. If the total offered price summed over all hours exceeds the total value summed over all hours, the difference shall be credited to the Market Seller.

(c) The sum of the foregoing credits calculated in accordance with Section 3.2.3(b) plus any unallocated charges from Section 3.2.3(h) and 5.1.7, shall be the cost of Operating Reserves in the Day-ahead Energy Market.

(d) The cost of Operating Reserves in the Day-ahead Energy Market shall be allocated and charged to each Market Participant in proportion to the sum of its (i) scheduled load and accepted Decrement Bids in the Day-ahead Energy Market in megawatt-hours for that Operating Day; and (ii) scheduled energy sales in the Day-ahead Energy Market from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours for that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

(e) At the end of each Operating Day, the following determination shall be made for each synchronized pool-scheduled resource of each Market Seller that operates as requested by the Office of the Interconnection and that is not committed solely for the purpose of providing spinning reserves: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the lesser of the resource's (i) hourly output as determined by the State Estimator, or (ii) requested output as determined by the PJM dispatch. The total offered price shall be compared to the total value of that resource's energy in the Day-ahead Energy Market plus any credit or charge for quantity deviations, at PJM dispatch direction, from the Day-ahead Energy Market during the Operating Day. If the total offered price exceeds the total value, the difference less any credit as determined pursuant to Section 3.2.3(b) and less any amounts credited for Regulation in excess of the Regulation offer plus the resources opportunity cost, shall be credited to the Market Seller.

(f) A Market Seller's pool scheduled resource the output of which is reduced or suspended at the request of the Office of the Interconnection for the purpose of maintaining reliability within the PJM Control Area, shall be credited in an amount equal to (PAG - AG) x LT x (ULMP - UB) where:

PAG equals the actual generation of the unit for the five minute period preceding the request;

AG equals the actual generation of the unit until PJM cancels the request to reduce output;

LT equals the length of time that the request to reduce output was effective;

ULMP equals the LMP at the unit's bus;

UB equals the unit bid for that unit whose output is reduced or suspended; and

where ULMP - UB shall not be negative.

(g) The sum of the foregoing credits, plus any cancellation fees paid in accordance with Section 1.10.2(d), such cancellation fees to be applied to the Operating Day for which the unit was scheduled, less any payments received from another Control Area for Operating Reserves, shall be the cost of Operating Reserves for the Real-time Energy Market in each Operating Day.

(h) The cost of Operating Reserves for the Real-time Energy Market for each Operating Day shall be allocated and charged to each Market Participant in proportion to the sum of the absolute values of its (i) load deviations from the Day-ahead Energy Market in megawatt-hours during that Operating Day; (ii) generation deviations from the Day-ahead Energy Market for non-dispatchable generation resources, including External Resources, in megawatt-hours during the Operating Day; (iii) deviations from the Day-ahead Energy Market for bilateral transactions from outside the PJM Control Area for delivery within the PJM Control Area in megawatt-hours during the Operating Day; and (iv) deviations of energy sales from the Day-ahead Energy Market from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours during that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

(i) At the end of each Operating Day, Market Sellers shall be credited on the basis of their offered prices for synchronized condensing for any hydropower or combustion turbine units operated as synchronous condensers but producing no energy, as well as the credits calculated as specified in Section 3.2.3(b) for those generators committed solely for the purpose of providing spinning reserves, at the request of the Office of the Interconnection.

(j) The sum of the foregoing credits as specified in Section 3.2.3(b) shall be the cost of Operating Reserves for synchronized condensing for the Operating Day in the PJM Control Area.

(k) The cost of Operating Reserves for synchronized condensing for each Operating Day shall be allocated and charged to each Market Participant in proportion to the sum of its (i) deliveries of energy to load in the PJM Control Area, served under Network Transmission Service, in megawatt-hours during that Operating Day; and (ii) deliveries of energy sales from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours during that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

3.2.4 Transmission Congestion.

Each Market Buyer shall be charged or credited for Transmission Congestion Charges as specified in Section 5 of this Schedule.

3.2.5 Transmission Losses.

(a) Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for losses shall apply.

(b) Each Internal Market Buyer that is a Load Serving Entity or purchasing on behalf of a Load Serving Entity shall be credited in an amount equal to its *pro rata* share of the hourly total amounts collected from Transmission Customers either as charges for transmission losses in the PJM Control Area as specified in Section 3.4.2 or for transmission losses supplied in kind in accordance with Section 3.4.2(c) based on the Locational Marginal Price at the interface where such losses were delivered. This credit shall be determined by the ratio of the Internal Market Buyer's total hourly load, divided by the total hourly load in the PJM Control Area.

(c) PJM Control Area 500 kV losses shall be allocated to each Electric Distributor that reports hourly net energy flows from metered tie lines in proportion to its hourly load in the PJM Control Area.

3.2.6 Emergency Energy.

(a) Internal Market Buyers shall be allocated a proportionate share of the net cost of Emergency energy purchased by the Office of the Interconnection. Such allocated share shall be determined in proportion to the amount of net PJM Interchange Imports by each Internal Market Buyer during the hour of each such energy purchase.

(b) Net revenues in excess of Real-time Prices attributable to sales of energy in connection with Emergencies to other Control Areas shall be credited to Internal Market Buyers in proportion to the amount of net PJM Interchange Imports by each Internal Market Buyer during each hour of such energy sales.

(c) The costs, revenues, and energy associated with hourly energy purchased from another Control Area in connection with a Minimum Generation Emergency in such other Control Area, shall be allocated to each Internal Market Buyer in proportion to its load in the PJM Control Area during the hour of such purchases.

3.2.7 Billing.

(a) The Office of the Interconnection shall prepare a billing statement each billing cycle for each Market Buyer in accordance with the charges and credits specified in Sections 3.2.1 through 3.2.6 of this Schedule, and showing the net amount to be paid or received by the Market Buyer. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Market Buyer's internal accounting.

(b) If deliveries to a Market Buyer that has PJM Interchange meters in accordance with Section 14 of the Operating Agreement include amounts delivered for a Market Participant that does not have PJM Interchange meters separate from those of the metered Market Buyer, the Office of the Interconnection shall prepare a separate billing statement for the unmetered Market Participant based on the allocation of deliveries agreed upon between the Market Buyer and the unmetered Market Participant specified by them to the Office of the Interconnection.

3.3 Market Sellers.

Except as provided in the following sentence, the accounting and billing principles and procedures applicable to Generating Market Buyers functioning as Market Sellers shall be as set forth in Section 3.2. This Section sets forth the accounting and billing principles and procedures applicable to all other Market Sellers, and to Generating Market Buyers functioning as Market Sellers with respect to any matters not specified in Section 3.2.

3.3.1 Spot Market Energy.

(a) Market Sellers shall be paid for all energy scheduled to be delivered in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant generation bus.

(b) At the end of each hour during an Operating Day, the Office of the Interconnection shall determine the total net amount of energy delivered in the hour to the PJM Control Area by each of the Market Seller's resources, in accordance with the PJM Manuals and the calculation described in Section 3.2.1(f).

(c) The Office of the Interconnection shall calculate Day-ahead and Real-time Prices for each generation and load bus in the PJM Control Area, including the bus at each point of interconnection between the PJM Control Area and each adjacent Control Area, in accordance with Section 2 of this Schedule.

(d) A Market Seller shall be credited for Real-time sales of Spot Market Energy to the extent of its hourly net deliveries to the PJM Control Area of energy in excess of amounts scheduled in the Day-ahead Energy Market from the Market Seller's resources. For pool External Resources, the Office of the Interconnection shall model, based on an appropriate flow analysis, the hourly amounts delivered from each such resource to the corresponding interface point between the PJM Control Area and adjacent Control Areas. The total real-time generation revenues for each Market Seller shall be the sum of its credits determined by the product of (i) the hourly net amount of energy delivered to the PJM Control Area at the applicable generation or interface bus in excess of the amount scheduled to be delivered in that hour at that bus in the Day-ahead Energy Market from each of the Market Seller's resources, times (ii) the hourly Real-time Price at that bus. To the extent that the energy actually injected at a generation or interface bus in any hour is less than the energy scheduled to be injected at that bus in the Day-ahead Energy Market, the Market Seller shall be debited for the difference at the Real-time Price for the applicable bus at the time of the shortfall times the amount of the shortfall. The total generation revenue for each Market Seller shall be the sum, for each of the Market Seller's generation or interface buses, of the revenues at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 3.3.1(a) plus the revenues at Real-time Prices determined as specified herein, net of any debits specified herein for each of the Market Seller's generation or interface buses.

3.3.2 Regulation.

Each Market Seller that is also an Internal Market Buyer shall have an hourly Regulation objective and shall be credited or charged in connection therewith as specified in Section 3.2.2. All other Market Sellers supplying Regulation at the direction of the Office of the Interconnection shall be credited for each increment of such Regulation at the price specified in Section 3.2.2(b), as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

3.3.3 Operating Reserves.

A Market Seller shall be credited for its pool-scheduled resources based on the prices offered for the operation of such resource, provided that the resource was available for the entire time specified in the Offer Data for such resource, in accordance with the procedures set forth in Section 3.2.3.

3.3.4 Emergency Energy.

The costs and net revenues associated with hourly energy sales to other Control Areas in connection with a Minimum Generation Emergency in the PJM Control Area shall be allocated to Market Sellers in proportion to their sales to the PJM Interchange Energy Market from generation resources within the metered boundaries of the PJM Control Area in each hour in which such energy was sold to other Control Areas.

3.3.5 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Market Seller in accordance with the charges and credits specified in Sections 3.3.1 through 3.3.4 of this Schedule, and showing the net amount to be paid or received by the Market Seller. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Market Seller's internal accounting.

3.4 Transmission Customers.

3.4.1 Transmission Congestion.

Each Transmission Customer shall be charged and credited for Transmission Congestion Charges as specified in Section 5 of this Schedule.

3.4.2 Transmission Losses.

(a) Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for losses shall apply.

(b) Transmission Customers shall be charged for transmission losses in an amount equal to the product of (i) the Transmission Customer's megawatt-hours of deliveries using Point-to-Point Transmission Service, times (ii) the appropriate loss factor for deliveries using Point-to-Point Transmission Service, times (iii) the weighted average Day-ahead or Real-time Price, as applicable, for all load busses in the PJM Control Area. The foregoing average hourly loss factor shall be: (i) determined by the Office of the Interconnection from time to time as conditions affecting losses shall warrant; and (ii) calculated separately for on-peak and off-peak hours on the basis of the average ratio of losses to load served in each such period.

(c) A Transmission Customer may elect to pay for losses in kind, rounded off to the nearest whole megawatt, rather than as specified above if its total deliveries in an hour using Point-to-Point Transmission Service are greater than 200 megawatts. If it so elects, the Transmission Customer's specified source for the energy to be delivered using Point-to-Point Transmission Service may be scheduled to supply to the PJM Control Area boundary an amount of energy equal to the delivery schedule plus the amount of losses determined by applying the appropriate hourly loss factor as specified above to the delivered amount.

3.4.3 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Transmission Customer in accordance with the charges and credits specified in Sections 3.4.1 through 3.4.2 of this Schedule, and showing the net amount to be paid or received by the Transmission Customer. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Transmission Customer's internal accounting.

3.5 Other Control Areas.

3.5.1 Energy Sales.

To the extent appropriate in accordance with Good Utility Practice, the Office of the Interconnection may sell energy to an interconnected Control Area as necessary to alleviate or end an Emergency in that Control Area. Such sales shall be made (i) only to Control Areas that have undertaken a commitment pursuant to a written agreement with the LLC to sell energy on a comparable basis to the PJM Control Area, and (ii) only to the extent consistent with the maintenance of reliability in the PJM Control Area. The Office of the Interconnection may decline to make such sales to a Control Area that the Office of the Interconnection determines does not have in place and implement Emergency procedures that are comparable to those followed in the PJM Control Area. If the Office of the Interconnection sells energy to an interconnected Control Area as necessary to alleviate or end an Emergency in that Control Area, such energy shall be sold at 150% of the Real-time Price at the bus or busses at the border of the PJM Control Area at which such energy is delivered.

3.5.2 Operating Margin Sales.

The extent appropriate in accordance with Good Utility Practice, the Office of the Interconnection may sell Operating Margin to an interconnected Control Area as requested to alleviate an operating contingency resulting from the affect of the purchasing Control Area's operations on the dispatch of resources in the PJM Control Area. Such sales shall be made only to Control Areas that have undertaken a commitment pursuant to a written agreement with the Office of the Interconnection (i) to purchase Operating Margin whenever the purchasing Control Area's operations will affect the dispatch of resources in the PJM Control Area, and (ii) to sell Operating Margin on a comparable basis to the LLC.

3.5.3 Transmission Congestion.

Each Control Area purchasing Operating Margin shall be assessed Transmission Congestion Charges as specified in Section 5.1.5 of this Schedule.

3.5.4 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Control Area to which Emergency energy or Operating Margin was sold, and showing the net amount to be paid by such Control Area. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts.

3.6 Metering Reconciliation.

3.6.1 Meter Correction Billing.

Metering errors and corrections will be reconciled at the end of each month by a meter correction charge or credit. The monthly meter correction charge or credit shall be determined by the product of the positive or negative deviation in energy amounts, times the weighted average Locational Marginal Price for all load busses in the PJM Control Area.

3.6.2 Meter Corrections Between Market Participants.

If a Market Participant or the Office of the Interconnection discovers a meter error affecting an interchange of energy with another Market Participant and makes the error known to such other Market Participant prior to the completion by the Office of the Interconnection of the accounting for the interchange, and if both Market Participants are willing to adjust hourly load records to compensate for the error and such adjustment does not affect other parties, an adjustment in load records may be made by the Market Participants in order to correct for the meter error, provided corrected information is furnished to the Office of the Interconnection in accordance with the Office of the Interconnection's accounting deadlines. No such adjustment may be made if the accounting for the Operating Day in which the interchange occurred has been completed by the Office of the Interconnection.

3.6.3 500 kV Meter Errors.

Billing cycle accounting for 500 kV transmission losses shall be adjusted to account for errors in meters on 500 kV Transmission Facilities.

3.6.4 Meter Corrections Between Control Areas.

An error between accounted for and metered interchange between a Party in the PJM Control Area and an entity in another Control Area shall be corrected by adjusting the hourly meter readings. If this is not practical, the error shall be accounted for by a correction at the end of the billing cycle. The Market Participant with ties to such other Control Area experiencing the error shall account for the full amount of the discrepancy and an appropriate debit or credit shall be applied equally among all Market Buyers. The Office of the Interconnection will adjust the actual interchange between the PJM Control Area and the other Control Area to maintain a proper record of inadvertent energy flow. Meter corrections on the 500 kV system between the PJM Control Area and other Control Areas shall be accounted for through the internal 500 kV system meter error allocation at the end of the billing cycle.

3.6.5 Meter Correction Data.

Meter error data shall be submitted to the Office of the Interconnection not later than noon on the second working day of the Office of the Interconnection after the end of the billing cycle applicable to the meter correction.

3.6.6 Correction Limits.

A Market Participant may not assert a claim for an adjustment in billing as a result of a meter error for any error discovered more than two years after the date on which the metering occurred. Any claim for an adjustment in billing as a result of a meter error shall be limited to bills for transactions occurring in the most recent annual accounting period of the billing Market Participant in which the meter error occurred, and the prior annual accounting period.

4. RATE TABLE

4.1 Offered Price Rates.

Spot Market Energy, Regulation, Operating Reserve, and Transmission Congestion are based on offers to the Office of the Interconnection specified in this Agreement.

4.2 Transmission Losses.

Average loss factors shall be as specified in the PJM Tariff.

4.3 Emergency Energy Purchases.

The pricing for Emergency energy purchases will be determined by the Office of the Interconnection and: (a) an adjacent Control Area, in accordance with an agreement between the Office of the Interconnection and such adjacent Control Area, or (b) a Member, in accordance with arrangements made by the Office of Interconnection to purchase energy offered by such Member from resources that are not Capacity Resources.

5. CALCULATION OF TRANSMISSION CONGESTION CHARGES AND CREDITS

5.1 Transmission Congestion Charge Calculation.

5.1.1 Calculation by Office of the Interconnection.

When the transmission system is operating under constrained conditions, the Office of the Interconnection shall calculate Transmission Congestion Charges for each Network Service User, the PJM Interchange Energy Market, and each Transmission Customer.

5.1.2 General.

The basis for the Transmission Congestion Charges shall be the differences in the Locational Marginal Prices between points of delivery and points of receipt, as determined in accordance with Section 2 of this Schedule.

5.1.3 Network Service User Calculation.

Each Network Service User shall be charged for the increased cost of energy incurred by it during each constrained hour to deliver the output of its firm Capacity Resources or other owned or contracted for resources, its firm bilateral purchases, and its non-firm bilateral purchases as to which it has elected to pay Transmission Congestion Charges. The Transmission Congestion Charge for deliveries from each such source shall be the Network Service User's hourly net bill less its hourly net PJM Interchange payments or sales as determined in accordance with Section 3.2.1 or Sections 3.3 and 3.3.1 of this Schedule.

5.1.4 Transmission Customer Calculation.

Each Transmission Customer using Firm Point-to-Point Transmission Service (as defined in the PJM Tariff), and each Transmission Customer using Non-Firm Point-to-Point Transmission Service (as defined in the PJM Tariff) that has elected to pay Transmission Congestion Charges, shall be charged for the increased cost of energy during constrained hours for the delivery of energy using Point-to-Point Transmission Service. Except as specified in this subsection, a Transmission Congestion Charge shall be assessed for transmission use scheduled in the Day-ahead Energy Market, calculated as the amount to be delivered multiplied by the difference between the Day-ahead Price at the delivery point or PJM Control Area boundary delivery interface and the Day-ahead Price at the source point or PJM Control Area boundary source interface. Transmission Congestion Charges shall be assessed for real-time transmission use in excess of the amounts scheduled for each hour in the Day-ahead Energy Market, calculated as the excess amount multiplied by the difference between the Real-time Price at the delivery point or PJM Control Area boundary delivery interface, and the Real-time Price at the source point or PJM Control Area boundary source interface. A Transmission Customer shall be credited for Transmission Congestion Charges for real-time transmission use falling below the amounts scheduled for each hour in the Day-ahead Energy Market, calculated as the shortfall amount multiplied by the difference between the Real-time Price at the delivery point or PJM Control Area

boundary delivery interface, and the Real-time Price at the source point or PJM Control Area boundary source interface. Real-time deviations from the Point-to-Point Transmission Service scheduled in the Day-ahead Energy Market shall be determined by the lesser of the real-time injection or withdrawal associated with such transmission service. The Transmission Congestion Charge for Market Sellers using point-to-point transmission service for deliveries out of the PJM Control Area from generating resources within the PJM Control Area shall be the amount of its net bill less the Market Seller's net hourly PJM Interchange payments or sales as determined in accordance with Section 3.3 of this Schedule.

5.1.5 Operating Margin Customer Calculation.

Each Control Area purchasing Operating Margin shall be assessed Transmission Congestion Charges for any the increase in the cost of energy resulting from the provision of Operating Margin. The Transmission Congestion Charge shall be the amount of Operating Margin purchased in an hour multiplied by the difference in the Real-time Price at what would be the delivery interface and the Real-time Price at what would be the source interface, if the operating contingency that was the basis for the purchase of Operating Margin had occurred in that hour. Operating Margin may be allocated among multiple source and delivery interfaces in accordance with an applicable load flow study.

5.1.6 Transmission Loading Relief Customer Calculation.

(a) Each Transmission Loading Relief Customer shall be assessed Transmission Congestion Charges for any increase in the cost of energy in the PJM Control Area resulting from its energy schedules over contract paths outside the PJM Control Area during Transmission Loading Relief.

(b) The Transmission Congestion Charge shall be the total amount of energy specified in such energy schedules multiplied by the difference between a Locational Marginal Price calculated by the Office of the Interconnection for the energy schedule source location specified in the NERC Interchange Distribution Calculator and a Locational Marginal Price calculated by the Office of the Interconnection for the energy schedule sink location specified in the NERC Interchange Distribution Calculator. Transmission Congestion Charges that are less than zero shall be set equal to zero for Transmission Loading Relief Customers.

(c) The Office of the Interconnection will determine the Locational Marginal Prices at the energy schedule source and sink locations external to PJM with reference to and based solely on the prices of energy in the PJM Control Area and at the interface buses between the PJM Control Area and adjacent Control Areas and the system conditions and actual power flow distributions as described by the PJM State Estimator program. The Office of the Interconnection will determine the Locational Marginal Prices at the external energy schedule source and sink locations and the resulting Congestion Charge based on the portion of the energy schedule that flows through the PJM Control Area as reflected by the flow distributions from the PJM State Estimator program.

5.1.7 Total Transmission Congestion Charges.

The total Transmission Congestion Charges collected by the Office of the Interconnection each hour will be the aggregate net amounts determined as specified in this Schedule. The Office of the Interconnection shall collect Transmission Congestion Charges for each hour the transmission system operates under constrained conditions.

5.2 Transmission Congestion Credit Calculation.

5.2.1 Eligibility.

Each holder of a Fixed Transmission Right shall receive as a Transmission Congestion Credit a proportional share of the total Transmission Congestion Charges collected for each constrained hour.

5.2.2 Fixed Transmission Rights.

(a) Transmission Congestion Credits will be calculated based upon the Fixed Transmission Rights held at the time of the constrained hour. Initial assignments of Fixed Transmission Rights shall be made to each Network Service User and Transmission Customer as specified below.

(b) On a periodic schedule established by the Office of the Interconnection, each Network Service User shall designate a subset of its Network Resources for which Fixed Transmission Rights will be assigned. Fixed Transmission Rights shall be assigned for each Network Resource in a number of megawatts equal to or less than the installed capacity summer megawatt rating of each designated Network Resource, determined at the PJM Control Area transmission bus at which the designated Network Resource is connected. Each Fixed Transmission Right shall be to the aggregate load busses of the Network Service User in a Zone or, with respect to Non-Zone Network Load, to the border of the PJM Control Area. The sum of each Network Service User's assigned Fixed Transmission Rights for a Zone must be equal to or less than the Network Service User's peak load for that Zone as determined under Section 34.1 of the Tariff. The sum of each Network Service User's Fixed Transmission Rights for Non-Zone Network Load must be equal to or less than the Network Service User's transmission responsibility for Non-Zone Network Load as determined under Section 34.1 of the Tariff.

(c) Each Transmission Customer receiving firm Point-to-Point Transmission Service shall be assigned Fixed Transmission Rights; provided, however, that a Transmission Customer may notify the Office of Interconnection that it does not wish to receive any FTRs or wishes to receive FTRs only for certain Point or Points of Receipt and Point or Points of Delivery, in which event no FTRs or such reduced amount of FTRs shall be issued to the Transmission Customer. The Fixed Transmission Right for each instance of Point-to-Point Transmission Service shall be a number of megawatts equal to the megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer has firm Point-to-Point Transmission Service.

(d) A Fixed Transmission Right, or the right to Transmission Congestion Credits attributable to a Fixed Transmission Right, may be sold or otherwise transferred by agreement, subject to compliance with such procedures as may be established by the Office of the Interconnection for verification of the rights of the purchaser or transferee.

5.2.3 Target Allocation for Network Service Users.

A target allocation of Transmission Congestion Credits for each Network Service User shall be determined for each of its Fixed Transmission Rights. Each Fixed Transmission Right shall be multiplied by the percent of the Network Service User's annual peak load assigned to each load bus multiplied by the difference calculated as the Network Service User's load bus Day-ahead Price minus the generation bus Day-ahead Price of the Network Resource associated with the Fixed Transmission Right. The total target allocation for each Fixed Transmission Right is the sum of the target allocations for each load bus. The total target allocation for each Network Service User for each hour is the sum of the total target allocations for each of the Network Service User's Fixed Transmission Rights.

5.2.4 Target Allocation for other Holders.

A target allocation of Transmission Congestion Credits for each Transmission Customer or entity holding an FTR acquired by other means shall be determined for each Fixed Transmission Right. Each Fixed Transmission Right shall be multiplied by the Day-ahead Price differences for the receipt and delivery points associated with the Fixed Transmission Right, calculated as the Day-ahead Price at the delivery point(s) minus the Locational Marginal Price at the receipt point(s). The total target allocation for the Transmission Customer for each hour shall be the sum of the target allocations associated with all of the Transmission Customer's Fixed Transmission Rights.

5.2.5 Calculation of Transmission Congestion Credits.

(a) The total of all the target allocations determined as specified above shall be compared to the total Transmission Congestion Charges in each hour resulting from both the Day-ahead Energy Market and the Real-time Energy Market. If the total of the target allocations is less than the total of the Transmission Congestion Charges, the Transmission Congestion Credit for each Network Service User and Transmission Customer shall be equal to its target allocation. All remaining Transmission Congestion Charges shall be distributed as described below in Section 5.2.6 "Distribution of Excess Congestion Charges."

(b) If the total of the target allocations is greater than the total Transmission Congestion Charges for the hour resulting from both the Day-ahead Energy Market and the Real-time Energy Market, each holder of Fixed Transmission Rights shall be assigned a share of the total Transmission Congestion Charges in proportion to its target allocations.

5.2.6 Distribution of Excess Congestion Charges.

(a) Excess Transmission Congestion Charges accumulated in a month shall be distributed to each holder of Fixed Transmission Rights in proportion to, but not more than, any deficiency in the share of Transmission Congestion Charges received by the holder during that month as compared to its total target allocations for the month.

(b) Any excess Transmission Congestion Charges remaining at the end of a month shall be distributed to Network Service Users and Transmission Customers purchasing Firm Point-to-Point Transmission Service in proportion to their Demand Charges for Network Service and their charges for Reserved Capacity for Firm Point-to-Point Transmission Service.

5.3 Unscheduled Transmission Service (Loop Flow).

(a) When there are agreements between the Members (or the Office of the Interconnection on behalf of the Members) and others for compensation to be paid or received for unscheduled transmission service (loop flow) into or out of the PJM Control Area, the net compensation received shall be included in the total Transmission Congestion Charges that are distributed in accordance with Section 5.2.

(b) With respect to payments by the Office of the Interconnection to the New York Power Pool for the installation and operation of phase angle regulating facilities at Ramapo to control or limit unscheduled transmission service (loop flow), each Transmission Owner with revenue requirements under the PJM Tariff shall pay a share of the charges on a transmission revenue requirements ratio share basis.

6. "MUST-RUN" FOR RELIABILITY GENERATION

6.1 Introduction.

The following procedures shall apply to any generation resource subject to the dispatch of the Office of the Interconnection that (a) is a generation resource for which construction commenced before July 9, 1996, and (b) as a result of transmission constraints, the Office of the Interconnection determines, in the exercise of Good Utility Practice, must be run in order to maintain the reliability of service in the PJM Control Area. The provisions of this Schedule shall otherwise apply to the scheduling, dispatch, operation and accounting treatment of such resources, to the extent not inconsistent with the provisions of this Section 6.

6.2 Identification of Facility Outages.

Not later than one hour prior to the deadline specified in Section 1.10.1 of this Schedule, the Office of the Interconnection shall identify on the PJM Open Access Same-Time Information System any facility outage or other system condition which it has determined may give rise to a transmission constraint that may require, in order to maintain system reliability, the dispatch of one or more generation resources that otherwise would not be dispatched based on the merits of their offers to the PJM Interchange Energy Market.

6.3 Dispatch for Local Reliability.

6.3.1 Request and Dispatch.

In addition to the dispatch of generation by the Office of the Interconnection to maintain reliability on transmission facilities directly monitored by it, a Member that owns or leases with rights equivalent to ownership Transmission Facilities as defined in this Agreement or the Transmission Owners Agreement and that operates a local control center in accordance with Section 11.3.3 of this Agreement or a Market Operations Center in accordance with Section 1.7.5 of this Schedule, may request the Office of the Interconnection to dispatch generation in order to maintain reliability on any such Transmission Facilities that are not then directly monitored by the Office of the Interconnection, subject to the rules and procedures in Section 6.3.2. The Office of the Interconnection shall dispatch generation to maintain reliability on such Transmission Facilities by incorporating the facilities in the State Estimator program described in Section 2.3 as set forth below, unless the Office of the Interconnection determines that such dispatch would adversely affect reliability in the PJM Control Area or would otherwise not be in accordance with Good Utility Practice.

6.3.2 Designation of Facilities.

The following rules and procedures shall apply to a Member request that the Office of the Interconnection dispatch generation on one or more Transmission Facilities that are not then directly monitored by the Office of the Interconnection.

a) The Transmission Facilities that are the subject of the request must be among the facilities that comprise the Transmission System under the PJM Tariff;

b) The Member shall provide modeling information for such Transmission Facilities and provide sufficient telemetry to the Office of the Interconnection such that power flows are observable by the State Estimator program described in Section 2.3; provided, however, that if an unreliable constrained condition exists and time does not permit such modeling and telemetry, the Member and the Office of the Interconnection may agree to use a representative surrogate for such Transmission Facilities in order to allocate the costs of the dispatch of generation using Locational Marginal Prices to maintain reliability on such Transmission Facilities, provided further that the Member shall expeditiously provide the modeling data and install the necessary facilities to incorporate the Transmission Facilities into the State Estimator program;

c) The request shall constitute a request that such Transmission Facilities become and remain monitored by the Office of the Interconnection and subject to its dispatch control for a period of not less than ninety (90) days;

d) The Member shall comply with all other operating procedures established by the Office of the Interconnection regarding dispatch for local reliability as set forth in the PJM Manuals.

6.4 Price Caps.

6.4.1 Applicability.

(a) Except as specified below, if in the day-ahead schedule determined by the Office of the Interconnection in accordance with Sections 1.10.8(a) and (b) of this Schedule any generation resource may be dispatched out of economic merit order to maintain system reliability as a result of limits on transmission capability, the prices for energy offered by such resource shall be capped at the levels specified below. If the Office of the Interconnection is able to do so, such prices shall be capped only during each hour when the transmission limit affects the schedule of the affected resource, and otherwise shall be capped for the entire Operating Day. The energy prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(b) The energy bid price offered by any generation resource requested to be dispatched in accordance with Section 6.3 of this Schedule shall be capped at the levels specified below. If the Office of the Interconnection is able to do so, such prices shall be capped only during each hour when the affected resource is so scheduled, and otherwise shall be capped for the entire Operating Day. The energy prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(c) Generation resources subject to a price cap shall be paid for energy at the applicable Locational Marginal Price.

(d) Price caps shall not be applicable to generation resources used to relieve the Western, Central and Eastern reactive limits in the PJM Control Area. In addition, price caps shall not be applicable to generation resources used to relieve any other transmission limit as to which the FERC has authorized the use of market based rates.

6.4.2 Level.

The price cap shall be one of the amounts specified below, as specified in advance by the market Seller for the affected unit:

(i) The weighted average Locational Marginal Price at the generation bus at which energy from the capped resource was delivered during a specified number of hours during which the resource was dispatched for energy in economic merit order, the specified number of hours to be determined by the Office of the Interconnection and to be a number of hours sufficient to result in a price cap that reflects reasonably contemporaneous competitive market conditions for that unit;

(ii) The incremental operating cost of the generation resource as determined in accordance with Schedule 2 of this Agreement and the PJM Manuals, plus 10% of such costs; or

(iii) An amount determined by agreement between the Office of the Interconnection and the Market Seller.

7. FIXED TRANSMISSION RIGHTS AUCTIONS

7.1 Auctions of Fixed Transmission Rights.

Periodic auctions to allow Market Participants to acquire or sell Fixed Transmission Rights shall be conducted by the Office of the Interconnection in accordance with the provisions of this Section.

7.1.1 Auction Period and Scope of Auctions.

The period covered by an auction shall be the one-month period next following the date that the auction is conducted. The Office of the Interconnection shall offer for sale in the auction any remaining Fixed Transmission Rights capability for the month after taking into account all of the Fixed Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Fixed Transmission Right for the period covered by an auction may offer such Fixed Transmission Right for sale in such auction. Each monthly auction will consist of a separate auction for on-peak Fixed Transmission Rights and a separate auction for off-peak Fixed Transmission Rights. Market Participants may bid for and acquire any number of Fixed Transmission Rights, provided that all Fixed Transmission Rights awarded are simultaneously feasible with each other and with all Fixed Transmission Rights outstanding at the time of the auction and not sold into the auction.

7.1.2 Frequency and Time of Auctions.

Fixed Transmission Rights auctions shall be held monthly. The bid and offer period shall open at 12:00 midnight (Eastern Prevailing Time) on the fifteenth (15th) business day preceding the month for which Fixed Transmission Rights are being auctioned and shall close at 12:00 midnight (Eastern Prevailing Time) on the tenth (10th) business day preceding the month for which Fixed Transmission Rights are being auctioned.

7.1.3. Duration of Fixed Transmission Rights.

Each Fixed Transmission Right acquired in a Fixed Transmission Rights auction shall entitle the holder to credits of Transmission Congestion Charges for the one-month period for which the Fixed Transmission Rights were auctioned.

7.2 Fixed Transmission Rights Characteristics.

7.2.1 Reconfiguration of Fixed Transmission Rights.

Through an appropriate linear programming model, the Office of the Interconnection shall reconfigure the Fixed Transmission Rights offered or otherwise available for sale in any auction to maximize the value to the bidders of the Fixed Transmission Rights sold, provided that any Fixed Transmission Rights acquired at auction shall be simultaneously feasible in combination with those Fixed Transmission Rights outstanding at the time of the auction and not sold in the auction. The linear programming model shall, while respecting transmission constraints and the maximum MW quantities of the bids and offers, select the set of simultaneously feasible Fixed Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers.

7.2.2 Specified Buses.

Auction bids for Fixed Transmission Rights may specify any combination of receipt and delivery buses represented in the State Estimator model for which the Office of the Interconnection calculates and posts Locational Marginal Prices. Auction bids may specify receipt and delivery points from locations outside of the PJM Control Area to locations inside the PJM Control Area, from locations within the PJM Control Area to locations outside of the PJM Control Area, or to and from locations within the PJM Control Area.

7.2.3 Transmission Congestion Charges.

Fixed Transmission Rights, whether acquired at auction or otherwise, shall entitle holders thereof to credits only for Transmission Congestion Charges, and shall not confer a right to credits for payments arising from or relating to transmission congestion made to any entity other than the Office of the Interconnection.

7.3 Auction Procedures.

7.3.1 Role of the Office of the Interconnection.

Fixed Transmission Rights auctions shall be conducted by the Office of the Interconnection in accordance with standards and procedures set forth in the PJM Manuals, such standards and procedures to be consistent with the requirements of this Schedule.

7.3.2 Notice of Offer.

A holder of a Fixed Transmission Right wishing to offer the Fixed Transmission Right for sale shall notify the Office of the Interconnection of any Fixed Transmission Rights to be offered. Each Fixed Transmission Right sold in an auction shall, at the end of the period for which the Fixed Transmission Rights were auctioned, revert to the offering holder or the entity to which the offering holder has transferred such Fixed Transmission Right, subject to the term of the Fixed Transmission Right itself and to the right of such holder or transferee to offer the Fixed Transmission Right in the next or any subsequent auction during the term of the Fixed Transmission Right.

7.3.3 Pending Applications for Firm Service.

(a) Prior to the start of each auction bidding period, the Office of the Interconnection shall exert reasonable effort to complete its review of pending applications for Network Transmission Service and Firm Point-to-Point Transmission Service and to ascertain the corresponding Fixed Transmission Rights to be assigned to the entities receiving such service, subject to compliance with all applicable deadlines and other procedures by the applicant. Fixed Transmission Rights so assigned shall be included in the simultaneous feasibility test performed by the Office of the Interconnection for the auction.

(b) Fixed Transmission Rights may be assigned to entities requesting Network Transmission Service or Firm Point-to-Point Transmission Service only if such Fixed Transmission Rights are simultaneously feasible with all outstanding Fixed Transmission Rights, including Fixed Transmission Rights effective for the then-current auction period. If an assignment of Fixed Transmission Rights pursuant to a pending application for Network Transmission Service or Firm Point-to-Point Transmission Service cannot be completed prior to an auction, Fixed Transmission Rights attributable to such transmission service shall not be assigned for the then-current auction period. If a Fixed Transmission Right cannot be assigned for this reason, the applicant may withdraw its application, or request that the Fixed Transmission Right be assigned effective with the start of the next auction period.

7.3.4 On-Peak and Off-Peak Periods.

The Office of the Interconnection will conduct separate auctions simultaneously for on-peak and off-peak periods. On-Peak Fixed Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending at 11:00 p.m. on Mondays through Fridays, except holidays as defined in the PJM Manuals. Off-Peak Fixed Transmission Rights shall cover the periods from 11:00 p.m. up to the hour ending 7:00 a.m. on Mondays through Fridays and all hours on Saturdays, Sundays, and holidays as defined in the PJM Manuals. Each bid shall specify whether it is for an on-peak or off-peak period.

7.3.5 Offers and Bids.

(a) Offers to sell and bids to purchase Fixed Transmission Rights shall be submitted during the period set forth in Section 7.1.2, and shall be in the form specified by the Office of the Interconnection in accordance with the requirements set forth below.

(b) Offers to sell shall identify the specific Fixed Transmission Right, by megawatt quantity and receipt and delivery points, offered for sale. An offer to sell a specified megawatt quantity of Fixed Transmission Rights shall constitute an offer to sell a quantity of Fixed Transmission Rights equal to or less than the specified quantity. An offer to sell may not specify a minimum quantity being offered. Each offer may specify a reservation price, below which the offeror does not wish to sell the Fixed Transmission Right. Offers submitted by entities holding rights to Fixed Transmission Rights acquired other than by assignment in connection with reservations of Network Transmission Service or Firm Point-to-Point Transmission Service shall be subject to such reasonable standards for the verification of the rights of the offeror as may be established by the Office of the Interconnection. Offers shall be subject to such reasonable standards for the creditworthiness of the offeror or for the posting of security for performance as the Office of the Interconnection shall establish.

(c) Bids to purchase shall specify the megawatt quantity, price per megawatt, and receipt and delivery points of the Fixed Transmission Right that the bidder wishes to purchase. A bid to purchase a specified megawatt quantity of Fixed Transmission Rights shall constitute a bid to purchase a quantity of Fixed Transmission Rights equal to or less than the specified quantity. A bid to purchase may not specify a minimum quantity that the bidder wishes to purchase. A bid may specify as receipt or delivery points any bus for which the Office of the Interconnection calculates and posts Locational Marginal Prices in accordance with Section 2 of this Schedule and may include Fixed Transmission Rights for which the associated Transmission Congestion Credits may have negative values. Bids shall be subject to such reasonable standards for the creditworthiness of the bidder or for the posting of security for performance as the Office of the Interconnection shall establish.

(d) Bids and offers shall be specified to the nearest tenth of a megawatt and shall be greater than zero.

7.3.6 Determination of Winning Bids and Clearing Price.

(a) At the close of the bidding period each month, the Office of the Interconnection will create a base Fixed Transmission Rights power flow model that includes all outstanding Fixed Transmission Rights that have been approved and confirmed for any portion of the month for which the auction was conducted and that were not offered for sale in the auction. The base Fixed Transmission Rights model also will include estimated uncompensated parallel flows into each interface point of the PJM Control Area and estimated scheduled transmission outages.

(b) In accordance with the requirements of Section 7.4 of this Schedule and subject to all applicable transmission constraints and reliability requirements, the Office of the Interconnection shall determine the simultaneous feasibility of all outstanding Fixed Transmission Rights not offered for sale in the auction and of all Fixed Transmission Rights that could be awarded in the auction for which bids were submitted. The winning bids shall be determined from an appropriate linear programming model that, while respecting transmission constraints and the maximum MW quantities of the bids and offers, selects the set of simultaneously feasible Fixed Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers. In the event that there are two or more identical bids for the selected Fixed Transmission Rights and there are insufficient Fixed Transmission Rights to accommodate all of the identical bids, then each such bidder will receive a pro rata share of the Fixed Transmission Rights that can be awarded.

(c) Fixed Transmission Rights shall be sold at the market-clearing price for Fixed Transmission Rights between specified pairs of receipt and delivery points, as determined by the bid value of the marginal Fixed Transmission Right that could not be awarded because it would not be simultaneously feasible. The linear programming model shall determine the clearing prices of all Fixed Transmission Rights paths based on the bid value of the marginal Fixed Transmission Rights, which are those Fixed Transmission Rights with the highest bid values that could not be awarded fully because they were not simultaneously feasible, and based on the flow sensitivities of each Fixed Transmission Rights path relative to the marginal Fixed Transmission Rights paths flow sensitivities on the binding transmission constraints.

7.3.7 Announcement of Winners and Prices.

Within two (2) business days after the close of an auction, the Office of the Interconnection shall post the winning bidders, the megawatt quantity, and the receipt and delivery points for each Fixed Transmission Right awarded in the auction and the price at which each Fixed Transmission Right was awarded. Results of the on-peak auction and off-peak auction will be posted separately. The Office of the Interconnection shall not disclose the price specified in any bid to purchase or the reservation price specified in any offer to sell.

7.3.8 Auction Settlements.

All buyers and sellers of Fixed Transmission Rights between the same points of receipt and delivery shall pay or be paid the market-clearing price, as determined in the auction, for such Fixed Transmission Rights.

7.3.9 Allocation of Auction Revenues.

All auction revenues, net of payments to entities selling Fixed Transmission Rights into the auction, shall be allocated among the Regional Transmission Owners in proportion to their respective transmission revenue requirements.

7.4 Simultaneous Feasibility.

The Office of the Interconnection shall make the simultaneous feasibility determinations specified herein using appropriate powerflow models of contingency-constrained dispatch. Such determinations shall take into account outages of both individual generation units and transmission facilities and shall be based on reasonable assumptions about the configuration and availability of transmission capability during the period covered by the auction that are not inconsistent with the determination of the deliverability of Capacity Resources under the Reliability Assurance Agreement. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Transmission Congestion Charges to satisfy all Fixed Transmission Rights obligations for the auction period under expected conditions.

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SCHEDULE 1 - PJM INTERCHANGE ENERGY MARKET 1
1. MARKET OPERATIONS 1
1.1 Introduction. 1
1.2 Cost-based Offers. 1
1.3 Definitions. 1
1.3.1 Day-ahead Energy Market 1
1.3.1a Day-ahead Prices 1
1.3.1b Decrement Bid 1
1.3.1c Dispatch Rate. ..... 1~~2~~
1.3.2 Equivalent Load. ..... 1~~2~~
1.3.3 External Market Buyer. ..... 1~~2~~
1.3.4 External Resource. 2
1.3.5 Fixed Transmission Right. 2
1.3.6 Generating Market Buyer. 2
1.3.7 Generator Forced Outage. 2
1.3.8 Generator Maintenance Outage. 2
1.3.9 Generator Planned Outage. ..... 2~~3~~
1.3.9a Increment Bid 3
1.3.10 Internal Market Buyer. ..... 2~~3~~
1.3.11 Inadvertent Interchange. ..... 2~~3~~
1.3.12 Market Operations Center 3
1.3.13 Maximum Generation Emergency 3
1.3.14 Minimum Generation Emergency. 3
1.3.14a NERC Interchange Distribution Calculator 3
1.3.15 Network Resource ..... 3~~1~~
1.3.16 Network Service User. ..... 3~~1~~
1.3.17 Network Transmission Service. ..... 3~~4~~
1.3.18 Normal Maximum Generation ..... 3~~1~~
1.3.19 Normal Minimum Generation. ..... 3~~4~~
1.3.20 Offer Data. ..... 3~~a~~1
1.3.21 Office of the Interconnection Control Center. 4
1.3.22 Operating Day. 4
1.3.23 Operating Margin. ..... 4~~5~~
1.3.24 Operating Margin Customer. ..... 4~~5~~
1.3.25 PJM Interchange. ..... 4~~5~~
1.3.26 PJM Interchange Export. ..... 4~~5~~
1.3.27 PJM Interchange Import. 5
1.3.28 PJM Open Access Same-time Information System. ..... 5~~6~~
1.3.29 Point-to-Point Transmission Service. ..... 5~~6~~
1.3.30 Ramping Capability. ..... 5~~6~~
1.3.30a Real-time Prices 6
1.3.30b Real-time Energy Market 6
1.3.31 Regulation. ..... 5~~6~~
~~1.3.32 Regulation Class. ..... 5~~
1.3.32~~a~~ Spot Market Backup ..... 5~~6~~
1.3.33 Spot Market Energy. ..... 5~~a~~6

1.3.33a State Estimator 6
1.3.34 Transmission Congestion Charge. ..... ~~5a~~7
1.3.35 Transmission Congestion Credit. ..... ~~6~~7
1.3.36 Transmission Customer. ..... ~~6~~7
1.3.37 Transmission Forced Outage. ..... ~~6~~7
1.3.37a Transmission Loading Relief ..... ~~6~~7
1.3.37b Transmission Loading Relief Customer ..... ~~6~~7
1.3.38 Transmission Planned Outage. ..... ~~6~~7
1.4 Market Buyers. ..... ~~6~~7
1.4.1 Qualification. ..... ~~6~~7
1.4.2 Submission of Information. ..... ~~7~~9
1.4.3 Fees and Costs. ..... ~~7~~9
1.4.4 Office of the Interconnection Determination. ..... ~~8~~9
1.4.5 Existing Participants. ..... ~~8~~9
1.4.6 Withdrawal ..... ~~8~~9
1.5 Market Sellers ..... ~~9~~10
1.5.1 Qualification. ..... ~~9~~10
1.5.2 Withdrawal ..... ~~9~~10
1.6 Office of the Interconnection. ..... ~~9~~10
1.6.1 Operation of the PJM Interchange Energy Market ..... ~~9~~10
1.6.2 Scope of Services ..... ~~9~~11
1.6.3 Records and Reports. ..... ~~11~~12
1.6.4 PJM Manuals. ..... ~~11~~12
1.7 General. ..... ~~11~~12
1.7.1 Market Sellers. ..... ~~11~~12
1.7.2 Market Buyers. ..... ~~11~~12
1.7.3 Agents. ..... ~~11~~12
1.7.4 General Obligations of the Market Participants. ..... ~~11~~12
1.7.5 Market Operations Center. ..... ~~12~~14
1.7.6 Scheduling and Dispatching. ..... ~~12~~14
1.7.7 Pricing. ..... ~~12~~14
1.7.8 Generating Market Buyer Resources. ..... ~~12~~15
1.7.9 Delivery to an External Market Buyer. ..... ~~12~~15
1.7.10 Other Transactions. ..... ~~14~~15
1.7.11 Emergencies ..... ~~14~~15
1.7.12 Fees and Charges. ..... ~~14~~16
1.7.13 Relationship to PJM Control Area. ..... ~~14a~~16
1.7.14 PJM Manuals. ..... ~~15~~16
1.7.15 Corrective Action ..... ~~15~~16
1.7.16 Recording ..... ~~15~~16
1.7.17 Operating Reserves. ..... ~~15~~16
1.7.18 Regulation. ..... ~~15a~~17
1.7.19 Ramping ..... ~~16~~18
1.7.20 Communication and Operating Requirements. ..... ~~16~~18
~~1.7.21 Multi-settlement System. ..... 17~~
1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process. ..... ~~17~~19
1.8.1 PJM Dispute Resolution Agreement. ..... ~~17~~19
1.8.2 Market or Control Area Hourly Operational Disputes ..... ~~17~~19

1.9 Prescheduling. 18 20
1.9.1 Outage Scheduling. 18 20
1.9.2 Planned Outages. 18 20
1.9.3 Generator Maintenance Outages 19 21
1.9.4 Forced Outages 19 21
1.9.5 Market Participant Responsibilities. 20 21
1.9.6 Internal Market Buyer Responsibilities. 20 22
1.9.7 Market Seller Responsibilities 20 22
1.9.8 Office of the Interconnection Responsibilities 20 22
1.10 Scheduling. 21 23
1.10.1 General 23
1.10.1a Day-Ahead ~~Scheduling~~Energy Market Scheduling. 21 23
1.10.2 Pool-Scheduled Resources. 23 26
1.10.3 Self-scheduled Resources. 24 27
1.10.4 Capacity Resources. 24 27
1.10.5 External Resources. 25 28
1.10.6 External Market Buyers. 26 28
1.10.6A Transmission Loading Relief Customers 26 29
1.10.7 Bilateral Transactions. 26a 29
1.10.8 Office of the Interconnection Responsibilities. 27 29
1.10.9 Hourly Scheduling 27 30
1.11 Dispatch. 28 31
1.11.1 Resource Output. 28 31
1.11.2 Operating Basis. 28 32
1.11.3 Pool-dispatched Resources 29 32
1.11.3a Maximum Generation Emergency 29 32
1.11.4 Regulation 29 32
1.11.5 PJM Open Access Same-time Information System. 29 33
1.12 Dynamic Scheduling 33
2. CALCULATION OF LOCATIONAL MARGINAL PRICES 30 34
2.1 Introduction. 30 34
2.2 General. 30 34
2.3 Determination of System Conditions Using the State Estimator. 31 35
2.4 Determination of Energy Offers Used in Calculating ~~Locational Marginal~~Real-time Prices 31 35
2.5 Calculation of ~~Locational Marginal~~Real-time Prices. 32 36
2.6 Calculation of Day-ahead Prices 36
2.67 Performance Evaluation. 32 37
3. ACCOUNTING AND BILLING 33 38
3.1 Introduction. 33 38
3.2 Market Buyers. 33 38
3.2.1 Spot Market Energy. 33 38
3.2.2 Regulation. 34 40
3.2.3 Operating Reserves. 35 41
3.2.4 Transmission Congestion. 35 43
3.2.5 Transmission Losses. 35 43

3.2.6 Emergency Energy. ~~36~~44
3.2.7 Billing. ~~36~~44
3.3 Market Sellers ~~36~~44
3.3.1 Spot Market Energy ~~37~~45
3.3.2 Regulation. ~~37~~45
3.3.3 Operating Reserves. ~~37~~46
3.3.4 Emergency Energy. ~~37~~46
3.3.5 Billing. ~~38~~46
3.4 Transmission Customers. ~~38~~46
3.4.1 Transmission Congestion. ~~38~~46
3.4.2 Transmission Losses ~~38~~46
3.4.3 Billing. ~~38~~47
3.5 Other Control Areas. ~~39~~47
3.5.1 Energy Sales. ~~39~~47
3.5.2 Operating Margin Sales. ~~39~~47
3.5.3 Transmission Congestion. ~~39~~47
3.5.4 Billing. ~~39~~47
3.6 Metering Reconciliation. ~~39~~48
3.6.1 Meter Correction Billing. ~~39~~48
3.6.2 Meter Corrections Between Market Participants. ~~40~~48
3.6.3 500 kV Meter Errors. ~~40~~48
3.6.4 Meter Corrections Between Control Areas. ~~40~~48
3.6.5 Meter Correction Data. ~~40~~48
3.6.6 Correction Limits. ~~40~~48
4. RATE TABLE ~~41~~49
4.1 Offered Price Rates. ~~41~~49
4.2 Transmission Losses. ~~41~~49
4.3 Emergency Energy Purchases. ~~41~~49
5. CALCULATION OF TRANSMISSION CONGESTION CHARGES AND CREDITS ~~42~~50
5.1 Transmission Congestion Charge Calculation ~~42~~50
5.1.1 Calculation by Office of the Interconnection. ~~42~~50
5.1.2 General. ~~42~~50
5.1.3 Network Service User Calculation. ~~42~~50
5.1.4 Transmission Customer Calculation. ~~42~~50
5.1.5 Operating Margin Customer Calculation. ~~42~~51
5.1.6 Transmission Loading Relief Customer Calculation ~~43~~51
5.1.7 Total Transmission Congestion Charges ~~43~~51
5.2 Transmission Congestion Credit Calculation. ~~43~~52
5.2.1 Eligibility. ~~43~~52
5.2.2 Fixed Transmission Rights ~~43~~52
5.2.3 Target Allocation for Network Service Users ~~44~~53
5.2.4 Target Allocation for other Holders. ~~44~~53
5.2.5 Calculation of Transmission Congestion Credits ~~44~~53
5.2.6 Distribution of Excess Congestion Charges ~~44~~53
5.3 Unscheduled Transmission Service (Loop Flow) ~~44~~54
6. "MUST-RUN" FOR RELIABILITY GENERATION ~~45~~55

6.1 Introduction ..... ~~15~~55
6.2 Identification of Facility Outages ..... ~~15~~55
6.3 Dispatch for Local Reliability ..... ~~15~~55
6.3.1 Request and Dispatch ..... ~~15~~55
6.3.2 Designation of Facilities ..... ~~15a~~55
6.4 Price Caps ..... ~~15a~~56
6.4.1 Applicability ..... ~~15a~~56
6.4.2 Level ..... ~~15b~~57
7. FIXED TRANSMISSION RIGHTS AUCTIONS ..... ~~16~~58
7.1 Auctions of Fixed Transmission Rights ..... ~~16~~58
7.1.1 Auction Period and Scope of Auctions ..... ~~16~~58
7.1.2 Frequency and Time of Auctions ..... ~~16~~58
7.1.3 Duration of Fixed Transmission Rights ..... ~~16~~58
7.2 Fixed Transmission Rights Characteristics ..... ~~17~~58
7.2.1 Reconfiguration of Fixed Transmission Rights ..... ~~17~~58
7.2.2 Specified Buses ..... ~~17~~59
7.2.3 Transmission Congestion Charges ..... ~~17~~59
7.3 Auction Procedures ..... ~~17~~59
7.3.1 Role of the Office of the Interconnection ..... ~~17~~59
7.3.2 Notice of Offer ..... ~~18~~59
7.3.3 Pending Applications for Firm Service ..... ~~18~~59
7.3.4 On-Peak and Off-Peak Periods ..... ~~18~~60
7.3.5 Offers and Bids ..... ~~19~~60
7.3.6 Determination of Winning Bids and Clearing Price ..... ~~20~~61
7.3.7 Announcements of Winners and Prices ..... ~~20~~61
7.3.8 Auction Settlements ..... ~~21~~62
7.3.9 Allocation of Auction Revenues ..... ~~21~~62
7.4 Simultaneous Feasibility ..... ~~21~~62
SCHEDULE 2 - COMPONENTS OF COST 1
SCHEDULE 2A - EXPLANATION OF THE TREATMENT OF THE COSTS OF EMISSIONS ALLOWANCES 1
SCHEDULE 3 - ALLOCATION OF THE COST AND EXPENSES OF THE OFFICE OF THE INTERCONNECTION 1
SCHEDULE 4 - STANDARD FORM OF AGREEMENT TO BECOME A MEMBER OF THE LLC 1

(h) Provide to the Office of the Interconnection all System, accounting, customer tracking, load forecasting (including all load to be served from its System) and other data necessary or appropriate to implement or administer this Agreement or the Reliability Assurance Agreement; and

(i) Comply with the underfrequency relay obligations and charges specified in Schedule 7 of this Agreement.

11.3.4 Reports to the Office of the Interconnection.

Each Member shall report as promptly as possible to the Office of the Interconnection any changes in its operating practices and procedures relating to the reliability of the bulk power supply facilities of the Interconnection. The Office of the Interconnection shall review such reports, and if any change in an operating practice or procedure of the Member is not in accord with the established operating principles, practices and procedures for the Interconnection and such change adversely affects the Interconnection and regional reliability, it shall so inform such Member, and the other Members through their representative on the Operating Committee, and shall direct that such change be modified to conform to the established operating principles, practices and procedures.

11.4 Regional Transmission Expansion Planning Protocol.

The Members shall participate in regional transmission expansion planning in accordance with the Regional Transmission Expansion Planning Protocol set forth in Schedule 6 to this Agreement.

11.5 Member Right to Petition.

(a) Nothing herein shall deprive any Member of the right to petition FERC to modify any provision of this Agreement or any Schedule or practice hereunder that the petitioning Member believes to be unjust, unreasonable, or unduly discriminatory under Section 206 of the Federal Power Act, subject to the right of any other Member (a) to oppose said proposal, or (b) to withdraw from the LLC pursuant to Section 4.1.

(b) Nothing herein shall be construed as affecting in any way the right of the Members, acting pursuant to a vote of the Members Committee as specified in Section 8.4, unilaterally to make an application to FERC for a change in any rate, charge, classification, tariff or service, or any rule or regulation related thereto, under section 205 of the Federal Power Act and pursuant to the rules and regulations promulgated by FERC thereunder, subject to the right of any Member that voted against such change in any rate, charge, classification, tariff or service, or any rule or regulation related thereto, in intervene in opposition to any such application.

(c) Nothing in this Agreement shall preclude those Members joining in the proposal to utilize Locational Marginal Prices to deal with transmission congestion from (i) filing amendments to the Agreement necessary to implement the use of Locational Marginal Prices in the PJM Control Area in accordance with such orders or other directives as may be issued by FERC relating thereto, or (ii) implementing the provisions of Sections 1.7.21 and 5.2.2(d) of Schedule 1 to this Agreement, without further authorization or approval by the Members Committee.

SCHEDULE 1

PJM INTERCHANGE ENERGY MARKET

(Revises and replaces former Schedules 7.01 and 7.03)

Issued: June 2, 1997
Effective: April 1, 1998

1. MARKET OPERATIONS

1.1 Introduction.

This Schedule sets forth the scheduling, other procedures, and certain general provisions applicable to the operation of the PJM Interchange Energy Market within the PJM Control Area. This Schedule addresses each of the three time-frames pertinent to the daily operation of the PJM Interchange Energy Market: Prescheduling, Scheduling, and Dispatch.

1.2 Cost-based Offers.

Unless and until the FERC shall authorize the use of market-based prices in the PJM Interchange Energy Market, all offers for energy or other services to be sold on the PJM Interchange Energy Market from generating resources located within the PJM Control Area shall not exceed the variable cost of producing such energy or other service, as determined in accordance with Schedule 2 to this Agreement and applicable regulatory standards, requirements and determinations; provided that, a Market Seller may offer to the PJM Interchange Energy Market the right to call on energy from a resource the output of which has been sold on a bilateral basis, with the rate for such energy if called equal to the curtailment rate specified in the bilateral contract.

1.3 Definitions.

1.3.1 Day-ahead Energy Market.

"Day-ahead Energy Market" shall mean the schedule of commitments for the purchase or sale of energy and payment of Transmission Congestion Charges developed by the Office of the Interconnection as a result of the offers and specifications submitted in accordance with Section 1.10 of this Schedule.

1.3.1a Day-ahead Prices.

"Day-ahead Prices" shall mean the Locational Marginal Prices resulting from the Day-ahead Energy Market.

1.3.1b Decrement Bid.

"Decrement Bid" shall mean a bid to purchase energy at a specified location in the Day-ahead Energy Market. An accepted Decrement Bid results in scheduled load at the specified location in the Day-ahead Energy Market.

1.3.1c **Dispatch Rate.**

"Dispatch Rate" shall mean the control signal, expressed in dollars per megawatt-hour, calculated and transmitted continuously and dynamically to direct the output level of all generation resources dispatched by the Office of the Interconnection in accordance with the Offer Data.

1.3.2 Equivalent Load.

"Equivalent Load" shall mean the sum of a Market Participant's net system requirements to serve its customer load in the PJM Control Area, if any, plus its net bilateral transactions.

1.3.3 External Market Buyer.

"External Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users outside the PJM Control Area, or for load in the Control Area that is not served by Network Transmission Service.

1.3.4 External Resource.

"External Resource" shall mean a generation resource located outside the metered boundaries of the PJM Control Area.

1.3.5 Fixed Transmission Right.

"Fixed Transmission Right" shall mean a right to receive Transmission Congestion Credits as specified in Section 5.2.2 of this Schedule.

1.3.6 Generating Market Buyer.

"Generating Market Buyer" shall mean an Internal Market Buyer that is a Load Serving Entity that owns or has contractual rights to the output of generation resources capable of serving the Market Buyer's load in the PJM Control Area, or of selling energy or related services in the PJM Interchange Energy Market or elsewhere.

1.3.7 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.

1.3.8 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 necessary repairs on specific components of the facility, if removal of the facility meets the guidelines specified in the PJM Manuals.

1.3.9 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.

1.3.9a Increment Bid.

"Increment Bid" shall mean an offer to sell energy at a specified location in the Day-ahead Energy Market. An accepted Increment Bid results in scheduled generation at the specified location in the Day-ahead Energy Market.

1.3.10 Internal Market Buyer.

"Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for ultimate consumption by end-users inside the PJM Control Area that are served by Network Transmission Service.

1.3.11 Inadvertent Interchange.

"Inadvertent Interchange" shall mean the difference between net actual energy flow and net scheduled energy flow into or out of the PJM Control Area, as determined and allocated each hour by the Office of the Interconnection in accordance with the procedures set forth in the PJM Manuals to each Electric Distributor that reports to the Office of the Interconnection its hourly net energy flows from metered tie lines.

1.3.12 Market Operations Center.

"Market Operations Center" shall mean the equipment, facilities and personnel used by or on behalf of a Market Participant to communicate and coordinate with the Office of the Interconnection in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Control Area.

1.3.13 Maximum Generation Emergency.

"Maximum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more Capacity Resources to operate at its maximum net or gross electrical power output, subject to the equipment stress limits for such Capacity Resource, in order to manage, alleviate, or end the Emergency.

1.3.14 Minimum Generation Emergency.

"Minimum Generation Emergency" shall mean an Emergency declared by the Office of the Interconnection in which the Office of the Interconnection anticipates requesting one or more generating resources to operate at or below Normal Minimum Generation, in order to manage, alleviate, or end the Emergency.

1.3.14a NERC Interchange Distribution Calculator.

"NERC Interchange Distribution Calculator" shall mean the NERC mechanism that is in effect and being used to calculate the distribution of energy, over specific transmission interfaces, from energy transactions.

1.3.15 Network Resource.

"Network Resource" shall have the meaning specified in the PJM Tariff.

1.3.16 Network Service User.

"Network Service User" shall mean an entity using Network Transmission Service.

1.3.17 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 Regional Transmission Owner as that term is defined in the PJM Tariff.

1.3.18 Normal Maximum Generation.

"Normal Maximum Generation" shall mean the highest output level of a generating resource under normal operating conditions.

1.3.19 Normal Minimum Generation.

"Normal Minimum Generation" shall mean the lowest output level of a generating resource under normal operating conditions.

1.3.20 Offer Data.

"Offer Data" shall mean the scheduling, operations planning, dispatch, new resource, and other data and information necessary to schedule and dispatch generation resources for the provision of energy and other services and the maintenance of the reliability and security of the transmission system in the PJM Control Area, and specified for submission to the PJM Interchange Energy Market for such purposes by the Office of the Interconnection.

1.3.21 Office of the Interconnection Control Center.

"Office of the Interconnection Control Center" shall mean the equipment, facilities and personnel used by the Office of the Interconnection to coordinate and direct the operation of the PJM Control Area and to administer the PJM Interchange Energy Market, including facilities and equipment used to communicate and coordinate with the Market Participants in connection with transactions in the PJM Interchange Energy Market or the operation of the PJM Control Area.

1.3.22 Operating Day.

"Operating Day" shall mean the daily 24 hour period beginning at midnight for which transactions on the PJM Interchange Energy Market are scheduled.

1.3.23 Operating Margin.

"Operating Margin" shall mean the incremental adjustments, measured in megawatts, required in PJM Control Area operations in order to accommodate, on a first contingency basis, an operating contingency in the PJM Control Area resulting from operations in an interconnected Control Area. Such adjustments may result in constraints causing Transmission Congestion Charges, or may result in Ancillary Services charges pursuant to the PJM Tariff.

1.3.24 Operating Margin Customer.

"Operating Margin Customer" shall mean a Control Area purchasing Operating Margin pursuant to an agreement between such other Control Area and the LLC.

1.3.25 PJM Interchange.

"PJM Interchange" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load exceeds, or is exceeded by, the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup; or (c) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the hourly net metered output of any other Market Seller; or (e) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer; or (f) the hourly scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

1.3.26 PJM Interchange Export.

"PJM Interchange Export" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load is exceeded by the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup sales; or (c) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (d) the hourly net metered output of any other Market Seller.

1.3.27 PJM Interchange Import.

"PJM Interchange Import" shall mean the following, as determined in accordance with the Schedules to this Agreement: (a) for a Market Participant that is a Network Service User, the amount by which its hourly Equivalent Load exceeds the sum of the hourly outputs of its operating generating resources; or (b) for a Market Participant that is not a Network Service User, the amount of its Spot Market Backup purchases; or (c) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer; or (d) the hourly scheduled deliveries to an Internal Market Buyer that is not a Network Service User.

1.3.28 PJM Open Access Same-time Information System.

"PJM Open Access Same-time Information System" shall mean the electronic communication system for the collection and dissemination of information about transmission services in the PJM Control Area, established and operated by the Office of the Interconnection in accordance with FERC standards and requirements.

1.3.29 Point-to-Point Transmission Service.

"Point-to-Point Transmission Service" shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Part II of the PJM Tariff.

1.3.30 Ramping Capability.

"Ramping Capability" shall mean the sustained rate of change of generator output, in megawatts per minute.

1.3.30a Real-time Prices.

"Real-time Prices" shall mean the Locational Marginal Prices resulting from the Office of the Interconnection's dispatch of the PJM Interchange Energy Market in the Operating Day.

1.3.30b Real-time Energy Market.

"Real-time Energy Market" shall mean the purchase or sale of energy and payment of Transmission Congestion Charges for quantity deviations from the Day-ahead Energy Market in the Operating Day.

1.3.31 Regulation.

"Regulation" shall mean the capability of a specific generating unit with appropriate telecommunications, control and response capability to increase or decrease its output in response to a regulating control signal, in accordance with the specifications in the PJM Manuals.

1.3.32 Spot Market Backup.

"Spot Market Backup" shall mean the purchase of energy from, or the delivery of energy to, the PJM Interchange Energy Market in quantities sufficient to complete the delivery or receipt obligations of a bilateral contract that has been curtailed or interrupted for any reason.

1.3.33 Spot Market Energy.

"Spot Market Energy" shall mean energy bought or sold by Market Participants through the PJM Interchange Energy Market at Locational Marginal Prices determined as specified in Section 2 of this Schedule.

1.3.33a State Estimator.

"State Estimator" shall mean the computer model of power flows specified in Section 2.3 of this Schedule.

1.3.34 Transmission Congestion Charge.

"Transmission Congestion Charge" shall mean a charge attributable to the increased cost of energy delivered at a given load bus when the transmission system serving that load bus is operating under constrained conditions, which shall be calculated and allocated as specified in Section 5.1 of this Schedule.

1.3.35 Transmission Congestion Credit.

"Transmission Congestion Credit" shall mean the allocated share of total Transmission Congestion Charges credited to each holder of Fixed Transmission Rights, calculated and allocated as specified in Section 5.2 of this Schedule.

1.3.36 Transmission Customer.

"Transmission Customer" shall mean an entity using Point-to-Point Transmission Service.

1.3.37 Transmission Forced Outage.

"Transmission Forced Outage" shall mean an immediate removal from service of a transmission facility by reason of an Emergency or threatened Emergency, unanticipated failure, or other cause beyond the control of the owner or operator of the transmission facility, as specified in the relevant portions of the PJM Manuals. A removal from service of a transmission facility at the request of the Office of the Interconnection to improve transmission capability shall not constitute a Forced Transmission Outage.

1.3.37a Transmission Loading Relief.

"Transmission Loading Relief" shall mean NERC's procedures for preventing operating security limit violations, as implemented by PJM as the security coordinator responsible for maintaining transmission security for the PJM Control Area.

1.3.37b Transmission Loading Relief Customer.

"Transmission Loading Relief Customer" shall mean an entity that, in accordance with Section 1.10.6A, has elected to pay Transmission Congestion Charges during Transmission Loading Relief in order to continue energy schedules over contract paths outside the PJM Control Area that are increasing the cost of energy in the PJM Control Area.

1.3.38 Transmission Planned Outage.

"Transmission Planned Outage" shall mean any transmission outage scheduled in advance for a pre-determined duration and which meets the notification requirements for such outages specified in the PJM Manuals.

1.4 Market Buyers.

1.4.1 Qualification.

(a) To become a Market Buyer, an entity shall submit an application to the Office of the Interconnection, in such form as shall be established by the Office of the Interconnection.

(b) An applicant that is a Load Serving Entity or that will purchase on behalf of or for ultimate delivery to a Load Serving Entity shall establish to the satisfaction of the Office of the Interconnection that the end-users that will be served through energy and related services purchased in the PJM Interchange Energy Market, are located electrically within the PJM Control Area, or will be brought within the PJM Control Area prior to any purchases from the PJM Interchange Energy Market. Such applicant shall further demonstrate that:

i) The Load Serving Entity for the end users is obligated to meet the requirements of the Reliability Assurance Agreement; and

ii) The Load Serving Entity for the end users has arrangements in place for Network Transmission Service or Point-To-Point Transmission Service for all PJM Interchange Energy Market purchases.

(c) An applicant that is not a Load Serving Entity or purchasing on behalf of or for ultimate delivery to a Load Serving Entity shall demonstrate that:

i) The applicant has obtained or will obtain Network Transmission Service or Point-to-Point Transmission Service for all PJM Interchange Energy Market purchases; and

ii) The applicant's PJM Interchange Energy Market purchases will ultimately be delivered to a load in another Control Area that is recognized by NERC and that complies with NERC's standards for operating and planning reliable bulk electric systems.

(d) An applicant shall not be required to obtain transmission service for purchases from the PJM Interchange Energy Market to cover quantity deviations from its sales in the Day-ahead Energy Market.

(e) All applicants shall demonstrate that:

i) The applicant is capable of complying with all applicable metering, data storage and transmission, and other reliability, operation, planning and accounting standards and requirements for the operation of the PJM Control Area and the PJM Interchange Energy Market;

ii) The applicant meets the creditworthiness standards established by the Office of the Interconnection, or has provided a letter of credit or other form of security acceptable to the Office of the Interconnection; and

iii) The applicant has paid all applicable fees and reimbursed the Office of the Interconnection for all unusual or extraordinary costs of processing and evaluating its application to become a Market Buyer, and has agreed in its application to subject any disputes arising from its application to the PJM Dispute Resolution Procedures.

(~~e~~f) The applicant shall become a Market Buyer upon a final favorable determination on its application by the Office of the Interconnection as specified below, and execution by the applicant of counterparts of this Agreement.

1.4.2 Submission of Information.

The applicant shall furnish all information reasonably requested by the Office of the Interconnection in order to determine the applicant's qualification to be a Market Buyer. The Office of the Interconnection may waive the submission of information relating to any of the foregoing criteria, to the extent the information in the Office of the Interconnection's possession is sufficient to evaluate the application against such criteria.

1.4.3 Fees and Costs.

The Office of the Interconnection shall require all applicants to become a Market Buyer to pay a uniform application fee, initially in the amount of $1,500, to defray the ordinary costs of processing such applications. The application fee shall be revised from time to time as the Office of the Interconnection shall determine to be necessary to recover its ordinary costs of processing applications. Any unusual or extraordinary costs incurred by the Office of the Interconnection in processing an application shall be reimbursed by the applicant.

1.4.4 Office of the Interconnection Determination.

Upon submission of the information specified above, and such other information as shall reasonably be requested by the Office of the Interconnection, the Office of the Interconnection shall undertake an evaluation and investigation to determine whether the applicant meets the criteria specified above. As soon as practicable, but in any event not later than 60 days after submission of the foregoing information, or such later date as may be necessary to satisfy the requirements of the Reliability Assurance Agreement, the Office of the Interconnection shall notify the applicant and the members of the Members Committee of its determination, along with a written summary of the basis for the determination. The Office of the Interconnection shall respond promptly to any reasonable and timely request by a Member for additional information regarding the basis for the Office of the Interconnection's determination, and shall take such action as it shall deem appropriate in response to any request for reconsideration or other action submitted to the Office of the Interconnection not later than 30 days from the initial notification to the Members Committee.

1.4.5 Existing Participants.

Any entity that was qualified to participate as a Market Buyer in the PJM Interchange Energy Market under the Operating Agreement of PJM Interconnection L.L.C. in effect immediately prior to the Effective Date shall continue to be qualified to participate as a Market Buyer in the PJM Interchange Energy Market under this Agreement.

1.4.6 Withdrawal.

(a) An Internal Market Buyer that is a Load Serving Entity may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal not earlier than the effective date of (i) its withdrawal from the Reliability Assurance Agreement, or (ii) the assumption of its obligations under the Reliability Assurance Agreement by an agent that is a Market Buyer.

(b) An External Market Buyer or an Internal Market Buyer that is not a Load Serving Entity may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal at least one day after the date of the notice.

(c) Withdrawal from this Agreement shall not relieve a Market Buyer of any obligation to pay for electric energy or related services purchased from the PJM Interchange Energy Market prior to such withdrawal, to pay its share of any fees and charges incurred or assessed by the Office of the Interconnection prior to the date of such withdrawal, or to fulfill any obligation to provide indemnification for the consequences of acts, omissions or events occurring prior to such withdrawal; and provided, further, that withdrawal from this Agreement shall not relieve any Market Buyer of any obligations it may have under, or constitute withdrawal from, any other Related PJM Agreement.

(d) A Market Buyer that has withdrawn from this Agreement may reapply to become a Market Buyer in accordance with the provisions of this Section 1.4, provided it is not in default of any obligation incurred under this Agreement.

1.5 Market Sellers.

1.5.1 Qualification.

A Member that demonstrates to the Office of the Interconnection that the Member meets the standards for the issuance of an order mandating the provision of transmission service under section 211 of the Federal Power Act, as amended by the Energy Policy Act of 1992, may become a Market Seller upon execution of this Agreement and submission to the Office of the Interconnection of the applicable Offer Data in accordance with the provisions of this Schedule. All Members that are Market Buyers shall become Market Sellers upon submission to the Office of the Interconnection of the applicable Offer Data in accordance with the provisions of this Schedule.

1.5.2 Withdrawal.

(a) A Market Seller may withdraw from this Agreement by giving written notice to the Office of the Interconnection specifying an effective date of withdrawal at least one day after the date of the notice; provided, however, that withdrawal shall not relieve a Market Seller of any obligation to deliver electric energy or related services to the PJM Interchange Energy Market pursuant to an offer made prior to such withdrawal, to pay its share of any fees and charges incurred or assessed by the Office of the Interconnection prior to the date of such withdrawal, or to fulfill any obligation to provide indemnification for the consequences of acts, omissions, or events occurring prior to such withdrawal; and provided, further, that withdrawal shall not relieve any entity that is a Market Seller and is also a Market Buyer of any obligations it may have as a Market Buyer under, or constitute withdrawal as a Market Buyer from, this Agreement or any other Related PJM Agreement.

(b) A Market Seller that has withdrawn from this Agreement may reapply to become a Market Seller at any time, provided it is not in default with respect to any obligation incurred under this Agreement.

1.6 Office of the Interconnection.

1.6.1 Operation of the PJM Interchange Energy Market.

The Office of the Interconnection shall operate the PJM Interchange Energy Market in accordance with this Agreement.

1.6.2 Scope of Services.

The Office of the Interconnection shall, on behalf of the Market Participants, perform the services pertaining to the PJM Interchange Energy Market specified in this Agreement, including but not limited to the following:

i) Administer the PJM Interchange Energy Market as part of the PJM Control Area, including scheduling and dispatching of generation resources, accounting for transactions, rendering bills to the Market Participants, receiving payments from and disbursing payments to the Market Participants, maintaining appropriate records, and monitoring the compliance of Market Participants with the provisions of this Agreement, all in accordance with applicable provisions of the Office of the Interconnection Agreement, and the Schedules to this Agreement;

ii) Review and evaluate the qualification of entities to be Market Buyers or Market Sellers under applicable provisions of this Agreement;

iii) Coordinate, in accordance with applicable provisions of this Agreement, the Reliability Assurance Agreement, and the Transmission Owners Agreement, maintenance schedules for generation and transmission resources operated as part of the PJM Control Area;

iv) Provide or coordinate the provision of ancillary services necessary for the operation of PJM Control Area or the PJM Interchange Energy Market;

v) Determine and declare that an Emergency is expected to exist, exists, or has ceased to exist, in all or any part of the PJM Control Area, or in another Control Area interconnected directly or indirectly with the PJM Control Area, and serve as a primary point of contact for interested state or federal agencies;

vi) Enter into (a) agreements for the transfer of energy in conditions constituting an Emergency in the PJM Control Area or in a Control Area interconnected with it, and the mutual provision of other support in such Emergency conditions with other Control Areas interconnected with the PJM Control Area, and (b) purchases of Emergency energy offered by Members from resources that are not Capacity Resources in conditions constituting an Emergency in the PJM Control Area;

vii) Coordinate the curtailment or shedding of load, or other measures appropriate to alleviate an Emergency, in order to preserve reliability in accordance with NERC and MAAC principles, guidelines and standards, and to ensure the operation of the PJM Control Area in accordance with Good Utility Practice and the this Agreement;

viii) Protect confidential information as specified in this Agreement; and

ix) Send a representative to meetings of the Members Committee or other Committees, subcommittees, or working groups specified in this Agreement or formed by the Members Committee when requested to do so by the chair or other head of such committee or other group.

1.6.3 Records and Reports.

The Office of the Interconnection shall prepare and maintain such records and prepare such reports, including, but not limited to quarterly budget reports, as are required to document the performance of its obligations to the Market Participants hereunder in a form adopted by the Office of the Interconnection upon consideration of the advice and recommendations of the Members Committee. The Office of the Interconnection shall also produce special reports reasonably requested by the Members Committee and consistent with FERC's standards of conduct; provided, however, the Market Participants shall reimburse the Office of the Interconnection for the costs of producing any such report. Notwithstanding the foregoing, the Office of the Interconnection shall not be required to disclose confidential or commercially sensitive information in any such report.

1.6.4 PJM Manuals.

The Office of the Interconnection shall prepare, maintain and update the PJM Manuals consistent with this Agreement. The PJM Manuals shall be available for inspection by the Market Participants, regulatory authorities with jurisdiction over the LLC or any Member, and the public.

1.7 General.

1.7.1 Market Sellers.

Only Market Sellers shall be eligible to submit offers to the Office of the Interconnection for the sale of electric energy or related services in the PJM Interchange Energy Market. Market Sellers shall comply with the prices, terms, and operating characteristics of all Offer Data submitted to and accepted by the PJM Interchange Energy Market.

1.7.2 Market Buyers.

Only Market Buyers shall be eligible to purchase energy or related services in the PJM Interchange Energy Market. Market Buyers shall comply with all requirements for making purchases from the PJM Interchange Energy Market.

1.7.3 Agents.

A Market Participant may participate in the PJM Interchange Energy Market through an agent, provided that the Market Participant informs the Office of the Interconnection in advance in writing of the appointment of such agent. A Market Participant participating in the PJM Interchange Energy Market through an agent shall be bound by all of the acts or representations of such agent with respect to transactions in the PJM Interchange Energy Market, and shall ensure that any such agent complies with the requirements of this Agreement.

1.7.4 General Obligations of the Market Participants.

(a) In performing its obligations to the Office of the Interconnection hereunder, each Market Participant shall at all times (i) follow Good Utility Practice, (ii) comply with all applicable laws and regulations, (iii) comply with the applicable principles, guidelines, standards and requirements of FERC, NERC and MAAC, (iv) comply with the procedures established for operation of the PJM Interchange Energy Market and PJM Control Area and (v) cooperate with the Office of the Interconnection as necessary for the operation of the PJM Control Area in a safe, reliable manner consistent with Good Utility Practice.

(b) Market Participants shall undertake all operations in or affecting the PJM Interchange Energy Market and the PJM Control Area, including but not limited to compliance with all Emergency procedures, in accordance with the power and authority of the Office of the Interconnection with respect to the operation of the PJM Interchange Energy Market and the PJM Control Area as established in this Agreement, and as specified in the Schedules to this Agreement and the PJM Manuals. Failure to comply with the foregoing operational requirements shall subject a Market Participant to such reasonable charges or other remedies or sanctions for non-compliance as may be established by the PJM Board, including legal or regulatory proceedings as authorized by the PJM Board to enforce the obligations of this Agreement.

(c) The Office of the Interconnection may establish such committees with a representative of each Market Participant, and the Market Participants agree to provide appropriately qualified personnel for such committees, as may be necessary for the Office of the Interconnection to perform its obligations hereunder.

(d) All Market Participants shall provide to the Office of the Interconnection the scheduling and other information specified in the Schedules to this Agreement, and such other information as the Office of the Interconnection may reasonably require for the reliable and efficient operation of the PJM Control Area and the PJM Interchange Energy Market, and for compliance with applicable regulatory requirements for posting market and related information. Such information shall be provided as much in advance as possible, but in no event later than the deadlines established by the Schedules to this Agreement, or by the Office of the Interconnection in conformance with such Schedules. Such information shall include, but not be limited to, maintenance and other anticipated outages of generation or transmission facilities, scheduling and related information on bilateral transactions and self-scheduled resources, and implementation of active load management, interruption of load, and other load reduction measures. The Office of the Interconnection shall abide by appropriate requirements for the non-disclosure and protection of any confidential or proprietary information given to the Office of the Interconnection by a Market Participant. Each Market Participant shall maintain or cause to be maintained compatible information and communications systems, as specified by the Office of the Interconnection, required to transmit scheduling, dispatch, or other time-sensitive information to the Office of the Interconnection in a timely manner.

(e) Each Market Participant shall install and operate, or shall otherwise arrange for, metering and related equipment capable of recording and transmitting all voice and data communications reasonably necessary for the Office of the Interconnection to perform the services specified in this Agreement. A Market Participant that elects to be separately billed for its PJM Interchange shall, to the extent necessary, be individually metered in accordance with Section 14 of this Agreement, or shall agree upon an allocation of PJM Interchange between it and the Market Participant through whose meters the unmetered Market Participant's PJM Interchange is delivered. The Office of the Interconnection shall be notified of the allocation by the foregoing Market Participants.

(f) Each Market Participant shall operate, or shall cause to be operated, any generating resources owned or controlled by such Market Participant that are within the PJM Control Area or otherwise supplying energy to or through the PJM Control Area in a manner that is consistent with the standards, requirements or directions of the Office of the Interconnection and that will permit the Office of the Interconnection to perform its obligations under this Agreement; provided, however, no Market Participant shall be required to take any action that is inconsistent with Good Utility Practice or applicable law.

(g) Each Market Participant shall follow the directions of the Office of the Interconnection to take actions to prevent, manage, alleviate or end an Emergency in a manner consistent with this Agreement and the procedures of the PJM Control Area as specified in the PJM Manuals.

(h) Each Market Participant shall obtain and maintain all permits, licenses or approvals required for the Market Participant to participate in the PJM Interchange Energy Market in the manner contemplated by this Agreement.

1.7.5 Market Operations Center.

Each Market Participant shall maintain a Market Operations Center, or shall make appropriate arrangements for the performance of such services on its behalf. A Market Operations Center shall meet the performance, equipment, communications, staffing and training standards and requirements specified in this Agreement for the scheduling and completion of transactions in the PJM Interchange Energy Market and the maintenance of the reliable operation of the PJM Control Area, and shall be sufficient to enable (i) a Market Seller to perform all terms and conditions of its offers to the PJM Interchange Energy Market, and (ii) a Market Buyer to conform to the requirements for purchasing from the PJM Interchange Energy Market.

1.7.6 Scheduling and Dispatching.

(a) The Office of the Interconnection shall schedule and dispatch in real-time generation economically on the basis of least-cost, security-constrained dispatch and the prices and operating characteristics offered by Market Sellers, continuing until sufficient generation is dispatched to serve the PJM Interchange Energy Market energy purchase requirements under normal system conditions of the Market Buyers, as well as the requirements of the PJM Control Area for ancillary services provided by such generation, in accordance with this Agreement. Scheduling and dispatch shall be conducted in accordance with this Agreement.

(b) The Office of the Interconnection shall undertake to identify any conflict or incompatibility between the scheduling or other deadlines or specifications applicable to the PJM Interchange Energy Market, and any relevant procedures of another Control Area, or any tariff (including the PJM Tariff). Upon determining that any such conflict or incompatibility exists, the Office of the Interconnection shall propose tariff or procedural changes, and undertake such other efforts as may be appropriate, to resolve any such conflict or incompatibility.

1.7.7 Pricing.

The price paid for energy bought and sold in the PJM Interchange Energy Market will reflect the hourly Locational Marginal Price at each load and generation bus, determined by the Office of the Interconnection in accordance with this Agreement. Transmission Congestion Charges, which shall be determined by differences in Locational Marginal Prices in an hour caused by transmission constraints, shall be calculated and collected, and the revenues therefrom shall be disbursed, by the Office of the Interconnection in accordance with this Schedule.

1.7.8 Generating Market Buyer Resources.

A Generating Market Buyer may elect to self-schedule its generation resources up to that Generating Market Buyer's Equivalent Load, in accordance with and subject to the procedures specified in this Schedule, and the accounting and billing requirements specified in Section 3 to this Schedule.

1.7.9 Delivery to an External Market Buyer.

A purchase of Spot Market Energy by an External Market Buyer shall be delivered to a bus or busses at the border of the PJM Control Area specified by the Office of the Interconnection, or to load in the Control Area that is not served by Network Transmission Service, using Point-to-Point Transmission Service paid for by the External Market Buyer. Further delivery of such energy shall be the responsibility of the External Market Buyer.

1.7.10 Other Transactions.

(a) Market Participants may enter into bilateral contracts for the purchase or sale of electric energy to or from each other or any other entity, subject to the obligations of Market Participants to make Capacity Resources available for dispatch by the Office of the Interconnection. Bilateral arrangements that contemplate the physical transfer of energy to or from a Market Participant shall be reported to and coordinated with the Office of the Interconnection in accordance with this Schedule.

(b) Market Participants shall have Spot Market Backup with respect to all bilateral transactions that are not dynamically scheduled pursuant to Section 1.12 and that are curtailed or interrupted for any reason (except for curtailments or interruptions through active load management for load located within the PJM Control Area).

(c) To the extent the Office of the Interconnection dispatches a Generating Market Buyer's generation resources, such Generating Market Buyer may elect to net the output of such resources against its hourly Equivalent Load. Such a Generating Market Buyer shall be deemed a buyer from the PJM Interchange Energy Market to the extent of its PJM Interchange Imports, and shall be deemed a seller to the PJM Interchange Energy Market to the extent of its PJM Interchange Exports.

1.7.11 Emergencies.

The Office of the Interconnection, with the assistance of the Members' dispatchers as it may request, shall be responsible for monitoring the operation of the PJM Control Area, for declaring the existence of an Emergency, and for directing the operations of Market Participants as necessary to manage, alleviate or end an Emergency. The standards, policies and procedures of the Office of the Interconnection for declaring the existence of an Emergency, including but not limited to a Minimum Generation Emergency, and for managing, alleviating or ending an Emergency, shall apply to all Members on a non-discriminatory basis. Actions by the Office of the Interconnection and the Market Participants shall be carried out in accordance with this Agreement, the NERC Operating Policies, MAAC reliability principles and standards, Good Utility Practice, and the PJM Manuals. A declaration that an Emergency exists or is likely to exist by the Office of the Interconnection shall be binding on all Market Participants until the Office of the Interconnection

announces that the actual or threatened Emergency no longer exists. Consistent with existing contracts, all Market Participants shall comply with all directions from the Office of the Interconnection for the purpose of managing, alleviating or ending an Emergency. The Market Participants shall authorize the Office of the Interconnection to purchase or sell energy on their behalf to meet an Emergency, and otherwise to implement agreements with other Control Areas interconnected with the PJM Control Area for the mutual provision of service to meet an Emergency, in accordance with this Agreement.

1.7.12 Fees and Charges.

Each Market Participant shall pay all fees and charges of the Office of the Interconnection for operation of the PJM Interchange Energy Market as determined by and allocated to the Market Participant by the Office of the Interconnection in accordance with Schedule 3.

1.7.13 Relationship to PJM Control Area.

The PJM Interchange Energy Market operates within and subject to the requirements for the operation of the PJM Control Area.

1.7.14 PJM Manuals.

The Office of the Interconnection shall be responsible for maintaining, updating, and promulgating the PJM Manuals as they relate to the operation of the PJM Interchange Energy Market. The PJM Manuals, as they relate to the operation of the PJM Interchange Energy Market, shall conform and comply with this Agreement, NERC operating policies, and MAAC reliability principles, guidelines and standards, and shall be designed to facilitate administration of an efficient energy market within industry reliability standards and the physical capabilities of the PJM Control Area.

1.7.15 Corrective Action.

Consistent with Good Utility Practice, the Office of the Interconnection shall be authorized to direct or coordinate corrective action, whether or not specified in the PJM Manuals, as necessary to alleviate unusual conditions that threaten the integrity or reliability of the PJM Control Area or the regional power system.

1.7.16 Recording.

Subject to the requirements of applicable State or federal law, all voice communications with the Office of the Interconnection Control Center may be recorded by the Office of the Interconnection and any Market Participant communicating with the Office of the Interconnection Control Center, and each Market Participant hereby consents to such recording.

1.7.17 Operating Reserves.

(a) The following procedures shall apply to any generation unit subject to the dispatch of the Office of the Interconnection for which construction commenced before July 9, 1996.

(b) The Office of the Interconnection shall schedule to the Operating Reserve and load-following objectives of the PJM Control Area and the PJM Interchange Energy Market in scheduling resources pursuant to this Schedule. A table of Operating Reserve objectives is calculated seasonally for various peak load levels and eight weekly periods and is published in the PJM Manuals. Reserve levels are probabilistically determined based on the season's historical load forecasting error and expected generation mix (including typical Planned and Forced/Unplanned Outages). Generating Units with quick start capability, as specified in the PJM Manuals, that are dispatched to maintain reliability by providing or maintaining spinning reserves or providing load following capability shall receive energy payments at the levels specified below. The energy payments specified below shall be considered the offered price for Spot Market Energy for purposes of Section 3.2.3(b) of this Schedule. The price offered or paid for the energy of units so dispatched shall not be considered in determining Locational Marginal Prices.

(c) Payments for energy produced by a quick start generating unit dispatched as specified above shall be at the higher of the applicable Locational Marginal Price or one of the amounts specified below, as specified in advance by the Market Seller for the affected unit:

(i) The weighted average Locational Marginal Price at the generation bus at which energy from the capped resource was delivered during a specified number of hours during which the resource was dispatched for energy in economic merit order, the specified number of hours to be determined by the Office of the Interconnection and to be a number of hours sufficient to result in a price cap that reflects reasonably contemporaneous competitive market conditions for that unit;

(ii) The incremental operating cost of the generation resource as determined in accordance with Schedule 2 of this Agreement and the PJM Manuals, plus 10% of such costs; or

(iii) An amount determined by agreement between the Office of the Interconnection and the Market Seller.

1.7.18 Regulation.

(a) Regulation shall be supplied from generators located within the metered electrical boundaries of the PJM Control Area. Generating Market Buyers, and Market Sellers offering Regulation, shall comply with applicable standards and requirements for Regulation capability and dispatch specified in the PJM Manuals.

(b) The Office of the Interconnection shall obtain and maintain an amount of Regulation equal to the PJM Control Area Regulation objective as specified in the PJM Manuals.

(c) The Regulation range of a unit shall be at least twice the amount of Regulation assigned.

(d) A unit capable of automatic energy dispatch that is also providing Regulation shall have its energy dispatch range reduced by twice the amount of the Regulation provided. The amount of Regulation provided by a unit shall serve to redefine the Normal Minimum Generation and Normal Maximum Generation energy limits of that unit, in that the amount of Regulation shall be added to the unit's Normal Minimum Generation energy limit, and subtracted from its Normal Maximum Generation energy limit.

(e) Qualified Regulation must satisfy the verification tests described in the PJM Manuals.

1.7.19 Ramping.

A generator dispatched by the Office of the Interconnection pursuant to a control signal appropriate to increase or decrease the generator's megawatt output level shall be able to change output at the ramping rate specified in the Offer Data submitted to the Office of the Interconnection for that generator.

1.7.20 Communication and Operating Requirements.

(a) Market Participants. Each Market Participant shall have, or shall arrange to have, its transactions in the PJM Interchange Energy Market subject to control by a Market Operations Center, with staffing and communications systems capable of real-time communication with the Office of the Interconnection during normal and Emergency conditions and of control of the Market Participant's relevant load or facilities sufficient to meet the requirements of the Market Participant's transactions with the PJM Interchange Energy Market, including but not limited to the following requirements as applicable.

(b) Market Sellers selling from resources within the PJM Control Area shall: report to the Office of the Interconnection sources of energy available for operation; supply to the Office of the Interconnection all applicable Offer Data; report to the Office of the Interconnection units that are self-scheduled; report to the Office of the Interconnection bilateral sales transactions to buyers not within the PJM Control Area; confirm to the Office of the Interconnection bilateral sales to Market Buyers within the PJM Control Area; respond to the Office of the Interconnection's directives to start, shutdown or change output levels of generation units, or change scheduled voltages or reactive output levels; continuously maintain all Offer Data concurrent with on-line operating information; and ensure that, where so equipped, generating equipment is operated with control equipment functioning as specified in the PJM Manuals.

(c) Market Sellers selling from resources outside the PJM Control Area shall: provide to the Office of the Interconnection all applicable Offer Data, including offers specifying amounts of energy available, hours of availability and prices of energy and other services; respond to Office of the Interconnection directives to schedule delivery or change delivery schedules; and communicate delivery schedules to the Market Seller's Control Area.

(d) Market Participants that are Load Serving Entities or purchasing on behalf of Load Serving Entities shall: ~~provide to the Office of the Interconnection forecasts of load to be served as required by the Office of the Interconnection;~~ respond to Office of the Interconnection directives for load management steps; report to the Office of the Interconnection Capacity Resources to satisfy capacity obligations that are available for pool operation; report to the Office of the Interconnection all bilateral purchase transactions; respond to other Office of the Interconnection directives such as those required during Emergency operation.

(e) Market Participants that are not Load Serving Entities or purchasing on behalf of Load Serving Entities shall: provide to the Office of the Interconnection requests to purchase specified amounts of energy for each hour of the Operating Day during which it intends to purchase from the PJM Interchange Energy Market, along with Dispatch Rate levels above which it does not desire to purchase; respond to other Office of the Interconnection directives such as those required during Emergency operation.

~~1.7.21 Multi-settlement System.~~

~~The PJM Interchange Energy Market shall be enhanced by an amendment to this Schedule, to be filed with FERC not later than December 31, 1997, that will provide for the implementation of a multi-settlement system as soon thereafter as shall be determined by the Office of the Interconnection to be reasonably practical. Such a system will provide an opportunity for Market Participants to commit and obtain commitments to energy prices and transmission congestion charges at certain specified deadlines in advance of the Office of the Interconnection's real time dispatch. The Members specified in Section 11.5(e) of the Agreement, working with the Office of the Interconnection, shall develop the details of the implementation of such a multi-settlement system.~~

1.8 Selection, Scheduling and Dispatch Procedure Adjustment Process.

1.8.1 PJM Dispute Resolution Agreement.

Subject to the condition specified below, any Member adversely affected by a decision of the Office of the Interconnection with respect to the operation of the PJM Interchange Energy Market, including the qualification of an entity to participate in that market as a buyer or seller, may ~~be~~ seek such relief as may be appropriate under the PJM Dispute Resolution Procedures on the grounds that such decision does not have an adequate basis in fact or does not conform to the requirements of this Agreement.

1.8.2 Market or Control Area Hourly Operational Disputes.

(a) Market Participants shall comply with all determinations of the Office of the Interconnection on the selection, scheduling or dispatch of resources in the PJM Interchange Energy Market, or to meet the operational requirements of the PJM Control Area. Complaints arising from or relating to such determinations shall be brought to the attention of the Office of the Interconnection not later than the end of the fifth business day after the end of the Operating Day to which the selection or scheduling relates, or in which the scheduling or dispatch took place, and shall include, if practicable, a proposed resolution of the complaint. Upon receiving notification of the dispute, the Office of the Interconnection and the Market Participant raising the dispute shall exert their best efforts to obtain and retain all data and other information relating to the matter in dispute, and to notify other Market Participants that are likely to be affected by the proposed resolution. Subject to confidentiality or other non-disclosure requirements, representatives of the Office of the Interconnection, the Market Participant raising the dispute, and other interested Market Participants, shall meet within three business days of the foregoing notification, or at such other or further times as the Office of the Interconnection and the Market Participants may agree, to review the relevant facts, and to seek agreement on a resolution of the dispute.

(b) If the Office of the Interconnection determines that the matter in dispute discloses a defect in operating policies, practices or procedures subject to the discretion of the Office of the Interconnection, the Office of the Interconnection shall implement such changes as it deems appropriate and shall so notify the Members Committee. Alternatively, the Office of the Interconnection may notify the Members Committee of a proposed change and solicit the comments or other input of the Members.

(c) If either the Office of the Interconnection, the Market Participant raising the dispute, or another affected Market Participant believes that the matter in dispute has not been adequately resolved, or discloses a need for changes in standards or policies established in or pursuant to the Operating Agreement, any of the foregoing parties may make a written request for review of the matter by the Members Committee, and shall include with the request the forwarding party's recommendation and such data or information (subject to confidentiality or other non-disclosure requirements) as would enable the Members Committee to assess the matter and the recommendation. The Members Committee shall take such action on the recommendation as it shall deem appropriate.

(d) Subject to the right of a Market Participant to obtain correction of accounting or billing errors, the LLC or a Market Participant shall not be entitled to actual, compensatory, consequential or punitive damages, opportunity costs, or other form of reimbursement from the LLC or any other Market Participant for any loss, liability or claim, including any claim for lost profits, incurred as a result of a mistake, error or other fault by the Office of the Interconnection in the selection, scheduling or dispatch of resources.

1.9 Prescheduling.

The following procedures and principles shall govern the prescheduling activities necessary to plan for the reliable operation of the PJM Control Area and for the efficient operation of the PJM Interchange Energy Market.

1.9.1 Outage Scheduling.

The Office of the Interconnection shall be responsible for coordinating and approving requests for outages of generation and transmission facilities as necessary for the reliable operation of the PJM Control Area, in accordance with the PJM Manuals. The Office of the Interconnection shall maintain records of outages and outage requests of these facilities.

1.9.2 Planned Outages.

(a) A Generator Planned Outage shall be included in Generator Planned Outage schedules established prior to the scheduled start date for the outage, in accordance with standards and procedures specified in the PJM Manuals.

(b) The Office of the Interconnection shall conduct Generator Planned Outage scheduling for Capacity Resources in accordance with the Reliability Assurance Agreement and the PJM Manuals and in consultation with the Members owning or controlling the output of Capacity Resources. A Market Participant shall not be expected to submit offers for the sale of energy or other services, or to satisfy delivery obligations, from all or part of a generation resource undergoing an approved Generator Planned Outage. If the Office of the Interconnection determines that approval of a Generator Planned Outage would significantly affect the reliable operation of the PJM Control Area, the Office of the Interconnection may withhold approval or withdraw a prior approval. Approval for a Generator Planned Outage of a Capacity Resource shall be withheld or withdrawn only as necessary to ensure the adequacy of reserves or the reliability of the PJM Control Area in connection with anticipated implementation or avoidance of Emergency procedures. If the Office of the Interconnection withholds or withdraws approval, it shall coordinate with the Market Participant owning or controlling the resource to reschedule the Generator Planned Outage of the Capacity Resource at the earliest practical time. The Office of the Interconnection shall if possible propose alternative schedules with the intent of minimizing the economic impact on the Market Participant of a Generator Planned Outage.

(c) The Office of the Interconnection shall conduct Planned Transmission Outage scheduling in accordance with procedures specified in the Transmission Owners Agreement and the PJM Manuals. If the Office of the Interconnection determines that transmission maintenance schedules proposed by one or more Members would significantly affect the efficient and reliable operation of the PJM Control Area, the Office of the Interconnection may propose alternative schedules, but such alternative shall minimize the economic impact on the Member or Members whose maintenance schedules the Office of the Interconnection proposes to modify.

The Office of the Interconnection shall coordinate resolution of outage or other planning conflicts that may give rise to unreliable system conditions. The Members shall comply with all maintenance schedules established by the Office of the Interconnection.

1.9.3 Generator Maintenance Outages.

A Market Participant may request approval for a Generator Maintenance Outage of any Capacity Resource from the Office of the Interconnection in accordance with the timetable and other procedures specified in the PJM Manuals. The Office of the Interconnection shall approve requests for Generator Maintenance Outages for a Capacity Resource unless the outage would threaten the adequacy of reserves in, or the reliability of, the PJM Control Area. A Market Participant shall not be expected to submit offers for the sale of energy or other services, or to satisfy delivery obligations, from a generation resource undergoing an approved full or partial Generator Maintenance Outage.

1.9.4 Forced Outages.

(a) Each Market Seller that owns or controls a pool-scheduled resource, or Capacity Resource whether or not pool-scheduled, shall: (i) advise the Office of the Interconnection of a Generator Forced Outage suffered or anticipated to be suffered by any such resource as promptly as possible; (ii) provide the Office of the Interconnection with the expected date and time that the resource will be made available; and (iii) make a record of the events and circumstances giving rise to the Generator Forced Outage. A Market Seller shall not be expected to submit offers for the sale of energy or other services, or satisfy delivery obligations, from a generation resource undergoing a Generator Forced Outage. A Capacity Resource that does not deliver all or part of its scheduled energy shall be deemed to have experienced a Generator Forced Outage with respect to such undelivered energy, in accordance with standards and procedures for full and partial Generator Forced Outages specified in the Reliability Assurance Agreement and the PJM Manuals.

(b) The Office of the Interconnection shall receive notification of Forced Transmission Outages, and information on the return to service, of Transmission Facilities in the PJM Control Area in accordance with standards and procedures specified in the Transmission Owners Agreement and the PJM Manuals.

1.9.5 Market Participant Responsibilities.

Each Market Participant making a bilateral sale covering a period greater than the following Operating Day from a generating resource located within the PJM Control Area for delivery outside the PJM Control Area shall furnish to the Office of the Interconnection, in the form and manner specified in the PJM Manuals, information regarding the source of the energy, the load sink, the energy schedule, and the amount of energy being delivered.

1.9.6 Internal Market Buyer Responsibilities.

Each Internal Market Buyer making a bilateral purchase covering a period greater than the following Operating Day shall furnish to the Office of the Interconnection, in the form an manner specified in the PJM Manuals, information regarding the source of the energy, the load sink, the energy schedule, and the amount of energy being delivered. Each Internal Market Buyer shall provide the Office of the Interconnection with details of any load management agreements with customers that allow the Office of the Interconnection to reduce load under specified circumstances.

1.9.7 Market Seller Responsibilities.

(a) Not less than 30 days before a Market Seller's initial offer to sell energy from a given generation resource on the PJM Interchange Energy Market, the Market Seller shall furnish to the Office of the Interconnection the information specified in the Offer Data for new generation resources.

(b) Market Sellers authorized and intending to request market-based start-up and no-load fees in their Offer Data shall submit a specification of such fees to the Office of the Interconnection for each generating unit as to which the Market Seller intends to request such fees. Any such specification shall be submitted on or before March 31 for the period April 1 through September 30, and on or before September 30 for the period October 1 through March 31, and shall remain in effect without change throughout each such period for which a specification was submitted. The Office of the Interconnection shall reject any request for start-up and no-load fees in a Market Seller's Offer Data that does not conform to the Market Seller's specification on file with the Office of the Interconnection.

1.9.8 Office of the Interconnection Responsibilities.

(a) The Office of the Interconnection shall perform seasonal operating studies to assess the forecasted adequacy of generating reserves and of the transmission system, in accordance with the procedures specified in the PJM Manuals.

(b) The Office of the Interconnection shall maintain and update tables setting forth Operating Reserve and other reserve objectives as specified in the PJM Manuals.

(c) The Office of the Interconnection shall receive and process requests for firm and non-firm transmission service in accordance with procedures specified in the PJM Tariff.

(d) The Office of the Interconnection shall maintain such data and information relating to generation and transmission facilities in the PJM Control Area as may be necessary or appropriate to conduct the scheduling and dispatch of the PJM Interchange Energy Market and PJM Control Area.

(e) The Office of the Interconnection shall coordinate with other interconnected Control Area as necessary to manage, alleviate or end an Emergency.

1.10 Scheduling.

1.10.1 General.

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

(b) The Day-ahead Energy Market shall enable Market Participants to purchase and sell energy through the PJM Interchange Energy Market at Day-ahead Prices and enable transmission customers to reserve transmission service with Transmission Congestion Charges based on locational differences in Day-ahead Prices. Market Participants whose purchases and sales, and transmission customers whose transmission uses are scheduled in the Day-ahead Energy Market, shall be obligated to purchase or sell energy, or pay Transmission Congestion Charges, at the applicable Day-ahead Prices for the amounts scheduled.

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

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

1.10.1a Day-Ahead ~~Scheduling~~Energy Market Scheduling.

The following actions shall occur not later than 12:00 noon on the day before the Operating Day for which transactions are being scheduled, or such other deadline as may be specified by the Office of the Interconnection in order to comply with the practical requirements and the economic and efficiency objectives of the scheduling process specified in this Schedule.

(a) Each Market Participant ~~that is a Load Serving Entity or purchasing on behalf of a Load Serving Entity shall~~may submit to the Office of the Interconnection ~~forecasts~~ specifications of the amount and location of its customer loads ~~for~~ and/or energy purchases to be included in the Day-ahead Energy Market for each hour of the next Operating Day, ~~as required by~~ such specifications to comply with the requirements set forth in the PJM Manuals. ~~If a Market Participant expects to curtail load at a specific Dispatch Rate, it should specify the Dispatch Rate and estimated load curtailment.~~Each Market Buyer shall inform the Office of the Interconnection of the prices, if any, at which it desires not to include its load in the Day-ahead Energy Market rather than pay the Day-ahead Price.

Revised:
Effective:

(b) ~~Each Market Participant that is not a Load Serving Entity or purchasing on behalf of a Load Serving Entity shall submit to the Office of the Interconnection requests to purchase specified amounts of energy for each hour of the Operating Day during which it intends to purchase from the PJM Interchange Energy Market, along with Dispatch Rate levels above which it does not desire to purchase, in accordance with the specifications set forth in the PJM Manuals.~~

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

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

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

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

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

(~~e~~d) Market Sellers wishing to sell ~~in~~into the ~~PJM Interchange~~ Day-ahead Energy Market shall submit offers for the supply of energy (including energy from hydropower units), Regulation, Operating Reserves or other services for the following Operating Day. Offers shall be submitted to the Office of the Interconnection in the form specified by the Office of the Interconnection and shall contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Market Sellers owning or controlling the output of a Capacity Resource that has not been rendered unavailable by a Generation Planned Outage, a Generator Maintenance Outage, or a Generation Forced Outage shall submit offers for the available

capacity of such Capacity Resource, including any portion that is self-scheduled by the Generating Market Buyer claiming the resource as a Capacity Resource. The submission of offers for resource increments that are not Capacity Resources shall be optional, but any such offers must contain the information specified in the Office of the Interconnection's Offer Data specification, as applicable. Energy offered from generation resources that are not Capacity Resources shall not be supplied from resources that are included in or otherwise committed to supply the Operating Reserves of another Control Area. The foregoing offers:

i) Shall specify the generation resource and energy for each hour in the offer period;

ii) Shall specify the amounts and prices for the entire Operating Day for each resource component offered by the Market Seller to the Office of the Interconnection;

iii) If based on energy from a specific generating unit, may specify start-up and no-load fees equal to the specification of such fees for such unit on file with the Office of the Interconnection;

iv) Shall set forth any special conditions upon which the Market Seller proposes to supply a resource increment, including any curtailment rate specified in a bilateral contract for the output of the resource, or any cancellation fees;

v) May include a schedule of offers for prices and operating data contingent on acceptance by the deadline specified in this Schedule, with a second schedule applicable if accepted after the foregoing deadline;

vi) Shall constitute an offer to submit the resource increment to the Office of the Interconnection for scheduling and dispatch in accordance with the terms of the offer, which offer shall remain open through the Operating Day for which the offer is submitted;

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

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

(k) A Market Seller that wishes to make a resource available to sell Regulation service shall submit an offer for Regulation that shall specify the MW of Regulation being offered, the price of the offer in dollars per MWh, and such other information specified by the Office of the Interconnection as may be necessary to evaluate the offer and the resource's opportunity costs. The price of the offer shall not exceed $100 per MWh. Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

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

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

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

(i) All Market Participants may submit Increment Bids and or Decrement Bids that apply to the Day-ahead Energy Market only. Such bids must comply with the requirements set forth in the PJM Manuals and must specify amount, location and price, if any, at which the Market Participant desires to purchase or sell energy in the Day-ahead Energy Market.

1.10.2 Pool-Scheduled Resources.

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

(a) Pool-scheduled resources shall be selected by the Office of the Interconnection on the basis of the prices offered for energy and related services, start-up, no-load and cancellation fees, and the specified operating characteristics, offered by Market Sellers to the Office of the Interconnection by the ~~12:00 noon~~ offer deadline specified in Section 1.10.1a.

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

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

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

Revised:
Effective:

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

1.10.3 Self-scheduled Resources.

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

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

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

(c) Market Participants shall make available their self-scheduled resources to the Office of the Interconnection for coordinated operation to supply the needs of the PJM Control Area for Operating Reserves.

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

1.10.4 Capacity Resources.

(a) A Capacity Resource selected as a pool-scheduled resource shall be made available for scheduling and dispatch at the direction of the Office of the Interconnection. A Capacity Resource that does not deliver energy as scheduled shall be deemed to have experienced a Generator Forced Outage to the extent of such energy not delivered. A Market Participant offering such Capacity Resource in the Day-ahead Energy Market shall replace the energy not delivered with energy from the Real-time Energy Market and shall pay for such energy at the applicable Real-time Price.

(b) Energy from a Capacity Resource that has not been ~~selected as a pool~~-scheduled ~~resource~~ in the Day-ahead Energy Market may be sold on a bilateral basis by the Market Seller, ~~or~~ may be self-scheduled, or may be offered for dispatch during the Operating Day in accordance with the procedures specified in this Schedule. A Capacity Resource that has not been ~~selected as a pool~~-scheduled ~~resource~~ in the Day-ahead Energy Market and that has been sold on a bilateral basis must be made available upon request to the Office of the Interconnection for scheduling and dispatch during the Operating Day if the Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable ~~Locational Marginal~~Real-time Price for energy delivered.

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

1.10.5 External Resources.

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

(b) Offers for External Resources from an aggregation of two or more generating units shall so indicate, and shall specify, in accordance with the Offer Data requirements specified by the Office of the Interconnection: (i) energy prices; (ii) hours of energy availability; (iii) a minimum dispatch level; (iv) a maximum dispatch level; and (v) unless such information has previously been made available to the Office of the Interconnection, sufficient information, as specified in the PJM Manuals, to enable the Office of the Interconnection to model the flow into the PJM Control Area of any energy from the External Resources scheduled in accordance with the Offer Data. If a Market Seller submits more than one offer on an aggregated resource basis, the withdrawal of any such offer shall be deemed a withdrawal of all higher priced offers for the same period.

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

1.10.6 External Market Buyers.

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

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

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

1.10.6A Transmission Loading Relief Customers.

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

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

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

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

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

1.10.7 Bilateral Transactions.

Bilateral transactions as to which the parties have notified the Office of the Interconnection by ~~12:00 p.m. of the day before the Operating Day~~the deadline specified in Section 1.10.1a that they elect not to be included in the Day-ahead Energy Market and that they are not willing to incur Transmission Congestion Charges in the Real-time Energy Market shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions that were not included in the Day-ahead Energy Market and that are willing to incur congestion charges and bilateral transactions that were accepted in the Day-ahead Energy Market shall continue to be implemented during periods of congestion, except as may be necessary to respond to Emergencies.

1.10.8 Office of the Interconnection Responsibilities.

(a) The Office of the Interconnection shall use its best efforts to determine (i) the least-cost means of satisfying the projected hourly requirements for energy, Operating Reserves, and other ancillary services of the Market Buyers, including the reliability requirements of the PJM Control Area, of the Day-ahead Energy Market, and (ii) the least-cost means of satisfying the Operating Reserve and other ancillary service requirements for any portion of the load forecast of the Office of the Interconnection for the Operating Day in excess of that scheduled in the Day-ahead Energy Market. In making ~~this~~these determinations, the Office of the Interconnection shall take into account: (i) the Office of the Interconnection's forecasts of PJM Interchange Energy Market and PJM Control Area energy requirements, giving due consideration to the energy requirement forecasts and purchase requests submitted by Market Buyers; (ii) the offers submitted by Market

Sellers; (iii) the availability of limited energy resources; (iv) the capacity, location, and other relevant characteristics of self-scheduled resources; (v) the objectives of the PJM Control Area for Operating Reserves, as specified in the PJM Manuals; (vi) the requirements of the PJM Control Area for Regulation and other ancillary services, as specified in the PJM Manuals; (vii) the benefits of avoiding or minimizing transmission constraint control operations, as specified in the PJM Manuals; and (viii) such other factors as the Office of the Interconnection reasonably concludes are relevant to the foregoing determination. The Office of the Interconnection shall develop a ~~schedule of generation resources~~Day-ahead Energy Market based on the foregoing determination, and shall determine the Day-ahead Prices resulting from such schedule. The Office of the Interconnection shall report the planned schedule for a hydropower resource to the operator of that resource as necessary for plant safety and security, and legal limitations on pond elevations.

(b) Not later than 4:00 p.m. of the day before each Operating Day, or such earlier deadline as may be specified by the Office of the Interconnection in the PJM Manuals, the Office of the Interconnection shall: (i) ~~post on the PJM Open Access Same-time Information System its forecast of the location and duration of any expected transmission congestion, and of the range of differences in Locational Marginal Prices between major subareas of the PJM Control Area expected to result from such transmission congestion; and (ii) inform each Market Seller whether its offer or offers have been accepted~~post the aggregate Day-ahead Energy Market; (ii) post the Day-ahead Prices; and (iii) inform the Market Sellers and Market Buyers of their scheduled injections and withdrawals respectively.

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

(d) Market Buyers shall pay and Market Sellers shall be paid for the quantities of energy scheduled in the Day-ahead Energy Market at the Day-ahead Prices.

1.10.9 Hourly Scheduling

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

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

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

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

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

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

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

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

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

1.11 Dispatch.

The following procedures and principles shall govern the dispatch of the resources available to the Office of the Interconnection.

1.11.1 Resource Output.

The Office of the Interconnection shall have the authority to direct any Market Seller to adjust the output of any pool-scheduled resource increment within the operating characteristics specified in the Market Seller's offer. The Office of the Interconnection may cancel its selection of, or otherwise release, pool-scheduled resources, subject to an obligation to pay any applicable start-up, no-load or cancellation fees. The Office of the Interconnection shall adjust the output of

pool-scheduled resource increments as necessary: (a) to maintain reliability, and subject to that constraint, to minimize the cost of supplying the energy, reserves, and other services required by the Market Buyers and the operation of the PJM Control Area; (b) to balance load and generation, maintain scheduled tie flows, and provide frequency support within the PJM Control Area; and (c) to minimize unscheduled interchange not frequency related between the PJM Control Area and other Control Areas.

1.11.2 Operating Basis.

In carrying out the foregoing objectives, the Office of the Interconnection shall conduct the operation of the PJM Control Area in accordance with the PJM Manuals, and shall: (i) utilize available generating reserves and obtain required replacements; and (ii) monitor the availability of adequate reserves.

1.11.3 Pool-dispatched Resources.

(a) The Office of the Interconnection shall implement the dispatch of energy from pool-scheduled resources with limited energy by direct request. In implementing mandatory or economic use of limited energy resources, the Office of the Interconnection shall use its best efforts to select the most economic hours of operation for limited energy resources, in order to make optimal use of such resources consistent with the dynamic load-following requirements of the PJM Control Area and the availability of other resources to the Office of the Interconnection.

(b) The Office of the Interconnection shall implement the dispatch of energy from other pool-dispatched resource increments, including generation increments from Capacity Resources the remaining increments of which are self-scheduled, by sending appropriate signals and instructions to the entity controlling such resources, in accordance with the PJM Manuals. Each Market Seller shall ensure that the entity controlling a pool-dispatched resource offered or made available by that Market Seller complies with the energy dispatch signals and instructions transmitted by the Office of the Interconnection.

1.11.3a Maximum Generation Emergency.

If the Office of the Interconnection declares a Maximum Generation Emergency, all deliveries to load that is served by Point-to-Point Transmission Service outside the PJM Control Area from Capacity Resources may be interrupted in order to serve load in the PJM Control Area.

1.11.4 Regulation

(a) A Market Buyer may satisfy its Regulation obligation from its own resources capable of performing Regulation service, by contractual arrangements with other Market Participants able to provide Regulation service, or by purchases from the PJM Interchange Energy Market at the rates set forth in Section 3.2.2.

(b) The Office of the Interconnection shall obtain Regulation service from the least-cost alternatives available from either pool-scheduled or self-scheduled resources as needed to meet PJM Control Area requirements not otherwise satisfied by the Market Buyers. Resources offering to sell Regulation shall be selected to provide Regulation on the basis of each resource's regulation offer and the estimated opportunity cost of the resource providing regulation and in accordance with the Office of the Interconnection's obligation to minimize the total cost of energy, Operating Reserves, Regulation, and other ancillary services. Estimated opportunity costs shall be determined by the Office of the Interconnection on the basis of the expected value of the energy sales that would be foregone or uneconomic energy that would be produced by the resource in order to provide Regulation, in accordance with procedures specified in the PJM Manuals. If the Office of the Interconnection is not able to distinguish resources offering Regulation on the basis of their regulation offers and estimated opportunity costs, resources shall be selected on the basis of the quality of Regulation provided by the resource as determined by tests administered by the Office of the Interconnection.

(c) The Office of the Interconnection shall dispatch resources for Regulation by sending Regulation signals and instructions to resources from which Regulation service has been offered by Market Sellers, in accordance with the PJM Manuals. Market Sellers shall comply with Regulation dispatch signals and instructions transmitted by the Office of the Interconnection and, in the event of conflict, Regulation dispatch signals and instructions shall take precedence over energy dispatch signals and instructions. Market Sellers shall exert all reasonable efforts to operate, or ensure the operation of, their resources supplying load in the PJM Control Area as close to desired output levels as practical, consistent with Good Utility Practice.

1.11.5 PJM Open Access Same-time Information System.

The Office of the Interconnection shall update the information posted on the PJM Open Access Same-time Information System to reflect its dispatch of generation resources.

1.12 Dynamic Scheduling.

(a) An entity that owns or controls a generating resource in the PJM Control Area may electrically remove all or part of the generating resource's output from the PJM Control Area through dynamic scheduling of the output to load outside the PJM Control Area. Such output shall not be available for economic dispatch by the Office of the Interconnection.

(b) An entity requesting dynamic scheduling shall be responsible for arranging for the provision of signal processing and communications from the generator to the Office of the Interconnection and the other participating control area and complying with any other procedures established by the Office of the Interconnection regarding dynamic scheduling as set forth in the PJM Manuals.

(c) An entity requesting dynamic scheduling shall be responsible for reserving amounts of firm transmission service necessary to deliver the range of the dynamic transfer and any required ancillary services.

2. CALCULATION OF LOCATIONAL MARGINAL PRICES

2.1 Introduction.

The Office of the Interconnection shall calculate the price of energy at the load busses and generation busses in the PJM Control Area and at the interface busses between the PJM Control Area and adjacent Control Areas on the basis of Locational Marginal Prices. Locational Marginal Prices determined in accordance with this Section shall be calculated ~~every five minutes and integrated hourly values of such calculations shall be the basis of sales and purchases of energy in the PJM Interchange Energy Market and of Transmission Congestion Charges under the PJM Tariff~~on a day-ahead basis for each hour of the Day-ahead Energy Market, and every five minutes during the Operating Day for the Real-time Energy Market.

2.2 General.

The Office of the Interconnection shall determine the least cost security-constrained dispatch, which is the least costly means of serving load at different locations in the PJM Control Area based on actual operating conditions existing on the power grid and on the prices at which Market Sellers have offered to supply energy in the PJM Interchange Energy Market. Locational Marginal Prices for the generation and load busses in the PJM Control Area, including interconnections with other Control Areas, will be calculated based on the actual economic dispatch and the prices of energy offers. The process for the determination of Locational Marginal Prices shall be as follows:

(a) To determine actual operating conditions on the power grid in the PJM Control Area, the Office of the Interconnection shall use a computer model of the interconnected grid that uses available metered inputs regarding generator output, loads, and power flows to model remaining flows and conditions, producing a consistent representation of power flows on the network. The computer model employed for this purpose, referred to as the State Estimator program, is a standard industry tool and is described in Section 2.3 below. It will be used to obtain information regarding the output of generation supplying energy to the PJM Control Area, loads at buses in the PJM Control Area, transmission losses, and power flows on binding transmission constraints for use in the calculation of Locational Marginal Prices. Additional information used in the calculation, including Dispatch Rates and real time schedules for external transactions between PJM and other Control Areas, will be obtained from the Office of the Interconnection's dispatchers.

(b) Using the prices at which energy is offered by Market Sellers to the PJM Interchange Energy Market, the Office of the Interconnection shall determine the offers of energy that will be considered in the calculation of Locational Marginal Prices. As described in Section 2.4 below, every offer of energy by a Market Seller from a resource that is following economic dispatch instructions of the Office of the Interconnection will be utilized in the calculation of Locational Marginal Prices.

(c) Based on the system conditions on the PJM power grid, determined as described in (a), and the eligible energy offers, determined as described in (b), the Office of the Interconnection shall determine the least costly means of obtaining energy to serve the next increment of load at each bus in the PJM Control Area, in the manner described in Section 2.5 below. The result of that calculation shall be a set of Locational Marginal Prices based on the system conditions at the time.

2.3 Determination of System Conditions Using the State Estimator.

Power system operations, including, but not limited to, the determination of the least costly means of serving load, depend upon the availability of a complete and consistent representation of generator outputs, loads, and power flows on the network. In calculating Locational Marginal Prices, the Office of the Interconnection shall obtain a complete and consistent description of conditions on the electric network in the PJM Control Area by using the most recent power flow solution produced by the State Estimator, which is also used by the Office of the Interconnection for other functions within power system operations. The State Estimator is a standard industry tool that produces a power flow model based on available real-time metering information, information regarding the current status of lines, generators, transformers, and other equipment, bus load distribution factors, and a representation of the electric network, to provide a complete description of system conditions, including conditions at busses for which real-time information is unavailable. The current version of the State Estimator includes over 1600 busses in the PJM Control Area, as well as interface busses with adjacent Control Areas. The Office of the Interconnection shall obtain a State Estimator solution every five minutes, which shall provide the megawatt output of generators and the loads at busses in the PJM Control Area, transmission line losses, and actual flows or loadings on constrained transmission facilities. External transactions between PJM and other Control Areas shall be included in the Locational Marginal Price calculation on the basis of the real time transaction schedules implemented by the Office of the Interconnection's dispatcher.

2.4 Determination of Energy Offers Used in Calculating ~~Locational Marginal~~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 and integrated hourly values of such determinations shall be the basis of sales and purchases of energy in the Real-time Energy Market and of Transmission Congestion Charges under the PJM Tariff not covered by the Day-ahead Energy Market.

(b) To determine the energy offers submitted to the PJM Interchange Energy Market that shall be used during the Operating Day to calculate the ~~Locational Marginal~~Real-time Prices, the Office of the Interconnection shall determine which resources are following its economic dispatch instructions. A resource will be considered to be following economic dispatch instructions and shall be included in the calculation of ~~Locational Marginal~~Real-time Prices if:

i) the applicable price bid by a Market Seller for energy from the resource is less than or equal to the Dispatch Rate for the area of the PJM Control Area in which the resource is located; or

ii) the resource is specifically requested to operate by the Office of the Interconnection's dispatcher.

(~~b~~c) In determining whether a resource satisfies the condition described in (~~a~~b), the Office of the Interconnection will determine the bid price associated with an energy offer by comparing the actual megawatt output of the resource with the Market Seller's offer price curve. Because of practical generator response limitations, a resource whose megawatt output is not ten percent more than the megawatt level specified on the offer price curve for the applicable Dispatch Rate shall be deemed to be following economic dispatch instructions, but the energy price offer used in the calculation of ~~Locational Marginal~~Real-time Prices shall not exceed the applicable Dispatch Rate. Units that must be run for local area protection shall not be considered in the calculation of ~~Locational Marginal~~Real-time Prices.

Revised:
Effective:

2.5 Calculation of ~~Locational Marginal~~Real-time Prices.

(a) The Office of the Interconnection shall determine the least costly means of obtaining energy to serve the next increment of load at each bus in the PJM Control Area represented in the State Estimator and each interface bus between the PJM Control Area and an adjacent Control Area, based on the system conditions described by the most recent power flow solution produced by the State Estimator program and the energy offers that are the basis for the Day-ahead Energy Market, or that are determined to be eligible for consideration under Section 2.4 in connection with the real-time dispatch, as applicable. This calculation shall be made by applying an incremental linear optimization method to minimize energy costs, given actual system conditions, a set of energy offers, and any binding transmission constraints that may exist. In performing this calculation, the Office of the Interconnection shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of: (1) the price at which the Market Seller has offered to supply an additional increment of energy from the resource, and (2) the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of the resource, based on the effect of increased generation from that resource on transmission line loadings. The energy offer or offers that can serve an increment of load at a bus at the lowest cost, calculated in this manner, shall determine the ~~Locational Marginal~~Real-time Price at that bus.

(b) During the Operating Day, ~~T~~the calculation set forth in (a) shall be performed every five minutes, using the Office of the Interconnection's Locational Marginal Price program, producing a set of ~~Locational Marginal~~Real-time Prices based on system conditions during the preceding interval. The prices produced at five-minute intervals during an hour will be integrated to determine the ~~Locational Marginal~~Real-time Prices for that hour~~, which will determine prices in the PJM Interchange Energy Market and Transmission Congestion Costs under the PJM Tariff~~.

2.6 Calculation of Day-ahead Prices.

For the Day-ahead Energy Market, day-ahead Locational Marginal Prices shall be determined on the basis of the least-cost, security-constrained dispatch, model flows and system conditions resulting from the load specifications, offers for generation, dispatchable load, Increment Bids, Decrement Bids, and bilateral transactions submitted to the Office of the Interconnection and scheduled in the Day-ahead Energy Market. Such prices shall be determined in accordance with the provisions of this Section applicable to the Day-ahead Energy Market and shall be the basis for purchases and sales of energy and Transmission Congestion Charges resulting from the Day-ahead Energy Market. This calculation shall be made for each hour in the Day-ahead Energy Market by applying a linear optimization method to minimize energy costs, given scheduled system conditions, scheduled transmission outages, and any transmission limitations that may exist. In performing this calculation, the Office of the Interconnection shall calculate the cost of serving an increment of load at each bus from each resource associated with an eligible energy offer as the sum of: (1) the price at which the Market Seller has offered to supply an additional increment of energy from the resource, and (2) the effect on transmission congestion costs (whether positive or negative) associated with increasing the output of the resource, based on the effect of increased generation from that resource on transmission line loadings. The energy offer or offers that can serve an increment of load at a bus at the lowest cost, calculated in this manner, shall determine the Day-ahead Price at that bus.

2.67 Performance Evaluation.

The Office of the Interconnection shall undertake an evaluation of the foregoing procedures for the determination of Locational Marginal Prices, as well as the procedures for determining and allocating Fixed Transmission Rights and associated Transmission Congestion Charges and Credits, not less often than every two years, in accordance with the PJM Manuals. To the extent practical, the Office of the Interconnection shall retain all data needed to perform comparisons and other analyses of locational marginal pricing. The Office of the Interconnection shall report the results of its evaluation to the Market Participants, along with its recommendations, if any, for changes in the procedures.

3. ACCOUNTING AND BILLING

3.1 Introduction.

This schedule sets forth the accounting and billing principles and procedures for the purchase and sale of services on the PJM Interchange Energy Market and for the operation of the PJM Control Area.

3.2 Market Buyers.

3.2.1 Spot Market Energy.

(a) Market Buyers shall be charged for all load scheduled to be served from the PJM Interchange Energy Market in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant load bus.

(b) Generating Market Buyers shall be paid for all energy scheduled to be delivered at the PJM Interchange Energy Market in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant generation bus.

(c) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the load payment ~~for~~ at each Market Buyer's load bus to be charged at Real-time Prices determined by ~~The load payment at each bus shall be~~ the product of the hourly Real-time Price at the relevant bus times the Market Buyer's megawatts of load at ~~such load~~ the bus in the hour ~~times the Locational Marginal Price at the bus~~ in excess of the load scheduled to be served at that bus in the hour in the Day-ahead Energy Market. To the extent that the load actually served at a load bus is less than the load scheduled to be served at that bus in the Day-ahead Energy Market, the Market Buyer shall be credited for the difference at the Real-time Price for the load bus at the time of the shortfall. The megawatts of load at each load bus shall be the sum of the megawatts of load for that bus of that Market Buyer as determined by the State Estimator, plus an allocated share of transmission losses, plus any megawatts of that Market Buyer's bilateral sales to purchasers outside the PJM Control Area attributable to that bus. The total load ~~payment~~ charge for each Market Buyer shall be the sum, ~~of the load payment~~ for each of a Market Buyer's load bus~~es~~, of the charges at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 1.10.1a plus the charges at Real-time Prices determined as specified herein, net of any credits specified herein for each of the Market Buyer's load buses.

(~~b~~d) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the generation revenue ~~for~~ at each Generating Market Buyer's generation bus to be paid at Real-time Prices, determined by ~~The generation revenue at each generation bus shall be~~ the product of the hourly Real-time Price at the relevant bus times the Generating Market Buyer's megawatts of generation at such generation bus in the hour ~~times the Locational Marginal Price at the bus~~, as determined by the State Estimator, in excess of the energy scheduled to be injected at that bus in that hour in the Day-ahead Energy Market. To the extent that the energy actually injected at the generation bus is less than the energy scheduled to be injected at that bus in the Day-ahead Energy Market, the Generating Market Buyer shall be debited for the difference at the Real-time Price for the generation bus at the time of the shortfall. The megawatts of generation at each generation bus shall be the sum of the megawatts of generation for that bus of

that Generating Market Buyer as determined by the State Estimator, plus any megawatts of bilateral purchases of that Generating Market Buyer from sellers outside the PJM Control Area attributable to that bus. The total generation revenue for each Generating Market Buyer shall be the sum ~~of the generation revenues~~, for each of the Generating Market Buyer's generation busses, of the revenues at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 1.10.1a plus the revenues at Real-time Prices determined as specified herein, net of any debits specified herein for each of the Market Buyer's generation buses.

(~~c~~) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate a net bill for each Market Buyer, determined as the difference between its total load ~~payment~~ charges and its total generation revenue. The portions of the net bill attributable to net hourly PJM Interchange and to Transmission Congestion Charges in the Day-ahead Energy Market and the Real-time Energy Market shall be determined as set forth ~~below~~ in this Section and in Section 5.1.3.

(~~d~~) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the total amount of net hourly PJM Interchange for each Market Buyer, including Generating Market Buyers, in accordance with the PJM Manuals. For Internal Market Buyers that are Load Serving Entities or purchasing on behalf of Load Serving Entities, this calculation shall include determination of the net energy flows from: (i) tie lines; (ii) any generation resource the output of which is controlled by the Market Buyer but delivered to it over another entity's Transmission Facilities; (iii) any generation resource the output of which is controlled by another entity but which is directly interconnected with the Market Buyer's transmission system; (iv) deliveries pursuant to bilateral energy sales; (v) receipts pursuant to bilateral energy purchases; ~~and~~ (vi) the Market Buyer's allocated share of energy purchased from another Control Area in connection with a Minimum Generation Emergency in such other Control Area as specified in Section 3.2.6(c); and (vii) an adjustment to account for the day-ahead PJM Interchange, calculated as the difference between scheduled withdrawals and injections by that Market Buyer in the Day-ahead Energy Market. For Electric Distributors that report hourly net energy flows from metered tie lines, this calculation also shall include 500 kV transmission losses and Inadvertent Interchange allocated to the Electric Distributor and shall exclude the energy delivered to load of other Network Customers and Transmission Customers. For External Market Buyers and Internal Market Buyers that are not Load Serving Entities or purchasing on behalf of Load Serving Entities, this calculation shall determine the energy ~~delivered pursuant~~ scheduled hourly for delivery to the Market Buyer ~~purchase request~~ net of the amounts scheduled by the External Market Buyer in the Day-ahead Energy Market.

(~~e~~) The Office of the Interconnection shall calculate Locational Marginal Prices in the form of Day-ahead Prices and Real-time Prices for each load and generation bus in the PJM Control Area, in accordance with Section 2 of this Schedule.

(~~f~~h) An Internal Market Buyer shall be charged for Spot Market Energy purchases to the extent of its hourly net purchases from the PJM Interchange ~~Imports~~Energy Market, determined as specified in Section 3.2.1(f) above. An External Market Buyer shall be charged for its Spot Market Energy purchases based on the energy delivered to it, determined as specified in Section 3.2.1(f) above. ~~The Office of the Interconnection shall calculate an hourly weighted average Locational Marginal Price for each such Market Buyer, based on the Locational Marginal Price at each load bus and the Market Buyer's load at that bus. The total charge shall be the Market Buyer's total net PJM Interchange Imports times the weighted average Locational Marginal Price.~~ The Office of the Interconnection shall calculate an hourly weighted average Real-time Price for each such Market Buyer, based on the hourly average of the Market Buyer's Real-time Prices at each bus weighted by the Market Buyer's load deviations at the bus. The total charge shall be determined by the product of the hourly net amount of PJM Interchange Purchases times the hourly weighted-average Real-time Price for that Market Buyer.

~~(g) A Generating Market Buyer shall be credited as a Market Seller for sales of Spot Market Energy to the extent of its hourly net PJM Interchange Exports, determined as specified above. The total credit shall be the sum of the credits determined by the product of (i) the hourly net amount of energy of PJM Interchange Exports at the applicable generation bus from each of the Generating Market Buyer's generation resources determined to be making such deliveries, times (ii) the hourly Locational Marginal Price at that generation bus. The generation resources determined to be making deliveries into PJM Interchange of such Generating Market Buyer shall be those that have the highest Locational Marginal Prices of the Market Seller's generation resources.~~

(i) A Generating Market Buyer shall be credited as a Market Seller for sales of Spot Market Energy to the extent of its hourly net sales into the PJM Interchange Energy Market, determined as specified in Section 3.2.1(f) above. The Office of the Interconnection shall calculate an hourly weighted average Real-time Price for each such Market Seller, based on the hourly average of the Market Sellers Real-time Prices at each bus weighted by the Market Buyer's generation deviations at each bus. The total credit shall be determined by the product of the hourly net amount of PJM Interchange Sales times the hourly weighted average Real-time Price for that Market Seller.

3.2.2 Regulation.

(a) Each Internal Market Buyer that is a Load Serving Entity shall have an hourly Regulation objective equal to its *pro rata* share of the PJM Control Area Regulation requirements for the hour, based on the Market Buyer's total load in the PJM Control Area for the hour. An Internal Market Buyer that does not meet its hourly Regulation obligation shall be charged for Regulation dispatched by the Office of the Interconnection to meet such obligation at the Regulation market-clearing price determined in accordance with paragraph (c) of this section, plus the amounts, if any, described in paragraph (f) of this section.

(b) A Generating Market Buyer supplying Regulation at the direction of the Office of the Interconnection in excess of its hourly Regulation obligation shall be credited for each increment of such Regulation at the higher of (i) the Regulation market-clearing price or (ii) the sum of the regulation offer and the unit-specific opportunity cost of the resource supplying the increment of Regulation, as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

(c) The Regulation market-clearing price shall be determined at a time to be determined by the Office of the Interconnection which shall be no earlier than the day before the Operating Day and the market-clearing price each hour shall be equal to the highest sum of a resource's Regulation offer plus its estimated unit-specific opportunity costs from among the resources selected to provide Regulation.

(d) In determining the Regulation market-clearing price, the estimated unit-specific opportunity costs of a resource offering to sell Regulation each hour shall be equal to the product of (i) the deviation of the set point of the resource that is expected to be required in order to provide Regulation from the resource's expected output level if it had been dispatched in economic merit order times (ii) the absolute value of the difference between the expected Locational Marginal Price at the generation bus for the resource and the offer price for energy from the resource (at the megawatt level of the Regulation set point for the resource) in the PJM Interchange Energy Market.

(e) In determining the credit under subsection (b) to a Generating Market Buyer selected to provide Regulation and that actively follows the Office of the Interconnection's Regulation signals and instructions, the unit-specific opportunity cost of a resource shall be determined for each hour that the Office of the Interconnection requires a resource to provide Regulation and shall be equal to the product of (i) the deviation of the resource's output necessary to follow the Office of the Interconnection's Regulation signals from the resource's expected output level if it had been dispatched in economic merit order times (ii) the absolute value of the difference between the Locational Marginal Price at the generation bus for the resource and the offer price for energy from the resource (at the megawatt level of the Regulation set point for the resource) in the PJM Interchange Energy Market.

(f) Any amounts credited for Regulation in an hour in excess of the Regulation market-clearing price in that hour shall be allocated and charged to each Internal Market Buyer that does not meet its hourly Regulation obligation in proportion to its purchases of Regulation in megawatt-hours during that hour.

3.2.3 Operating Reserves.

(a) A Market Seller's pool-scheduled resources capable of providing operating reserves shall be credited as specified below based on the prices offered for the operation of such resource, provided that the resource was available for the entire time specified in the Offer Data for such resource.

(b) The following determination shall be made for each pool-scheduled resource that is scheduled in the Day-ahead Energy Market: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the resource's scheduled output, shall be compared to the total value of that resource's Spot Market Energy as determined by the Day-ahead Energy Market and the Day-ahead Prices applicable to the relevant generation bus in the Day-ahead Energy Market. If the total offered price summed over all hours exceeds the total value summed over all hours, the difference shall be credited to the Market Seller.

(c) The sum of the foregoing credits calculated in accordance with Section 3.2.3(b) plus any unallocated charges from Section 3.2.3(h) and 5.1.7, shall be the cost of Operating Reserves in the Day-ahead Energy Market.

(d) The cost of Operating Reserves in the Day-ahead Energy Market shall be allocated and charged to each Market Participant in proportion to the sum of its (i) scheduled load and accepted Decrement Bids in the Day-ahead Energy Market in megawatt-hours for that Operating Day; and (ii) scheduled energy sales in the Day-ahead Energy Market from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours for that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

(e) At the end of each Operating Day, the following determination shall be made for each synchronized pool-scheduled resource of each Market Seller that operates as requested by the Office of the Interconnection and that is not committed solely for the purpose of providing spinning reserves: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the lesser of the resource's ~~actual~~(i) hourly output as determined by the State Estimator, ~~or available and requested time and type of operation.~~or (ii) requested output as determined by the PJM dispatch. The total offered price shall be compared to the total value of that resource's ~~Spot Market Energy~~ energy in the Day-ahead Energy Market plus any credit or charge for quantity deviations, at PJM dispatch direction, from the Day-ahead Energy Market during the Operating Day. If the total offered price exceeds the total value, the difference less any credit as determined pursuant to Section 3.2.3(b) and less any amounts credited for Regulation in excess of the Regulation offer plus the resources opportunity cost, shall be credited to the Market Seller. ~~Market Sellers shall also be credited on the basis of their offered prices for synchronized condensing for any hydropower or combustion turbine units operated in synchronous condenser mode at the request of Office of the Interconnection but producing no energy.~~

(~~e~~f) A Market Seller's pool scheduled resource the output of which is reduced or suspended at the request of the Office of the Interconnection for the purpose of maintaining reliability within the PJM Control Area, shall be credited in an amount equal to (PAG - AG) x LT x (ULMP - UB) where:

PAG equals the actual generation of the unit for the five minute period preceding the request;

AG equals the actual generation of the unit until PJM cancels the request to reduce output;

LT equals the length of time that the request to reduce output was effective;

ULMP equals the LMP at the unit's bus;

UB equals the unit bid for that unit whose output is reduced or suspended; and

where ULMP - UB shall not be negative.

(~~f~~g) The sum of the foregoing credits, plus any cancellation fees paid in accordance with Section 1.10.2(d), such cancellation fees to be applied to the Operating Day for which the unit was scheduled, less any payments received from another Control Area for Operating Reserves, shall be the cost of Operating Reserves ~~for the PJM Control Area for~~for the Real-time Energy Market in each Operating Day.

Revised:
Effective:

(~~e~~h) The cost of Operating Reserves for the Real-time Energy Market for each Operating Day shall be allocated and charged to each Market Participant in proportion to the sum of the absolute values of its (i) ~~deliveries of energy to load in the PJM Control Area~~load deviations from the Day-ahead Energy Market in megawatt-hours during that Operating Day; (ii) generation deviations from the Day-ahead Energy Market for non-dispatchable generation resources, including External Resources, in megawatt-hours during the Operating Day; (iii) deviations from the Day-ahead Energy Market for bilateral transactions from outside the PJM Control Area for delivery within the PJM Control Area in megawatt-hours during the Operating Day; and (~~i~~iv) ~~deliveries~~deviations of energy sales from the Day-ahead Energy Market from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours during that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

(i) At the end of each Operating Day, Market Sellers shall be credited on the basis of their offered prices for synchronized condensing for any hydropower or combustion turbine units operated as synchronous condensers but producing no energy, as well as the credits calculated as specified in Section 3.2.3(b) for those generators committed solely for the purpose of providing spinning reserves, at the request of the Office of the Interconnection.

(j) The sum of the foregoing credits as specified in Section 3.2.3(b) shall be the cost of Operating Reserves for synchronized condensing for the Operating Day in the PJM Control Area.

(k) The cost of Operating Reserves for synchronized condensing for each Operating Day shall be allocated and charged to each Market Participant in proportion to the sum of its (i) deliveries of energy to load in the PJM Control Area, served under Network Transmission Service, in megawatt-hours during that Operating Day; and (ii) deliveries of energy sales from within the PJM Control Area to load outside the PJM Control Area in megawatt-hours during that Operating Day, but not including its bilateral transactions that are dynamically scheduled to load outside the PJM Control Area pursuant to Section 1.12.

3.2.4 Transmission Congestion.

Each Market Buyer shall be charged or credited for Transmission Congestion Charges as specified in Section 5 of this Schedule.

3.2.5 Transmission Losses.

(a) Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for losses shall apply.

(b) Each Internal Market Buyer that is a Load Serving Entity or purchasing on behalf of a Load Serving Entity shall be credited in an amount equal to its *pro rata* share of the hourly total amounts collected from Transmission Customers either as charges for transmission losses in the PJM Control Area as specified in Section 3.4.2 or for transmission losses supplied in kind in accordance with Section 3.4.2(c) based on the Locational Marginal Price at the interface where such losses were delivered. This credit shall be determined by the ratio of the Internal Market Buyer's total hourly load, divided by the total hourly load in the PJM Control Area.

(c) PJM Control Area 500 kV losses shall be allocated to each Electric Distributor that reports hourly net energy flows from metered tie lines in proportion to its hourly load in the PJM Control Area.

3.2.6 Emergency Energy.

(a) Internal Market Buyers shall be allocated a proportionate share of the net cost of Emergency energy purchased by the Office of the Interconnection. Such allocated share shall be determined in proportion to the amount of net PJM Interchange Imports by each Internal Market Buyer during the hour of each such energy purchase.

(b) Net revenues in excess of ~~Locational Marginal~~Real-time Prices attributable to sales of energy in connection with Emergencies to other Control Areas shall be credited to Internal Market Buyers in proportion to the amount of net PJM Interchange Imports by each Internal Market Buyer during each hour of such energy sales.

(c) The costs, revenues, and energy associated with hourly energy purchased from another Control Area in connection with a Minimum Generation Emergency in such other Control Area, shall be allocated to each Internal Market Buyer in proportion to its load in the PJM Control Area during the hour of such purchases.

3.2.7 Billing.

(a) The Office of the Interconnection shall prepare a billing statement each billing cycle for each Market Buyer in accordance with the charges and credits specified in Sections 3.2.1 through 3.2.6 of this Schedule, and showing the net amount to be paid or received by the Market Buyer. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Market Buyer's internal accounting.

(b) If deliveries to a Market Buyer that has PJM Interchange meters in accordance with Section 14 of the Operating Agreement include amounts delivered for a Market Participant that does not have PJM Interchange meters separate from those of the metered Market Buyer, the Office of the Interconnection shall prepare a separate billing statement for the unmetered Market Participant based on the allocation of deliveries agreed upon between the Market Buyer and the unmetered Market Participant specified by them to the Office of the Interconnection.

3.3 Market Sellers.

Except as provided in the following sentence, the accounting and billing principles and procedures applicable to Generating Market Buyers functioning as Market Sellers shall be as set forth in Section 3.2. This Section sets forth the accounting and billing principles and procedures applicable to all other Market Sellers, and to Generating Market Buyers functioning as Market Sellers with respect to any matters not specified in Section 3.2.

3.3.1 Spot Market Energy.

(a) Market Sellers shall be paid for all energy scheduled to be delivered in the Day-ahead Energy Market at the Day-ahead Prices applicable to each relevant generation bus.

(b) At the end of each hour during an Operating Day, the Office of the Interconnection shall determine the total net amount of ~~hourly~~ energy delivered in the hour to the PJM Control Area by each ~~pool-scheduled or pool-dispatched resource of each Market Seller~~ of the Market Seller's resources, in accordance with the PJM Manuals and the calculation described in Section 3.2.1(~~d~~).

(~~b~~c) The Office of the Interconnection shall calculate ~~Locational Marginal~~ Day-ahead and Real-time Prices for each generation and load bus in the PJM Control Area, including the bus at each point of interconnection between the PJM Control Area and each adjacent Control Area, in accordance with Section 2 of this Schedule.

(~~c~~d) A Market Seller shall be credited for Real-time sales of Spot Market Energy to the extent of its hourly net deliveries ~~of energy~~ to the PJM Control Area of energy in excess of amounts scheduled in the Day-ahead Energy Market from the Market Seller's ~~pool-scheduled or pool-dispatched~~ resources. For ~~pool-scheduled resources that are~~ External Resources, the Office of the Interconnection shall model, based on an appropriate flow analysis, the hourly amounts delivered from each such resource to the corresponding interface point between the PJM Control Area and adjacent Control Areas. The total ~~credit~~ real-time generation revenues for each Market Seller shall be the sum of its credits determined by the product of (i) the hourly net amount of energy delivered to the PJM Control Area at the applicable generation or interface bus in excess of the amount scheduled to be delivered in that hour at that bus in the Day-ahead Energy Market from each of the Market Seller's ~~pool-scheduled or pool-dispatched~~ resources, times (ii) the hourly ~~Locational Marginal~~ Real-time Price at that bus. To the extent that the energy actually injected at a generation or interface bus in any hour is less than the energy scheduled to be injected at that bus in the Day-ahead Energy Market, the Market Seller shall be debited for the difference at the Real-time Price for the applicable bus at the time of the shortfall times the amount of the shortfall. The total generation revenue for each Market Seller shall be the sum, for each of the Market Seller's generation or interface buses, of the revenues at Day-ahead Prices determined in accordance with the Day-ahead Energy Market as specified in Section 3.3.1(a) plus the revenues at Real-time Prices determined as specified herein, net of any debits specified herein for each of the Market Seller's generation or interface buses.

3.3.2 Regulation.

Each Market Seller that is also an Internal Market Buyer shall have an hourly Regulation objective and shall be credited or charged in connection therewith as specified in Section 3.2.2. All other Market Sellers supplying Regulation at the direction of the Office of the Interconnection shall be credited for each increment of such Regulation at the price specified in Section 3.2.2(b), as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

3.3.3 Operating Reserves.

A Market Seller shall be credited for its pool-scheduled resources based on the prices offered for the operation of such resource, provided that the resource was available for the entire time specified in the Offer Data for such resource, in accordance with the procedures set forth in Section 3.2.3.

3.3.4 Emergency Energy.

The costs and net revenues associated with hourly energy sales to other Control Areas in connection with a Minimum Generation Emergency in the PJM Control Area shall be allocated to Market Sellers in proportion to their sales to the PJM Interchange Energy Market from generation resources within the metered boundaries of the PJM Control Area in each hour in which such energy was sold to other Control Areas.

3.3.5 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Market Seller in accordance with the charges and credits specified in Sections 3.3.1 through 3.3.4 of this Schedule, and showing the net amount to be paid or received by the Market Seller. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Market Seller's internal accounting.

3.4 Transmission Customers.

3.4.1 Transmission Congestion.

Each Transmission Customer shall be charged and credited for Transmission Congestion Charges as specified in Section 5 of this Schedule.

3.4.2 Transmission Losses.

(a) Whenever the Office of the Interconnection has in place appropriate computer hardware, software, and other necessary resources to account for marginal losses in the dispatch of energy and the calculation of Locational Marginal Prices, loss accounting shall be determined on that basis, and the provisions of this Section shall be revised accordingly. Until such time, the following accounting provisions for losses shall apply.

(b) Transmission Customers shall be charged for transmission losses in an amount equal to the product of (i) the Transmission Customer's megawatt-hours of deliveries using Point-to-Point Transmission Service, times (ii) the appropriate loss factor for deliveries using Point-to-Point Transmission Service, times (iii) the weighted average ~~Locational Marginal~~Day-ahead or Real-time Price, as applicable, for all load busses in the PJM Control Area. The foregoing average hourly loss factor shall be: (i) determined by the Office of the Interconnection from time to time as conditions affecting losses shall warrant; and (ii) calculated separately for on-peak and off-peak hours on the basis of the average ratio of losses to load served in each such period.

(c) A Transmission Customer may elect to pay for losses in kind, rounded off to the nearest whole megawatt, rather than as specified above if its total deliveries in an hour using Point-to-Point Transmission Service are greater than 200 megawatts. If it so elects, the Transmission Customer's specified source for the energy to be delivered using Point-to-Point Transmission Service may be scheduled to supply to the PJM Control Area boundary an amount of energy equal to the delivery schedule plus the amount of losses determined by applying the appropriate hourly loss factor as specified above to the delivered amount.

3.4.3 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Transmission Customer in accordance with the charges and credits specified in Sections 3.4.1 through 3.4.2 of this Schedule, and showing the net amount to be paid or received by the Transmission Customer. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts and completion of the Transmission Customer's internal accounting.

3.5 Other Control Areas.

3.5.1 Energy Sales.

To the extent appropriate in accordance with Good Utility Practice, the Office of the Interconnection may sell energy to an interconnected Control Area as necessary to alleviate or end an Emergency in that Control Area. Such sales shall be made (i) only to Control Areas that have undertaken a commitment pursuant to a written agreement with the LLC to sell energy on a comparable basis to the PJM Control Area, and (ii) only to the extent consistent with the maintenance of reliability in the PJM Control Area. The Office of the Interconnection may decline to make such sales to a Control Area that the Office of the Interconnection determines does not have in place and implement Emergency procedures that are comparable to those followed in the PJM Control Area. If the Office of the Interconnection sells energy to an interconnected Control Area as necessary to alleviate or end an Emergency in that Control Area, such energy shall be sold at 150% of the ~~Locational Marginal~~Real-time Price at the bus or busses at the border of the PJM Control Area at which such energy is delivered.

3.5.2 Operating Margin Sales.

The extent appropriate in accordance with Good Utility Practice, the Office of the Interconnection may sell Operating Margin to an interconnected Control Area as requested to alleviate an operating contingency resulting from the affect of the purchasing Control Area's operations on the dispatch of resources in the PJM Control Area. Such sales shall be made only to Control Areas that have undertaken a commitment pursuant to a written agreement with the Office of the Interconnection (i) to purchase Operating Margin whenever the purchasing Control Area's operations will affect the dispatch of resources in the PJM Control Area, and (ii) to sell Operating Margin on a comparable basis to the LLC.

3.5.3 Transmission Congestion.

Each Control Area purchasing Operating Margin shall be assessed Transmission Congestion Charges as specified in Section 5.1.5 of this Schedule.

3.5.4 Billing.

The Office of the Interconnection shall prepare a billing statement each billing cycle for each Control Area to which Emergency energy or Operating Margin was sold, and showing the net amount to be paid by such Control Area. Billing statements shall provide sufficient detail, as specified in the PJM Manuals, to allow verification of the billing amounts.

3.6 Metering Reconciliation.

3.6.1 Meter Correction Billing.

Metering errors and corrections will be reconciled at the end of each month by a meter correction charge or credit. The monthly meter correction charge or credit shall be determined by the product of the positive or negative deviation in energy amounts, times the weighted average Locational Marginal Price for all load busses in the PJM Control Area.

3.6.2 Meter Corrections Between Market Participants.

If a Market Participant or the Office of the Interconnection discovers a meter error affecting an interchange of energy with another Market Participant and makes the error known to such other Market Participant prior to the completion by the Office of the Interconnection of the accounting for the interchange, and if both Market Participants are willing to adjust hourly load records to compensate for the error and such adjustment does not affect other parties, an adjustment in load records may be made by the Market Participants in order to correct for the meter error, provided corrected information is furnished to the Office of the Interconnection in accordance with the Office of the Interconnection's accounting deadlines. No such adjustment may be made if the accounting for the Operating Day in which the interchange occurred has been completed by the Office of the Interconnection.

3.6.3 500 kV Meter Errors.

Billing cycle accounting for 500 kV transmission losses shall be adjusted to account for errors in meters on 500 kV Transmission Facilities.

3.6.4 Meter Corrections Between Control Areas.

An error between accounted for and metered interchange between a Party in the PJM Control Area and an entity in another Control Area shall be corrected by adjusting the hourly meter readings. If this is not practical, the error shall be accounted for by a correction at the end of the billing cycle. The Market Participant with ties to such other Control Area experiencing the error shall account for the full amount of the discrepancy and an appropriate debit or credit shall be applied equally among all Market Buyers. The Office of the Interconnection will adjust the actual interchange between the PJM Control Area and the other Control Area to maintain a proper record of inadvertent energy flow. Meter corrections on the 500 kV system between the PJM Control Area and other Control Areas shall be accounted for through the internal 500 kV system meter error allocation at the end of the billing cycle.

3.6.5 Meter Correction Data.

Meter error data shall be submitted to the Office of the Interconnection not later than noon on the second working day of the Office of the Interconnection after the end of the billing cycle applicable to the meter correction.

3.6.6 Correction Limits.

A Market Participant may not assert a claim for an adjustment in billing as a result of a meter error for any error discovered more than two years after the date on which the metering occurred. Any claim for an adjustment in billing as a result of a meter error shall be limited to bills for transactions occurring in the most recent annual accounting period of the billing Market Participant in which the meter error occurred, and the prior annual accounting period.

4. RATE TABLE

4.1 Offered Price Rates.

Spot Market Energy, Regulation, Operating Reserve, and Transmission Congestion are based on offers to the Office of the Interconnection specified in this Agreement.

4.2 Transmission Losses.

Average loss factors shall be as specified in the PJM Tariff.

4.3 Emergency Energy Purchases.

The pricing for Emergency energy purchases will be determined by the Office of the Interconnection and: (a) an adjacent Control Area, in accordance with an agreement between the Office of the Interconnection and such adjacent Control Area, or (b) a Member, in accordance with arrangements made by the Office of Interconnection to purchase energy offered by such Member from resources that are not Capacity Resources.

5. CALCULATION OF TRANSMISSION CONGESTION CHARGES AND CREDITS

5.1 Transmission Congestion Charge Calculation.

5.1.1 Calculation by Office of the Interconnection.

When the transmission system is operating under constrained conditions, the Office of the Interconnection shall calculate Transmission Congestion Charges for each Network Service User, the PJM Interchange Energy Market, and each Transmission Customer.

5.1.2 General.

The basis for the Transmission Congestion Charges shall be the differences in the Locational Marginal Prices between points of delivery and points of receipt, as determined in accordance with Section 2 of this Schedule.

5.1.3 Network Service User Calculation.

Each Network Service User shall be charged for the increased cost of energy incurred by it during each constrained hour to deliver the output of its firm Capacity Resources or other owned or contracted for resources, its firm bilateral purchases, and its non-firm bilateral purchases as to which it has elected to pay Transmission Congestion Charges. The Transmission Congestion Charge for deliveries from each such source shall be the Network Service User's hourly net bill less its hourly net PJM Interchange payments or sales as determined in accordance with Section 3.2.1 or Sections 3.3 and 3.3.1 of this Schedule.

5.1.4 Transmission Customer Calculation.

Each Transmission Customer using Firm Point-to-Point Transmission Service (as defined in the PJM Tariff), and each Transmission Customer using Non-Firm Point-to-Point Transmission Service (as defined in the PJM Tariff) that has elected to pay Transmission Congestion Charges, shall be charged for the increased cost of energy during constrained hours for the delivery of energy using Point-to-Point Transmission Service. ~~The~~Except as specified in this subsection, a Transmission Congestion Charge ~~for each such delivery~~ shall be ~~the delivery amount~~assessed for transmission use scheduled in the Day-ahead Energy Market, calculated as the amount to be delivered multiplied by the difference between the ~~Locational Marginal~~Day-ahead Price at the delivery point or PJM Control Area boundary delivery interface and the ~~Locational Marginal~~Day-ahead Price at the source ~~interface, or~~point or PJM Control Area boundary source interface. Transmission Congestion Charges shall be assessed for real-time transmission use in excess of the amounts scheduled for each hour in the Day-ahead Energy Market, calculated as the excess amount multiplied by the difference between the Real-time Price at the delivery point or PJM Control Area boundary delivery interface, and the Real-time Price at the source point or PJM Control Area boundary source interface. A Transmission Customer shall be credited for Transmission Congestion Charges for real-time transmission use falling below the amounts scheduled for each hour in the Day-ahead Energy Market, calculated as the shortfall amount multiplied by the difference between the Real-time Price at the delivery point or PJM Control Area

boundary delivery interface, and the Real-time Price at the source point or PJM Control Area boundary source interface. Real-time deviations from the Point-to-Point Transmission Service scheduled in the Day-ahead Energy Market shall be determined by the lesser of the real-time injection or withdrawal associated with such transmission service. The Transmission Congestion Charge for Market Sellers using point-to-point transmission service for deliveries out of the PJM Control Area from generating resources within the PJM Control Area shall be the amount of its net bill less the Market Seller's ~~its~~ net hourly PJM Interchange payments or sales as determined in accordance with Section 3.3 of this Schedule.

5.1.5 Operating Margin Customer Calculation.

Each Control Area purchasing Operating Margin shall be assessed Transmission Congestion Charges for any the increase in the cost of energy resulting from the provision of Operating Margin. The Transmission Congestion Charge shall be the amount of Operating Margin purchased in an hour multiplied by the difference in the ~~Locational Marginal~~Real-time Price at what would be the delivery interface and the ~~Locational Marginal~~Real-time Price at what would be the source interface, if the operating contingency that was the basis for the purchase of Operating Margin had occurred in that hour. Operating Margin may be allocated among multiple source and delivery interfaces in accordance with an applicable load flow study.

5.1.6 Transmission Loading Relief Customer Calculation.

(a) Each Transmission Loading Relief Customer shall be assessed Transmission Congestion Charges for any increase in the cost of energy in the PJM Control Area resulting from its energy schedules over contract paths outside the PJM Control Area during Transmission Loading Relief.

(b) The Transmission Congestion Charge shall be the total amount of energy specified in such energy schedules multiplied by the difference between a Locational Marginal Price calculated by the Office of the Interconnection for the energy schedule source location specified in the NERC Interchange Distribution Calculator and a Locational Marginal Price calculated by the Office of the Interconnection for the energy schedule sink location specified in the NERC Interchange Distribution Calculator. Transmission Congestion Charges that are less than zero shall be set equal to zero for Transmission Loading Relief Customers.

(c) The Office of the Interconnection will determine the Locational Marginal Prices at the energy schedule source and sink locations external to PJM with reference to and based solely on the prices of energy in the PJM Control Area and at the interface buses between the PJM Control Area and adjacent Control Areas and the system conditions and actual power flow distributions as described by the PJM State Estimator program. The Office of the Interconnection will determine the Locational Marginal Prices at the external energy schedule source and sink locations and the resulting Congestion Charge based on the portion of the energy schedule that flows through the PJM Control Area as reflected by the flow distributions from the PJM State Estimator program.

5.1.7 Total Transmission Congestion Charges.

The total Transmission Congestion Charges collected by the Office of the Interconnection each hour will be the ~~sum of the~~aggregate net amounts determined as specified in this Schedule. The Office of the Interconnection shall collect Transmission Congestion Charges for each hour the transmission system operates under constrained conditions.

5.2 Transmission Congestion Credit Calculation.

5.2.1 Eligibility.

Each holder of a Fixed Transmission Right shall receive as a Transmission Congestion Credit a proportional share of the total Transmission Congestion Charges collected for each constrained hour.

5.2.2 Fixed Transmission Rights.

(a) Transmission Congestion Credits will be calculated based upon the Fixed Transmission Rights held at the time of the constrained hour. Initial assignments of Fixed Transmission Rights shall be made to each Network Service User and Transmission Customer as specified below.

(b) On a periodic schedule established by the Office of the Interconnection, each Network Service User shall designate a subset of its Network Resources for which Fixed Transmission Rights will be assigned. Fixed Transmission Rights shall be assigned for each Network Resource in a number of megawatts equal to or less than the installed capacity summer megawatt rating of each designated Network Resource, determined at the PJM Control Area transmission bus at which the designated Network Resource is connected. Each Fixed Transmission Right shall be to the aggregate load busses of the Network Service User in a Zone or, with respect to Non-Zone Network Load, to the border of the PJM Control Area. The sum of each Network Service User's assigned Fixed Transmission Rights for a Zone must be equal to or less than the Network Service User's peak load for that Zone as determined under Section 34.1 of the Tariff. The sum of each Network Service User's Fixed Transmission Rights for Non-Zone Network Load must be equal to or less than the Network Service User's transmission responsibility for Non-Zone Network Load as determined under Section 34.1 of the Tariff.

(c) Each Transmission Customer receiving firm Point-to-Point Transmission Service shall be assigned Fixed Transmission Rights; provided, however, that a Transmission Customer may notify the Office of Interconnection that it does not wish to receive any FTRs or wishes to receive FTRs only for certain Point or Points of Receipt and Point or Points of Delivery, in which event no FTRs or such reduced amount of FTRs shall be issued to the Transmission Customer. The Fixed Transmission Right for each instance of Point-to-Point Transmission Service shall be a number of megawatts equal to the megawatts of firm service being provided between the receipt and delivery points as to which the Transmission Customer has firm Point-to-Point Transmission Service.

(d) A Fixed Transmission Right, or the right to Transmission Congestion Credits attributable to a Fixed Transmission Right, may be sold or otherwise transferred by agreement, subject to compliance with such procedures as may be established by the Office of the Interconnection for verification of the rights of the purchaser or transferee.

5.2.43 Target Allocation for Network Service Users.

A target allocation of Transmission Congestion Credits for each Network Service User shall be determined for each of its Fixed Transmission Rights. Each Fixed Transmission Right shall be multiplied by the percent of the Network Service User's annual peak load assigned to each load bus multiplied by the difference calculated as the Network Service User's load bus ~~Locational Marginal~~Day-ahead Price minus the generation bus ~~Locational Marginal~~Day-ahead Price of the Network Resource associated with the Fixed Transmission Right. The total target allocation for each Fixed Transmission Right is the sum of the target allocations for each load bus. The total target allocation for each Network Service User for each hour is the sum of the total target allocations for each of the Network Service User's Fixed Transmission Rights.

5.2.4 Target Allocation for other Holders.

A target allocation of Transmission Congestion Credits for each Transmission Customer or entity holding an FTR acquired by other means shall be determined for each Fixed Transmission Right. Each Fixed Transmission Right shall be multiplied by the ~~hourly Locational Marginal~~Day-ahead Price differences for the receipt and delivery points associated with the Fixed Transmission Right, calculated as the ~~Locational Marginal~~Day-ahead Price at the delivery point(s) minus the Locational Marginal Price at the receipt point(s). The total target allocation for the Transmission Customer for each hour shall be the sum of the target allocations associated with all of the Transmission Customer's Fixed Transmission Rights.

5.2.5 Calculation of Transmission Congestion Credits.

(a) The total of all the target allocations determined as specified above shall be compared to the total Transmission Congestion Charges in each hour resulting from both the Day-ahead Energy Market and the Real-time Energy Market. If the total of the target allocations is less than the total of the Transmission Congestion Charges, the Transmission Congestion Credit for each Network Service User and Transmission Customer shall be equal to its target allocation. All remaining Transmission Congestion Charges shall be distributed as described below in Section 5.2.6 "Distribution of Excess Congestion Charges."

(b) If the total of the target allocations is greater than the total Transmission Congestion Charges for the hour resulting from both the Day-ahead Energy Market and the Real-time Energy Market, each holder of Fixed Transmission Rights shall ~~receive~~ be assigned a share of the total Transmission Congestion Charges in proportion to its target allocations.

5.2.6 Distribution of Excess Congestion Charges.

(a) Excess Transmission Congestion Charges accumulated in a month shall be distributed to each holder of Fixed Transmission Rights in proportion to, but not more than, any deficiency in the share of Transmission Congestion Charges received by the holder during that month as compared to its total target allocations for the month.

(b) Any excess Transmission Congestion Charges remaining at the end of a month shall be distributed to Network Service Users and Transmission Customers purchasing Firm Point-to-Point Transmission Service in proportion to their Demand Charges for Network Service and their charges for Reserved Capacity for Firm Point-to-Point Transmission Service.

5.3 Unscheduled Transmission Service (Loop Flow).

(a) When there are agreements between the Members (or the Office of the Interconnection on behalf of the Members) and others for compensation to be paid or received for unscheduled transmission service (loop flow) into or out of the PJM Control Area, the net compensation received shall be included in the total Transmission Congestion Charges that are distributed in accordance with Section 5.2.

(b) With respect to payments by the Office of the Interconnection to the New York Power Pool for the installation and operation of phase angle regulating facilities at Ramapo to control or limit unscheduled transmission service (loop flow), each Transmission Owner with revenue requirements under the PJM Tariff shall pay a share of the charges on a transmission revenue requirements ratio share basis.

6. "MUST-RUN" FOR RELIABILITY GENERATION

6.1 Introduction.

The following procedures shall apply to any generation resource subject to the dispatch of the Office of the Interconnection that (a) is a generation resource for which construction commenced before July 9, 1996, and (b) as a result of transmission constraints, the Office of the Interconnection determines, in the exercise of Good Utility Practice, must be run in order to maintain the reliability of service in the PJM Control Area. The provisions of this Schedule shall otherwise apply to the scheduling, dispatch, operation and accounting treatment of such resources, to the extent not inconsistent with the provisions of this Section 6.

6.2 Identification of Facility Outages.

Not later than one hour prior to the deadline specified in Section 1.10.1 of this Schedule, the Office of the Interconnection shall identify on the PJM Open Access Same-Time Information System any facility outage or other system condition which it has determined may give rise to a transmission constraint that may require, in order to maintain system reliability, the dispatch of one or more generation resources that otherwise would not be dispatched based on the merits of their offers to the PJM Interchange Energy Market.

6.3 Dispatch for Local Reliability.

6.3.1 Request and Dispatch.

In addition to the dispatch of generation by the Office of the Interconnection to maintain reliability on transmission facilities directly monitored by it, a Member that owns or leases with rights equivalent to ownership Transmission Facilities as defined in this Agreement or the Transmission Owners Agreement and that operates a local control center in accordance with Section 11.3.3 of this Agreement or a Market Operations Center in accordance with Section 1.7.5 of this Schedule, may request the Office of the Interconnection to dispatch generation in order to maintain reliability on any such Transmission Facilities that are not then directly monitored by the Office of the Interconnection, subject to the rules and procedures in Section 6.3.2. The Office of the Interconnection shall dispatch generation to maintain reliability on such Transmission Facilities by incorporating the facilities in the State Estimator program described in Section 2.3 as set forth below, unless the Office of the Interconnection determines that such dispatch would adversely affect reliability in the PJM Control Area or would otherwise not be in accordance with Good Utility Practice.

6.3.2 Designation of Facilities.

The following rules and procedures shall apply to a Member request that the Office of the Interconnection dispatch generation on one or more Transmission Facilities that are not then directly monitored by the Office of the Interconnection.

a) The Transmission Facilities that are the subject of the request must be among the facilities that comprise the Transmission System under the PJM Tariff;

b) The Member shall provide modeling information for such Transmission Facilities and provide sufficient telemetry to the Office of the Interconnection such that power flows are observable by the State Estimator program described in Section 2.3; provided, however, that if an unreliable constrained condition exists and time does not permit such modeling and telemetry, the Member and the Office of the Interconnection may agree to use a representative surrogate for such Transmission Facilities in order to allocate the costs of the dispatch of generation using Locational Marginal Prices to maintain reliability on such Transmission Facilities, provided further that the Member shall expeditiously provide the modeling data and install the necessary facilities to incorporate the Transmission Facilities into the State Estimator program;

c) The request shall constitute a request that such Transmission Facilities become and remain monitored by the Office of the Interconnection and subject to its dispatch control for a period of not less than ninety (90) days;

d) The Member shall comply with all other operating procedures established by the Office of the Interconnection regarding dispatch for local reliability as set forth in the PJM Manuals.

6.4 Price Caps.

6.4.1 Applicability.

(a) Except as specified below, if in the day-ahead schedule determined by the Office of the Interconnection in accordance with Sections 1.10.8(a) and (b) of this Schedule any generation resource may be dispatched out of economic merit order to maintain system reliability as a result of limits on transmission capability, the prices for energy offered by such resource shall be capped at the levels specified below. If the Office of the Interconnection is able to do so, such prices shall be capped only during each hour when the transmission limit affects the schedule of the affected resource, and otherwise shall be capped for the entire Operating Day. The energy prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(b) The energy bid price offered by any generation resource requested to be dispatched in accordance with Section 6.3 of this Schedule shall be capped at the levels specified below. If the Office of the Interconnection is able to do so, such prices shall be capped only during each hour when the affected resource is so scheduled, and otherwise shall be capped for the entire Operating Day. The energy prices as capped shall be used to determine any Locational Marginal Price affected by the price of such resource.

(c) Generation resources subject to a price cap shall be paid for energy at the applicable Locational Marginal Price.

(d) Price caps shall not be applicable to generation resources used to relieve the Western, Central and Eastern reactive limits in the PJM Control Area. In addition, price caps shall not be applicable to generation resources used to relieve any other transmission limit as to which the FERC has authorized the use of market based rates.

6.4.2 Level.

The price cap shall be one of the amounts specified below, as specified in advance by the market Seller for the affected unit:

(i) The weighted average Locational Marginal Price at the generation bus at which energy from the capped resource was delivered during a specified number of hours during which the resource was dispatched for energy in economic merit order, the specified number of hours to be determined by the Office of the Interconnection and to be a number of hours sufficient to result in a price cap that reflects reasonably contemporaneous competitive market conditions for that unit;

(ii) The incremental operating cost of the generation resource as determined in accordance with Schedule 2 of this Agreement and the PJM Manuals, plus 10% of such costs; or

(iii) An amount determined by agreement between the Office of the Interconnection and the Market Seller.

7. FIXED TRANSMISSION RIGHTS AUCTIONS

7.1 Auctions of Fixed Transmission Rights.

Periodic auctions to allow Market Participants to acquire or sell Fixed Transmission Rights shall be conducted by the Office of the Interconnection in accordance with the provisions of this Section.

7.1.1 Auction Period and Scope of Auctions.

The period covered by an auction shall be the one-month period next following the date that the auction is conducted. The Office of the Interconnection shall offer for sale in the auction any remaining Fixed Transmission Rights capability for the month after taking into account all of the Fixed Transmission Rights already outstanding at the time of the auction. In addition, any holder of a Fixed Transmission Right for the period covered by an auction may offer such Fixed Transmission Right for sale in such auction. Each monthly auction will consist of a separate auction for on-peak Fixed Transmission Rights and a separate auction for off-peak Fixed Transmission Rights. Market Participants may bid for and acquire any number of Fixed Transmission Rights, provided that all Fixed Transmission Rights awarded are simultaneously feasible with each other and with all Fixed Transmission Rights outstanding at the time of the auction and not sold into the auction.

7.1.2 Frequency and Time of Auctions.

Fixed Transmission Rights auctions shall be held monthly. The bid and offer period shall open at 12:00 midnight (Eastern Prevailing Time) on the fifteenth (15th) business day preceding the month for which Fixed Transmission Rights are being auctioned and shall close at 12:00 midnight (Eastern Prevailing Time) on the tenth (10th) business day preceding the month for which Fixed Transmission Rights are being auctioned.

7.1.3. Duration of Fixed Transmission Rights.

Each Fixed Transmission Right acquired in a Fixed Transmission Rights auction shall entitle the holder to credits of Transmission Congestion Charges for the one-month period for which the Fixed Transmission Rights were auctioned.

7.2 Fixed Transmission Rights Characteristics.

7.2.1 Reconfiguration of Fixed Transmission Rights.

Through an appropriate linear programming model, the Office of the Interconnection shall reconfigure the Fixed Transmission Rights offered or otherwise available for sale in any auction to maximize the value to the bidders of the Fixed Transmission Rights sold, provided that any Fixed Transmission Rights acquired at auction shall be simultaneously feasible in combination with those Fixed Transmission Rights outstanding at the time of the auction and not sold in the auction. The linear programming model shall, while respecting transmission constraints and the maximum MW quantities of the bids and offers, select the set of simultaneously feasible Fixed Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers.

7.2.2 Specified Buses.

Auction bids for Fixed Transmission Rights may specify any combination of receipt and delivery buses represented in the State Estimator model for which the Office of the Interconnection calculates and posts Locational Marginal Prices. Auction bids may specify receipt and delivery points from locations outside of the PJM Control Area to locations inside the PJM Control Area, from locations within the PJM Control Area to locations outside of the PJM Control Area, or to and from locations within the PJM Control Area.

7.2.3 Transmission Congestion Charges.

Fixed Transmission Rights, whether acquired at auction or otherwise, shall entitle holders thereof to credits only for Transmission Congestion Charges, and shall not confer a right to credits for payments arising from or relating to transmission congestion made to any entity other than the Office of the Interconnection.

7.3 Auction Procedures.

7.3.1 Role of the Office of the Interconnection.

Fixed Transmission Rights auctions shall be conducted by the Office of the Interconnection in accordance with standards and procedures set forth in the PJM Manuals, such standards and procedures to be consistent with the requirements of this Schedule.

7.3.2 Notice of Offer.

A holder of a Fixed Transmission Right wishing to offer the Fixed Transmission Right for sale shall notify the Office of the Interconnection of any Fixed Transmission Rights to be offered. Each Fixed Transmission Right sold in an auction shall, at the end of the period for which the Fixed Transmission Rights were auctioned, revert to the offering holder or the entity to which the offering holder has transferred such Fixed Transmission Right, subject to the term of the Fixed Transmission Right itself and to the right of such holder or transferee to offer the Fixed Transmission Right in the next or any subsequent auction during the term of the Fixed Transmission Right.

7.3.3 Pending Applications for Firm Service.

(a) Prior to the start of each auction bidding period, the Office of the Interconnection shall exert reasonable effort to complete its review of pending applications for Network Transmission Service and Firm Point-to-Point Transmission Service and to ascertain the corresponding Fixed Transmission Rights to be assigned to the entities receiving such service, subject to compliance with all applicable deadlines and other procedures by the applicant. Fixed Transmission Rights so assigned shall be included in the simultaneous feasibility test performed by the Office of the Interconnection for the auction.

(b) Fixed Transmission Rights may be assigned to entities requesting Network Transmission Service or Firm Point-to-Point Transmission Service only if such Fixed Transmission Rights are simultaneously feasible with all outstanding Fixed Transmission Rights, including Fixed Transmission Rights effective for the then-current auction period. If an assignment of Fixed Transmission Rights pursuant to a pending application for Network Transmission Service or Firm Point-to-Point Transmission Service cannot be completed prior to an auction, Fixed Transmission Rights attributable to such transmission service shall not be assigned for the then-current auction period. If a Fixed Transmission Right cannot be assigned for this reason, the applicant may withdraw its application, or request that the Fixed Transmission Right be assigned effective with the start of the next auction period.

7.3.4 On-Peak and Off-Peak Periods.

The Office of the Interconnection will conduct separate auctions simultaneously for on-peak and off-peak periods. On-Peak Fixed Transmission Rights shall cover the periods from 7:00 a.m. up to the hour ending at 11:00 p.m. on Mondays through Fridays, except holidays as defined in the PJM Manuals. Off-Peak Fixed Transmission Rights shall cover the periods from 11:00 p.m. up to the hour ending 7:00 a.m. on Mondays through Fridays and all hours on Saturdays, Sundays, and holidays as defined in the PJM Manuals. Each bid shall specify whether it is for an on-peak or off-peak period.

7.3.5 Offers and Bids.

(a) Offers to sell and bids to purchase Fixed Transmission Rights shall be submitted during the period set forth in Section 7.1.2, and shall be in the form specified by the Office of the Interconnection in accordance with the requirements set forth below.

(b) Offers to sell shall identify the specific Fixed Transmission Right, by megawatt quantity and receipt and delivery points, offered for sale. An offer to sell a specified megawatt quantity of Fixed Transmission Rights shall constitute an offer to sell a quantity of Fixed Transmission Rights equal to or less than the specified quantity. An offer to sell may not specify a minimum quantity being offered. Each offer may specify a reservation price, below which the offeror does not wish to sell the Fixed Transmission Right. Offers submitted by entities holding rights to Fixed Transmission Rights acquired other than by assignment in connection with reservations of Network Transmission Service or Firm Point-to-Point Transmission Service shall be subject to such reasonable standards for the verification of the rights of the offeror as may be established by the Office of the Interconnection. Offers shall be subject to such reasonable standards for the creditworthiness of the offeror or for the posting of security for performance as the Office of the Interconnection shall establish.

(c) Bids to purchase shall specify the megawatt quantity, price per megawatt, and receipt and delivery points of the Fixed Transmission Right that the bidder wishes to purchase. A bid to purchase a specified megawatt quantity of Fixed Transmission Rights shall constitute a bid to purchase a quantity of Fixed Transmission Rights equal to or less than the specified quantity. A bid to purchase may not specify a minimum quantity that the bidder wishes to purchase. A bid may specify as receipt or delivery points any bus for which the Office of the Interconnection calculates and posts Locational Marginal Prices in accordance with Section 2 of this Schedule and may include Fixed Transmission Rights for which the associated Transmission Congestion Credits may have negative values. Bids shall be subject to such reasonable standards for the creditworthiness of the bidder or for the posting of security for performance as the Office of the Interconnection shall establish.

(d) Bids and offers shall be specified to the nearest tenth of a megawatt and shall be greater than zero.

7.3.6 Determination of Winning Bids and Clearing Price.

(a) At the close of the bidding period each month, the Office of the Interconnection will create a base Fixed Transmission Rights power flow model that includes all outstanding Fixed Transmission Rights that have been approved and confirmed for any portion of the month for which the auction was conducted and that were not offered for sale in the auction. The base Fixed Transmission Rights model also will include estimated uncompensated parallel flows into each interface point of the PJM Control Area and estimated scheduled transmission outages.

(b) In accordance with the requirements of Section 7.4 of this Schedule and subject to all applicable transmission constraints and reliability requirements, the Office of the Interconnection shall determine the simultaneous feasibility of all outstanding Fixed Transmission Rights not offered for sale in the auction and of all Fixed Transmission Rights that could be awarded in the auction for which bids were submitted. The winning bids shall be determined from an appropriate linear programming model that, while respecting transmission constraints and the maximum MW quantities of the bids and offers, selects the set of simultaneously feasible Fixed Transmission Rights with the highest net total auction value as determined by the bids of buyers and taking into account the reservation prices of the sellers. In the event that there are two or more identical bids for the selected Fixed Transmission Rights and there are insufficient Fixed Transmission Rights to accommodate all of the identical bids, then each such bidder will receive a pro rata share of the Fixed Transmission Rights that can be awarded.

(c) Fixed Transmission Rights shall be sold at the market-clearing price for Fixed Transmission Rights between specified pairs of receipt and delivery points, as determined by the bid value of the marginal Fixed Transmission Right that could not be awarded because it would not be simultaneously feasible. The linear programming model shall determine the clearing prices of all Fixed Transmission Rights paths based on the bid value of the marginal Fixed Transmission Rights, which are those Fixed Transmission Rights with the highest bid values that could not be awarded fully because they were not simultaneously feasible, and based on the flow sensitivities of each Fixed Transmission Rights path relative to the marginal Fixed Transmission Rights paths flow sensitivities on the binding transmission constraints.

7.3.7 Announcement of Winners and Prices.

Within two (2) business days after the close of an auction, the Office of the Interconnection shall post the winning bidders, the megawatt quantity, and the receipt and delivery points for each Fixed Transmission Right awarded in the auction and the price at which each Fixed Transmission Right was awarded. Results of the on-peak auction and off-peak auction will be posted separately. The Office of the Interconnection shall not disclose the price specified in any bid to purchase or the reservation price specified in any offer to sell.

7.3.8 Auction Settlements.

All buyers and sellers of Fixed Transmission Rights between the same points of receipt and delivery shall pay or be paid the market-clearing price, as determined in the auction, for such Fixed Transmission Rights.

7.3.9 Allocation of Auction Revenues.

All auction revenues, net of payments to entities selling Fixed Transmission Rights into the auction, shall be allocated among the Regional Transmission Owners in proportion to their respective transmission revenue requirements.

7.4 Simultaneous Feasibility.

The Office of the Interconnection shall make the simultaneous feasibility determinations specified herein using appropriate powerflow models of contingency-constrained dispatch. Such determinations shall take into account outages of both individual generation units and transmission facilities and shall be based on reasonable assumptions about the configuration and availability of transmission capability during the period covered by the auction that are not inconsistent with the determination of the deliverability of Capacity Resources under the Reliability Assurance Agreement. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Transmission Congestion Charges to satisfy all Fixed Transmission Rights obligations for the auction period under expected conditions.

Notice of Filing

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

PJM Interconnection, L.L.C.) Docket No. ER00-

NOTICE OF FILING

Take notice that on March 10, 2000, PJM Interconnection, L.L.C. ("PJM"), tendered for filing revised pages to the PJM Open Access Transmission Tariff and the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. setting forth procedures for a two-settlement system.

PJM requests an effective date of May 31, 2000. PJM also requests that the Commission act on the filing within 60 days.

Copies of this filing were served upon all PJM Members and the state electric regulatory commissions in the PJM Control Area.

Any person desiring to be heard or to protest this filing should file a petition to intervene or protest with the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426, in accordance with Rules 210, 211 and 214 of the Commission's Rules of Practice and Procedure (18 C.F.R. §§ 385.210, 385.211, 385.214). All such petitions or protests should be filed on or before _____. Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a petition to intervene. Copies of this application are on file with the Commission and are available for public inspection. This filing may also be viewed on the Internet at http://www.ferc.fed.us/online/rims.htm (call 202-208-2222 for assistance.)