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FEDERAL ENERGY
REGULATORY
COMMISSION

# FILING OF THE

# PJM SUPPORTING COMPANIES

## JUNE 2, 1997

ER97-3189-000

EC97-38 -000

**VOLUME I OF II**

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June 2, 1997

BY HAND

Ms. Lois D. Cashell
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, D.C. 20426

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FEDERAL ENERGY REGULATORY COMMISSION

**Atlantic City Electric Company, et al.**

Dear Ms. Cashell:

On December 31, 1996, in Docket Nos. OA97-261-000 and ER97-1082-000, the member companies of the Pennsylvania-New Jersey-Maryland Interconnection (PJM Pool) made a compliance filing to implement the requirements of Order No. 888 for "tight" power pools. In that filing, the PJM member companies committed to make a subsequent filing, following further negotiations with stakeholders, to put in place an Independent System Operator (ISO) for the PJM Pool. The instant filing is made by the PJM Supporting Companies[1/] pursuant to Sections 203 and 205 of the Federal Power Act to fulfill that prior commitment.

In developing this filing, the Supporting Companies worked with a large group of interested stakeholders in an effort to obtain as much consensus as possible. While complete consensus could not be achieved, two major independent power producers, U.S. Generating

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[1/] Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power & Light Company, Jersey Central Power & Light Company, Metropolitan Edison Company, Pennsylvania Electric Company (the immediately preceding three utilities being subsidiaries of GPU, Inc.), Pennsylvania Power & Light Company, Potomac Electric Power Company and Public Service Electric and Gas Company.

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Company and Cogen Technologies N.J. Venture, and two major power marketers, PanEnergy Trading and Market Services, L.L.C. and Citizens Lehman Power, L.P. (now Citizens Power L.L.C.), have authorized the Supporting Companies to advise the Commission that they are generally supportive of this proposal, subject to their review of the final package as filed. Each party has reservations about certain provisions and may offer comments on or propose alternative treatment of these provisions in separate pleadings. For example, Citizens continues to have questions about the use of locational marginal pricing. In addition, Allegheny Electric Cooperative, Inc. has indicated to the Supporting Companies that this filing is, in its opinion, preferable to the principal alternatives presented during the stakeholder process and will advise the Commission of its remaining reservations in a separate pleading.

The Supporting Companies are submitting the following documents pursuant to Section 205 of the Federal Power Act and 18 C.F.R. § 35.13 (1997):

1. Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., dated as of June 2, 1997 (Operating Agreement);

2. Transmission Owners Agreement dated as of June 2, 1997 (Transmission Owners Agreement);

3. PJM Open Access Transmission Tariff (PJM Tariff); and

4. Reliability Assurance Agreement Among Load Serving Entities in the PJM Control Area dated as of June 2, 1997 (Reliability Assurance Agreement).

Attachment A hereto is a complete list of the documents provided. Nothing in this filing is intended to modify any existing contracts between the Supporting Companies and any other parties.

## I. Objectives of the Instant Filing

The December 31 compliance filing, which was accepted by the Commission by Order dated February 28, 1997,[2/] included (i) changes in the PJM Interconnection Agreement to facilitate the participation of all market participants on a non-discriminatory basis, and (ii) the PJM Open Access Transmission Tariff (PJM Tariff), under which all of the public utilities in the PJM control area offered access to their transmission facilities under

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[2/] Mid-Continent Area Power Pool, 78 FERC ¶ 61,203 (1997) (February 28 Order).

non-pancaked rates and on terms that tracked the Commission's pro forma tariff. On April 1, 1997, a filing was made to further modify the PJM Interconnection Agreement, converting it into an Operating Agreement for a limited liability company (PJM Interconnection, L.L.C.) in order to permit an independent board of directors to exercise oversight over the day-to-day operations of the PJM Pool.

This filing builds on the December 31 and April 1 filings, making only those additional changes necessary to accomplish the following objectives:

1. Establish an ISO That Satisfies the Commission's Principles. Although the December 31 and April 1 filings provided for expanded participation in the PJM Pool and enhanced the independence of the PJM Pool's operator, formerly known as the PJM Interconnection Association Office, those filings did not purport to establish an ISO. This filing modifies the governance provisions of the Operating Agreement to ensure that the Office of the Interconnection, subject to the oversight of an independent PJM Board of Managers (PJM Board), will independently administer the day-to-day operations of the PJM Pool, satisfying the Commission's criteria for ISOs set forth in Order No. 888, as clarified in Atlantic City Electric Co. et al., 77 FERC ¶ 61,148 (1996) (November 13 Order).[3/] The revised governance provisions are a direct result of discussions among the Supporting Companies and other stakeholders. The Operating Agreement establishes an ISO with responsibility for system operations, administration of the PJM Tariff, and regional transmission planning. No stakeholder or industry segment has the ability to control the ISO's functions or to prevent the ISO from acting. Moreover, the ISO will have a governing board (the PJM Board) that is independent of any industry segment, and will have complete responsibility for supervision and oversight of the day-to-day operations of the PJM control area. In addition, for those few matters that come before the members for action, the voting rights continue to be structured so that no one industry segment can either force or block action. These provisions, together with the continuing requirements of the Federal Power Act related to any change in the governing agreements and tariff, provide a system of checks and balances that will assure non-discriminatory, open access transmission service throughout the PJM control area.

The Operating Agreement also has been modified to modernize outdated provisions of the original PJM Agreement and to clarify the responsibilities of the ISO and the parties under the Operating Agreement.

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[3/] Attachment B to this Transmittal Letter demonstrates how the Supporting Companies' proposal complies with each ISO requirement and addresses each of the concerns that was identified in the November 13 Order.

2. Preserve Reliability Compatible with Retail Choice. The instant filing preserves one of the principal benefits of the PJM Pool: the assurance of power supply reliability by an agreement of load-serving entities in the control area to share generating reserves. The provisions formerly included in the Operating Agreement relating to long-term power supply planning have been moved, consistent with the focus of the Operating Agreement on short-term operations (including the maintenance of short-term reliability), into a Reliability Assurance Agreement among PJM control area load-serving entities. These long-term reliability provisions, together with certain aspects of the PJM Tariff, were modified to accommodate the impending introduction of retail choice in portions of the PJM control area. In this respect, the filing implements two of the themes that were expressed repeatedly during the stakeholder process by representatives of State agencies and others: the importance of preserving the reliability benefits of the PJM Pool and the necessity of ensuring that revised PJM Pool structures are compatible with retail choice. Attachment C describes the Supporting Companies' proposal for maintaining reliability through Pool-wide reserve sharing and other elements of the filing designed to maintain reliability.

3. Clarify and Improve the Implementation of Locational Marginal Pricing. In the February 28 Order, the Commission recognized that the Supporting Companies' proposal to utilize locational marginal pricing (LMP) as the basis of PJM Pool energy interchange and transmission congestion pricing "will promote more efficient trading and will be more compatible with the type of competitive market mechanisms we are encouraging." 78 FERC ¶ 61,203 at 61,883. The Commission declined, however, to implement that proposal at that time and instead ordered a Technical Conference, subsequently held on May 9, 1997, to address questions regarding the implementation of LMP and whether modifications would be necessary to make the proposal of the Supporting Companies workable.

In connection with the Technical Conference, the Supporting Companies provided an expanded and clarified explanation of the calculation of transmission congestion charges on the basis of LMP, now incorporated as Attachment K to the PJM Tariff. Attachment K makes clear that users of both Network Service and firm Point-to-Point service will receive Fixed Transmission Rights (FTRs). In addition, Attachment K reflects a revision to the method used to allocate any excess transmission congestion charges that may be collected by the Office of the Interconnection. Specifically, each month any congestion charges collected in an hour in excess of those needed to provide a complete hedge for each holder of FTRs will first be used to make up any deficiencies incurred in any prior hour in the amount by which the congestion charges collected were not sufficient to provide a complete hedge; any congestion charge revenues remaining at the end of a month after this allocation will be credited to all Network and firm Point-to-Point transmission customers during the month. Schedule 1 in Attachment K to the PJM Tariff includes a revised and expanded description of

the calculation of locational marginal prices. Finally, Attachment D to this letter is a copy of the May 29, 1997 letter from Mr. Samuel C. Thomas to Shelton Cannon and Richard O'Neill which provided responses to certain questions raised at the Technical Conference.

4. Changes to Non-firm Transmission Rates in the PJM Tariff. In light of recent experience, the filing proposes to implement "up to" rates for non-firm point-to-point transmission services, and to charge the higher of congestion costs (based on locational price differences between points of receipt and delivery) and the embedded cost rate if a non-firm point-to-point customer chooses to wheel through congestion rather than being interrupted. The ISO will have the authority to discount non-firm transmission rates in accordance with Commission policies.

## II. Retained Elements of the Pool

While the instant filing makes incremental adjustments to the PJM Tariff and the Operating Agreement from the earlier filings, critical aspects of the PJM Pool, as restructured on December 31, have been retained in this filing.

First, the filing retains the pooling of reserves through which the PJM Pool has long afforded reliable electric service to consumers in the PJM region. The maintenance of the reliability of the PJM Pool is an extremely important principle that cannot be sacrificed during the transition to greater competition.

Second, the filing preserves another long-standing benefit of the PJM Pool: the opportunity of all participants to realize energy cost savings through regional economic dispatch. Consistent with the December 31 compliance filing, the instant filing envisions that the ISO will operate an hourly spot market into which all generators will have the option to bid their energy and from which all buyers will have the option of purchasing energy. Participation in the spot market administered by the ISO will be voluntary. Market participants will be free to arrange bilateral energy transactions, or to self-schedule their own generation. The voluntary spot market administered by the ISO will be an efficient mechanism, with transparent market clearing prices, that is available to market participants. The filing thus preserves one of the primary benefits of a tight power pool while giving market participants maximum flexibility in arranging transactions and maximizing the efficient use of both generation and transmission.

Third, the filing preserves the basic governance structure established by the December 31 and April 1 filings, under which the administration of the PJM Pool by the Office of the Interconnection is overseen by an independent Board of Managers, who are

elected by the Members, voting according to industry sectors. As noted above, modifications have been made in the Operating Agreement to ensure the independence of the Office of the Interconnection and to satisfy the Commission's ISO requirements. Wholesale changes to the existing structure, however, are not necessary for these purposes. The new governance structure is described in greater detail in Attachment B hereto.

## III. The Stakeholder Process

The November 13 Order strongly encouraged all stakeholders to participate in further discussions concerning restructuring of the PJM Pool. The involvement of the stakeholders began immediately after that Order. With the assistance of a professional facilitator, the stakeholders met continuously between January 1997 and late May 1997. The stakeholders as a whole: (1) established a mission statement, (2) developed the fundamental principles that would guide further discussions, (3) identified the issues, and (4) established "Working Groups" to discuss the issues in detail. The Working Groups met weekly during that same period to deal with subsets of the issues, including ISO governance, reliability, transmission service and the structure of the energy market. The Working Groups further defined the issues, developed the pros and cons of various options in an effort to resolve or narrow differences, and made recommendations and forged consensus where possible.

The meetings were valuable as a means of achieving a better understanding of proposals previously placed before the Commission as well as new and compromise proposals that were introduced. This filing reflects elements of proposals made by a number of participants in the stakeholder process other than the Supporting Companies. While the stakeholders were not able to reach consensus on a single filing to implement an ISO, the meetings have served to narrow the differences among a substantial number of the stakeholders, including several who have advised the Supporting Companies that they generally support this filing.

## IV. Application Pursuant to Section 203

This letter constitutes an application, pursuant to Section 203 of the Federal Power Act, formally to recognize PJM Interconnection, L.L.C. as an independent system operator

(ISO), if such an application is required.[4/] The Commission should find that the transfer of control to the ISO is consistent with the public interest and approve the same.

Consistent with the notice requirement of Section 203, the Supporting Companies are submitting copies of this filing to the regulatory commissions in Delaware, the District of Columbia, Maryland, New Jersey, Pennsylvania and Virginia, as indicated on Attachment K hereto.

## V. Summary of the Filing

Summaries of the Operating Agreement, the Transmission Owners Agreement, the PJM Tariff and the Reliability Assurance Agreement follow.

### 1. Operating Agreement

The Operating Agreement is based on the PJM Interconnection Agreement as superseded by the Operating Agreement of PJM Interconnection, L.L.C. filed with the Commission on April 1, 1997. Thus, it builds on the governance and operating arrangements for the PJM Interconnection that were accepted by the Commission in its February 28 Order, and under which the Interconnection is successfully operating today. Additional details on the organization and governance of the LLC are set forth in Attachment B to this letter. Key features of the Operating Agreement are:

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[4/] The Office of the Interconnection, formerly the Interconnection Association Office, has been directing the operation of the high voltage facilities in the PJM Control Area for many years. It became the "Transmission Provider" under the PJM Tariff as a result of the December 31 compliance filing. As is indicated by their petition for appellate review of the Commission's Order in Atlantic City Electric Co., 76 FERC ¶ 61,306, order dismissing as moot request for rehearing, 77 FERC ¶ 61,298 (1996), appeal docketed, No. 97-1097 (D.C. Cir. Feb. 21, 1997), the Supporting Companies do not believe that the use of an independent system operator to direct the operation of transmission facilities requires approval by the Commission under Section 203 of the Federal Power Act, 16 U.S.C. § 824b (1994).

The Supporting Companies do not, however, want to delay recognition of PJM Interconnection, L.L.C. as an ISO. Without conceding the correctness of the Commission's conclusion that approval under Section 203 is necessary, the Supporting Companies request that the Commission consider this filing to be an application for an order under Section 203.

- Organization of the former PJM Pool as a limited liability corporation, with an independent Board of Managers (PJM Board) that is responsible for supervision and oversight of the day-to-day operations of the Pool through the Office of the Interconnection. The members of the PJM Board will not represent particular industry sectors, nor will they have any affiliation with any of the parties to the Operating Agreement. They will be elected by a Members Committee, comprised of all the parties to the Operating Agreement, from slates of candidates developed by an independent consultant to reflect the particular areas of expertise and experience specified in the Operating Agreement.

  The responsibilities of the PJM Board are set forth in Section 7.9 of the Operating Agreement. The PJM Board has broad responsibility to supervise and oversee "all matters pertaining to the Interconnection." The PJM Board's "primary responsibility" is to ensure that the ISO's functions are accomplished "in a manner consistent with (A) the safe and reliable operation of the Interconnection, (B) the creation and operation of a robust, competitive and non-discriminatory electric power market in the PJM Control Area, and (C) the principle that a Member or group of Members shall not have undue influence over the operation of the Interconnection."

  The remainder of Section 7.9 provides a non-exclusive list of the PJM Board's rights and responsibilities in carrying out the above functions, including the selection of officers of the LLC, approval of the regional transmission expansion plan, adoption of the LLC's budget, participation in state and federal regulatory proceedings on behalf of the LLC, and oversight of Members' compliance with the Operating Agreement.

- Formation of a Members Committee, in which the parties to the Operating Agreement (the members of the LLC) will vote on the basis of sectors organized for each of the key industry segments: Generation Owners, Other Suppliers, Transmission Owners, Electric Distributors and End-Use Customers.

- Voting provisions for the Members Committee that ensure than no sector can control the Members Committee, and no sector can block action by the Members Committee.

- Creation of Users Groups, a means by which environmental and public interest groups, as well as self-selected groups of members of the LLC sharing a common interest, can bring matters before the Members Committee, and if necessary to the attention of the PJM Board.

- Clear delineation of the respective roles of the PJM Board, the Office of the Interconnection, and the Members Committee, which together comprise the ISO. Day-to-day operations of the PJM Control Area and the PJM Interchange Energy Market, administration of the PJM Tariff and the Transmission Expansion Planning Protocol, and performance of the data collection and analyses necessary for reserve sharing are entrusted to the Office of the Interconnection, acting under the supervision and oversight of the PJM Board. The Members Committee will elect the PJM Board, amend or terminate the Operating Agreement, and provide advice and recommendations to the PJM Board and the Office of the Interconnection.

- Clear delineation of the rights and obligations of the members of the LLC, including an obligation to comply with NERC, MAAC and other pertinent reliability standards, and to respond to directives of the Office of the Interconnection in system emergencies.

- Administration by the Office of the Interconnection of a pool spot energy market and the least-cost, security constrained commitment and dispatch of generating resources to serve load in the control area.

In this filing, the Supporting Companies are also committing to work with the Office of the Interconnection and other stakeholders to develop two refinements to the pool energy market, to be filed by the end of this year. Development of these enhancements should not delay Commission acceptance of the proposals made herein. The two changes being developed are:

(1) A multi-settlement system. 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.

(2) An auction of Fixed Transmission Rights (FTRs). An auction will provide an opportunity for market participants to obtain the FTRs beyond those retained by Network and firm Point-to-Point transmission

customers (including those taking service pursuant to existing bilateral contracts), which will enable them to hedge against congestion.

Finally, preliminary provisions have been added to Schedule 1 of the Operating Agreement to address the effects on the PJM Control Area that could result from loss of the Hydro-Quebec transmission line. The problem arises as a result of the tight capacity situation in New England and has been addressed in response to a request for emergency assistance from the New England Power Pool.

2. Transmission Owners Agreement

Under the Transmission Owners Agreement, owners of transmission facilities in the PJM Control area have agreed to provide regional transmission service under non-pancaked rates pursuant to the PJM Tariff and to transfer to the ISO the responsibility for administration of the PJM Tariff and regional transmission planning and operations.

The Transmission Owners Agreement creates an Administrative Committee of transmission owners, which may make recommendations to the ISO, but the Administrative Committee is expressly denied the right to exercise any control over functions and responsibilities transferred to the ISO. The transmission owners may file changes in transmission service rate design and non-rate terms and conditions under Section 205 of the Federal Power Act only if the proposed changes are not rejected by a majority of the PJM Board. If such changes are rejected, the filing must be made under Section 206.

The transmission owners have reserved the same limited rights they reserved in the December 31, 1996 filing to: (1) assure the recovery of their revenue requirement by permitting Section 205 filings to change rate levels; (2) adopt and implement procedures to protect an owner's electrical facilities from physical damage or to prevent injury or damages to persons or property; (3) build, acquire, sell, dispose, retire, merge or otherwise transfer or convey all or any part of an owner's assets; and (4) take such actions as the owner deems necessary to fulfill its obligations under state or federal law to provide safe and reliable service.

Finally, the Supporting Companies are committing to a timetable and process for reexamination of the zonal rate design for network transmission service and for a transition to an alternative rate design. The zonal rate structure was accepted by the Commission in its February 28, 1997 Order.

The effect of these provisions is that the transmission owners have reserved the right to assure the recovery of their revenue requirements by a filing under Section 205 of the Federal Power Act. Changes in the rate design and in non-rate terms and conditions of the PJM Tariff may be filed under Section 205 only if the changes are not rejected by the PJM Board. If they are rejected, such changes may be filed under Section 206. The mechanism for dealing with transmission congestion is left to the Operating Agreement.

3. PJM Tariff

The Supporting Companies are proposing a limited number of changes to the PJM Tariff that is now in effect. Attachment G to this letter highlights the provisions that have been changed. The changes fall into three categories:

- Implementation of locational marginal pricing for transmission congestion;
- Modifications to address matters raised by retail choice; and
- Other minor clarifications and corrections.

Although the changes include refinements to the way network and point-to-point rates are calculated, no change is proposed to the underlying revenue requirements and thus the pool-wide rates themselves will not increase. The changes to the PJM Tariff do no represent restrictions or limitations on the transmission service required to be provided under the Commission's Order No. 888 pro forma tariff.

a) Implementation of Locational Marginal Prices

The PJM Tariff resubmits the basic provisions for locational marginal pricing that were included in the Supporting Companies' December 31, 1996 proposal, but with an expanded and clarified description of the transmission congestion charge and credit process in Attachment K of the PJM Tariff, as discussed above. Included with Attachment K is Schedule 1 of the Operating Agreement, which provides expanded and clarified details on the calculation of locational marginal prices. The other changes related to locational marginal pricing are found in Sections 27, 33.3 and 34.4 of the revised PJM Tariff.

b) Facilitation of Retail Choice

The Supporting Companies propose to facilitate the application of the PJM Tariff in a retail choice environment through a change to the demand charge calculation for network

service in Section 34.1, a change to the point-to-point rate design in Schedules 7 and 8, and supplemental language related to energy imbalances in Schedule 4.

Discussions among the stakeholders highlighted the need for the PJM Tariff to provide both increased monthly flexibility and rate certainty to accommodate retail choice. In response, the Supporting Companies are proposing to revise the demand charge calculation for network service in Section 34.1 from a twelve-month rolling average load ratio share calculation to a stated rate per megawatt-year applied to the actual loads of the network customer in a month. By moving away from the twelve-month rolling average method, the demand charge calculation is more responsive to the changes in load responsibility that are possible with retail choice, especially when customers may change suppliers on a monthly basis. In addition, the stated rate for network service will provide greater rate certainty to suppliers and customers than exists under the load ratio share approach to demand charges because the ultimate transmission rate for a supplier under the load share method will change depending not only on variations in the loads served by a particular supplier but on the loads served by others.

The change in the demand charge method also requires changes to Sections 1.16, 1.47a, 34.2 and 34.3 of the PJM Tariff to eliminate provisions needed to calculate a zonal load ratio share and changes to the Attachment H for each zone to add a network service rate for each zone. The network service rates are based on the same annual revenue requirements and zonal coincident peak loads reflected in the PJM Tariff now in effect for the PJM control area. Attachment I to this letter details the calculation of the rates.

The Supporting Companies are proposing one point-to-point rate for delivery points at the border of the control area and separate point-to-point rates for delivery points in each zone, as set forth in Schedule 7 and 8 and as calculated in Attachment I to this letter. Pool-wide transmission service will still be available at a single, non-pancaked rate. By making this change, all transmission service -- whether network or point-to-point -- to loads within a zone would have the same rate per megawatt-year, which will allow competitors to compete on the basis of their supply efficiency rather than any differences between network and point-to-point rates.

Energy imbalances occur when there are differences between the scheduled and actual deliveries of energy to a load. When there are a number of network customers taking deliveries from the transmission system at a particular point of delivery, as there may be with retail access, the Office of the Interconnection will be able to allocate the energy imbalance in total to the delivery point but not among the individual customers. That

responsibility must fall to the meter operator at the point of delivery. The Supporting Companies have proposed a supplement to Schedule 4 to address this issue.

c) Other Minor Clarifications and Corrections

Through discussions among stakeholders and the experience of taking service under the PJM Tariff, several areas have been identified that require clarification or correction. First among these are the rates for non-firm point-to-point service. As mentioned above, the proposed PJM Tariff establishes "up-to" rates for that service.[5/]

In addition, some stakeholders expressed concern over an apparent inconsistency between the language of Section 3 of the Tariff and the provisions of the ancillary service schedules. To alleviate any confusion, words have been added to clarify that the terms and conditions set forth in the Schedules will control how the ancillary services are to be provided or obtained.

Other clarifications and corrections include the deletion of an erroneous phrase from Schedule 3 and revisions to the defined terms to reflect the replacement of the PJM Interconnection Agreement with the Operating Agreement.

4. Reliability Assurance Agreement

The Reliability Assurance Agreement, which is described in detail in Attachment C, is an agreement among the load serving entities within the PJM control area to plan and make available capacity resources to serve loads within the control area, to provide assistance to other parties during emergencies and to coordinate the planning of their capacity resources. The agreement will be administered through a committee of representatives of each party, though all of the day-to-day functions will be delegated to the Office of the Interconnection (including the admission of new parties and the data collection, analyses, calculations and monitoring necessary to implement the agreement).

The Reliability Assurance Agreement builds upon the tradition of reserve sharing within PJM but includes changes to accommodate increased retail competition. The principal

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[5/] Although the Commission has linked the up-to rates for non-firm point-to-point service with PECO Energy Company's congestion proposal, see Pennsylvania-New Jersey-Maryland Interconnection, Docket No. EL97-38-000, 79 FERC ¶ 61,272 (1997), slip. op. at 5, the Supporting Companies are proposing up-to rates in response to the concerns about capacity hoarding.

change proposed is to the lead times for establishing the obligations of the parties to the agreement. In the past, the members of PJM committed two years in advance of a planning period to supply a certain level of capacity. That two-year advance commitment will phase away under the proposed agreement as more and more retail load within the control area gains the ability to choose power suppliers. Similarly, determination of whether the parties in fact supplied the required amount of capacity previously was performed annually. The Reliability Assurance Agreement would make that determination on a monthly basis, which is consistent with the ability of customers to change suppliers on short notice.

Of course, because the retail access programs themselves are still in development, the Reliability Assurance Agreement proposed here should be seen as a work-in-progress that, as experience is gained, may require further refinement.

## VI. Compliance with the Commission's Filing Requirements

### List of Documents Submitted

A list of documents submitted is provided as Attachment A.

### Requested Effective Date and Request for Waiver

The Supporting Companies request an August 1, 1997 effective date. The Supporting Companies request a waiver of the Commission's notice requirements so as to permit the filing to become effective on the first day of a calendar month.

### Persons to Whom Communications Should Be Addressed

A list of persons to whom communications should be addressed is provided as Attachment J. Waiver of 18 C.F.R. § 385.203(b)(3) is requested so as to permit inclusion on the service list of two names for each of the filing utilities together with the President of PJM Interconnection, L.L.C. and outside counsel for a number of the Supporting Companies.

### List of Persons to Whom the Filing Is Being Sent

A list of persons to whom the filing is being sent is provided as Attachment K.

Brief Description of the Rate Schedule Change
and a Statement of the Reasons
for the Rate Schedule Change

This letter and its attachments provide a description of the changes and the reasons for the changes.

Cost Support

Support for the rate changes in the PJM Tariff is provided in Attachment I. The network service rates are based on the same annual revenue requirements and zonal coincident peak loads reflected in the tariff now in effect.

Federal Register Notices

Separate notices with respect to the Section 205 and Section 203 filings are included as Attachment L hereto. A copy of each on a diskette in Word Perfect 5.1 format is also enclosed.

Request for Waiver

The Supporting Companies request a waiver of any of the provisions of 18 C.F.R. § 35.13 and 18 C.F.R. Part 33 not satisfied by the filing. Such materials are not necessary to evaluate the filing.

Respectfully submitted,

ATLANTIC CITY ELECTRIC COMPANY
BALTIMORE GAS AND ELECTRIC COMPANY
DELMARVA POWER & LIGHT COMPANY
JERSEY CENTRAL POWER & LIGHT COMPANY
METROPOLITAN EDISON COMPANY
PENNSYLVANIA ELECTRIC COMPANY
PENNSYLVANIA POWER & LIGHT COMPANY
POTOMAC ELECTRIC POWER COMPANY
PUBLIC SERVICE ELECTRIC AND GAS COMPANY

By _____
Counsel

cc: All Parties in Docket Nos. OA97-261-000 and ER97-1082-000
All customers under PJM Tariff
All Members of PJM Interconnection, L.L.C.

**Attachment A**

## LIST OF DOCUMENTS SUBMITTED

1. Transmittal Letter
2. List of Documents Submitted (Attachment A)
3. Compliance with the Criteria for an Independent System Operator (Attachment B)
4. The Maintenance of Reliability (Attachment C)
5. Letter dated May 29, 1997 from Samuel C. Thomas to the Commission (Attachment D)
6. Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., dated as of June 2, 1997 (Attachment E)
7. Transmission Owners Agreement dated as of June 2, 1997 (Attachment F)
8. PJM Open Access Transmission Tariff (PJM Tariff) (Attachment G) together with a comparison of the revised PJM Tariff to the PJM Tariff now in effect
9. Reliability Assurance Agreement Among Load Serving Entities in the PJM Control Area dated as of June 2, 1997 (Attachment H)
10. Detailed Calculation of Rates (Attachment I)
11. List of Persons to Whom Communications Should be Addressed (Attachment J)
12. List of Persons to Whom Copies of the Filing Is Being Sent (Attachment K)
13. Federal Register Notices (Attachment L)

**Attachment B**

## COMPLIANCE WITH THE CRITERIA FOR AN INDEPENDENT SYSTEM OPERATOR

PJM Interconnection, L.L.C. (LLC), as structured in the Supporting Companies' filing, features an independent board of directors, an Office of the Interconnection that will carry out the day-to-day operation of the LLC under the supervision and oversight of the board of directors, and a policy-setting Members Committee in which voting is organized by sectors. As discussed more fully below, the LLC meets all eleven of the Commission's principles for an Independent System Operator (ISO). Each of the Commission's principles, as clarified in Atlantic City Electric Co., et al., 77 FERC ¶ 61, 148 (1996) is summarized below in a numbered paragraph, followed by an explanation of how the Supporting Companies' proposal complies with the principle.

1. **Governance must be fair and non-discriminatory; the ISO must be independent of any individual market participant, or class of participants; there must be no control of decision-making by any class of participants.**

The Supporting Companies' filing uses the Operating Agreement of the PJM Interconnection, L.L.C. as the defining document establishing an ISO. The Operating Agreement retains the same independent Board of Managers (PJM Board) that is currently in place, and continues its final responsibility for supervision and oversight of the personnel who comprise the Office of the Interconnection. The Office of the Interconnection, in turn, will have day-to-day responsibility for reliably operating the Members' bulk power facilities, for administering the PJM Tariff on behalf of all transmission users in a fair and non-discriminatory manner, and for operating an efficient spot energy market.

In addition, the Operating Agreement establishes a sector-based Members Committee with certain limited responsibilities. These responsibilities are: (1) provide advice and recommendations to the PJM Board and the Office of the Interconnection, (2) elect the PJM Board, (3) amend the Operating Agreement and its Schedules through a Section 205 filing with the Commission, and (4) terminate the Operating Agreement. All affirmative actions of the Members Committee require a two-thirds vote of the sectors using a voting protocol that prevents any sector from controlling or vetoing actions, and that gives Members voting rights within a sector without regard to size.

The above structure protects the independence of the ISO in two ways. First, the sector voting on the Members Committee, in and of itself, meets the Commission's "no control" requirements for an ISO as expressed in prior orders. Second, the combination of an independent Board of Managers and the limitations on the Members Committee's responsibilities will ensure that the Office of Interconnection can perform its operating responsibilities without undue influence from the Members, individually or as a whole.

The PJM Board will be an independent board of directors, in that no member of the PJM Board will be selected to represent a particular industry sector. Instead, they will be selected by the Members as a whole, from a slate presented by an independent consultant. OA §7.1. The candidates on the slate will be required to have certain specified areas of expertise relevant to the operation of an ISO. Specifically:

> Of the seven Board Members, four shall have expertise and experience in the areas of corporate leadership at the senior management or board of directors level, or in the professional disciplines of finance or accounting, engineering, or utility laws and regulation. Of the other three Board Members, one shall have expertise and experience in the operation or concerns of transmission dependent utilities, one shall have expertise and experience in the operation or planning of transmission systems, and one shall have expertise and experience in the area of commercial markets and trading and associated risk management.

OA §7.2. The Operating Agreement also specifies that members of the PJM Board shall not have had any employment relationship with any member of the LLC for a period of at least five years prior their election to the PJM Board, and shall not have a significant current business relationship with any member.

The PJM Board "shall supervise and oversee all matters pertaining to the Interconnection and the LLC." OA §7.7. The President of the LLC, who is the chief executive officer of the corporation, reports to the PJM Board, and the President in turn exercises management oversight over the staff of the Office of the Interconnection. On all day-to-day operational matters, the members of the LLC will have a purely advisory relationship with the PJM Board and the Office of the Interconnection.

The PJM Board has emphasized the requirement that its independence not be compromised and toward this end the following PJM Board rights and responsibilities have been specifically preserved in the Operating Agreement:

(1) The PJM Board will have complete independence in managing the affairs of the Office of Interconnection. Except for amendments to the Operating Agreement and related Schedules (which are subject to this Commission's Section 205 review), the Members Committee's role will be advisory.

(2) The PJM Board will have the right to propose amendments to the Operating Agreement and related Schedules under Section 206, the right to oppose Section 205 and 206 filings by the Members Committee and individual Members, and the right to submit its own independent comments to federal and state regulatory agencies on any matters relevant to the Interconnection.

(3) The PJM Board will have final authority to establish the capital and operating budgets of the LLC. The Operating Agreement establishes a Finance Committee that

includes Member representation to review and comment upon drafts of the budget, but the Finance Committee's role is solely advisory to the Board.

For purposes of participating in the governance of the LLC, the members are organized into a Members Committee. OA §8.2. Voting on the Members Committee is by sectors, as follows: Generation Owners, Other Suppliers, Transmission Owners, Electric Distributors, and End-Use Customers. With the exception of a special provision for generation and transmission cooperatives and municipal joint action agencies, members that are corporate affiliates or otherwise related entities are considered a single member, will have one vote, and must select a single sector in which to vote.[1/] A generation and transmission cooperative or municipal joint action agency and each of its members that are members of the LLC may each have a vote, but only if they participate in the Electric Distributors sector.

Each sector will be entitled to one vote (Sector Vote), divided in proportion to the affirmative and negative votes cast in the sector. A majority of more than two-thirds of the Sector Votes is needed to pass any motion. For example, if just over two-thirds of the members in each of the sectors vote in favor of a motion, the motion would carry. Similarly, if all of the members in three sectors vote in favor of a motion, they would need just over a third of the votes in one of the other sectors to be in the affirmative for the motion to pass.

Under this form of sector voting, each major segment of the industry is assured a say in the actions of the Members Committee, no one sector can force the Members Committee to act, and no one sector can block the Members Committee from acting.

Finally, the Operating Agreement provides that Members sharing a common interest may form a User Group. In addition, the "Members Committee shall create a User Group composed of representatives of *bona fide* public interest and environmental organizations that are interested in the activities of the LLC and are willing and able to participate in such a *User Group.*" OA §8.7(b). The User Groups provide a formal means outside of the normal governance procedures for matters to be brought before the Members Committee or, under certain conditions, to the PJM Board.

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[1/] The limitation to select a single sector is without regard to the breadth of a member's participation in the market. The Supporting Companies' proposal to utilize sector voting is the product of compromise with other stakeholders, even though it is not the preferred approach of the Supporting Companies. They remain concerned that limiting each participant to a vote in a single sector may compromise the ability of some members to represent their interests in all of the market segments in which they participate, especially in light of the restrictions imposed by the Commission's Code of Conduct regulations. Notwithstanding their reservations, the Supporting Companies support the proposed sector-based voting structure as part of a balanced proposal to achieve the broadest possible degree of consensus. They reserve the right to work with other members of the LLC to improve the voting structure.

**2. The ISO must be economically independent; it must have no financial interest in the economic performance of any market participant; it must adhere to strict conflict of interest standards; and transmission owners must not dictate its day-to-day operations.**

PJM Interconnection, L.L.C. fully complies with this principle. The management and staff of the Office of the Interconnection are all employees of the LLC, which as demonstrated above is not dominated by any industry participant or sector, and reports to an independent PJM Board, not the Members. The Office of the Interconnection has adopted strict conflict of interest standards consistent with the provisions of §10.1 of the Operating Agreement. Under the governance provisions of the Operating Agreement as described above, the members of the LLC that own transmission facilities are not able to dictate the day-to-day operation of the ISO.

**3. The ISO must provide open access to the transmission system at non-pancaked rates under a single grid-wide tariff.**

The PJM Open Access Transmission Tariff (PJM Tariff) filed on December 31, 1996, as modified by this filing, will continue in place. The Tariff provides open access transmission service throughout the PJM Control Area in accordance with the terms of the *pro forma* tariff as specified in Order 888, with only such modifications as necessary (1) to adopt the *pro forma* tariff to the requirements of providing transmission service on a joint, grid-wide basis across a control area that encompasses the transmission systems of at least eight transmission owners, (2) to reflect the use of locational marginal pricing to address transmission congestion, and (3) to facilitate retail choice.

**4. The ISO must have primary responsibility for ensuring short-term reliability of grid operations; it must comply with NERC and MAAC guidelines; it must oversee maintenance of transmission facilities.**

The Office of the Interconnection is responsible for the day-to-day operation of the PJM Control Area, and in doing so must "comply with MAAC and NERC operation and planning standards, principles and guidelines." OA §10.4.(iv). As described above, the Office of the Interconnection functions under the supervision and oversight of the PJM Board, whose "primary responsibility" includes "the safe and reliable operation of the Interconnection." OA §7.7(i) (emphasis supplied).

The Office of the Interconnection will also have plenary powers to deal with emergencies in the PJM Control Area. As stated in the Operating Agreement, the duties and responsibilities of the Office of the Interconnection include:

> Monitor the operation of the PJM Control Area, ensure that appropriate Emergency plans are in place and appropriate Emergency drills are conducted, declare the existence of an Emergency, and direct the

operations of the Members as necessary to manage, alleviate or end an Emergency.

OA §10.4(xx). Correspondingly, the members of the LLC are obligated under the Operating Agreement to:

> Comply with the requirements of the PJM Manuals and all directives of the Office of the Interconnection to take any action for the purpose of managing, alleviating or ending an Emergency, and authorize the Office of the Interconnection to direct the transfer or interruption of the delivery of energy on their behalf to meet an emergency and to implement agreements with other Control Areas interconnected with the PJM Control Area for the mutual provision of service to meet an emergency.

OA §11.3.1(e).

The Office of the Interconnection is also tasked with oversight of transmission maintenance. See OA Schedule 1, §1.9.2. Thus, the Supporting Companies' proposal meets all the requirements of ISO principle no. 4.

**5. The ISO must have control over the operation of the interconnected transmission facilities in the PJM region.**

The PJM Interconnection Association Office has directed the operation of the interconnected transmission facilities in the PJM Control Area as part of a tight power pool for over 50 years. This will continue to be the case under the Supporting Companies' proposal, under which the PJM Interconnection has become the Office of the Interconnection. The Office of the Interconnection brings forward all of the control over the interconnected transmission facilities that has enabled the PJM Interconnection to operate those facilities as a single control area. The Office of the Interconnection will do so, however, under the oversight and governance provisions spelled out in the Operating Agreement and summarized above. Thus, the Operating Agreement has transformed the PJM Interconnection Association Office into the Office of the Interconnection as the operating arm of an Independent System Operator.

**6. The ISO should be empowered to identify and take operational actions to relieve constraints; it should do so under trading rules established by the governing body; the trading rules should promote efficient trading.**

As the Commission is aware from its recent Technical Conference, a key feature of the Supporting Companies' proposal is the use of locational marginal pricing for transmission congestion. This proposal is based on the Office of the Interconnection having the authority and ability to dispatch generation out of merit order as necessary to alleviate constraints on the transmission system in the PJM Control Area. Indeed, operationally the

PJM Interconnection Association Office has been carrying out this dispatch function for many years. The difference under the Supporting Companies' proposal is that the Office of the Interconnection will use the prices of the generation under its dispatch to establish locational marginal prices for energy in the PJM Control Area, with transmission congestion costs established by the differences in locational marginal prices brought about by transmission congestion.

The Supporting Companies' locational marginal pricing proposal and its underlying trading rules are set forth in Schedule 1 to the Operating Agreement, and have been discussed at length in previous submissions to the Commission and at its recent Technical Conference. Suffice it to note here that the Operating Agreement and its Schedules constitute a comprehensive set of "trading rules" for the guidance of the Office of the Interconnection, and that these rules - through the use of a competitive energy market and the resulting locational marginal prices for energy and transmission congestion - will promote efficient trading in the PJM Control Area.

**7. The ISO should have incentives for efficient management and administration, and should procure needed services in an open, competitive market.**

The PJM Board, an independent body charged with supervising and overseeing the implementation and administration of the Operating Agreement, supervises the staff and management of the Office of the Interconnection. The PJM Board has full authority to take whatever actions it deems appropriate to ensure that the Office of the Interconnection provides efficient management and administration for the PJM Control Area, and can direct the Office of the Interconnection to obtain any services relating to the operation of the PJM Control Area on a bidding or other competitive basis as it deems appropriate. Consistent with the independence of the PJM Board, the Operating Agreement does not mandate specific management or administration incentives. This will be up to the PJM Board, in fulfillment of its obligation to supervise and oversee the Office of the Interconnection.

The LLC will also be able to procure from an open, competitive market certain ancillary services it needs to maintain reliable and efficient operations.

**8. Pricing for transmission and ancillary services should promote efficient use of and investment in generation, transmission and consumption; pricing should send appropriate price signals.**

As demonstrated in the report from Dr. Hogan submitted with the Supporting Companies' December 31, 1996 filing, and in the filings of the Supporting Companies and others in support of both that filing and the Supporting Companies' initial restructuring filing last July, and as discussed at the Commission's recent Technical Conference, the Supporting Companies' locational marginal pricing proposals will promote efficient use and investment in generation, transmission and consumption, and will send appropriate price signals.

**9. The ISO should operate an OASIS.**

The PJM OASIS has been up and running for some time, and will continue to be operated by the Office of the Interconnection.

**10. The ISO should coordinate with neighboring control areas.**

Under the Operating Agreement, the Office of the Interconnection is required to:

> Direct the operation and coordinate the maintenance of the bulk power supply facilities of the Interconnection with such facilities and systems of others not party to this Agreement in accordance with agreements between the LLC and such other systems to secure reliability and continuity of service and other advantages of pooling on a regional basis.

OA §10.4(vii).

In addition, the Office of the Interconnection has been directed to work with other control areas to resolve conflicts or incompatibility in scheduling deadlines or other procedures. See Section 1.7.6(b) of Schedule 1 to the Operating Agreement.

**11. The ISO should include an alternate dispute resolution process.**

The Supporting Companies' proposal includes two procedures for dispute resolution. In addition, the members will also be subject to the dispute resolution procedures in the Tariff.

For all disputes under the Operating Agreement other than those relating to the hourly scheduling and dispatch functions of the Office of the Interconnection, the members of the LLC will be obligated to use the PJM Dispute Resolution Procedures, which are set forth in detail in Schedule 5 to the Operating Agreement. These procedures will also apply to disputes under the related Reliability Assurance Agreement and the Transmission Owners Agreement.

Disputes relating to the selection, scheduling or dispatch of resources in the PJM Interchange Energy Market, or to meet the operational requirements of the PJM Control Area, will be subject to the hourly operational dispute resolution procedures specified in §1.8.2 of Schedule 1 to the Operating Agreement. These short-term procedures recognize that in order for the Office of the Interconnection to exercise effective control over the PJM Control area, the members of the LLC must be obligated to "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." OA §1.8.2(a). Moreover, this procedure recognizes that the Office of the Interconnection does not have the resources or the assets to deal with assertions that it should

reconstruct the dispatch for a past hour to correct for asserted errors, and as a result of such reconstruction should provide compensation to market participants for asserted errors in the hourly scheduling and dispatch process. Rather, disputes as to hourly scheduling and dispatch decisions should focus on identifying and avoiding any mistakes, or correcting any errors in dispatch procedures or algorithms, on a timely and prospective basis.

**Attachment C**

# THE MAINTENANCE OF RELIABILITY

## OVERVIEW

The Supporting Companies are committed to maintaining the reliability of the PJM control area while accommodating retail choice programs that are being developed and considered in the region. Under the Supporting Companies' proposal, reliability will be assured primarily through the Reliability Assurance Agreement, which is discussed in this Attachment. Other ways in which reliability will be encouraged are (i) establishing clear obligations for electric distributors under the Operating Agreement and (ii) centralizing through the Office of the Interconnection direction during emergencies, the coordination of generation and transmission maintenance, least-cost security constrained generation dispatch through a competitive energy market and the operation of the transmission system.

The PJM Interconnection Agreement for over two decades has included provisions for pool-wide capacity planning, reserve sharing, installed capacity commitments and deficiency charges. These provisions have been and continue to be integral to maintaining reliable service within the PJM Control Area. The Reliability Assurance Agreement builds upon that tradition while providing suppliers with the flexibility they will need as wholesale and retail competition increase. To do this, the Reliability Assurance Agreement:

- Retains a two-year ahead forecast of the PJM Control Area capacity needs;
- Provides a transition from a two-year to a three-month advance commitment of load serving entities to satisfy their share of the forecast PJM Control Area capacity needs;
- Changes from an annual to a monthly allocation of the PJM Control Area capacity requirement to load serving entities;
- Creates incentives for compliance and establishes administrative procedures to ensure the adequacy of capacity resources; and
- Relies upon the Office of the Interconnection to perform key tasks, including the screening of potential parties to the agreement, the calculation of the requirements imposed by the agreement and the monitoring of the parties' compliance with those requirements.

The parties to the Reliability Assurance Agreement will be all load serving entities within the PJM Control Area. By being in the control area, all such entities will share in the benefits of pooling, which include participation in the energy market established by the Operating Agreement and sharing reserves.

DISCUSSION

### A. The Benefits of Reserve Sharing and Joint Planning Are Preserved

The Reliability Assurance Agreement continues the practice of sharing capacity reserves and coordinating planning by the parties to the agreement. All customers within the PJM Control Area will benefit because (i) the overall level of capacity resources required is lower than if reliability requirements were determined and satisfied on an individual supplier basis, and (ii) the capacity resources of the parties are committed to support system operations, which diversifies and spreads risks through a larger portfolio of resources.

### B. Two-Year Forecast of Pool Requirements

Consistent with past practice within the PJM Pool, the parties to the Reliability Assurance Agreement, working through the Office of the Interconnection, will establish a forecast of the pool-wide need for capacity (the "Forecast Pool Requirement"). Although the Forecast Pool Requirement will be projected for each of the next five planning periods,[1/] it will become binding for a specific planning period with the projection two years in advance of that planning period. The method that will be used to develop the Forecast Pool Requirement is set forth in Schedule 4 of the Reliability Assurance Agreement. Although the methodology has been refined, it reflects the past practices of the PJM Pool.

The Forecast Pool Requirement serves three purposes. First, it provides information to the marketplace and to regulators about the future capacity needs of the PJM Control Area. That information, coupled with the capacity obligations and compliance incentives described below, will provide a basis for determining the need for additional capacity resources in time for those resources to be permitted, sited and constructed.

Second, the Forecast Pool Requirement provides the basis for advance planning and commitment by the parties for capacity resources adequate to supply the operative reliability needs of the PJM Control Area. Third, the Forecast Pool Requirement supports after-the-fact capacity accounting which measures whether the parties have satisfied their commitment to provide the required capacity resources. These roles of the Forecast Pool Requirement are described further below.

### C. Mitigation of Shifts in Capacity Obligations

In the past, under the PJM Interconnection Agreement, the obligations to plan for capacity needs and to have the needed capacity in place during a planning period fell to the eight members of PJM and through them to their wholesale customers. As a result, the overall requirements for the pool were allocated to the individual members, with their customers reaping the benefits of the members' load diversity and resource characteristics.

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[1/] A planning period begins on June 1 and ends on the following May 31.

While it is possible (and would be simpler administratively) to allocate the pool-wide requirements directly to individual parties to the Reliability Assurance Agreement, doing so would cause customers in some regions of the Control Area to see sudden, large increases in their capacity obligations. To guard against such a result, the Reliability Assurance Agreement relies on zones, which reflect the current service territories of the eight large utility members of PJM, as a transition mechanism.

Prior to the date when (i) all states within the PJM Control Area and the District of Columbia have adopted retail access programs for end-use electric customers and (ii) more than 85 percent of the end-use customers within the PJM Control Area have a choice for their electric supplier (the Pool-Wide Choice Date), zones would be used in the determination of both (a) the obligation to plan and commit for future capacity resources (the Forecast LSE Requirement) and (b) the obligation to have the resources in place during the planning period (the Accounted-For Obligation).

Prior to the Pool-Wide Choice Date, the Forecast LSE Requirement will be determined by first allocating the Forecast Pool Requirement to each of the zones based on the forecast of load for the zone (the "Forecast Zone Requirement"). The zonal allocation is then further allocated to the parties serving loads within that zone based on forecast of loads, as described further below. The Forecast LSE Requirement of a party will thus be the sum of its requirements from each zone. After the Pool-Wide Choice Date, the Forecast LSE Requirement of a party will be determined by allocating the Forecast Pool Requirement directly to the parties based on their forecast of loads in the PJM Control Area.

Similarly, prior to the Pool-Wide Choice Date, the Accounted-For Obligation will be determined by allocating the Forecast Zone Requirement to the parties serving loads within the zone based on the parties' actual loads. After the Pool-Wide Choice Date, the Accounted-For Obligation will be determined by allocating the Forecast Pool Requirement to the parties based on their loads in the PJM Control Area.

### D. Changing Time Horizons for Planned and Installed Capacity Obligations

In the past, the Forecast LSE Requirement was fixed two years in advance. The Reliability Assurance Agreement moves toward a three-month in advance (or shorter) determination of the Forecast LSE Requirement as more and more load within the Control Area has a choice of suppliers. After the Pool-Wide Choice Date, the Forecast Pool Requirement (which is fixed two years in advance) will be allocated to the parties based on their load forecasts three months in advance (or shorter). At that point, a party will be required to demonstrate that its plans for capacity resources are adequate to meet its Forecast LSE Obligation.

Similarly, in the past the Accounted-For Obligation for installed capacity was determined for the entire planning period. The Reliability Assurance Agreement changes to a monthly obligation for installed capacity which is not forced out-of-service (unforced capacity) based on the monthly load.

Both of these changes respond to the increased need for flexibility that comes from the potential for customers to change suppliers on relatively short notice.

### E. Incentives for Compliance and a Safety Net for Capacity Adequacy

With the shortened time for establishing the Forecast LSE Obligations of the parties, there is concern that there will be inadequate time to secure the required capacity resources. The PJM Interconnection Agreement relied on deficiency charges to provide incentives for compliance with the obligations under that agreement. The Reliability Assurance Agreement continues that approach but with provisions designed both to provide flexibility and to prevent repeated "leaning" by parties who fail to meet their reliability obligations.

Schedule 11 of the Agreement sets out the deficiency charge that will be imposed on a party for failure to meet the greater of its Forecast LSE Obligation or its Accounted-For Obligation.

If, despite the contractual commitment and despite the potential deficiency charges, the parties to the agreement determine that the committed and planned capacity resources may be inadequate to assure reliability within the PJM Control Area, Schedule 6 provides for the possibility of a joint request for proposals to make additional capacity available.

### F. Role of the Office of the Interconnection and Governance

The Reliability Assurance Agreement incorporates the planned capacity commitments, reserve sharing and installed capacity obligations of the former PJM Interconnection Agreement and the successor Operating Agreement. Under those superseded agreements, the Office of the Interconnection performed all of the reliability-related data collection and computations. The Reliability Assurance Agreement retains the Office of the Interconnection in that role, but with greater independence of action, as recognized in Schedule 15 of the Reliability Assurance Agreement.

The parties to the Reliability Assurance Agreement will work together through the Reliability Committee. Each party will have both an individual vote and a weighted vote based on its load within the PJM Control Area in the most recent month, but, to prevent dominance by any two large parties, at least three parties must dissent to block action by the Reliability Committee and no party may have more than 25 percent of the weighted vote. This bicameral form of governance will protect the interests of smaller parties through their individual votes while also recognizing the varying sizes of the parties through their weighted votes in much the same way as the United States Senate and House reflect the interest of the states.



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Re: Technical Conference In
Docket Nos. OA97-261-000
and ER97-1082-000

Dear Messrs. Cannon and O'Neill:

At the May 9, 1997 Technical Conference, representatives of the FERC Staff asked whether the number of locations at which locational marginal prices ("LMPs") would be identified under the Supporting Companies' proposal might create unmanageable complexities for market participants.[1] The following discussion is intended to respond to those questions and to demonstrate that any concerns about the number of pricing locations are misplaced and that the Supporting Companies' proposal is practical and can be readily implemented. Locational marginal pricing is actually the simplest approach for dealing with the dynamic realities of constraints on a free-flowing electrical grid. Moreover, if transmission constraints in the PJM Control Area are geographically predictable and will result in only a few, stable pricing "zones," as certain opponents of the Supporting Companies' proposal contend, the use of locational

[1] Under the proposal, the PJM Independent System Operator (ISO) would track and calculate prices for more than 1600 different buses located throughout the PJM control area and at the interconnections with surrounding control areas.

marginal pricing would be no more complex than zonal pricing is perceived to be, and market participants would themselves be able to implement various simplified zonal approaches while preserving the efficiency benefits, flexibility and accuracy of locational marginal pricing.

This discussion also explains why so-called "zonal" approaches are not simple once their full implications are understood. Zonal approaches require complex pricing rules for dealing with the inevitable intra-zonal congestion. Once defined, zones are inherently inflexible and difficult to change, and this rigidity can result in commercially significant cost shifts between market participants, with small consumers the most likely to be harmed.

Finally, this letter explains that the motive behind some of the efforts to defeat locational pricing apparently is to undermine or eliminate the ability of the PJM Office of the Interconnection to coordinate an efficient spot market. Without an open spot market, market participants would be forced to trade through the services offered by the CCEM participants, with a resulting loss in efficiency and higher costs to consumers.

## Discussion

1. The PJM ISO Can Readily Track and Calculate Many Locational Prices.

At the Technical Conference, representatives of the PJM Office of the Interconnection (the "OI") indicated their readiness to implement locational marginal pricing for a system with more than 1600 busses. Their testimony establishes that the OI is capable of implementing this system within a reasonable period following FERC authorization. This readiness is the result of the OI's extensive preparations in the months preceding the Supporting Companies' December 31, 1996 *pro forma* tariff filing. In fact, in the months prior to the Commission's Order of February 28, 1997, directing PJM to implement the PECO pricing system on an interim basis only, the OI had been calculating hourly locational prices at over 1600 busses in real time in order to test the software systems required to implement locational pricing. These efforts were put aside following the February 28 Order. Once the Commission authorizes the use of locational pricing, the OI is prepared to transition from the PECO pricing mechanism and implement locational pricing within a short period.

2. The Significance of Transmission Congestion.

*The* opponents of locational pricing have made two mutually inconsistent claims about the supposed "complexity" of the Supporting Companies' proposal. On the one hand, they assert that market participants cannot handle the large number of different prices that could result from

locational pricing. They further assert that any system of tradable transmission rights, such as the Fixed Transmission Rights ("FTRs") proposed by the Supporting Companies to hedge the variability of congestion costs, would suffer from a lack of liquidity, because the right associated with any pair of busses would be unique and hence not fungible or tradable with the right associated with another pair of busses. On the other hand, the opponents of the use of LMPs assert that a locational pricing approach is not necessary for an efficient market because congestion is a minor and geographically isolated problem. In making this assertion, opponents contend that differences in locational prices are either non-existent across broad regions or zones, or they assert that these locational differences are so rare or so small as to be commercially insignificant. These "large and complex" and "minor and isolated" claims are obviously inconsistent, and are unfounded as well. The reality is that congestion can be as dynamic and changeable as the dynamic and changeable nature of operating conditions across a large integrated electric system, and that the Supporting Companies' proposal provides a workable and efficient procedure for dealing with this reality.

While the actual degree of congestion that will occur in the PJM control area as the commercial market evolves is an empirical matter that is subject to substantial uncertainty, a number of relevant facts are well known -- and glossed over by PECO and other opponents of locational marginal pricing. It is clear that transmission constraints have been a persistent phenomenon across several major PJM interfaces. These constraints require PJM system operators to dispatch generation out of merit order, with resulting locational differences in the marginal costs of serving loads within the PJM region. It is also clear that local distribution companies within the PJM control area have been required to redispatch local generation to relieve congestion within their own service areas. It is reasonable to expect that the pressures of a competitive market will intensify the desires of market participants to schedule flows from low-cost generation in unconstrained regions to loads that tend to be concentrated in constrained regions. It is also reasonable to believe that future congestion will be at least as intense and frequent as it has been in the recent past and probably more so. Moreover, while upgrades and enhancements to the transmission system have reduced congestion levels from what they were a few years ago, conditions giving rise to those historically higher levels of congestion could *reoccur as system* load and other configurations change over time. *Finally, as the example I* presented at the Technical Conference demonstrated, one transmission constraint across a single line can result in multiple locational prices at various busses on the transmission grid. Indeed,

Dr. Tabors acknowledged at the Technical Conference that his zonal approach would result in the same number of different pricing zones for the example presented.

PECO's statements at the Technical Conference imply that the only costs associated with congestion are the extra payments that the system operator must pay to those generators dispatched out of merit to serve loads in constrained areas during congestion. As Professor Hogan explained in his Report submitted with the Supporting Companies' December 31 filing, however, under the PECO pricing system all loads in the unconstrained regions will have to pay a clearing price -- the "unconstrained" clearing price -- that is higher than the locational price that would apply in these areas under the Supporting Companies' proposal. This broadly-applied higher price is a real impact of congestion that will far outweigh the additional payments to constrained-on generators, yet PECO overlooks these additional payments when it asserts that the cost impacts of congestion in the PJM region are insignificant. For example, in the example I presented at the Technical Conference, the unconstrained clearing price that would be paid by all loads across the region under the PECO approach would be thirty dollars per megawatt hour ($30/MWh). In contrast, under the Supporting Companies' proposal, the locational price for loads at Bus B in my example is only $21.14, while the locational price for loads at Bus C is $23.51.[2] Moreover, the PECO pricing system assumes that only the out-of-merit constrained-on generator would be paid a bid price reflecting the higher cost of serving load in the constrained area, whereas in reality it is evident that in the PECO system all generators in the constrained area would have an incentive to bid prices up to the level of the marginal out-of-merit unit. Arguments by PECO representatives and others that today's levels of congestion are a relatively insignificant financial matter ignore these pricing issues and are therefore misleading.

3. The Supporting Companies Proposal is Both Workable and Flexible.

It is significant that the Coalition for a Competitive Electricity Market ("CCEM") and its expert witness Dr. Richard Tabors have tacitly accepted many of the underlying concepts of locational marginal pricing. Notwithstanding their rhetoric about unbundling transmission from energy, CCEM and Dr. Tabors apparently agree with the Supporting Companies that, for

[2] Note that under PECO's approach, the cost of congestion is defined as the difference between the unconstrained clearing price paid to most generators and the bid price that must be paid to constrained-on generators in the constrained areas. In the example I used, this difference would be zero, meaning that PECO would report no congestion costs for a case that clearly has a constraint that affects prices at several busses. This partly explains why PECO assumes that "congestion costs" are small.

example, the spot price of transmission is derived directly from the difference in spot prices for energy at the withdrawal and injection locations for which transmission service is provided. Hence the prices of transmission and energy -- and their respective markets -- are conceptually linked, even though market participants are free to arrange separate trades for transmission or energy. CCEM and Tabors also agree that the price of transmission congestion should be the difference in these locational energy prices. CCEM and Tabors further agree that, to facilitate efficient trading, market participants must be able to trade transmission rights whose market value is derived directly from market participants' forecasts of the differences in locational prices upon which congestion charges are based.[3] These economic propositions are the essence of the Supporting Companies' proposal.

CCEM seeks to differentiate its proposal by asserting that the degree of congestion in the PJM system and the resulting differences in locational prices can be safely simplified with no significant loss to efficiency or fairness if locational pricing is highly aggregated. CCEM and Dr. Tabors claim that busses can be aggregated into a few easily identifiable "zones," across the interfaces on which there will be congestion and locational price differences, but within which congestion rarely if ever occurs such that there will be essentially no locational price differences.

The example I presented at the Technical Conference, which shows how locational prices can vary at many locations from even a single line constraint, by itself demonstrates that the CCEM/Tabors assumptions are flawed. Nevertheless, assume that transmission constraints could be reliably and accurately predicted, and that there will be only a few such constraints binding across a few interfaces. Suppose further, as Dr. Tabors claims, that within large geographic regions or "zones" in PJM, these constraints will result in locational prices that are essentially identical (or whose differences will be deemed to be commercially insignificant by market participants). Assume further that these conditions will be stable over long periods (one to three years, according to Dr. Tabors). How would locational pricing work if all this were true?

Under these assumptions, the asserted complexity of the Supporting Companies' proposed bus-by-bus locational pricing would disappear. Dozens or even hundreds of busses within each "zone" would in that event have the same or essentially the same locational price. The Office of the Interconnection could post these common "zone-wide" locational prices on its

[3] Hence, CCEM must also concede that fixing the price of transmission in advance by purchasing transmission rights requires that market participants predict congestion costs that cannot be known until after the dispatch hour when actual congestion is known.

OASIS, and traders at every bus in the zone would be confident that the posted prices would be relevant to their specific bus-to-bus transactions. Moreover, every FTR from any of these numerous busses in a zone to any of the numerous busses in another zone would all have virtually the same dollar per MW value, since the locational price differences between any bus in one zone to any bus in the other zone would be essentially the same whatever the bus. Indeed, traders should be indifferent to which specific FTRs they held from any bus in one zone to any bus in another, since under the assumed conditions that underlie the CCEM/Tabors proposal, all FTRs between the busses in the two zones would be equally valuable as a hedge against congestion charges.

From a trading perspective, each of these potentially hundreds of bus-to-bus rights would be fungible, resulting in a highly liquid secondary trading market for FTRs. In this secondary market, any market participant, including non-firm transmission customers, would be able to purchase FTRs at market prices reflecting the participants' expectations of the stream of congestion cost credits associated with each FTR. No approval by the ISO would be necessary for such market trades, since the traded FTRs would be from the set already determined to be simultaneously feasible.[4]

Moreover, even if, under the assumed conditions, there were minor differences in prices between busses within the same zone, marketers or other participants would be free to establish their own "network trading" systems within the zones, providing congestion-free pricing for their customers for a fixed price sufficient to cover the risks of the presumably small congestion charges that actually occurred when intra-zonal locational prices actually differed.

The upshot of the foregoing is that if CCEM and Tabors are correct about the rarity and predictability of congestion and locational pricing differences within zones, then the simplified trading that they wish to undertake could easily and efficiently be accommodated within the Supporting Companies' locational pricing proposal. But, suppose that CCEM and other

[4] The Supporting Companies have committed to work with the PJM ISO to develop procedures by which additional FTRs could be auctioned over and above the FTRs retained by firm network and point-to-point customers. An auction process would allow those who did not obtain FTRs through the reservation of firm service to obtain hedges for their expected trades. Any FTRs acquired in an auction would have to be simultaneously feasible with any continuing rights obtained from the reservation of firm service. Since a feasibility test would be necessary, the auction would present an opportunity for existing FTR holders to exchange or "reconfigure" existing rights.

opponents of locational pricing are not correct. If congestion is in fact more frequent and less predictable than they assume, and locational prices thus vary more, or more often, than they predict, what would happen? Since the efficiency and equity of the CCEM/Tabors proposal depends on the accuracy of the assumptions on which it is based, if the assumptions are wrong then by definition their proposal will result in zones that do not comport with reality, and hence will distort congestion pricing and shift costs among market participants. By contrast, the Supporting Companies' locational marginal pricing proposal would automatically and accurately respond to actual system conditions, and automatically produce accurate and efficient congestion prices. FTRs issued from bus to bus would continue to provide appropriate hedges, notwithstanding the appearance of congestion, so there would be no need to redefine or reallocate those FTRs. Each trader would be treated fairly and comparably, since each trader would be subject to efficient prices for energy and congestion, and no trader would be allowed to shift its congestion costs onto others.[5] In short, if the CCEM/Tabors assumptions are correct, their system can co-exist with the Supporting Companies' proposal; if those assumptions are wrong, only the Supporting Companies' proposal will produce appropriate results.

4. The CCEM Proposal is Neither Simple Nor Workable.

Under the CCEM approach, congestion pricing zones would be determined in advance through extensive and complex computer modeling and would be locked in for some designated period, such as one to three years. For starters, it is debatable whether the competing parties could agree on the appropriate model, along with its input assumptions and multiple forecasts, and the thresholds for "commercially significant" congestion and bus-by-bus price differences. If a set of zones could be established, as suggested above, they would over time inevitably prove to be an inaccurate reflection of congestion patterns and locational price differences; even Dr. Tabors acknowledges that his zones would need to be reassessed, and presumably redefined, on some periodic basis. Congestion would be discovered "inside" the zones, or, as I illustrated,

[5] At the Technical Conference, the NYMEX representative expressed a concern that under this condition, FTRs would not be fungible, since many FTRs could have different values. It is not true, however, that this condition would preclude trading between holders of FTRs with different values. Because each FTR would have its own expected value, those values could easily be reflected and balanced in the trades between FTR holders. Under the Supporting Companies' *proposal, the* locational prices would be posted for all locations. *Hence, it would be relatively* easy for traders to compile computerized lists of locational prices and the expected values of alternative FTRs. This service could then be provided to other traders to allow efficient trading of FTRs in a secondary market.

congestion outside a zone could result in commercially significant locational price differences inside a zone. Even if resources and loads remained stable, equipment outages or failures could occur that would result in congestion for some significant period. When congestion occurred, how would the CCEM zonal proposal work?

CCEM has not specified how intra-zonal congestion costs would be allocated among market participants. Dr. Tabors has suggested that congestion within a zone could be dealt with by applying PECO-like "unconstrained pricing" within that zone. The Report prepared by Professor Hogan and filed with the Supporting Companies' *pro forma* tariff on December 31, 1996, describes the inefficient incentives and the complexity of the pricing rules that would need to be developed to pay constrained-on generators and to prevent gaming by constrained-off generators under the PECO pricing proposal. In addition, as noted above, the PECO congestion pricing mechanism obscures the true costs of congestion and spreads those costs across those loads that rely on the OI's spot market by raising the clearing price for all spot purchasers. In other words, the principal effect of mis-defining a congestion pricing zone, or leaving a mis-defined zone in effect for any significant period, is to shift costs of congestion from those who schedule bilateral trades into a congestion area, and to PJM pool customers and their end-users – many of whom will most likely be small consumers buying from the local distribution companies that may well be the predominant users of the PJM pool. The CCEM marketers who support the zonal approach do not discuss these inequities.

CCEM would have the Commission believe that the inevitable unfairness and inefficiency of their zonal approach could be corrected by periodically redefining the zones and reallocating transmission rights to correspond to the new zone boundaries. This purported remedy may well be illusory. It presumes that large bilateral traders would readily agree to give up their existing rights and the unearned benefits resulting from mis-defined zones, agree to change the boundaries of existing zones, and agree to accept without protest new zonal boundaries that could well increase congestion costs and energy prices to their loads. Economic self-interest dictates that market participants will be extremely reluctant to abandon strategic commercial advantages by changing zonal boundaries that allow them to shift costs and risks to others. It seems more likely that such commercially significant changes would be strongly resisted by those market participants who stand to lose, with litigation or other strategies being used to delay, compromise or stop efforts to revise poorly defined zones. Certainly efforts to change zonal pricing in other contexts, for example on interstate natural gas pipelines, have been

rife with controversy. Inevitably, there would have to be some regulatory process to adjudicate these disputes, redefine the zone boundaries and reallocate the associated rights, likely involving the Commission in continuing oversight of a poorly designed system. With locational pricing, none of this would be necessary.

It is not an answer to assume that the difficult problems of redefining zones could be overcome by some automatic, unbiased set of procedures (for example, periodic revisions implemented by the OI without approval from the market participants). To comport with reality, zone redefinitions would have to be frequent enough to track the actual changes in congestion patterns and locational price differences. This means that the zonal physical rights proposed by CCEM could not be long-term; indeed, the inevitable instability of the CCEM zonal boundaries prevents their proposal from being able to provide long-term transmission rights of any kind. Such an approach may be acceptable to those who specialize in short-term trading, but it will pose a serious obstacle to those who consider long-run investments in new generation and transmission.

It is, of course, possible to reconfigure zonal boundaries frequently and automatically as congestion patterns change. In Norway, for example, zones are essentially redefined every time congestion results in changes in locational prices. Zones can be redefined weekly, daily, even hourly, so that a zone becomes simply a collection of busses with the same locational prices for a given period. Once that is done, however, the zonal proposal effectively collapses into the Supporting Companies' proposal. Hence, the need to maintain accurate and flexible zones without compromising the ability to have long-run transmission rights ultimately reduces to an argument in favor of locational pricing.

5. Obtaining Transmission and Congestion Cost Certainty.

Certain comments at the Technical Conference discussed the need for market participants to be able to determine, or fix in advance, the price of transmission, including any congestion costs. A common misconception is that the Supporting Companies' proposal does not adequately allow participants to lock-in prices in advance. In fact, the Supporting Companies' locational pricing and FTR proposal provides traders with all the price certainty that is possible in a dynamic free-flowing grid, short of shifting uncertain congestion costs onto other parties.

The common reality that confronts any credible system of transmission rights is that the degree of congestion, and hence the level of congestion costs, is essentially unknowable until the dispatch hour. The reason is that last-hour changes in demand and generation levels,

transmission outages, non-firm transactions, and unscheduled (loop) flows can change congestion. Hence, the final degree and costs of congestion -- whether handled through "physical" or "financial" rights -- cannot be determined until after the dispatch has occurred. A workable system of transmission rights can and should allow market participants to acquire the rights in advance at a price determined in advance, but the function of these rights must be to define with certainty the financial consequences for the holders of these transmission rights of the inherent uncertainty in congestion-related costs. The task is to make traders whole for whatever congestion costs may arise, so that once traders acquire the right for a set price, they then face no additional congestion charge for implementing the transactions for which they acquired the rights. That is precisely how FTRs work.

Under the Supporting Companies' proposal, the price of transmission for the expected trade is fixed in advance by the price of obtaining the FTR, just as it would be for a "physical" right. Hence, the only uncertainty is the degree to which the trader's actual operations will vary from the schedules of injections and withdrawals corresponding to the acquired rights. Any deviation from those schedules would, under any system, constitute a non-firm use of the transmission system and be subject to the uncertain costs (or curtailment) of non-firm transmission.

6. PECO's and CCEM's Hidden Agenda.

PECO and CCEM's opposition to locational pricing does not stem simply from a preference for "physical" rights versus "financial" FTRs. Their more fundamental objection is to the open spot market from which locational marginal prices would be derived. In the Supporting Companies' market structure proposal, the Office of the Interconnection coordinates an open, non-discriminatory spot market based on voluntary price offers from generators and dispatchable loads. This open, voluntary system provides the market mechanism by which the OI obtains at the lowest cost the resources it needs to maintain system balance and reliability and to relieve congestion. In the Supporting Companies' proposal, any market participant can offer its energy to the OI for use in balancing generation and load in the actual dispatch, and any market participant can purchase or sell spot energy through this mechanism as well. The PJM region will as a result have an efficient spot market open to all market participants without *discrimination*, and even small market participants in the PJM region will be able to conduct efficient trading without having to develop the dispatch facilities and diversified portfolios necessary to follow their own loads or perfectly balance their bilateral loads and resources.

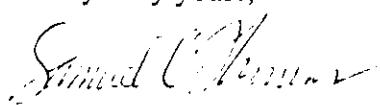
The CCEM marketers have indicated that on May 30 they will likely make a filing that will support elements of the PECO proposal because that proposal explicitly rejects any open spot market coordinated by the OI. PECO has stated to the PJM stakeholders that its proposal will restrict the ability of market participants to use the OI's balancing service as a spot market, and will enforce those restrictions by imposing substantial penalties on those traders who do not precisely stick to their schedules and maintain their respective loads and resources in constant balance. To avoid those penalties, traders would have to rely on entities such as PECO or those represented by CCEM which have the facilities and diversified portfolios to provide, for a fee, the load-following and balancing services every trader will need under this system. Moreover, because there would be no bid-based dispatch, the ISO would not be able to manage congestion efficiently. Instead, it would resort to non-economic means to relieve congestion, such as forced curtailments. This, too, would force smaller traders to turn to PECO and CCEM entities to arrange transactions that avoid the congestion.

Hence, the Commission should not be misled by the debates over locational pricing. PECO and CCEM oppose locational pricing precisely because it means that there will be an open, transparent and efficient spot market coordinated by the Office of the Interconnection. In contrast, the CCEM approach is deliberately structured around "physical" rights and predefined congestion zones that purport not to require an open, OI-coordinated spot market to define efficient locational prices. If there is no open spot market coordinated by the OI, then it will not be possible for the OI to determine the marginal costs of serving loads at different locations or to efficiently pay generators and charge loads for the OI's balancing service. Instead, a guaranteed role for PECO and CCEM entities will be locked into the market structure at the expense of other traders. Ultimately, the PJM consumers, who need an efficient market to achieve the benefits of competition, will bear the brunt of these proposals.

We are sending a copy of the letter to all parties on the service list so that it may be included in the record of this proceeding. If you have any additional questions that were not

answered as a result of the Technical Conference, please let me know.

Very truly yours,



Samuel C. Thomas
On behalf of the
Supporting PJM Companies

cc: Ms. Lois M. Cashell
Service List

AMENDED AND RESTATED

# OPERATING AGREEMENT

OF

# PJM INTERCONNECTION, L.L.C.

Dated June 2, 1997

# OPERATING AGREEMENT

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# AMENDED AND RESTATED
# OPERATING AGREEMENT
# of
# PJM INTERCONNECTION, L.L.C.

This Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., dated as of this 2nd day of June, 1997, amends and restates as of the Effective Date the Operating Agreement of PJM Interconnection, L.L.C. filed with the FERC on April 2, 1997, as amended.

**WHEREAS**, certain of the Members have previously entered into an agreement, originally dated September 26, 1956, as amended and supplemented up to and including December 31, 1996, stating "their respective rights and obligations with respect to the coordinated operation of their electric supply systems and the interchange of electric capacity and energy among their systems" (such agreement as amended and supplemented being referred to as the "Original PJM Agreement"), and which coordinated operations and interchange came to be known as the PJM Interconnection (the "Interconnection"); and

**WHEREAS**, pursuant to a resolution of June 16, 1993, an unincorporated association comprised of the parties to the Original PJM Agreement was formed for the purpose of implementation of the Original PJM Agreement as it then existed and as it subsequently has been amended and supplemented, such association being known as the "PJM Interconnection Association"; and

**WHEREAS**, because of changes in federal law and policy, the Original PJM Agreement, together with other documents and agreements, was amended, restated and submitted to FERC on December 31, 1996 to restructure fundamental aspects of the operation of the Interconnection; and

**WHEREAS**, so that the provisions of the Original PJM Agreement could be placed into effect consistent with a February 28, 1997 order of FERC, including those provisions related to the governance of the Interconnection, the parties to the Original PJM Agreement, along with the other interested parties, approved the conversion of the PJM Interconnection Association into the LLC pursuant to the provisions of the Delaware Limited Liability Company Act, as amended (the "Delaware LLC Act"), pursuant to a Certificate of Formation (the "Certificate of Formation") and a Certificate of Conversion (the "Certificate of Conversion"), each filed with the Delaware Secretary of State (the "Recording Office") on March 31, 1997; and

**WHEREAS**, the Members wish to amend and restate the Operating Agreement of PJM Interconnection, L.L.C. adopted in connection with the formation of the LLC and as in effect immediately prior to the Effective Date in the form set forth below; and

**WHEREAS**, the Members intend to form an Independent System Operator in accordance with the regulations of the Federal Energy Regulatory Commission; and

Now, therefore, in consideration of the foregoing, and of the covenants and agreements hereinafter set forth, the Members hereby agree as follows:

## 1. DEFINITIONS

Unless the context otherwise specifies or requires, capitalized terms used in this Agreement shall have the respective meanings assigned herein or in the Schedules hereto for all purposes of this Agreement (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Sections, Schedules, Exhibits or Appendices are to Sections, Schedules, Exhibits or Appendices of this Agreement. As used in this Agreement:

### 1.1 Act.

"Act" shall mean the Delaware Limited Liability Company Act, Title 6, §§ 18-101 to 18-1109 of the Delaware Code.

### 1.2 Affiliate.

"Affiliate" shall mean any two or more entities, one of which controls the other or that are under common control. "Control" shall mean the possession, directly or indirectly, of the power to direct the management or policies of an entity. Ownership of publicly-traded equity securities of another entity shall not result in control or affiliation for purposes of this Agreement if the securities are held as an investment, the holder owns (in its name or via intermediaries) less than 10 percent of the outstanding securities of the entity, the holder does not have representation on the entity's board of directors (or equivalent managing entity) or vice versa, and the holder does not in fact exercise influence over day-to-day management decisions. Unless the contrary is demonstrated to the satisfaction of the Members Committee, control shall be presumed to arise from the ownership of or the power to vote, directly or indirectly, ten percent or more of the voting securities of such entity.

### 1.3 Agreement.

"Agreement" shall mean this Amended and Restated Operating Agreement of PJM Interconnection, L.L.C., including all Schedules, Exhibits, Appendices, addenda or supplements hereto, as amended from time to time.

### 1.4 Annual Meeting of the Members.

"Annual Meeting of the Members" shall mean the meeting specified in Section 8.3.1 of this Agreement.

### 1.5 Board Member.

"Board Member" shall mean a member of the PJM Board.

### 1.6 Capacity Resource.

"Capacity Resource" shall mean the net capacity from owned or contracted for generating facilities all of which (i) are accredited to a Load Serving Entity pursuant to the

procedures set forth in the Reliability Assurance Agreement and (ii) are committed to satisfy that Load Serving Entity's obligations under the Reliability Assurance Agreement and this Agreement.

**1.7 Control Area.**

"Control Area" shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common automatic generation control scheme is applied in order to:

(a) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(b) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(c) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice and the criteria of NERC and the applicable regional reliability council of NERC;

(d) maintain power flows on transmission facilities within appropriate limits to preserve reliability; and

(e) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

**1.8 Electric Distributor.**

"Electric Distributor" shall mean a Member that owns or leases with rights equivalent to ownership electric distribution facilities that are used to provide electric distribution service to electric load within the PJM Control Area.

**1.9 Effective Date.**

"Effective Date" shall mean August 1, 1997, or such later date that FERC permits this Agreement to go into effect.

**1.10 Emergency.**

"Emergency" shall mean: (i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals.

**1.11 End-Use Customer.**

"End-Use Customer" shall mean a Member that is a *retail end-user of electricity within* the PJM Control Area.

**1.12 FERC.**

"FERC" shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department exercising jurisdiction over this Agreement.

**1.13 Finance Committee.**

"Finance Committee" shall mean the body formed pursuant to Section 7.5.1 of this Agreement.

**1.14 Generation Owner.**

"Generation Owner" shall mean a Member that owns or leases with rights equivalent to ownership facilities for the generation of electric energy that are located within the PJM Control Area. Purchasing all or a portion of the output of a generation facility shall not be sufficient to qualify a Member as a Generation Owner.

**1.15 Good Utility Practice.**

"Good Utility Practice" shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region.

**1.16 Interconnection.**

"Interconnection" shall mean the coordinated operations and interchange resulting from the Original PJM Agreement as continued in this Agreement.

**1.17 LLC.**

"LLC" shall mean PJM Interconnection, L.L.C., a Delaware limited liability company.

**1.18 Load Serving Entity.**

"Load Serving Entity" shall mean an entity, including a load aggregator or power marketer, (1) serving end-users within the PJM Control Area, and (2) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Control Area, or the duly designated agent of such an entity.

**1.19 Locational Marginal Price.**

"Locational Marginal Price" shall mean the hourly integrated market clearing marginal price for energy at the location the energy is delivered or received, calculated as specified in Section 2 of Schedule 1 of this Agreement.

**1.20 MAAC.**

"MAAC" shall mean the Mid-Atlantic Area Council, a reliability council under § 202 of the Federal Power Act established pursuant to the MAAC Agreement dated August 1, 1994, or any successor thereto.

**1.21 Market Buyer.**

"Market Buyer" shall mean a Member that has met reasonable creditworthiness standards established by the Office of the Interconnection and that is otherwise able to make purchases in the PJM Interchange Energy Market.

**1.22 Market Participant.**

"Market Participant" shall mean a Market Buyer or a Market Seller, or both.

**1.23 Market Seller.**

"Market Seller" shall mean a Member that has met reasonable creditworthiness standards established by the Office of the Interconnection and that is otherwise able to make sales in the PJM Interchange Energy Market.

**1.24 Member.**

"Member" shall mean an entity that satisfies the requirements of Section 11.6 of this Agreement and that (i) is a member of the LLC immediately prior to the Effective Date, or (ii) has executed an Additional Member Agreement in the form set forth in Schedule 4 hereof.

**1.25 Members Committee.**

"Members Committee" shall mean the committee specified in Section 8 of this Agreement composed of representatives of all the Members.

**1.26 NERC.**

"NERC" shall mean the North American Electric Reliability Council, or any successor thereto.

**1.27 Office of the Interconnection.**

"Office of the Interconnection" shall mean the employees and agents of the LLC engaged in implementation of this Agreement and administration of the PJM Tariff, subject to the supervision and oversight of the PJM Board acting pursuant to this Agreement.

**1.28 Operating Reserve.**

"Operating Reserve" shall mean the amount of generating capacity scheduled to be available for a specified period of an Operating Day to ensure the reliable operation of the PJM Control Area, as specified in the PJM Manuals.

**1.29 Original PJM Agreement.**

"Original PJM Agreement" shall mean that certain agreement between certain of the Members, originally dated September 26, 1956, and as amended and supplemented up to and

including December 31, 1996, relating to the coordinated operation of their electric supply systems and the interchange of electric capacity and energy among their systems.

**1.30 Other Supplier.**

"Other Supplier" shall mean a Member that is (i) a seller, buyer or transmitter of electric capacity or energy in, from or through the PJM Control Area, and (ii) is not a Generation Owner, Electric Distributor, Transmission Owner or End-Use Customer.

**1.31 PJM Board.**

"PJM Board" shall mean the Board of Managers of the LLC, acting pursuant to this Agreement.

**1.32 PJM Control Area.**

"PJM Control Area" shall mean the Control Area recognized by NERC as the PJM Control Area.

**1.33 PJM Dispute Resolution Procedures**

"PJM Dispute Resolution Procedures" shall mean the procedures for the resolution of disputes set forth in Schedule 5 of this Agreement.

**1.34 PJM Interchange Energy Market.**

"PJM Interchange Energy Market" shall mean the regional competitive market administered by the Office of the Interconnection for the purchase and sale of spot electric energy at wholesale in interstate commerce and related services established pursuant to Schedule 1 to this Agreement.

**1.35 PJM Manuals.**

"PJM Manuals" shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning, and accounting requirements of the PJM Control Area and the PJM Interchange Energy Market.

**1.36 PJM Tariff.**

"PJM Tariff" shall mean the PJM Open Access Transmission Tariff providing transmission service within the PJM Control Area, including any schedules, appendices, or exhibits attached thereto, as in effect from time to time.

**1.37 Planning Period.**

"Planning Period" shall initially mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period established by the Reliability Committee established under the Reliability Assurance Agreement.

**1.38 President.**

"President" shall have the meaning specified in Section 9.2.

### 1.39 Related Parties.

"Related Parties" shall mean, solely for purposes of the governance provisions of this Agreement: (i) any generation and transmission cooperative and one of its distribution cooperative members; and (ii) any joint municipal agency and one of its members. For purposes of this Agreement, representatives of state or federal government agencies shall not be deemed Related Parties with respect to each other, and a public body's regulatory authority, if any, over a Member shall not be deemed to make it a Related Party with respect to that Member.

### 1.40 Reliability Assurance Agreement

"Reliability Assurance Agreement" shall mean that certain agreement, dated June 2, 1997 and as amended from time to time, establishing obligations, standards and procedures for maintaining the reliable operation of the PJM Control Area.

### 1.41 Sector Votes.

"Sector Votes" shall mean the affirmative and negative votes of each sector on the Members Committee, as specified in Section 8.4.

### 1.42 State.

"State" shall mean the District of Columbia and any State or Commonwealth of the United States.

### 1.43 System.

"System" shall mean the interconnected electric supply system of a Member and its interconnected subsidiaries exclusive of facilities which it may own or control outside of the PJM Control Area. Each Member may include in its system the electric supply systems of any party or parties other than Members which are within the PJM Control Area, provided its interconnection agreements with such other party or parties do not conflict with such inclusion.

### 1.44 Transmission Facilities.

"Transmission Facilities" shall mean facilities that: (i) are within the PJM Control Area; (ii) meet the definition of transmission facilities pursuant to FERC's Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities; and (iii) have been demonstrated to the satisfaction of the Office of the Interconnection to be integrated with the PJM Control Area transmission system and integrated into the planning and operation of the PJM Control Area to serve all of the power and transmission customers within the PJM Control Area.

### 1.45 Transmission Owner.

"Transmission Owner" shall mean a Member that owns or leases with rights equivalent to ownership Transmission Facilities. Taking transmission service shall not be sufficient to qualify a Member as a Transmission Owner.

**1.46 Transmission Owners Agreement.**

"Transmission Owners Agreement" shall mean that certain agreement, dated June 2, 1997 and as amended from time to time, by and among Transmission Owners in the PJM Control Area providing for an open-access transmission tariff in the PJM Control Area, and for other purposes.

**1.47 User Group.**

"User Group" shall mean a group formed pursuant to Section 8.7 of this Agreement.

**1.48 Voting Member**

"Voting Member" shall mean (i) a Member as to which no other Member is an Affiliate or Related Party, or (ii) a Member together with any other Members as to which it is an Affiliate or Related Party.

**1.49 Weighted Interest.**

"Weighted Interest" shall be equal to (0.1(1/N) + 0.5(B/C) + 0.2(D/E) + 0.2(F/G)), where:

N = the total number of Members
B = the Member's internal peak demand for the previous calendar year
C = the sum of factor B for all Members
D = the Member's net installed generating capacity located in the PJM Control Area as of January 1 of the current calendar year
E = the sum of factor D for all Members
F = the sum of the Member's circuit miles of transmission facilities multiplied by the respective operating voltage for facilities 100 kV and above as of January 1 of the current calendar year
G = the sum of factor F for all Members

## 2. FORMATION, NAME; PLACE OF BUSINESS

**2.1 Formation of LLC; Certificate of Formation.**

The Members of the LLC hereby:

(a) acknowledge the conversion of the PJM Interconnection Association into the LLC, a limited liability company pursuant to the Act, by virtue of the filing of both the Certificate of Formation and the Certificate of Conversion with the Recording Office, effective as of March 31, 1997;

(b) confirm and agree to their status as Members of the LLC;

(c) enter into this Agreement for the purpose of amending and restating the rights, duties, and relationship of the Members; and

(d) agree that if the laws of any jurisdiction in which the LLC transacts business so require, the PJM Board also shall file, with the appropriate office in that jurisdiction, any documents necessary for the LLC to qualify to transact business under such laws; and

(ii) agree and obligate themselves to execute, acknowledge, and cause to be filed for record, in the place or places and manner prescribed by law, any amendments to the Certificate of Formation as may be required, either by the Act, by the laws of any jurisdiction in which the LLC transacts business, or by this Agreement, to reflect changes in the information contained therein or otherwise to comply with the requirements of law for the continuation, preservation, and operation of the LLC as a limited liability company under the Act.

**2.2 Name of LLC.**

The name under which the LLC shall conduct its business is "PJM Interconnection, L.L.C."

**2.3 Place of Business.**

The location of the principal place of business of the LLC shall be 955 Jefferson Avenue, Valley Forge Corporate Center, Norristown, Pennsylvania 19403-2497. The LLC may also have offices at such other places both within and without the State of Delaware as the PJM Board may from time to time determine or the business of the LLC may require.

**2.4 Registered Office and Registered Agent.**

The street address of the initial registered office of the LLC shall be 1209 Orange Street, Wilmington, Delaware 19801, and the LLC's registered agent at such address shall be The Corporation Trust Company. The registered office and registered agent may be changed by resolution of the PJM Board.

## 3. PURPOSES AND POWERS OF LLC

**3.1 Purposes.**

The purposes of the LLC shall be:

(a) to operate in accordance with FERC requirements as an Independent System Operator, comprised of the PJM Board, the Office of the Interconnection, and the Members Committee, with the authorities and responsibilities set forth in this Agreement;

(b) as necessary for the operation of the Interconnection as specified above: (i) to acquire and obtain licenses, permits and approvals, (ii) to own or lease property, equipment and facilities, and (iii) to contract with third parties to obtain goods and services; and

(c) to engage in any lawful business permitted by the Act or the laws of any jurisdiction in which the LLC may do business and to enter into any lawful transaction and engage in any lawful activities in furtherance of the foregoing purposes and as may be necessary, incidental or convenient to carry out the business of the LLC as contemplated by this Agreement.

**3.2 Powers.**

The LLC shall have the power to do any and all acts and things necessary, appropriate, advisable, or convenient for the furtherance and accomplishment of the purposes of the LLC, including, without limitation, to engage in any kind of activity and to enter into and perform

obligations of any kind necessary to or in connection with, or incidental to, the accomplishment of the purposes of the LLC, so long as said activities and obligations may be lawfully engaged in or performed by a limited liability company under the Act.

## 4. EFFECTIVE DATE AND TERMINATION

### 4.1 Effective Date and Termination.

(a) The existence of the LLC commenced on March 31, 1997, as provided in the Certificate of Formation and Certificate of Conversion which were filed with the Recording Office on March 31, 1997. This Agreement shall amend and restate the Operating Agreement of PJM Interconnection, L.L.C. as of the Effective Date.

(b) The LLC shall continue in existence until terminated in accordance with the terms of this Agreement. The withdrawal or termination of any Member is subject to the provisions of Section 18.18 of this Agreement.

### 4.2 Governing Law.

This Agreement and all questions with respect to the rights and obligations of the Members, the construction, enforcement and interpretation hereof, and the formation, administration and termination of the LLC shall be governed by the provisions of the Act and other applicable laws of the State of Delaware, and the Federal Power Act.

## 5. WORKING CAPITAL AND CAPITAL CONTRIBUTIONS

### 5.1 Funding of Working Capital and Capital Contributions.

(a) The Office of the Interconnection shall attempt to obtain financing of up to five million two hundred thousand dollars ($5,200,000) to meet the working capital needs of the LLC, which shall be limited to such working capital needs that arise from timing in cash flows from interchange accounting, tariff administration and payment of the operating costs of the Office of the Interconnection. Such financing, which shall be non-recourse to the Members of the LLC and which shall be for a stated term without penalty for prepayment, may be obtained by borrowing the amount required at market-based interest rates, negotiated on an arm's length basis, (i) from a Member or Members or (ii) from a commercial lender, supported, if necessary, by credit enhancements provided by a Member or Members; *provided, however*, no Member shall be obligated to provide such financing or credit enhancements. The LLC shall make such filings and seek such approvals as necessary in order for the principal, interest and fees related to any such borrowing to be repaid through charges under the PJM Tariff as appropriate under Schedule 3 of this Agreement.

(b) In the event financing of the working capital needs of the Office of the Interconnection is unavailable on commercially reasonable terms, the PJM Board may require the Members to contribute capital in the aggregate up to five million two hundred thousand dollars ($5,200,000) for the working capital needs that could not be financed; provided that in such event each Member's obligation to contribute additional capital shall be in proportion to its Weighted Interest, multiplied by the amount so requested by the PJM Board. Each Member

that contributes such capital shall be entitled to earn a return on the contribution to the extent such contribution has not been repaid, which return shall be at a fair market rate as determined by the PJM Board but in no event less than the current interest rate established pursuant to 18 C.F.R. § 35.19a(a)(2)(iii); *provided further*, that any Member not wanting to contribute the requested capital contribution may withdraw from the LLC upon 90 days written notice as provided in Section 18.18.2 of this Agreement.

**5.2 Contributions to Association.**

All contributions prior to the Effective Date of the original Operating Agreement of PJM Interconnection, L.L.C. of cash or other assets to the PJM Interconnection Association by persons who are now or in the future may become Members of the LLC shall be deemed contributions by such Members to the LLC.

## 6. TAX STATUS AND DISTRIBUTIONS

**6.1 Tax Status.**

The LLC shall make all necessary filings under the applicable Treasury Regulations to have the LLC taxed as a corporation.

**6.2 Return of Capital Contributions.**

(a) In the event Members are required to contribute capital to the LLC in accordance with Section 5.1 herein, the LLC shall request the Transmission Owners to recover such working capital through charges under the PJM Tariff as provided in Schedule 3 of this Agreement. In the event all or a portion of the working capital is recovered pursuant to the PJM Tariff, such amount(s) shall be returned to the Members in accordance with their actual contributions.

(b) Except for return of capital contributions and liquidating distributions as provided in the foregoing section and Section 6.3 herein, respectively, the LLC does not intend to make any distributions of cash or other assets to its Members.

**6.3 Liquidating Distribution.**

Upon termination or liquidation of the LLC, the cash or other assets of the LLC shall be distributed as follows:

(a) first, in the event the LLC has any liabilities at the time of its termination or dissolution, the LLC shall liquidate such of its assets as is necessary to satisfy such liabilities;

(b) second, any capital contribution in cash or in kind by any Member of the PJM Interconnection Association prior to the Effective Date shall be distributed by the LLC back to such Member in the form received by the PJM Interconnection Association; and

(c) third, any remaining assets of the LLC shall be distributed to the Members in proportion to their Weighted Interests.

## 7. PJM BOARD

### 7.1 Composition.

There shall be an LLC Board of Managers, referred to herein as the "PJM Board," composed of seven voting members, with the President as a non-voting member. The seven voting Board Members shall be elected by the Members Committee from a slate of candidates for the then-existing vacancies or expiring terms on the PJM Board. An independent consultant, retained by the Office of the Interconnection upon consideration of the advice and recommendations of the Members Committee, shall be directed to prepare a list of persons qualified and willing to serve on the PJM Board. Not later than 30 days prior to each Annual Meeting of the Members, the Office of the Interconnection shall distribute to the representatives on the Members Committee a slate from among the list proposed by the independent consultant, along with information on the background and experience of the persons on the slate appropriate to evaluating their fitness for service on the PJM Board. Elections for the PJM Board shall be held at each Annual Meeting of the Members, for the purpose of selecting the initial PJM Board in accordance with the provisions of Section 7.3(a), or selecting a person to fill the seat of a Board Member whose term is expiring. Should the Members Committee fail to elect a full PJM Board from the slate proposed by the independent consultant, the Office of the Interconnection shall direct the independent consultant, or a replacement consultant selected by the Office of the Interconnection, to propose a list for a slate of nominees for any vacancies on the PJM Board for consideration by the Members at the next regular meeting of the Members Committee.

### 7.2 Qualifications.

A Board Member shall not be, and shall not have been at any time within five years of election to the PJM Board, a director, officer or employee of a Member or of an Affiliate or Related Party of a Member. At any time while serving on the PJM Board, a Board Member shall have no significant business relationship or other affiliation with any Member or its Affiliates or Related Parties. Of the seven Board Members, four shall have expertise and experience in the areas of corporate leadership at the senior management or board of directors level, or in the professional disciplines of finance or accounting, engineering, or utility laws and regulation. Of the other three Board Members, one shall have expertise and experience in the operation or concerns of transmission dependent utilities, one shall have expertise and experience in the operation or planning of transmission systems, and one shall have expertise and experience in the area of commercial markets and trading and associated risk management.

### 7.3 Term of Office.

(a) The persons serving as the Board of Managers of the LLC immediately prior to the Effective Date shall continue in office until the first Annual Meeting of the Members. At the first Annual Meeting of the Members, the then current members of the PJM Board who desire to continue in office shall be elected by the Members to serve until the second Annual Meeting of the Members or until their successors are elected, along with such additional persons as necessary to meet the composition requirements of Section 7.1 and the qualification requirements of Section 7.2.

(b) A Board Member shall serve for a term of three years commencing with the Annual Meeting of the Members at which the Board Member was elected; provided, however, that two of the Board Members elected at the first Annual Meeting of the Members following the Effective Date shall be chosen by lot to serve a term of one year, three of such Board Members shall be chosen by lot to serve a term of two years and the final two such Board Members shall serve a term of three years.

(c) Vacancies on the PJM Board occurring between Annual Meetings of the Members shall be filled by vote of the then remaining Board Members; a Board Member so selected shall serve until the next Annual Meeting at which time a person shall be elected to serve the balance of the term of the vacant Board Seat. Removal of a Board Member shall require the approval of the Members Committee.

**7.4 Quorum.**

The presence in person or by telephone or other authorized electronic means of a majority of the voting Board Members shall constitute a quorum at all meetings of the PJM Board for the transaction of business except as otherwise provided by statute. If a quorum shall not be present, the Board Members then present shall have the power to adjourn the meeting from time to time, until a quorum shall be present. Provided a quorum is present at a meeting, the PJM Board shall act by majority vote of the Board Members present.

**7.5 Operating and Capital Budgets.**

**7.5.1 Finance Committee.**

Not later than February 1 of each year, the entities specified below shall select the members of a Finance Committee. The Finance Committee shall be composed of one representative of the parties to the Reliability Assurance Agreement chosen by the parties to that agreement, one representative of the parties to the Transmission Owners Agreement chosen by the parties to that agreement, two representatives of the Members Committee chosen by the Members Committee and that are not representatives of an entity that is a party to the Transmission Owners Agreement or an Affiliate or Related Party of such an entity, one representative of the Office of the Interconnection selected by the President, and two Board Members selected by the PJM Board. The Members Committee shall endeavor to elect members of the Finance Committee that are broadly representative of the diversity of interests among the Members. The Office of the Interconnection shall prepare annual budgets in accordance with processes and procedures established by the PJM Board, and shall timely submit its budgets to the Finance Committee for review. The Finance Committee shall submit its analysis of and recommendations on the budgets to the PJM Board, with copies to the Members Committee. The Finance Committee shall also review and comment upon any additional or amended budgets prepared by the Office of the Interconnection at the request of the PJM Board or the Members Committee.

**7.5.2 Adoption of Budgets.**

The PJM Board shall adopt, upon consideration of the advice and recommendations of the Finance Committee, operating and capital budgets for the LLC, and

shall distribute to the Members for their information final annual budgets for the following fiscal year not later than 60 days prior to the beginning of each fiscal year of the LLC.

**7.6 By-laws.**

To the extent not inconsistent with any provision of this Agreement, the PJM Board shall adopt such by-laws establishing procedures for the implementation of this Agreement as it may deem appropriate, including but not limited to by-laws governing the scheduling, noticing and conduct of meetings of the PJM Board, selection of a Chair and Vice Chair of the PJM Board, action by the PJM Board without a meeting, and the organization and responsibilities of standing and special committees of the PJM Board. Such by-laws shall not modify or be inconsistent with any of the rights or obligations established by this Agreement.

**7.7 Duties and Responsibilities of the PJM Board.**

In accordance with this Agreement, the PJM Board shall supervise and oversee all matters pertaining to the Interconnection and the LLC, and carry out such other duties as are herein specified, including but not limited to the following duties and responsibilities:

i) As its primary responsibility, ensure that the President, the other officers of the LLC, and Office of the Interconnection perform the duties and responsibilities set forth in this Agreement, including but not limited to those set forth in Sections 9.2 through 9.4 and Section 10.4, in a manner consistent with (A) the safe and reliable operation of the Interconnection, (B) the creation and operation of a robust, competitive, and non-discriminatory electric power market in the PJM Control Area, and (C) the principle that a Member or group of Members shall not have undue influence over the operation of the Interconnection;

ii) Select the Officers of the LLC;

iii) Adopt budgets for the LLC;

iv) Approve the Regional Transmission Expansion Plan in accordance with the provisions of the Regional Transmission Expansion Planning Protocol set forth in Schedule 6 of this Agreement.

v) On its own initiative or at the request of a User Group as specified herein, submit to the Members Committee such proposed amendments to this Agreement or any Schedule hereto, or a proposed new Schedule, as it may deem appropriate;

vi) Petition FERC to modify any provision of this Agreement or any Schedule or practice hereunder that the PJM Board believes to be unjust, unreasonable, or unduly discriminatory under Section 206 of the Federal Power Act, subject to the right of any Member or the Members to intervene in any resulting proceedings;

vii) Review for consistency with the creation and operation of a robust, competitive and non-discriminatory electric power market in the PJM Control Area any change to rate design or to non-rate terms and

conditions proposed by Transmission Owners for filing under Section 205 of the Federal Power Act.

viii) If and to the extent it shall deem appropriate, intervene in any proceeding at FERC initiated by the Members in accordance with Section 11.5(b), and participate in other state and federal regulatory proceedings relating to the interests of the LLC;

ix) Review, in accordance with Section 15.1.3, determinations of the Office of the Interconnection with respect to events of default;

x) Assess against the other Members in proportion to their Weighted Interest an amount equal to any payment to the Office of the Interconnection, including interest thereon, as to which a Member is in default;

xi) Establish reasonable sanctions for failure of a Member to comply with its obligations under this Agreement;

xii) Direct the Office of the Interconnection on behalf of the LLC to take appropriate legal or regulatory action against a Member (A) to recover any unpaid amounts due from the Member to the Office of the Interconnection under this Agreement and to make whole any Members subject to an assessment as a result of such unpaid amount, or (B) as may otherwise be necessary to enforce the obligations of this Agreement;

xiii) Resolve claims by a Member that the Reliability Committee established by the Reliability Assurance Agreement has exercised its responsibilities in a manner inconsistent with the creation and operation of a robust, competitive and non-discriminatory electric power market in the PJM Control Area, upon due consideration of the views of the Member and of the Reliability Committee, and of the need to preserve the reliability of electric service in the PJM Control Area.

xiv) Solicit the views of Members on, and commission from time to time as it shall deem appropriate independent reviews of, (A) the performance of the PJM Interchange Energy Market, (B) compliance by Market Participants with the rules and requirements of the PJM Interchange Energy Market, and (C) the performance of the Office of the Interconnection under performance criteria proposed by the Members Committee and approved by the PJM Board; and

xv) Terminate a Member as may be appropriate under the terms of this Agreement.

## 8. MEMBERS COMMITTEE

### 8.1 Sectors.

#### 8.1.1 Designation.

Voting on the Members Committee shall be by sectors. The Members Committee shall be composed of five sectors, one for Generation Owners, one for Other Suppliers, one for Transmission Owners, one for Electric Distributors, and one for End-Use Customers, provided that there are at least five Members in each Sector. Except as specified in Section 8.1.2, each Voting Member shall have one vote. Each Voting Member shall, within thirty (30) days after the Effective Date or, if later, thirty (30) days after becoming a Member, and thereafter not later than 10 days prior to the Annual Meeting of the Members for each annual period beginning with the Annual Meeting of the Members, submit to the President a sealed notice of the sector in which it is qualified to vote or, if qualified to participate in more than one sector, its rank order preference of the sectors in which it wishes to vote, and shall be assigned to its highest-ranked sector that has the minimum number of Members specified above. If a Member is assigned to a sector other than its highest-ranked sector in accordance with the preceding sentence, its higher sector preference or preferences shall be honored as soon as a higher-ranked sector has five or more Members. A Voting Member may designate as its voting sector any sector for which it or its Affiliate or Related Party Members is qualified. The sector designations of the Voting Members shall be announced by the President at the Annual Meeting.

#### 8.1.2 Related Parties.

The Members in a group of Related Parties shall each be entitled to a vote, provided that all the Members in a group of Related Parties that chooses to exercise such rights shall be assigned to the Electric Distributor sector.

### 8.2 Representatives.

#### 8.2.1 Appointment.

Each Member may appoint a representative to serve on the Members Committee, with authority to act for that Member with respect to actions or decisions by the Members Committee. Each Member may appoint an alternate representative to act for that Member at meetings of the Members Committee in the absence of the representative. A Member participating in the PJM Interchange Energy Market through an agent may be represented on the Members Committee by that agent. A Member shall appoint its representative by giving written notice identifying its representative and alternate representative to the Office of the Interconnection. Members that are Affiliates or Related Parties may each appoint a representative and alternate representative to the Members Committee, but shall vote as specified in Section 8.1.

#### 8.2.2 Regulatory Authorities.

FERC and any other federal agency with regulatory authority over a Member, each State electric utility regulatory commission with regulatory jurisdiction within the PJM Control Area, and each office of consumer advocate from each State all or any part of the

territory of which is within the PJM Control Area, may nominate one representative to serve as an *ex officio* non-voting member of the Members Committee.

**8.2.3 Initial Representatives.**

Initial representatives to the Members Committee shall be appointed no later than 30 days after the Effective Date; provided, however, that each representative to the Management Committee under the Operating Agreement of PJM Interconnection, L.L.C. as in effect immediately prior to the Effective Date shall automatically become a representative to the Members Committee on the Effective Date unless replaced as specified in Section 8.2.4. An entity becoming a Member shall appoint a representative to the Members Committee no later than 30 days after becoming a Member.

**8.2.4 Change of or Substitution for a Representative.**

Any Member may change its representative or alternate on the Members Committee at any time by providing written notice to the Office of the Interconnection identifying its replacement representative or alternate. Any representative to the Members Committee may, by written notice to the Chair, designate a substitute representative from that Member to act for him or her with respect to any matter specified in such notice.

**8.3 Meetings.**

**8.3.1 Regular and Special Meetings.**

The Members Committee shall hold regular meetings, no less frequently than once each calendar quarter at such time and at such place as shall be fixed by the Chair. The Members Committee shall hold an Annual Meeting of the Members each calendar year at such time and place as shall be specified by the Chair. At the Annual Meeting of the Members, Board Members as necessary, officers of the Members Committee, and representatives to the Finance Committee shall be elected. The Members Committee may hold special meetings for one or more designated purposes within the scope of the authority of the Members Committee when called by the Chair on the Chair's own initiative, or at the request of five or more representatives on the Members Committee. The notice of a regular or special meeting shall be distributed to the representatives as specified in Section 18.13 of this Agreement not later than seven days prior to the meeting, shall state the time and place of the meeting, and shall include an agenda sufficient to notify the representatives of the substance of matters to be considered at the meeting; provided, however, that meetings may be called on shorter notice at the discretion of the Chair as the Chair shall deem necessary to deal with an emergency or to meet a deadline for action.

**8.3.2 Attendance.**

Regular and special meetings may be conducted in person or by telephone, or other electronic means as authorized by the Members Committee. The attendance in person or by telephone or other electronic means of a representative or a duly designated substitute shall be required in order to vote.

### 8.3.3 Quorum.

The attendance as specified in Section 8.3.2 of two Voting Members from at least three sectors that each have at least five Members shall constitute a quorum. No action may be taken by the Members Committee at a meeting unless a quorum is present; provided, however, that if a quorum is not present, the Voting Members then present shall have the power to adjourn the meeting from time to time until a quorum shall be present.

## 8.4 Manner of Acting.

(a) All matters brought up for a vote or approval by the Members Committee shall be stated in the form of a motion, which must be seconded. Only one motion may be pending at one time.

(b) Each Sector shall be entitled to cast one and zero one-hundredths (1.00) Sector Votes. Each Voting Member shall be entitled to cast one (1) non-divisible vote in its sector. In the case of a Voting Member comprised of Affiliates or Related Parties, any representative, alternate or substitute of any of the Affiliated or Related Parties may cast the vote of the Voting Member. The Sector Vote of each sector shall be split into an affirmative component based on votes for the pending motion, and a negative component based on votes against the pending motion, in direct proportion to the votes cast within the sector for and against the pending motion, rounded to two decimal places.

(c) The sum of affirmative Sector Votes necessary to pass the pending motion shall be greater than (but not merely equal to) the product of .667 multiplied by the number of sectors that have at least five Members and that participated in the vote.

(d) Voting Members not in attendance at the meeting as specified in Section 8.3.2 of this Agreement or abstaining shall not be counted as affirmative or negative votes.

## 8.5 Chair and Vice Chair of the Members Committee.

### 8.5.1 Selection and Term.

The representatives or their alternates or substitutes on the Members Committee shall elect from among the representatives a Chair and a Vice Chair. The offices of Chair and Vice Chair shall be held for a term of one year and until succession to the office occurs as specified herein. Except as specified below, at each Annual Meeting of the Members the Vice Chair shall succeed to the office of Chair, and a new Vice Chair shall be elected. If the office of Chair becomes vacant, or the Chair leaves the employment of the Member for whom the Chair is the representative, or the Chair is no longer the representative of such Member, the Vice Chair shall succeed to the office of Chair, and a new Vice Chair shall be elected at the next regular or special meeting of the Members Committee, both such officers to serve until the second Annual Meeting of the Members following such succession or election to a vacant office. If the office of Vice Chair becomes vacant, or the Vice Chair leaves the employment of the Member for whom the Vice Chair is the representative, or the Vice Chair is no longer the representative of such Member, a new Vice Chair shall be elected at the next regular or special meeting of the Members Committee.

### 8.5.2 Duties.

The Chair shall call and preside at meetings of the Members Committee, and shall carry out such other responsibilities as the Members Committee shall assign. The Chair shall cause minutes of each meeting of the Members Committee to be taken and maintained, and shall cause notices of meetings of the Members Committee to be distributed. The Vice Chair shall preside at meetings of the Members Committee in the absence of the Chair, and shall otherwise act for the Chair at the Chair's request.

### 8.6 Other Committees.

(a) The Members Committee may form, select the membership, and oversee the activities, of an Operating Committee, a Planning Committee, and an Energy Market Committee as standing committees, and such other committees, subcommittees, task forces, working groups or other bodies as it shall deem appropriate, to provide advice and recommendations to the Members Committee or to the Office of the Interconnection as directed by the Members Committee.

(b) The Members Committee shall elect representatives to the Alternate Dispute Resolution Committee as specified in the PJM Dispute Resolution Procedures.

### 8.7 User Groups.

(a) Any five or more Members sharing a common interest may form a User Group, and may invite such other Members to join the User Group as the User Group shall deem appropriate. Notification of the formation of a User Group shall be provided to all members of the Members Committee.

(b) The Members Committee shall create a User Group composed of representatives of *bona fide* public interest and environmental organizations that are interested in the activities of the LLC and are willing and able to participate in such a User Group.

(c) Meetings of User Groups shall be open to all Members and the Office of the Interconnection. Notices and agendas of meetings of a User Group shall be provided to all Members that ask to receive them.

(d) Any recommendation or proposal for action adopted by affirmative vote of three-fourths or more of the members of a User Group shall be circulated by the Office of the Interconnection to the representatives on the Members Committee and shall be considered by the Members Committee at its next regular meeting occurring not earlier than 30 days after the circulation of such notice.

(e) If the Members Committee does not adopt a recommendation or proposal submitted to it by a User Group, upon vote of nine-tenths or more of the members of the User Group the recommendation or proposal may be submitted to the PJM Board for its consideration in accordance with Section 7.7(v).

### 8.8 Powers of the Members Committee.

The Members Committee, acting by adoption of a motion as specified in Section 8.4, shall have the power to take the actions specified in this Agreement, including:

i) Elect the members of the PJM Board;

ii) In accordance with the provisions of Section 18.6 of this Agreement, amend any portion of this Agreement, including the Schedules hereto, or create new Schedules, and file any such amendments or new Schedules with FERC or other regulatory body of competent jurisdiction;

iii) Terminate this Agreement; and

iv) Provide advice and recommendations to the PJM Board and the Office of the Interconnection.

## 9. OFFICERS

### 9.1 Election and Term.

The officers of the LLC shall consist of a President, a Secretary and a Treasurer. The PJM Board may elect such other officers as it deems necessary to carry out the business of the LLC. All officers shall be elected by the PJM Board and shall hold office until the next annual meeting of the PJM Board and until their successors are elected. Any number of offices may be held by the same person, except that the offices of the President and Treasurer may not be held by the same person.

### 9.2 President.

The PJM Board shall appoint a President and Chief Executive Officer of the LLC (the "President"). The President shall direct and supervise the day-to-day operation of the LLC, and shall report to the PJM Board. The President shall be responsible for directing and supervising the Office of the Interconnection in the performance of the duties and responsibilities specified in Section 10.4. The President shall execute bonds, mortgages and other contracts requiring a seal, under the seal of the LLC, except where required or permitted by law to be otherwise signed and executed and except where the signing and execution thereof shall be expressly delegated by the board to some other officer or agent of the LLC. In the absence of the President or in the event of his or her inability or refusal to act, and if a vice president has been appointed by the PJM Board, the Vice President (or in the event there be more than one Vice President, the Vice Presidents in the order designated by the PJM Board in its Minutes) shall perform the duties of the President, and when so acting, shall have all the powers of and be subject to all the restrictions upon the President. The Vice President shall perform such other duties and have such other powers as the PJM Board may from time to time prescribe.

### 9.3 Secretary.

The Secretary shall attend all meetings of the PJM Board and record all the proceedings of the meetings of the PJM Board in a minute book to be kept for that purpose and shall perform like duties for the standing committees or special committees when required. He or she shall give, or cause to be given, notice of all special meetings of the PJM Board, and shall perform such other duties as may be prescribed by the PJM Board or President, under whose supervision he or she shall be. He or she shall have custody of the corporate seal of the LLC,

and he or she, or an assistant secretary, shall have authority to affix the same to any instrument requiring it and, when so affixed, it may be attested by his or her signature or by the signature of such assistant secretary. The PJM Board may give general authority to any other officer to affix the seal of the LLC and to attest the affixing by his or her signature.

### 9.4 Treasurer.

The Treasurer shall have or arrange for the custody of the LLC's funds and securities and shall keep full and accurate accounts of receipts and disbursements in books belongings to the LLC and shall deposit all moneys and other valuable effects in the name and to the credit of the LLC in such depositories as may be designated by the PJM Board. The Treasurer shall disburse the funds of the LLC as may be ordered by the PJM Board, taking proper vouchers for such disbursements, and shall render to the President and PJM Board at its regular meetings, or when the PJM Board so requires, an account of his or her transactions as Treasurer and of the financial condition of the LLC. If required by the Board, the Treasurer shall give the LLC a bond (which shall be renewed periodically) in such sum and with such surety or sureties as shall be satisfactory to the PJM Board for the faithful performance of the duties of his office and of the restoration to the LLC, in case of his or her death, resignation, retirement or removal from office, of all books, papers, vouchers, money and other property of whatever kind in his or her possession or under his or her control belonging to the LLC.

### 9.5 Renewal of Officers; Vacancies.

Any officer elected or appointed by the PJM Board may be removed at any time by the affirmative vote of a majority of the PJM Board eligible to vote. Any vacancy occurring in any office of the LLC shall be filled by the PJM Board.

### 9.6 Compensation.

The salaries of all officers and agents of the LLC, and the reasonable compensation of the PJM Board, shall be fixed by the PJM Board.

## 10. OFFICE OF THE INTERCONNECTION.

### 10.1 Establishment.

The Office of the Interconnection shall implement this Agreement, administer the PJM Tariff, and undertake such other responsibilities as set forth herein. All personnel of the Office of the Interconnection shall be employees of the LLC or under contract thereto. The cost of the Office of the Interconnection and expenses associated therewith, including salaries and expenses of said personnel, space and any necessary facilities or other capital expenditures, shall be recovered in accordance with Schedule 3. The Office of the Interconnection shall adopt, publish and comply with standards of conduct that satisfy the regulations of FERC.

### 10.2 Processes and Organization.

In order to carry out the responsibilities of the Office of the Interconnection for the safe and reliable operation of the Interconnection, the President may establish processes and organization for operating personnel and facilities as the President shall deem appropriate, and

shall request such Members as the President shall deem appropriate to participate in such processes and organization. All such processes and organization shall be carried out in accordance with all applicable code of conduct or other functional separation requirements of FERC.

**10.3 Confidential Information.**

The Office of the Interconnection shall comply with the requirements of Section 18.17 with respect to any proprietary or confidential information received from or about any Member.

**10.4 Duties and Responsibilities.**

The Office of the Interconnection, under the direction of the President as supervised and overseen by the PJM Board, shall carry out the following duties and responsibilities, in accordance with the provisions of this Agreement:

i) Administer and implement this Agreement;

ii) Perform such functions in furtherance of this Agreement as the PJM Board, acting within the scope of its duties and responsibilities under this Agreement, may direct;

iii) Prepare, maintain, update and disseminate the PJM Manuals;

iv) Comply with MAAC and NERC operation and planning standards, principles and guidelines;

v) Maintain an appropriately trained workforce, and such equipment and facilities, including computer hardware and software and backup power supplies, as necessary or appropriate to implement or administer this Agreement;

vi) Direct the operation and coordinate the maintenance of the facilities of the Interconnection used for both load and reactive supply, so as to maintain reliability of service and obtain the benefits of pooling and interchange consistent with this Agreement and the Reliability Assurance Agreement;

vii) Direct the operation and coordinate the maintenance of the bulk power supply facilities of the Interconnection with such facilities and systems of others not party to this Agreement in accordance with agreements between the LLC and such other systems to secure reliability and continuity of service and other advantages of pooling on a regional basis;

viii) Perform interchange accounting and maintain records pertaining to the operation of the PJM Interchange Energy Market and the Interconnection;

ix) Notify the Members of the receipt of any application to become a Member, and of the action of the Office of the Interconnection on such application, including but not limited to the completion of integration of

a new Member's system into the PJM Control Area as specified in Section 11.6(f);

x) Calculate the Weighted Interest of each Member;

xi) Maintain accurate records of the sectors in which each Voting Member is entitled to vote, and calculate the results of any vote taken in the Members Committee;

xii) Furnish appropriate information and reports as are required to keep the Members regularly informed of the outlook for, the functioning of, and results achieved by the Interconnection;

xiii) File with FERC on behalf of the Members any amendments to this Agreement or the Schedules hereto, any new Schedules hereto, and make any other regulatory filings on behalf of the Members or the LLC necessary to implement this Agreement;

xiv) At the direction of the PJM Board, submit comments to regulatory authorities on matters pertinent to the Interconnection;

xv) Consult with the standing or other committees established pursuant to Section 8.6(a) on matters within the responsibility of the committee;

xvi) Perform operating studies of the bulk power supply facilities of the Interconnection and make such recommendations and initiate such actions as may be necessary to maintain reliable operation of the Interconnection;

xvii) Accept, on behalf of the Members, notices served under this Agreement;

xviii) Perform those functions and undertake those responsibilities transferred to it under the Transmission Owners Agreement, including (A) direct the operation of the transmission facilities of the parties to the Transmission Owners Agreement, (B) administer the PJM Tariff, and (C) administer the Regional Transmission Expansion Planning Protocol set forth as Schedule 6 to this Agreement.

xix) Perform those functions and undertake those responsibilities transferred to it under the Reliability Assurance Agreement, as specified in Schedule 8 of this Agreement.

xx) Monitor the operation of the PJM Control Area, ensure that appropriate Emergency plans are in place and appropriate Emergency drills are conducted, declare the existence of an Emergency, and direct the operations of the Members as necessary to manage, alleviate or end an Emergency;

xxi) Incorporate the grid reliability requirements applicable to nuclear generating units in the PJM Control Area planning and operating principles and practices; and

xxii) Initiate such legal or regulatory proceedings as directed by the PJM Board to enforce the obligations of this Agreement.

## 11. MEMBERS

### 11.1 Management Rights.

The Members or any of them shall not take part in the management of the business of, and shall not transact any business for, the LLC in their capacity as Members, nor shall they have power to sign for or to bind the LLC.

### 11.2 Other Activities.

Except as otherwise expressly provided herein, any Member may engage in or possess any interest in another business or venture of any nature and description, independently or with others, even if such activities compete directly with the business of the LLC, and neither the LLC nor any Member hereof shall have any rights in or to any such independent ventures or the income or profits derived therefrom.

### 11.3 Member Responsibilities.

#### 11.3.1 General.

To facilitate and provide for the work of the Office of the Interconnection and of the several committees appointed by the Members Committee, each Member shall, to the extent applicable;

(a) Maintain adequate records and, subject to the provisions of this Agreement for the protection of the confidentiality of proprietary or commercially sensitive information, provide data required for (i) coordination of operations, (ii) accounting for all interchange transactions, (iii) preparation of required reports, (iv) coordination of planning, including those data required for capacity accounting, (v) preparation of maintenance schedules, (vi) analysis of system disturbances, and (vii) such other purposes, including those set forth in Schedule 2, as will contribute to the reliable and economic operation of the Interconnection;

(b) Provide such recording, telemetering, communication and control facilities as are required for the coordination of its operations with the Office of the Interconnection and those of the other Members and to enable the Office of the Interconnection to operate the PJM Control Area and otherwise implement and administer this Agreement, including equipment required in normal and Emergency operations and for the recording and analysis of system disturbances;

(c) Provide adequate and properly trained personnel to (i) permit participation in the coordinated operation of the Interconnection, (ii) meet its obligation on a timely basis for supply of records and data, (iii) serve on committees and participate in their investigations, and (iv) share in the representation of the Interconnection in inter-regional and national reliability activities;

(d) Share in the costs of committee activities and investigations (including costs of consultants, computer time and other appropriate items), communication facilities used by all the Members (in addition to those provided in the Office of the Interconnection), and such other expenses as are approved for payment by the PJM Board, such costs to be recovered as provided in Schedule 3;

(e) Comply with the requirements of the PJM Manuals and all directives of the Office of the Interconnection to take any action for the purpose of managing, alleviating or ending an Emergency, and authorize the Office of the Interconnection to direct the transfer or interruption of the delivery of energy on their behalf to meet an Emergency and to implement agreements with other Control Areas interconnected with the PJM Control Area for the mutual provision of service to meet an Emergency, and be subject to the emergency procedure charges specified in Schedule 9 of this Agreement for any failure to follow the Emergency instructions of the Office of the Interconnection.

**11.3.2 Facilities Planning and Operation.**

Consistent with and subject to the requirements of this Agreement, the PJM Tariff, the MAAC Agreement, the Reliability Assurance Agreement, the Transmission Owners Agreement, and the PJM Manuals, each Member shall cooperate with the other Members in the coordinated planning and operation of the facilities of its System within the PJM Control Area so as to obtain the greatest practicable degree of reliability, compatible economy and other advantages from such coordinated planning and operation. In furtherance of such cooperation each Member shall, as applicable:

(a) Consult with the other Members and the Office of the Interconnection, and coordinate the installation of its electric generation and Transmission Facilities with those of such other Members so as to maintain reliable service in the PJM Control Area;

(b) Coordinate with the other Members, the Office of the Interconnection and with others in the planning and operation of the regional facilities to secure a high level of reliability and continuity of service and other advantages;

(c) Cooperate with the other Members and the Office of the Interconnection in the implementation of all policies and procedures established pursuant to this Agreement for dealing with Emergencies, including but not limited to policies and procedures for maintaining or arranging for a portion of a Member's Capacity Resources at least equal to the level established pursuant to the Reliability Assurance Agreement to have the ability to go from a shutdown condition to an operating condition and start delivering power without assistance from the power system;

(d) Cooperate with the members of MAAC to augment the reliability of the bulk power supply facilities of the region and comply with MAAC and NERC operating and planning standards, principles and guidelines and the PJM Manuals;

(e) Obtain or arrange for transmission service as appropriate to carry out this Agreement;

(f) Cooperate with the Office of the Interconnection's coordination of the operating and maintenance schedules of the Member's generating and Transmission Facilities

with the facilities of other Members to maintain reliable service to its own customers and those of the other Members and to obtain economic efficiencies consistent therewith;

(g) Cooperate with the other Members and the Office of the Interconnection in the analysis, formulation and implementation of plans to prevent or eliminate conditions that impair the reliability of the Interconnection; and

(h) Adopt and apply standards adopted pursuant to this Agreement and conforming to MAAC and NERC standards, principles and guidelines and the PJM Manuals, for system design, equipment ratings, operating practices and maintenance practices.

**11.3.3 Electric Distributors.**

In addition to any of the foregoing responsibilities that may be applicable, each Member that is an Electric Distributor, whether or not that Member votes in the Members Committee in the Electric Distributor sector or meets the eligibility requirements for any other sector of the Members Committee, shall:

(a) Accept, comply with or be compatible with all standards applicable within the PJM Control Area with respect to system design, equipment ratings, operating practices and maintenance practices as set forth in the PJM Manuals, or be subject to an interconnected Member's requirements relating to the foregoing, so that sufficient electrical equipment, control capability, information and communication are available to the Office of the Interconnection for planning and operation of the PJM Control Area;

(b) Assure the continued compatibility of its local system energy management system monitoring and telecommunications systems to satisfy the technical requirements of interacting automatically or manually with the Office of the Interconnection as it directs the operation of the PJM Control Area;

(c) Maintain or arrange for a portion of its connected load to be subject to control by automatic underfrequency, under-voltage, or other load-shedding devices at least equal to the levels established pursuant to the Reliability Assurance Agreement, or be subject to another Member's control for these purposes;

(d) Provide or arrange for sufficient reactive capability and voltage control facilities to conform to Good Utility Practice and (i) to meet the reactive requirements of its system and customers and (ii) to maintain adequate voltage levels and the stability required by the bulk power supply facilities of the Interconnection;

(e) Shed connected load, share Capacity Resources, initiate active load management programs, and take such other coordination actions as may be necessary in accordance with the directions of the Office of the Interconnection in Emergencies;

(f) Maintain or arrange for a portion of its Capacity Resources at least equal to the level established pursuant to the Reliability Assurance Agreement to have the ability to go from a shutdown condition to an operating condition and start delivering power without *assistance from* the power system;

(g) Provide or arrange through another Member for the services of a 24-hour local control center to coordinate with the Office of the Interconnection, each such control

center to be furnished with appropriate telemetry equipment as specified in the PJM Manuals, and to be staffed by system operators trained and delegated sufficient authority to take any action necessary to assure that the system for which the operator is responsible is operated in a stable and reliable manner;

(h) Provide to the Office of the Interconnection all System, accounting, customer tracking, load forecasting 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.

**11.6 Membership Requirements.**

(a) To qualify as a Member, an entity shall:

i) Be a Transmission Owner within the PJM Control Area or an Eligible Customer under the PJM Tariff;

ii) If not a Transmission Owner, be a Generation Owner, an Other Supplier, an Electric Distributor, or an End-Use Consumer;

iii) Be engaged in buying, selling or transmitting electric energy in or through the Interconnection or have a good faith intent to do so; and

iv) Accept the obligations set forth in this Agreement.

(b) Certain Members that are Load Serving Entities are parties to the Reliability Assurance Agreement. Upon becoming a Member, any entity that is a Load Serving Entity and that wishes to become a Market Buyer shall also simultaneously execute the Reliability Assurance Agreement.

(c) An entity that wishes to become a party to this Agreement shall apply, in writing, to the President setting forth its request, its qualifications for membership, its agreement to supply data as specified in this Agreement, its agreement to pay all costs and expenses in accordance with Schedule 3, and providing all information specified pursuant to the Schedules to this Agreement for entities that wish to become Market Participants. Any such application that meets all applicable requirements shall be approved by the President within sixty (60) days.

(d) Nothing in this Section 11 is intended to remove, in any respect, the choice of participation by other utility companies or organizations in the operation of the Interconnection through inclusion in the System of a Member.

(e) An entity whose application is accepted by the President pursuant to Section 11.6(c) shall execute a supplement to this Agreement in substantially the form prescribed in Schedule 4, which supplement shall be countersigned by the President and tendered for filing with FERC by the President. The entity shall become a Member effective on the date specified by FERC when accepting the supplement for filing.

(f) Entities whose applications contemplate expansion or rearrangement of the PJM Control Area may become Members promptly as described in Sections 11.6(c) and 11.6(e) above, but the integration of the applicant's system into all of the operation and accounting provisions of this Agreement and the Reliability Assurance Agreement shall occur only after completion of all required installations and modifications of metering, communications, computer programming, and other necessary and appropriate facilities and procedures, as determined by the Office of the Interconnection. The Office of the Interconnection shall notify the other Members when such integration has occurred.

## 12. TRANSFERS OF MEMBERSHIP INTEREST

The rights and obligations created by this Agreement shall inure to and bind the successors and assigns of such Member; provided, however, that the rights and obligations of any Member hereunder shall not be assigned without the approval of the Members Committee except as to a successor in operation of a Member's electric operating properties by reason of a merger, consolidation, reorganization, sale, spinoff, or foreclosure, as a result of which substantially all such electric operating properties are acquired by such a successor, and such successor becomes a Member.

## 13. INTERCHANGE

### 13.1 Interchange Arrangements with Non-Members.

Any Member may enter into interchange arrangements with others who are not Members with respect to the delivery or receipt of capacity and energy to fulfill its obligations hereunder or for any other purpose, subject to the standards and requirements established in or pursuant to this Agreement.

### 13.2 Energy Market.

The Office of the Interconnection shall administer an efficient energy market within the Interconnection, to be known as the PJM Interchange Energy Market, in which Members may buy and sell energy. The Office of the Interconnection will schedule in advance and dispatch generation on the basis of least-cost, security-constrained dispatch and the prices and operating characteristics offered by sellers within and into the Interconnection, continuing until sufficient generation is dispatched to serve the energy purchase requirements of the Interconnection and buyers out of the Interconnection, as well as the requirements of the Interconnection for ancillary services provided by such generation. Scheduling and dispatch shall be conducted in accordance with applicable schedules to the PJM Tariff and the Schedules to this Agreement.

## 14. METERING

### 14.1 Installation, Maintenance and Reading of Meters.

The quantities of electric energy involved in determination of the amounts of the billing rendered hereunder shall be ascertained by means of meters installed, maintained and read either at the expense of the party on whose premises the meters are located or as otherwise provided for by agreement between the parties concerned.

### 14.2 Metering Procedures.

Procedures with respect to maintenance, testing, calibrating, correction and registration records, and precision tolerance of all metering equipment shall be in accordance with Good Utility Practice. The expense of testing any meter shall be borne by the party owning such meter, except that when a meter tested upon request of another party is found to register within the established tolerance the party making the request shall bear the expense of such test.

### 14.3 Integrated Megawatt-Hours

All metering of energy required herein shall be the integration of megawatt hours in the clock hour, and the quantities thus obtained shall constitute the megawatt load for such clock hour; provided, however, that adjustment shall be made for other contractual obligations of any Member as may be required to determine the quantity to be accounted for hereunder, and for transmission losses.

### 14.4 Meter Locations.

The meter locations to be used by the Members in determining their energy transactions on the Interconnection shall be as reasonably determined from time to time by the Member or the Office of the Interconnection.

## 15. ENFORCEMENT OF OBLIGATIONS

### 15.1 Failure to Meet Obligations.

#### 15.1.1 Termination of Market Buyer Rights.

The Office of the Interconnection shall terminate a Market Buyer's right to make purchases from the PJM Interchange Energy Market if it determines that the Market Buyer does not continue to meet the obligations set forth in this Agreement, provided that the Office of the Interconnection has notified the Market Buyer of any such deficiency and afforded the Market Buyer a reasonable opportunity to cure it. The Office of the Interconnection shall reinstate a Market Buyer's right to make purchases from the PJM Interchange Energy Market upon demonstration by the Market Buyer that it has come into compliance with the obligations set forth in this Agreement.

#### 15.1.2 Termination of Market Seller Rights.

The Office of the Interconnection shall not accept offers from a Market Seller that has not complied with the prices, terms, or operating characteristics of any of its prior scheduled transactions in the PJM Interchange Energy Market, unless such Market Seller has taken appropriate measures to the satisfaction of the Office of the Interconnection to ensure future compliance.

#### 15.1.3 Payment of Bills.

(a) A Member shall make full and timely payment, in accordance with the terms specified by the Office of the Interconnection, of all bills rendered in connection with transactions in the PJM Interchange Energy Market or other services performed by the Office of the Interconnection, notwithstanding any disputed amount, but any such payment shall not be deemed a waiver of any right with respect to such dispute. Any Member that fails to make such payment, or otherwise fails to meet its financial or other obligations to a Member, the Office of the Interconnection or the LLC under this Agreement, shall upon expiration of the 30 day period specified below be in default. If the Office of the Interconnection concludes, upon its own initiative or the recommendation of or complaint by the Members Committee or any Member, that a Member is in breach of any obligation under this Agreement, the Office of the Interconnection shall so notify such Member and inform all other Members. The notified

Member may remedy such asserted breach by: (i) paying all amounts assertedly due, along with interest on such amounts calculated in accordance with the methodology specified for interest on refunds in FERC's regulations at 18 C.F.R. § 35.19a(a)(2)(iii); and (ii) demonstration to the satisfaction of the Office of the Interconnection that the Member has taken appropriate measures to meet any other obligation of which it was deemed to be in breach; provided, however, that any such payment or demonstration may be subject to a reservation of rights, if any, to subject such matter to the PJM Dispute Resolution Procedures; and provided, further, that any such determination by the Office of the Interconnection may be subject to review by the PJM Board upon request of the Member involved or the Office of the Interconnection. If a Member has not remedied a breach by the 30th day following receipt of the Office of the Interconnection's notice, or receipt of the PJM Board's decision on review, if applicable, then the Member shall be in default and, in addition to such other remedies as may be available to the LLC:

i) A defaulting Market Participant shall be precluded from buying or selling energy in the PJM Interchange Energy Market until the default is remedied as set forth above.

ii) A defaulting Member shall not be entitled to participate in the activities of any committee or other body established by the Members Committee or the Office of the Interconnection.

iii) A defaulting Member shall not be entitled to vote on the Members Committee or any other committee or other body established pursuant to this Agreement.

**15.2 Enforcement of Obligations.**

If the Office of the Interconnection sends a notice to the PJM Board that a Member has failed to perform an obligation under this Agreement, the PJM Board shall initiate such action against such Member to enforce such obligation as the PJM Board shall deem appropriate. Subject to the procedures specified in Section 15.1, a Member's failure to perform such obligation shall be deemed to be a default under this Agreement. In order to remedy a default, but without limiting any rights the LLC may have against the defaulting Member, the PJM Board may assess against, and collect from, the Members not in default, in proportion to their Weighted Interest, an amount equal to the amount that the defaulting Member has failed to pay to the Office of the Interconnection, along with appropriate interest, but such assessment shall in no way relieve the defaulting Member of its obligations, and shall confer upon the Members Committee the right to recover the assessed amounts from the defaulting Member. In addition to any amounts in default, the defaulting Member shall be liable to the LCC for reasonable costs incurred in enforcing the defaulting Member's obligations.

**15.3 Obligations to a Member in Default.**

The Members have no continuing obligation to provide the benefits of interconnected operations to a Member in default.

### 15.4 Obligations of a Member in Default.

A Member found to be in default shall take all possible measures to mitigate the continued impact of the default on the Members not in default, including, but not limited to, loading its own generation to supply its own load to the maximum extent possible.

### 15.5 No Implied Waiver.

A failure of a Member, the PJM Board, or the LLC to insist upon or enforce strict performance of any of the provisions of this Agreement shall not be construed as a waiver or relinquishment to any extent of such entity's right to assert or rely upon any such provisions, rights and remedies in that or any other instance; rather, the same shall be and remain in full force and effect.

## 16. LIABILITY AND INDEMNITY

### 16.1 Members.

(a) As between the Members, except as may be otherwise agreed upon between individual Members with respect to specified interconnections, each Member will indemnify and hold harmless each of the other Members, and its directors, officers, employees, agents, or representatives, of and from any and all damages, losses, claims, demands, suits, recoveries, costs and expenses (including all court costs and reasonable attorneys' fees), caused by reason of bodily injury, death or damage to property of any third party, resulting from or attributable to the fault, negligence or willful misconduct of such Member, its directors, officers, employees, agents, or representatives, or resulting from, arising out of, or in any way connected with the performance of its obligations under this Agreement, excepting only, and to the extent, such cost, expense, damage, liability or loss may be caused by the fault, negligence or willful misconduct of any other Member. The duty to indemnify under this Agreement will continue in full force and effect notwithstanding the expiration or termination of this Agreement or the withdrawal of a Member from this Agreement, with respect to any loss, liability, damage or other expense based on facts or conditions which occurred prior to such termination or withdrawal.

(b) The amount of any indemnity payment arising hereunder shall be reduced (including, without limitation, retroactively) by any insurance proceeds or other amounts actually recovered by the Member seeking indemnification in respect of the indemnified action, claim, demand, costs, damage or liability. If any Member shall have received an indemnity payment for an action, claim, demand, cost, damage or liability and shall subsequently actually receive insurance proceeds or other amounts for such action, claim, demand, cost, damage or liability, then such Member shall pay to the Member that made such indemnity payment the lesser of the amount of such insurance proceeds or other amounts actually received and retained or the net amount of the indemnity payments actually received previously.

### 16.2 LLC Indemnified Parties.

(a) The LLC will indemnify and hold harmless the PJM Board, the LLC's officers, employees and agents, and any representatives of the Members serving on the Members

Committee and any other committee created under Section 8 of this Agreement (all such Board Members, officers, employees, agents and representatives for purposes of this Section 16 being referred to as "LLC Indemnified Parties"), of and from any and all actions, claims, demands, costs (including consequential or indirect damages, economic losses and all court costs and reasonable attorneys' fees) and liabilities to any third parties, arising from, or in any way connected with, the performance of the LLC under this Agreement, or the fact that such LLC Indemnified Party was serving in such capacity, except to the extent that such action, claim, demand, cost or liability results from the willful misconduct of any LLC Indemnified Party with respect to participation in the misconduct. To the extent any dispute arises between any Member and the LLC arising from, or in any way connected with, the performance of the LLC under this Agreement, the Member and the LLC shall follow the PJM Dispute Resolution Procedures. To the extent that any such action, claim, demand, cost or liability arises from a Member's contractual or other obligation to provide electric service directly or indirectly to said third party, which obligation to provide service is limited by the terms of any tariff, service agreement, franchise, statute, regulatory requirement, court decision or other limiting provision, the Member designates the LLC and each LLC Indemnified Party a beneficiary of said limitation.

(b) An LLC Indemnified Party shall not be personally liable for monetary damages for any breach of fiduciary duty by such LLC Indemnified Party, except that an LLC Indemnified Party shall be liable to the extent provided by applicable law (i) for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law, or (ii) for any transaction from which the LLC Indemnified Party derived an improper personal benefit. Notwithstanding (i) and (ii), indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the LLC if and to the extent that the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which such court shall deem proper. If applicable law is hereafter construed or amended to authorize the further elimination or limitation of the liability of LLC Indemnified Parties, then the liability of *the LLC* Indemnified Parties, in addition to the limitation on personal liability provided herein, shall be limited to the fullest extent permitted by law. No amendment to or repeal of this section shall apply to or have any effect on the liability or alleged liability of any LLC Indemnified Party or with respect to any acts or omissions occurring prior to such amendment or repeal. The termination of any action, suit or proceeding by judgment, order, settlement, conviction, or upon a plea of *nolo contendere* or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which such person reasonably believed to be in or not opposed to the best interests of the LLC, and with respect to any criminal action or proceeding, had reasonable cause to believe that his or her conduct was unlawful.

(c) The LLC may pay expenses incurred by an LLC Indemnified Party in defending a civil, criminal, administrative or investigative action, suit or proceeding in advance of the final disposition of such action, suit or proceeding upon receipt of an undertaking by or on behalf of such LLC Indemnified Party to repay such amount if it shall ultimately be determined

that such LLC Indemnified Party is not entitled to be indemnified by the LLC as authorized in this Section.

(d) In the event the LLC incurs liability under this Section 16.2 that is not adequately covered by insurance, such amounts shall be recovered pursuant to the PJM Tariff as provided in Schedule 3 of this Agreement.

**16.3 Worker' Compensation Claims.**

Each Member shall be solely responsible for all claims of its own employees, agents and servants growing out of any Worker's Compensation Law.

**16.4 Limitation of Liability.**

No Member or its directors, officers, employees, agents, or representatives shall be liable to any other Member or its directors, officers, employees, agents, or representatives, whether liability arises out of contract, tort (including negligence), strict liability, or any other cause of or form of action whatsoever, for any indirect, incidental, consequential, special or punitive cost, expense, damage or loss, including but not limited to loss of profits or revenues, cost of capital of financing, loss of goodwill or cost of replacement power, arising from such Member's performance or failure to perform any of its obligations under this Agreement or the ownership, maintenance or operation of its System; provided, however, that nothing herein shall be deemed to reduce or limit the obligations of any Member with respect to the claims of persons or entities that are not parties to this Agreement.

**16.5 Resolution of Disputes.**

To the extent any dispute arises between one or more Members regarding any issue covered by this Agreement, the Members shall follow the dispute resolution procedures set forth in the PJM Dispute Resolution Procedures.

**16.6 Gross Negligence or Willful Misconduct.**

Neither the LLC nor the LLC Indemnified Parties shall be liable to the Members or any of them for any claims, demands or costs arising from, or in any way connected with, the performance of the LLC under this Agreement other than actions, claims or demands based on gross negligence or willful misconduct; provided, however, that nothing herein shall limit or reduce the obligations of the LLC to the Members or any of them under the express terms of this Agreement or the PJM Tariff, including, but not limited to, those set forth in Sections 6.2 and 6.3 of this Agreement.

**16.7 Insurance.**

The PJM Board shall be authorized to procure insurance against the risks borne by the LLC and the LLC Indemnified Parties, the cost of which shall be treated as a cost and expense of the LLC.

## 17. MEMBER REPRESENTATIONS, WARRANTIES AND COVENANTS

### 17.1 Representations and Warranties.

Each Member makes the following representations and warranties to the LLC and each other Member, as of the Effective Date or such later date as such Member shall become admitted as a Member of the LLC.

#### 17.1.1 Organization and Existence.

Such Member is an entity duly organized, validly existing and in good standing under the laws of the state of its organization.

#### 17.1.2 Power and Authority.

Such Member has the full power and authority to execute, deliver and perform this Agreement and to carry out the transactions contemplated hereby.

#### 17.1.3 Authorization and Enforceability.

The execution and delivery of this Agreement by such Member and the performance of its obligations hereunder have been duly authorized by all requisite action on the part of the Member, and do not conflict with any applicable law or with any other agreement binding upon the Member. The Agreement has been duly executed and delivered by such Member and constitutes the legal, valid and binding obligation of such Member, enforceable against it in accordance with the terms thereof, except insofar as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws affecting the enforcement of creditors' rights generally, and to general principles of equity whether such principles are considered in proceedings in law or in equity.

#### 17.1.4 No Government Consents.

No authorization, consent, approval or order of, notice to or registration, qualification, declaration or filing with, any governmental authority is required for the execution, delivery and performance by such Member of this Agreement or the carrying out by such Member of the transactions contemplated hereby other than such authorization, consent, approval or order of, notice to or registration, qualification, declaration or filing that is pending before such governmental authority.

#### 17.1.5 No Conflict or Breach.

None of the execution, delivery and performance by such Member of this Agreement, the compliance with the terms and provisions hereof and the carrying out of the transactions contemplated hereby, conflicts or will conflict with or will result in a breach or violation of any of the terms, conditions or provisions of any law, governmental rule or regulation or the charter documents or bylaws of such Member or any applicable order, writ, injunction, judgment or decree of any court or governmental authority against such Member or by which it or any of its properties, is bound, or any loan agreement, *indenture*, *mortgage*, bond, note, resolution, contract or other agreement or instrument to which such Member is a

party or by which it or any of its properties is bound, or constitutes or will constitute a default thereunder or will result in the imposition of any lien upon any of its properties.

**17.1.6 No Proceedings.**

There are no actions at law, suits in equity, proceedings or claims pending or, to the knowledge of the Member, threatened against the Member before any federal, state, foreign or local court, tribunal or government agency or authority that might materially delay, prevent or hinder the performance by the Member of its obligations hereunder.

**17.2 Municipal Electric Systems.**

Any provisions of Section 17.1 notwithstanding, if any Member that is a municipal electric system believes in good faith that the provisions of Sections 5.1(b) and 16.1 of this Agreement may not lawfully be applied to that Member under applicable state law governing municipal activities, the Member may request a waiver of the pertinent provisions of the Agreement. Any such request for waiver shall be supported by an opinion of counsel for the Member to the effect that the provision of the Agreement as to which waiver is sought may not lawfully be applied to the Member under applicable state law. The PJM Board shall have the right to have the opinion of the Member's counsel reviewed by counsel to the LLC. If the PJM Board concludes that either or both of Sections 5.1(b) and 16.1 of this Agreement may not lawfully be applied to a municipal electric system Member, it shall waive the application of the affected provision or provisions to such municipal Member. Any Member not permitted by law to indemnify the other Members shall not be indemnified by the other Members.

**17.3 Survival.**

All representations and warranties contained in this Section 17 shall survive the execution and delivery of this Agreement.

## 18. MISCELLANEOUS PROVISIONS

**18.1 Transmission Owners Rights.**

Neither the PJM Board nor the Members Committee shall take any action which has the effect of modifying or limiting the following rights and obligations of Transmission Owners, which are hereby reserved to the Transmission Owners; provided, however, that the rights and obligations of the Transmission Owners set forth below shall be exercised in a manner consistent with applicable obligations under the Federal Power Act and FERC's rules and regulations thereunder:

(a) The right at any time of Transmission Owners individually or collectively to file pursuant to Section 205 of the Federal Power Act for any change in rates and charges for transmission or an ancillary service that it deems necessary to recover its transmission revenue requirements for providing service under the PJM Tariff.

*(b)* The right of Transmission Owners individually or collectively to adopt and implement procedures to protect their electric facilities from physical damage or to prevent injury or damage to persons or property.

(c) The right of Transmission Owners individually or collectively to build, acquire, sell, dispose, retire, merge or otherwise transfer or convey all or any part of its or their assets, including but not limited to any Transmission Facilities, such right to include, but not be limited to, the right, individually or collectively, to terminate the relationship with the LLC in connection with the creation of a transmission company to own and/or operate the Transmission Facilities of the Transmission Owners or any of them.

(d) The ability of Transmission Owners individually or collectively to take whatever actions it or they deem necessary to fulfill its or their obligations under local, state or federal law.

(e) The right of any Transmission Owner to withdraw from this Agreement in accordance with its provisions.

**18.2 Fiscal and Taxable Year.**

The fiscal year and taxable year of the LLC shall be the calendar year.

**18.3 Reports.**

Each year prior to the Annual Meeting of the Members, the PJM Board shall cause to be prepared and distributed to the Members a report of the LLC's activities since the prior report.

**18.4 Bank Accounts; Checks, Notes and Drafts.**

(a) Funds of the LLC shall be deposited in an account or accounts of a type, in form and name and in a bank(s) or other financial institution(s) which are participants in federal insurance programs as selected by the PJM Board. The PJM Board shall arrange for the appropriate conduct of such accounts. Funds may be withdrawn from such accounts only for *bona fide* and legitimate LLC purposes and may from time to time be invested in such short-term securities, money market funds, certificates of deposit or other liquid assets as the PJM Board deems appropriate. All checks or demands for money and notes of the LLC shall be signed by any officer or by any other person designated by the PJM Board.

(b) The Members acknowledge that the PJM Board may maintain LLC funds in accounts, money market funds, certificates of deposit, other liquid assets in excess of the insurance provided by the Federal Deposit Insurance Corporation, or other depository insurance institutions and that the PJM Board shall not be accountable or liable for any loss of such funds resulting from failure or insolvency of the depository institution.

(c) Checks, notes, drafts and other orders for the payment of money shall be signed by such persons as the PJM Board from time to time may authorize. When the PJM Board so authorizes, the signature of any such person may be a facsimile.

**18.5 Books and Records.**

(a) At all times during the term of the LLC, the PJM Board shall keep, or cause to be kept, full and accurate books of account, records and supporting documents, which shall reflect, completely, accurately and in reasonable detail, each transaction of the LLC. The books of account shall be maintained and tax returns prepared and filed on the method of accounting determined by the PJM Board. The books of account, records and all documents

and other writings of the LLC shall be kept and maintained at the principal office of the Interconnection.

(b) The PJM Board shall cause the Office of the Interconnection to keep at its principal office the following:

i) A current list in alphabetical order of the full name and last known business address of each Member, the Weighted Interest of each Member, and the Members Committee sector of each Voting Member;

ii) A copy of the Certificate of Formation and the Certificate of Conversion, and all Certificates of Amendment thereto;

iii) Copies of the LLC's federal, state, and local income tax returns and reports, if any, for the three most recent years; and

iv) Copies of the Operating Agreement, as amended, and of any financial statements of the LLC for the three most recent years.

**18.6 Amendment.**

(a) Except as provided by law or otherwise set forth herein, this Agreement, including any Schedule hereto, may be amended, or a new Schedule may be created, only upon: (i) submission of the proposed amendment to the PJM Board for its review and comments; (ii) approval of the amendment or new Schedule by the Members Committee, after consideration of the comments of the PJM Board, in accordance with Section 8.4, or written agreement to an amendment of all Members not in default at the time the amendment is agreed upon; and (iii) approval and/or acceptance for filing of the amendment by FERC and any other regulatory body with jurisdiction thereof as may be required by law. If and as necessary, the Members Committee may file with FERC or other regulatory body of competent jurisdiction any amendment to this Agreement or to its Schedules or a new Schedule not filed by the Office of the Interconnection.

(b) Notwithstanding the foregoing, an applicant eligible to become a Member in accordance with the procedures specified in this Agreement shall become a Member by executing a counterpart of this Agreement without the need for amendment of this Agreement or execution of such counterpart by any other Member.

(c) Each of the following fundamental changes to the LLC shall require or be deemed to require an amendment to this Agreement and shall require the prior approval of FERC:

i) Adoption of any plan of merger or consolidation;

ii) Adoption of any plan of sale, lease or exchange of assets relating to all, or substantially all, of the property and assets of the LLC;

iii) Adoption of any plan of division relating to the division of the LLC into two or more corporations or other legal entities;

iv) Adoption of any plan relating to the conversion of the LLC into a stock corporation;

v) Adoption of any proposal of voluntary dissolution; or

vi) Taking any action which has the purpose or effect of the adoption of any plan or proposal described in items (i), (ii), (iii), (iv) or (v) above.

**18.7 Interpretation.**

Wherever the context may require, any noun or pronoun used herein shall include the corresponding masculine, feminine or neuter forms. The singular form of nouns, pronouns and verbs shall include the plural and vice versa.

**18.8 Severability.**

Each provision of this Agreement shall be considered severable and if for any reason any provision is determined by a court or regulatory authority of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this Agreement shall continue in full force and effect and shall in no way be affected, impaired or invalidated, and such invalid, void or unenforceable provision shall be replaced with valid and enforceable provision or provisions which otherwise give effect to the original intent of the invalid, void or unenforceable provision.

**18.9 Force Majeure.**

No Member shall be liable to any other Member for damages or otherwise be in breach of this Agreement to the extent and during the period such Member's performance is prevented by any cause or causes beyond such Member's control and without such Member's fault or negligence, including but not limited to any act, omission, or circumstance occasioned by or in consequence of any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, or curtailment, order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities; provided, however, that any such foregoing event shall not excuse any payment obligation. Upon the occurrence of an event considered by a Member to constitute a force majeure event, such Member shall use due diligence to endeavor to continue to perform its obligations as far as reasonably practicable and to remedy the event, provided that no Member shall be required by this provision to settle any strike or labor dispute.

**18.10 Further Assurances.**

Each Member hereby agrees that it shall hereafter execute and deliver such further instruments, provide all information and take or forbear such further acts and things as may be reasonably required or useful to carry out the intent and purpose of this Agreement and as are not inconsistent with the terms hereof.

**18.11 Seal.**

The seal of the LLC shall have inscribed thereon the name of the LLC, the year of its organization and the words "Corporate Seal, Delaware." The seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

**18.12 Counterparts.**

This Agreement may be executed in any number of counterparts, each of which shall be an original but all of which together will constitute one instrument, binding upon all parties hereto, notwithstanding that all of such parties may not have executed the same counterpart.

**18.13 Costs of Meetings.**

Each Member shall be responsible for all costs of its representative, alternate or substitute in attending any meeting. The Office of the Interconnection shall pay the other reasonable costs of meetings of the PJM Board and the Members Committee, and such other committees, subcommittees, task forces, working groups, User Groups or other bodies as determined to be appropriate by the Office of the Interconnection, which costs otherwise shall be paid by the Members attending. The Office of the Interconnection shall reimburse all Board Members for their reasonable costs of attending meetings.

**18.14 Notice.**

(a) Except as otherwise expressly provided herein, notices required under this Agreement shall be in writing and shall be sent to a Member by overnight courier, hand delivery, telecopier or other reliable electronic means to the representative on the Members Committee of such Member at the address for such Member previously provided by such Member to the other Members or as otherwise directed by the Members Committee. Any such notice so sent shall be deemed to have been given (i) upon delivery if given by overnight couriers or hand delivery, or (ii) upon confirmation if given by telecopier or other reliable electronic means.

(b) Notices, as well as copies of the agenda and minutes of all meetings of committees, subcommittees, task forces, working groups, User Groups, or other bodies formed under this Agreement, shall be posted in a timely fashion on and made available for downloading from the PJM website.

**18.15 Headings.**

The section headings used in this Agreement are for convenience only and shall not affect the construction or interpretation of any of the provisions of this Agreement.

**18.16 No Third-Party Beneficiaries.**

This Agreement is intended to be solely for the benefit of the Members and their respective successors and permitted assigns and, unless expressly stated herein, is not intended to and shall not confer any rights or benefits on any third party (other than successors and permitted assigns) not a signatory hereto.

**18.17 Confidentiality.**

**18.17.1 Party Access.**

No Member shall have a right hereunder to receive or review any documents, data or other information of another Member, including documents, data or other information provided to the Office of the Interconnection, to the extent such documents, data or information have been designated as confidential pursuant to the procedures adopted by the

Office of the Interconnection or to the extent that they have been designated as confidential by such other Member; provided, however, a Member may receive and review any composite documents, data and other information that may be developed based on such confidential documents, data or information if the composite does not disclose any individual Member's confidential data or information.

**18.17.2 Required Disclosure.**

(a) Notwithstanding anything in the foregoing Section to the contrary, if a Member or the Office of the Interconnection is required by applicable law, or in the course of administrative or judicial proceedings, to disclose information that is otherwise required to be maintained in confidence pursuant to this Agreement, that Member or the Office of the Interconnection may make disclosure of such information; provided, however, that as soon as the Member or the Office of the Interconnection learns of the disclosure requirement and prior to making disclosure, that Member or the Office of the Interconnection shall notify the affected Member or Members of the requirement and the terms thereof and the affected Member or Members may direct, at their sole discretion and cost, any challenge to or defense against the disclosure requirement. The disclosing Member and the Office of the Interconnection shall cooperate with such affected Members to the maximum extent practicable to minimize the disclosure of the information consistent with applicable law. Each Member and the Office of the Interconnection shall cooperate with the affected Members to obtain proprietary or confidential treatment of such information by the person to whom such information is disclosed prior to any such disclosure.

(b) The Office of the Interconnection shall endeavor to impose on any contractors retained to provide technical support or otherwise to assist with the implementation or administration of this Agreement a contractual duty of confidentiality consistent with this Agreement. A Member shall not be obligated to provide confidential or proprietary information to any contractor that does not assume such a duty of confidentiality, and the Office of the Interconnection shall not provide any such information to any such contractor without the express written permission of the Member providing the information.

**18.18 Termination and Withdrawal.**

**18.18.1 Termination.**

Upon termination of this Agreement, final settlement for obligations under this Agreement shall include the accounting for the period ending with the last day of the last month for which the Agreement was effective.

**18.18.2 Withdrawal.**

Subject to the requirements of Section 1.4.6 of the Schedule 1 to this Agreement, any Member may withdraw from this Agreement upon 90 days notice to the Office of the Interconnection.

**18.18.3 Winding Up.**

Any provision of this Agreement that expressly or by implication comes into or remains in force following the termination or expiration of this Agreement shall survive such

termination or expiration. The surviving provisions shall include, but shall not be limited to: (i) those provisions necessary to permit the orderly conclusion, or continuation pursuant to another agreement, of transactions entered into prior to the decision to terminate this Agreement, (ii) those provisions necessary to conduct final billing, collection, and accounting with respect to all matters arising hereunder, and (iii) the indemnification provisions as applicable to periods prior to such termination or expiration.

IN WITNESS whereof, the Members have caused this Agreement to be executed by their duly authorized representatives.

## SCHEDULE 1

## PJM INTERCHANGE ENERGY MARKET

(Revises and replaces former Schedules 7.01 and 7.03)

Issued: June 2, 1997
Effective: August 1, 1997

# 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 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 an Internal Market Buyer's net system requirements to serve its customer load in the PJM Control Area, 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 number determined 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 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.

**1.3.10 Internal Market Buyer.**

"Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users inside the PJM Control Area.

**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.

**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.

**1.3.15 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 as that term is defined in the PJM Manuals, 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 and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load exceeds, or is exceeded by, the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy by an External Market Seller; or (c) the hourly net metered output of any other Market Seller; or (d) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer.

**1.3.26 PJM Interchange Export.**

"PJM Interchange Export" shall mean the following, as determined in accordance with Schedules to this Agreement and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load is exceeded by the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (c) 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 and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load exceeds the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer.

**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.

**1.3.31 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 Regulation Class.**

"Regulation Class" shall mean a subset of the generation units capable of providing Regulation to the PJM Control Area determined by a range of costs for providing Regulation as specified by the Office of the Interconnection using procedures specified in the PJM Manuals.

**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.

**1.3.34 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.

**1.3.38 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 a Load Serving Entity shall establish to the satisfaction of the Office of the Interconnection that the end-users as to which it or its principal is the Load Serving Entity, and which 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 by the Load Serving Entity or its agent. Such applicant shall further demonstrate that:

i) The foregoing Load Serving Entity (the applicant or its principal) is obligated to meet the requirements of the Reliability Assurance Agreement; and

ii) The foregoing Load Serving Entity is or will be a Network Service User as required by the Reliability Assurance Agreement for all PJM Interchange Energy Market purchases.

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

i) The applicant has obtained or will obtain 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) 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 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 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 execution of the PJM Dispute Resolution Agreement and 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 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, in accordance with the Schedules to this Agreement;

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 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 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, 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.

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 Internal Market Buyers 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. 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 Member's 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.**

The Office of the Interconnection shall schedule to the Operating Reserve and load-following objectives of the PJM Control Area, as defined in the PJM Manuals, in scheduling resources pursuant to this Schedule.

**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) Internal Market Buyers 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) External Market Buyers 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(c) 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, make 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 the information specified in the PJM Manuals.

**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 the information specified in the PJM Manuals. 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.**

The following scheduling procedures and principles shall govern the commitment of resources to the PJM Interchange Energy Market over a period extending from one week to one day prior to the Operating Day that transactions are to take place. Scheduling encompasses the day-ahead and hourly scheduling process, through which the Office of the Interconnection 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.

**1.10.1 Day-Ahead 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.

(a) Each Internal Market Buyer shall submit to the Office of the Interconnection forecasts of its customer loads for the next Operating Day as required by the PJM Manuals. If an Internal Market Buyer expects to curtail load at a specific Dispatch Rate, it should specify the Dispatch Rate and estimated load curtailment.

(b) An External Market Buyer 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) 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 if the parties to the transaction are not willing to incur Transmission Congestion Charges 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; 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) Market Sellers wishing to sell on the PJM Interchange 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) A Market Seller that wishes to sell Regulation service shall submit an offer for Regulation that shall specify the MW of Regulation being offered and the Regulation Class from which such Regulation is being offered. The range of costs defining Regulation Classes, and the average cost for each Regulation Class, shall be determined periodically by the Office of the Interconnection on the basis of prior energy bid prices and appropriate fuel indices, in accordance with procedures specified in the PJM Manuals. Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

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

(i) The Office of the Interconnection shall post on the PJM Open Access Same-time Information System 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.

### 1.10.2 Pool-Scheduled Resources.

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.

(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 Schedule 3 to this Agreement. Alternatively, the Market Seller shall receive any cancellation fee reflected in the Market Seller's offer in lieu of start-up and no-load fees, if any, 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.

### 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.

(b) Energy from a Capacity Resource that has not been selected as a pool-scheduled resource may be sold on a bilateral basis by the Market Seller, or may be self-scheduled. A Capacity Resource that has not been selected as a pool-scheduled resource 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 if the Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable Locational Marginal 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 scheduling process 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.

(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. A Market Seller offering energy from External Resources on an aggregated basis and that does not deliver energy as scheduled by the Office of the Interconnection shall be assessed a non-delivery charge as specified below.

(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. A Market Seller offering an External Resource on a resource-specific basis that does not deliver energy as scheduled by the Office of the Interconnection shall be assessed a non-delivery charge as specified below, unless the resource being offered has suffered a Generator Forced Outage. The burden shall be on the Market Seller to demonstrate to the reasonable satisfaction of the Office of the Interconnection that the resource being offered has experienced a Generator Forced Outage.

(d) Subject to the conditions specified in this paragraph, the non-delivery charge for External Resources that do not deliver energy as scheduled shall be calculated hourly as follows: Pro-rated start-up plus hourly no-load fees specified in the Offer Data + [offered minimum dispatch level x (Locational Marginal Price - offered energy price) x 110%]. For purposes of the foregoing calculation: (i) the Locational Marginal Price shall be the Locational Marginal Price at the buses at which the energy from the External Resource should have been delivered to the PJM Control Area; (ii) if the Locational Marginal Price less the offered energy price is less than zero, this difference shall be set to zero; and (iii) start-up and no-load fees shall be subject to the requirements of this Schedule. Payments or credits for non-delivery charges shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**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 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.

(d) An External Market Buyer that does not take delivery of the amounts of energy specified in its request to purchase shall be assessed a non-delivery charge, or if using Point-to-Point service within the PJM Control Area shall pay for imbalance service as specified in the Tariff. The non-delivery charge shall be calculated as the summation for all applicable busses of the product of (i) the Locational Marginal Price at each load bus at which delivery was not taken, times (ii) the amount of energy not taken each hour at such bus. The non-delivery charge shall not apply to deliveries curtailed by the Office of the Interconnection in accordance with this Schedule, or for periods when the Dispatch Rate exceeds the maximum value specified by the External Market Buyer in accordance with this Schedule. Payments or credits for non-delivery charges shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**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 that they are not willing to incur Transmission Congestion Charges shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions willing to

incur congestion charges 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 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. In making this determination, 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 based on the foregoing determination. 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.

(c) 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.

**1.10.9 Hourly Scheduling**

(a) Following the initial posting of the Office of the Interconnection's transmission congestion forecast, 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, and provided that the Office of the Interconnection is notified not later than the deadline specified in the PJM Manuals, a Market Participant may adjust the schedule of a

resource under its dispatch control on an hour-to-hour basis beginning at the time specified in the PJM Manuals, 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;

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

iii) 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.

(b) An External Market Buyer may refuse delivery of some or all of the energy it requested to purchase 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. Any such refusal of delivery shall be subject to non-delivery charges in accordance with this Schedule.

### 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.

### 1.11.4 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.

(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.

(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.

## 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.

### 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 Prices.

(a) To determine the energy offers submitted to the PJM Interchange Energy Market that shall be used to calculate the Locational Marginal 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 Prices if:

i) the 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) In determining whether a resource satisfies the condition described in (a), 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 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 Prices.

**2.5 Calculation of Locational Marginal 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 determined to be eligible for consideration under Section 2.4. 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 Price at that bus.

(b) 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 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 Prices for that hour, which will determine prices in the PJM Interchange Energy Market and Transmission Congestion Costs under the PJM Tariff.

**2.6 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) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the load payment for each Market Buyer's load bus. The load payment at each bus shall be the product of the Market Buyer's megawatts of load at such load bus in the hour times the Locational Marginal Price at the bus. 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 for each Market Buyer shall be the sum of the load payments for each of a Market Buyer's load busses.

(b) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the generation revenue for each Generating Market Buyer's generation bus. The generation revenue at each generation bus shall be the product of the Generating Market Buyer's megawatts of generation at such generation bus in the hour times the Locational Marginal Price at the bus. 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.

(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 and its total generation revenue. The portions of the net bill attributable to net hourly PJM Interchange and to Transmission Congestion Charges shall be determined as set forth below.

(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, 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) 500 kV transmission losses; (v) deliveries pursuant to bilateral energy sales; (vi) receipts pursuant to bilateral energy

purchases; (vii) Inadvertent Interchange allocated to the Market Buyer; and (viii) 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). For External Market Buyers, this calculation shall determine the energy delivered pursuant to the External Market Buyer's purchase request.

(e) The Office of the Interconnection shall calculate Locational Marginal Prices for each load and generation bus in the PJM Control Area, in accordance with Section 2 of this Schedule.

(f) An Internal Market Buyer shall be charged for Spot Market Energy purchases to the extent of its hourly net PJM Interchange Imports, determined as specified above. An External Market Buyer shall be charged for its Spot Market Energy purchases based on the energy delivered to it, determined as specified 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.

(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. If the Office of the Interconnection dispatches energy to serve load in the PJM Control Area, the pool-dispatched 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.

(h) If energy in excess of a Generating Market Buyer's Equivalent Load flows to the PJM Control Area from a self-scheduled resource, the Generating Market Buyer shall receive a payment or credit for such excess energy at a rate equal to the lesser of (i) 95% of the Locational Marginal Price at the delivery bus for such energy, or (ii) the Locational Marginal Price at the delivery bus for such energy if the Locational Marginal Price is negative. For purposes of the foregoing calculation, such excess energy shall be deemed to have been delivered from the Generating Market Buyer's self-scheduled resource or resources with the lowest Locational Marginal Price or Prices at the time of delivery. Revenues attributable to the difference between the market clearing price in the PJM Interchange Energy Market and payments or credits for excess energy from self-scheduled resources shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**3.2.2 Regulation.**

(a) Each Internal Market Buyer 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.

(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 price in that hour for the Regulation Class from which the Regulation was supplied, as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals. 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 average price paid by the Office of the Interconnection for Regulation.

**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) At the end of each Operating Day, the following determination shall be made for each synchronized pool-scheduled resource of each Market Seller: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the resource's actual output or available and requested time and type of operation, shall be compared to the total value of that resource's Spot Market Energy. If the total offered price exceeds the total value, the difference 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 as synchronous condensers at the request of Office of the Interconnection but producing no energy.

(c) The sum of the foregoing credits, plus any cancellation fees paid in accordance with Section 1.10.2(d), less any amounts received in accordance with Sections 1.10.5(d), 1.10.6(d) and 3.2.1(h) of this Schedule and payments received from another Control Area for Operating Reserves or from users of Point-to-Point Transmission Service within the PJM Control Area for imbalance service, shall be the cost of Operating Reserves for the PJM Control Area for each Operating Day.

(d) The cost of Operating Reserves for each Operating Day shall be allocated and charged to each Market Buyer in proportion to its total load during that Operating Day in the PJM Control Area.

**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 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 Internal Market Buyer 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 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 this 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) 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 to the PJM Control Area by each pool-scheduled or pool-dispatched resource of each Market Seller, in accordance with the PJM Manuals and the calculation described in Section 3.2.1(d).

(b) The Office of the Interconnection shall calculate Locational Marginal 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) A Market Seller shall be credited for sales of Spot Market Energy to the extent of its hourly net deliveries of energy to the PJM Control Area 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 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 from each of the Market Seller's pool-scheduled or pool-dispatched resources, times (ii) the hourly Locational Marginal Price at that bus.

(d) Market Sellers, including Generating Market Buyers, shall be charged for non-delivery of Spot Market Energy from resources that are not Capacity Resources, as specified in Section 1.10.5(d) of this Schedule.

**3.3.2 Regulation.**

Each Market Seller that is also an Internal Market Buyer shall have an hourly Regulation objective as specified in Section 3.2.2(a), and shall be credited or charged in connection therewith as specified in Section 3.2.2(b). 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 in that hour for the Regulation Class from which the Regulation was supplied, 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(b)

**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 other than entities that are also Internal Market Buyers 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 Price 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; (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; and (iii) determined in accordance with the provisions in the PJM Manuals on "Calculation of Losses for Transmission Services."

(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 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 the affected Market Buyer.

#### 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 the adjacent Control Area, in accordance with an agreement between the Office of the Interconnection and such adjacent Control Area that complies with this Agreement.

## 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 Locational Marginal Prices 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 Transmission Congestion Charge for each such delivery shall be the delivery amount multiplied by the difference between the Locational Marginal Price at the delivery interface and the Locational Marginal Price at the source interface, or 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 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 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 Total Transmission Congestion Charges.**

The total Transmission Congestion Charges collected by the Office of the Interconnection each hour will be the sum of the 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 Transmission Customer using firm Point-to-Point Transmission Service and each Network Service User 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 of each Network Service User and Transmission Customer, determined as specified below.

(b) Each Network Service User shall designate a subset of its Network Resources for which Fixed Transmission Rights will be assigned. The Fixed Transmission Right for each Network Resource shall be 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 to the aggregate load busses of the Network Service User. The sum of each Network Service User's Fixed Transmission Rights must be equal to or less than the Network Service User's projected annual peak load.

(c) Each Transmission Customer receiving firm Point-to-Point Transmission Service shall be assigned Fixed Transmission Rights. 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) The foregoing assignment of Fixed Transmission Rights shall be enhanced by an amendment to this Schedule, to be filed with FERC not later than December 31, 1997, that will provide for an auction of Fixed Transmission Rights over and above those FTRs obtained and retained by Network Service Users and Transmission Customers then receiving firm Point-to-Point Transmission Service (including firm Point-to-Point transmission service for existing bilateral contracts), such auction to be implemented as soon after December 31, 1997 as shall be determined by the Office of the Interconnection to be *reasonably* practical. For so long as Fixed Transmission Rights are assigned on the basis of Network Transmission Service and firm Point-to-Point Transmission Service, any Fixed Transmission Rights awarded pursuant to an auction shall be simultaneously feasible with all

Network Transmission Service and firm Point-to-Point Transmission Service obligations. The Members specified in Section 11.5(c) of the Agreement, working with the Office of the Interconnection, shall develop the details of the implementation of such an auction, including but not limited to the nature of the bidding process, the frequency of auctions, and the duration of the Fixed Transmission Rights purchased at auction.

### 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 Price minus the generation bus Locational Marginal 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 Price differences for the receipt and delivery points associated with the Fixed Transmission Right, calculated as the Locational Marginal 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. 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, each holder of Fixed Transmission Rights shall receive 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.

## SCHEDULE 2

Revision No. 2

## COMPONENTS OF COST

Issued: June 2, 1997
Effective: August 1, 1997

(a) Each Market Participant obligated to sell operating capacity on the PJM Interchange Energy Market at cost-based rates shall include the following components or their equivalent in the determination of costs for operating capacity supplied to or from the Interconnection:

(1) Boilers
Firing-up cost;
No-load cost during period of operation;
Peak-prepared-for maintenance cost;
Incremental labor cost; and
Other incremental operating costs.

(2) Machines
Starting cost from cold to synchronized operation;
No-load cost during period of operation;
Incremental labor cost; and
Other incremental operating costs.

(b) Each Member obligated to sell energy on the PJM Interchange Energy Market at cost-based rates shall include the following components or their equivalent in the determination of costs for energy supplied to the Interconnection:

Incremental fuel cost;
Incremental maintenance cost;
Incremental labor cost; and
Other incremental operating costs.

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

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

## SCHEDULE 2 -- EXHIBIT A
## EXPLANATION OF THE TREATMENT OF THE COSTS OF EMISSION ALLOWANCES

Issued: June 2, 1997
Effective: August 1, 1997

The cost of emission allowances is included in "Other Incremental Operating Costs" pursuant to Schedule 2. The replacement cost of emission allowances will be used to recover the cost of emission allowances consumed as a result of producing energy for the Interconnection.

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Consistent with definitions promulgated by the PJM Board upon consideration of the advice and recommendations of the Members Committee under Schedule 2, each Member subject to Schedule 2 will determine and provide to the Interconnection its replacement cost of emission allowances, such cost to be an amount not exceeding the market price index published by Cantor-Fitzgerald Environmental Brokerage Services ("EBS"), or a PJM Board approved index in the event that EBS should cease publication of such index. As with all other components of cost required for accounting under this Agreement, each Member subject to Schedule 2 will use the same replacement cost of emissions allowances, so determined, as it uses for coordinating operation of its generating facilities hereunder.

For each Member subject to Schedule 2, the cost of emissions allowances is included in the cost of energy supplied to or received from the Interconnection.

Payment

The Members subject to Schedule 2 waive the right of payment-in-kind for emission allowances for transactions wholly between the parties. Cash payments for emission allowances consumed in providing energy for the Interconnection shall be incorporated into and conducted pursuant to the billing procedures for energy prescribed by this Agreement.

Calculation of Emission Allowance Amount and Cost

Pursuant to the letter from the PJM Interconnection to FERC dated June 26, 1995, the calculation of an annual average for the cost of emission allowances, described below, is required due to the profile of the PJM physical system and PJM Energy Management software system. Approximately five hundred and forty generating units comprise the PJM system, of which 9 units are Phase I units. Current real-time operational software and hardware tools used in the transaction of energy do not identify individual units, and therefore do not identify Phase I units. (The pool has contracted with a vendor to supply a new Energy Management System to be installed over the next several years.) It is currently not possible for system operators to provide actual individual unit emission allowance costs in real time transaction *quotations*.

An average emission allowance cost based on a standard production cost study case will be used to calculate the average cost of emission allowances for each pool megawatt produced. This cost for the current year is less than 0.2 dollars per megawatt-hour.

In summary, for the above-mentioned reasons, it is not practical nor cost effective to provide actual individual emission allowance costs in real-time transaction quotations. Therefore, the annual average method is proposed.

The Emission Allowances (Tons of $SO_2$)associated with a transaction will be calculated by multiplying the magnitude of a transaction (MWhr) by an Emissions per MWHr Factor (Tons of $SO_2$ per MWhr):

| Emission Allowances Used (Tons of $SO_2$) | = | Transaction Magnitude (MWhr) | x | Emissions per MWhr Factor (Tons of $SO_2$ per MWhr) |
|---|---|---|---|---|

The Emissions per MWHr Factor will be calculated by dividing the forecast annual emissions from all Phase I units (Tons of $SO_2$) by the Forecast Annual Total PJM Energy Production (MWhr):

$$\text{Emissions per MWhr Factor (Tons of } SO_2 \text{ per MWhr)} = \frac{\text{Forecast Annual Phase I Unit Emissions (Tons of } SO_2)}{\text{Forecast Annual Total PJM Energy Production (MWhr)}}$$

Likewise, the cost (Dollars) of the Emission Allowances for a transaction will be calculated by multiplying the transaction magnitude (MWhr) by a Charge per MWhr Factor (Dollars per MWHr).

| Cost of Emission Allowances Used (Dollars) | = | Transaction Magnitude (MWhr) | x | Charge per MWhr Factor (Dollars per MWhr) |
|---|---|---|---|---|

The Charge per MWhr Factor will be calculated by multiplying, for each Member subject to Schedule 2, its Forecast Annual Emissions (Tons of $SO_2$)by its respective Emissions Allowance Replacement Cost (Dollars per Ton of $SO_2$) to yield each the forecasted annual cost of emissions (Dollars). Then, the total of forecasted annual cost of emissions for each Member subject to Schedule 2 is divided by the Forecast Annual Total PJM Energy Production (MWhr) to determine the Charge per MWHr Factor (Dollars per MWHr).

$$\text{Charge per MWhr Factor} = \frac{\Sigma(A \times B)}{C}$$ , where:

A = Member's Forecasted Annual Emissions, (Tons of $SO_2$)

B = Emission Allowance Replacement Cost, (Dollars per Ton of $SO_2$, per company)

C = Forecast Annual PJM Energy Production, (MWhr)

## SCHEDULE 3

Revision No. 6

## ALLOCATION OF THE COST AND EXPENSES OF THE OFFICE OF THE INTERCONNECTION

Issued: June 2, 1997
Effective: August 1, 1997

(a) Each group of Affiliates, each group of Related Parties, and each Member that is not in such a group shall pay an annual membership fee, the proceeds of which shall be used to defray the costs and expenses of the LLC, including the Office of the Interconnection. The amount of the annual fee as of the Effective Date shall be $5,000. The amount of the annual membership fee shall be adjusted from time to time by the PJM Board to keep pace with inflation.

(b) All remaining costs of the operation of the LLC and the Office of the Interconnection and the expenses, including, without limitation, the costs of any insurance and any claims not covered by insurance, associated therewith as provided in this Agreement shall be costs of Scheduling, System Control and Dispatching Service under the PJM Tariff and shall be recovered pursuant to the PJM Tariff.

(c) An entity accepted for membership in the LLC shall pay all costs and expenses associated with additions and modifications to its own metering, communication, computer, and other appropriate facilities and procedures needed to effect the inclusion of the entity in the operation of the Interconnection.

## SCHEDULE 4

Revision No. 1

## STANDARD FORM OF AGREEMENT TO BECOME A MEMBER OF THE LLC

Issued: June 2, 1997
Effective: August 1, 1997

Any entity which wishes to become a Member of the LLC shall, pursuant to Section 11.6 of this Agreement, tender to the President an application, upon the acceptance of which it shall execute a supplement to this Agreement in the following form:

### Additional Member Agreement

1. This Additional Member Agreement (the "Supplemental Agreement"), dated as of _____, is entered into among _____ and the President of the LLC acting on behalf of its Members.

2. _____ has demonstrated that it meets all of the qualifications required of a Member to the Operating Agreement. If expansion of the PJM Control Area is required to integrate _____'s facilities, a copy of Attachment J from the PJM Tariff marked to show changes in Control Area boundaries is attached hereto. _____ agrees to pay for all required metering, telemetering and hardware and software appropriate for it to become a member.

3. _____ agrees to be bound by and accepts all the terms of the Operating Agreement as of the above date.

4. _____ hereby gives notice that the name and address of its initial representative to the Members Committee under the Operating Agreement shall be:

_____

5. The President of the LLC is authorized under the Operating Agreement to execute this Supplemental Agreement on behalf of the Members and to file it with regulatory authorities having jurisdiction.

6. The Operating Agreement is hereby amended to include _____ as a Member of the LLC thereto, effective as of _____, _____.

IN WITNESS WHEREOF, _____ *and the Members of* the LLC have caused this Supplemental Agreement to be executed by their duly authorized representatives.

Members of the LLC

By:
Name:
Title: President

By:
Name:
Title:

## SCHEDULE 5

Revision No. 1

## PJM DISPUTE RESOLUTION PROCEDURES

Issued: June 2, 1997
Effective: August 1, 1997

### 1. DEFINITIONS

**1.1 Alternate Dispute Resolution Committee.**

"Alternate Dispute Resolution Committee" shall mean the Committee established pursuant to Section 5 of this Schedule.

**1.2 MAAC Dispute Resolution Committee.**

"MAAC Dispute Resolution Committee" shall mean the committee established by the Mid-Atlantic Area Council to administer its industry-specific mechanism for resolving certain types of wholesale electricity disputes.

**1.3 Related PJM Agreements.**

"Related PJM Agreements" shall mean this Agreement, the Transmission Owners Agreement, and the Reliability Assurance Agreement.

### 2. PURPOSES AND OBJECTIVES

**2.1 Common and Uniform Procedures.**

The PJM Dispute Resolution Procedures are intended to establish common and uniform procedures for resolving disputes arising under the Related PJM Agreements. To the extent any of the foregoing agreements or the PJM Tariff contain dispute resolution provisions expressly applicable to disputes arising thereunder, however, this Agreement shall not supplant such provisions, which shall apply according to their terms.

**2.2 Interpretation.**

To the extent permitted by applicable law, the PJM Dispute Resolution Procedures are to be interpreted to effectuate the objectives set forth in Section 2.1. To the extent permitted by these PJM Dispute Resolution Procedures, the Alternate Dispute Resolution Committee shall coordinate with the MAAC Dispute Resolution Committee, where appropriate, in order to conserve administrative resources and to avoid duplication of dispute resolution staffing.

## 3. NEGOTIATION AND MEDIATION

### 3.1 When Required.

The parties to a dispute shall undertake good-faith negotiations to resolve any dispute as to a matter governed by one of the Related PJM Agreements. Each party to a dispute shall designate an executive with authority to resolve the matter in dispute to participate in such negotiations. Any dispute as to a matter governed by one of the Related PJM Agreements that has not been resolved through good-faith negotiation shall be subject to non-binding mediation prior to the initiation of arbitral, regulatory, judicial, or other dispute resolution proceedings as may be appropriate as provided by these PJM Dispute Resolution Procedures.

### 3.2 Procedures.

#### 3.2.1 Initiation.

If a dispute that is subject to the mediation procedures specified herein has not been resolved through good-faith negotiation, a party to the dispute shall notify the Alternate Dispute Resolution Committee in writing of the existence and nature of the dispute prior to commencing any other form of proceeding for resolution of the dispute. The Alternate Dispute Resolution Committee shall have ten calendar days from the date it first receives notification of the existence of a dispute from any of the parties to the dispute in which to distribute to the parties a list of mediators.

#### 3.2.2 Selection of Mediator.

The Chair of the Alternate Dispute Resolution Committee shall distribute to the parties by facsimile or other electronic means a list containing the names of seven mediators with mediation experience, or with technical or business experience in the electric power industry, or both, as it shall deem appropriate to the dispute. The Chair of the Alternate Dispute Resolution Committee may draw from the lists of mediators maintained by the MAAC Dispute Resolution Committee, as the Chair shall deem appropriate. The persons on the proposed list of mediators shall have no official, financial, or personal conflict of interest with respect to the issues in controversy, unless the interest is fully disclosed in writing to all participants in the mediation process and all such participants waive in writing any objection to the interest. The parties shall alternate in striking names from the list with the last name on the list becoming the mediator. The determination of which party shall have the first strike off the list shall be determined by lot. The parties shall have ten calendar days to complete the mediator selection process, unless the time is extended by mutual agreement.

#### 3.2.3 Advisory Mediator.

If the Alternate Dispute Resolution Committee deems it appropriate, it shall distribute two lists, one containing the names of seven mediators with mediation experience, and one containing the names of seven mediators with technical or business experience in the electric power industry. In connection with circulating the foregoing lists, the Alternate Dispute Resolution Committee shall specify one of the lists as containing the proposed mediators, and the other as a list of proposed advisors to assist the mediator in resolving the

dispute. The parties shall then utilize the alternative strike procedure set forth above until one name remains on each list, with the last named persons serving as the mediator and advisor.

**3.2.4 Mediation Process.**

The disputing parties shall attempt in good faith to resolve their dispute in accordance with procedures and a timetable established by the mediator. In furtherance of the mediation efforts, the mediator may:

(a) Require the parties to meet for face-to-face discussions, with or without the mediator;

(b) Act as an intermediary between the disputing parties;

(c) Require the disputing parties to submit written statements of issues and positions;

(d) If requested by the disputing parties at any time in the mediation process, provide a written recommendation on resolution of the dispute including, if requested, the assessment by the mediator of the merits of the principal positions being advanced by each of the disputing parties; and

(e) Adopt, when appropriate, the Center for Public Resources Model ADR Procedures for the Meditation of Business Disputes (as revised from time to time) to the extent such Procedures are not inconsistent with any rule, standard, or procedure adopted by the Alternate Dispute Resolution Committee or with any provision of this Agreement.

**3.2.5 Mediator's Assessment.**

(a) If a resolution of the dispute is not reached by the thirtieth day after the appointment of the mediator or such later date as may be agreed to by the parties, if not previously requested to do so the mediator shall promptly provide the disputing parties with a written, confidential, non-binding recommendation on resolution of the dispute, including the assessment by the mediator of the merits of the principal positions being advanced by each of the disputing parties. The recommendation may incorporate or append, if and as the mediator may deem appropriate, any recommendations or any assessment of the positions of the parties by the advisor, if any. Upon request, the mediator shall provide any additional recommendations or assessments the mediator shall deem appropriate.

(b) At a time and place specified by the mediator after delivery of the foregoing recommendation, the disputing parties shall meet in a good faith attempt to resolve the dispute in light of the recommendation of the mediator. Each disputing party shall be represented at the meeting by a person with authority to settle the dispute, along with such other persons as each disputing party shall deem appropriate. If the disputing parties are unable to resolve the dispute at or in connection with this meeting, then: (i) any disputing party may commence such arbitral, judicial, regulatory or other proceedings as may be appropriate as provided in the PJM Dispute Resolution Procedures; and (ii) the recommendation of the *mediator*, and any statements made by any party in the mediation process, *shall have no* further force or effect, and shall not be admissible for any purpose, in any subsequent arbitral, administrative, judicial, or other proceeding.

### 3.3 Costs.

Except as specified in Section 4.13, the costs of the time, expenses, and other charges of the mediator and any advisor, and of the mediation process, shall be borne by the parties to the dispute, with each side in a mediated matter bearing one-half of such costs, and each party bearing its own costs and attorney's fees incurred in connection with the mediation.

## 4. ARBITRATION

### 4.1 When Required.

Any dispute as to a matter: (i) governed by one of the Related PJM Agreements that has not been resolved through the mediation procedures specified herein, (ii) involving a claim that one or more of the parties owes or is owed a sum of money, and (iii) the amount in controversy is less than $1,000,000.00, shall be subject to binding arbitration in accordance with the procedures specified herein. If the parties so agree, any other disputes as to a matter governed by a Related PJM Agreement may be submitted to binding arbitration in accordance with the procedures specified herein.

### 4.2 Binding Decision.

Except as specified in Section 4.1, the resolution by arbitration of any dispute under this Agreement shall not be binding.

### 4.3 Initiation.

A party or parties to a dispute which is subject to the arbitration procedures specified herein shall send a written demand for arbitration to the Chair of the Alternate Dispute Resolution Committee with a copy to the other party or parties to the dispute. The demand for arbitration shall state each claim for which arbitration is being demanded, the relief being sought, a brief summary of the grounds for such relief and the basis for the claim, and shall identify all other parties to the dispute.

### 4.4 Selection of Arbitrator(s).

The parties to a dispute for which arbitration has been demanded may agree on any person to serve as a single arbitrator, or shall endeavor in good faith to agree on a single arbitrator from a list of arbitrators prepared for the dispute by the Alternate Dispute Resolution Committee and delivered to the parties by facsimile or other electronic means promptly after receipt by the Alternate Dispute Resolution Committee of a demand for arbitration. The Alternate Dispute Resolution Committee may draw from the lists of arbitrators maintained by the MAAC Dispute Resolution Committee, as the Alternate Dispute Resolution Committee deems appropriate. If the parties are unable to agree on a single arbitrator by the fourteenth day following delivery of the foregoing list of arbitrators or such other date as agreed to by the parties, then not later than the end of the seventh business day thereafter the party or parties demanding arbitration on the one hand, and the party or parties responding to the demand for arbitration on the other, shall each designate an arbitrator from a list for the dispute prepared by the Alternate Dispute Resolution Committee. The arbitrators so chosen shall then choose a third arbitrator.

### 4.5 Procedures.

The Alternate Dispute Resolution Committee shall compile and make available to the arbitrator(s) and the parties standard procedures for the arbitration of disputes, which procedures (i) shall include provision, upon good cause shown, for intervention or other participation in the proceeding by any party whose interests may be affected by its outcome, (ii) shall conform to the requirements specified in these PJM Dispute Resolution Procedures, and (iii) may be modified or adopted for use in a particular proceeding as the arbitrator(s) deem appropriate. To the extent deemed appropriate by the Alternate Dispute Resolution Committee, the procedures adopted by the Alternate Dispute Resolution Committee shall be based on the American Arbitration Association Rules, to the extent such Rules are not inconsistent with any rule, standard or procedure adopted by the Alternate Dispute Resolution Committee, or with any provision of these PJM Dispute Resolution Procedures. Upon selection of the arbitrator(s), arbitration shall go forward in accordance with applicable procedures.

### 4.6 Summary Disposition and Interim Measures.

#### 4.6.1 Lack of Good Faith Basis.

The procedures for arbitration of a dispute shall provide a means for summary disposition of a demand for arbitration, or a response to a demand for arbitration, that in the reasoned opinion of the arbitrator(s) does not have a good faith basis in either law or fact. If the arbitrator(s) determine(s) that a demand for arbitration or response to a demand for arbitration does not have a good faith basis in either law or fact, the arbitrator(s) shall have discretion to award the costs of the time, expenses, and other charges of the arbitrator(s) to the prevailing party.

#### 4.6.2 Discovery Limits.

The procedures for the arbitration of a dispute shall provide a means for summary disposition without discovery of facts if there is no dispute as to any material fact, or with such limited discovery as the arbitrator(s) shall determine is reasonably likely to lead to the prompt resolution of any disputed issue of material fact.

#### 4.6.3 Interim Decision.

The procedures for the arbitration of a dispute shall permit any party to a dispute to request the arbitrator(s) to render a written interim decision requiring that any action or decision that is the subject of a dispute not be put into effect, or imposing such other interim measures as the arbitrator(s) deem necessary or appropriate, to preserve the rights and obligations secured by any of the Related PJM Agreements during the pendency of the arbitration proceeding. The parties shall be bound by such written decision pending the outcome of the arbitration proceeding.

### 4.7 Discovery of Facts.

#### 4.7.1 Discovery Procedures.

The procedures for the arbitration of a dispute shall include adequate provision for the discovery of relevant facts, including the taking of testimony under oath, production of

documents and other things, and inspection of land and tangible items. The nature and extent of such discovery shall be determined as provided herein and shall take into account (i) the complexity of the dispute, (ii) the extent to which facts are disputed, and (iii) the amount in controversy. The forms and methods for taking such discovery shall be as described in the Federal Rules of Civil Procedure, except as modified by the procedures established by the Alternate Dispute Resolution Committee, the arbitrator(s) or agreement of the parties.

**4.7.2 Procedures Arbitrator.**

The sole arbitrator, or the arbitrator selected by the arbitrators chosen by the parties, as the case may be (such arbitrator being hereafter referred to as the "Procedures Arbitrator"), shall be responsible for establishing the timing, amount, and means of discovery, and for resolving discovery and other pre-hearing disagreement. If a dispute involves contested issues of fact, promptly after the selection of the arbitrator(s) the Procedures Arbitrator shall convene a meeting of the parties for the purpose of establishing a schedule and plan of discovery and other pre-hearing actions.

**4.8 Evidentiary Hearing.**

The procedures for the arbitration of a dispute shall provide for an evidentiary hearing, with provision for the cross-examination of witnesses, unless all parties consent to the resolution of the matter on the basis of a written record. The forms and methods for taking evidence shall be as described in the Federal Rules of Evidence, except as modified by the procedures established by the Alternate Dispute Resolution Committee, the arbitrator(s) or agreement of the parties. The arbitrator(s) may require such written or other submissions from the parties as shall be deemed appropriate, including submission of the direct testimony of witnesses in written form. The arbitrator(s) may exclude any evidence that is irrelevant, immaterial, unduly repetitious or prejudicial, or privileged. Any party or parties may arrange for the preparation of a record of the hearing, and shall pay the costs thereof. Such party or parties shall have no obligation to provide or agree to the provision of a copy of the record of the hearing to any party that does not pay an equal share of the cost of the record. At the request of any party, the arbitrator(s) shall determine a fair and equitable allocation of the costs of the preparation of a record between or among the parties to the proceeding willing to share such costs.

**4.9 Confidentiality.**

**4.9.1 Designation.**

Any document or other information obtained in the course of an arbitral proceeding and not otherwise available to the receiving party, including any such information contained in documents or other means of recording information created during the course of the proceeding, may be designated "Confidential" by the producing party. The party producing documents or other information marked "Confidential" shall have twenty days from the production of such material to submit a request to the Procedures Arbitrator to establish such requirements for the protection of such documents or other information designated as "Confidential" as may be reasonable and necessary to protect the confidentiality and commercial value of such information and the rights of the parties, which requirements shall be binding on all parties to the dispute. Prior to the decision of the Procedures Arbitrator on a

request for confidential treatment, documents or other information designated as "Confidential" shall not be used by the receiving party or parties, or the arbitrator(s), or anyone working for or on behalf of any of the foregoing, for any purpose other than the arbitration proceeding, and shall not be disclosed in any form to any person not involved in the arbitration proceeding without the prior written consent of the party producing the information or as permitted by the Procedures Arbitrator.

**4.9.2 Compulsory Disclosure.**

Any party receiving a request or demand for disclosure, whether by compulsory process, discovery request, or otherwise, of documents or information obtained in the course of an arbitration proceeding that have been designated "Confidential" and that are subject to a non-disclosure requirement under these PJM Dispute Resolution Procedures or a decision of the Procedures Arbitrator, shall immediately inform the party from which the information was obtained, and shall take all reasonable steps, short of incurring sanctions or other penalties, to afford the person or entity from which the information was obtained an opportunity to protect the information from disclosure. Any party disclosing information in violation of these PJM Dispute Resolution Procedures or requirements established by the Procedures Arbitrator shall thereby waive any right to introduce or otherwise use such information in any judicial, regulatory, or other legal or dispute resolution proceeding, including the proceeding in which the information was obtained.

**4.9.3 Public Information.**

Nothing in the Related PJM Agreements shall preclude the use of documents or information properly obtained outside of an arbitral proceeding, or otherwise public, for any legitimate purpose, notwithstanding that the information was also obtained in the course of the arbitral proceeding.

**4.10 Timetable.**

Promptly after the selection of the arbitrator(s), the arbitrator(s) shall set a date for the issuance of the arbitral decision, which shall be not later than eight months (or such earlier date as may be agreed to by the parties to the dispute) from the date of the selection of the arbitrator(s), with other dates, including the dates for an evidentiary hearing or other final submissions of evidence, set in light of this date. The date for the evidentiary hearing or other final submission of evidence shall not be changed absent extraordinary circumstances. The arbitrator(s) shall have the power to impose sanctions, including dismissal of the proceeding for dilatory tactics or undue delay in completing the arbitral proceedings.

**4.11 Advisory Interpretations.**

Except as to matters subject to decision in the arbitration proceeding, the arbitrator(s) may request as may be appropriate from any committee or subcommittee established under a Related PJM Agreement or by the Office of the Interconnection, an interpretation of any Related PJM Agreements, or of any standard, requirement, procedure, tariff, Schedule, principle, plan or other criterion or policy established by any committee or subcommittee. Except to the extent that the Office of the Interconnection is itself a party to a dispute, the arbitrator(s) may request the advice of the Office of the Interconnection with respect to any

matter relating to a responsibility of the Office of the Interconnection under the Agreement or with respect to any of the Related PJM Agreements, or to the PJM Manuals. Any such interpretation or advice shall not relieve the arbitrator(s) of responsibility for resolving the dispute or deciding the arbitration proceeding in accordance with the standards specified herein.

**4.12 Decisions.**

The arbitrator(s) shall issue a written decision, including findings of fact and the legal basis for the decision. The arbitral decision shall be based on (i) the evidence in the record, (ii) the terms of the Related PJM Agreements, as applicable, (iii) applicable United States federal and state law, including the Federal Power Act and any applicable FERC regulations and decisions, and international treaties or agreements as applicable, and (iv) relevant decisions in previous arbitration proceedings. The arbitrator(s) shall have no authority to revise or alter any provision of the Related PJM Agreements. Any arbitral decision issued pursuant to these PJM Dispute Resolution Procedures that affects matters subject to the jurisdiction of FERC under Section 205 of the Federal Power Act shall be filed with FERC.

**4.13 Costs.**

Unless the arbitrator(s) shall decide otherwise, the costs of the time, expenses, and other charges of the arbitrator(s) shall be borne by the parties to the dispute, with each side on an arbitrated issue bearing its pro-rata share of such costs, and each party to an arbitral proceeding shall bear its own costs and fees. The arbitrator(s) may award all or a portion of the costs of the time, expenses, and other charges of the arbitrator(s), the costs of arbitration, attorney's fees, and the costs of mediation, if any, to any party that substantially prevails on an issue determined by the arbitrator(s) to have been raised without a substantial basis.

**4.14 Enforcement.**

If the decision of the arbitrator(s) is binding, the judgment may be entered on such arbitral award by any court having jurisdiction thereof; provided, however, that within one year of the issuance of the arbitral decision any party affected thereby may request FERC or any other federal, state, regulatory or judicial authority having jurisdiction to vacate, modify, or take such other action as may be appropriate with respect to any arbitral decision that is based upon an error of law, or is contrary to the statutes, rules, or regulations administered or applied by such authority. Any party making or responding to, or intervening in proceedings resulting from, any such request, shall request the authority to adopt the resolution, if not clearly erroneous, of any issue of fact expressly or necessarily decided in the arbitral proceeding, whether or not the party participated in the arbitral proceeding.

## 5. ALTERNATE DISPUTE RESOLUTION COMMITTEE

**5.1 Membership.**

**5.1.1 Representatives.**

The Alternate Dispute Resolution Committee shall be composed of two representatives selected by each of the following: (i) the Office of the Interconnection; (ii) the

Members Committee; (iii) the parties to the Reliability Assurance Agreement; and (iv) the parties to the Transmission Owners Agreement.

**5.1.2 Term.**

Representatives on the Alternate Dispute Resolution Committee shall serve for terms of three years and may serve additional terms.

**5.2 Voting Requirements.**

Approval or adoption of measures by the Alternate Dispute Resolution Committee shall require two-thirds of the votes of the representatives present and voting. Two-thirds of the representatives on the Alternate Dispute Resolution Committee shall constitute a quorum for the conduct of business.

**5.3 Officers.**

At the first meeting of the Alternate Dispute Resolution Committee, the representatives to the Alternate Dispute Resolution Committee shall choose a Chair and Vice Chair from among the representatives on the Committee. The Chair of the Alternate Dispute Resolution Committee shall preside at meetings of the Committee, and shall have the power to call meetings of the Committee and to exercise such other powers as are specified in this Agreement or are authorized by the Alternate Dispute Resolution Committee. The Vice Chair shall preside at meetings of the Alternate Dispute Resolution Committee in the absence of the Chair, and shall exercise such other powers as are delegated by the Chair.

**5.4 Meetings.**

The Alternate Dispute Resolution Committee shall meet at such times and places as determined by the Committee, or at the call of the Chair. The Chair shall call a meeting of the Alternate Dispute Resolution Committee upon the request of two or more representatives on the Alternate Dispute Resolution Committee.

**5.5 Responsibilities.**

The duties of the Alternate Dispute Resolution Committee include but are not limited to the following:

i) Maintain a list of persons qualified by temperament and experience, and with technical or legal expertise in matters likely to be the subject of disputes, to serve as mediators or arbitrators under these PJM Dispute Resolution Procedures;

ii) Determine the rates and other costs and charges that shall be paid to mediators, advisors and arbitrators for or in connection with their services;

iii) Determine whether mediation is not warranted in a particular dispute;

iv) Provide to disputing parties lists of mediators, advisors or arbitrators to resolve particular disputes;

v) Compile and make available to parties to disputes, arbitrators, and other interested persons suggested procedures for the arbitration of disputes in accordance with Section 4.5;

vi) Maintain and make available to parties to disputes, mediators, advisors, arbitrators, and other interested persons the written decisions required by Section 4.12;

vii) Establish such procedures and schedules, in addition to those specified herein, as it shall deem appropriate to further the prompt, efficient, fair and equitable resolution of disputes; and

viii) Provide such oversight and supervision of the dispute resolution processes and procedures instituted pursuant to the Related PJM Agreements as may be appropriate to facilitate the prompt, efficient, fair and equitable resolution of disputes.

## SCHEDULE 6

Revision No. 1

## REGIONAL TRANSMISSION EXPANSION PLANNING PROTOCOL

Issued: June 2, 1997
Effective: August 1, 1997

### 1. REGIONAL TRANSMISSION EXPANSION PLANNING PROTOCOL

#### 1.1 Purpose and Objectives

This Regional Transmission Expansion Planning Protocol shall govern the process by which the Members shall rely upon the Office of the Interconnection to prepare a plan for the enhancement and expansion of the Transmission Facilities in order to meet the demands for firm transmission service in the PJM Control Area. The Regional Transmission Expansion Plan to be developed shall enable the transmission needs in the PJM Control Area to be met on a reliable, economic and environmentally acceptable basis.

#### 1.2 Conformity with NERC and MAAC Criteria

(a) NERC establishes Planning Principles and Guides to promote the reliability and adequacy of the North American bulk power supply as related to the operation and planning of electric systems.

(b) MAAC is responsible for ensuring the adequacy, reliability and security of the bulk electric supply systems in the MAAC region through coordinated operations and planning of generation and transmission facilities. Toward that end, it has adopted the NERC Planning Principles and Guides and has established detailed Reliability Principles and Standards for Planning the Bulk Electric Supply System of the MAAC Group.

(c) The Regional Transmission Expansion Plan shall conform with the applicable reliability principles, guidelines and standards of NERC and MAAC in accordance with the procedures detailed in the PJM Manuals.

#### 1.3 Establishment of Committees

(a) The Regional Transmission Owners shall supply representatives to the Planning Committee to provide the data, information, and analysis support necessary to perform studies as required. As used herein, "Regional Transmission Owner" shall be defined as it is in the PJM Open Access Transmission PJM Tariff ("PJM Tariff").

(b) The Transmission Expansion Advisory Committee established by the Office of the Interconnection will provide input to the development of the Regional Transmission Expansion Plan. The Transmission Expansion Advisory Committee will invite participation by: (i) all Transmission Customers, as that term is defined in the PJM Tariff, and applicants for transmission service; (ii) any other entity proposing to provide Transmission Facilities to

be integrated into the PJM Control Area; (iii) all Members; (iv) the agencies and offices of consumer advocates of the States in the PJM Control Area exercising regulatory authority over the rates, terms or conditions of electric service or the planning, siting, construction or operation of electric facilities and (v) any other interested entities or persons.

### 1.4 Contents of the Regional Transmission Expansion Plan

(a) The Office of the Interconnection shall prepare the Regional Transmission Expansion Plan, which shall consolidate the transmission needs of the region into a single plan which is assessed on the basis of maintaining the PJM Control Area's reliability in an economic and environmentally acceptable manner.

(b) The Regional Transmission Expansion Plan shall reflect transmission enhancements and expansions, load and capacity forecasts and generation additions and retirements for the ensuing ten years.

(c) The Regional Transmission Expansion Plan shall, as a minimum, include a designation of the Regional Transmission Owner or Owners or other entity that will own a transmission facility and how all reasonably incurred costs are to be recovered.

(d) The Regional Transmission Expansion Plan shall (i) avoid unnecessary duplication of facilities; (ii) avoid the imposition of unreasonable costs on any Regional Transmission Owner or any user of Transmission Facilities; (iii) take into account the legal and contractual rights and obligations of the Regional Transmission Owners; (iv) provide, if appropriate, alternative means for meeting transmission needs in the PJM Control Area; and (v) provide for coordination with existing transmission systems and with appropriate interregional and local expansion plans.

### 1.5 Procedure for Development of the Regional Transmission Expansion Plan

#### 1.5.1 Commencement of the Process

(a) The Office of the Interconnection shall initiate the enhancement and expansion study process if (i) required as a result of a need for transfer capability identified by the Office of the Interconnection in its evaluation of requests for firm transmission service with a term of one year or more or as a result of the Office of the Interconnection's on-going evaluation of transmission system adequacy and performance; (ii) identified as a result of the MAAC reliability assessment or more stringent local reliability criteria, if any; (iii) constraints or available transfer capability shortage are identified by the Office of the Interconnection as a result of generation additions or retirements, evaluation of load forecasts or proposals for the addition of Transmission Facilities in the PJM Control Area; or (iv) expansion of the transmission system is proposed by the Regional Transmission Owners or others.

(b) The Office of the Interconnection shall notify the Transmission Expansion Advisory Committee of the commencement of an enhancement and expansion study. The Transmission Expansion Advisory Committee shall notify the Office of the Interconnection in writing of any additional transmission considerations to be included.

### 1.5.2 Development of Scope, Assumptions and Procedures

Once the need for an enhancement and expansion study has been established, the Office of the Interconnection shall consult with the Transmission Expansion Advisory Committee to prepare the study's scope, assumptions and procedures.

### 1.5.3 Scope of Studies

In general, enhancement and expansion studies shall include:

(a) An identification of existing and projected electric system limitations, with accompanying simulations to identify the costs of controlling those limitations. Potential enhancements and expansions will be proposed to mitigate limitations controlled by non-economic means.

(b) Evaluation and analysis of potential enhancements and expansions, including alternatives thereto, needed to mitigate such limitations.

(c) Engineering studies needed to determine the effectiveness and compliance (with reliability criteria) of recommended enhancements and expansions.

### 1.5.4 Supply of Data

The Regional Transmission Owners, those entities requesting transmission service and any other entities proposing to provide Transmission Facilities to be integrated into the PJM Control Area shall supply such information and data reasonably required by the Office of the Interconnection to perform the enhancement and expansion study.

### 1.5.5 Coordination of the Regional Transmission Expansion Plan

(a) The Regional Transmission Expansion Plan shall be developed in coordination with the transmission systems of the surrounding regional reliability councils and with the local transmission providers.

(b) The Regional Transmission Expansion Plan shall be developed by the Office of the Interconnection in consultation with the Transmission Expansion Advisory Committee during the enhancement and expansion study process.

### 1.5.6 Development of the Recommended Regional Transmission Expansion Plan

(a) Upon completion of its studies and analysis, the Office of the Interconnection shall prepare a recommended enhancement and expansion plan for review by the Transmission Expansion Advisory Committee. The recommended plan shall include recommendations for cost responsibility, except for directly assigned costs, for any enhancement or expansion, based on the planning analysis and other input from participants, including any indications of a willingness to bear cost responsibility for an enhancement or expansion.

(b) For the purposes of Section 1.5.6(a), any allocation of costs to all of the Regional Transmission Owners shall be proportional to the load within the Zones. Load shall be measured consistent with the loads utilized to develop the rates included in Attachment H to the PJM Tariff.

(c) Any Regional Transmission Owner and other participants on the Transmission Expansion Advisory Committee may offer an alternative.

(d) If the Office of the Interconnection adopts the alternative, based upon its review of the relative costs and benefits, the ability of the alternative to supply the required level of transmission service, and its impact on the reliability of the Transmission Facilities, the Office of the Interconnection shall make any necessary changes to the recommended plan.

(e) If, based upon its review of the relative costs and benefits, the ability of the alternative to supply the required level of transmission service, and the alternative's impact on the reliability of the Transmission Facilities, the Office of the Interconnection does not adopt such alternative, the Regional Transmission Owner or Owners whose alternative or alternatives have not been accepted or to whom cost responsibility has been assigned and other participants on the Transmission Expansion Advisory Committee may require that its or their alternative(s) be submitted to Alternative Dispute Resolution.

**1.6 Approval of the Final Regional Transmission Expansion Plan**

(a) The PJM Board shall approve the final Regional Transmission Expansion Plan, including any alternatives therein, in accordance with the requirements of this Section 1.6.

(b) If the facilities to be provided in the Regional Transmission Expansion Plan are acceptable, but the Regional Transmission Owners and other entities who have indicated a willingness to bear some or all of the cost responsibility cannot unanimously agree on the allocation of the costs of enhancements or expansions, the cost responsibility shall be allocated (a) to those entities who have indicated a willingness to bear some or all of the cost of responsibility, and (b) among the Regional Transmission Owners in accordance with the following guidelines:

i) All of the costs of Transmission Facilities (other than transformers) with a nominal operating voltage of 500 kV or higher shall be allocated to all of the Regional Transmission Owners;

ii) One-half of the costs of Transmission Facilities (other than transformers) with a nominal operating voltage of 230 kV or 345 kV shall be allocated to all Regional Transmission Owners and one-half of the costs of such facilities shall be allocated to the Regional Transmission Owners in whose Zone, as that term is defined in the PJM Tariff, the enhancement or expansion is to be located;

iii) All of the costs of Transmission Facilities (other than transformers) with a nominal operating voltage below 230 kV shall be allocated to the Regional Transmission Owner or Owners in whose Zone the enhancement or expansion is located;

iv) One-half of the costs of transformers shall be allocated in accordance with the methodology specified in (a), (b), or (c) above, based upon the voltage at the high side of the transformer and one-half of the costs shall be allocated in accordance with the methodology specified in (a), (b), and (c) above based upon the voltage at the low side of the transformer,

unless the low side of the transformer is less than 100 kV, in which case all of the costs of the transformer shall be allocated to the Regional Transmission Owner or Owners in whose Zone the transformer is located.

(c) If a Regional Transmission Expansion Plan is not approved, or if the transmission service requested by any entity is not included in an approved Regional Transmission Expansion Plan, nothing herein shall limit in any way the right of any entity to seek relief pursuant to the provisions of Section 211 of the Federal Power Act.

(d) Following PJM Board approval, the final Regional Transmission Expansion Plan shall be submitted to MAAC for verification that all enhancements or expansions conform to all MAAC Reliability Principles and Standards.

### 1.7 Obligation to Build

(a) Subject to the requirements of applicable law, government regulations and approvals, including, without limitation, requirements to obtain any necessary state or local siting, construction and operating permits, to the availability of required financing, to the ability to acquire necessary right-of-way, and to the right to recover, pursuant to appropriate financial arrangements and tariffs or contracts, all reasonably incurred costs, plus a reasonable return on investment, Regional Transmission Owners designated as the appropriate entities to construct and own or finance enhancements or expansions specified in the Regional Transmission Expansion Plan shall construct and own or finance such facilities or enter into appropriate contracts to fulfill such obligations.

(b) Nothing herein shall prohibit any Regional Transmission Owner from seeking to recover the cost of enhancements or expansions on an incremental cost basis or from seeking approval of such rate treatment from any regulatory agency with jurisdiction over such rates.

### 1.8 Relationship to the PJM Control Area Open Access Transmission PJM Tariff

Nothing herein shall modify the rights and obligations of an Eligible Customer or a Transmission Customer, as those terms are defined in the PJM Tariff, with respect to required studies and completion of necessary enhancements or expansions. An Eligible Customer or Transmission Customer electing to follow the procedures in the PJM Tariff instead of the procedures provided herein, shall also be responsible for the related costs. The enhancement and expansion study process under this Protocol shall be funded as a part of the operating budget of the Office of the Interconnection.

# SCHEDULE 7

Revision No. 1

## UNDERFREQUENCY RELAY OBLICATIONS AND CHARGES

Issued: June 2, 1997
Effective: August 1, 1997

## 1. UNDERFREQUENCY RELAY OBLIGATION

### 1.1 Application.

The obligations of this Schedule apply to each Member that is an Electric Distributor, whether or not that Member participates in the Electric Distributor sector on the Members Committee or meets the eligibility requirements for any other sector of the Members Committee.

### 1.2 Obligations.

Each Electric Distributor shall install or contractually arrange for underfrequency relays to interrupt at least 30 percent of its peak load with 10 percent of the load interrupted at each of three frequency levels: 59.3 Hz, 58.9 Hz and 58.5 Hz. Upon the request of the *Reliability* Committee, each Electric Distributor shall document that it has complied with the requirement for underfrequency load shedding relays.

## 2. UNDERFREQUENCY RELAY CHARGES

If an Electric Distributor is determined to not have the required underfrequency relays, it shall pay an underfrequency relay charge of:

Charge = D x R x 365

where

D = the amount, in megawatts, the Electric Distributor is deficient; and

R = the daily rate per megawatt, which shall be based on the annual carrying charges for a new combustion turbine generator, installed and connected to the transmission system, which daily deficiency rate as of the Effective Date shall be $58.400/per kilowatt-year or $160 per megawatt-day.

## 3. DISTRIBUTION OF UNDERFREQUENCY RELAY CHARGES

### 3.1 Share of Charges.

Each Electric Distributor that has complied with the requirements for underfrequency relays imposed by this Agreement during a Planning Period, without incurring an underfrequency relay charge, shall share in any underfrequency relay charges paid by any other Electric Distributor that has failed to satisfy said obligation during such Planning Period. Such shares shall be in proportion to the number of megawatts of a Electric Distributor's load in the most recently completed month at the time of the peak for the PJM Control Area during that month rounded to the next higher whole megawatt, as established initially on the Effective Date and as updated at the beginning of each month thereafter.

### 3.2 Allocation by the Office of the Interconnection.

In the event all of the Electric Distributors have incurred underfrequency relay charges during a Planning Period, the underfrequency relay charges shall be distributed among the Electric Distributors on an equitable basis as determined by the Office of the Interconnection.

## SCHEDULE 8

Revision No. 1

## DELEGATION OF RELIABILITY RESPONSIBILTIES

Issued: June 2, 1997
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### 1. DELEGATION

The following responsibilities shall be delegated to the Office of the Interconnection by the parties to the Reliability Assurance Agreement.

### 2. NEW PARTIES

With regard to the addition, withdrawal or removal of a party to the Reliability Assurance Agreement, the Office of the Interconnection shall:

(a) Receive and evaluate the information submitted by entities that plan to serve loads within the PJM Control Area, including entities whose participation in the Agreement will expand the boundaries of the PJM Control Area, such evaluation to be conducted in accordance with the requirements of the Reliability Assurance Agreement; and

(b) Evaluate the effects of the withdrawal or removal of a party from the Reliability Assurance Agreement.

### 3. IMPLEMENTATION OF RELIABILITY ASSURANCE AGREEMENT.

With regard to the implementation of the provisions of the Reliability Assurance Agreement, the Office of the Interconnection shall:

(a) Receive all required data and forecasts from the parties to the Reliability Assurance Agreement;

(b) Perform all calculations and analyses necessary to determine the Forecast Pool Requirement, the Forecast Zone Requirement and the Forecast LSE Obligation, including periodic reviews of the capacity benefit margin for consistency with the Reliability Principles and Standards, as the foregoing terms are defined in the Reliability Assurance Agreement;

(c) Monitor the compliance of each party to the Reliability Assurance Agreement with its obligations under the Reliability Assurance Agreement;

(d) Keep cost records, and bill and collect any costs or charges due from the parties to the Reliability Assurance Agreement and distribute those charges in accordance with the terms of the Reliability Assurance Agreement;

(e) Assist with the development of rules and procedures for determining and demonstrating the capability of Capacity Resources;

(f) Establish the capability and deliverability of Capacity Resources consistent with the requirements of the Reliability Assurance Agreement;

(g) Collect and maintain generator availability data;

(h) Perform any other studies or analyses required to administer the Reliability Assurance Agreement;

(i) Coordinate maintenance schedules for generation resources operated as part of the PJM Control Area;

(j) Determine and declare that an Emergency exists or has ceased to exist in all or any part of the PJM Control Area or in a Control Area interconnected with the PJM Control Area;

(k) Enter into agreements for (i) the transfer of energy in Emergencies in the PJM Control Area or in a Control Area interconnected with the PJM Control Area and (ii) mutual support in such Emergencies with other Control Areas interconnected with the PJM Control Area; and

(l) Coordinate the curtailment or shedding of load, or other measures appropriate to alleviate an Emergency, to preserve reliability in accordance with FERC, NERC or MAAC principles, guidelines, standards and requirements and the PJM Manuals, and to ensure the operation of the PJM Control Area in accordance with Good Utility Practice.

## SCHEDULE 9

Revision No. 1

## EMERGENCY PROCEDURE CHARGES

Issued: June 2, 1997
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### 1. EMERGENCY PROCEDURE CHARGE

Following an Emergency, the compliance of each Member with the instructions of the Office of the Interconnection shall be evaluated by the Office of the Interconnection. If, based on such evaluation, it is determined that a Member failed to comply with the instructions of the Office of the Interconnection to implement voltage reductions or to drop load, that Member shall demonstrate that it employed its best efforts to comply with such instructions. In the event a Member failed to employ its best efforts to comply with the instructions of the Office of the Interconnection, that Member shall pay an emergency procedure charge as follows:

(a) For each megawatt of voltage reduction that was not implemented as directed, the Member shall pay 365 times the daily deficiency rate per megawatt based on the annual carrying charges for a new combustion turbine generator, installed and connected to the transmission system, which daily deficiency rate as of the Effective Date shall be $58.400/per kilowatt-year or $160 per megawatt-day; and

(b) For each megawatt of load that was not dropped as directed, the Member shall pay 730 times the daily deficiency rate per megawatt based on the annual carrying charges for a new combustion turbine generator, installed and connected to the transmission system, which daily deficiency rate as of the Effective Date shall be $58.400/per kilowatt-year or $160 per megawatt-day.

### 2. DISTRIBUTION OF EMERGENCY PROCEDURE CHARGES

#### 2.1 Complying Parties.

Each Member that has complied with the emergency procedures imposed by this Agreement during an Emergency, without incurring an emergency procedure charge, shall share in any emergency procedure charges paid by any other Member that has failed to satisfy said obligation during such Emergency in an equitable manner to be determined by the PJM Board.

#### 2.2 All Parties.

In the event all of the Members have incurred emergency procedure charges with respect to an Emergency, the emergency procedure charges related to that Emergency shall be distributed in an equitable manner as directed by the PJM Board.

# TRANSMISSION OWNERS AGREEMENT

**Dated June 2, 1997**

# TRANSMISSION OWNERS AGREEMENT

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# TRANSMISSION OWNERS AGREEMENT

This TRANSMISSION OWNERS AGREEMENT dated as of this 2nd day of June, 1997, by and among Public Service Electric and Gas Company, PECO Energy Company, Pennsylvania Power Light Company, Baltimore Gas and Electric Company, Jersey Central Power & Light Company, Metropolitan Edison Company, Pennsylvania Electric Company, Potomac Electric Power Company, Atlantic City Electric Company, and Delmarva Power & Light Company, hereinafter referred to collectively as the "Parties" and individually as a "Party."

## WITNESSETH:

**WHEREAS,** each of the Parties, either directly or through subsidiaries, owns and operates certain transmission facilities that are interconnected with the transmission facilities of certain other Parties within the Pennsylvania-New Jersey-Maryland Interconnection ("PJM"); and

**WHEREAS,** the Parties are signatories to the Operating Agreement of PJM Interconnection, L.L.C., pursuant to which they have coordinated the operation of their respective transmission facilities within a single control area with free-flowing transmission ties; and

**WHEREAS,** the Parties have agreed to transfer responsibility for administering the PJM Tariff and certain operating responsibilities to an Independent System Operator; and

**WHEREAS,** the Parties desire to enter into this Agreement to establish certain principles and procedures that will further the coordination among and between Transmission Owners and the Independent System Operator in a manner that will facilitate the reliable and efficient planning and operation of the Parties' Transmission Facilities as part of the PJM Control Area.

**NOW THEREFORE,** in consideration of the foregoing and the mutual covenants and promises made herein, the Parties agree as follows:

## ARTICLE 1 -- DEFINITIONS

Unless the context otherwise specifies or requires, capitalized terms used herein shall have the respective meanings assigned herein for all purposes of this Agreement (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Articles or Sections are to Articles or Sections of this Agreement. As used in this Agreement:

1.1 **Administrative Committee** shall mean that committee, consisting of representatives of each Party to this Agreement, established pursuant to Article VI of this Agreement.

1.2 **Agreement** shall mean this Transmission Owners Agreement, as it may be amended from time to time.

1.3 **Effective Date** shall mean August 1, 1997, or such later date that FERC permits this Agreement to go into effect.

1.4 **Electric Distributor** shall mean an entity that owns or leases with rights equivalent to ownership electric distribution facilities that are used to provide electric distribution service to electric load within the PJM Control Area.

1.5 **FERC** shall mean the Federal Energy Regulatory Commission, or any successor agency, commission or department exercising jurisdiction over this Agreement.

1.6 **Good Utility Practice** shall mean any of the practices, methods, and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods, and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, and acts generally accepted in the region.

1.7 **Individual Vote** shall mean the single vote accorded to each Party that is not in default; provided, however, that Parties that are affiliates together shall have a single Individual Vote.

1.8 **MAAC** shall mean the Mid-Atlantic Area Council, a reliability council under § 202 of the Federal Power Act, established pursuant to the MAAC Agreement dated August 1, 1994, or any successor thereto.

1.9 **NERC** shall mean the North American Electric Reliability Council or any successor thereto.

1.10 **Office of the Interconnection** shall mean the employees and agents of PJM Interconnection, L.L.C. subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

1.11 **Operating Agreement** shall mean that certain agreement, dated April 1, 1997 and as amended and restated June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

1.12 **PJM Board** shall mean the Board of Managers of PJM Interconnection, L.L.C.

**1.13 PJM Control Area** shall mean the control area recognized by NERC as the PJM Control Area.

**1.14 PJM Manuals** shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning and accounting requirements of the PJM Control Area.

**1.15 PJM Open Access Transmission Tariff** or **PJM Tariff** shall mean the tariff for transmission service within the PJM Control Area, as in effect from time to time, including any schedules, appendices, or exhibits attached thereto.

**1.16 Rate Design** shall mean the design of the transmission rates to recover the embedded costs of Transmission Facilities and associated revenue requirements, and does not include recovery of congestion costs.

**1.17 Regional Transmission Expansion Plan** shall mean the plan for enhancement or expansion of the Transmission Facilities in the PJM Control Area developed by the Office of the Interconnection in accordance with the Regional Transmission Expansion Planning Protocol, attached as Schedule 6 to the Operating Agreement.

**1.18 Transmission Facilities** shall mean those facilities that (i) are within the PJM Control Area, and (ii) meet the definition of transmission facilities pursuant to FERC's Uniform System of Accounts or have been classified as transmission facilities in a ruling by FERC addressing such facilities.

**1.19 Transmission Owners** shall mean those entities that own or have leases with rights equivalent to ownership in Transmission Facilities.

**1.20 Weighted Votes** shall mean the number of votes accorded to each Party, which shall be equal to the net book value, as determined in accordance with generally accepted accounting principles, of each Party's Transmission Facilities (expressed in dollars and divided by one million (1,000,000)), as determined on April 1 of each year on the basis of the net book value as of the prior December 31, provided, however, the Weighted Votes of all Parties shall be adjusted in a proportional manner as agreed to by the Administrative Committee so that no Party (together with its affiliates) shall have more than 25 percent of the sum of the Weighted Votes.

## ARTICLE 2 -- PURPOSES AND OBJECTIVES OF THIS AGREEMENT

**2.1 Purposes and Objectives.** The Parties have entered into this Agreement to (a) facilitate the coordination of planning and operation of their respective Transmission Facilities within the PJM Control Area; (b) transfer certain planning and operating responsibilities to the Office of the Interconnection and the PJM Board; (c) provide for continued regional transmission service pursuant to the PJM Tariff and subject to the Office

of the Interconnection's administration; and (d) establish certain rights and obligations that will apply to all Parties.

**2.2 Parties' Retained Rights.** Notwithstanding any other provision of this Agreement, or any other agreement or amendment made in connection with the restructuring of PJM, each individual Party shall retain all of the rights set forth in this Section 2.2; provided, however, that such rights shall be exercised in a manner consistent with a Party's obligations under the Federal Power Act and the FERC's rules and regulations thereunder.

**2.2.1** Each Party shall have the right at any time unilaterally to file pursuant to Section 205 of the Federal Power Act for any change in rates and charges for transmission and ancillary services that it deems necessary to recover its revenue requirements for providing services under the PJM Tariff.

**2.2.2** Each Party shall have the right to adopt and implement procedures it deems necessary to protect its electric facilities from physical damage or to prevent injury or damage to persons or property.

**2.2.3** Each Party shall have the right to build, acquire, sell, dispose, retire, merge or otherwise transfer or convey all or any part of its assets, including any Transmission Facilities, such right to include, but not be limited to the right, individually or collectively, to terminate the relationship with PJM Interconnection, L.L.C. in connection with the creation of a transmission company to own and/or operate its Transmission Facilities.

**2.2.4** Each Party shall have the right to take whatever actions it deems necessary to fulfill its obligations under local, state or federal law.

**2.3 Parties' Commitments.** Each Party agrees to the following commitments and undertakings:

**2.3.1** To provide transmission service over its Transmission Facilities in the PJM Control Area, under a pool-wide PJM Tariff that includes rates and terms consistent with FERC's policies and decisions regarding open access transmission service.

**2.3.2** To operate its electric system within a single PJM Control Area, with free-flowing transmission ties between and among the other Transmission Owners.

**2.3.3** To operate and maintain its Transmission Facilities in accordance with MAAC and NERC reliability standards, as they may be revised from time-to-time.

**2.3.4** To transfer to the Office of the Interconnection and the PJM Board, in accordance with the Operating Agreement, the responsibility to direct the operation of its Transmission Facilities; provided that such transfer is not intended to require any change in the physical control over Transmission Facilities by the Parties' individual control centers

subject to the Office of the Interconnection's direction as provided for in Section 4.4 of this Agreement.

**2.3.5** To transfer to the Office of the Interconnection and the PJM Board, in accordance with the Operating Agreement, responsibility for administering the PJM Tariff.

**2.3.6** To coordinate maintenance on its Transmission Facilities with the other Parties and with the owners of generating facilities within the PJM Control Area, subject to the direction of the Office of the Interconnection, so as to achieve reliability and operating efficiencies.

**2.3.7** To transfer to the Office of the Interconnection and the PJM Board, in accordance with the Operating Agreement, the responsibility for preparing a Regional Transmission Expansion Plan in accordance with the Regional Transmission Expansion Planning Protocol.

**2.3.8** To execute and remain a party to the Operating Agreement.

## ARTICLE 3 -- PARTICIPATION IN THIS AGREEMENT

**3.1 Additional Parties.** Any entity that owns, or has rights equivalent to ownership in, Transmission Facilities and has in place all equipment and facilities necessary for safe and reliable operation of such Transmission Facilities as part of the PJM Control Area, shall be eligible to become a Party to this Agreement and, upon executing this Agreement, shall become a Party to this Agreement. Any disputes regarding whether an entity has satisfied the requirements for becoming a Party in this Section 3.1 shall be resolved by the Office of the Interconnection, subject to the dispute resolution procedures set out in the Operating Agreement.

**3.2 Withdrawal From This Agreement.** Any Party may withdraw from this Agreement upon ninety (90) days advance written notice to the other Parties; provided that such withdrawal shall not be effective until the withdrawing Party has (1) satisfied all applicable MAAC and NERC requirements for operating a control area or being included within an existing control area, and (2) put in place alternative arrangements for satisfaction of the FERC's requirements with respect to comparable transmission services.

**3.3 Transfers or Assignments.** A Party that transfers or assigns its ownership of, or its rights equivalent to ownership in, Transmission Facilities shall require the transferee or assignee to assume all rights and obligations under this Agreement and to become a Party to this Agreement. Such transferee or assignee may withdraw from this Agreement in accordance with the provisions of Sections 3.2 and 3.4.

**3.4 Obligations After Withdrawal, Transfer, or Assignment.** Any Party that withdraws from this Agreement in accordance with Sections 3.2 or 3.3 hereof, shall remain liable for any and all obligations under this Agreement that such Party incurred, that were

incurred on behalf such Party, or that arose hereunder prior to the date upon which such Party's withdrawal became effective. Withdrawal from this Agreement shall not relieve the withdrawing Party of any of its indemnification or liability obligations pursuant to Article 7 hereof for any events occurring prior to the time that its withdrawal from this Agreement became effective.

## ARTICLE 4 -- PLANNING AND OPERATIONS

**4.1 Planning Information.** The Parties shall provide information reasonably requested by the Office of the Interconnection to prepare the Regional Transmission Expansion Plan and shall otherwise cooperate with the Office of the Interconnection in the preparation thereof.

**4.2 Connection of Customers.** Consistent with the provisions of Section 4.7 hereof, each Party shall be responsible for the installation and construction of any facilities required to connect the facilities of a customer or a proposed customer to a Party's Transmission Facilities.

**4.3 Permanently Taking Facilities Out of Service.** Prior to permanently taking out of service any of its Transmission Facilities within the PJM Control Area, the Party owning such Transmission Facilities shall provide the Office of the Interconnection and the parties to the Operating Agreement with reasonable advance notice.

**4.4 Operation of Transmission Facilities.** Each Party shall operate its Transmission Facilities in accordance with (i) the terms of this Agreement, (ii) applicable NERC and MAAC reliability principles, guidelines, and standards, (iii) the PJM Manuals, and (iv) the direction of the Office of the Interconnection. Consistent with the provisions of this Section 4.4, the Parties shall conform to the Office of the Interconnection's operating instructions as they apply to such Party's Transmission Facilities. Nothing in this Agreement shall be construed to require a change in the physical control of any Transmission Facilities using a Party's existing facilities and equipment.

**4.4.1 Interconnection Facilities.** Interconnections between the Parties' electric systems and between a Party's system and neighboring systems shall be kept in place and shall be maintained in good operating condition in accordance with Good Utility Practice and NERC and MAAC principles, guidelines and standards, unless the interconnected parties determine, in accordance with Good Utility Practice and NERC and MAAC principles, guidelines and standards, that any such interconnection should be modified or abandoned; provided, however, that nothing herein shall prohibit any Party from disconnecting its Transmission Facilities from the facilities of any other entity, if such Party reasonably determines that disconnection is required for safety or reliability reasons.

**4.4.2 Actions in Emergency.** Each Party shall follow the Office of the Interconnection's operating instructions during an emergency to the maximum extent

reasonably practicable; provided, however, that a Party may take any action(s) that it deems necessary to prevent injury to persons or loss of human life or prevent damage to property.

**4.5 Maintenance.** Each Party shall maintain its Transmission Facilities in accordance with Good Utility Practice.

**4.5.1 Maintenance Schedules.** The Parties shall coordinate the maintenance of their Transmission Facilities, and the scheduling of any outages (other than forced outages) of the Transmission Facilities, taking into account transmission and generation outage schedules established by the Office of the Interconnection and the PJM Manuals. If the Office of the Interconnection determines that transmission maintenance schedules proposed by one or more Parties 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 schedules shall minimize the economic impact on the Party or Parties whose maintenance schedules the Office of the Interconnection proposes to modify. The Parties shall comply with all maintenance schedules established by the Office of the Interconnection.

**4.6 Data, Information and Metering.** The Parties shall comply with the data, information and metering requirements established by the Office of the Interconnection.

**4.7 Connections with Non-Parties.** No Party shall permit its transmission or distribution facilities to be connected with the facilities of any entity which is not a Party without first having in place an interconnection agreement that contains provisions for the safe and reliable operation of each interconnection in accordance with Good Utility Practice, NERC and MAAC principles, guidelines and standards. Any dispute regarding the adequacy of such agreements shall be resolved by the Office of the Interconnection, subject to the dispute resolution provisions of the Operating Agreement.

## ARTICLE 5 -- CHANGES TO RATE DESIGN AND TARIFF TERMS AND CONDITIONS; DISTRIBUTION OF REVENUES

**5.1 Rate Design.** The PJM Tariff transmission rates shall be calculated on a zonal basis in accordance with the Rate Design proposed by the PJM Supporting Companies in the December 31, 1996, filing in FERC Docket No. OA97-261-000, as accepted by FERC in its order of February 28, 1997. Such Rate Design is intended to remain in effect for no more than five years, unless a revised Rate Design is developed in accordance with the provisions of this Section 5.1 and a consensus is reached on a shorter period for a transition to such revised Rate Design. Nothing in this Article 5 is intended to modify in any way the Parties' rights under Section 2.2.1 of this Agreement.

**5.1.1 Development of Revised Rate Design.** By no later than June 1, 1999, the Administrative Committee, working in collaboration with the Members Committee under the Operating Agreement, shall develop one or more proposals for a Rate Design,

including, but not limited to, a proposal incorporating distance sensitivity, that is consistent with FERC's requirements and provides for each Transmission Owner to recover fully the revenue requirements associated with its integrated, regional Transmission Facilities to replace the original Rate Design then in effect in the PJM Tariff, together with a transition plan for such new Rate Design. Such Rate Design and transition proposal(s) shall be circulated to the Office of the Interconnection, the PJM Board and all parties to the Operating Agreement, with opportunity for such persons to review and provide comments on the proposals and to propose alternatives. Following receipt of such comments, the Parties shall, by June 1, 2000, attempt to agree upon a proposal by vote of the Administrative Committee in accordance with Section 6.5.2.

**5.1.2 Filing of Revised Rate Design Under Section 205.** If (i) the Parties agree upon a revised Rate Design and transition proposal by vote in accordance with Section 6.5.2, and (ii) such proposal is not rejected by a majority of the members of the PJM Board as inconsistent with the creation and operation of a robust, competitive and non-discriminatory electric power market in the PJM Control Area, such proposal shall be filed with the FERC on behalf of the Parties pursuant to Section 205 of the Federal Power Act. Nothing herein is intended to limit the rights of any Party or other person to oppose a revised Rate Design and transition proposal filed by the Parties.

**5.1.3 Filing of Revised Rate Design Under Section 206.** If the Parties have not agreed upon a revised Rate Design and transition proposal by vote in accordance with Section 6.5.2 by June 1, 2000, or if an agreed-upon proposal is rejected by a majority of the members of the PJM Board, then any Party or group of Parties shall have the right to submit alternative proposals to the FERC pursuant to Section 206 of the Federal Power Act. Nothing herein is intended to limit the rights of any Party or other person to oppose a revised Rate Design and transition proposal filed by a Party or group of Parties.

**5.1.4 Retention of Existing Rate Design.** Notwithstanding the provisions of this Section 5.1, a Party or group of Parties may propose to the FERC that the existing Rate Design is just and reasonable and should remain in effect beyond five years. Nothing herein is intended to limit the rights of any Party or other person to oppose a proposal to retain the existing Rate Design.

**5.1.5 Transmission Rate Zone Size.** For purposes of developing rates for service under the PJM Tariff, transmission rate zones smaller than those shown in Attachment J to the PJM Tariff, or subzones of those zones, shall not be permitted within the current boundaries of the PJM Control Area; provided, however, that additional zones may be established if the current boundaries of the PJM Control Area are expanded to accommodate new parties to this Agreement.

**5.2 Changes in Terms and Conditions.** The Parties may propose to revise any of the non-rate terms and conditions of the PJM Tariff in a manner consistent with requirements of FERC. Any such proposal shall be circulated to the PJM Board and all

parties to the Operating Agreement, with opportunity for such persons to review and provide comments on the proposals and to propose alternatives.

**5.2.1 Filing of Changes in Terms and Conditions Under Section 205.** If (i) the Parties agree upon proposed changes to the non-rate terms and conditions of the PJM Tariff by vote in accordance with Section 6.5.2, and (ii) such proposed changes are not rejected by a majority of the members of the PJM Board, such proposal shall be filed with the FERC on behalf of the Parties pursuant to Section 205 of the Federal Power Act. Nothing herein is intended to limit the rights of any Party or other person to oppose the filing of a proposal to revise any of the terms and conditions of the PJM Tariff.

**5.2.2 Filing of Changes in Terms and Conditions Under Section 206.** If the Parties have not agreed upon proposed changes to the non-rate terms and conditions of the PJM Tariff by vote in accordance with Section 6.5.2, or if proposed changes are rejected by a majority of the members of the PJM Board, then any Party or group of Parties shall have the right to submit a proposal to the FERC pursuant to Section 206 of the Federal Power Act. Nothing herein is intended to limit the rights of any Party or other person to oppose proposed changes to the terms and conditions filed by a Party or group of Parties.

**5.3 Distribution of Revenues.** Transmission revenues received from network or firm point-to-point transmission service to load within the PJM Control Area will be distributed to the Regional Transmission Owners as that term is defined in the PJM Tariff on a revenue requirements basis to the Parties with transmission revenue requirements for the zone in which the load is located, and transmission revenues from other point-to-point transmission service will be distributed to all Parties on a transmission revenue requirements ratio share basis.

## ARTICLE 6 -- THE ADMINISTRATIVE COMMITTEE

**6.1 Duties and Responsibilities.** The Administrative Committee shall have the authority to propose policies and recommendations to the Office of the Interconnection and/or the PJM Board as to any matters relating to the Parties' Transmission Facilities; provided, however, that neither the Office of the Interconnection nor the PJM Board shall be required to adopt such policies or recommendations and that the Administrative Committee shall not exercise any control over functions and responsibilities transferred to the Office of the Interconnection or the PJM Board pursuant to this Agreement, the PJM Tariff or the Operating Agreement. The Administrative Committee shall also have the authority to establish such committees, subcommittees, task forces, working groups or other bodies as it shall deem appropriate and the responsibility to undertake any other action delegated to it pursuant to this Agreement.

**6.2 Representatives.** Each Party shall appoint a representative and an alternate representative to serve as a member of the Administrative Committee with authority to act for that Party with respect to actions taken or decisions made by the Administrative Committee. Each representative shall be a member of the Administrative Committee;

provided, however, that each Party's alternate shall serve as a member of the Administrative Committee during any absence of that Party's representative.

**6.2.1 Initial Representatives.** Within thirty (30) days of the Effective Date of this Agreement, each Party shall appoint its representative and alternate and provide written notice to the other Parties. Subsequent to the Effective Date of this Agreement, an entity that becomes a Party pursuant to Section 3.1 hereof shall appoint its representative and alternate and provide written notice to the other Parties within thirty (30) days after becoming a Party.

**6.2.2 Change of or Substitution for a Representative or Alternate.** A Party may at any time upon providing written notice to the other Parties designate a replacement representative or alternate. Any member of the Administrative Committee, by providing written notice to the Chair of the Administrative Committee, may designate a substitute to act for him or her with respect to any matter specified in such written notice.

**6.3 Officers.** At the initial meeting of the Administrative Committee, a Chair and Vice Chair shall be elected from among the Parties' representatives on the Administrative Committee. The term of office for the Chair and Vice Chair shall be one year, or until succession to each office occurs as provided herein. Except as provided in Section 6.3.1, at each annual meeting, the Vice Chair shall succeed to the office of the Chair, and a new Vice Chair shall be elected.

**6.3.1 Vacancies.** If the office of the Chair becomes vacant for any reason, the Vice Chair shall succeed to the office of the Chair and a new Vice Chair shall be elected at the next regular or special meeting; provided that following such vacancy of the Chair, the succeeding Chair and Vice Chair shall serve until the second annual meeting following such succession or election. If the office of the Vice Chair becomes vacant for any reason, a new Vice Chair shall be elected at the next regular or special meeting and shall serve out the term of the Vice Chair whose office became vacant.

**6.3.2 Duties of the Officers.** The Chair shall: call and preside at meetings of the Administrative Committee; cause minutes of each meeting to be taken and maintained; cause notices of meetings to be distributed; and carry out such other responsibilities as the Administrative Committee shall assign or as may be specified in the Operating Agreement. The Vice Chair shall preside at meetings of the Administrative Committee if the Chair is absent for any reason, and shall otherwise act for the Chair at the Chair's request.

**6.4 Meetings.** The Administrative Committee shall hold meetings no less frequently than once each calendar quarter. One of such regular meetings shall be designated as the annual meeting, at which officers shall be elected. The matters to be addressed at all meetings shall be specified in the agenda provided in the notice distributed pursuant to Section 6.4.1 hereof; provided, however, that action may be taken on a matter not described in such agenda upon the concurrence of the representatives whose Individual Votes equal or exceed two-thirds of the total Individual Votes at the time of such meeting, and the

concurrence of representatives whose Weighted Votes equal or exceed two-thirds of the total Weighted Votes at the time of the vote. No vote shall fail if voted against by fewer than three Parties and for this purpose Jersey Central Power & Light Company, Metropolitan Edison Company and Pennsylvania Electric Company shall be considered to be a single Party for both Individual Votes and Weighted Votes.

**6.4.1 Notice of Meetings.** Notice of a meeting shall be distributed to the representatives not later than ten (10) days prior to the meeting, provided, however, that meetings may be called on shorter notice at the discretion of the Chair as the Chair shall deem necessary to deal with an emergency or to meet a deadline for action. The notice shall state the time and place of such meeting, and shall include an agenda sufficient to notify the representatives of the substance of the matters to be considered at the meeting. In addition, notice of all meetings shall be provided over the PJM OASIS at the same time as it is provided to the representatives.

**6.4.2 Attendance.** Regular or special meetings may be conducted in person or by telephone or other means as authorized by the Administrative Committee. The attendance in person or by telephone or other means of a representative, alternate or duly-designated substitute representative shall be required for purposes of determining a quorum and for the exercise of Individual Votes or Weighted Votes.

**6.4.3 Quorum.** To constitute a quorum, as of the date of any regular or special meeting, such meeting must be attended by representatives, alternates, or duly-designated substitute representatives whose Individual Votes constitute more than fifty percent (50%) of the total Individual Votes, and whose Weighted Votes constitute more than fifty percent (50%) of the total Weighted Votes.

**6.4.4 Open Meetings.** All meetings of the Administrative Committee shall be open to entities that are signatories to the Operating Agreement and to personnel of the Office of the Interconnection, and all matters upon which the representatives vote shall be open to such entities and to such personnel.

**6.4.5 Cost of Meetings.** Each Party shall be solely responsible for all costs incurred for its representative or alternate to attend any meeting. The Parties shall share the costs incurred by the host of any meeting of the Administrative Committee in proportion to their Weighted Votes.

**6.5 Manner of Acting.** Any action taken by the Administrative Committee shall require a combination of the concurrence of the representatives' Individual Votes and Weighted Votes as specified in this Section 6.5.

**6.5.1 Action by Two-thirds Majority.** The following actions of the Administrative Committee shall require the concurrence of (i) representatives' whose combined Individual Votes equal or exceed two-thirds of the total Individual Votes cast at a meeting, and (ii) representatives' whose combined Weighted Votes equal or exceed two-

thirds of the total Weighted Votes cast at a meeting; provided, however, that no vote shall fail if voted against by fewer than three Parties and for this purpose Jersey Central Power & Light Company, Metropolitan Edison Company and Pennsylvania Electric Company shall be considered to be a single Party for both Individual Votes and Weighted Votes:

(a) Amendment or termination of all or any portion of this Agreement, including any schedules, appendices, or attachments hereto, provided that the text of any amendment shall be distributed by overnight courier, facsimile or other reliable electronic means at least thirty (30) days prior to the meeting at which such amendment is to be considered.

(b) Development of comments and recommendations for the Regional Transmission Expansion Plan.

(c) Termination of a Party in accordance with the provisions of Section 8.6 hereof.

(d) Approval of an assignment of this Agreement pursuant to Section 8.4 hereof.

(e) Approval of a Rate Design and transition proposal in accordance with Section 5.1.

(f) Approval of proposed revisions to the terms and conditions of the PJM Tariff in accordance with Section 5.2.

**6.5.2 Action by Simple Majority.** Action by the Administrative Committee on any matter other than those specified in Section 6.5.1 shall require (i) the presence of a quorum at the time of the vote, and (ii) the concurrence of (a) representatives' whose combined Individual Votes equal or exceed one-half of the total Individual Votes cast at a meeting, and (b) representatives' whose combined Weighted Votes equal or exceed one-half of the total Weighted Votes cast at a meeting.

## ARTICLE 7 -- OBLIGATION TO BUILD

Subject to the requirements of applicable law, government regulations and approvals, including, without limitation, requirements to obtain any necessary state or local siting, construction and operating permits, to the availability of required financing, to the ability to acquire necessary right-of-way, and to the right to recover, pursuant to appropriate financial arrangements and tariffs or contracts, all reasonably incurred costs, plus a reasonable return on investment, Parties designated as the appropriate entities to construct and own or finance enhancements or expansions specified in the Regional Transmission Expansion Plan or required to expand or modify transmission facilities pursuant to the PJM Tariff shall

construct and own or finance such facilities or enter into appropriate contracts to fulfill such obligations.

## ARTICLE 8 -- OTHER MATTERS

**8.1 Relationship of the Parties.** This Agreement shall not be interpreted or construed to create any association, joint venture, or partnership between or among the Parties or to impose any partnership obligation liability upon any Party. Except as explicitly provided in Section 6.1 hereof or with respect to the actions of the Administrative Committee, no Party shall have the right, power or authority under this Agreement to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, any other Party.

**8.2 No Third-party Beneficiaries.** This Agreement is intended to be solely for the benefit of the Parties and their respective successors and permitted assigns and is not intended to and shall not confer any rights or benefits on any third party (other than successors and permitted assigns) not a signatory hereto.

**8.3 Term and Termination.** This Agreement shall be effective as of the Effective Date and shall continue in effect thereafter unless and until terminated by (i) a vote of the Administrative Committee as of a specified date at least six (6) months after the date of such vote, or (ii) the termination of the Operating Agreement, unless the Administrative Committee decides not to terminate this Agreement or to terminate it at a later date.

**8.3.1 Winding Up.** Any provision of this Agreement that, expressly or by implication, comes into or remains in force following termination or expiration of this Agreement shall survive such termination or expiration. Such surviving provisions shall include, but not be limited to: (i) those provisions necessary to permit the orderly conclusion or continuation, pursuant to another agreement, of transactions entered into prior to the decision to terminate this Agreement; (ii) those provisions necessary to conduct final billing, collection, and accounting with respect to all matters arising hereunder, and (iii) the indemnification provisions as applicable to periods prior to such termination or expiration.

**8.4 Successors and Assigns.** This Agreement shall inure to the benefit of and be binding upon the Parties hereto, their respective successors and assigns permitted herein, but shall not be assignable by any Party without the approval of the Administrative Committee, except as to a successor in the operation of a Party's Transmission Facilities by reason of a merger, consolidation, reorganization, sale, spinoff, or foreclosure, as a result of which substantially all such Transmission Facilities are acquired by such a successor, and such successor becomes a Party to this Agreement.

**8.5 Force Majeure.** No Party shall be liable to any other Party for damages or otherwise be in breach of this Agreement to the extent and during the period such Party's performance is prevented by any cause or causes beyond such Party's control and without such Party's fault or negligence, including but not limited to any act, omission, or

circumstance occasioned by or in consequence of any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, or curtailment, order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities; provided, however, that any such foregoing event shall not excuse any payment obligation. Upon the occurrence of an event considered by a Party to constitute a force majeure event, such Party shall use due diligence to endeavor to continue to perform its obligations as far as reasonably practicable and to remedy the event, provided that no Party shall be required by this provision to settle any strike or labor dispute.

### 8.6 Default and Waiver

**8.6.1 Default.** Any Party that fails to meet its financial or other obligations to another Party or to PJM Interconnection, L.L.C. under this Agreement shall be deemed to be in breach of this Agreement. If the Administrative Committee concludes, upon the report of the Office of the Interconnection or complaint of any Party that another Party is in breach, the Administrative Committee shall so notify such Party and inform all other Parties. The notified Party may remedy such breach by (a) paying all amounts assertedly due, along with interest on such amounts calculated in accordance with the methodology specified for interest on refunds in FERC's regulations at 18 C.F.R. §35.19a(a)(2)(iii); and (b) presenting evidence satisfactory to the Administrative Committee that it has taken appropriate measures to meet any other obligation of which it was deemed to be in breach; provided, however, that any such payment or presentation may be subject to a reservation of rights, if any, to a final determination of the obligations of the Party pursuant to the dispute resolution provisions in the Operating Agreement. If, by the 30th day following receipt of the foregoing notice, a Party has not remedied the breach, then such Party shall be in default, and in addition to any other remedies then available:

i. Any representative of the defaulting Party on the Administrative Committee, or any other committee subcommittee, working group or task force established pursuant to this Agreement, shall not be entitled to vote for so long as the default shall continue to exist.

ii. If the default is the Party's second default within a period of twenty-four months, or is a default that imperils the safety or reliability of the PJM Control Area, the Administrative Committee may vote to terminate the Party's status as a Party to this Agreement. A terminated Party shall comply with all obligations applicable to a Party withdrawing from this Agreement.

**8.6.2 No Implied Waivers.** The failure of a Party or of the Administrative Committee to insist upon or enforce strict performance of any of the provisions of this Agreement shall not be construed as a waiver or relinquishment to any extent of such entity's right to assert or rely upon any such provisions, rights and remedies in that or any other instance; rather, the same shall be and remain in full force and effect.

**8.7 Indemnification.** (a) Each Party agrees to indemnify and hold harmless each of the other Parties, its officers, directors, employees or agents (not including PJM Interconnection, L.L.C., the Office of the Interconnection, or the PJM Board) for all actions, claims, demands, costs, damages and liabilities asserted by a third party against the Party seeking indemnification and arising out of or relating to any of the Transmission Facilities or other assets that are the subject of this Agreement of the Party from which indemnification is sought, or an act or failure to act in accordance with this Agreement by such Party, except (i) to the extent that such liabilities result from the willful misconduct of the Party seeking indemnification, and (ii) that each Party shall be responsible for all claims of its own employees, agents and servants growing out of any workmen's compensation law.

(b) The amount of any indemnity payment arising hereunder shall be reduced (including, without limitation, retroactively) by any insurance proceeds or other amounts actually recovered by the Party seeking indemnification in respect of the indemnified action, claim, demand, costs, damage or liability. If any Party shall have received an indemnity payment for an action, claim, demand, cost, damage or liability and shall subsequently actually receive insurance proceeds or other amounts for such action, claim, demand, cost, damage or liability, then such Party shall pay to the Party that made such indemnity payment the lesser of the amount of such insurance proceeds or other amounts actually received and retained or the net amount of the indemnity payments actually received previously.

**8.8 Limitations on Liability.** No Party shall be liable to any other Party for any claim for indirect, incidental, special or consequential damage or loss of the other Party, including, but not limited to, loss of profits or revenues, cost of capital of financing, loss of goodwill and cost of replacement power arising from such Party's carrying out, or failing to carry out, any obligations contemplated by this Agreement; provided, however, that nothing herein shall be deemed to reduce or limit the obligation of any Party with respect to the claims of persons or entities not a Party to this Agreement.

**8.9 Governing Law.** This Agreement shall be interpreted, construed and governed by the laws of the state of Delaware.

**8.10 Notice.** Except as otherwise expressly provided herein, notices required hereunder shall be in writing and shall be sent to a Party by overnight courier, hand delivery, telecopier or other reliable electronic means to the representative on the Administrative Committee of such Party at the address for such Party previously provided by such Party to the other Parties or as otherwise directed by the Administrative Committee. Any such notice so sent shall be deemed to have been given (i) upon delivery if given by overnight couriers or hand delivery, or (ii) upon confirmation if given by telecopier or other reliable electronic means.

**8.11 Counterparts.** This Agreement may be executed in any number of counterparts, each of which shall be an original but all of which together will constitute one instrument, binding upon all Parties hereto, notwithstanding that all such Parties may not have executed the same counterpart.

**8.12 Representations and Warranties.** Each Party represents and warrants to the other Parties that, as of the date it becomes a Party:

(a) the party is duly organized, validly existing and in good standing under the laws of the jurisdiction where organized;

(b) the execution and delivery by the Party of this Agreement and the performance of its obligations hereunder have been duly and validly authorized by all requisite action on the part of the Party and do not conflict with any applicable law or with any other agreement binding upon the Party. The Agreement has been duly executed and delivered by the Party, and this Agreement constitutes the legal, valid and binding obligation of the Party enforceable against it in accordance with its terms except insofar as the enforceability thereof may be limited by applicable bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws affecting the enforcement of creditor's rights generally and by general principles of equity regardless of whether such principles are considered in a proceeding at law or in equity; and

(c) there are no actions at law, suits in equity, proceedings or claims pending or, to the knowledge of the Party, threatened against the Party before or by any federal, state, foreign or local court, tribunal or governmental agency or authority that might materially delay, prevent or hinder the performance by the Party of its obligations hereunder.

**8.13 Confidentiality**

**8.13.1 Party Access.** No Party shall have a right hereunder to receive or review any documents, data or other information of another Party, including documents, data or other information provided to the Office of the Interconnection, to the extent such documents, data or information have been designated as confidential pursuant to the procedures adopted by the Office of the Interconnection or to the extent that they have been designated as confidential by such other Party; provided, however, a Party may receive and review any composite documents, data and other information that may be developed based on such confidential documents, data or information if the composite does not disclose any individual Party's confidential data or information.

**8.13.2 Required Disclosure.** Notwithstanding anything in this Section to the contrary, if a Party is required by applicable law, or in the course of administrative or judicial proceedings, to disclose information that is otherwise required to be maintained in confidence pursuant to this Section, that Party may make disclosure of such information; provided, however, that as soon as the Party learns of this disclosure requirement and prior to making disclosure, that Party shall notify the affected Party or Parties of the requirement and the terms thereof and the affected Party or Parties may direct, at their sole discretion and cost, any challenge to or defense against the disclosure requirement and the Party shall cooperate with such affected Parties to the maximum extent practicable to minimize the disclosure of the information consistent with applicable law. Each Party shall cooperate with

the affected Parties to obtain proprietary or confidential treatment of such information by the person to whom such information is disclosed prior to any such disclosure.

### 8.14 Severability and Renegotiation

**8.14.1 Severability.** Each provision of this Agreement shall be considered severable and if for any reason any provision is determined by a court or regulatory authority of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this Agreement shall continue in full force and effect and shall in no way be affected, impaired or invalidated, and such invalid, void or unenforceable provision shall be replaced with valid and enforceable provision or provisions which otherwise give effect to the original intent of the invalid, void or unenforceable provision.

**8.14.2 Renegotiation.** If any provision of this Agreement is held by a court or regulatory authority of competent jurisdiction to be invalid, void or unenforceable, or if the Agreement is modified or conditioned by a regulatory authority exercising jurisdiction over this Agreement, the Parties shall endeavor in good faith to negotiate such amendment or amendments to this Agreement as will restore the relative benefits and obligations of the Parties under this Agreement immediately prior to such holding, modification or condition. If after 60 days such negotiations are unsuccessful the Parties may exercise their withdrawal or termination rights under this Agreement.

**8.15 Insurance.** Each Party shall obtain and maintain in force such insurance as is consistent with Good Utility Practice.

**8.16 Headings.** The article and section headings used in this Agreement are for convenience only and shall not affect the construction or interpretation of any of the provisions of this Agreement.

**IN WITNESS WHEREOF,** the Parties have caused this Agreement to be executed by their duly authorized representatives.

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# PJM SUPPORTING COMPANIES

## JUNE 2, 1997

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## VOLUME II OF II

of the Interconnection's administration; and (d) establish certain rights and obligations that will apply to all Parties.

**2.2 Parties' Retained Rights.** Notwithstanding any other provision of this Agreement, or any other agreement or amendment made in connection with the restructuring of PJM, each individual Party shall retain all of the rights set forth in this Section 2.2; provided, however, that such rights shall be exercised in a manner consistent with a Party's obligations under the Federal Power Act and the FERC's rules and regulations thereunder.

**2.2.1** Each Party shall have the right at any time unilaterally to file pursuant to Section 205 of the Federal Power Act for any change in rates and charges for transmission and ancillary services that it deems necessary to recover its revenue requirements for providing services under the PJM Tariff.

**2.2.2** Each Party shall have the right to adopt and implement procedures it deems necessary to protect its electric facilities from physical damage or to prevent injury or damage to persons or property.

**2.2.3** Each Party shall have the right to build, acquire, sell, dispose, retire, merge or otherwise transfer or convey all or any part of its assets, including any Transmission Facilities, such right to include, but not be limited to the right, individually or collectively, to terminate the relationship with PJM Interconnection, L.L.C. in connection with the creation of a transmission company to own and/or operate its Transmission Facilities.

**2.2.4** Each Party shall have the right to take whatever actions it deems necessary to fulfill its obligations under local, state or federal law.

**2.3 Parties' Commitments.** Each Party agrees to the following commitments and undertakings:

**2.3.1** To provide transmission service over its Transmission Facilities in the PJM Control Area, under a pool-wide PJM Tariff that includes rates and terms consistent with FERC's policies and decisions regarding open access transmission service.

**2.3.2** To operate its electric system within a single PJM Control Area, with free-flowing transmission ties between and among the other Transmission Owners.

**2.3.3** To operate and maintain its Transmission Facilities in accordance with MAAC and NERC reliability standards, as they may be revised from time-to-time.

**2.3.4** To transfer to the Office of the Interconnection and the PJM Board, in accordance with the Operating Agreement, the responsibility to direct the operation of its Transmission Facilities; provided that such transfer is not intended to require any change in the physical control over Transmission Facilities by the Parties' individual control centers

# PJM OPEN ACCESS

# TRANSMISSION TARIFF

*Revised:* *June* 2, 1997
Effective:

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# I. COMMON SERVICE PROVISIONS

## 1 Definitions

**1.1 Ancillary Services:** Those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of the Transmission Provider's Transmission System in accordance with Good Utility Practice.

**1.2 Annual Transmission Costs:** The total annual cost of the Transmission System for purposes of Network Integration Transmission Service shall be the amount specified in Attachment H for each Zone until amended by the applicable RTO or modified by the Commission.

**1.3 Application:** A request by an Eligible Customer for transmission service pursuant to the provisions of the Tariff.

**1.4 Commission:** The Federal Energy Regulatory Commission.

**1.5 Completed Application:** An Application that satisfies all of the information and other requirements of the Tariff, including any required deposit.

**1.6 Control Area:** An electric power system or combination of electric power systems to which a common automatic generation control scheme is applied in order to:

(1) match, at all times, the power output of the generators within the electric power system(s) and capacity and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(2) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and

(4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

1.7 **Curtailment:** A reduction in firm or non-firm transmission service in response to a transmission capacity shortage as a result of system reliability conditions.

1.8 **Delivering Party:** The entity supplying capacity and energy to be transmitted at Point(s) of Receipt.

1.9 **Designated Agent:** Any entity that performs actions or functions on behalf of the Transmission Provider, an Eligible Customer, or the Transmission Customer required under the Tariff.

1.10 **Direct Assignment Facilities:** Facilities or portions of facilities that are constructed by the Transmission Provider for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to Commission approval.

1.11 **Eligible Customer:** (i) any electric utility (including any RTO and any power marketer), Federal power marketing agency, or any person generating electric energy for sale for resale; electric energy sold or produced by such entity may be electric energy produced in the United States, Canada or Mexico; however, such entity is not eligible for transmission service that would be prohibited by Section 212(h)(2) of the Federal Power Act; and (ii) any retail customer taking unbundled Transmission Service pursuant to a state retail access program or pursuant to a voluntary offer of unbundled retail transmission service by an RTO.

1.12 **Facilities Study:** An engineering study conducted by the Transmission Provider to determine the required modifications to the Transmission Provider's Transmission System, including the cost and scheduled completion date for such modifications, that will be required to provide the requested transmission service.

1.13 **Firm Point-To-Point Transmission Service:** Transmission Service under this Tariff that is reserved and/or scheduled between specified Points of Receipt and Delivery pursuant to Part II of this Tariff.

**1.14 Good Utility Practice:** Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

**1.15 Interruption:** A reduction in non-firm transmission service due to economic reasons pursuant to Section 14.7.

**1.16 Load Ratio Share:** Ratio of a Transmission Customer's Network Load to the Transmission Provider's total load computed in accordance with Sections 34.2 and 34.3 of the Network Integration Transmission Service under Part III of the Tariff.

**1.17 Load Shedding:** The systematic reduction of system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system instability, or voltage control considerations under Part III of the Tariff.

**1.18 Long-Term Firm Point-To-Point Transmission Service:** Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of one year or more.

**1.18a MAAC:** The Mid-Atlantic Area Council, a reliability council under §202 of the Federal Power Act, established pursuant to the MAAC Agreement dated 1 August 1994, or any successor thereto.

**1.19 Native Load Customers:** The wholesale and retail power customers of an RTO on whose behalf the RTO, by statute, franchise, regulatory requirement, or contract, has undertaken an obligation to construct and operate the RTO's system to meet the reliable electric needs of such customers.

**1.19a NERC**: The North American Electric Reliability Council or any successor thereto.

**1.20 Network Customer**: An entity receiving transmission service pursuant to the terms of the Transmission Provider's Network Integration Transmission Service under Part III of the Tariff.

**1.21 Network Integration Transmission Service:** The transmission service provided under Part III of the Tariff.

**1.22 Network Load:** The load that a Network Customer designates for Network Integration Transmission Service under Part III of the Tariff. The Network Customer's Network Load shall include all load served by the output of any Network Resources designated by the Network Customer. A Network Customer may elect to designate less than its total load as Network Load but may not designate only part of the load at a discrete Point of Delivery. Where a Eligible Customer has elected not to designate a particular load at discrete points of delivery as Network Load, the Eligible Customer is responsible for making separate arrangements under Part II of the Tariff for any Point-To-Point Transmission Service that may be necessary for such non-designated load.

**1.23 Network Operating Agreement:** An executed agreement that contains the terms and conditions under which the Network Customer shall operate its facilities and the technical and operational matters associated with the implementation of Network Integration Transmission Service under Part III of the Tariff.

**1.24 Network Operating Committee:** A group made up of representatives from the Network Customer(s) and the Transmission Provider established to coordinate operating criteria and other technical considerations required for implementation of Network Integration Transmission Service under Part III of this Tariff.

**1.25 Network Resource:** Any designated generating resource owned or purchased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties

or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

**1.26 Network Upgrades:** Modifications or additions to transmission-related facilities that are integrated with and support the Transmission Provider's overall Transmission System for the general benefit of all users of such Transmission System.

**1.27 Non-Firm Point-To-Point Transmission Service:** Point-To-Point Transmission Service under the Tariff that is reserved and scheduled on an as-available basis and is subject to Curtailment or Interruption as set forth in Section 14.7 under Part II of this Tariff. Non-Firm Point-To-Point Transmission Service is available on a stand-alone basis for periods ranging from one hour to one month.

**1.27a Office of the Interconnection**: The Office of the Interconnection, as supervised by the Board of Managers of the PJM Interconnection, L.L.C, acting pursuant to the Operating Agreement.

**1.28 Open Access Same-Time Information System (OASIS):** The information system and standards of conduct contained in Part 37 of the Commission's regulations.

**1.28a Operating Agreement of the PJM Interconnection, L.L.C.or Operating Agreement**: That agreement dated as of April 1, 1997 and as amended and restated as of June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

**1.29 Part I:** Tariff Definitions and Common Service Provisions contained in Sections 2 through 12.

**1.30 Part II:** Tariff Sections 13 through 27 pertaining to Point-To-Point Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

**1.31 Part III:** Tariff Sections 28 through 35 pertaining to Network Integration Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.32 **Parties:** The Transmission Provider and the Transmission Customer receiving service under the Tariff.

1.32a **PJM Control Area:** The Control Area that is recognized by NERC as the PJM Control Area.

1.33 **Point(s) of Delivery:** Point(s) on the Transmission Provider's Transmission System where capacity and energy transmitted by the Transmission Provider will be made available to the Receiving Party under Part II of the Tariff. The Point(s) of Delivery shall be specified in the Service Agreement.

1.34 **Point(s) of Receipt:** Point(s) of interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available to the Transmission Provider by the Delivering Party under Part II of the Tariff. The Point(s) of Receipt shall be specified in the Service Agreement.

1.35 **Point-To-Point Transmission Service:** The reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery under Part II of the Tariff.

1.36 **Power Purchaser:** The entity that is purchasing the capacity and energy to be transmitted under the Tariff.

1.37 **Receiving Party:** The entity receiving the capacity and energy transmitted by the Transmission Provider to Point(s) of Delivery.

1.38 **Regional Transmission Group (RTG):** A voluntary organization of transmission owners, transmission users and other entities approved by the Commission to efficiently coordinate transmission planning (and expansion), operation and use on a regional (and interregional) basis.

1.38a **Regional Transmission Owner or RTO:** Each entity (a) that owns, leases or otherwise has a possessory interest in facilities used for the transmission of electric energy in interstate commerce, (b) that provides transmission service under the Tariff and (c) that is a party to the PJM Interconnection Agreement. The RTOs are listed in Attachment L.

**1.39 Reserved Capacity:** The maximum amount of capacity and energy that the Transmission Provider agrees to transmit for the Transmission Customer over the Transmission Provider's Transmission System between the Point(s) of Receipt and the Point(s) of Delivery under Part II of the Tariff. Reserved Capacity shall be expressed in terms of whole megawatts on a sixty (60) minute interval (commencing on the clock hour) basis.

**1.40 Service Agreement:** The initial agreement and any amendments or supplements thereto entered into by the Transmission Customer and the Transmission Provider for service under the Tariff.

**1.41 Service Commencement Date:** The date the Transmission Provider begins to provide service pursuant to the terms of an executed Service Agreement, or the date the Transmission Provider begins to provide service in accordance with Section 15.3 or Section 29.1 under the Tariff.

**1.42 Short-Term Firm Point-To-Point Transmission Service:** Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of less than one year.

**1.43 System Impact Study:** An assessment by the Transmission Provider of (i) the adequacy of the Transmission System to accommodate a request for either Firm Point-To-Point Transmission Service or Network Integration Transmission Service and (ii) whether any additional costs may be incurred in order to provide transmission service.

**1.44 Third-Party Sale:** Any sale for resale in interstate commerce to a Power Purchaser that is not designated as part of Network Load under the Network Integration Transmission Service but not including a sale of energy through the interchange energy market established under the PJM Interconnection Agreement.

**1.45 Transmission Customer:** Any Eligible Customer (or its Designated Agent) that (i) executes a Service Agreement, or (ii) requests in writing that the Transmission Provider file with the Commission, a proposed unexecuted Service Agreement to receive transmission service under Part II of the Tariff. This term is used in the Part I Common Service Provisions to include customers receiving transmission service under Part II and Part III of this Tariff.

**1.46 Transmission Provider:** Collectively, the RTOs or the Designated Agent of the RTOs, which shall be the Office of the Interconnection for the following purposes under this Tariff: operating the PJM Control Area, maintaining an OASIS, receiving and acting on applications for transmission service, conducting system impact and facilities studies, scheduling transactions, directing redispatch, curtailment and interruption, billing and accounting, and disbursement of transmission revenues.

**1.47 Transmission Provider's Monthly Transmission System Peak:** The maximum firm usage of the Transmission Provider's Transmission System in a calendar month.

**1.48 Transmission Service:** Point-To-Point Transmission Service provided under Part II of the Tariff on a firm and non-firm basis.

**1.49 Transmission System:** The facilities owned, controlled or operated by the Transmission Provider within the PJM Control Area that are used to provide transmission service under Part II and Part III of the Tariff.

**1.49a Zone**: An area within the PJM Control Area, as set forth in Attachment J.

## 2 Initial Allocation and Renewal Procedures

**2.1 Initial Allocation of Available Transmission Capability :** For purposes of determining whether existing capability on the Transmission Provider's Transmission System is adequate to accommodate a request for firm service under this Tariff, all Completed Applications for new firm transmission service received during the initial sixty (60) day period commencing with the effective date of the Tariff will be deemed to have been filed simultaneously. A lottery system conducted by an independent party, which shall be the Office of the Interconnection, shall be used to assign priorities for Completed Applications filed simultaneously. All Completed Applications for firm transmission service received after the initial sixty (60) day period shall be assigned a priority pursuant to Section 13.2.

**2.2 Reservation Priority For Existing Firm Service Customers:** Existing firm service customers of any RTO (wholesale requirements and transmission-

only, with a contract term of one-year or more), have the right to continue to take transmission service from the Transmission Provider when the contract expires, rolls over or is renewed. This transmission reservation priority is independent of whether the existing customer continues to purchase capacity and energy from the RTO or elects to purchase capacity and energy from another supplier. If at the end of the contract term, the Transmission Provider's Transmission System cannot accommodate all of the requests for transmission service the existing firm service customer must agree to accept a contract term at least equal to a competing request by any new Eligible Customer and to pay the current just and reasonable rate, as approved by the Commission, for such service. This transmission reservation priority for existing firm service customers is an ongoing right that may be exercised at the end of all firm contract terms of one-year or longer.

**3 Ancillary Services**

Ancillary Services are needed with transmission service to maintain reliability within and among the Control Areas affected by the transmission service. The Transmission Provider is required to provide (or offer to arrange with the local Control Area operator as discussed below), and the Transmission Customer is required to purchase, the following Ancillary Services (i) Scheduling, System Control and Dispatch, and (ii) Reactive Supply and Voltage Control from Generation Sources.

The Transmission Provider is required to offer to provide (or offer to arrange with the local Control Area operator as discussed below) the following Ancillary Services only to the Transmission Customer serving load within the Transmission Provider's Control Area (i) Regulation and Frequency Response, (ii) Energy Imbalance, (iii) Operating Reserve -Spinning, and (iv) Operating Reserve - Supplemental. Subject to the provisions of Schedules 1 through 6, the Transmission Customer serving load within the Transmission Provider's Control Area is required to acquire these Ancillary Services, whether from the Transmission Provider, from a third party, or by self-supply. The Transmission Customer may not decline the Transmission Provider's offer of Ancillary Services unless it demonstrates that it has acquired the Ancillary Services from another source. The Transmission Customer must list in its Application which Ancillary Services it will purchase from the Transmission Provider.

If the Transmission Provider is a public utility providing transmission service but is not a Control Area operator, it may be unable to provide some or all of the Ancillary

Services. In this case, the Transmission Provider can fulfill its obligation to provide Ancillary Services by acting as the Transmission Customer's agent to secure these Ancillary Services from the Control Area operator. The Transmission Customer may elect to (i) have the Transmission Provider act as its agent, (ii) secure the Ancillary Services directly from the Control Area operator, or (iii) secure the Ancillary Services (discussed in Schedules 3, 4, 5 and 6) from a third party or by self-supply when technically feasible.

The Transmission Provider shall specify the rate treatment and all related terms and conditions in the event of an unauthorized use of Ancillary Services by the Transmission Customer.

The specific Ancillary Services, prices and/or compensation methods are described on the Schedules that are attached to and made a part of the Tariff. If the Transmission Provider offers an affiliate a rate discount, or attributes a discounted Ancillary Service rate to its own transactions, the Transmission Provider must offer at the same time the same discounted Ancillary Service rate to all Eligible Customers. Information regarding any discounted Ancillary Service rates must be posted on the OASIS pursuant to Part 37 of the Commission's regulations. In addition, discounts to non-affiliates must be offered in a not unduly discriminatory manner. Sections 3.1 through 3.6 below list the six Ancillary Services.

**3.1** **Scheduling, System Control and Dispatch Service:** The rates and/or methodology are described in Schedule 1.

**3.2** **Reactive Supply and Voltage Control from Generation Sources Service:** The rates and/or methodology are described in Schedule 2.

**3.3** **Regulation and Frequency Response Service:** Where applicable the rates and/or methodology are described in Schedule 3.

**3.4** **Energy Imbalance Service:** Where applicable the rates and/or methodology are described in Schedule 4.

**3.5** **Operating Reserve - Spinning Reserve Service:** Where applicable the rates and/or methodology are described in Schedule 5.

**3.6** **Operating Reserve - Supplemental Reserve Service:** Where applicable the rates and/or methodology are described in Schedule 6.

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

Terms and conditions regarding Open Access Same-Time Information System and standards of conduct are set forth in 18 CFR § 37 of the Commission's regulations (Open Access Same-Time Information System and Standards of Conduct for Public Utilities). For purposes of the Standards of Conduct, a marketing affiliate of any party to the PJM Interconnection Agreement is deemed to be a marketing affiliate of the Transmission Provider. In the event available transmission capability as posted on the OASIS is insufficient to accommodate a request for firm transmission service, additional studies may be required as provided by this Tariff pursuant to Sections 19 and 32.

## 5 Local Furnishing Bonds

**5.1 RTOs That Own Facilities Financed by Local Furnishing Bonds:** This provision is applicable only to RTOs that have financed facilities for the local furnishing of electric energy with tax-exempt bonds, as described in Section 142(f) of the Internal Revenue Code ("local furnishing bonds"). Notwithstanding any other provision of this Tariff, such an RTO shall not be required to provide Transmission Service to any Eligible Customer pursuant to this Tariff if the provision of such Transmission Service would jeopardize the tax-exempt status of any local furnishing bond(s) used to finance the RTO's facilities that would be used in providing such Transmission Service.

**5.2 Alternative Procedures for Requesting Transmission Service:**

(i) If the RTO determines that the provision of transmission service requested by an Eligible Customer would jeopardize the tax-exempt status of any local furnishing bond(s) used to finance its facilities that would be used in providing such transmission service, it shall advise the Eligible Customer within thirty (30) days of receipt of the Completed Application.

(ii) If the Eligible Customer thereafter renews its request for the same transmission service referred to in (i) by tendering an application under Section 211 of the Federal Power Act, the RTO, within ten (10) days of receiving a copy of the Section 211 application, will waive its rights to a request for service under Section 213(a) of the

Federal Power Act and to the issuance of a proposed order under Section 212(c) of the Federal Power Act and shall provide the requested transmission service in accordance with the terms and conditions of this Tariff.

## 6 Reciprocity

A Transmission Customer receiving transmission service under this Tariff agrees to provide comparable transmission service to each RTO on similar terms and conditions over facilities used for the transmission of electric energy in interstate commerce owned, controlled or operated by the Transmission Customer and over facilities used for the transmission of electric energy in interstate commerce owned, controlled or operated by the Transmission Customer's corporate affiliates. A Transmission Customer that is a member of a power pool or Regional Transmission Group also agrees to provide comparable transmission service to the members of such power pool and Regional Transmission Group on similar terms and conditions over facilities used for the transmission of electric energy in interstate commerce owned, controlled or operated by the Transmission Customer and over facilities used for the transmission of electric energy in interstate commerce owned, controlled or operated by the Transmission Customer's corporate affiliates. This reciprocity requirement also applies to any Eligible Customer that owns, controls or operates transmission facilities that uses an intermediary, such as a power marketer, to request transmission service under the Tariff. If the Transmission Customer does not own, control or operate transmission facilities, it must include in its Application a sworn statement of one of its duly authorized officers or other representatives that the purpose of its Application is not to assist an Eligible Customer to avoid the requirements of this provision.

## 7 Billing and Payment

7.1 **Billing Procedure:** By the fifth working day of each month, the Transmission Provider shall submit an invoice to the Transmission Customer for the charges for all services furnished under the Tariff during the preceding month. The invoice shall be paid by the Transmission Customer by the first banking day following the 19th of the month *in* which the invoice was issued. All payments shall be made in immediately available funds payable to the Transmission Provider, or by wire transfer to a bank named by the Transmission Provider.

7.2 **Interest on Unpaid Balances:** Interest on any unpaid amounts (including amounts placed in escrow) shall be calculated in accordance with the methodology specified for interest on refunds in the Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii). Interest on delinquent amounts shall be calculated from the due date of the bill to the date of payment. When payments are made by mail, bills shall be considered as having been paid on the date of receipt by the Transmission Provider.

7.3 **Customer Default:** In the event the Transmission Customer fails, for any reason other than a billing dispute as described below, to make payment to the Transmission Provider on or before the due date as described above, and such failure of payment is not corrected within thirty (30) calendar days after the Transmission Provider notifies the Transmission Customer to cure such failure, a default by the Transmission Customer shall be deemed to exist. Upon the occurrence of a default, the Transmission Provider may initiate a proceeding with the Commission to terminate service but shall not terminate service until the Commission so approves any such request. In the event of a billing dispute between the Transmission Provider and the Transmission Customer, the Transmission Provider will continue to provide service under the Service Agreement as long as the Transmission Customer (i) continues to make all payments not in dispute, and (ii) pays into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If the Transmission Customer fails to meet these two requirements for continuation of service, then the Transmission Provider may provide notice to the Transmission Customer of its intention to suspend service in sixty (60) days, in accordance with Commission policy.

8 **Accounting for an RTO's Use of the Tariff** Each RTO shall record the following amounts, as outlined below.

8.1 **Transmission Revenues:** Include in a separate operating revenue account or subaccount the revenues it receives from Transmission Service when making Third-Party Sales under Part II of the Tariff.

8.2 **Study Costs and Revenues:** Include in a separate transmission operating expense account or subaccount, costs properly chargeable to expense that are incurred to perform any System Impact Studies or Facilities Studies which the RTO conducts to determine if it must construct new transmission facilities or upgrades necessary for its own uses, including making Third-

Party Sales under the Tariff; and include in a separate operating revenue account or subaccount the revenues received for System Impact Studies or Facilities Studies performed when such amounts are separately stated and identified in the Transmission Customer's billing under the Tariff.

## 9 Regulatory Filings

Nothing contained in the Tariff , any Service Agreement or any Network Operating Agreement shall be construed as affecting in any way the right of any RTO to unilaterally make application to the Commission for a change in rates, terms and conditions, charges, classification of service, Service Agreement, Network Operating Agreement, rule or regulation under Section 205 of the Federal Power Act and pursuant to the Commission's rules and regulations promulgated thereunder.

Nothing contained in the Tariff , any Service Agreement or any Network Operating Agreement shall be construed as affecting in any way the ability of any Party receiving service under the Tariff to exercise its rights under the Federal Power Act and pursuant to the Commission's rules and regulations promulgated thereunder.

## 10 Force Majeure and Indemnification

**10.1 Force Majeure:** An event of Force Majeure means any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any Curtailment, order, regulation or restriction imposed by governmental military or lawfully established civilian authorities, or any other cause beyond a Party's control. Neither the Transmission Provider nor the Transmission Customer will be considered in default as to any obligation under this Tariff if prevented from fulfilling the obligation due to an event of Force Majeure. However, a Party whose performance under this Tariff is hindered by an event of Force Majeure shall make all reasonable efforts to perform its obligations under this Tariff.

**10.2 Indemnification:** The Transmission Customer shall at all times indemnify, defend, and save each RTO and the Transmission Provider harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the

Transmission Provider's performance of its obligations under this Tariff on behalf of the Transmission Customer, except in cases of negligence or intentional wrongdoing by an RTO or the Transmission Provider.

## 11 Creditworthiness

For the purpose of determining the ability of the Transmission Customer to meet its obligations related to service hereunder, the Transmission Provider may require reasonable credit review procedures. This review shall be made in accordance with standard commercial practices. In addition, the Transmission Provider may require the Transmission Customer to provide and maintain in effect during the term of the Service Agreement, an unconditional and irrevocable letter of credit as security to meet its responsibilities and obligations under the Tariff, or an alternative form of security proposed by the Transmission Customer and acceptable to the Transmission Provider and consistent with commercial practices established by the Uniform Commercial Code that protects the Transmission Provider against the risk of non-payment.

## 12 Dispute Resolution Procedures

**12.1 Internal Dispute Resolution Procedures:** Any dispute between a Transmission Customer and the Transmission Provider involving Transmission Service under the Tariff (excluding applications for rate changes or other changes to the Tariff, or to any Service Agreement entered into under the Tariff, which shall be presented directly to the Commission for resolution) shall be referred to a designated senior representative of each of the parties to the dispute for resolution on an informal basis as promptly as practicable. In the event the designated representatives are unable to resolve the dispute within thirty (30) days (or such other period as the parties to the dispute may agree upon) by mutual agreement, such dispute may be submitted to arbitration and resolved in accordance with the arbitration procedures set forth below.

**12.2 External Arbitration Procedures:** Any arbitration initiated under the Tariff shall be conducted before a single neutral arbitrator appointed by the parties to the dispute. If the parties to the dispute fail to agree upon a single arbitrator within ten (10) days of the referral of the dispute to arbitration, the party or parties to the dispute demanding arbitration shall chose one arbitrator and the party or parties responding to the demand for arbitration shall choose another arbitrator, each of whom shall sit on a

three-member arbitration panel. The two arbitrators so chosen shall within twenty (20) days select a third arbitrator to chair the arbitration panel. In either case, the arbitrators shall be knowledgeable in electric utility matters, including electric transmission and bulk power issues, and shall not have any current or past substantial business or financial relationships with any party to the arbitration (except prior arbitration). The arbitrator(s) shall provide each of the parties to the dispute an opportunity to be heard and, except as otherwise provided herein, shall generally conduct the arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association and any applicable Commission regulations.

12.3 **Arbitration Decisions:** Unless otherwise agreed, the arbitrator(s) shall render a decision within ninety (90) days of appointment and shall notify the parties to the dispute in writing of such decision and the reasons therefor. The arbitrator(s) shall be authorized only to interpret and apply the provisions of the Tariff and any Service Agreement entered into under the Tariff and shall have no power to modify or change any of the above in any manner. The decision of the arbitrator(s) shall be final and binding upon the Parties, and judgment on the award may be entered in any court having jurisdiction. The decision of the arbitrator(s) may be appealed solely on the grounds that the conduct of the arbitrator(s), or the decision itself, violated the standards set forth in the Federal Arbitration Act and/or the Administrative Dispute Resolution Act. The final decision of the arbitrator must also be filed with the Commission if it affects jurisdictional rates, terms and conditions of service or facilities.

12.4 **Costs:** Each party to the dispute shall be responsible for its own costs incurred during the arbitration process and for the following costs, if applicable:

(A) the cost of the arbitrator chosen by the parties to the dispute to sit on the three member panel and a proportionate share of the cost of the third arbitrator chosen;

(B) a proportionate share of the cost of the single arbitrator jointly chosen by the parties to the dispute; or

(C) a proportionate share of the cost incurred by the Office of the Interconnection related to a dispute not involving the Office of the Interconnection.

**12.5 Rights Under The Federal Power Act:** Nothing in this section shall restrict the rights of any party to file a Complaint with the Commission under relevant provisions of the Federal Power Act.

## II. POINT-TO-POINT TRANSMISSION SERVICE

**Preamble**

The Transmission Provider will provide Firm and Non-Firm Point-To-Point Transmission Service pursuant to the applicable terms and conditions of this Tariff. Point-To-Point Transmission Service is for the receipt of capacity and energy at designated Point(s) of Receipt and the transmission of such capacity and energy to designated Point(s) of Delivery.

### 13 Nature of Firm Point-To-Point Transmission Service

**13.1 Term:** The minimum term of Firm Point-To-Point Transmission Service shall be one day and the maximum term shall be specified in the Service Agreement.

**13.2 Reservation Priority:** Long-Term Firm Point-To-Point Transmission Service shall be available on a first-come, first-served basis i.e., in the chronological sequence in which each Transmission Customer has reserved service. Reservations for Short-Term Firm Point-To-Point Transmission Service will be conditional based upon the length of the requested transaction. If the Transmission System becomes oversubscribed, requests for longer term service may preempt requests for shorter term service up to the following deadlines; one day before the commencement of daily service, one week before the commencement of weekly service, and one month before the commencement of monthly service. Before the deadline, if available transmission capability is insufficient to satisfy all Applications, an Eligible Customer with a reservation for shorter term service has the right of first refusal to match any longer term reservation before losing its reservation priority. After the deadline, service will commence pursuant to the terms of Part II of the Tariff. Firm Point-To-Point Transmission Service will always have a reservation priority over Non-Firm Point-To-Point Transmission Service under the Tariff. All Long-Term Firm Point-To-Point Transmission Service will have equal reservation priority with Native Load Customers and Network Customers. Reservation priorities for existing firm service customers are provided in Section 2.2.

**13.3 Use of Firm Transmission Service by an RTO:** Each RTO will be subject to the rates, terms and conditions of Part II of the Tariff when making

Third-Party Sales under (i) agreements executed on or after March 1, 1997 or (ii) agreements executed prior to the aforementioned date that the Commission requires to be unbundled, by the date specified by the Commission. Each RTO will maintain separate accounting, pursuant to Section 8, for any use of the Point-To-Point Transmission Service to make Third-Party Sales.

**13.4 Service Agreements:** The Transmission Provider shall offer a standard form Firm Point-To-Point Transmission Service Agreement (Attachment A) to an Eligible Customer when it submits a Completed Application for Firm Point-To-Point Transmission Service. Executed Service Agreements that contain the information required under the Tariff shall be filed with the Commission in compliance with applicable Commission regulations.

**13.5 Transmission Customer Obligations for Facility Additions or Redispatch Costs:** In cases where the Transmission Provider determines that the Transmission System is not capable of providing Firm Point-To-Point Transmission Service without (1) degrading or impairing the reliability of service to Native Load Customers, Network Customers and other Transmission Customers taking Firm Point-To-Point Transmission Service, or (2) interfering with the Transmission Provider's ability to meet prior firm contractual commitments to others, the Transmission Provider will be obligated to expand or upgrade the Transmission System pursuant to the terms of Section 15.4. The Transmission Customer must agree to compensate the Transmission Provider for any necessary transmission facility additions pursuant to the terms of Section 27. To the extent the Transmission Provider can relieve any system constraint more economically by redispatching resources available to the PJM Control Area than through constructing Network Upgrades, it shall do so, provided that the Eligible Customer agrees to compensate the Transmission Provider pursuant to the terms of Section 27. Any redispatch, Network Upgrade or Direct Assignment Facilities costs to be charged to the Transmission Customer under the Tariff will be specified in the Service Agreement prior to initiating service.

**13.6 Curtailment of Firm Transmission Service:** In the event that a Curtailment on the Transmission Provider's Transmission System, or a portion thereof, is required to maintain reliable operation of such system, Curtailments will be made on a non-discriminatory basis to the

transaction(s) that effectively relieve the constraint. If multiple transactions require Curtailment, to the extent practicable and consistent with Good Utility Practice, Curtailments will be proportionally allocated among the Transmission Provider's Native Load Customers, Network Customers, and Transmission Customers taking Firm Point-To-Point Transmission Service. All Curtailments will be made on a non-discriminatory basis, however, Non-Firm Point-To-Point Transmission Service shall be subordinate to Firm Transmission Service and Non-Firm Point-To-Point Transmission Service for which redispatch costs will not be paid shall be subordinate to Non-Firm Point-To-Point Transmission Service for which redispatch costs will be paid. When the Transmission Provider determines that an electrical emergency exists on the Transmission System and implements emergency procedures to Curtail Firm Transmission Service, the Transmission Customer shall make the required reductions upon request of the Transmission Provider. However, the Transmission Provider reserves the right to Curtail, in whole or in part, any Firm Transmission Service provided under the Tariff when, in the Transmission Provider's sole discretion, an emergency or other unforeseen condition impairs or degrades the reliability of the Transmission System. The Transmission Provider will notify all affected Transmission Customers in a timely manner of any scheduled Curtailments.

**13.7 Classification of Firm Transmission Service:**

(a) The Transmission Customer taking Firm Point-To-Point Transmission Service may (1) change its Receipt and Delivery Points to obtain service on a non-firm basis consistent with the terms of Section 22.1 or (2) request a modification of the Points of Receipt or Delivery on a firm basis pursuant to the terms of Section 22.2.

(b) The Transmission Customer may purchase transmission service to make sales of capacity and energy from multiple generating units that are on the Transmission Provider's Transmission System. For such a purchase of transmission service, the resources will be designated as multiple Points of Receipt, unless the multiple generating units are at the same generating plant in which case the units would be treated as a single Point of Receipt.

(c) The Transmission Provider shall provide firm deliveries of capacity and energy from the Point(s) of Receipt to the Point(s) of Delivery. Each Point of Receipt at which firm transmission capacity is reserved by the Transmission Customer shall be set forth in the Firm Point-To-Point Service Agreement along with a corresponding capacity reservation associated with each Point of Receipt. Each Point of Delivery at which firm transmission capacity is reserved by the Transmission Customer shall be set forth in the Firm Point-To-Point Service Agreement along with a corresponding capacity reservation associated with each Point of Delivery. The greater of either (1) the sum of the capacity reservations at the Point(s) of Receipt, or (2) the sum of the capacity reservations at the Point(s) of Delivery shall be the Transmission Customer's Reserved Capacity. The Transmission Customer will be billed for its Reserved Capacity under the terms of Schedule 7. The Transmission Customer may not exceed its firm capacity reserved at each Point of Receipt and each Point of Delivery except as otherwise specified in Section 22. In the event the Transmission Customer (including Third Party Sales by an RTO) exceeds its firm capacity reserved at any Point of Receipt or Point of Delivery, except as otherwise specified in Section 22, the Transmission Customer shall pay the rate set forth in Schedule 7 for the delivery period (*i.e.*,annually, monthly, weekly or daily) for which the Transmission Customer is reserving capacity multiplied by an adjusted reserved capacity (for pricing purposes only) equal to the highest level used by the Transmission Customer at such Point of Receipt or Point of Delivery as integrated over a 60 minute period.

**13.8 Scheduling of Firm Point-To-Point Transmission Service:** Schedules for the Transmission Customer's Firm Point-To-Point Transmission Service must be submitted to the Transmission Provider no later than 10:00 a.m. (eastern) of the day prior to commencement of such service. Schedules submitted after 10:00 a.m (eastern) will be accommodated, if practicable. Hour-to-hour schedules of any capacity and energy that is to be delivered must be stated in increments of 1,000 kW per hour. Transmission Customers within the PJM Control Area with multiple requests for Transmission Service at a Point of Receipt, each of which is under 1,000 kW per hour, may consolidate their service requests at a common point of receipt into units of 1,000 kW per hour for scheduling and billing purposes.

Scheduling changes will be permitted up to thirty (30) minutes before the start of the next clock hour provided that the Delivering Party and Receiving Party also agree to the schedule modification. The Transmission Provider will furnish to the Delivering Party's system operator, hour-to-hour schedules equal to those furnished by the Receiving Party (unless reduced for losses) and shall deliver the capacity and energy provided by such schedules. Should the Transmission Customer, Delivering Party or Receiving Party revise or terminate any schedule, such party shall immediately notify the Transmission Provider, and the Transmission Provider shall have the right to adjust accordingly the schedule for capacity and energy to be received and to be delivered.

## 14 Nature of Non-Firm Point-To-Point Transmission Service

**14.1 Term:** Non-Firm Point-To-Point Transmission Service will be available for periods ranging from one (1) hour to one (1) month. However, a Purchaser of Non-Firm Point-To-Point Transmission Service will be entitled to reserve a sequential term of service (such as a sequential monthly term without having to wait for the initial term to expire before requesting another monthly term) so that the total time period for which the reservation applies is greater than one month, subject to the requirements of Section 18.3.

**14.2 Reservation Priority:** Non-Firm Point-To-Point Transmission Service shall be available from transmission capability in excess of that needed for reliable service to Native Load Customers, Network Customers and other Transmission Customers taking Long-Term and Short-Term Firm Point-To-Point Transmission Service. A higher priority will be assigned to reservations with a longer duration of service. In the event the Transmission System is constrained, competing requests of equal duration will be prioritized based on the highest price offered by the Eligible Customer for the Transmission Service. Eligible Customers that have already reserved shorter term service have the right of first refusal to match any longer term reservation before being preempted. Transmission service for Network Customers from resources other than designated Network Resources will have a higher priority than any Non-Firm Point-To-Point Transmission Service. Non-Firm Point-To-Point Transmission Service over secondary Point(s) of Receipt and Point(s) of Delivery will have the lowest reservation priority under the Tariff.

**14.3 Use of Non-Firm Point-To-Point Transmission Service by an RTO:** Each RTO will be subject to the rates, terms and conditions of Part II of the Tariff when making Third-Party Sales under (i) agreements executed on or after March 1, 1997 or (ii) agreements executed prior to the aforementioned date that the Commission requires to be unbundled, by the date specified by the Commission. The RTO will maintain separate accounting, pursuant to Section 8, for any use of Non-Firm Point-To-Point Transmission Service to make Third-Party Sales.

**14.4 Service Agreements:** The Transmission Provider shall offer a standard form Non-Firm Point-To-Point Transmission Service Agreement (Attachment B) to an Eligible Customer when it first submits a Completed Application for Non-Firm Point-To-Point Transmission Service pursuant to the Tariff. Executed Service Agreements that contain the information required under the Tariff shall be filed with the Commission in compliance with applicable Commission regulations.

**14.5 Classification of Non-Firm Point-To-Point Transmission Service:** Non-Firm Point-To-Point Transmission Service shall be offered under terms and conditions contained in Part II of the Tariff. The Transmission Provider undertakes no obligation under the Tariff to plan the Transmission System in order to have sufficient capacity for Non-Firm Point-To-Point Transmission Service. Parties requesting Non-Firm Point-To-Point Transmission Service for the transmission of firm power do so with the full realization that such service is subject to availability and to Curtailment or Interruption under the terms of the Tariff. In the event the Transmission Customer (including Third Party Sales by an RTO) exceeds its non-firm capability reserved at any Point of Receipt or Point of Delivery, the Transmission Customer shall pay the rate set forth in Schedule 8 for the delivery period (*i.e.*, monthly, weekly, daily or hourly) for which the Transmission Customer is reserving capacity multiplied by an adjusted reserved capacity (for pricing purposes only) equal to the highest level used by the Transmission Customer at such Point of Receipt or Point of Delivery as integrated over a 60 minute period. Non-Firm Point-To-Point Transmission Service shall include transmission of energy on an hourly basis and transmission of scheduled short-term capacity and energy on a daily, weekly or monthly basis, but not to exceed one month's reservation for any one Application, under Schedule 8.

**14.6 Scheduling of Non-Firm Point-To-Point Transmission Service**: Schedules for Non-Firm Point-To-Point Transmission Service must be submitted to the Transmission Provider no later than 2:00 p.m. (eastern) of the day prior to the commencement of such service. Schedules submitted after 2:00 p.m. (eastern) will be accommodated, if practicable. Hour-to-hour schedules of energy that is to be delivered must be stated in increments of 1,000 kW per hour. Transmission Customers within the PJM Control Area with multiple requests for Transmission Service at a Point of Receipt, each of which is under 1,000 kW per hour, may consolidate their schedules at a common Point of Receipt into units of 1,000 kW per hour. Scheduling changes will be permitted up to thirty (30) minutes before the start of the next clock hour provided that the Delivering Party and Receiving Party also agree to the schedule modification. The Transmission Provider will furnish to the Delivering Party's system operator, hour-to-hour schedules equal to those furnished by the Receiving Party (unless reduced for losses) and shall deliver the capacity and energy provided by such schedules. Should the Transmission Customer, Delivering Party or Receiving Party revise or terminate any schedule, such party shall immediately notify the Transmission Provider, and the Transmission Provider shall have the right to adjust accordingly the schedule for capacity and energy to be received and to be delivered.

**14.7 Curtailment or Interruption of Service:** The Transmission Provider reserves the right to Curtail, in whole or in part, Non-Firm Point-To-Point Transmission Service provided under the Tariff for reliability reasons when, an emergency or other unforeseen condition threatens to impair or degrade the reliability of the Transmission System. The Transmission Provider reserves the right to Interrupt, in whole or in part, Non-Firm Point-To-Point Transmission Service provided under the Tariff for economic reasons in order to accommodate (1) a request for Firm Transmission Service, (2) a request for Non-Firm Point-To-Point Transmission Service of greater duration, (3) a request for Non-Firm Point-To-Point Transmission Service of equal duration with a higher price, or (4) transmission service for Network Customers from non-designated resources. The Transmission Provider also will discontinue or reduce service to the Transmission Customer to the extent that deliveries for transmission are discontinued or reduced at the Point(s) of Receipt. Where required, Curtailments or Interruptions will be made on a non-discriminatory basis to the transaction(s) that effectively relieve the constraint, however, Non-Firm

Point-To-Point Transmission Service shall be subordinate to Firm Transmission Service and Non-Firm Point-To-Point Transmission Service for which redispatch costs will not be paid shall be subordinate to Non-Firm Point-To-Point Transmission Service for which redispatch costs will be paid. If multiple transactions require Curtailment or Interruption, to the extent practicable and consistent with Good Utility Practice, Curtailments or Interruptions will be made to transactions of the shortest term (e.g., hourly non-firm transactions will be Curtailed or Interrupted before daily non-firm transactions and daily non-firm transactions will be Curtailed or Interrupted before weekly non-firm transactions). Transmission service for Network Customers from resources other than designated Network Resources will have a higher priority than any Non-Firm Point-To-Point Transmission Service under the Tariff. Non-Firm Point-To-Point Transmission Service over secondary Point(s) of Receipt and Point(s) of Delivery will have a lower priority than any Non-Firm Point-To-Point Transmission Service under the Tariff.

The Transmission Provider will provide advance notice of Curtailment or Interruption where such notice can be provided consistent with Good Utility Practice.

## 15 Service Availability

**15.1 General Conditions:** The Transmission Provider will provide Firm and Non-Firm Point-To-Point Transmission Service over, on or across the Transmission System to any Transmission Customer that has met the requirements of Section 16.

**15.2 Determination of Available Transmission Capability:** A description of the Transmission Provider's specific methodology for assessing available transmission capability posted on the Transmission Provider's OASIS (Section 4) is contained in Attachment C of the Tariff. In the event sufficient transmission capability may not exist to accommodate a service request, the Transmission Provider will respond by performing a System Impact Study.

**15.3 Initiating Service in the Absence of an Executed Service Agreement:** If the Transmission Provider and the Transmission Customer requesting Firm or Non-Firm Point-To-Point Transmission Service cannot agree on all the

terms and conditions of the Point-To-Point Service Agreement, the Transmission Provider shall file with the Commission, within thirty (30) days after the date the Transmission Customer provides written notification directing the Transmission Provider to file, an unexecuted Point-To-Point Service Agreement containing terms and conditions deemed appropriate by the Transmission Provider for such requested Transmission Service. The Transmission Provider shall commence providing Transmission Service subject to the Transmission Customer agreeing to (i) compensate the Transmission Provider at whatever rate the Commission ultimately determines to be just and reasonable, and (ii) comply with the terms and conditions of the Tariff including posting appropriate security deposits in accordance with the terms of Section 17.3.

15.4 **Obligation to Provide Transmission Service that Requires Expansion or Modification of the Transmission System:** If the Transmission Provider determines that it cannot accommodate a Completed Application for Firm Point-To-Point Transmission Service because of insufficient capability on the Transmission System, the Transmission Provider will use due diligence to expand or modify the Transmission System to provide the requested Firm Transmission Service, provided the Transmission Customer agrees to compensate the Transmission Provider for such costs pursuant to the terms of Section 27. The Transmission Provider will conform to Good Utility Practice in determining the need for new facilities and in the design and construction of such facilities. The obligation applies only to those facilities that the Transmission Provider has the right to expand or modify.

15.5 **Deferral of Service:** The Transmission Provider may defer providing service until it completes construction of new transmission facilities or upgrades needed to provide Firm Point-To-Point Transmission Service whenever the Transmission Provider determines that providing the requested service would, without such new facilities or upgrades, impair or degrade reliability to any existing firm services.

15.6 **Other Transmission Service Schedules:** Eligible Customers receiving transmission service under other agreements on file with the Commission may continue to receive transmission service under those agreements until such time as those agreements may be modified by the Commission.

**15.7 Real Power Losses:** Real Power Losses are associated with all transmission service. The Transmission Provider is not obligated to provide Real Power Losses. The Transmission Customer is responsible for replacing losses associated with all transmission service as calculated by the Transmission Provider. The applicable Real Power Loss factors are as follows: 3 percent for on-peak hours and 2.5 percent for off-peak hours, as on-peak and off-peak are defined by NERC, which shall be supplied as set forth in Attachment K.

## 16 Transmission Customer Responsibilities

**16.1 Conditions Required of Transmission Customers:** Point-To-Point Transmission Service shall be provided by the Transmission Provider only if the following conditions are satisfied by the Transmission Customer:

a. The Transmission Customer has pending a Completed Application for service;

b. The Transmission Customer meets the creditworthiness criteria set forth in Section 11;

c. The Transmission Customer will have arrangements in place for any other transmission service necessary to effect the delivery from the generating source to the Transmission Provider prior to the time service under Part II of the Tariff commences;

d. The Transmission Customer agrees to pay for any facilities constructed and chargeable to such Transmission Customer under Part II of the Tariff, whether or not the Transmission Customer takes service for the full term of its reservation;

e. The Transmission Customer has executed a Point-To-Point Service Agreement or has agreed to receive service pursuant to Section 15.3; and

f. The Transmission Customer complies with the standards for operating and planning reliable bulk electric systems, including any requirement for adequate generating reserves, of NERC and the regional reliability council for the Control Area in which the

capacity and energy transmitted by the Transmission Provider will be delivered to a load.

16.2 **Transmission Customer Responsibility for Third-Party Arrangements:** Any scheduling arrangements that may be required by other electric systems shall be the responsibility of the Transmission Customer requesting service. The Transmission Customer shall provide, unless waived by the Transmission Provider, notification to the Transmission Provider identifying such systems and authorizing them to schedule the capacity and energy to be transmitted by the Transmission Provider pursuant to Part II of the Tariff on behalf of the Receiving Party at the Point of Delivery or the Delivering Party at the Point of Receipt. However, the Transmission Provider will undertake reasonable efforts to assist the Transmission Customer in making such arrangements, including without limitation, providing any information or data required by such other electric system pursuant to Good Utility Practice.

## 17 Procedures for Arranging Firm Point-To-Point Transmission Service

17.1 **Application:** A request for Firm Point-To-Point Transmission Service for periods of one year or longer must contain a written Application to: PJM Interconnection Association, 955 Jefferson Avenue, Valley Forge Corporate Center, Norristown, PA 19403-2497, at least sixty (60) days in advance of the calendar month in which service is to commence. The Transmission Provider will consider requests for such firm service on shorter notice when feasible. Requests for firm service for periods of less than one year shall be subject to expedited procedures that shall be negotiated between the Parties within the time constraints provided in Section 17.5. All Firm Point-To-Point Transmission Service requests should be submitted by entering the information listed below on the Transmission Provider's OASIS. Prior to implementation of the Transmission Provider's OASIS, a Completed Application may be submitted by (i) transmitting the required information to the Transmission Provider by telefax, or (ii) providing the information by telephone over the Transmission Provider's time recorded telephone line. Each of these methods will provide a time-stamped record for establishing the priority of the Application.

**17.2 Completed Application**: A Completed Application shall provide all of the information included in 18 CFR § 2.20 including but not limited to the following:

(i) The identity, address, telephone number and facsimile number of the entity requesting service;

(ii) A statement that the entity requesting service is, or will be upon commencement of service, an Eligible Customer under the Tariff;

(iii) The location of the Point(s) of Receipt and Point(s) of Delivery and the identities of the Delivering Parties and the Receiving Parties;

(iv) The location of the generating facility(ies) supplying the capacity and energy and the location of the load ultimately served by the capacity and energy transmitted. The Transmission Provider will treat this information as confidential except to the extent that disclosure of this information is required by this Tariff, by regulatory or judicial order, for reliability purposes pursuant to Good Utility Practice or pursuant to MAAC transmission information sharing agreements. The Transmission Provider shall treat this information consistent with the standards of conduct contained in Part 37 of the Commission's regulations;

(v) A description of the supply characteristics of the capacity and energy to be delivered;

(vi) An estimate of the capacity and energy expected to be delivered to the Receiving Party;

(vii) The Service Commencement Date and the term of the requested Transmission Service; and

(viii) The transmission capacity requested for each Point of Receipt and each Point of Delivery on the Transmission Provider's Transmission System; customers may combine

their requests for service in order to satisfy the minimum transmission capacity requirement.

The Transmission Provider shall treat this information consistent with the standards of conduct contained in Part 37 of the Commission's regulations.

17.3 **Deposit:** A Completed Application for Firm Point-To-Point Transmission Service also shall include a deposit of either one month's charge for Reserved Capacity or the full charge for Reserved Capacity for service requests of less than one month. If the Application is rejected by the Transmission Provider because it does not meet the conditions for service as set forth herein, or in the case of requests for service arising in connection with losing bidders in a Request For Proposals (RFP), said deposit shall be returned with interest less any reasonable costs incurred by the Transmission Provider in connection with the review of the losing bidder's Application. The deposit also will be returned with interest less any reasonable costs incurred by the Transmission Provider if the Transmission Provider is unable to complete new facilities needed to provide the service. If an Application is withdrawn or the Eligible Customer decides not to enter into a Service Agreement for Firm Point-To-Point Transmission Service, the deposit shall be refunded in full, with interest, less reasonable costs incurred by the Transmission Provider to the extent such costs have not already been recovered by the Transmission Provider from the Eligible Customer. The Transmission Provider will provide to the Eligible Customer a complete accounting of all costs deducted from the refunded deposit, which the Eligible Customer may contest if there is a dispute concerning the deducted costs. Deposits associated with construction of new facilities are subject to the provisions of Section 19. If a Service Agreement for Firm Point-To-Point Transmission Service is executed, the deposit, with interest, will be returned to the Transmission Customer upon expiration of the Service Agreement for Firm Point-To-Point Transmission Service. Applicable interest shall be computed in accordance with the Commission's regulations at 18 CFR § 35.19a(a)(2)(iii), and shall be calculated from the day the deposit check is credited to the Transmission Provider's account.

17.4 **Notice of Deficient Application:** If an Application fails to meet the requirements of the Tariff, the Transmission Provider shall notify the entity requesting service within fifteen (15) days of receipt of the reasons for such

failure. The Transmission Provider will attempt to remedy minor deficiencies in the Application through informal communications with the Eligible Customer. If such efforts are unsuccessful, the Transmission Provider shall return the Application, along with any deposit, with interest. Upon receipt of a new or revised Application that fully complies with the requirements of Part II of the Tariff, the Eligible Customer shall be assigned a new priority consistent with the date of the new or revised Application.

17.5 **Response to a Completed Application:** Following receipt of a Completed Application for Firm Point-To-Point Transmission Service, the Transmission Provider shall make a determination of available transmission capability as required in Section 15.2. The Transmission Provider shall notify the Eligible Customer as soon as practicable, but not later than thirty (30) days after the date of receipt of a Completed Application either (i) if it will be able to provide service without performing a System Impact Study or (ii) if such a study is needed to evaluate the impact of the Application pursuant to Section 19.1.

17.6 **Execution of Service Agreement:** Whenever the Transmission Provider determines that a System Impact Study is not required and that the service can be provided, it shall notify the Eligible Customer as soon as practicable but no later than thirty (30) days after receipt of the Completed Application. Where a System Impact Study is required, the provisions of Section 19 will govern the execution of a Service Agreement. Failure of an Eligible Customer to execute and return the Service Agreement or request the filing of an unexecuted service agreement pursuant to Section 15.3, within fifteen (15) days after it is tendered by the Transmission Provider will be deemed a withdrawal and termination of the Application and any deposit submitted shall be refunded with interest. Nothing herein limits the right of an Eligible Customer to file another Application after such withdrawal and termination.

17.7 **Extensions for Commencement of Service:** The Transmission Customer can obtain up to five (5) one-year extensions for the commencement of service. The Transmission Customer may postpone service by paying a non-refundable annual reservation fee equal to one-month's charge for Firm Transmission Service for each year or fraction thereof. If during any extension for the commencement of service an Eligible Customer submits a

Completed Application for Firm Transmission Service, and such request can be satisfied only by releasing all or part of the Transmission Customer's Reserved Capacity, the original Reserved Capacity will be released unless the following condition is satisfied. Within thirty (30) days, the original Transmission Customer agrees to pay the Firm Point-To-Point transmission rate for its Reserved Capacity concurrent with the new Service Commencement Date. In the event the Transmission Customer elects to release the Reserved Capacity, the reservation fees or portions thereof previously paid will be forfeited.

## 18 Procedures for Arranging Non-Firm Point-To-Point Transmission Service

**18.1 Application:** Eligible Customers seeking Non-Firm Point-To-Point Transmission Service must submit a Completed Application to the Transmission Provider. Applications should be submitted by entering the information listed below on the Transmission Provider's OASIS. Prior to implementation of the Transmission Provider's OASIS, a Completed Application may be submitted by (i) transmitting the required information to the Transmission Provider by telefax, or (ii) providing the information by telephone over the Transmission Provider's time recorded telephone line. Each of these methods will provide a time-stamped record for establishing the service priority of the Application.

**18.2 Completed Application:** A Completed Application shall provide all of the information included in 18 CFR § 2.20 including but not limited to the following:

(i) The identity, address, telephone number and facsimile number of the entity requesting service;

(ii) A statement that the entity requesting service is, or will be upon commencement of service, an Eligible Customer under the Tariff;

(iii) The Point(s) of Receipt and the Point(s) of Delivery;

(iv) The maximum amount of capacity requested at each Point of Receipt and Point of Delivery; and

(v) The proposed dates and hours for initiating and terminating transmission service hereunder.

In addition to the information specified above, when required to properly evaluate system conditions, the Transmission Provider also may ask the Transmission Customer to provide the following:

(vi) The electrical location of the initial source of the power to be transmitted pursuant to the Transmission Customer's request for service; and

(vii) The electrical location of the ultimate load.

The Transmission Provider will treat this information in (vi) and (vii) as confidential at the request of the Transmission Customer except to the extent that disclosure of this information is required by this Tariff, by regulatory or judicial order, for reliability purposes pursuant to Good Utility Practice, or pursuant to MAAC transmission information sharing agreements. The Transmission Provider shall treat this information consistent with the standards of conduct contained in Part 37 of the Commission's regulations.

18.3 **Reservation of Non-Firm Point-To-Point Transmission Service:** Requests for monthly service shall be submitted no earlier than sixty (60) days before service is to commence; requests for weekly service shall be submitted no earlier than fourteen (14) days before service is to commence, requests for daily service shall be submitted no earlier than two (2) days before service is to commence, and requests for hourly service shall be submitted no earlier than noon the day before service is to commence. Requests for service received later than 2:00 p.m.(eastern) prior to the day service is scheduled to commence will be accommodated if practicable.

18.4 **Determination of Available Transmission Capability:** Following receipt of a tendered schedule the Transmission Provider will make a determination on a non-discriminatory basis of available transmission capability pursuant to Section 15.2. Such determination shall be made as soon as reasonably practicable after receipt, but not later than the following time periods for the following terms of service (i) thirty (30) minutes for hourly service, (ii)

thirty (30) minutes for daily service, (iii) four (4) hours for weekly service, and (iv) two (2) days for monthly service.

**19 Additional Study Procedures For Firm Point-To-Point Transmission Service Requests**

**19.1 Notice of Need for System Impact Study:** After receiving a request for service, the Transmission Provider shall determine on a non-discriminatory basis whether a System Impact Study is needed. A description of the Transmission Provider's methodology for completing a System Impact Study is provided in Attachment D. If the Transmission Provider determines that a System Impact Study is necessary to accommodate the requested service, it shall so inform the Eligible Customer, as soon as practicable. In such cases, the Transmission Provider shall within thirty (30) days of receipt of a Completed Application, tender a System Impact Study Agreement pursuant to which the Eligible Customer shall agree to reimburse the Transmission Provider for performing the required System Impact Study. For a service request to remain a Completed Application, the Eligible Customer shall execute the System Impact Study Agreement and return it to the Transmission Provider within fifteen (15) days. If the Eligible Customer elects not to execute the System Impact Study Agreement, its application shall be deemed withdrawn and its deposit, pursuant to Section 17.3, shall be returned with interest.

**19.2 System Impact Study Agreement and Cost Reimbursement:**

(i) The System Impact Study Agreement will clearly specify the maximum charge, based on the Transmission Provider's estimate of the actual cost, and time for completion of the System Impact Study. The charge shall not exceed the actual cost of the study. In performing the System Impact Study, the Transmission Provider shall rely, to the extent reasonably practicable, on existing transmission planning studies. The Eligible Customer will not be assessed a charge for such existing studies; however, the Eligible Customer will be responsible for charges associated with any modifications to existing planning studies that are reasonably necessary to evaluate the impact of the Eligible Customer's request for service on the Transmission System.

(ii) If in response to multiple Eligible Customers requesting service in relation to the same competitive solicitation, a single System Impact Study is sufficient for the Transmission Provider to accommodate the requests for service, the costs of that study shall be pro-rated among the Eligible Customers.

(iii) For System Impact Studies that the Transmission Provider conducts on behalf of an RTO, the RTO shall record the cost of the System Impact Studies pursuant to Section 8.

19.3 **System Impact Study Procedures:** Upon receipt of an executed System Impact Study Agreement, the Transmission Provider will use due diligence to complete the required System Impact Study within a sixty (60) day period. The System Impact Study shall identify any system constraints and redispatch options, additional Direct Assignment Facilities or Network Upgrades required to provide the requested service. In the event that the Transmission Provider is unable to complete the required System Impact Study within such time period, it shall so notify the Eligible Customer and provide an estimated completion date along with an explanation of the reasons why additional time is required to complete the required studies. A copy of the completed System Impact Study and related work papers shall be made available to the Eligible Customer. The Transmission Provider will use the same due diligence in completing the System Impact Study for an Eligible Customer as it uses when completing studies for an RTO. The Transmission Provider shall notify the Eligible Customer immediately upon completion of the System Impact Study if the Transmission System will be adequate to accommodate all or part of a request for service or that no costs are likely to be incurred for new transmission facilities or upgrades. In order for a request to remain a Completed Application, within fifteen (15) days of completion of the System Impact Study the Eligible Customer must execute a Service Agreement or request the filing of an unexecuted Service Agreement pursuant to Section 15.3, or the Application shall be deemed terminated and withdrawn.

19.4 **Facilities Study Procedures:** If a System Impact Study indicates that additions or upgrades to the Transmission System are needed to supply the Eligible Customer's service request, the Transmission Provider, within thirty (30) days of the completion of the System Impact Study, shall tender

to the Eligible Customer a Facilities Study Agreement pursuant to which the Eligible Customer shall agree to reimburse the Transmission Provider for performing the required Facilities Study. For a service request to remain a Completed Application, the Eligible Customer shall execute the Facilities Study Agreement and return it to the Transmission Provider within fifteen (15) days. If the Eligible Customer elects not to execute the Facilities Study Agreement, its application shall be deemed withdrawn and its deposit, pursuant to Section 17.3, shall be returned with interest. Upon receipt of an executed Facilities Study Agreement, the Transmission Provider will use due diligence to complete the required Facilities Study within a sixty (60) day period. If the Transmission Provider is unable to complete the Facilities Study in the allotted time period, the Transmission Provider shall notify the Transmission Customer and provide an estimate of the time needed to reach a final determination along with an explanation of the reasons that additional time is required to complete the study. When completed, the Facilities Study will include a good faith estimate of (i) the cost of Direct Assignment Facilities to be charged to the Transmission Customer, (ii) the Transmission Customer's appropriate share of the cost of any required Network Upgrades as determined pursuant to the provisions of Part II of the Tariff, and (iii) the time required to complete such construction and initiate the requested service. The Transmission Customer shall provide the Transmission Provider with a letter of credit or other reasonable form of security acceptable to the Transmission Provider equivalent to the costs of new facilities or upgrades consistent with commercial practices as established by the Uniform Commercial Code. The Transmission Customer shall have thirty (30) days to execute a Service Agreement or request the filing of an unexecuted Service Agreement and provide the required letter of credit or other form of security or the request will no longer be a Completed Application and shall be deemed terminated and withdrawn.

**19.5 Facilities Study Modifications:** Any change in design arising from inability to site or construct facilities as proposed will require development of a revised good faith estimate. New good faith estimates also will be required in the event of new statutory or regulatory requirements that are effective before the completion of construction or other circumstances beyond the control of the Transmission Provider that significantly affect the final cost of new facilities or upgrades to be charged to the Transmission Customer pursuant to the provisions of Part II of the Tariff.

**19.6 Due Diligence in Completing New Facilities:** Each RTO shall use due diligence to add necessary facilities or upgrade the Transmission System within a reasonable time. An RTO will not upgrade the existing or planned Transmission System in order to provide the requested Firm Point-To-Point Transmission Service if doing so would impair system reliability or otherwise impair or degrade existing firm service.

**19.7 Partial Interim Service:** If the Transmission Provider determines that it will not have adequate transmission capability to satisfy the full amount of a Completed Application for Firm Point-To-Point Transmission Service, the Transmission Provider nonetheless shall be obligated to offer and provide the portion of the requested Firm Point-To-Point Transmission Service that can be accommodated without addition of any facilities and through redispatch. However, the Transmission Provider shall not be obligated to provide the incremental amount of requested Firm Point-To-Point Transmission Service that requires the addition of facilities or upgrades to the Transmission System until such facilities or upgrades have been placed in service.

**19.8 Expedited Procedures for New Facilities:** In lieu of the procedures set forth above, the Eligible Customer shall have the option to expedite the process by requesting the Transmission Provider to tender at one time, together with the results of required studies, an "Expedited Service Agreement" pursuant to which the Eligible Customer would agree to compensate the Transmission Provider for all costs incurred pursuant to the terms of the Tariff. In order to exercise this option, the Eligible Customer shall request in writing an expedited Service Agreement covering all of the above-specified items within thirty (30) days of receiving the results of the System Impact Study identifying needed facility additions or upgrades or costs incurred in providing the requested service. While the Transmission Provider agrees to provide the Eligible Customer with its best estimate of the new facility costs and other charges that may be incurred, such estimate shall not be binding and the Eligible Customer must agree in writing to compensate the Transmission Provider for all costs incurred pursuant to the provisions of the Tariff. The Eligible Customer shall execute and return such an Expedited Service Agreement within fifteen (15) days of its receipt or the Eligible Customer's request for service will

cease to be a Completed Application and will be deemed terminated and withdrawn.

**20 Procedures if The Transmission Provider is Unable to Complete New Transmission Facilities for Firm Point-To-Point Transmission Service**

**20.1 Delays in Construction of New Facilities:** If any event occurs that will materially affect the time for completion of new facilities, or the ability to complete them, the Transmission Provider shall promptly notify the Transmission Customer. In such circumstances, the Transmission Provider shall within thirty (30) days of notifying the Transmission Customer of such delays, convene a technical meeting with the Transmission Customer to evaluate the alternatives available to the Transmission Customer. The Transmission Provider also shall make available to the Transmission Customer studies and work papers related to the delay, including all information that is in the possession of the Transmission Provider that is reasonably needed by the Transmission Customer to evaluate any alternatives.

**20.2 Alternatives to the Original Facility Additions:** When the review process of Section 20.1 determines that one or more alternatives exist to the originally planned construction project, the Transmission Provider shall present such alternatives for consideration by the Transmission Customer. If, upon review of any alternatives, the Transmission Customer desires to maintain its Completed Application subject to construction of the alternative facilities, it may request the Transmission Provider to submit a revised Service Agreement for Firm Point-To-Point Transmission Service. If the alternative approach solely involves Non-Firm Point-To-Point Transmission Service, the Transmission Provider shall promptly tender a Service Agreement for Non-Firm Point-To-Point Transmission Service providing for the service. In the event the Transmission Provider concludes that no reasonable alternative exists and the Transmission Customer disagrees, the Transmission Customer may seek relief under the dispute resolution procedures pursuant to Section 12 or it may refer the dispute to the Commission for resolution.

**20.3 Refund Obligation for Unfinished Facility Additions:** If the Transmission Provider and the Transmission Customer mutually agree that no other reasonable alternatives exist and the requested service cannot be provided

out of existing capability under the conditions of Part II of the Tariff, the obligation to provide the requested Firm Point-To-Point Transmission Service shall terminate and any deposit made by the Transmission Customer shall be returned with interest pursuant to Commission regulations 35.19a(a)(2)(iii). However, the Transmission Customer shall be responsible for all prudently incurred costs by the Transmission Provider through the time construction was suspended.

## 21 Provisions Relating to Transmission Construction and Services on the Systems of Other Utilities

**21.1 Responsibility for Third-Party System Additions:** The Transmission Provider shall not be responsible for making arrangements for any necessary engineering, permitting, and construction of transmission or distribution facilities on the system(s) of any other entity or for obtaining any regulatory approval for such facilities. The Transmission Provider will undertake reasonable efforts to assist the Transmission Customer in obtaining such arrangements, including without limitation, providing any information or data required by such other electric system pursuant to Good Utility Practice.

**21.2 Coordination of Third-Party System Additions:** In circumstances where the need for transmission facilities or upgrades is identified pursuant to the provisions of Part II of the Tariff, and if such upgrades further require the addition of transmission facilities on other systems, the Transmission Provider shall have the right to coordinate construction on its own system with the construction required by others. The Transmission Provider, after consultation with the Transmission Customer and representatives of such other systems, may defer construction of its new transmission facilities, if the new transmission facilities on another system cannot be completed in a timely manner. The Transmission Provider shall notify the Transmission Customer in writing of the basis for any decision to defer construction and the specific problems which must be resolved before it will initiate or resume construction of new facilities. Within sixty (60) days of receiving written notification by the Transmission Provider of its intent to defer construction pursuant to this section, the Transmission Customer may challenge the decision in accordance with the dispute resolution procedures pursuant to Section 12 or it may refer the dispute to the Commission for resolution.

## 22 Changes in Service Specifications

**22.1 Modifications On a Non-Firm Basis:** The Transmission Customer taking Firm Point-To-Point Transmission Service may request the Transmission Provider to provide transmission service on a non-firm basis over Receipt and Delivery Points other than those specified in the Service Agreement ("Secondary Receipt and Delivery Points"), in amounts not to exceed its firm capacity reservation, without incurring an additional Non-Firm Point-To-Point Transmission Service charge or executing a new Service Agreement, subject to the following conditions.

(a) Service provided over Secondary Receipt and Delivery Points will be non-firm only, on an as-available basis and will not displace any firm or non-firm service reserved or scheduled by third-parties under the Tariff or by the Transmission Provider on behalf of its Native Load Customers.

(b) The sum of all Firm and non-firm Point-To-Point Transmission Service provided to the Transmission Customer at any time pursuant to this section shall not exceed the Reserved Capacity in the relevant Service Agreement under which such services are provided.

(c) The Transmission Customer shall retain its right to schedule Firm Point-To-Point Transmission Service at the Receipt and Delivery Points specified in the relevant Service Agreement in the amount of its original capacity reservation.

(d) Service over Secondary Receipt and Delivery Points on a non-firm basis shall not require the filing of an Application for Non-Firm Point-To-Point Transmission Service under the Tariff. However, all other requirements of Part II of the Tariff (except as to transmission rates) shall apply to transmission service on a non-firm basis over Secondary Receipt and Delivery Points.

**22.2 Modification On a Firm Basis:** Any request by a Transmission Customer to modify Receipt and Delivery Points on a firm basis shall be treated as a new request for service in accordance with Section 17 hereof, except that such Transmission Customer shall not be obligated to pay any additional

deposit if the capacity reservation does not exceed the amount reserved in the existing Service Agreement. While such new request is pending, the Transmission Customer shall retain its priority for service at the existing firm Receipt and Delivery Points specified in its Service Agreement.

## 23 Sale or Assignment of Transmission Service

**23.1 Procedures for Assignment or Transfer of Service:** Subject to Commission approval of any necessary filings, a Transmission Customer may sell, assign, or transfer all or a portion of its rights under its Service Agreement, but only to another Eligible Customer (the Assignee). The Transmission Customer that sells, assigns or transfers its rights under its Service Agreement is hereafter referred to as the Reseller. Compensation to the Reseller shall not exceed the higher of (i) the original rate paid by the Reseller, (ii) the Transmission Provider's maximum rate on file at the time of the assignment, or (iii) the Reseller's opportunity cost. If the Assignee does not request any change in the Point(s) of Receipt or the Point(s) of Delivery, or a change in any other term or condition set forth in the original Service Agreement, the Assignee will receive the same services as did the Reseller and the priority of service for the Assignee will be the same as that of the Reseller. A Reseller should notify the Transmission Provider as soon as possible after any assignment or transfer of service occurs but in any event, notification must be provided prior to any provision of service to the Assignee. The Assignee will be subject to all terms and conditions of this Tariff. If the Assignee requests a change in service, the reservation priority of service will be determined by the Transmission Provider pursuant to Section 13.2.

**23.2 Limitations on Assignment or Transfer of Service:** If the Assignee requests a change in the Point(s) of Receipt or Point(s) of Delivery, or a change in any other specifications set forth in the original Service Agreement, the Transmission Provider will consent to such change subject to the provisions of the Tariff, provided that the change will not impair the operation and reliability of the Transmission Provider's generation, transmission, or distribution systems. The Assignee shall compensate the Transmission Provider for performing any System Impact Study needed to evaluate the capability of the Transmission System to accommodate the proposed change and any additional costs resulting from such change. The Reseller shall remain liable for the performance of all obligations under the Service

Agreement, except as specifically agreed to by the Parties through an amendment to the Service Agreement.

23.3 **Information on Assignment or Transfer of Service:** In accordance with Section 4, Resellers may use the Transmission Provider's OASIS to post transmission capacity available for resale.

## 24 Metering and Power Factor Correction at Receipt and Delivery Points(s)

24.1 **Transmission Customer Obligations:** Unless otherwise agreed, the Transmission Customer shall be responsible for installing and maintaining compatible metering and communications equipment to accurately account for the capacity and energy being transmitted under Part II of the Tariff and to communicate the information to the Transmission Provider. Such equipment shall remain the property of the Transmission Customer.

24.2 **Transmission Provider Access to Metering Data:** The Transmission Provider shall have access to metering data, which may reasonably be required to facilitate measurements and billing under the Service Agreement.

24.3 **Power Factor:** Unless otherwise agreed, the Transmission Customer is required to maintain a power factor within the same range as the Transmission Provider pursuant to Good Utility Practices. The power factor requirements are specified in the Service Agreement where applicable.

## 25 Compensation for Transmission Service

Rates for Firm and Non-Firm Point-To-Point Transmission Service are provided in the Schedules appended to the Tariff: Firm Point-To-Point Transmission Service (Schedule 7); and Non-Firm Point-To-Point Transmission Service (Schedule 8). Each RTO shall use Part II of the Tariff to make its Third-Party Sales. Each RTO shall account for such use at the applicable Tariff rates, pursuant to Section 8.

## 26 Stranded Cost Recovery

Any RTO may seek to recover stranded costs from the Transmission Customer pursuant to this Tariff in accordance with the terms, conditions and procedures set forth

in FERC Order No. 888. However, the RTO must separately file any specific proposed stranded cost charge under Section 205 of the Federal Power Act.

**27 Compensation for New Facilities and Redispatch Costs:**

**27.1 New Facilities and Redispatch:** Whenever a System Impact Study performed by the Transmission Provider in connection with the provision of Firm Point-To-Point Transmission Service identifies the need for new facilities, the Transmission Customer shall be responsible for such costs to the extent consistent with Commission policy. Whenever a System Impact Study performed by the Transmission Provider identifies transmission constraints that may be relieved more economically by redispatching resources available to the PJM Control Area than by building new facilities or upgrading existing facilities to eliminate such constraints, the Transmission Customer shall be responsible for the redispatch costs to the extent consistent with Commission policy.

**27.2 Redispatch Using Locational Marginal Prices:** Whenever in the operation of the PJM Control Area the Transmission Provider identifies transmission constraints, the provisions of Attachment K shall apply to all Transmission Customers (including Native Load Customers and an RTO making a Third-Party Sale); provided, however, that a Transmission Customer receiving Non-Firm Point-To-Point Transmission Service may elect not to pay the costs of redispatch determined pursuant to Attachment K when those costs would be imposed consistent with Commission policy and Transmission Service to such Transmission Customer may be interrupted.

## III. NETWORK INTEGRATION TRANSMISSION SERVICE

**Preamble**

The Transmission Provider will provide Network Integration Transmission Service pursuant to the applicable terms and conditions contained in the Tariff and Service Agreement. Network Integration Transmission Service allows the Network Customer to integrate, economically dispatch and regulate its current and planned Network Resources to serve its Network Load in a manner comparable to that in which each RTO utilizes the Transmission System to serve its Native Load Customers. Network Integration Transmission Service also may be used by the Network Customer to deliver economy energy purchases to its Network Load from non-designated resources on an as-available basis without additional charge. Transmission service for sales to non-designated loads will be provided pursuant to the applicable terms and conditions of Part II of the Tariff.

**28 Nature of Network Integration Transmission Service**

**28.1 Scope of Service:** Network Integration Transmission Service is a transmission service that allows Network Customers to efficiently and economically utilize their Network Resources (as well as other non-designated generation resources) to serve their Network Load located in the PJM Control Area and any additional load that may be designated pursuant to Section 31.3 of the Tariff. The Network Customer taking Network Integration Transmission Service must obtain or provide Ancillary Services pursuant to Section 3.

**28.2 Transmission Provider Responsibilities:** The Transmission Provider will plan, construct, operate and maintain the Transmission System in accordance with Good Utility Practice in order to provide the Network Customer with Network Integration Transmission Service over the Transmission Provider's Transmission System. Each RTO, on behalf of its Native Load Customers, shall be required to designate resources and loads in the same manner as any Network Customer under Part III of this Tariff. This information must be consistent with the information used by the Transmission Provider to calculate available transmission capability. The Transmission Provider shall include the Network Customer's Network Load in the Transmission System planning and shall, consistent with Good Utility Practice, endeavor to construct and place into service sufficient transmission capacity to deliver the Network Customer's Network

Resources to serve its Network Load on a basis comparable to the delivery of each RTO's own generating and purchased resources to its Native Load Customers.

**28.3 Network Integration Transmission Service:** The Transmission Provider will provide firm transmission service over the Transmission System to the Network Customer for the delivery of capacity and energy from its designated Network Resources to service its Network Loads on a basis that is comparable to each RTO's use of the Transmission System to reliably serve its Native Load Customers.

**28.4 Secondary Service:** The Network Customer may use the Transmission Provider's Transmission System to deliver energy to its Network Loads from resources that have not been designated as Network Resources. Such energy shall be transmitted, on an as-available basis, at no additional charge. Deliveries from resources other than Network Resources will have a higher priority than any Non-Firm Point-To-Point Transmission Service under Part II of the Tariff.

**28.5 Real Power Losses:** Real Power Losses are associated with all transmission service. The Transmission Provider is not obligated to provide Real Power Losses. The Network Customer is responsible for replacing losses associated with all transmission service in accordance with Attachment K.

**28.6 Restrictions on Use of Service:** The Network Customer shall not use Network Integration Transmission Service for (i) sales of capacity and energy to non-designated loads, or (ii) direct or indirect provision of transmission service by the Network Customer to third parties. All Network Customers taking Network Integration Transmission Service shall use Point-To-Point Transmission Service under Part II of the Tariff for any Third-Party Sale which requires use of the Transmission Provider's Transmission System.

## 29 Initiating Service

**29.1 Condition Precedent for Receiving Service:** Subject to the terms and conditions of Part III of the Tariff, the Transmission Provider will provide Network Integration Transmission Service to any Eligible Customer, provided that (i) the Eligible Customer completes an Application for

service as provided under Part III of the Tariff, (ii) the Eligible Customer and the Transmission Provider complete the technical arrangements set forth in Sections 29.3 and 29.4, (iii) the Eligible Customer executes a Service Agreement pursuant to Attachment F for service under Part III of the Tariff or requests in writing that the Transmission Provider file a proposed unexecuted Service Agreement with the Commission, and (iv) the Eligible Customer executes a Network Operating Agreement with the Transmission Provider pursuant to Attachment G and the MAAC agreement.

**29.2 Application Procedures:** An Eligible Customer requesting service under Part III of the Tariff must submit an Application, with a deposit approximating the charge for one month of service, to the Transmission Provider as far as possible in advance of the month in which service is to commence. Unless subject to the procedures in Section 2, Completed Applications for Network Integration Transmission Service will be assigned a priority according to the date and time the Application is received, with the earliest Application receiving the highest priority. Applications should be submitted by entering the information listed below on the Transmission Provider's OASIS. Prior to implementation of the Transmission Provider's OASIS, a Completed Application may be submitted by (i) transmitting the required information to the Transmission Provider by telefax, or (ii) providing the information by telephone over the Transmission Provider's time recorded telephone line. Each of these methods will provide a time-stamped record for establishing the service priority of the Application. A Completed Application shall provide all of the information included in 18 CFR § 2.20 including but not limited to the following:

(i) The identity, address, telephone number and facsimile number of the party requesting service;

(ii) A statement that the party requesting service is, or will be upon commencement of service, an Eligible Customer under the Tariff;

(iii) A description of the Network Load at each delivery point. This description should separately identify and provide the Eligible Customer's best estimate of the total loads to be served at each transmission voltage level, and the loads to be served from each Transmission Provider substation at the same transmission voltage

level. The description should include a ten (10) year forecast of summer and winter load and resource requirements beginning with the first year after the service is scheduled to commence;

(iv) The amount and location of any interruptible loads included in the Network Load. This shall include the summer and winter capacity requirements for each interruptible load (had such load not been interruptible), that portion of the load subject to interruption, the conditions under which an interruption can be implemented and any limitations on the amount and frequency of interruptions. An Eligible Customer should identify the amount of interruptible customer load (if any) included in the 10 year load forecast provided in response to (iii) above;

(v) A description of Network Resources (current and 10-year projection), which shall include, for each Network Resource:

- Unit size and amount of capacity from that unit to be designated as Network Resource
- VAR capability (both leading and lagging) of all generators
- Operating restrictions
  - Any periods of restricted operations throughout the year
  - Maintenance schedules
  - Minimum loading level of unit
  - Normal operating level of unit
  - Any must-run unit designations required for system reliability or contract reasons
- Approximate variable generating cost ($/MWH) for redispatch computations
- Arrangements governing sale and delivery of power to third parties from generating facilities located in the Transmission Provider Control Area, where only a portion of unit output is designated as a Network Resource
- Description of purchased power designated as a Network Resource including source of supply, Control Area location, transmission arrangements and delivery point(s) to the Transmission Provider's Transmission System;

(vi) Description of Eligible Customer's transmission system:

- Load flow and stability data, such as real and reactive parts of the load, lines, transformers, reactive devices and load type, including normal and emergency ratings of all transmission equipment in a load flow format compatible with that used by the Transmission Provider
- Operating restrictions needed for reliability
- Operating guides employed by system operators
- Contractual restrictions or committed uses of the Eligible Customer's transmission system, other than the Eligible Customer's Network Loads and Resources
- Location of Network Resources described in subsection (v) above
- 10 year projection of system expansions or upgrades
- Transmission System maps that include any proposed expansions or upgrades
- Thermal ratings of Eligible Customer's Control Area ties with other Control Areas; and

(vii) Service Commencement Date and the term of the requested Network Integration Transmission Service. The minimum term for Network Integration Transmission Service is one year.

Unless the Parties agree to a different time frame, the Transmission Provider must acknowledge the request within ten (10) days of receipt. The acknowledgement must include a date by which a response, including a Service Agreement, will be sent to the Eligible Customer. If an Application fails to meet the requirements of this section, the Transmission Provider shall notify the Eligible Customer requesting service within fifteen (15) days of receipt and specify the reasons for such failure. Wherever possible, the Transmission Provider will attempt to remedy deficiencies in the Application through informal communications with the Eligible Customer. If such efforts are unsuccessful, the Transmission Provider shall return the Application without prejudice to the Eligible Customer filing a new or revised Application that fully complies with the requirements of this section. The Eligible Customer will be assigned a new priority consistent with the date of the new or revised Application. The Transmission Provider shall treat this information consistent with the standards of conduct contained in Part 37 of the Commission's regulations.

**29.3 Technical Arrangements to be Completed Prior to Commencement of Service:** Network Integration Transmission Service shall not commence until the Transmission Provider and the Network Customer, or a third party, have completed installation of all equipment specified under the Network Operating Agreement consistent with Good Utility Practice and any additional requirements reasonably and consistently imposed to ensure the reliable operation of the Transmission System. The Transmission Provider shall exercise reasonable efforts, in coordination with the Network Customer, to complete such arrangements as soon as practicable taking into consideration the Service Commencement Date.

**29.4 Network Customer Facilities:** The provision of Network Integration Transmission Service shall be conditioned upon the Network Customer's constructing, maintaining and operating the facilities on its side of each delivery point or interconnection necessary to reliably deliver capacity and energy from the Transmission Provider's Transmission System to the Network Customer. The Network Customer shall be solely responsible for constructing or installing all facilities on the Network Customer's side of each such delivery point or interconnection.

**29.5 Filing of Service Agreement:** The Transmission Provider will file Service Agreements with the Commission in compliance with applicable Commission regulations.

## 30 Network Resources

**30.1 Designation of Network Resources:** Network Resources shall include all generation owned or purchased by the Network Customer designated to serve Network Load under the Tariff. Network Resources may not include resources, or any portion thereof, that are committed for sale to non-designated third party load or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis. Any owned or purchased resources that were serving the Network Customer's loads under firm agreements entered into on or before the Service Commencement Date shall initially be designated as Network Resources until the Network Customer terminates the designation of such resources.

**30.2 Designation of New Network Resources:** The Network Customer may designate a new Network Resource by providing the Transmission Provider

with as much advance notice as practicable. A designation of a new Network Resource must be made by a request for modification of service pursuant to an Application under Section 29.

**30.3 Termination of Network Resources:** The Network Customer may terminate the designation of all or part of a generating resource as a Network Resource at any time but should provide notification to the Transmission Provider as soon as reasonably practicable.

**30.4 Operation of Network Resources:** The Network Customer shall not operate its designated Network Resources located in the Network Customer's or Transmission Provider's Control Area such that the output of those facilities exceeds its designated Network Load plus losses, Third Party Sales and net sales of energy through the interchange energy market established under the PJM Interconnection Agreement.

**30.5 Network Customer Redispatch Obligation:** As a condition to receiving Network Integration Transmission Service, the Network Customer agrees to redispatch its Network Resources as requested by the Transmission Provider pursuant to Section 33.2. To the extent practical, the redispatch of resources pursuant to this section shall be on a least cost, non-discriminatory basis among all Network Customers and the RTOs.

**30.6 Transmission Arrangements for Network Resources Not Physically Interconnected With The Transmission Provider:** The Network Customer shall be responsible for any arrangements necessary to deliver capacity and energy from a Network Resource not physically interconnected with the Transmission Provider's Transmission System. The Transmission Provider will undertake reasonable efforts to assist the Network Customer in obtaining such arrangements, including without limitation, providing any information or data required by such other entity pursuant to Good Utility Practice.

**30.7 Limitation on Designation of Network Resources:** The Network Customer must demonstrate that it owns or has committed to purchase generation pursuant to an executed contract in order to designate a generating resource as a Network Resource. Alternatively, the Network Customer may establish that execution of a contract is contingent upon the availability of transmission service under Part III of the Tariff.

**30.8 Use of Interface Capacity by the Network Customer:** There is no limitation upon a Network Customer's use of the Transmission Provider's Transmission System at any particular interface to integrate the Network Customer's Network Resources (or substitute economy purchases) with its Network Loads. However, a Network Customer's use of the Transmission Provider's total interface capacity with other transmission systems may not exceed the Network Customer's Load Ratio Share.

**30.9 Network Customer Owned Transmission Facilities:** The Network Customer that owns existing transmission facilities that are integrated with the Transmission Provider's Transmission System may be eligible to receive consideration either through a billing credit or some other mechanism. In order to receive such consideration the Network Customer must demonstrate that its transmission facilities are integrated into the planning and operations of the Transmission Provider to serve all of its power and transmission customers. For facilities constructed by the Network Customer subsequent to the Service Commencement Date under Part III of the Tariff, the Network Customer shall receive credit where such facilities are jointly planned and installed in coordination with the Transmission Provider. Calculation of the credit shall be addressed in either the Network Customer's Service Agreement or any other agreement between the Parties.

## 31 Designation of Network Load

**31.1 Network Load:** The Network Customer must designate the individual Network Loads on whose behalf the Transmission Provider will provide Network Integration Transmission Service. The Network Loads shall be specified in the Service Agreement.

**31.2 New Network Loads Connected With the Transmission Provider:** The Network Customer shall provide the Transmission Provider with as much advance notice as reasonably practicable of the designation of new Network Load that will be added to the Transmission System. A designation of new Network Load must be made through a modification of service pursuant to a new Application. The Transmission Provider will use due diligence to install any transmission facilities required to interconnect a new Network Load designated by the Network Customer. The costs of

new facilities required to interconnect a new Network Load shall be determined in accordance with the procedures provided in Section 32.4 and shall be charged to the Network Customer in accordance with Commission policies.

31.3 **Network Load Not Physically Interconnected with the Transmission Provider:** This section applies to both initial designation pursuant to Section 31.1 and the subsequent addition of new Network Load not physically interconnected with the Transmission Provider. To the extent that the Network Customer desires to obtain transmission service for a load outside the Transmission Provider's Transmission System, the Network Customer shall have the option of (1) electing to include the entire load as Network Load for all purposes under Part III of the Tariff by incorporating the said load into the PJM Control Area and designating Network Resources in connection with such additional Network Load, or (2) excluding that entire load from its Network Load and purchasing Point-To-Point Transmission Service under Part II of the Tariff. To the extent that the Network Customer gives notice of its intent to add a new Network Load as part of its Network Load pursuant to this section the request must be made through a modification of service pursuant to a new Application.

31.4 **New Interconnection Points:** To the extent the Network Customer desires to add a new Delivery Point or interconnection point between the Transmission Provider's Transmission System and a Network Load, the Network Customer shall provide the Transmission Provider with as much advance notice as reasonably practicable.

31.5 **Changes in Service Requests:** Under no circumstances shall the Network Customer's decision to cancel or delay a requested change in Network Integration Transmission Service (e.g. the addition of a new Network Resource or designation of a new Network Load) in any way relieve the Network Customer of its obligation to pay the costs of transmission facilities constructed by the Transmission Provider and charged to the Network Customer as reflected in the Service Agreement. However, the Transmission Provider must treat any requested change in Network Integration Transmission Service in a non-discriminatory manner.

31.6 **Annual Load and Resource Information Updates:** The Network Customer shall provide the Transmission Provider with annual updates of Network

Load and Network Resource forecasts consistent with those included in its Application for Network Integration Transmission Service under Part III of the Tariff. The Network Customer also shall provide the Transmission Provider with timely written notice of material changes in any other information provided in its Application relating to the Network Customer's Network Load, Network Resources, its transmission system or other aspects of its facilities or operations affecting the Transmission Provider's ability to provide reliable service.

## 32 Additional Study Procedures For Network Integration Transmission Service Requests

**32.1 Notice of Need for System Impact Study:** After receiving a request for service, the Transmission Provider shall determine on a non-discriminatory basis whether a System Impact Study is needed. A description of the Transmission Provider's methodology for completing a System Impact Study is provided in Attachment D. If the Transmission Provider determines that a System Impact Study is necessary to accommodate the requested service, it shall so inform the Eligible Customer, as soon as practicable. In such cases, the Transmission Provider shall within thirty (30) days of receipt of a Completed Application, tender a System Impact Study Agreement pursuant to which the Eligible Customer shall agree to reimburse the Transmission Provider for performing the required System Impact Study. For a service request to remain a Completed Application, the Eligible Customer shall execute the System Impact Study Agreement and return it to the Transmission Provider within fifteen (15) days. If the Eligible Customer elects not to execute the System Impact Study Agreement, its Application shall be deemed withdrawn and its deposit shall be returned with interest.

**32.2 System Impact Study Agreement and Cost Reimbursement:**

(i) The System Impact Study Agreement will clearly specify the maximum charge, based on the Transmission Provider's estimate of the actual cost, and time for completion of the System Impact Study. The charge shall not exceed the actual cost of the study. In performing the System Impact Study, the Transmission Provider shall rely, to the extent reasonably practicable, on existing transmission planning studies. The Eligible Customer will not be

assessed a charge for such existing studies; however, the Eligible Customer will be responsible for charges associated with any modifications to existing planning studies that are reasonably necessary to evaluate the impact of the Eligible Customer's request for service on the Transmission System.

(ii) If in response to multiple Eligible Customers requesting service in relation to the same competitive solicitation, a single System Impact Study is sufficient for the Transmission Provider to accommodate the service requests, the costs of that study shall be pro-rated among the Eligible Customers.

(iii) For System Impact Studies that the Transmission Provider conducts on behalf of an RTO, the RTO shall record the cost of the System Impact Studies pursuant to Section 8.

32.3 **System Impact Study Procedures:** Upon receipt of an executed System Impact Study Agreement, the Transmission Provider will use due diligence to complete the required System Impact Study within a sixty (60) day period. The System Impact Study shall identify any system constraints and redispatch options, additional Direct Assignment Facilities or Network Upgrades required to provide the requested service. In the event that the Transmission Provider is unable to complete the required System Impact Study within such time period, it shall so notify the Eligible Customer and provide an estimated completion date along with an explanation of the reasons why additional time is required to complete the required studies. A copy of the completed System Impact Study and related work papers shall be made available to the Eligible Customer. The Transmission Provider will use the same due diligence in completing the System Impact Study for an Eligible Customer as it uses when completing studies for an RTO. The Transmission Provider shall notify the Eligible Customer immediately upon completion of the System Impact Study if the Transmission System will be adequate to accommodate all or part of a request for service or that no costs are likely to be incurred for new transmission facilities or upgrades. In order for a request to remain a Completed Application, within fifteen (15) days of completion of the System Impact Study the Eligible Customer must execute a Service Agreement or request the filing of an unexecuted Service Agreement, or the Application shall be deemed terminated and withdrawn.

**32.4 Facilities Study Procedures:** If a System Impact Study indicates that additions or upgrades to the Transmission System are needed to supply the Eligible Customer's service request, the Transmission Provider, within thirty (30) days of the completion of the System Impact Study, shall tender to the Eligible Customer a Facilities Study Agreement pursuant to which the Eligible Customer shall agree to reimburse the Transmission Provider for performing the required Facilities Study. For a service request to remain a Completed Application, the Eligible Customer shall execute the Facilities Study Agreement and return it to the Transmission Provider within fifteen (15) days. If the Eligible Customer elects not to execute the Facilities Study Agreement, its Application shall be deemed withdrawn and its deposit shall be returned with interest. Upon receipt of an executed Facilities Study Agreement, the Transmission Provider will use due diligence to complete the required Facilities Study within a sixty (60) day period. If the Transmission Provider is unable to complete the Facilities Study in the allotted time period, the Transmission Provider shall notify the Eligible Customer and provide an estimate of the time needed to reach a final determination along with an explanation of the reasons that additional time is required to complete the study. When completed, the Facilities Study will include a good faith estimate of (i) the cost of Direct Assignment Facilities to be charged to the Eligible Customer, (ii) the Eligible Customer's appropriate share of the cost of any required Network Upgrades, and (iii) the time required to complete such construction and initiate the requested service. The Eligible Customer shall provide the Transmission Provider with a letter of credit or other reasonable form of security acceptable to the Transmission Provider equivalent to the costs of new facilities or upgrades consistent with commercial practices as established by the Uniform Commercial Code. The Eligible Customer shall have thirty (30) days to execute a Service Agreement or request the filing of an unexecuted Service Agreement and provide the required letter of credit or other form of security or the request no longer will be a Completed Application and shall be deemed terminated and withdrawn.

## 33 Load Shedding and Curtailments

**33.1 Procedures:** Prior to the Service Commencement Date, the Transmission Provider and the Network Customer shall establish Load Shedding and Curtailment procedures pursuant to the Network Operating Agreement

with the objective of responding to contingencies on the Transmission System. The Parties will implement such programs during any period when the Transmission Provider determines that a system contingency exists and such procedures are necessary to alleviate such contingency. The Transmission Provider will notify all affected Network Customers in a timely manner of any scheduled Curtailment.

33.2 **Transmission Constraints:** During any period when the Transmission Provider determines that a transmission constraint exists on the Transmission System, and such constraint may impair the reliability of the Transmission Provider's system, the Transmission Provider will take whatever actions, consistent with Good Utility Practice, that are reasonably necessary to maintain the reliability of the Transmission Provider's system. To the extent the Transmission Provider determines that the reliability of the Transmission System can be maintained by redispatching resources, the Transmission Provider will initiate procedures pursuant to the Network Operating Agreement to redispatch all Network Resources and the Transmission Provider's own resources on a least-cost basis without regard to the ownership of such resources. Any redispatch under this section may not unduly discriminate between the Transmission Provider's use of the Transmission System on behalf of its Native Load Customers and any Network Customer's use of the Transmission System to serve its designated Network Load.

33.3 **Cost Responsibility for Relieving Transmission Constraints:** Whenever the Transmission Provider implements least-cost redispatch procedures in response to a transmission constraint, the RTOs and the Network Customers will bear the costs of such redispatch in accordance with Attachment K.

33.4 **Curtailments of Scheduled Deliveries:** If a transmission constraint on the Transmission Provider's Transmission System cannot be relieved through the implementation of least-cost redispatch procedures and the Transmission Provider determines that it is necessary to Curtail scheduled deliveries, the Parties shall Curtail such schedules in accordance with the Network Operating Agreement.

33.5 **Allocation of Curtailments:** The Transmission Provider shall, on a non-discriminatory basis, Curtail the transaction(s) that effectively relieve the

constraint. However, to the extent practicable and consistent with Good Utility Practice, any Curtailment will be shared by each RTO and Network Customer in proportion to their respective Load Ratio Shares. The Transmission Provider shall not direct the Network Customer to Curtail schedules to an extent greater than the Transmission Provider would Curtail the schedules of an RTO under similar circumstances.

33.6 **Load Shedding:** To the extent that a system contingency exists on the Transmission Provider's Transmission System and the Transmission Provider determines that it is necessary for the Transmission Provider and the Network Customer to shed load, the Parties shall shed load in accordance with previously established procedures under the Network Operating Agreement.

33.7 **System Reliability:** Notwithstanding any other provisions of this Tariff, the Transmission Provider reserves the right, consistent with Good Utility Practice and on a not unduly discriminatory basis, to Curtail Network Integration Transmission Service without liability on the Transmission Provider's part for the purpose of making necessary adjustments to, changes in, or repairs on its lines, substations and facilities, and in cases where the continuance of Network Integration Transmission Service would endanger persons or property. In the event of any adverse condition(s) or disturbance(s) on the Transmission Provider's Transmission System or on any other system(s) directly or indirectly interconnected with the Transmission Provider's Transmission System, the Transmission Provider, consistent with Good Utility Practice, also may Curtail Network Integration Transmission Service in order to (i) limit the extent or damage of the adverse condition(s) or disturbance(s), (ii) prevent damage to generating or transmission facilities, or (iii) expedite restoration of service. The Transmission Provider will give the Network Customer as much advance notice as is practicable in the event of such Curtailment. Any Curtailment of Network Integration Transmission Service will be not unduly discriminatory relative to an RTO's use of the Transmission System on behalf of its Native Load Customers. The Transmission Provider shall specify the rate treatment and all related terms and conditions applicable in the event that the Network Customer fails to respond to established Load Shedding and Curtailment procedures.

**34 Rates and Charges**

The Network Customer shall pay the Transmission Provider for any Direct Assignment Facilities, Ancillary Services, and applicable study costs, consistent with Commission policy, along with the following:

**34.1 Monthly Demand Charge:** (a) The Network Customer shall pay a monthly Demand Charge for the Zone or Zones in which its Network Load is located, which shall be determined as follows:

$$DC = CP \times \frac{RT}{12}$$

Where:

DC is the monthly demand charge for the Zone

CP is the hourly load of the Network Customer located within the Zone coincident with the monthly peak of the Zone

RT is the rate for Network Integration Transmission Service from Attachment H for the Zone in which the Network Load is located, stated in dollars per megawatt per year

(b) Nothing herein shall entitle any RTO or Network Customer to establish a zone that is smaller than or a portion of a Zone set forth in Attachment J.

**34.2 Determination of Network Customer's Monthly Network Load:** The Network Customer's monthly Network Load is its hourly load (including its designated Network Load not physically interconnected with the Transmission Provider under Section 31.3) coincident with the Transmission Provider's Monthly Transmission System Peak.

**34.3 Determination of Transmission Provider's Monthly Transmission System Load:** The Transmission Provider's monthly Transmission System load is the Transmission Provider's Monthly Transmission System Peak minus the coincident peak usage of all Firm Point-To-Point Transmission Service

customers pursuant to Part II of this Tariff plus the Reserved Capacity of all Firm Point-To-Point Transmission Service customers.

34.4 **Redispatch Charge:** The Network Customer and each RTO shall pay any redispatch costs as set forth in Attachment K.

34.5 **Stranded Cost Recovery:** Any RTO may seek to recover stranded costs from the Network Customer pursuant to this Tariff in accordance with the terms, conditions and procedures set forth in FERC Order No. 888. However, the RTO must separately file any proposal to recover stranded costs under Section 205 of the Federal Power Act.

## 35 Operating Arrangements

35.1 **Operation under The Network Operating Agreement:** The Network Customer shall plan, construct, operate and maintain its facilities in accordance with Good Utility Practice and in conformance with the Network Operating Agreement.

35.2 **Network Operating Agreement:** The terms and conditions under which the Network Customer shall operate its facilities and the technical and operational matters associated with the implementation of Part III of the Tariff shall be specified in the Network Operating Agreement. The Network Operating Agreement shall provide for the Parties to (i) operate and maintain equipment necessary for integrating the Network Customer within the Transmission Provider's Transmission System (including, but not limited to, remote terminal units, metering, communications equipment and relaying equipment), (ii) transfer data between the Transmission Provider and the Network Customer (including, but not limited to, heat rates and operational characteristics of Network Resources, generation schedules for units outside the Transmission Provider's Transmission System, interchange schedules, unit outputs for redispatch required under Section 33, voltage schedules, loss factors and other real time data), (iii) use software programs required for data links and constraint dispatching, (iv) exchange data on forecasted loads and resources necessary for long-term planning, and (v) address any other technical and operational considerations required for implementation of Part III of the Tariff, including scheduling protocols. The Network Operating Agreement will recognize that the Network Customer shall either (i) operate as a Control Area under applicable

guidelines of the North American Electric Reliability Council (NERC) and MAAC, (ii) satisfy its Control Area requirements, including all necessary Ancillary Services, by contracting with the Transmission Provider, or (iii) satisfy its Control Area requirements, including all necessary Ancillary Services, by contracting with another entity, consistent with Good Utility Practice, which satisfies NERC and the MAAC requirements. The Transmission Provider shall not unreasonably refuse to accept contractual arrangements with another entity for Ancillary Services. The Network Operating Agreement is included in Attachment G.

**35.3 Network Operating Committee:** A Network Operating Committee (Committee) shall be established to coordinate operating criteria for the Parties' respective responsibilities under the Network Operating Agreement. Each Network Customer shall be entitled to have at least one representative on the Committee. The Committee shall meet from time to time as need requires, but no less than once each calendar year. For Network Customers serving load in the PJM Control Area, the Network Operating Committee shall be the Management Committee, or a sub-committee thereof, established under the PJM Interconnection Agreement.

## SCHEDULE 1

### Scheduling, System Control and Dispatch Service

This service is required to schedule the movement of power through, out of, within, or into a Control Area and to accommodate unscheduled transmission flows that affect a Control Area. This service can be provided only by the operator of the Control Area in which the transmission facilities used for transmission service are located. Scheduling, System Control and Dispatch Service is to be provided directly by the Transmission Provider. The Transmission Customer must purchase this service from the Transmission Provider. The charges for Scheduling, System Control and Dispatch Service are to be based on the cost of operating the Office of the Interconnection.

The primary function of the Office of the Interconnection is to perform Scheduling, System Control and Dispatch Services for the region. The monthly charges for operation of the Office of the Interconnection shall be allocated and billed to the Transmission Customers in the same proportions that each Transmission Customer's use of the Transmission System, on a megawatthour basis, bears to the total of such use in the same month. Use of the local control centers of the RTOs is included in their transmission revenue requirements, and thus in the base rates for regional transmission service.

## SCHEDULE 2

### Reactive Supply and Voltage Control from Generation Sources Service

In order to maintain transmission voltages on the Transmission Provider's transmission facilities within acceptable limits, generation facilities (in the Control Area where the Transmission Provider's transmission facilities are located) are operated to produce (or absorb) reactive power. Thus, Reactive Supply and Voltage Control from Generation Sources Service must be provided for each transaction on the Transmission Provider's transmission facilities. The amount of Reactive Supply and Voltage Control from Generation Sources Service that must be supplied with respect to the Transmission Customer's transaction will be determined based on the reactive power support necessary to maintain transmission voltages within limits that are generally accepted in the region and consistently adhered to by the Transmission Provider.

Reactive Supply and Voltage Control from Generation Sources Service is to be provided directly by the Transmission Provider. The Transmission Customer must purchase this service from the Transmission Provider.

The charges for such service will be based on the rates set forth below for Network Customers in each Zone and a pool-wide rate for Point-To-Point Transmission Service:

| Zone | Capacity Megawatts | Zone Rate ($/kW/Mo.) | Weighted Contribution |
|---|---|---|---|
| AE | 2,326 | 0.290 | 0.0122 |
| BG&E | 6,716 | 0.147 | 0.0179 |
| Delmarva | 2,923 | 0.226 | 0.0120 |
| JCPL | 4,836 | 0.279 | 0.0245 |
| MetEd | 2,300 | 0.232 | 0.0097 |
| Penelec | 2,878 | 0.286 | 0.0149 |
| PECO | 9,001 | 0.239 | 0.0390 |
| PPL | 6,867 | 0.120 | 0.0150 |
| Pepco | 6,746 | 0.210 | 0.0257 |
| PSE&G | 10,502 | 0.080 | 0.0152 |
| | 55,095 | Pool-Wide Rate: | 0.1861 |

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## SCHEDULE 3

### Regulation and Frequency Response Service

Regulation and Frequency Response Service is necessary to provide for the continuous balancing of resources (generation and interchange) with load and for maintaining scheduled Interconnection frequency at sixty cycles per second (60 Hz). Regulation and Frequency Response Service is accomplished by committing on-line generation whose output is raised or lowered (predominantly through the use of automatic generating control equipment) as necessary to follow the moment-by-moment changes in load. The obligation to maintain this balance between resources and load lies with the Transmission Provider. The Transmission Provider must offer this service when the transmission service is used to serve load within its Control Area. The Transmission Customer must either purchase this service from the Transmission Provider or make alternative comparable arrangements to satisfy its Regulation and Frequency Response Service obligation. The amount of and charges for Regulation and Frequency Response Service are set forth below.

For regulation not satisfied by individual RTOs on behalf of their Native Load Customers, Network Customers or other Transmission Customers serving load in the PJM Control Area, the Transmission Provider will order the lowest cost alternative for regulation in service as needed to meet the PJM Control Area requirements (as set forth in the PJM Operating Principles and Standards), as specified below:

a. Regulation shall be supplied from generators located within the metered electrical boundaries of the PJM Control Area. Generators offering regulation, shall comply with applicable standards and requirements for regulation capability and dispatch specified in the procedures of the Office of the Interconnection.

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 its procedures.

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 procedures of the Office of the Interconnection.

f. An RTO, Network Customer or other Transmission Customer may satisfy its regulation obligation from its own resources capable of performing regulation service, by contractual arrangements with others able to provide regulation service on a comparable basis, or by purchases from the regulation market in the PJM Control Area.

g. 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 an RTO, Network Customer or other Transmission Customer.

h. 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, in accordance with the procedures of the Office of the Interconnection. Those resources 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. Those providing regulation 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.

i. Each RTO on behalf of its Native Load Customers, Network Customer or other Transmission Customer serving load within the PJM Control Area 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 entity's total load in the PJM Control Area for the hour.

j. An entity 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 price in that hour for the regulation class (which, for purposes of this schedule shall mean a subset of the generation units capable of providing regulation to the PJM Control Area determined by a range of costs for providing regulation as specified by the Office of the Interconnection under its procedures) from which the regulation was supplied, as determined by the Office of the Interconnection in accordance with its procedures. An RTO, Network Customer or other Transmission Customer 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 average price paid by the Office of the Interconnection for regulation.

k. Each supplier of regulation that is also an RTO obtaining regulation on behalf of its Native Load Customers, a Network Customer or other Transmission Customer serving load within the PJM Control Area shall have an hourly regulation objective as specified in paragraph i, and shall be credited or charged in connection therewith as specified in paragraph j. All others supplying Regulation at the direction of the Office of the Interconnection shall be credited for each increment of such regulation at the price in that hour for the regulation class from which the regulation was supplied, as determined by the Office of the Interconnection in accordance with its procedures.

## SCHEDULE 4

### Energy Imbalance Service

Energy Imbalance Service is provided when a difference occurs between the scheduled and the actual delivery of energy to a load located within a Control Area over a single hour. The Transmission Provider must offer this service when the transmission service is used to serve load within its Control Area. Each RTO and Network Customer must purchase Energy Imbalance Service through the Transmission Provider. For purposes of Energy Imbalance Services, if a Point of Delivery serves more than one RTO or Network Customer, the Energy Imbalance Service and any associated charges will be computed for the Point of Delivery and the allocation of the service and associated charges shall be the responsibility of the meter operator of that Point of Delivery.

For each RTO and Network Customer, Energy Imbalance Service is considered to be PJM interchange and will be charged at the hourly PJM interchange rate.

For each Transmission Customer receiving service under Part II of this Tariff, the Transmission Provider shall establish a deviation band of +/- 1.5 percent (with a minimum of 1 MW) of the scheduled transaction to be applied hourly to any energy imbalance that occurs as a result of the Transmission Customer's scheduled transaction(s). Parties should attempt to eliminate energy imbalances within the limits of the deviation band within thirty (30) days or within such other reasonable period of time as is generally accepted in the region and consistently adhered to by the Transmission Provider. If an energy imbalance is not corrected within thirty (30) days or a reasonable period of time that is generally accepted in the region and consistently adhered to by the Transmission Provider, the Transmission Customer will compensate the Transmission Provider for such service. Energy imbalances outside the deviation band will be subject to charges set forth below.

Energy imbalance will be recorded in whole MWh, and will be tracked separately for on-peak and off-peak hours, as specified for operations. For on-peak (off-peak) hours when the energy imbalance is within the +/- 1.5% deviation band, the Transmission Customer can choose to make in-kind payment during later on-peak (off-peak) hours as specified above, or settle in cash. Cash payments owed to the Transmission Provider will be charged at 120% of the Transmission Provider's on-peak (off-peak) billing rate. Cash payments to the Transmission Customer will be made at 80% of the Transmission Provider's on-peak (off-peak) billing rate. For hours when the

energy imbalance exceeds the +/- 1.5% deviation band, compensation will be in cash. Cash payments owed to the Transmission Provider will be charged at the higher of 150% of the Transmission Provider's billing rate for that hour or $100 per MWh. Cash payments to the Customer will be made at 70% of the Transmission Provider's on-peak (off-peak) billing rate.

Payments made for energy imbalance service shall be credited as follows: Payments in excess of the hourly market clearing price (made when a Transmission Customer does not provide enough generation to meet its control area to control area schedule) shall be allocated on a pro rata basis among the suppliers that provided energy to the residual energy marketplace during that hour. The difference between the hourly market clearing price and payments below the hourly market clearing price (when a Transmission Customer provides more generation than is needed to meet its control area to control area schedule) shall be allocated on a pro rata basis among the load serving entities that purchased energy from the residual energy marketplace during that hour.

## SCHEDULE 5

### Operating Reserve - Spinning Reserve Service

Spinning Reserve Service is needed to serve load immediately in the event of a system contingency. Spinning Reserve Service may be provided by generating units that are on-line and loaded at less than maximum output. The Transmission Provider must offer this service when the transmission service is used to serve load within its Control Area. Each RTO and Network Customer must purchase this service from the Transmission Provider. The amount of and charges for Spinning Reserve Service , as defined in accordance with NERC operating policies, will be accounted and paid for as part of the Operating Reserves as set forth in Attachment K.

## SCHEDULE 6

### Operating Reserve - Supplemental Reserve Service

Supplemental Reserve Service is needed to serve load in the event of a system contingency; however, it is not available immediately to serve load but rather within a short period of time. Supplemental Reserve Service may be provided by generating units that are on-line but unloaded, by quick-start generation or by interruptible load. The Transmission Provider must offer this service when the transmission service is used to serve load within its Control Area. Each RTO and Network Customer must purchase this service from the Transmission Provider. The amount of Supplemental Reserve Service is accounted and paid for as set forth in Attachment K.

## SCHEDULE 7

### Long-Term Firm and Short-Term Firm Point-To-Point Transmission Service

1) The Transmission Customer shall pay each month for Reserved Capacity at the sum of the applicable charges set forth below for the Point of Delivery:

**Summary of Charges**
(in $/kW)

| Point of Delivery | Yearly Charge | Monthly Charge | Weekly Charge | Daily Charge |
|---|---|---|---|---|
| Border of PJM Control Area | 22.382 | 1.865 | 0.4304 | 0.0861 |
| AE Zone | 21.319 | 1.777 | 0.4100 | 0.0820 |
| BG&E Zone | 17.029 | 1.419 | 0.3275 | 0.0655 |
| Delmarva Zone | 22.996 | 1.916 | 0.4422 | 0.0884 |
| JCPL Zone | 29.569 | 2.464 | 0.5686 | 0.1137 |
| MetEd Zone | 13.425 | 1.119 | 0.2582 | 0.0516 |
| Penelec Zone | 11.015 | 0.918 | 0.2118 | 0.0424 |
| PECO Zone | 26.743 | 2.229 | 0.5143 | 0.1029 |
| PPL Zone | 25.779 | 2.148 | 0.4958 | 0.0992 |
| Pepco Zone | 21.091 | 1.758 | 0.4056 | 0.0811 |
| PSE&G Zone | 23.531 | 1.961 | 0.4525 | 0.0905 |

2) The total demand charge in any week, pursuant to a reservation for Daily delivery, shall not exceed the rate specified in section (1) above for weekly service times the highest amount in kilowatts of Reserved Capacity in any day during such week.

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Effective:

3) **Discounts**: If the Transmission Provider offers or attributes a rate discount to an RTO or an affiliate of an RTO, the Transmission Provider must offer at the same time the same discounted Firm Point-To-Point Transmission Service rate to all Eligible Customers on the same path and on all unconstrained transmission paths. Information regarding any firm transmission discounts must be posted on the OASIS pursuant to Part 37 of the Commission's regulations. In addition, discounts to non-affiliates of RTOs must be offered in a not unduly discriminatory manner.

4) **Congestion and Losses**: In addition to any payment under this Schedule, the Transmission Customer shall pay Redispatch Costs as specified in Section 27 of the Tariff. The Transmission Customer shall be responsible for losses as specified in the Tariff.

5) **Other Supporting Facilities and Taxes**: In addition to the rates set forth in section (1) of this schedule, the Transmission Customer shall pay charges determined on a case-by-case basis for facilities necessary to provide Transmission Service at voltages lower than those shown in Attachment H for the applicable Zone(s) and any amounts necessary to reimburse the Transmission Provider for any amounts payable as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## SCHEDULE 8

### Non-Firm Point-To-Point Transmission Service

1) The Transmission Customer shall pay for Non-Firm Point-To-Point Transmission Service up to the sum of the applicable charges set forth below for the Point of Delivery:

**Summary of Charges**

| Point of Delivery | Monthly Charge ($/kW) | Weekly Charge ($/kW) | Daily Charge ($/kW) | Hourly Charge ($/MWh) |
|---|---|---|---|---|
| Border of PJM Control Area | 1.865 | 0.4304 | 0.0861 | 5.38 |
| AE Zone | 1.777 | 0.4100 | 0.0820 | 5.12 |
| BG&E Zone | 1.419 | 0.3275 | 0.0655 | 4.09 |
| Delmarva Zone | 1.916 | 0.4422 | 0.0884 | 5.53 |
| JCPL Zone | 2.464 | 0.5686 | 0.1137 | 7.11 |
| MetEd Zone | 1.119 | 0.2582 | 0.0516 | 3.23 |
| Penelec Zone | 0.918 | 0.2118 | 0.0424 | 2.65 |
| PECO Zone | 2.229 | 0.5143 | 0.1029 | 6.43 |
| PPL Zone | 2.148 | 0.4958 | 0.0992 | 6.20 |
| Pepco Zone | 1.758 | 0.4056 | 0.0811 | 5.07 |
| PSE&G Zone | 1.961 | 0.4525 | 0.0905 | 5.66 |

2) The total demand charge in any week, pursuant to a reservation for Daily delivery, shall not exceed the rate specified in section (1) above for weekly service times the highest amount in kilowatts of Reserved Capacity in any day during such week.

3) **Hourly delivery**: The basic charge shall be that agreed upon by the Parties at the time this service is reserved and in no event shall exceed the amounts set forth above for a Point of Delivery.

The total demand charge in any day, pursuant to a reservation for Hourly delivery, shall not exceed the rate specified in section (1) above for daily service times the highest amount in kilowatts of Reserved Capacity in any hour during such day. In addition, the total demand charge in any week, pursuant to a reservation for Hourly or Daily delivery, shall not exceed the rate specified in section (1) above for weekly service times the highest amount in kilowatts of Reserved Capacity in any hour during such week.

4) **Discounts**: If the Transmission Provider offers or attributes a discounted transmission rate to an RTO or to an affiliate of an RTO, the Transmission Provider must offer at the same time the same discounted Non-Firm Point-To-Point Transmission Service rate to all Eligible Customers on the same path and on all unconstrained transmission paths. Information regarding any non-firm transmission discounts must be posted on the OASIS pursuant to Part 37 of the Commission's regulations. In addition, discounts to non-affiliates must be offered in a not unduly discriminatory manner.

5) **Congestion and Losses**: A Transmission Customer desiring Non-Firm Point-to-Point Transmission Service may elect to pay transmission congestion charges. If the Transmission Customer so elects, it shall pay the higher of any applicable Redispatch Cost as calculated pursuant to Attachment K or the applicable rate under section (1) above. The Transmission Customer shall be responsible for losses as specified in the Tariff.

6) **Other Supporting Facilities and Taxes**: In addition to the charges set forth in section (1) of this schedule, the Transmission Customer shall pay charges determined on a case-by-case basis for facilities necessary to provide Transmission Service at voltages lower than those shown in Attachment H for the applicable Zone(s) and any amounts necessary to reimburse the Transmission Provider for any amounts payable as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT A

### Form of Service Agreement For
### Firm Point-To-Point Transmission Service

1.0 This Service Agreement, dated as of _____, is entered into, by and between the Office of the Interconnection, as agent on behalf of the Transmission Provider within the PJM Control Area, and _____ ("Transmission Customer").

2.0 The Transmission Customer has been determined by the Office of the Interconnection to have a Completed Application for Firm Point-To-Point Transmission Service under the Tariff.

3.0 The Transmission Customer has provided to the Office of the Interconnection an Application deposit in the amount of $_____, in accordance with the provisions of Section 17.3 of the Tariff.

4.0 Service under this agreement shall commence on the later of (l) _____, or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. Service under this agreement shall terminate on _____.

5.0 The Office of the Interconnection agrees to provide, on behalf of the Transmission Provider within the PJM Control Area, and the Transmission Customer agrees to take and pay for Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.

6.0 Any notice or request made to or by either the Office of the Interconnection or the Transmission Customer regarding this Service Agreement shall be made to the representatives as indicated below.

Office of the Interconnection

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

Transmission Customer:

_____

_____

_____

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Office of the Interconnection and Transmission Customer have caused this Service Agreement to be executed by their respective authorized officials.

Office of the Interconnection:

By:_____ _____ _____
Name Title Date

Transmission Customer:

By:_____ _____ _____
Name Title Date

Revised: June 2, 1997
Effective:

**CERTIFICATION**

I, _____, certify that I am a duly authorized officer of _____ (Transmission Customer) and that _____ (Transmission Customer) will not request service under this Service Agreement to assist an Eligible Customer to avoid the reciprocity provision of this Open-Access Transmission Tariff.

_____
(Name)

_____
(Title)

Subscribed and sworn before me this _____ day of _____, _____.

_____
(Notary Public)

My Commission expires:_____

## Specifications For Firm Point-To-Point Transmission Service

1.0 Term of Transaction: _____

Start Date: _____

Termination Date: _____

2.0 Description of capacity and energy to be transmitted including the electric Control Area in which the transaction originates.

_____

3.0 Point(s) of Receipt: _____

Delivering Party: _____

4.0 Point(s) of Delivery: _____

Receiving Party: _____

5.0 Maximum amount of capacity and energy to be transmitted (Reserved Transmission Capability) : _____

6.0 Designation of party(ies) subject to reciprocal service obligation: _____

_____

_____

_____

7.0 Name(s) of any Intervening Systems providing transmission service: _____

_____

8.0 Service under this Agreement may be subject to some combination of the charges detailed below. (The appropriate charges for individual transactions will be determined in accordance with the terms and conditions of the Tariff.)

8.1 Transmission Charge:_____

_____

8.2 System Impact and/or Facilities Study Charge(s):

_____

_____

8.3 Direct Assignment Facilities Charge:_____

_____

8.4 Ancillary Services Charges: _____

_____

_____

_____

_____

_____

_____

8.5 Other Supporting Facilities Charge: _____

_____

_____

## ATTACHMENT B

### Form of Service Agreement For Non-Firm Point-To-Point Transmission Service

1.0 This Service Agreement, dated as of _____, is entered into, by and between the Office of the Interconnection, as agent for the Transmission Provider within the PJM Control Area, and _____ (Transmission Customer).

2.0 The Transmission Customer has been determined by the Office of the Interconnection to be a Transmission Customer under Part II of the Tariff and has filed a Completed Application for Non-Firm Point-To-Point Transmission Service in accordance with Section 18.2 of the Tariff.

3.0 Service under this Agreement shall be provided upon request by an authorized representative of the Transmission Customer.

4.0 The Transmission Customer agrees to supply information the Office of the Interconnection deems reasonably necessary in accordance with Good Utility Practice in order for it to provide the requested service.

5.0 The Office of the Interconnection agrees to provide, on behalf of the Transmission Providers within the PJM Control Area, and the Transmission Customer agrees to take and pay for Non-Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.

6.0 Any notice or request made to or by either the Office of the Interconnection or the Transmission Customers regarding this Service Agreement shall be made to the representative as indicated below.

Office of the Interconnection:

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

Transmission Customer:

_____

_____

_____

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Office of the Interconnection and the Transmission Customer have caused this Service Agreement to be executed by their respective authorized officials.

Office of the Interconnection:

By: _____ _____ _____
Name Title Date

Transmission Customer:

By: _____ _____ _____
Name Title Date

## CERTIFICATION

I, _____, certify that I am a duly authorized officer of _____ (Transmission Customer) and that _____ (Transmission Customer) will not request service under this Service Agreement to assist an Eligible Customer to avoid the reciprocity provision of this Open-Access Transmission Tariff.

_____
(Name)

_____
(Title)

Subscribed and sworn before me this _____ day of _____, _____.

_____
(Notary Public)

My Commission expires:_____

# ATTACHMENT C

## Methodology To Assess Available Transfer Capability

The Transmission Provider will assess available transfer capability (ATC). The Transmission Provider will post firm and non-firm ATC projections on the OASIS for interfaces between the PJM Control Area and neighboring Control Areas, and other path locations of significant commercial interest will be added as appropriate.

ATC of a particular path is an approximate indication of the anticipated transmission transfer capability remaining on the transmission network that could be scheduled for further commercial activity relative to the designated path under the conditions studied. Specific study of conditions, including source and sink of generation and load, is required before firm transmission service commitments can be made.

Transfer capability of the transmission network is limited by physical and electrical characteristics of the system including thermal equipment loading, voltage, and stability considerations. Transfer capability is evaluated based on base system loading and an assessment of critical contingencies on the transmission system. The critical contingencies will be defined as appropriate using guidelines set forth in the PJM Manuals. The Transmission Provider's calculation of transfer capability will be consistent with the principles in the NERC document "Available Transfer Capability Definitions and Determination." These calculations will be performed through a combination of planning and operational analyses, employing both Energy Management System real-time functionality and off-line analytical tools as appropriate. Firm and non-firm ATC will be determined consistent with NERC discussion of Recallable and Non-recallable ATC, taking into account the transmission reliability margin and capacity benefit margin in order to preserve the emergency capability of the PJM Control Area to serve load serving entities. Firm ATC on any path will be limited to assure that emergency import capability will be available to network service holders when needed through the reservation of capacity benefit margin, as discussed by NERC, equivalent to a firm transmission service reservation for delivery from systems outside of the PJM Control Area to serve the load serving entities within the PJM Control Area.

Revised: June 2, 1997
Effective:

Determination of ATC will require, in all cases, that base system conditions be identified and modeled for the period being analyzed. These conditions will include projected customer demand, anticipated generation availability, anticipated transmission system facility availability, expected energy transactions for the PJM Control Area, and information about neighboring regions that affect the transfer capability of the PJM Control Area. For daily and hourly calculations, these conditions will be based on the Transmission Provider's operational assessments of load trends, unit commitment profiles, maintenance schedules and transaction schedules. Monthly and longer term calculations will be based on planning loads, expected maintenance schedules, typical generation patterns, and known transaction reservations.

## ATTACHMENT D

## Methodology for Completing a System Impact Study

The Transmission Provider will notify applicants for transmission service of the need to conduct a System Impact Study whenever the Transmission Provider determines that available transmission capability may not be sufficient to provide the requested firm service(s). The purpose of the impact study will be to determine the effect the requested service(s) will have on system operations, identify any system constraints, redispatch options and whether system expansion will be required to provide the requested service(s).

The Commission's comparability standard will be applied in evaluating the impact of all requests. Specifically, the Transmission Provider will use the same due diligence in completing System Impact Studies for any Eligible Customers that it uses when completing studies for any RTO that requests service from the Transmission Provider.

Requests for long-term firm transmission service will be evaluated, to the extent possible, as a part of the on-going planning process for Bulk Transmission Supply in the PJM Control Area. Appropriate planning studies will be conducted annually to assess the capability of the PJM Control Area Transmission System to deliver the planned Network Resources to the Forecasted Network Loads of the existing load serving entities and any prior committed Firm Point-to-Point Service transmission customers. The loads and resources of Eligible Customers requesting new or additional service during the normal planning cycle will be incorporated into this aggregate planning process along with the loads and resources of all other Firm Point-to-Point and load serving entities for which prior commitments to provide service have been made. Requests for long-term firm service made at times that will not permit the evaluation of impacts as part of the normal planning process, and requests for short-term firm service, will require that special impact studies be completed.

The Transmission Provider plans and evaluates the PJM Control Area Transmission System in strict compliance with the following:

1. North American Electric Reliability Council (NERC) Reliability Principles and Guides

2. Principles and Standards for Planning the Bulk Electric Systems of the Mid-Atlantic Area Council (MAAC) Region

3. Transmission planning criteria, methods and procedures described in the "FERC Form No. 715 - Annual Transmission Planning and Evaluation Report" for the MAAC Region.

In evaluating the impact of any request for new or additional service(s), the Transmission Provider will first determine the capability of the system to reliably provide prior committed Network and Point-to-Point service for the term of the requested new or additional service(s), or the normal planning horizon (generally 10 years), whichever is shorter. Requests for new or additional service(s) will then be incorporated into the system representation data and the appropriate system analyses will be completed to evaluate the impacts of the requested services.

## ATTACHMENT E

## Index of Point-To-Point Transmission Service Customers

| Customer | Date of Service Agreement |
|---|---|

## ATTACHMENT F

### Service Agreement For
### Network Integration Transmission Service

1.0 This Service Agreement, dated as of _____, is entered into, by and between the Office of the Interconnection, as agent on behalf of the Transmission Provider within the PJM Control Area and _____ ("Transmission Customer").

2.0 The Transmission Customer has been determined by the Office of the Interconnection to have a valid request for Network Transmission Service under the Tariff and to have satisfied the conditions for service imposed by the Tariff.

3.0 The Transmission Customer has provided to the Office of the Interconnection an Application deposit in the amount of $_____, which will be applied to charges for service under this Agreement in accordance with the provisions of Section 29.2 of the Tariff.

4.0 Service under this agreement shall commence on the later of: (l) _____-_____, or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. Service under this agreement shall terminate on _____.

5.0 The Office of the Interconnection agrees to provide, on behalf of the Transmission Provider within the PJM Control Area, and the Transmission Customer agrees to take and pay for Network Transmission Service in accordance with the provisions of the Tariff, including the Network Operating Agreement (which is incorporated herein by reference), and this Service Agreement as they may be amended from time to time.

6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.

Office of the Interconnection:

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

Transmission Customer:

_____

_____

_____

7.0 The Tariff for Network Integration Transmission Service is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Office of the Interconnection and Transmission Customer have caused this Service Agreement to be executed by their respective authorized officials.

Office of the Interconnection:

By: _____ _____ _____
Name Title Date

Transmission Customer:

By: _____ _____ _____
Name Title Date

**CERTIFICATION**

I, _____, certify that I am a duly authorized officer of _____ (Transmission Customer) and that _____ (Transmission Customer) will not request service under this Service Agreement to assist an Eligible Customer to avoid the reciprocity provision of this Open-Access Transmission Tariff.

_____
(Name)

_____
(Title)

Subscribed and sworn before me this _____ day of _____, _____.

_____
(Notary Public)

My Commission expires:_____

# SPECIFICATIONS FOR
# NETWORK INTEGRATION TRANSMISSION SERVICE

1.0 Term of Transaction: _____

Start Date: _____

Termination Date: _____

2.0 Description of capacity and/or energy to be transmitted within the PJM Control Area (including electric control area in which the transaction originates).

_____

3.0 Network Resources: _____

4.0 Network Load: _____

5.0 Maximum amount of capacity and/or energy to be transmitted (Contract Demand):

_____

6.0 Designation of party subject to reciprocal service obligation: _____

7.0 Name(s) of any Intervening Systems providing transmission service:_____

_____

8.0 Service under this Agreement may be subject to some combination of the charges detailed below. (The appropriate charges for individual transactions will be determined in accordance with the terms and conditions of the tariff.)

8.1 Embedded Cost Transmission Charge:_____

_____

8.2 Facilities Study Charge:_____

_____

8.3 Direct Assignment Facilities Charge:_____

_____

8.4 Ancillary Services Charge: _____

_____

8.5 Other Supporting Facilities Charge: _____

_____

## ATTACHMENT G

### Network Operating Agreement

The Operating Agreement of the PJM Interconnection, L.L.C.,as amended from time to time, shall constitute the Network Operating Agreement for Network Customers serving load in the PJM Control Area. For other Network Customers, a Network Operating Agreement shall be negotiated, which shall address: (a) Control Area requirements, (b) redispatch procedures, (c) metering, (d) Control Area and data equipment, (e) operating requirements, (f) operating information requirements, (g) network planning, (h) the character of the service to be provided, (i) the transfer of power and energy through other systems, and (j) such other matters as the parties deem appropriate.

## ATTACHMENT H-1

### Annual Transmission Rates -- Atlantic City Electric Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $34,344,987 and the rate for Network Integration Transmission Service is $21,319 per megawatt per year, which reflects the facilities within the Zone of 138 kV and higher voltage. Service utilizing facilities at voltages below 138 kV will be provided at rates determined on a case-by-case basis.1/

2. The revenue requirement in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, a Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

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1/In addition to the rate set forth in section 1 of this attachment, a Network Customer requiring the use of Atlantic Electric's lower voltage facilities (facilities below 138 kV) to effect the delivery of power and energy under this Tariff shall be assessed an additional charge to reflect the use of Atlantic Electric's lower voltage facilities. Customers subject to this charge include Vineland Municipal Electric Utility. Vineland's lower-voltage charge shall be a phased-in rate capped at $10,000/MW-year and will be specified in the service agreement for Vineland. The charge for other Network Customers will be included in their service agreements.

Revised: June 2, 1997
Effective:

## ATTACHMENT H-2

### Annual Transmission Rates -- Baltimore Gas and Electric Company for Network Integration Transmission Service

1. The annual transmission revenue requirement rate is $84,124,139 and the rate for Network Integration Transmission Service is $17,029 per megawatt per year, which reflects the facilities recorded in FERC Form 1, page 207.53 as transmission. Service utilizing other facilities will be provided at rates determined on a case-by-case basis.

2. The revenue requirement in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-3

### Annual Transmission Rates -- Delmarva Power & Light Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $46,842,773 and the rate for Network Integration Transmission Service is $22,996 per megawatt per year,2/ which reflects the facilities within the Zone of 69 kV and higher voltage. Service utilizing facilities at voltages below 69 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

---

2/The annual transmission revenue requirement of $46,842,773 is an adjusted revenue requirement based on an annual revenue requirement of $53,609,231 less annual revenues of $2,512,264 from the LDV Agreement, $440583 from DMEC Wheeling, $3,551,402 from ODEC Wheeling, and $262,209 from interruptible demand.

Revised: June 2, 1997
Effective:

## ATTACHMENT H-4

### Annual Transmission Rates -- Jersey Central Power & Light Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $98,762,045 and the rate for Network Integration Transmission Service is $29,569 per megawatt per year, which reflects the facilities within the Zone of 34.5 kV delta and higher voltage. Service utilizing facilities at voltages below 34.5 kV delta will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-5

### Annual Transmission Rates -- Metropolitan Edison Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $25,211,390 and the rate for Network Integration Transmission Service is $13,425 per megawatt per year, which reflects the facilities within the Zone of 34.5 kV delta and higher voltage. Service utilizing facilities at voltages below 34.5 kV delta will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-6

### Annual Transmission Rates -- Pennsylvania Electric Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $25,532,586 and the rate for Network Integration Transmission Service is $11,015 per megawatt per year, which reflects the facilities within the Zone of 46 kV and higher voltage. Service utilizing facilities at voltages below 46 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-7

### Annual Transmission Rates -- PECO Energy Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $154,469,000 and the rate for Network Integration Transmission Service is $26,743 per megawatt per year, which reflects the facilities recorded in FERC Form 1, as transmission for PECO Energy Company and its subsidiaries. Service utilizing other facilities will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-8

### Annual Transmission Rates -- Pennsylvania Power & Light Company Group for Network Integration Transmission Service

1. The annual transmission revenue requirement is $144,774,000 and the rate for Network Integration Transmission Service is $25,779 per megawatt per year, which reflects the facilities within the Zone of 69 kV and higher voltage. Service utilizing facilities at voltages below 69 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-9

### Annual Transmission Rates -- Potomac Electric Power Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $95,880,433 and the rate for Network Integration Transmission Service is $21,091 per megawatt per year, which reflects the facilities within the Zone of 115 kV and higher voltage. Service utilizing facilities at voltages below 115 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-10

### Annual Transmission Rates -- Public Service Electric and Gas Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $157,587,365 and the rate for Network Integration Transmission Service is $23,531 per megawatt per year, which reflects the facilities within the Zone of 138 kV and higher voltage. Service utilizing facilities at voltages below 138 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

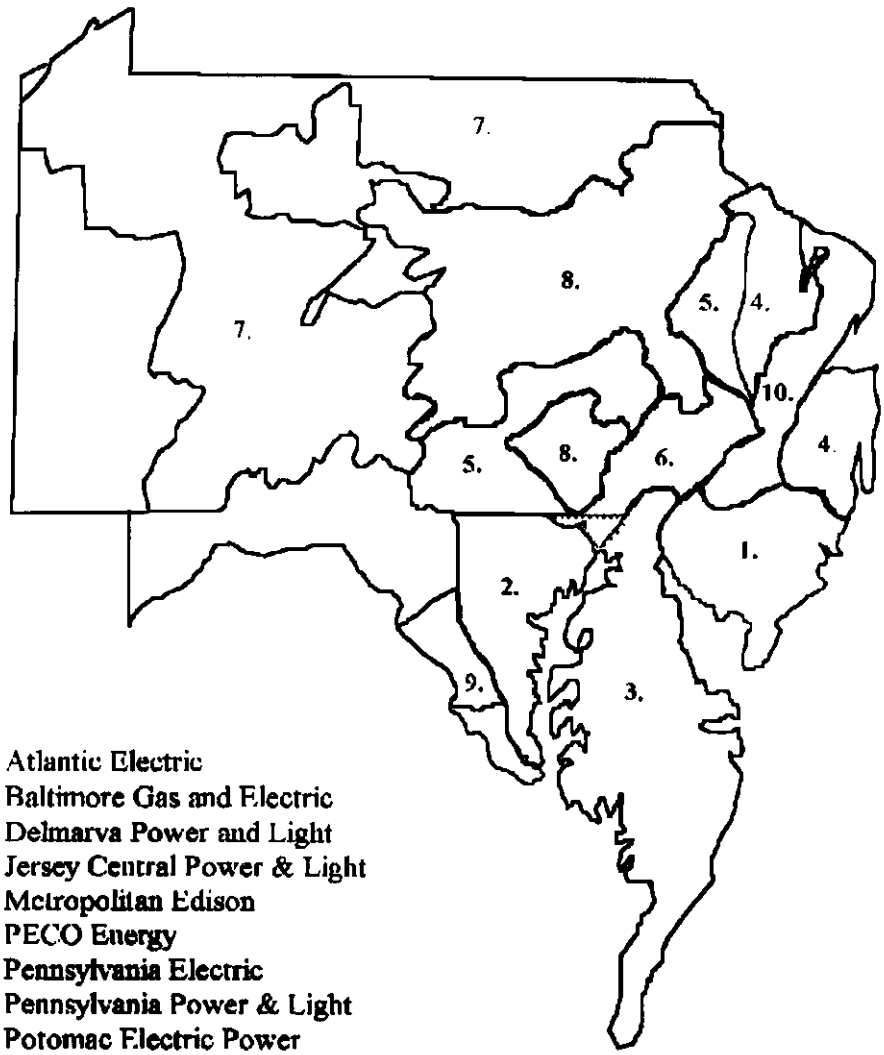
## ATTACHMENT I

**Index of Network Integration Transmission Service Customers**

| Customer | Date of Service Agreement |
|---|---|

## ATTACHMENT J

## PJM Control Area Transmission Zones




1. Atlantic Electric
2. Baltimore Gas and Electric
3. Delmarva Power and Light
4. Jersey Central Power & Light
5. Metropolitan Edison
6. PECO Energy
7. Pennsylvania Electric
8. Pennsylvania Power & Light
9. Potomac Electric Power
10. Public Service Electric and Gas

Revised: June 2, 1997
Effective:

# ATTACHMENT K

## Transmission Congestion Charges and Credits

**Preface**. This Attachment specifies the manner in which all Transmission Customers, Network Customers, and Regional Transmission Owners using the Transmission System to serve their Native Load Customers (all of the foregoing being referred to as "Transmission Users"), will be charged for the costs of congestion on the Transmission System (as set forth in section A) and will, in connection with the purchase of firm service, share in the allocation of revenues received as Transmission Congestion Charges (as set forth in section B). The provisions of this Attachment will apply to all Transmission Users, whether they are using the Transmission System for delivery of their own resources to load, for bilateral transactions, or to purchase or sell energy in the PJM Interchange Energy Market. In addition, the appendices to this Attachment incorporate into the Tariff for ease of reference the provisions of Schedule 1 of the Operating Agreement ("Schedule 1"). Capitalized terms used in this Attachment which are not defined in the Tariff or in the Attachment, but which are defined in Schedule 1 shall have the meanings set forth in Schedule 1.

### A. Transmission Congestion Charges

**1. General.** Every Transmission User will be charged for the costs of congestion on the Transmission System on the basis of the difference between the Locational Marginal Price at the location or locations on the Transmission System where the Transmission User supplies energy for transmission and the location or locations where the Transmission User withdraws energy from the Transmission System. To implement these charges, the Office of the Interconnection will calculate credits for every Transmission User based on the Locational Marginal Price at the location or locations at which the Transmission System receives energy from the Transmission User, calculated in accordance with section A(2) of this Attachment, and will calculate debits based on the Locational Marginal Price at the location or locations to which the Transmission User uses the Transmission System to deliver energy, calculated in accordance with section A(3) of this Attachment. The difference, if any, between these credits and debits, less the Transmission User's net payments for purchases and sales in the PJM Interchange Energy Market, represents the Transmission Congestion Charges borne by the Transmission User. No additional Transmission Congestion Charges shall be assessed with respect to the Transmission User's sale or purchase of energy on the PJM Interchange Energy Market, because the price for the sale or purchase of such energy already reflects any differences between Locational Marginal Prices associated with the transaction.

**2. Credits to Transmission Users.**

(a) For each hour during the day, each Transmission User shall be credited with the sum of the amounts determined in accordance with the following formula for each of the busses at which the Transmission User causes the Transmission System to receive electric energy:

Credit for Each Bus = Generation * Hourly LMP

where

Generation = The energy supplied by the Transmission User at the bus during the hour, measured in whole megawatts, as determined (i) in the case of a bus within the PJM Control Area, by the Office of the Interconnection utilizing the State Estimator model described in Section 2 of Schedule 1, and (ii) in the case of a bus at the border of the PJM Control Area, by the Transmission User's transaction request.

Hourly LMP = the integrated hourly Locational Marginal Price (LMP) at the bus, calculated by the Office of the Interconnection based on five minute values; and

LMP = the cost to serve the next increment of load at the bus at the lowest possible price consistent with the preservation of reliability and transmission system conditions, determined as described in Section 2 of Schedule 1.

(b) Credits shall be calculated in accordance with paragraph (a) for each generation bus in the PJM Control Area and for each bus representing an interconnection between the PJM Control Area and an adjacent control area. The total of the amounts determined in accordance with paragraph (a) for all of the locations at which a Transmission User supplies energy for receipt by the Transmission System shall be summed for that Transmission User.

**3. Debits to Transmission Users.**

(a) For each hour during the day, each Transmission User shall be debited the sum of the amounts determined in accordance with the following formula for each of the busses to which the Transmission System delivers electric energy for the Transmission User:

Debit for Each Bus = (Load + Losses) * Hourly LMP

where

Load = the load at the bus during the hour, measured in whole megawatts, determined: (i) in the case of a bus within the PJM Control Area, by the Office of the Interconnection utilizing the State Estimator model described in Section 2 of Schedule 1 and the portion of such load at the bus attributable to the Transmission User; or (ii) in the case of a bus at the border of the PJM Control Area, by the Transmission User's transaction request;

Losses = An allocated share of transmission losses experienced in the PJM Control Area, as determined by the Office of the Interconnection in accordance with the Tariff;

Hourly LMP = The integrated hourly Locational Marginal Price (LMP) at the bus, calculated by the Office of the Interconnection based on five minute values; and

LMP = The cost to serve the next increment of load at the bus at the lowest possible price consistent with the preservation of reliability and transmission system conditions, determined as described in Section 2 of Schedule 1.

(b) Debits shall be calculated in accordance with paragraph (a) for each load bus in the PJM Control Area and for each bus representing an interconnection between the PJM Control Area and an adjacent control area. The total of the amounts determined in accordance with paragraph (a) for all of the locations at which a Transmission User receives energy delivered by the Transmission System shall be summed for that Transmission User.

**4. Offset of Credits and Debits to a Transmission User.**

The Office of the Interconnection shall take into account both amounts credited to a Transmission User in accordance with Section A(2) of this Attachment and amounts debited to a Transmission User in accordance with Section A(3) of this Attachment, and shall exclude the Transmission User's transactions on the PJM Interchange Energy Market, in

issuing a statement, invoice, or payment for the net amount owed to or by that Transmission User for Transmission Congestion Charges for any period.

**B. Transmission Congestion Credits.**

**1. General.**

Each Transmission Customer purchasing Firm Point-to-Point Service, each Network Customer, with respect to its reservation of firm transmission service for deliveries from Network Resources to Network Load, and each Regional Transmission Owner with respect to its reservation of firm transmission service for the delivery of energy from Capacity Resources to Native Load Customers (any of the foregoing being referred to as a "Firm Transmission User"), shall receive Fixed Transmission Rights ("FTRs") corresponding to points of receipt and delivery designated for their firm uses of the Transmission System. Fixed Transmission Rights may also be acquired by purchase in the secondary market. Each holder of an FTR shall receive the total Transmission Congestion Credits determined in accordance with section B(2) of this Attachment.

**2. Determination of Credit.**

(a) **Overview.** For each hour with respect to which the Transmission Provider receives payments of Transmission Congestion Charges, determined in accordance with section A of this Attachment, Transmission Congestion Credits shall be allocated to the holders of Fixed Transmission Rights. As explained in subsection (b), the Fixed Transmission Rights are associated with the points on the Transmission System between which the Firm Transmission User to whom the FTR was originally issued has arranged for the firm transmission of electric energy, whether on a network or point-to-point basis. Holders of FTRs receive credits attributable to the difference, if any, between Locational Marginal Prices at the Point or Points of Receipt and the Point or Points of Delivery associated with the Fixed Transmission Rights. As explained in subsections (b) and (c), each FTR holder shares in Transmission Congestion Credits to the extent it holds Fixed Transmission Rights between the Point or Points of Receipt and the Point or Points of Delivery at which congestion is experienced in a particular hour. Distribution of credits in this manner ensures that each FTR holder will not incur energy costs that are greater than the costs of energy from the generation resources associated with the FTR holder's Fixed Transmission Rights. Target allocations of Transmission Congestion Credits to holders of Fixed Transmission Rights are calculated in accordance with subsection (c) and Transmission Congestion Credits are distributed in accordance with that allocation, as described in subsection (d).

(b) **Assignment of Fixed Transmission Rights.** Fixed Transmission Rights shall be assigned to each Firm Transmission User, based on the points on the Transmission System between which the Firm Transmission User has arranged for the firm delivery of electric energy, as follows:

(i) Each Network Customer and each Regional Transmission Owner (each of the foregoing being referred to as a "Network Service User") shall receive Fixed Transmission Rights based on its reservation of capability on the Transmission System to deliver electric energy on a firm basis from the Network Service User's Capacity Resources or Network Resources, if different, to the Network Service User's Network Load or Native Load Customers, as applicable. For each Capacity Resource or Network Resource, the Network Service User shall designate a number of Fixed Transmission Rights that is less than or equal to the installed capacity of the resource, provided that: (1) the sum of the Fixed Transmission Rights so designated shall not exceed the Network Load of a Network Customer or the projected annual peak load of the Native Load Customers of a Regional Transmission Owner, and (2) the Office of the Interconnection determines that the total of the Fixed Transmission Rights designated by all Firm Transmission Users can simultaneously be accommodated by the Transmission System.

(ii) Each Transmission Customer shall receive Fixed Transmission Rights in an amount equal to the megawatts of Firm Point-to-Point Transmission Service purchased by the Transmission Customer for the Point or Points of Receipt and Point or Points of Delivery for which the service has been reserved. In accepting applications for Firm Point-to-Point Transmission Service, the Office of the Interconnection shall determine that the Fixed Transmission Rights associated with a reservation of such service, together with the total of the Fixed Transmission Rights designated by all existing Firm Transmission Users, can simultaneously be accommodated by the Transmission System.

(c) **Target Allocation of Credits to Fixed Transmission Rights.** The Office of the Interconnection shall determine a target allocation of Transmission Congestion Credits for each Firm Transmission User for each hour as follows:

(i) For each Fixed Transmission Right held by a Network Service User, the target allocation of Transmission Congestion Credits shall be determined by the following formula:

$$\text{Target} = \text{FTR} * [\text{Load Percentage} * (\text{LMP}_{\text{DELIVERY}} - \text{LMP}_{\text{RECEIPT}})]$$

where

FTR = Fixed Transmission Rights between the specified load bus and the specified generation bus, in megawatts;

Load Percentage = The percentage of the Network Service User's Network Load or Annual Peak Load, as applicable, associated with the load bus associated with the Fixed Transmission Right;

$LMP_{DELIVERY}$ = The LMP during the hour at the load bus associated with the Fixed Transmission Right; and

$LMP_{RECEIPT}$ = The LMP during the hour at the generation bus associated with the Fixed Transmission Right.

The target allocation resulting from the above formula may be negative if $LMP_{DELIVERY}$ is less than $LMP_{RECEIPT}$ for an hour. For any hour in which the $LMP_{DELIVERY}$ equals the $LMP_{RECEIPT}$ in the above formula, no Transmission Congestion Credits shall be allocated to the Fixed Transmission Right. The total target allocation for a Network Service User for each hour shall be the sum of the target allocations associated with all of the Network Service User's Fixed Transmission Rights.

(ii) For each Fixed Transmission Right held by a Transmission Customer or any other Market Participant that is not a Network Service User, the target allocation of Transmission Congestion Credits shall be determined by the following formula:

$$\text{Target} = \text{FTR} * [(LMP_{DELIVERY} - LMP_{RECEIPT})]$$

where

FTR = Fixed Transmission Rights between the specified load bus and the specified generation bus;

$LMP_{DELIVERY}$ = The LMP during the hour at the bus serving as the Point of Delivery associated with the Fixed Transmission Right; and

$LMP_{RECEIPT}$ = The LMP during the hour at the bus serving as the Point of Receipt associated with the Fixed Transmission Right.

The target allocation resulting from the above formula may be negative if $LMP_{DELIVERY}$ is less than $LMP_{RECEIPT}$ for an hour. For any hour in which the $LMP_{DELIVERY}$ equals the $LMP_{RECEIPT}$ in the above formula, no Transmission Congestion Credits shall be allocated to the Fixed Transmission Right. The total target allocation for a Transmission Customer for each hour shall be the sum of the target allocations associated with all of the Transmission Customer 's Fixed Transmission Rights.

(d) **Distribution of Transmission Congestion Credits**. (i) If, in any hour, the total of the Transmission Congestion Charges received by the Transmission Provider is greater than or equal to the total of all target allocations of Transmission Congestion Credits, each FTR holder shall receive Transmission Congestion Credits equal to its target allocation and any excess of the Transmission Congestion Charges over the target allocations of Transmission Congestion Credits shall be distributed in accordance with subsection (iii).

(ii) If, in any hour, the total of the Transmission Congestion Charges received by the Transmission Provider is less than the total of all target allocations of Transmission Congestion Credits, each FTR holder shall receive Transmission Congestion Credits in proportion to its target allocation.

(iii) The Transmission Congestion Charges paid to the Transmission Provider during an hour may exceed the target allocation of Transmission Congestion Credits for that hour. In those circumstances, the excess Transmission Congestion Charges accumulated for the billing month shall be distributed to each FTR holder in proportion to, but not to exceed, any deficiency of the Transmission Congestion Charges received as compared with the target allocations of Transmission Congestion Credits pursuant to (ii) accumulated for the billing month. Any remaining excess Transmission Congestion Charges for a Billing Month shall be distributed to the 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.

### C. Offset of Transmission Congestion Charges and Transmission Congestion Credits.

The Office of the Interconnection shall take into account both (i) amounts payable by a Transmission User with respect to Transmission Congestion Charges as determined in accordance with Section A of this Attachment, and (ii) amounts payable to a Transmission User with respect to Transmission Congestion Credits as determined in accordance with Section B of this Attachment.

## 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.MARKETOPERATIONS

### 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 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 an Internal Market Buyer's net system requirements to serve its customer load in the PJM Control Area, 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 number determined 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 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.

**1.3.10 Internal Market Buyer.**

"Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users inside the PJM Control Area.

**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.

**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.

**1.3.15 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 as that term is defined in the PJM Manuals, 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 and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load exceeds, or is exceeded by, the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy by an External Market Seller; or (c) the hourly net metered output of any other Market Seller; or (d) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer.

**1.3.26 PJM Interchange Export.**

"PJM Interchange Export" shall mean the following, as determined in accordance with Schedules to this Agreement and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load is exceeded by the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy by a Market Seller from an External Resource; or (c) the hourly net metered output of any other Market Seller.

**1.3.27 PJM Interchange Import.**

**1.3.27** "PJM Interchange Import" shall mean the following, as determined in accordance with the Schedules to this Agreement and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load exceeds the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer.

**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.

**1.3.31 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 Regulation Class.**

"Regulation Class" shall mean a subset of the generation units capable of providing Regulation to the PJM Control Area determined by a range of costs for providing Regulation as specified by the Office of the Interconnection using procedures specified in the PJM Manuals.

**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.

**1.3.34 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.

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.

**1.3.38 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 a Load Serving Entity shall establish to the satisfaction of the Office of the Interconnection that the end-users as to which it or its principal is the Load Serving Entity, and which 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 by the Load Serving Entity or its agent. Such applicant shall further demonstrate that:

i) The foregoing Load Serving Entity (the applicant or its principal) is obligated to meet the requirements of the Reliability Assurance Agreement; and

ii) The foregoing Load Serving Entity is or will be a Network Service User as required by the Reliability Assurance Agreement for all PJM Interchange Energy Market purchases.

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

The applicant has obtained or will obtain 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) 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 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 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 execution of the PJM Dispute Resolution Agreement and 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 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, in accordance with the Schedules to this Agreement;

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 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 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, 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.**

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 Internal Market Buyers 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. 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 Member's 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.**

**1.7.12** 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.**

The Office of the Interconnection shall schedule to the Operating Reserve and load-following objectives of the PJM Control Area, as defined in the PJM Manuals, in scheduling resources pursuant to this Schedule.

**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) Internal Market Buyers 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) External Market Buyers 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(c) 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, make 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 the information specified in the PJM Manuals.

**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 the information specified in the PJM Manuals. 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.

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.**

The following scheduling procedures and principles shall govern the commitment of resources to the PJM Interchange Energy Market over a period extending from one week to one day prior to the Operating Day that transactions are to take place. Scheduling encompasses the day-ahead and hourly scheduling process, through which the Office of the Interconnection 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.

**1.10.1 Day-Ahead 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.

(a) Each Internal Market Buyer shall submit to the Office of the Interconnection forecasts of its customer loads for the next Operating Day as required by the PJM Manuals. If an Internal Market Buyer expects to curtail load at a specific Dispatch Rate, it should specify the Dispatch Rate and estimated load curtailment.

(b) An External Market Buyer 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.

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) 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 if the parties to the transaction are not willing to incur Transmission Congestion Charges 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; 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) Market Sellers wishing to sell on the PJM Interchange 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;

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) A Market Seller that wishes to sell Regulation service shall submit an offer for Regulation that shall specify the MW of Regulation being offered and the Regulation Class from which such Regulation is being offered. The range of costs defining Regulation Classes, and the average cost for each Regulation Class, shall be determined periodically by the Office of the Interconnection on the basis of prior energy bid prices and appropriate fuel indices, in accordance with procedures specified in the PJM Manuals. Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

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

The Office of the Interconnection shall post on the PJM Open Access Same-time Information System 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.

**1.10.2 Pool-Scheduled Resources.**

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.

(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 to this Agreement. Alternatively, the Market Seller shall receive any cancellation fee reflected in the Market Seller's offer in lieu of start-up and no-load fees, if any, 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.

**1.10.4 Capacity Resources.**

**1.10.4** 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.

(b) Energy from a Capacity Resource that has not been selected as a pool-scheduled resource may be sold on a bilateral basis by the Market Seller, or may be self-scheduled. A Capacity Resource that has not been selected as a pool-scheduled resource 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 if the Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable Locational Marginal 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 scheduling process 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.

(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. A Market Seller offering energy from External Resources on an aggregated basis and that does not deliver energy as scheduled by the Office of the Interconnection shall be assessed a non-delivery charge as specified below.

(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. A Market Seller offering an External Resource on a resource-specific basis that does not deliver energy as scheduled by the Office of the Interconnection shall be assessed a non-delivery charge as specified below, unless the resource being offered has suffered a Generator Forced Outage. The burden shall be on the Market Seller to demonstrate to the reasonable satisfaction of the Office of the Interconnection that the resource being offered has experienced a Generator Forced Outage.

(d) Subject to the conditions specified in this paragraph, the non-delivery charge for External Resources that do not deliver energy as scheduled shall be calculated hourly as follows: Pro-rated start-up plus hourly no-load fees specified in the Offer Data + [offered minimum dispatch level x (Locational Marginal Price - offered energy price) x 110%]. For purposes of the foregoing calculation: (i) the Locational Marginal Price shall be the Locational Marginal Price at the buses at which the energy from the External Resource should have been delivered to the PJM Control Area; (ii) if the Locational Marginal Price less the offered energy price is less than zero, this difference shall be set to zero; and (iii) start-up and no-load fees shall be subject to the requirements of this Schedule. Payments or credits for non-delivery charges shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**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 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.

(d) An External Market Buyer that does not take delivery of the amounts of energy specified in its request to purchase shall be assessed a non-delivery charge, or if using Point-to-Point service within the PJM Control Area shall pay for imbalance service as specified in the Tariff. The non-delivery charge shall be calculated as the summation for all applicable busses of the product of (i) the Locational Marginal Price at each load bus at which delivery was not taken, times (ii) the amount of energy not taken each hour at such bus. The non-delivery charge shall not apply to deliveries curtailed by the Office of the Interconnection in accordance with this Schedule, or for periods when the Dispatch Rate exceeds the maximum value specified by the External Market Buyer in accordance with this Schedule. Payments or credits for non-delivery charges shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**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 that they are not willing to incur Transmission Congestion Charges shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions willing to incur congestion charges 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 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. In making this determination, 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 based on the foregoing determination. 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.

(c) 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.

**1.10.9 Hourly Scheduling**

**1.10.9** Following the initial posting of the Office of the Interconnection's transmission congestion forecast, 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, and provided that the Office of the Interconnection is notified not later than the deadline specified in the PJM Manuals, a Market Participant may adjust the schedule of a resource under its dispatch control on an hour-to-hour basis beginning at the time specified in the PJM Manuals, 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;

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

iii) 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.

(b) An External Market Buyer may refuse delivery of some or all of the energy it requested to purchase 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. Any such refusal of delivery shall be subject to non-delivery charges in accordance with this Schedule.

**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.

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.

**1.11.4 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.

(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.

(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.

**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.

## 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.

### 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 Prices.**

(a) To determine the energy offers submitted to the PJM Interchange Energy Market that shall be used to calculate the Locational Marginal 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 Prices if:

i) the 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) In determining whether a resource satisfies the condition described in (a), 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 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 Prices.

**2.5 Calculation of Locational Marginal 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 determined to be eligible for consideration under Section 2.4. 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 Price at that bus.

(b) 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 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 Prices for that hour, which will determine prices in the PJM Interchange Energy Market and Transmission Congestion Costs under the PJM Tariff.

**2.6 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) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the load payment for each Market Buyer's load bus. The load payment at each bus shall be the product of the Market Buyer's megawatts of load at such load bus in the hour times the Locational Marginal Price at the bus. 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 for each Market Buyer shall be the sum of the load payments for each of a Market Buyer's load busses.

(b) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the generation revenue for each Generating Market Buyer's generation bus. The generation revenue at each generation bus shall be the product of the Generating Market Buyer's megawatts of generation at such generation bus in the hour times the Locational Marginal Price at the bus. 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.

(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 and its total generation revenue. The portions of the net bill attributable to net hourly PJM Interchange and to Transmission Congestion Charges shall be determined as set forth below.

(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, 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) 500 kV transmission losses; (v) deliveries pursuant to bilateral energy sales; (vi) receipts pursuant to bilateral energy purchases; (vii) Inadvertent Interchange allocated to the Market Buyer; and (viii) 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). For External Market Buyers, this calculation shall determine the energy delivered pursuant to the External Market Buyer's purchase request.

(e) The Office of the Interconnection shall calculate Locational Marginal Prices for each load and generation bus in the PJM Control Area, in accordance with Section 2 of this Schedule.

(f) An Internal Market Buyer shall be charged for Spot Market Energy purchases to the extent of its hourly net PJM Interchange Imports, determined as specified above. An External Market Buyer shall be charged for its Spot Market Energy purchases based on the energy delivered to it, determined as specified 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.

(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. If the Office of the Interconnection dispatches energy to serve load in the PJM Control Area, the pool-dispatched 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.

(h) If energy in excess of a Generating Market Buyer's Equivalent Load flows to the PJM Control Area from a self-scheduled resource, the Generating Market Buyer shall receive a payment or credit for such excess energy at a rate equal to the lesser of (i) 95% of the Locational Marginal Price at the delivery bus for such energy, or (ii) the Locational Marginal Price at the delivery bus for such energy if the Locational Marginal Price is negative. For purposes of the foregoing calculation, such excess energy shall be deemed to have been delivered

from the Generating Market Buyer's self-scheduled resource or resources with the lowest Locational Marginal Price or Prices at the time of delivery. Revenues attributable to the difference between the market clearing price in the PJM Interchange Energy Market and payments or credits for excess energy from self-scheduled resources shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**3.2.2 Regulation.**

(a) Each Internal Market Buyer 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.

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 price in that hour for the Regulation Class from which the Regulation was supplied, as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals. 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 average price paid by the Office of the Interconnection for Regulation.

**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) At the end of each Operating Day, the following determination shall be made for each synchronized pool-scheduled resource of each Market Seller: the total offered price for start-up and no-load fees and Spot Market Energy, determined on the basis of the resource's actual output or available and requested time and type of operation, shall be compared to the total value of that resource's Spot Market Energy. If the total offered price exceeds the total value, the difference 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 as synchronous condensers at the request of Office of the Interconnection but producing no energy.

(c) The sum of the foregoing credits, plus any cancellation fees paid in accordance with Section 1.10.2(d), less any amounts received in accordance with Sections 1.10.5(d), 1.10.6(d) and 3.2.1(h) of this Schedule and payments received from another Control Area for Operating Reserves or from users of Point-to-Point Transmission Service within the

PJM Control Area for imbalance service, shall be the cost of Operating Reserves for the PJM Control Area for each Operating Day.

(d) The cost of Operating Reserves for each Operating Day shall be allocated and charged to each Market Buyer in proportion to its total load during that Operating Day in the PJM Control Area.

**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.

Each Internal Market Buyer 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 Internal Market Buyer 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 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 this 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) 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 to the PJM Control Area by each pool-scheduled or pool-dispatched resource of each Market Seller, in accordance with the PJM Manuals and the calculation described in Section 3.2.1(d).

(b) The Office of the Interconnection shall calculate Locational Marginal 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) A Market Seller shall be credited for sales of Spot Market Energy to the extent of its hourly net deliveries of energy to the PJM Control Area 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 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 from each of the Market Seller's pool-scheduled or pool-dispatched resources, times (ii) the hourly Locational Marginal Price at that bus.

(d) Market Sellers, including Generating Market Buyers, shall be charged for non-delivery of Spot Market Energy from resources that are not Capacity Resources, as specified in Section 1.10.5(d) of this Schedule.

**3.3.2 Regulation.**

Each Market Seller that is also an Internal Market Buyer shall have an hourly Regulation objective as specified in Section 3.2.2(a), and shall be credited or charged in connection therewith as specified in Section 3.2.2(b). 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 in that hour for the Regulation Class from which the Regulation was supplied, 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(b)

**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 other than entities that are also Internal Market Buyers 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 Price 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; (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; and (iii) determined in accordance with the provisions in the PJM Manuals on "Calculation of Losses for Transmission Services."

(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.

**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 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 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 the affected Market Buyer.

**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.

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**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.RATETABLE

### 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 the adjacent Control Area, in accordance with an agreement between the Office of the Interconnection and such adjacent Control Area that complies with this Agreement.

# 5.CALCULATIONOF 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 Locational Marginal Prices 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 Transmission Congestion Charge for each such delivery shall be the delivery amount multiplied by the difference between the Locational Marginal Price at the delivery interface and the Locational Marginal Price at the source interface, or 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 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 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 Total Transmission Congestion Charges.**

The total Transmission Congestion Charges collected by the Office of the Interconnection each hour will be the sum of the 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 Transmission Customer using firm Point-to-Point Transmission Service and each Network Service User 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 of each Network Service User and Transmission Customer, determined as specified below.

(b) Each Network Service User shall designate a subset of its Network Resources for which Fixed Transmission Rights will be assigned. The Fixed Transmission Right for each Network Resource shall be 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 to the aggregate load busses of the Network Service User. The sum of each Network Service User's Fixed Transmission Rights must be equal to or less than the Network Service User's projected annual peak load.

(c) Each Transmission Customer receiving firm Point-to-Point Transmission Service shall be assigned Fixed Transmission Rights. 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) The foregoing assignment of Fixed Transmission Rights shall be enhanced by an amendment to this Schedule, to be filed with FERC not later than December 31, 1997, that will provide for an auction of Fixed Transmission Rights over and above those FTRs obtained and retained by Network Service Users and Transmission Customers then receiving firm Point-to-Point Transmission Service (including firm Point-to-Point transmission service for existing bilateral contracts), such auction to be implemented as soon after December 31, 1997 as shall be determined by the Office of the Interconnection to be reasonably practical. For so long as Fixed Transmission Rights are assigned on the basis of Network Transmission Service and firm Point-to-Point Transmission Service, any Fixed Transmission Rights awarded pursuant to an auction shall be simultaneously feasible with all Network Transmission Service and firm Point-to-Point Transmission Service obligations. The Members specified in Section 11.5(c) of the Agreement, working with the Office of the Interconnection, shall develop the details of the implementation of such an auction, including but not limited to the nature of the bidding process, the frequency of auctions, and the duration of the Fixed Transmission Rights purchased at auction.

**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 Price minus the generation bus Locational Marginal 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 Price differences for the receipt and delivery points associated with the Fixed Transmission Right, calculated as the Locational Marginal 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. 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, each holder of Fixed Transmission Rights shall receive 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.

# ATTACHMENT L

## List of Regional Transmission Owners

Atlantic City Electric Company
Baltimore Gas and Electric Company
Delmarva Power & Light Company
Jersey Central Power & Light Company
Metropolitan Edison Company
Pennsylvania Electric Company
PECO Energy Company
Pennsylvania Power & Light Company
Potomac Electric Power Company
Public Service Electric and Gas Company

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# CHANGES TO THE

# PJM OPEN ACCESS TRANSMISSION TARIFF

**Dated June 2, 1997**

# PJM OPEN ACCESS

# TRANSMISSION TARIFF

Revised ~~as of March 12,~~: June 2, 1997
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1.14 **Good Utility Practice:** Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

1.15 **Interruption:** A reduction in non-firm transmission service due to economic reasons pursuant to Section 14.7.

1.16 **Load Ratio Share:** ~~(a)Load Ratio Share for Monthly Demand Charge.~~ Ratio of a Transmission Customer's Network Load to the ~~applicable RTO's~~ Transmission Provider's total load computed in accordance with Sections 34.2~~(a)~~ and 34.3~~(a)~~ of the Network Integration Transmission Service under Part III of the Tariff ~~and calculated on a rolling twelve month basis. (b) Load Ratio Share for Redispatch Costs. For purposes of Sections 33.3 and 34.4, Load Ratio Share shall mean the ratio of a Transmission Customer's Network Load to the Transmission Provider's total load computed in accordance with Sections 34.2(b) and 34.3(b) of the Network Integration Transmission Service under Part III of the Tariff and calculated on a rolling twelve month basis~~.

1.17 **Load Shedding:** The systematic reduction of system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system instability, or voltage control considerations under Part III of the Tariff.

1.18 **Long-Term Firm Point-To-Point Transmission Service:** Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of one year or more.

1.18a **MAAC**: The Mid-Atlantic Area Council, a reliability council under §202 of the Federal Power Act, established pursuant to the MAAC Agreement dated 1 August 1994, or any successor thereto.

**1.25 Network Resource:** Any designated generating resource owned or purchased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

**1.26 Network Upgrades:** Modifications or additions to transmission-related facilities that are integrated with and support the Transmission Provider's overall Transmission System for the general benefit of all users of such Transmission System.

**1.27 Non-Firm Point-To-Point Transmission Service:** Point-To-Point Transmission Service under the Tariff that is reserved and scheduled on an as-available basis and is subject to Curtailment or Interruption as set forth in Section 14.7 under Part II of this Tariff. Non-Firm Point-To-Point Transmission Service is available on a stand-alone basis for periods ranging from one hour to one month.

**1.27a Office of the Interconnection**: The ~~entity established by Section 3.3~~ Office of the Interconnection, as supervised by the Board of Managers of the PJM Interconnection, L.L.C, acting pursuant to the Operating Agreement.

**1.28 Open Access Same-Time Information System (OASIS):** The information system and standards of conduct contained in Part 37 of the Commission's regulations.

**1.28a Operating Agreement of the PJM Interconnection, L.L.C.or Operating Agreement**: That agreement dated as of April 1, 1997 and as amended and restated as of June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

**1.29 Part I:** Tariff Definitions and Common Service Provisions contained in Sections 2 through 12.

**1.30 Part II:** Tariff Sections 13 through 27 pertaining to Point-To-Point Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.31 **Part III:** Tariff Sections 28 through 35 pertaining to Network Integration Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.

1.32 **Parties:** The Transmission Provider and the Transmission Customer receiving service under the Tariff.

~~1.32a PJM Interconnection Agreement: That agreement dated as of September 26, 1956, as amended and as in effect from time to time, that establishes a pooling arrangement in the PJM Control Area and that, among other things, provides for the Office of the Interconnection.~~

~~1.32b~~ 1.32a **PJM Control Area:** The Control Area that is recognized by NERC as the PJM Control Area.

1.33 **Point(s) of Delivery:** Point(s) on the Transmission Provider's Transmission System where capacity and energy transmitted by the Transmission Provider will be made available to the Receiving Party under Part II of the Tariff. The Point(s) of Delivery shall be specified in the Service Agreement.

1.34 **Point(s) of Receipt:** Point(s) of interconnection on the Transmission Provider's Transmission System where capacity and energy will be made available to the Transmission Provider by the Delivering Party under Part II of the Tariff. The Point(s) of Receipt shall be specified in the Service Agreement.

1.35 **Point-To-Point Transmission Service:** The reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery under Part II of the Tariff.

1.36 **Power Purchaser:** The entity that is purchasing the capacity and energy to be transmitted under the Tariff.

1.37 **Receiving Party:** The entity receiving the capacity and energy transmitted by the Transmission Provider to Point(s) of Delivery.

1.38 **Regional Transmission Group (RTG):** A voluntary organization of transmission owners, transmission users and other entities approved by the

energy through the interchange energy market established under the PJM Interconnection Agreement.

1.45 **Transmission Customer:** Any Eligible Customer (or its Designated Agent) that (i) executes a Service Agreement, or (ii) requests in writing that the Transmission Provider file with the Commission, a proposed unexecuted Service Agreement to receive transmission service under Part II of the Tariff. This term is used in the Part I Common Service Provisions to include customers receiving transmission service under Part II and Part III of this Tariff.

1.46 **Transmission Provider:** Collectively, the RTOs or the Designated Agent of the RTOs, which shall be the Office of the Interconnection for the following purposes under this Tariff: operating the PJM Control Area, maintaining an OASIS, receiving and acting on applications for transmission service, conducting system impact and facilities studies, scheduling transactions, directing redispatch, curtailment and interruption, billing and accounting, and disbursement of transmission revenues.

1.47 **Transmission Provider's Monthly Transmission System Peak:** The maximum firm usage of the Transmission Provider's Transmission System in a calendar month.

~~1.47a Zonal Monthly Transmission System Peak: The maximum firm usage of the Transmission System in a Zone in a calendar month.~~

1.48 **Transmission Service:** Point-To-Point Transmission Service provided under Part II of the Tariff on a firm and non-firm basis.

1.49 **Transmission System:** The facilities owned, controlled or operated by the Transmission Provider within the PJM Control Area that are used to provide transmission service under Part II and Part III of the Tariff.

1.49a **Zone**: An area within the PJM Control Area, as set forth in Attachment J.

## 2 Initial Allocation and Renewal Procedures

2.1 **Initial Allocation of Available Transmission Capability :** For purposes of determining whether existing capability on the Transmission Provider's Transmission System is adequate to accommodate a request for firm

service under this Tariff, all Completed Applications for new firm transmission service received during the initial sixty (60) day period commencing with the effective date of the Tariff will be deemed to have been filed simultaneously. A lottery system conducted by an independent party, which shall be the Office of the Interconnection, shall be used to assign priorities for Completed Applications filed simultaneously. All Completed Applications for firm transmission service received after the initial sixty (60) day period shall be assigned a priority pursuant to Section 13.2.

2.2 **Reservation Priority For Existing Firm Service Customers:** Existing firm service customers of any RTO (wholesale requirements and transmission-only, with a contract term of one-year or more), have the right to continue to take transmission service from the Transmission Provider when the contract expires, rolls over or is renewed. This transmission reservation priority is independent of whether the existing customer continues to purchase capacity and energy from the RTO or elects to purchase capacity and energy from another supplier. If at the end of the contract term, the Transmission Provider's Transmission System cannot accommodate all of the requests for transmission service the existing firm service customer must agree to accept a contract term at least equal to a competing request by any new Eligible Customer and to pay the current just and reasonable rate, as approved by the Commission, for such service. This transmission reservation priority for existing firm service customers is an ongoing right that may be exercised at the end of all firm contract terms of one-year or longer.

## 3 Ancillary Services

Ancillary Services are needed with transmission service to maintain reliability within and among the Control Areas affected by the transmission service. The Transmission Provider is required to provide (or offer to arrange with the local Control Area operator as discussed below), and the Transmission Customer is required to purchase, the following Ancillary Services (i) Scheduling, System Control and Dispatch, and (ii) Reactive Supply and Voltage Control from Generation Sources.

The Transmission Provider is required to offer to provide (or offer to arrange with the local Control Area operator as discussed below) the following Ancillary Services only to the Transmission Customer serving load within the Transmission Provider's

Control Area (i) Regulation and Frequency Response, (ii) Energy Imbalance, (iii) Operating Reserve -Spinning, and (iv) Operating Reserve - Supplemental. ~~The~~ Subject to the provisions of Schedules 1 through 6, the Transmission Customer serving load within the Transmission Provider's Control Area is required to acquire these Ancillary Services, whether from the Transmission Provider, from a third party, or by self-supply. The Transmission Customer may not decline the Transmission Provider's offer of Ancillary Services unless it demonstrates that it has acquired the Ancillary Services from another source. The Transmission Customer must list in its Application which Ancillary Services it will purchase from the Transmission Provider.

If the Transmission Provider is a public utility providing transmission service but is not a Control Area operator, it may be unable to provide some or all of the Ancillary Services. In this case, the Transmission Provider can fulfill its obligation to provide Ancillary Services by acting as the Transmission Customer's agent to secure these Ancillary Services from the Control Area operator. The Transmission Customer may elect to (i) have the Transmission Provider act as its agent, (ii) secure the Ancillary Services directly from the Control Area operator, or (iii) secure the Ancillary Services (discussed in Schedules 3, 4, 5 and 6) from a third party or by self-supply when technically feasible.

The Transmission Provider shall specify the rate treatment and all related terms and conditions in the event of an unauthorized use of Ancillary Services by the Transmission Customer.

The specific Ancillary Services, prices and/or compensation methods are described on the Schedules that are attached to and made a part of the Tariff. If the Transmission Provider offers an affiliate a rate discount, or attributes a discounted Ancillary Service rate to its own transactions, the Transmission Provider must offer at the same time the same discounted Ancillary Service rate to all Eligible Customers. Information regarding any discounted Ancillary Service rates must be posted on the OASIS pursuant to Part 37 of the Commission's regulations. In addition, discounts to non-affiliates must be offered in a not unduly discriminatory manner. Sections 3.1 through 3.6 below list the six Ancillary Services.

3.1 **Scheduling, System Control and Dispatch Service:** The rates and/or methodology are described in Schedule 1.

3.2 **Reactive Supply and Voltage Control from Generation Sources Service:** The rates and/or methodology are described in Schedule 2.

in FERC Order No. 888. However, the RTO must separately file any specific proposed stranded cost charge under Section 205 of the Federal Power Act.

**27 Compensation for New Facilities and Redispatch Costs:**

**27.1 New Facilities and Redispatch:** Whenever a System Impact Study performed by the Transmission Provider in connection with the provision of Firm Point-To-Point Transmission Service identifies the need for new facilities, the Transmission Customer shall be responsible for such costs to the extent consistent with Commission policy.

~~27.2 Redispatch:~~ Whenever a System Impact Study performed by the Transmission Provider identifies transmission constraints that may be relieved more economically by ~~purchasing the redispatch of generating resources~~ redispatching resources available to the PJM Control Area than by building new facilities or upgrading existing facilities to eliminate such constraints, the Transmission Customer shall be responsible for ~~its share of~~ the redispatch costs ~~determined as follows:~~ to the extent consistent with Commission policy.

~~(a) Transmission Customers receiving Firm Point-To-~~

**27.2 Redispatch Using Locational Marginal Prices :** Whenever in the operation of the PJM Control Area the Transmission Provider identifies transmission constraints, the provisions of Attachment K shall apply to all Transmission Customers (including Native Load Customers and an RTO making a Third-Party Sale); provided, however, that a Transmission Customer receiving Non-Firm Point-To- Point Transmission Service may elect not to pay the costs of redispatch determined pursuant to Attachment K when those costs would be imposed consistent with Commission policy and Transmission Service to such Transmission Customer may be interrupted. ~~shall pay a share of the total redispatch costs each month not billed pursuant to Section 27.2(b) in the same proportion that (i) its charges in that month for Reserved Capacity, bear to (ii) the total of such charges for Firm and Non-Firm Point-To-Point Transmission Service, plus the total Monthly Demand Charges paid by Network Customers, plus the total demand charge attributable to Native Load Customers for designated resources and loads specified in accordance with Section 28.2 below.~~

~~(b) A Transmission Customer receiving Non-Firm Point To Point Transmission Service that agrees at the time of scheduling service to pay redispatch costs in order to avoid interruption shall pay the higher of the basic rate pursuant to Section 25 plus an amount determined as in Section 27.2(a), or the incremental cost of redispatch attributable to the transaction during the month.~~

with the objective of responding to contingencies on the Transmission System. The Parties will implement such programs during any period when the Transmission Provider determines that a system contingency exists and such procedures are necessary to alleviate such contingency. The Transmission Provider will notify all affected Network Customers in a timely manner of any scheduled Curtailment.

33.2 **Transmission Constraints:** During any period when the Transmission Provider determines that a transmission constraint exists on the Transmission System, and such constraint may impair the reliability of the Transmission Provider's system, the Transmission Provider will take whatever actions, consistent with Good Utility Practice, that are reasonably necessary to maintain the reliability of the Transmission Provider's system. To the extent the Transmission Provider determines that the reliability of the Transmission System can be maintained by redispatching resources, the Transmission Provider will initiate procedures pursuant to the Network Operating Agreement to redispatch all Network Resources and the Transmission Provider's own resources on a least-cost basis without regard to the ownership of such resources. Any redispatch under this section may not unduly discriminate between the Transmission Provider's use of the Transmission System on behalf of its Native Load Customers and any Network Customer's use of the Transmission System to serve its designated Network Load.

33.3 **Cost Responsibility for Relieving Transmission Constraints:** Whenever the Transmission Provider implements least-cost redispatch procedures in response to a transmission constraint, the RTOs and the Network Customers will ~~each bear a proportionate share of the total redispatch cost based on their respective Load Ratio Shares. The total redispatch costs so shared shall be net of any contribution to redispatch costs paid by Point To Point Transmission Service Customers.~~ bear the costs of such redispatch in accordance with Attachment K.

33.4 **Curtailments of Scheduled Deliveries:** If a transmission constraint on the Transmission Provider's Transmission System cannot be relieved through the implementation of least-cost redispatch procedures and the Transmission Provider determines that it is necessary to Curtail scheduled deliveries, the Parties shall Curtail such schedules in accordance with the Network Operating Agreement.

in the event that the Network Customer fails to respond to established Load Shedding and Curtailment procedures.

## 34 Rates and Charges

The Network Customer shall pay the Transmission Provider for any Direct Assignment Facilities, Ancillary Services, and applicable study costs, consistent with Commission policy, along with the following:

34.1 **Monthly Demand Charge:** (a) The Network Customer shall pay a monthly Demand Charge~~, which shall be determined by multiplying its Load Ratio Share times one twelfth (1/12) of the Annual Transmission Revenue Requirement, as specified in Attachment H,~~ for the Zone or Zones in which ~~the~~ its Network Load is located, which shall be determined as follows:

$$DC = CP \times \frac{RT}{12}$$

Where:

DC is the monthly demand charge for the Zone

CP is the hourly load of the Network Customer ~~is located.~~ located within the Zone coincident with the monthly peak of the Zone

RT is the rate for Network Integration Transmission Service from Attachment H for the Zone in which the Network Load is located, stated in dollars per megawatt per year

(b) Nothing herein shall entitle any RTO or Network Customer to establish a zone that is smaller than or a portion of a Zone set forth in Attachment J.

~~34.2 Determination of Network Customer's Monthly Network Load:~~

~~(a) Zonal~~ 34.2 **Determination of Network Customer's Monthly Network Load.:** The Network Customer's ~~zonal~~ monthly Network Load is its hourly load (including its designated Network Load not physically interconnected with the Transmission Provider under Section 31.3) coincident with the ~~applicable Zonal~~ Transmission Provider's Monthly Transmission System Peak.

~~(b) Total Monthly Network Load. The Network Customer's monthly Network Load is its hourly load (including its designated Network Load not physically interconnected with the Transmission Provider under Section 31.3) coincident with the Transmission Provider's Monthly Transmission System Peak.~~

~~34.3 Determination of Monthly Transmission System Load:~~
~~(a) Zonal Monthly Transmission System Load. The load in a Zone is the Zonal Monthly Transmission System Peak minus the coincident peak usage of an allocable share of all Firm Point-To-Point Transmission Service customers pursuant to Part II of this Tariff plus an allocable share of the Reserved Capacity of all Firm Point-To-Point Transmission Service customers.~~

~~(b)~~ 34.3 **Determination of Transmission Provider's Monthly Transmission System Load.:** The Transmission Provider's monthly Transmission System load is the Transmission Provider's Monthly Transmission System Peak minus the coincident peak usage of all Firm Point-To-Point Transmission Service customers pursuant to Part II of this Tariff plus the Reserved Capacity of all Firm Point-To-Point Transmission Service customers.

34.4 **Redispatch Charge:** The Network Customer and each RTO shall pay ~~a Load Ratio Share of~~ any redispatch costs ~~pursuant to Section 33. To the extent that generating resources of the Network Customer may be redispatched in accordance with Section 33, any compensation to the Network Customer for such operation shall be determined and billed as prescribed in the PJM Agreement if the Network Customer is a signatory thereto, or otherwise in the Network Operating Agreement~~ as set forth in Attachment K.

34.5 **Stranded Cost Recovery: Any RTO** may seek to recover stranded costs from the Network Customer pursuant to this Tariff in accordance with the

## SCHEDULE 1

### Scheduling, System Control and Dispatch Service

This service is required to schedule the movement of power through, out of, within, or into a Control Area and to accommodate unscheduled transmission flows that affect a Control Area. This service can be provided only by the operator of the Control Area in which the transmission facilities used for transmission service are located. Scheduling, System Control and Dispatch Service is to be provided directly by the Transmission Provider. The Transmission Customer must purchase this service from the Transmission Provider. The charges for Scheduling, System Control and Dispatch Service are to be based on the cost of operating the Office of the Interconnection.

The primary function of the Office of the Interconnection is to perform Scheduling, System Control and Dispatch Services for the region. The monthly charges for operation of the Office of the Interconnection shall be allocated and billed to the Transmission Customers in the same proportions that each Transmission Customer's use of the Transmission System, on a megawatthour basis, bears to the total of such use in the same month. Use of the local control centers of the RTOs is included in their transmission revenue requirements, and thus in the base rates for regional transmission service.

## SCHEDULE 2

### Reactive Supply and Voltage Control from Generation Sources Service

In order to maintain transmission voltages on the Transmission Provider's transmission facilities within acceptable limits, generation facilities (in the Control Area where the Transmission Provider's transmission facilities are located) are operated to produce (or absorb) reactive power. Thus, Reactive Supply and Voltage Control from Generation Sources Service must be provided for each transaction on the Transmission Provider's transmission facilities. The amount of Reactive Supply and Voltage Control from Generation Sources Service that must be supplied with respect to the Transmission Customer's transaction will be determined based on the reactive power support necessary to maintain transmission voltages within limits that are generally accepted in the region and consistently adhered to by the Transmission Provider.

Reactive Supply and Voltage Control from Generation Sources Service is to be provided directly by the Transmission Provider. The Transmission Customer must purchase this service from the Transmission Provider.

The charges for such service will be based on the rates set forth below for Network Customers in each Zone and a pool-wide rate for Point-To-Point Transmission Service:

| **Zone** | **Capacity Megawatts** | **Zone Rate** ($/kW/Mo.) | **Weighted Contribution** |
|---|---|---|---|
| AE | 2,326 | 0.290 | 0.0122 |
| BG&E | 6,716 | 0.147 | 0.0179 |
| Delmarva | 2,923 | 0.226 | 0.0120 |
| JCPL | 4,836 | 0.279 | 0.0245 |
| MetEd | 2,300 | 0.232 | 0.0097 |
| Penelec | 2,878 | 0.286 | 0.0149 |
| PECO | 9,001 | 0.239 | 0.0390 |
| PPL | 6,867 | 0.120 | 0.0150 |
| Pepco | 6,746 | 0.210 | 0.0257 |
| ~~PPL~~ | ~~6,867~~ | ~~0.120~~ | ~~0.0150~~ |
| PSE&G | 10,502 | 0.080 | 0.0152 |
| | 55,095 | Pool-Wide Rate: | 0.1861 |

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## SCHEDULE 3

### Regulation and Frequency Response Service

Regulation and Frequency Response Service is necessary to provide for the continuous balancing of resources (generation and interchange) with load and for maintaining scheduled Interconnection frequency at sixty cycles per second (60 Hz). Regulation and Frequency Response Service is accomplished by committing on-line generation whose output is raised or lowered (predominantly through the use of automatic generating control equipment) as necessary to follow the moment-by-moment changes in load. The obligation to maintain this balance between resources and load lies with the Transmission Provider. The Transmission Provider must offer this service when the transmission service is used to serve load within its Control Area. The Transmission Customer must either purchase this service from the Transmission Provider or make alternative comparable arrangements to satisfy its Regulation and Frequency Response Service obligation. The amount of and charges for Regulation and Frequency Response Service are set forth below.

For regulation not satisfied by individual RTOs on behalf of their Native Load Customers, Network Customers or other Transmission Customers serving load in the PJM Control Area, the Transmission Provider will order the lowest cost alternative for regulation in service as needed to meet the PJM Control Area requirements (as set forth in the PJM Operating Principles and Standards), as specified below:

a. Regulation shall be supplied from generators located within the metered electrical boundaries of the PJM Control Area. Generators offering regulation, shall comply with applicable standards and requirements for regulation capability and dispatch specified in the procedures of the Office of the Interconnection.

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 its procedures.

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 ~~from the regulation range~~ by twice the

## SCHEDULE 4

### Energy Imbalance Service

Energy Imbalance Service is provided when a difference occurs between the scheduled and the actual delivery of energy to a load located within a Control Area over a single hour. The Transmission Provider must offer this service when the transmission service is used to serve load within its Control Area. Each RTO and Network Customer must purchase Energy Imbalance Service through the Transmission Provider. For purposes of Energy Imbalance Services, if a Point of Delivery serves more than one RTO or Network Customer, the Energy Imbalance Service and any associated charges will be computed for the Point of Delivery and the allocation of the service and associated charges shall be the responsibility of the meter operator of that Point of Delivery.

For each RTO and Network Customer, Energy Imbalance Service is considered to be PJM interchange and will be charged at the hourly PJM interchange rate.

For each Transmission Customer receiving service under Part II of this Tariff, the Transmission Provider shall establish a deviation band of +/- 1.5 percent (with a minimum of 1 MW) of the scheduled transaction to be applied hourly to any energy imbalance that occurs as a result of the Transmission Customer's scheduled transaction(s). Parties should attempt to eliminate energy imbalances within the limits of the deviation band within thirty (30) days or within such other reasonable period of time as is generally accepted in the region and consistently adhered to by the Transmission Provider. If an energy imbalance is not corrected within thirty (30) days or a reasonable period of time that is generally accepted in the region and consistently adhered to by the Transmission Provider, the Transmission Customer will compensate the Transmission Provider for such service. Energy imbalances outside the deviation band will be subject to charges set forth below.

Energy imbalance will be recorded in whole MWh, and will be tracked separately for on-peak and off-peak hours, as specified for operations. For on-peak (off-peak) hours when the energy imbalance is within the +/- 1.5% deviation band, the Transmission Customer can choose to make in-kind payment during later on-peak (off-peak) hours as specified above, or settle in cash. Cash payments owed to the Transmission Provider will be charged at 120% of the Transmission Provider's on-peak (off-peak) billing rate. Cash payments to the Transmission Customer will be made at 80% of the Transmission Provider's on-peak (off-peak) billing rate. For hours when the

## SCHEDULE 7

### Long-Term Firm and Short-Term Firm Point-To-Point Transmission Service

1) The Transmission Customer shall pay each month for Reserved Capacity at the sum of the applicable charges set forth below : for the Point of Delivery:

~~1) Yearly delivery: one twelfth of the demand charge of $ 22.382/KW of Reserved Capacity per year.~~ Summary of Charges

~~2) Monthly delivery: $ 1.865/KW of Reserved Capacity per month.~~

~~3) Weekly delivery: $ 0.4304/KW of Reserved Capacity per week.~~

~~4) Daily delivery: $ 0.0861/KW of Reserved Capacity per day.~~ (in $/kW)

| Point of Delivery | Yearly Charge | Monthly Charge | Weekly Charge | Daily Charge |
|---|---|---|---|---|
| Border of PJM Control Area | 22.382 | 1.865 | 0.4304 | 0.0861 |
| AE Zone | 21.319 | 1.777 | 0.4100 | 0.0820 |
| BG&E Zone | 17.029 | 1.419 | 0.3275 | 0.0655 |
| Delmarva Zone | 22.996 | 1.916 | 0.4422 | 0.0884 |
| JCPL Zone | 29.569 | 2.464 | 0.5686 | 0.1137 |
| MetEd Zone | 13.425 | 1.119 | 0.2582 | 0.0516 |
| Penelec Zone | 11.015 | 0.918 | 0.2118 | 0.0424 |
| PECO Zone | 26.743 | 2.229 | 0.5143 | 0.1029 |
| PPL Zone | 25.779 | 2.148 | 0.4958 | 0.0992 |
| Pepco Zone | 21.091 | 1.758 | 0.4056 | 0.0811 |
| PSE&G Zone | 23.531 | 1.961 | 0.4525 | 0.0905 |

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2) The total demand charge in any week, pursuant to a reservation for Daily delivery, shall not exceed the rate specified in section ~~(3)~~(1) above for weekly service times the highest amount in kilowatts of Reserved Capacity in any day during such week.

~~5)~~ 3) **Discounts**: If the Transmission Provider offers or attributes a rate discount to an RTO or an affiliate of an RTO, the Transmission Provider must offer at the same time the same discounted Firm Point-To-Point Transmission Service rate to all Eligible Customers on the same path and on all unconstrained transmission paths. Information regarding any firm transmission discounts must be posted on the OASIS pursuant to Part 37 of the Commission's regulations. In addition, discounts to non-affiliates of RTOs must be offered in a not unduly discriminatory manner.

~~6)~~ 4) **Congestion and Losses**: In addition to any payment under this Schedule, the Transmission Customer shall pay Redispatch Costs as specified in Section 27 of the Tariff. The Transmission Customer shall be responsible for losses as specified in the Tariff.

~~7)~~ 5) **Other Supporting Facilities and Taxes**: In addition to the rates set forth in ~~sections~~ section (1)~~, (2), (3) and (4)~~ of this schedule, the Transmission Customer shall pay charges determined on a case-by-case basis for facilities necessary to provide Transmission Service at voltages lower than those shown in Attachment H for the applicable Zone(s) and any amounts necessary to reimburse the Transmission Provider for any amounts payable as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## SCHEDULE 8

### Non-Firm Point-To-Point Transmission Service

1) The Transmission Customer shall pay for Non-Firm Point-To-Point Transmission Service up to the sum of the applicable charges set forth below : for the Point of Delivery:

~~1) Monthly delivery: $0.00/KW of Reserved Capacity per month.~~

~~2) Weekly delivery: $0.00/KW of Reserved Capacity per week.~~

~~3) Daily delivery: $0.00/KW of Reserved Capacity per day.~~ Summary of Charges

| Point of Delivery | Monthly Charge ($/kW) | Weekly Charge ($/kW) | Daily Charge ($/kW) | Hourly Charge ($/MWh) |
|---|---|---|---|---|
| Border of PJM Control Area | 1.865 | 0.4304 | 0.0861 | 5.38 |
| AE Zone | 1.777 | 0.4100 | 0.0820 | 5.12 |
| BG&E Zone | 1.419 | 0.3275 | 0.0655 | 4.09 |
| Delmarva Zone | 1.916 | 0.4422 | 0.0884 | 5.53 |
| JCPL Zone | 2.464 | 0.5686 | 0.1137 | 7.11 |
| MetEd Zone | 1.119 | 0.2582 | 0.0516 | 3.23 |
| Penelec Zone | 0.918 | 0.2118 | 0.0424 | 2.65 |
| PECO Zone | 2.229 | 0.5143 | 0.1029 | 6.43 |
| PPL Zone | 2.148 | 0.4958 | 0.0992 | 6.20 |
| Pepco Zone | 1.758 | 0.4056 | 0.0811 | 5.07 |
| PSE&G Zone | 1.961 | 0.4525 | 0.0905 | 5.66 |

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2) The total demand charge in any week, pursuant to a reservation for Daily delivery, shall not exceed the rate specified in section ~~(2)~~(1) above for weekly service times the highest amount in kilowatts of Reserved Capacity in any day during such week.

~~4)~~ 3) **Hourly delivery**: The basic charge shall be that agreed upon by the Parties at the time this service is reserved and in no event shall exceed ~~$0.00/MWH~~ the amounts set forth above for a Point of Delivery.

The total demand charge in any day, pursuant to a reservation for Hourly delivery, shall not exceed the rate specified in section ~~(3)~~(1) above for daily service times the highest amount in kilowatts of Reserved Capacity in any hour during such day. In addition, the total demand charge in any week, pursuant to a reservation for Hourly or Daily delivery, shall not exceed the rate specified in section ~~(2)~~(1) above for weekly service times the highest amount in kilowatts of Reserved Capacity in any hour during such week.

~~5)~~ 4) **Discounts**: If the Transmission Provider offers or attributes a discounted transmission rate to an RTO or to an affiliate of an RTO, the Transmission Provider must offer at the same time the same discounted Non-Firm Point-To-Point Transmission Service rate to all Eligible Customers on the same path and on all unconstrained transmission paths. Information regarding any non-firm transmission discounts must be posted on the OASIS pursuant to Part 37 of the Commission's regulations. In addition, discounts to non-affiliates must be offered in a not unduly discriminatory manner.

~~6)~~ 5) **Congestion and Losses**: A Transmission Customer desiring Non-Firm Point-to-Point Transmission Service may elect to pay transmission congestion charges. If the Transmission Customer so elects, it shall pay the higher of any applicable Redispatch Cost as ~~specified in Section 27 of the Tariff~~ calculated pursuant to Attachment K or the applicable rate under section (1) above. The Transmission Customer shall be responsible for losses as specified in the Tariff.

~~7)~~ 6) **Other Supporting Facilities and Taxes**: In addition to the charges set forth in section (1) of this schedule, the Transmission Customer shall pay charges determined on a case-by-case basis for facilities necessary to provide Transmission Service at voltages lower than those shown in Attachment H for the applicable Zone(s) and any amounts necessary to reimburse the Transmission Provider for any amounts payable as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT G

## Network Operating Agreement

The Operating Agreement of the PJM Interconnection ~~Agreement,~~ L.L.C., as amended from time to time, shall constitute the Network Operating Agreement for Network Customers serving load in the PJM Control Area. For other Network Customers, a Network Operating Agreement shall be negotiated, which shall address: (a) Control Area requirements, (b) redispatch procedures, (c) metering, (d) Control Area and data equipment, (e) operating requirements, (f) operating information requirements, (g) network planning, (h) the character of the service to be provided, (i) the transfer of power and energy through other systems, and (j) such other matters as the parties deem appropriate.

## ATTACHMENT H-1

### Annual Transmission Rates -- Atlantic City Electric Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $34,344,987 and the rate for Network Integration Transmission Service is $21,319 per megawatt per year, which reflects the facilities within the Zone of 138 kV and higher voltage. Service utilizing facilities at voltages below 138 kV will be provided at rates determined on a case-by-case basis.1/

2. The revenue requirement in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, a Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

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1/In addition to the rate set forth in section 1 of this attachment, a Network Customer requiring the use of Atlantic Electric's lower voltage facilities (facilities below 138 kV) to effect the delivery of power and energy under this Tariff shall be assessed an additional charge to reflect the use of Atlantic Electric's lower voltage facilities. Customers subject to this charge include Vineland Municipal Electric Utility. Vineland's lower-voltage charge shall be a phased-in rate capped at $10,000/MW-year and will be specified in the service agreement for Vineland. The charge for other Network Customers will be included in their service agreements.

Revised: June 2, 1997
Effective:

## ATTACHMENT H-2

**Annual Transmission Rates -- Baltimore Gas and Electric Company for Network Integration Transmission Service**

1. The annual transmission revenue requirement rate is $84,124,139 and the rate for Network Integration Transmission Service is $17,029 per megawatt per year, which reflects the facilities recorded in FERC Form 1, page 207.53 as transmission. Service utilizing other facilities will be provided at rates determined on a case-by-case basis.

2. The revenue requirement in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-3

### Annual Transmission Rates -- Delmarva Power & Light Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $46,842,773 and the rate for Network Integration Transmission Service is $22,996 per megawatt per year,2/ which reflects the facilities within the Zone of 69 kV and higher voltage. Service utilizing facilities at voltages below 69 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

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2/The annual transmission revenue requirement of $46,842,773 is an adjusted revenue requirement based on an annual revenue requirement of $53,609,231 less annual revenues of $2,512,264 from the LDV Agreement, $440583 from DMEC Wheeling, $3,551,402 from ODEC Wheeling, and $262,209 from interruptible demand.

## ATTACHMENT H-4

### Annual Transmission Rates -- Jersey Central Power & Light Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $98,762,045 and the rate for Network Integration Transmission Service is $29,569 per megawatt per year, which reflects the facilities within the Zone of 34.5 kV delta and higher voltage. Service utilizing facilities at voltages below 34.5 kV delta will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-5

### Annual Transmission Rates -- Metropolitan Edison Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $25,211,390 and the rate for Network Integration Transmission Service is $13,425 per megawatt per year, which reflects the facilities within the Zone of 34.5 kV delta and higher voltage. Service utilizing facilities at voltages below 34.5 kV delta will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-6

### Annual Transmission Rates -- Pennsylvania Electric Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $25,532,586 and the rate for Network Integration Transmission Service is $11,015 per megawatt per year, which reflects the facilities within the Zone of 46 kV and higher voltage. Service utilizing facilities at voltages below 46 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-7

### Annual Transmission Rates -- PECO Energy Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $154,469,000 and the rate for Network Integration Transmission Service is $26,743 per megawatt per year, which reflects the facilities recorded in FERC Form 1, as transmission for PECO Energy Company and its subsidiaries. Service utilizing other facilities will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-8

### Annual Transmission Rates -- Pennsylvania Power & Light Company Group for Network Integration Transmission Service

1. The annual transmission revenue requirement is $144,774,000 and the rate for Network Integration Transmission Service is $25,779 per megawatt per year, which reflects the facilities within the Zone of 69 kV and higher voltage. Service utilizing facilities at voltages below ~~69kV~~ 69 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-9

### Annual Transmission Rates -- Potomac Electric Power Company for Network Integration Transmission Service

1. The annual transmission revenue requirement is $95,880,433 and the rate for Network Integration Transmission Service is $21,091 per megawatt per year, which reflects the facilities within the Zone of ~~115kV~~ 115 kV and higher voltage. Service utilizing facilities at voltages below ~~115kV~~ 115 kV will be provided at rates determined on a case-by-case basis.

2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

## ATTACHMENT H-10

**Annual Transmission Rates -- Public Service Electric and Gas Company for Network Integration Transmission Service**

1. The annual transmission revenue requirement is $157,587,365 and the rate for Network Integration Transmission Service is $23,531 per megawatt per year, which reflects the facilities within the Zone of ~~138kV~~ 138 kV and higher voltage. Service utilizing facilities at voltages below ~~138kV~~ 138 kV will be provided at rates determined on a case-by-case basis.

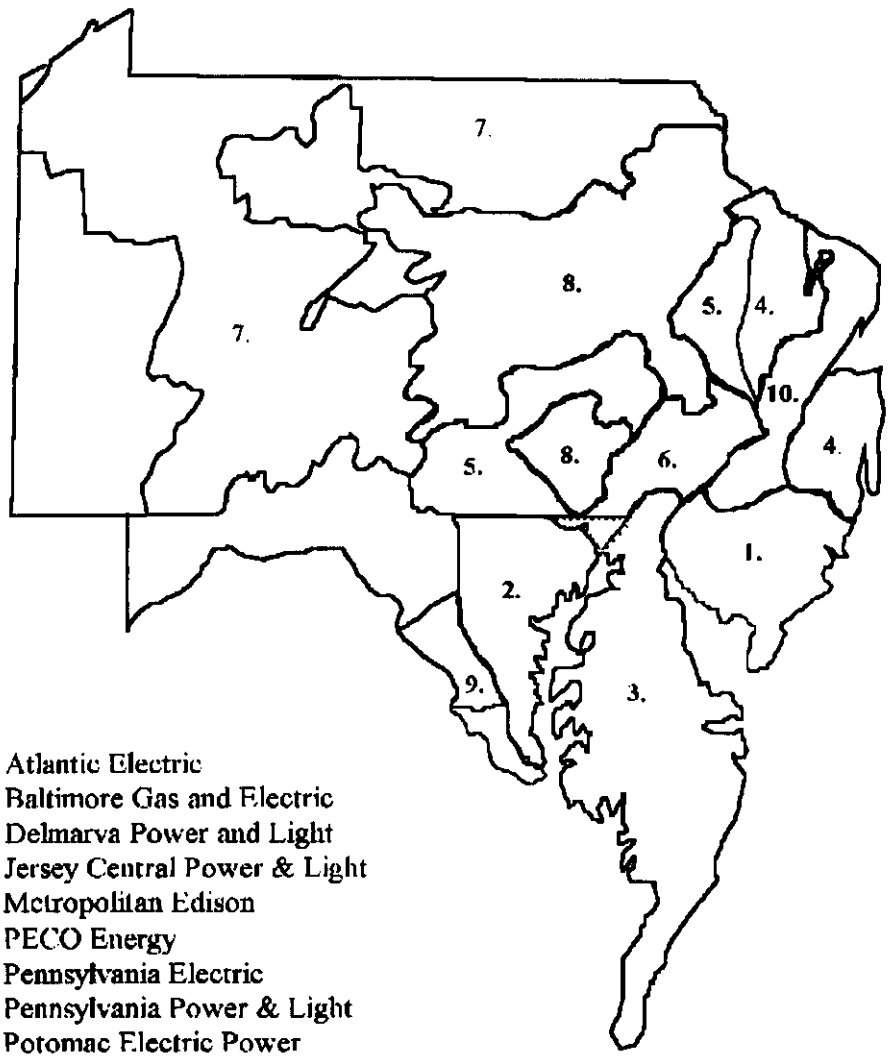
2. The rate in (1) shall be effective until amended by the Regional Transmission Owner(s) within the Zone or modified by the Commission.

3. In addition to the rate set forth in section 1 of this attachment, the Network Customer purchasing Network Integration Transmission Service shall pay for transmission congestion charges, in accordance with the provisions of the Tariff, and any amounts necessary to reimburse the Regional Transmission Owners for any amounts payable by them as sales, excise, "Btu," carbon, value-added or similar taxes (other than taxes based upon or measured by net income) with respect to the amounts payable pursuant to the Tariff.

# ATTACHMENT J

## PJM Control Area Transmission Zones

~~(See Attached)~~




1. Atlantic Electric
2. Baltimore Gas and Electric
3. Delmarva Power and Light
4. Jersey Central Power & Light
5. Metropolitan Edison
6. PECO Energy
7. Pennsylvania Electric
8. Pennsylvania Power & Light
9. Potomac Electric Power
10. Public Service Electric and Gas

Revised: June 2, 1997
Effective:

# ATTACHMENT K

## ~~Regulation, Operating Reserves, and Losses~~ Transmission Congestion Charges and Credits

**Preface.** This Attachment specifies the manner in which all Transmission Customers, Network Customers, and Regional Transmission Owners using the Transmission System to serve their Native Load Customers (all of the foregoing being referred to as "Transmission Users"), will be charged for the costs of congestion on the Transmission System (as set forth in section A) and will, in connection with the purchase of firm service, share in the allocation of revenues received as Transmission Congestion Charges (as set forth in section B). The provisions of this Attachment will apply to all Transmission Users, whether they are using the Transmission System for delivery of their own resources to load, for bilateral transactions, or to purchase or sell energy in the PJM Interchange Energy Market. In addition, the appendices to this Attachment incorporate into the Tariff for ease of reference the provisions of Schedule 1 of the Operating Agreement ("Schedule 1"). Capitalized terms used in this Attachment which are not defined in the Tariff or in the Attachment, but which are defined in Schedule 1 shall have the meanings set forth in Schedule 1.

### A. Transmission Congestion Charges

**1. General.** Every Transmission User will be charged for the costs of congestion on the Transmission System on the basis of the difference between the Locational Marginal Price at the location or locations on the Transmission System where the Transmission User supplies energy for transmission and the location or locations where the Transmission User withdraws energy from the Transmission System. To implement these charges, the Office of the Interconnection will calculate credits for every Transmission User based on the Locational Marginal Price at the location or locations at which the Transmission System receives energy from the Transmission User, calculated in accordance with section A(2) of this Attachment, and will calculate debits based on the Locational Marginal Price at the location or locations to which the Transmission User uses the Transmission System to deliver energy, calculated in accordance with section A(3) of this Attachment. The difference, if any, between these credits and debits, less the Transmission User's net payments for purchases and sales in the PJM Interchange Energy Market, represents the Transmission Congestion Charges borne by the Transmission User. No additional Transmission Congestion Charges shall be assessed with respect to the Transmission User's sale or purchase of energy on the PJM Interchange Energy Market, because the price for the sale or purchase of such energy already reflects any differences between Locational Marginal Prices associated with the transaction.

**2. Credits to Transmission Users.**

(a) For each hour during the day, each Transmission User shall be credited with the sum of the amounts determined in accordance with the following formula for each of the busses at which the Transmission User causes the Transmission System to receive electric energy:

Credit for Each Bus = Generation * Hourly LMP

where

Generation = The energy supplied by the Transmission User at the bus during the hour, measured in whole megawatts, as determined (i) in the case of a bus within the PJM Control Area, by the Office of the Interconnection utilizing the State Estimator model described in Section 2 of Schedule 1, and (ii) in the case of a bus at the border of the PJM Control Area, by the Transmission User's transaction request.

Hourly LMP = the integrated hourly Locational Marginal Price (LMP) at the bus, calculated by the Office of the Interconnection based on five minute values; and

LMP = the cost to serve the next increment of load at the bus at the lowest possible price consistent with the preservation of reliability and transmission system conditions, determined as described in Section 2 of Schedule 1.

(b) Credits shall be calculated in accordance with paragraph (a) for each generation bus in the PJM Control Area and for each bus representing an interconnection between the PJM Control Area and an adjacent control area. The total of the amounts determined in accordance with paragraph (a) for all of the locations at which a Transmission User supplies energy for receipt by the Transmission System shall be summed for that Transmission User.

**3. Debits to Transmission Users.**

(a) For each hour during the day, each Transmission User shall be debited the sum of the amounts determined in accordance with the following formula for each of the busses to which the Transmission System delivers electric energy for the Transmission User:

Debit for Each Bus = (Load + Losses) * Hourly LMP

where

Load = the load at the bus during the hour, measured in whole megawatts, determined: (i) in the case of a bus within the PJM Control Area, by the Office of the Interconnection utilizing the State Estimator model described in Section 2 of Schedule 1 and the portion of such load at the bus attributable to the Transmission User; or (ii) in the case of a bus at the border of the PJM Control Area, by the Transmission User's transaction request;

Losses = An allocated share of transmission losses experienced in the PJM Control Area, as determined by the Office of the Interconnection in accordance with the Tariff;

Hourly LMP = The integrated hourly Locational Marginal Price (LMP) at the bus, calculated by the Office of the Interconnection based on five minute values; and

LMP = The cost to serve the next increment of load at the bus at the lowest possible price consistent with the preservation of reliability and transmission system conditions, determined as described in Section 2 of Schedule 1.

(b) Debits shall be calculated in accordance with paragraph (a) for each load bus in the PJM Control Area and for each bus representing an interconnection between the PJM Control Area and an adjacent control area. The total of the amounts determined in accordance with paragraph (a) for all of the locations at which a Transmission User receives energy delivered by the Transmission System shall be summed for that Transmission User.

**4. Offset of Credits and Debits to a Transmission User.**

The Office of the Interconnection shall take into account both amounts credited to a Transmission User in accordance with Section A(2) of this Attachment and amounts debited to a Transmission User in accordance with Section A(3) of this Attachment, and shall exclude the Transmission User's transactions on the PJM Interchange Energy Market, in

issuing a statement, invoice, or payment for the net amount owed to or by that Transmission User for Transmission Congestion Charges for any period.

**B. Transmission Congestion Credits.**

**1. General.**

Each Transmission Customer purchasing Firm Point-to-Point Service, each Network Customer, with respect to its reservation of firm transmission service for deliveries from Network Resources to Network Load, and each Regional Transmission Owner with respect to its reservation of firm transmission service for the delivery of energy from Capacity Resources to Native Load Customers (any of the foregoing being referred to as a "Firm Transmission User"), shall receive Fixed Transmission Rights ("FTRs") corresponding to points of receipt and delivery designated for their firm uses of the Transmission System. Fixed Transmission Rights may also be acquired by purchase in the secondary market. Each holder of an FTR shall receive the total Transmission Congestion Credits determined in accordance with section B(2) of this Attachment.

**2. Determination of Credit.**

(a) **Overview.** For each hour with respect to which the Transmission Provider receives payments of Transmission Congestion Charges, determined in accordance with section A of this Attachment, Transmission Congestion Credits shall be allocated to the holders of Fixed Transmission Rights. As explained in subsection (b), the Fixed Transmission Rights are associated with the points on the Transmission System between which the Firm Transmission User to whom the FTR was originally issued has arranged for the firm transmission of electric energy, whether on a network or point-to-point basis. Holders of FTRs receive credits attributable to the difference, if any, between Locational Marginal Prices at the Point or Points of Receipt and the Point or Points of Delivery associated with the Fixed Transmission Rights. As explained in subsections (b) and (c), each FTR holder shares in Transmission Congestion Credits to the extent it holds Fixed Transmission Rights between the Point or Points of Receipt and the Point or Points of Delivery at which congestion is experienced in a particular hour. Distribution of credits in this manner ensures that each FTR holder will not incur energy costs that are greater than the costs of energy from the generation resources associated with the FTR holder's Fixed Transmission Rights. Target allocations of Transmission Congestion Credits to holders of Fixed Transmission Rights are calculated in accordance with subsection (c) and Transmission Congestion Credits are distributed in accordance with that allocation, as described in subsection (d).

(b) **Assignment of Fixed Transmission Rights.** Fixed Transmission Rights shall be assigned to each Firm Transmission User, based on the points on the Transmission System between which the Firm Transmission User has arranged for the firm delivery of electric energy, as follows:

(i) Each Network Customer and each Regional Transmission Owner (each of the foregoing being referred to as a "Network Service User") shall receive Fixed Transmission Rights based on its reservation of capability on the Transmission System to deliver electric energy on a firm basis from the Network Service User's Capacity Resources or Network Resources, if different, to the Network Service User's Network Load or Native Load Customers, as applicable. For each Capacity Resource or Network Resource, the Network Service User shall designate a number of Fixed Transmission Rights that is less than or equal to the installed capacity of the resource, provided that: (1) the sum of the Fixed Transmission Rights so designated shall not exceed the Network Load of a Network Customer or the projected annual peak load of the Native Load Customers of a Regional Transmission Owner, and (2) the Office of the Interconnection determines that the total of the Fixed Transmission Rights designated by all Firm Transmission Users can simultaneously be accommodated by the Transmission System.

(ii) Each Transmission Customer shall receive Fixed Transmission Rights in an amount equal to the megawatts of Firm Point-to-Point Transmission Service purchased by the Transmission Customer for the Point or Points of Receipt and Point or Points of Delivery for which the service has been reserved. In accepting applications for Firm Point-to-Point Transmission Service, the Office of the Interconnection shall determine that the Fixed Transmission Rights associated with a reservation of such service, together with the total of the Fixed Transmission Rights designated by all existing Firm Transmission Users, can simultaneously be accommodated by the Transmission System.

(c) **Target Allocation of Credits to Fixed Transmission Rights.** The Office of the Interconnection shall determine a target allocation of Transmission Congestion Credits for each Firm Transmission User for each hour as follows:

(i) For each Fixed Transmission Right held by a Network Service User, the target allocation of Transmission Congestion Credits shall be determined by the following formula:

$$\text{Target} = \text{FTR} * [\text{Load Percentage} * (\text{LMP}_{\text{DELIVERY}} - \text{LMP}_{\text{RECEIPT}})]$$

where

FTR = Fixed Transmission Rights between the specified load bus and the specified generation bus, in megawatts;

Load Percentage = The percentage of the Network Service User's Network Load or Annual Peak Load, as applicable, associated with the load bus associated with the Fixed Transmission Right;

$LMP_{DELIVERY}$ = The LMP during the hour at the load bus associated with the Fixed Transmission Right; and

$LMP_{RECEIPT}$ = The LMP during the hour at the generation bus associated with the Fixed Transmission Right.

The target allocation resulting from the above formula may be negative if $LMP_{DELIVERY}$ is less than $LMP_{RECEIPT}$ for an hour. For any hour in which the $LMP_{DELIVERY}$ equals the $LMP_{RECEIPT}$ in the above formula, no Transmission Congestion Credits shall be allocated to the Fixed Transmission Right. The total target allocation for a Network Service User for each hour shall be the sum of the target allocations associated with all of the Network Service User's Fixed Transmission Rights.

(ii) For each Fixed Transmission Right held by a Transmission Customer or any other Market Participant that is not a Network Service User, the target allocation of Transmission Congestion Credits shall be determined by the following formula:

$$\text{Target} = \text{FTR} * [(LMP_{DELIVERY} - LMP_{RECEIPT})]$$

where

FTR = Fixed Transmission Rights between the specified load bus and the specified generation bus;

$LMP_{DELIVERY}$ = The LMP during the hour at the bus serving as the Point of Delivery associated with the Fixed Transmission Right; and

$LMP_{RECEIPT}$ = The LMP during the hour at the bus serving as the Point of Receipt associated with the Fixed Transmission Right.

The target allocation resulting from the above formula may be negative if $LMP_{DELIVERY}$ is less than $LMP_{RECEIPT}$ for an hour. For any hour in which the $LMP_{DELIVERY}$ equals the $LMP_{RECEIPT}$ in the above formula, no Transmission Congestion Credits shall be allocated to the Fixed Transmission Right. The total target allocation for a Transmission Customer for each hour shall be the sum of the target allocations associated with all of the Transmission Customer 's Fixed Transmission Rights.

(d) **Distribution of Transmission Congestion Credits.** (i) If, in any hour, the total of the Transmission Congestion Charges received by the Transmission Provider is greater than or equal to the total of all target allocations of Transmission Congestion Credits, each FTR holder shall receive Transmission Congestion Credits equal to its target allocation and any excess of the Transmission Congestion Charges over the target allocations of Transmission Congestion Credits shall be distributed in accordance with subsection (iii).

(ii) If, in any hour, the total of the Transmission Congestion Charges received by the Transmission Provider is less than the total of all target allocations of Transmission Congestion Credits, each FTR holder shall receive Transmission Congestion Credits in proportion to its target allocation.

(iii) The Transmission Congestion Charges paid to the Transmission Provider during an hour may exceed the target allocation of Transmission Congestion Credits for that hour. In those circumstances, the excess Transmission Congestion Charges accumulated for the billing month shall be distributed to each FTR holder in proportion to, but not to exceed, any deficiency of the Transmission Congestion Charges received as compared with the target allocations of Transmission Congestion Credits pursuant to (ii) accumulated for the billing month. Any remaining excess Transmission Congestion Charges for a Billing Month shall be distributed to the 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.

## C. Offset of Transmission Congestion Charges and Transmission Congestion Credits.

The Office of the Interconnection shall take into account both (i) amounts payable by a Transmission User with respect to Transmission Congestion Charges as determined in accordance with Section A of this Attachment, and (ii) amounts payable to a Transmission User with respect to Transmission Congestion Credits as determined in accordance with Section B of this Attachment.

## ATTACHMENT K -- APPENDIX

**Preface**. The provisions of ~~this attachment~~ the Appendix incorporate into the Tariff for ease of reference the provisions of Schedule ~~7.01~~ 1 of the ~~PJM Interconnection~~ Operating Agreement. As a result, this ~~attachment~~ 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 ~~7.01~~ 1 of the ~~PJM Interconnection~~ Operating Agreement. All references in this ~~attachment~~ Appendix to "Agreement" or "Schedules" are references to the ~~PJM Interconnection~~ Operating Agreement and the schedules thereto unless otherwise noted. References to Schedule ~~7.01~~ 1 are references to this ~~attachment~~ Appendix.

### ~~SCHEDULE 7.01-1 TO ATTACHMENT K~~ 1.MARKET OPERATIONS

#### ~~PJM INTERCHANGE ENERGY MARKET~~ 1.1 Introduction.

~~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.

~~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 ~~8.01 to the Pennsylvania-Maryland-New Jersey Interconnection Agreement ("PJM Interconnection Agreement")~~ 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 Dispatch Rate.** ~~**Capacity Resource shall mean a generating resource of a Party Hereto designated and qualified to meet such Party Hereto's obligations to share capacity reserves in accordance with the PJM Interconnection Agreement.**~~

~~**1.3.2 Control Area shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common generation control scheme is applied in order to:**~~

~~**(a) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);**~~

~~**(b) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;**~~

~~**(c) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice and the criteria of the applicable regional reliability council of NERC;**~~

~~**(d) maintain power flows on transmission facilities within appropriate limits to preserve reliability; and**~~

~~**(e) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.**~~

~~1.3.3~~"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.

~~1.3.4 Emergency shall mean: (i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals~~ 1.3.2 Equivalent Load.

~~1.3.5~~"Equivalent Load" shall mean the sum of an Internal Market Buyer's net system requirements to serve its customer load in the PJM Control Area, plus its net bilateral transactions.

**1.3.3 External Market Buyer.**

~~1.3.6~~"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.

**~~1.3.7~~ 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 number determined as specified in Section 5.2.2 of this Schedule.

**1.3.6 Generating Market Buyer.** ~~**1.3.8 First Contingency Basis shall mean operation of the bulk power electric supply system in the PJM Control Area in a manner intended to protect against the consequences of the failure or malfunction of any single bulk power facility, such that prior to a contingency occurring (a) the loading on all such bulk power facilities is maintained within normal continuous ratings, and (b) voltages are maintained at predetermined normal schedules at all load levels; and such that immediately following any single facility malfunction or failure (i) the loading on all remaining facilities can be expected to be within emergency ratings, (ii) system stability is maintained, and (iii) an acceptable voltage profile is maintained.**~~

~~1.3.9~~"Generating Market Buyer" shall mean an Internal Market Buyer 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.**

~~1.3.10~~"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 ~~or to affect~~ market conditions shall not constitute a Generator Forced Outage.

**1.3.8 Generator Maintenance Outage.**

~~1.3.11~~"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.**

~~1.3.12~~"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.

~~1.3.13 Good Utility Practice shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region.~~ **1.3.10 Internal Market Buyer.**

~~1.3.14~~ "Internal Market Buyer" shall mean a Market Buyer making purchases of energy from the PJM Interchange Energy Market for consumption by end-users inside the PJM Control Area.

**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 ~~1.3.15 Load Serving Entity shall mean an entity that has been granted the authority or has an obligation pursuant to State or local law, regulation or franchise to sell electric energy to end users located within~~ the PJM Control Area, as determined and allocated each hour ~~or the duly designated agent of such an entity.~~

~~1.3.16 Unconstrained Market Clearing Price shall mean the hourly market clearing price for energy calculated as specified in Appendix A to Schedule 7.01-1.~~

~~1.3.17 Market Buyer shall mean a Party Hereto that has met reasonable creditworthiness standards established~~ by the Office of the Interconnection ~~and that is otherwise able to make purchases in the PJM Interchange Energy Market.~~ in accordance with the procedures set forth in the PJM Manuals.

**1.3.12 Market Operations Center.**

~~1.3.18~~ "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.

~~1.3.19 Market Participant shall mean a Market Buyer or a Market Seller, or both.~~

~~1.3.20 Market Seller shall mean a Party Hereto that has met reasonable creditworthiness standards established by the Office of the Interconnection and that is otherwise able to make sales in the PJM Interchange Energy Market.~~ **1.3.13 Maximum Generation Emergency.**

~~1.3.21~~ "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.

**1.3.15 Network Resource.**

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

**1.3.16~~1.3.22~~ 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.**

* 1 moved from here; text not shown

~~1.3.24 Normal Maximum Generation shall mean the highest output level of a generating resource under normal operating conditions.~~

~~1.3.25 Normal Minimum Generation shall mean the lowest output level of a generating resource under normal operating conditions.~~

~~1.3.26~~"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.**

~~1.3.27~~"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.

**~~1.3.28~~ 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.

**~~1.3.29 Operating Reserves shall mean the amounts of generating capacity scheduled to be available for specified periods of an Operating Day to ensure the reliable operation of the PJM Control Area, as specified in the PJM Manuals.~~ 1.3.23 Operating Margin.**

~~1.3.30 PJM Control Area shall mean the Control Area recognized by NERC as the PJM Control Area.~~"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 as that term is defined in the PJM Manuals, 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.**

~~1.3.31~~"PJM Interchange" shall mean the following, as determined in accordance with the Schedules to ~~the PJM Interconnection~~ this Agreement and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load exceeds, or is exceeded by, the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy by an External Market Seller; or (c) the hourly net metered output of any other Market Seller; or (d) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer.

~~1.3.32 PJM Interchange Energy Market shall mean the regional competitive market for the purchase and sale of electric energy at wholesale in interstate commerce and related services established pursuant to this Schedule.~~ **1.3.26 PJM Interchange Export.**

~~1.3.33~~"PJM Interchange Export" shall mean the following, as determined in accordance with Schedules to ~~the PJM Interconnection~~ this Agreement and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load is exceeded by the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy by ~~an External~~ a Market Seller from an External Resource; or (c) the hourly net metered output of any other Market Seller.

**1.3.27 PJM Interchange Import.**

~~1.3.34~~ 1.3.27 "PJM Interchange Import" shall mean the following, as determined in accordance with the Schedules to ~~the PJM Interconnection~~ this Agreement and the PJM Manuals: (a) the amount by which an Internal Market Buyer's hourly Equivalent Load exceeds the sum of the hourly outputs of the Internal Market Buyer's operating generating resources; or (b) the hourly scheduled deliveries of Spot Market Energy to an External Market Buyer.

~~1.3.35 PJM Manuals shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning, and accounting requirements of the PJM Control Area and the PJM Interchange Energy Market.~~ **1.3.28 PJM Open Access Same-time Information System.**

~~1.3.36~~"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.

~~1.3.37 Planned Transmission Outage shall have the meaning specified in the Transmission Owners Agreement.~~

~~1.3.38 Ramping Capability shall mean the sustained rate of change of generator output, in megawatts per minute.~~ **1.3.29 Point-to-Point Transmission Service.**

** 1 ~~1.3.23 Network~~"Point-to-Point Transmission Service" shall mean transmission service provided pursuant to the rates, terms and conditions set forth in Part ~~III~~ 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.

**1.3.31 Regulation.**

~~1.3.39~~"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 Regulation Class.**

~~1.3.40~~"Regulation Class" shall mean a subset of the generation units capable of providing Regulation to the PJM Control Area determined by a range of costs for providing Regulation as specified by the Office of the Interconnection using procedures specified in the PJM Manuals.

~~1.3.41 Spot Market Energy shall mean energy bought or sold by Market Participants through the PJM Interchange Energy Market at the Unconstrained Market Clearing Price determined as specified in Appendix A to Schedule 7.01-1 of this Attachment.~~

~~1.3.42 Tariff shall mean the PJM Control Area Open Access Transmission Tariff.~~

~~1.3.43 Redispatch Cost shall mean the specific cost for providing transmission constraint control as set forth in Appendix A to Schedule 7.01-1 of this Attachment.~~

~~1.3.44 [Not used]~~ **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.

**1.3.34 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.

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.

**1.3.38 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 a Load Serving Entity shall establish to the satisfaction of the Office of the Interconnection that the end-users as to which it or its principal is the Load Serving Entity, and which 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 by the Load Serving Entity or its agent. Such applicant shall further demonstrate that:

i) The foregoing Load Serving Entity (the applicant or its principal) is obligated to meet the requirements of the Reliability Assurance Agreement; and

ii) The foregoing Load Serving Entity is or will be a Network Service User as required by the Reliability Assurance Agreement for all PJM Interchange Energy Market purchases.

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

The applicant has obtained or will obtain 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) 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 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 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 execution of the PJM Dispute Resolution Agreement and 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 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, in accordance with the Schedules to this Agreement;

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.

**~~1.4~~ 1.7 General.**

~~**1.4.1 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.~~ **1.7.1 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 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 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, 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.**

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 Internal Market Buyers 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. 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 Member's 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.**

1.7.12 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.**

~~1.4.2 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 ~~the PJM Interconnection~~ 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.**

~~1.4.3 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.**

~~1.4.4 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.**

~~1.4.5 Operating Reserves.~~ The Office of the Interconnection shall schedule to the Operating Reserve and load-following objectives of the PJM Control Area, as defined in the PJM Manuals, in scheduling resources pursuant to this Schedule.

**~~1.4.6~~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 ~~from the Regulation range~~ 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.**

~~1.4.7 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.**

~~1.4.8 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.

~~(a)~~(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.

~~(b)~~(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.

~~(c)~~(d) Internal Market Buyers 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.

~~(d)~~(e) External Market Buyers 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(c) 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, make 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.**

~~1.5 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.**

~~1.5.1 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.

**~~1.5.2~~ 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 ~~procedures specified in the PJM Manuals~~ 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. ~~The~~ 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 ~~shall conduct Planned Transmission Outage scheduling in accordance with procedures specified in the Transmission Owners Agreement. The Office of the Interconnection shall coordinate resolution of outage or other planning conflicts that may give rise to unreliable system conditions.~~

~~(c) The~~ Office of the Interconnection may withhold approval or withdraw ~~its~~ a prior approval. Approval for a Generator Planned Outage of a Capacity Resource ~~by notifying the Market Participant owning or controlling the resource in advance of the planned commencement of the outage in accordance with the deadlines for such notice specified in the PJM Manuals. 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. ~~(d) During the prescheduling process,~~ If the Office of the Interconnection ~~shall process and respond to requests for approval of Planned Transmission Outages~~ 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 ~~standards and~~ 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.

### ~~1.5.3~~ 1.9.3 Generator Maintenance Outages

~~(a)~~ 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.

**~~1.5.4~~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 ~~Reserve Sharing~~ 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.**

~~1.5.5 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 the information specified in the PJM Manuals.

**1.9.6 Internal Market Buyer Responsibilities.**

~~1.5.6 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 the information specified in the PJM Manuals. 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.

**~~1.5.7~~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.

**~~1.5.8~~ 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 ~~Control Area Open Access Transmission~~ 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.**

~~1.6 Scheduling.~~ The following scheduling procedures and principles shall govern the commitment of resources to the PJM Interchange Energy Market over a period extending from one week to one day prior to the Operating Day that transactions are to take place. Scheduling encompasses the day-ahead and hourly scheduling process, through which the Office of the Interconnection 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.

**1.10.1 Day-Ahead Scheduling.**

~~1.6.1 Day-Ahead 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.

(a) Each Internal Market Buyer shall submit to the Office of the Interconnection forecasts of its customer loads for the next Operating Day as required by the PJM Manuals. If an Internal Market Buyer expects to curtail load at a specific Dispatch Rate, it should specify the Dispatch Rate and estimated load curtailment.

(b) An External Market Buyer 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) 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 if the parties to the transaction are not willing to incur ~~transmission congestion charges~~ Transmission Congestion

Charges 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; 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) Market Sellers wishing to sell on the PJM Interchange Energy Market shall submit offers for the supply of energy (including energy from hydropower units), Regulation, Operating Reserves ~~and~~ 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 ~~Section 1.6.8(b) of~~ 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) A Market Seller that wishes to sell Regulation service shall submit an offer for Regulation that shall specify the MW of Regulation being offered and the Regulation Class from which such Regulation is being offered. The range of costs defining Regulation Classes, and the average cost for each Regulation Class, shall be determined periodically by the Office of the Interconnection on the basis of prior energy bid prices and appropriate fuel indices, in accordance with procedures specified in the PJM Manuals. Qualified Regulation capability must satisfy the verification tests specified in the PJM Manuals.

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

~~(i)~~ The Office of the Interconnection shall post on the PJM Open Access Same-time Information System 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.

**~~1.6.2~~ 1.10.2 Pool-Scheduled Resources.**

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.

(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 ~~Schedule 7.01-2~~ Section 3 to this Agreement. Alternatively, the Market Seller shall receive any cancellation fee reflected in the Market Seller's offer in lieu of start-up and no-load fees, if any, 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.

**~~1.6.3~~ 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 ~~Unconstrained Market Clearing Prices, and such units shall not be paid Redispatch Cost.~~ 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.

**~~1.6.4~~1.10.4 Capacity Resources.**

~~(a)~~ 1.10.4 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.

(b) Energy from a Capacity Resource that has not been selected as a pool-scheduled resource may be sold on a bilateral basis by the Market Seller, or may be self-scheduled. A Capacity Resource that has not been selected as a pool-scheduled resource 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 if the Office of the Interconnection declares a Maximum Generation Emergency. Any such resource so scheduled and dispatched shall receive the applicable ~~Unconstrained Market Clearing Price or the Redispatch Cost, as applicable,~~ Locational Marginal 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.

**~~1.6.5~~1.10.5 External Resources.**

(a) External Resources may submit offers to the PJM Interchange Energy Market, in accordance with the day-ahead scheduling process 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.

(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. A Market Seller offering energy from External Resources on an aggregated basis and that does not deliver energy as scheduled by the Office of the Interconnection shall be assessed a non-delivery charge as specified below.

(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. A Market Seller offering an External Resource on a resource-specific basis that does not deliver energy as scheduled by the Office of the Interconnection shall be assessed a non-delivery charge as specified below, unless the resource being offered has suffered a Generator Forced Outage. The burden shall be on the Market Seller to demonstrate to the reasonable satisfaction of the Office of the Interconnection that the resource being offered has experienced a Generator Forced Outage.

(d) Subject to the conditions specified in this paragraph, the non-delivery charge for External Resources that do not deliver energy as scheduled shall be calculated hourly as follows: Pro-rated start-up plus hourly no-load fees specified in the Offer Data + [offered minimum dispatch level x ~~(Unconstrained Market Clearing~~(Locational Marginal Price - offered energy price) x 110%]. For purposes of the foregoing calculation: (i) ~~if the Unconstrained Market Clearing~~ the Locational Marginal Price shall be the Locational Marginal Price at the buses at which the energy from the External Resource should have been delivered to the PJM Control Area; (ii) if the Locational Marginal Price less the offered energy price is less than zero, this difference shall be set to zero; and ~~(ii)~~(iii) start-up and no-load fees shall be subject to the requirements of ~~Section 1.5.7(b)~~ this Schedule. Payments or credits for non-delivery charges shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**~~1.6.6~~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 ~~Unconstrained Market Clearing~~ Locational Marginal Price for energy~~, and an allocated share of Redispatch Costs as specified in the Tariff.~~ 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.

(d) An External Market Buyer that does not take delivery of the amounts of energy specified in its request to purchase shall be assessed a non-delivery charge, or if using Point-to-Point service within the PJM Control Area shall pay for imbalance service as specified in the Tariff. The non-delivery charge shall be calculated as the ~~Unconstrained Market Clearing Price times~~ summation for all applicable busses of the product of (i) the Locational Marginal Price at each load bus at which delivery was not taken, times (ii) the amount of energy not taken each hour at such bus. The non-delivery charge shall not apply to deliveries curtailed by the Office of the Interconnection in accordance with ~~Section 1.6.6(e) of~~ this Schedule, or for periods when the Dispatch Rate exceeds the maximum value specified by the External Market Buyer in accordance with ~~Section 1.6.1(b)~~ this Schedule. Payments or credits for non-delivery charges shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**~~1.6.7~~ 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 that they are not willing to incur ~~transmission congestion charges shall not be implemented for periods in which such transactions would contribute to transmission congestion. Such transactions~~ Transmission Congestion Charges shall be curtailed by the Office of the Interconnection as necessary to reduce or alleviate transmission congestion. Bilateral transactions willing to incur congestion charges shall continue to be implemented during periods of congestion, except as may be necessary to respond to Emergencies.

**~~1.6.8~~ 1.10.8 Office of the Interconnection Responsibilities.**

(a) The Office of the Interconnection 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 ~~requirements~~ of the Market Buyers, including the reliability requirements of the PJM Control Area. In making this determination, 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 based on the foregoing determination. 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.

(c) 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.

**~~1.6.9~~ 1.10.9 Hourly Scheduling**

~~**(a) Subject to the right**~~ 1.10.9 Following the initial posting of the Office of the Interconnection's transmission congestion forecast, 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, and 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~~ the deadline specified in the PJM Manuals, 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 the Operating Day~~ the time specified in the PJM Manuals, 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;

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

iii.) 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.

(b) An External Market Buyer may refuse delivery of some or all of the energy it requested to purchase 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. Any such refusal of delivery shall be subject to non-delivery charges in accordance with ~~Section 1.6.6(d) of~~ this Schedule.

**1.11 Dispatch.**

~~1.7 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.**

~~1.7.1 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.

~~1.7.2 First Contingency~~ 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) ~~operate the PJM Control Area on a First Contingency Basis; (ii)~~ utilize available generating reserves and obtain required replacements; and ~~(iii)~~(ii) monitor the availability of adequate reserves.

**~~1.7.3~~ 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.

**~~1.7.4~~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.

(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.

(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.

~~1.7.5 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.~~

~~APPENDIX A TO SCHEDULE 7.01-1~~

~~CALCULATION OF UNCONSTRAINED MARKET CLEARING PRICES~~

~~(a) The Office of the Interconnection shall determine for each hour and announce the Unconstrained Market Clearing Price, which shall be a rate in Dollars per megawatthour equal to the cost or bid price in Dollars per megawatthour of the highest priced increment of energy that was requested to operate by the Office of the Interconnection during that hour if no constraints were experienced on the transmission system of the Interconnection or the highest priced increment of energy that would have been requested to operate if constraints actually experienced on the transmission system had been disregarded.~~

~~(b) The total amounts of energy supplied in each hour shall be checked against and reconciled with the total amounts of energy received in that hour.~~

~~(c) The accounting for energy interchange among the Parties Hereto shall be determined by the Office of the Interconnection for each hour as follows:~~

~~(1) Each Party Hereto receiving energy from the Interconnection shall be debited for such energy received at the Unconstrained Market Clearing Price.~~

~~(2) Each Party Hereto supplying energy to the Interconnection shall be credited for such energy supplied at the Unconstrained Market Clearing Price.~~

~~(d) If any Party Hereto is directed by the Office of the Interconnection to operate additional generating resources for control of constraints on the transmission system of the Interconnection, the cost or bid price of which exceeds the Unconstrained Market Clearing Price, then the difference between the cost or bid price of such energy supplied and the Unconstrained Market Clearing Price, multiplied by the amount of additional generation~~

~~so operated, shall constitute a redispatch cost ("Redispatch Cost") which shall be credited to the affected Party Hereto and recovered pursuant to the Tariff.~~

~~SCHEDULE 7.01-2 TO ATTACHMENT K~~

~~ACCOUNTING AND BILLING~~ **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.

# 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.

## 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 Prices.**

(a) To determine the energy offers submitted to the PJM Interchange Energy Market that shall be used to calculate the Locational Marginal 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 Prices if:

i) the 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) In determining whether a resource satisfies the condition described in (a), 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 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 Prices.

**2.5 Calculation of Locational Marginal 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 determined to be eligible for consideration under Section 2.4. 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 Price at that bus.

(b) 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 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 Prices for that hour, which will determine prices in the PJM Interchange Energy Market and Transmission Congestion Costs under the PJM Tariff.

**2.6 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.

~~2.1 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.

~~2.2 Market Buyers~~

~~2.2.1 Spot Market Energy. Spot Market Energy shall be paid for at the Unconstrained Market Clearing Price determined as specified in Appendix A to Schedule 7.01-1 of this Attachment.~~ 3.2 Market Buyers.

### 3.2.1 Spot Market Energy.

(a) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the load payment for each Market Buyer's load bus. The load payment at each bus shall be the product of the Market Buyer's megawatts of load at such load bus in the hour times the Locational Marginal Price at the bus. 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 for each Market Buyer shall be the sum of the load payments for each of a Market Buyer's load busses.

(b) At the end of each hour during an Operating Day, the Office of the Interconnection shall calculate the generation revenue for each Generating Market Buyer's generation bus. The generation revenue at each generation bus shall be the product of the Generating Market Buyer's megawatts of generation at such generation bus in the hour times the Locational Marginal Price at the bus. 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.

(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 and its total generation revenue. The portions of the net bill attributable to net hourly PJM Interchange and to Transmission Congestion Charges shall be determined as set forth below.

(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, 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) 500 kV transmission losses; (v) deliveries pursuant to bilateral energy sales; (vi) receipts pursuant to bilateral energy purchases; (vii) Inadvertent Interchange allocated to the Market Buyer; and (viii) 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). For External Market Buyers, this calculation shall determine the energy delivered pursuant to the External Market Buyer's purchase request.

(e) The Office of the Interconnection shall calculate Locational Marginal Prices for each load and generation bus in the PJM Control Area, in accordance with Section 2 of this Schedule.

(f) An Internal Market Buyer shall be charged for Spot Market Energy purchases to the extent of its hourly net PJM Interchange Imports, determined as specified above. An External Market Buyer shall be charged for its Spot Market Energy purchases based on the energy delivered to it, determined as specified 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.

(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. If the Office of the Interconnection dispatches energy to serve load in the PJM Control Area, the pool-dispatched 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.

(h) If energy in excess of a Generating Market Buyer's Equivalent Load flows to the PJM Control Area from a self-scheduled resource, the Generating Market Buyer shall

receive a payment or credit for such excess energy at a rate equal to the lesser of (i) 95% of the Locational Marginal Price at the delivery bus for such energy, or (ii) the Locational Marginal Price at the delivery bus for such energy if the Locational Marginal Price is negative. For purposes of the foregoing calculation, such excess energy shall be deemed to have been delivered from the Generating Market Buyer's self-scheduled resource or resources with the lowest Locational Marginal Price or Prices at the time of delivery. Revenues attributable to the difference between the market clearing price in the PJM Interchange Energy Market and payments or credits for excess energy from self-scheduled resources shall be used by the Office of the Interconnection to reduce or offset PJM Control Area costs for Operating Reserves.

**~~2.2.2~~3.2.2 Regulation.**

(a) Each Internal Market Buyer 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.

~~(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 price in that hour for the Regulation Class from which the Regulation was supplied, as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals. 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 average price paid by the Office of the Interconnection for Regulation.

**~~2.2.3~~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) At the end of each Operating Day, the following determination shall be made for each synchronized pool-scheduled resource of each Market Seller: the total offered price for start-up and no-load fees and Spot Market Energy ~~plus Redispatch Cost if any~~, determined on the basis of the resource's actual output or available and requested time and type of operation, shall be compared to the total value of that resource's Spot Market Energy ~~plus Redispatch Cost, if any~~. If the total offered price exceeds the total value, the difference 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 as synchronous condensers at the request of Office of the Interconnection but producing no energy.

(c) The sum of the foregoing credits, plus any cancellation fees paid in accordance with Section 1.10.2(d), less any amounts received in accordance with Sections ~~1.6.2(d), 1.6.5(d) and 1.6.6(d) of Schedule 7.01-1~~ 1.10.5(d), 1.10.6(d) and 3.2.1(h) of this Schedule and payments received from another Control Area for Operating Reserves or from users of Point-to-Point Transmission Service within the PJM Control Area for imbalance service, shall be the cost of Operating Reserves for the PJM Control Area for each Operating Day.

(d) The cost of Operating Reserves for each Operating Day shall be allocated and charged to each Market Buyer in proportion to its total load during that Operating Day in the PJM Control Area.

**~~2.2.4~~3.2.4 Transmission Congestion.**

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

**~~2.2.5~~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 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 ~~2.4.2~~ 3.4.2 or for transmission losses supplied in kind in accordance with Section ~~2.4.2~~ 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 Internal Market Buyer in proportion to its hourly load in the PJM Control Area.

**~~2.2.6~~3.2.6 Emergency Energy.**

(a) Internal Market Buyers shall be allocated a proportionate share of the ~~Emergency energy and 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 ~~Unconstrained Market Clearing~~ Locational Marginal 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.**

~~2.2.7 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 ~~2.2.1~~ 3.2.1 through ~~2.2.6~~ 3.2.6 of this ~~schedule~~ 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 this 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.**

~~2.3 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 ~~2.2~~ 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 ~~2.2~~ 3.2.

**~~2.3.1~~ 3.3.1 Spot Market Energy.**

(a) 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 to the PJM Control Area by each pool-scheduled or pool-dispatched resource of each Market Seller, in accordance with the PJM Manuals and the calculation described in Section 3.2.1(d).

(b) The Office of the Interconnection shall calculate Locational Marginal 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) A Market Seller shall be credited for sales of Spot Market Energy ~~shall be paid for at the Unconstrained Market Clearing Price determined as specified in Appendix A to Schedule 7.01-1 of this Attachment.~~ to the extent of its hourly net deliveries of energy to the PJM Control Area 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 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 from each of the Market Seller's pool-scheduled or pool-dispatched resources, times (ii) the hourly Locational Marginal Price at that bus.

(d) Market Sellers, including Generating Market Buyers, shall be charged for non-delivery of Spot Market Energy from resources that are not Capacity Resources, as specified in Section 1.10.5(d) of this Schedule.

**3.3.2 Regulation.**

~~2.3.2 Regulation.~~ Each Market Seller that is also an Internal Market Buyer shall have an hourly Regulation objective as specified in Section ~~2.2.2(a)~~ 3.2.2(a), and shall be credited or charged in connection therewith as specified in Section ~~2.2.2(b)~~ 3.2.2(b). 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 in that hour for the Regulation Class from which the Regulation was supplied, as determined by the Office of the Interconnection in accordance with procedures specified in the PJM Manuals.

**3.3.3 Operating Reserves.**

~~2.3.3 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 ~~2.2.3(b).~~ 3.2.3(b)

**3.3.4 Emergency Energy.**

~~2.3.4 Emergency Energy.~~ The costs~~,~~ and net revenues~~, and energy~~ 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.**

~~2.3.5 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 ~~2.3.1~~ 3.3.1 through ~~2.3.4~~ 3.3.4 of this ~~schedule~~ 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.

**~~2.4~~ 3.4 Transmission Customers.**

**3.4.1 ~~2.4.1~~ Transmission Congestion.**

Each Transmission Customer shall be charged ~~or~~ and credited for ~~Redispatch Costs~~ Transmission Congestion Charges as specified in ~~the Tariff~~ Section 5 of this Schedule.

**~~2.4.2~~ 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 other than entities that are also Internal Market Buyers 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 ~~Unconstrained Market Clearing Price~~ weighted average Locational Marginal Price 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; (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; and (iii) determined in accordance with the provisions in the PJM Manuals on "Calculation of Losses for Transmission Services."

(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.

**Billing.**

~~2.4.3 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 ~~2.4.1~~ 3.4.1 through ~~2.4.2~~ 3.4.2 of this ~~schedule~~ 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.

**~~2.5~~ 3.5 Other Control Areas.**

**3.5.1 Energy Sales.**

~~2.5.1 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 ~~Office of the Interconnection~~ 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 ~~higher of the Unconstrained Market Clearing Price or the price paid for the energy dispatched to supply the sale.~~ Locational Marginal 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.**

~~2.5.2 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.

**~~2.6~~ 3.6 Metering Reconciliation.**

**3.6 Meter Correction Billing.**

~~2.6.1 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 ~~Unconstrained Market Clearing Price.~~ Locational Marginal Price for the affected Market Buyer.

**3.6.2 Meter Corrections Between Market Participants.**

~~2.6.2 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.

**~~2.6.3~~ 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.**

~~2.6.4 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.**

~~2.6.5 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.**

~~2.6.6 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.

~~APPENDIX A TO SCHEDULE 7.01-2~~

~~RATE TABLE~~

~~A.1 OFFERED PRICE RATES. SPOT MARKET ENERGY, REGULATION AND OPERATING RESERVE, ARE BASED ON OFFERS TO THE OFFICE OF THE INTERCONNECTION SPECIFIED IN THE PJM INTERCONNECTION AGREEMENT.~~

~~A.2 TRANSMISSION LOSSES. AVERAGE LOSS FACTORS SHALL BE AS SPECIFIED IN THE PJM CONTROL AREA OPEN ACCESS TARIFF.~~

~~A.3 EMERGENCY ENERGY PURCHASES. THE PRICING FOR EMERGENCY ENERGY PURCHASES WILL BE DETERMINED BY THE OFFICE OF THE INTERCONNECTION AND THE ADJACENT CONTROL AREA, IN ACCORDANCE WITH AN AGREEMENT BETWEEN THE OFFICE OF THE INTERCONNECTION AND SUCH ADJACENT CONTROL AREA THAT COMPLIES WITH THE PJM INTERCONNECTION AGREEMENT.~~

~~APPENDIX B TO SCHEDULE 7.01-2~~

~~[NOT USED]~~ 4.RATETABLE

4.1 Offered Price Rates.

Revised: June 2, 1997
Effective:

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 the adjacent Control Area, in accordance with an agreement between the Office of the Interconnection and such adjacent Control Area that complies with this Agreement.

# 5.CALCULATIONOF 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 Locational Marginal Prices 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 Transmission Congestion Charge for each such delivery shall be the delivery amount multiplied by the difference between the Locational Marginal Price at the delivery interface and the Locational Marginal Price at the source interface, or 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 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 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 Total Transmission Congestion Charges.**

The total Transmission Congestion Charges collected by the Office of the Interconnection each hour will be the sum of the 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 Transmission Customer using firm Point-to-Point Transmission Service and each Network Service User 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 of each Network Service User and Transmission Customer, determined as specified below.

(b) Each Network Service User shall designate a subset of its Network Resources for which Fixed Transmission Rights will be assigned. The Fixed Transmission Right for each Network Resource shall be 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 to the aggregate load busses of the Network Service User. The sum of each Network Service User's Fixed Transmission Rights must be equal to or less than the Network Service User's projected annual peak load.

(c) Each Transmission Customer receiving firm Point-to-Point Transmission Service shall be assigned Fixed Transmission Rights. 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) The foregoing assignment of Fixed Transmission Rights shall be enhanced by an amendment to this Schedule, to be filed with FERC not later than December 31, 1997, that will provide for an auction of Fixed Transmission Rights over and above those FTRs obtained and retained by Network Service Users and Transmission Customers then receiving firm Point-to-Point Transmission Service (including firm Point-to-Point transmission service for existing bilateral contracts), such auction to be implemented as soon after December 31, 1997 as shall be determined by the Office of the Interconnection to be reasonably practical. For so long as Fixed Transmission Rights are assigned on the basis of Network Transmission Service and firm Point-to-Point Transmission Service, any Fixed Transmission Rights awarded pursuant to an auction shall be simultaneously feasible with all Network Transmission Service and firm Point-to-Point Transmission Service obligations. The Members specified in Section 11.5(c) of the Agreement, working with the Office of the Interconnection, shall develop the details of the implementation of such an auction, including but not limited to the nature of the bidding process, the frequency of auctions, and the duration of the Fixed Transmission Rights purchased at auction.

**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 Price minus the generation bus Locational Marginal 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 Price differences for the receipt and delivery points associated with the Fixed Transmission Right, calculated as the Locational Marginal 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. 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, each holder of Fixed Transmission Rights shall receive 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.

# ATTACHMENT L

## List of Regional Transmission Owners

Atlantic City Electric Company
Baltimore Gas and Electric Company
Delmarva Power & Light Company
Jersey Central Power & Light Company
Metropolitan Edison Company
Pennsylvania Electric Company
PECO Energy Company
Pennsylvania Power & Light Company
Potomac Electric Power Company
Public Service Electric and Gas Company
~~UGI Corporation~~

# RELIABILITY ASSURANCE AGREEMENT

**Among**

**LOAD SERVING ENTITIES**

**in the**

**PJM CONTROL AREA**

**Dated June 2, 1997**

# RELIABILITY ASSURANCE AGREEMENT

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# RELIABILITY ASSURANCE AGREEMENT

RELIABILITY ASSURANCE AGREEMENT, dated as of this 2nd day of June, 1997, by and among Public Service Electric and Gas Company, PECO Energy Company, Pennsylvania Power Light Company, Baltimore Gas and Electric Company, Jersey Central Power & Light Company, Metropolitan Edison Company, Pennsylvania Electric Company, Potomac Electric Power Company, Atlantic City Electric Company, and Delmarva Power & Light Company, hereinafter referred to collectively as the "Parties" and individually as a "Party."

## WITNESSETH:

**WHEREAS**, each Party to this Agreement is a Load Serving Entity within the PJM Control Area;

**WHEREAS**, each Party is committing to share its Capacity Resources with the other Parties to reduce the overall reserve requirements for the Parties while maintaining reliable service; and

**WHEREAS**, each Party is committing to provide mutual assistance to the other Parties during Emergencies; and

**WHEREAS**, each Party is committing to coordinate its planning of Capacity Resources to satisfy the Reliability Principles and Standards.

**NOW THEREFORE**, for and in consideration of the covenants and mutual agreements set forth herein and intending to be legally bound hereby, the Parties agree as follows:

## ARTICLE 1 -- DEFINITIONS

Unless the context otherwise specifies or requires, capitalized terms used herein shall have the respective meanings assigned herein or in the Schedules hereto for all purposes of this Agreement (such definitions to be equally applicable to both the singular and the plural forms of the terms defined). Unless otherwise specified, all references herein to Articles, Sections or Schedules, are to Articles, Sections or Schedules of this Agreement. As used in this Agreement:

1.1 **Access-Eligible Load** shall have the meaning set forth in Schedule 5.

1.2 **Accounted-For Obligation** shall have the meaning set forth in Schedule 7.

1.3 **Agreement** shall mean this Reliability Assurance Agreement, together with all Schedules hereto, as amended from time to time.

1.4 **ALM** shall mean active load management.

1.5 **ALM Factor** shall mean that factor established from time to time by the Reliability Committee for use in the determination of credit for ALM in accordance with Schedule 5.3.

1.6 **Black Start Capability** shall mean the ability of a generating unit or station to go from a shutdown condition to an operating condition and start delivering power without assistance from the power system.

1.7 **Capacity Resources** shall mean megawatts of net capacity from owned or contracted for generating facilities all of which (i) are accredited to a Party pursuant to the procedures set forth in Schedules 9 and 10 for purposes of this Agreement and (ii) are committed to satisfy that Party's obligations under this Agreement.

1.8 **Chair** shall mean the chairperson of the Reliability Committee.

1.9 **Control Area** shall mean an electric power system or combination of electric power systems bounded by interconnection metering and telemetry to which a common generation control scheme is applied in order to:

(a) match the power output of the generators within the electric power system(s) and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);

(b) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;

(c) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice and the criteria of NERC and the applicable regional reliability council of NERC;

(d) maintain power flows on transmission facilities within appropriate limits to preserve reliability, and

(e) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

1.10 **Diversified Planning Period Peak** shall have the meaning set forth in Schedule 5.1.

1.11 **Effective Date** shall mean August 1, 1997, or such later date that FERC permits this Agreement to go into effect.

1.12 **Electric Distributor** shall mean an entity that owns or leases with rights equivalent to ownership electric distribution facilities that are providing electric distribution service to electric load within the PJM Control Area.

1.13 **Emergency** shall mean (i) an abnormal system condition requiring manual or automatic action to maintain system frequency, or to prevent loss of firm load, equipment damage, or tripping of system elements that could adversely affect the reliability of an electric system or the safety of persons or property; or (ii) a fuel shortage requiring departure from normal operating procedures in order to minimize the use of such scarce fuel; or (iii) a condition that requires implementation of emergency procedures as defined in the PJM Manuals.

1.14 **FERC** shall mean the Federal Energy Regulatory Commission or any successor federal agency, commission or department.

1.15 **Firm Transmission Service** shall mean transmission service that is intended to be available at all times to the maximum extent practicable, subject to an Emergency, an unanticipated failure of a facility, or other event beyond the control of the owner or operator of the facility or the Office of the Interconnection.

1.16 **Forecast Zone Requirement** shall mean the portion of the Forecast Pool Requirement allocated to each Zone pursuant to Schedule 5.

1.17 **Forecast LSE Obligation** shall mean a Party's allocated portion of the Forecast Pool Requirement as determined by the Reliability Committee pursuant to Schedule 5.

1.18 **Forecast Pool Requirement** shall mean the aggregate level of Capacity Resources required pursuant to this Agreement as determined by the Reliability Committee pursuant to Schedule 4.

1.19 **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.

1.20 **Generator Maintenance Outage** shall mean the scheduled removal from service, in whole or in part, of a generating unit in order to perform repairs on specific components of the facility, if removal of the facility qualifies as a maintenance outage pursuant to the PJM Manuals.

1.21 **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.

1.22 **Good Utility Practice** shall mean any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the

relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather is intended to include acceptable practices, methods, or acts generally accepted in the region.

1.23 **Identifiable Load** shall mean the load of a customer that has been identified in the load forecast of a Party that was used to forecast the Diversified Planning Period Peak of a Zone.

1.24 **Individual Vote** shall mean the single vote accorded to each Party that is not in default; provided, however, that Parties that are affiliates shall together have a single Individual Vote.

1.25 **Load Serving Entity** or **LSE** shall mean any entity, including a load aggregator or power marketer, (i) serving end-users within the PJM Control Area, and (ii) that has been granted the authority or has an obligation pursuant to state or local law, regulation or franchise to sell electric energy to end-users located within the PJM Control Area, or the duly designated agent of such an entity.

1.26 **MAAC** shall mean the Mid-Atlantic Area Council, a reliability council under § 202 of the Federal Power Act, established pursuant to the MAAC Agreement dated August 1, 1994, or any successor thereto.

1.27 **NERC** shall mean the North American Electric Reliability Council or any successor thereto.

1.28 **Network Resources** shall have the meaning set forth in the PJM Tariff.

1.29 **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).

1.30 **Office of the Interconnection** shall mean the employees and agents of PJM Interconnection, L.L.C., subject to the supervision and oversight of the PJM Board, acting pursuant to the Operating Agreement.

1.31 **Operating Agreement of PJM Interconnection, L.L.C.** or **Operating Agreement** shall mean that certain agreement, dated April 1, 1997 and as amended and restated June 2, 1997 and as amended from time to time thereafter, among the members of the PJM Interconnection, L.L.C.

1.32 **Operating Reserve** shall mean the amount of generating capacity scheduled to be available for a specified period of an operating day to ensure the reliable operation of the PJM Control Area, as specified in the PJM Manuals.

1.33 **Party** shall mean an entity bound by the terms of this Agreement.

1.34 **Peak Season** shall have the meaning set forth in Schedule 8.

1.35 **Peak Season Maintenance** shall have the meaning set forth in Schedule 8.

1.36 **Peak Season Maintenance Obligation** shall have the meaning set forth in Schedule 8.

1.37 **PJM Board** shall mean the Board of Managers of the PJM Interconnection, L.L.C., acting pursuant to the Operating Agreement.

1.38 **PJM Control Area** shall mean the Control Area recognized by NERC as the PJM Control Area.

1.39 **PJM Interconnection Agreement** shall mean the Pennsylvania-New Jersey-Maryland Interconnection Agreement, dated September 26, 1956, as amended and in effect prior to April 1, 1997.

1.40 **PJM Manuals** shall mean the instructions, rules, procedures and guidelines established by the Office of the Interconnection for the operation, planning and accounting requirements of the PJM Control Area.

1.41 **PJM Open Access Transmission Tariff** or **PJM Tariff** shall mean the tariff for transmission service within the PJM Control Area, as in effect from time to time, including any schedules, appendices, or exhibits attached thereto.

1.42 **Planning Period** shall initially mean the 12 months beginning June 1 and extending through May 31 of the following year, or such other period established by the Reliability Committee.

1.43 **Pool-Wide Choice Date** shall mean the date established by the Reliability Committee as the date on which (i) all states within the PJM Control Area and the District of Columbia have adopted retail access programs for end-use electric customers and (ii) more than 85 percent of the end-use customers within the PJM Control Area have a choice for their electric supplier.

1.44 **Quorum** shall mean more than 50 percent of the Voting Shares.

1.45 **Reliability Committee** shall mean the committee comprised of a representative of each Party established pursuant to Section 6.1.

**1.46 Reliability Principles and Standards** shall mean the principles and standards established by NERC or MAAC to define, among other things, an acceptable probability of loss of load due to inadequate generation or transmission capability, as amended from time to time.

**1.47 Required Approvals** shall mean all of the approvals required for this Agreement to be modified or to be terminated, in whole or in part, including the acceptance for filing by FERC and every other regulatory authority with jurisdiction over all or any part of this Agreement or the participation of a Party in this Agreement.

**1.48 Sole-Supplier Load** shall have the meaning set forth in Schedule 5.

**1.49 Transmission Owners Agreement** shall mean that certain agreement, dated June 2, 1997 and as amended from time to time, among transmission owners within the PJM Control Area.

**1.50 Unavailable Capability** shall mean capability of Capacity Resources not available to serve load for other than economic reasons.

**1.51 Unforced Capacity** shall mean installed capacity that is not experiencing a forced outage, calculated on a rolling 12-month average for purposes of determining whether a Party has met its obligations hereunder.

**1.52 Vice Chair** shall mean the vice chair of the Reliability Committee.

**1.53 Voting Shares** shall mean both the Individual Votes and the Weighted Votes of the Parties not in default so that if, for example, an affirmative vote of two-thirds of the Voting Shares is required for approval of a matter, two-thirds of the Individual Votes and two-thirds of the Weighted Votes are required; provided, however, that no vote shall fail if voted against by fewer than three Parties and for this purpose Jersey Central Power & Light Company, Metropolitan Edison Company and Pennsylvania Electric Company shall be considered to be a single Party for both Individual Votes and Weighted Votes; and provided further that the Weighted Votes of all Parties shall be adjusted in a proportional manner as agreed to by the Reliability Committee so that no Party (together with its affiliates) shall have more than 25 percent of the sum of the Weighted Votes.

**1.54 Weighted Vote** shall mean, for purposes of voting on matters before the Reliability Committee, the number of megawatts of a Party's load in the most recent month for which data is available at the time of the peak for the PJM Control Area during that month, rounded to the next higher whole megawatt, as established initially on the Effective Date and as updated at the beginning of each month thereafter.

**1.55 Zone** shall mean an area within the PJM Control Area, as set forth in *Schedule* 16, or as such areas may be (i) combined as a result of mergers or acquisitions or (ii) added as a result of the expansion of the boundaries of the PJM Control Area; provided,

however, that the areas shown for Jersey Central Power & Light Company, Metropolitan Edison Company and Pennsylvania Electric Company shall be considered to be a single Zone for purposes of this Agreement.

## ARTICLE 2 -- PURPOSE

This Agreement is intended to ensure that adequate Capacity Resources will be planned and made available to provide reliable service to loads within the PJM Control Area, to assist other Parties during Emergencies and to coordinate planning of Capacity Resources consistent with the Reliability Principles and Standards. To accomplish these objectives, this Agreement is among all of the Load Serving Entities within the PJM Control Area. Unless this Agreement is terminated as provided in Section 3.2, every entity which is or will become a Load Serving Entity within the PJM Control Area is to become and remain a Party to this Agreement or to an agreement (such as a requirements supply agreement) with a Party pursuant to which that Party has agreed to act as the agent for the Load Serving Entity for purposes of satisfying the obligations under this Agreement related to the load within the PJM Control Area of that Load Serving Entity.

## ARTICLE 3 -- TERM AND TERMINATION OF THE AGREEMENT

**3.1 Term.** This Agreement shall become effective on the Effective Date and shall continue in effect until terminated in accordance with the terms hereof.

**3.2 Termination.**

**3.2.1 Rights to Terminate.** This Agreement may be terminated by a vote in the Reliability Committee to terminate the Agreement by at least two-thirds of the Voting Shares and upon the receipt of all Required Approvals related to the termination of this Agreement.

**3.2.2 Obligations upon Termination.** Any provision of this Agreement that expressly or by implication comes into or remains in force following the termination of this Agreement shall survive such termination. The surviving provisions shall include, but shall not be limited to: (a) final settlement of the obligations of each Party under Articles 7 and 11 of this Agreement, including the accounting for the period ending with the last day of the month for which the Agreement is effective, (b) the provisions of this Agreement necessary to conduct final billings, collections and accounting with respect to all matters arising hereunder and (c) the indemnification provisions as applicable to periods prior to such termination.

## ARTICLE 4 -- ADDITION OF NEW PARTIES

Each Party agrees that any entity that (i) is or will become a Load Serving Entity, (ii) complies with the process and data requirements set forth in Schedule 1, and (iii) meets the standards for interconnection set forth in Schedule 2 shall become a Party to this Agreement

upon becoming a party to the Operating Agreement, subject to the receipt of all Required Approvals and execution of a counterpart of this Agreement.

## ARTICLE 5 -- WITHDRAWAL OR REMOVAL OF A PARTY

**5.1 Withdrawal of a Party.**

**5.1.1 Notice.** Upon written notice to the Office of the Interconnection, any Party may withdraw from this Agreement, effective upon the completion of its obligations hereunder and subsequent withdrawal from the Operating Agreement. A Party's obligations hereunder shall be completed as of the end of the last month for which a Forecast LSE Obligation has been set at the time said notice is received, except as provided in Article 13, or unless the Reliability Committee determines that the remaining Parties will be able to adjust their obligations and commitments related to the performance of this Agreement consistent with such earlier withdrawal date as may be requested by the withdrawing Party, without undue hardship or cost, while maintaining the reliability of the PJM Control Area.

**5.1.2 Obligations upon Withdrawal.** (a) The obligations of a Party upon its withdrawal from the Agreement and any obligations of that Party under the Agreement at the time of its withdrawal shall survive the withdrawal of the Party from the Agreement. Upon the withdrawal of a Party from this Agreement, final settlement of the obligations of such Party under Articles 7 and 11 of this Agreement shall include the accounting through the date established pursuant to Section 5.1.1.

(b) Any Party that withdraws from this Agreement shall pay all costs and expenses associated with additions, deletions and modifications to communication, computer, and other affected facilities and procedures, including any filing fees, to effect the withdrawal of the Party from the Agreement.

(c) Prior to withdrawal, a withdrawing Party desiring to remain interconnected with the PJM Control Area shall enter into an interconnection agreement with the Office of the Interconnection and the transmission owner or Electric Distributor within the PJM Control Area with which its facilities are interconnected.

**5.2 Removal of a Party.** If a Party (a) fails to pay any amount due under this Agreement within 30 days after the due date or (b) is in breach of any material obligation under this Agreement, the Reliability Committee shall cause a notice of such non-payment or breach to be sent to that Party. If the Party fails, within 30 days of the receipt of such notice (except as otherwise described below), to cure such non-payment or breach, or if the breach cannot be cured within such time and if the Party does not diligently commence to cure the breach within such time and to diligently pursue such cure to completion, the Party may be removed as a party to this Agreement upon an affirmative vote of two-thirds of the Voting Shares. Upon the removal of a Party from this Agreement, notice of such removal shall be provided to the Office of the Interconnection and the remaining Parties may, without an election of remedies, exercise all remedies available at law or in equity or other

appropriate proceedings, including bringing an action or actions for recovery of damages that may include, but not be limited to, all amounts due and unpaid by the removed Party, and all costs and expenses reasonably incurred in the exercise of its remedies hereunder (including, but not limited to, reasonable attorneys' fees).

## ARTICLE 6 -- RELIABILITY COMMITTEE

**6.1 Reliability Committee.** This Agreement shall be managed and administered by the Parties through the Reliability Committee or as delegated to the Office of the Interconnection. The Parties agree that the Reliability Committee shall exercise its responsibilities under this Agreement in a manner consistent with maintaining a robust market for capacity and energy. The Parties further agree that, notwithstanding the provisions of Section 16.10, any claim by a Party that the Reliability Committee has failed to exercise its responsibilities properly shall be resolved by a majority vote of the PJM Board after giving due consideration to the views of the Reliability Committee.

**6.1.1 Membership on Reliability Committee.** Each Party shall have one representative on the Reliability Committee with authority to act for that Party with respect to actions or decisions by the Reliability Committee; provided, however, that any Party may designate an agent as its representative to the Reliability Committee and provided further that the Office of the Interconnection shall be entitled to appoint a non-voting representative to the Reliability Committee.

**6.1.2 Appointment of Reliability Committee Representative.** (a) Within 30 days following the Effective Date, each Party shall provide the other Parties with a notice designating its representative on the Reliability Committee. Any Party may change its representative on the Reliability Committee at any time by providing the other Parties with notice designating the new representative on the Reliability Committee. Any notice designating a Party's representative to the Reliability Committee shall indicate that such representative has the authority to bind the Party in all matters pertaining to the performance of this Agreement.

(b) Each representative to the Reliability Committee may, at any time, designate an alternate with respect to a specific matter or matters by written notice to the other representatives to the Reliability Committee, which notice shall identify the matter or matters as to which the alternate shall have the authority to bind the Party.

**6.1.3 Reliability Committee Officers.** The Reliability Committee shall have a chairperson (the "Chair") and a vice-chairperson (the "Vice Chair"). The Reliability Committee may appoint such other officers as it deems necessary.

(a) At the initial meeting of the Reliability Committee, the initial Chair and Vice Chair shall be elected by the Reliability Committee from among the representatives to the Reliability Committee for terms commencing with the Effective Date and continuing until the completion of the first full Planning Period following the Effective Date.

(b) At least two months prior to the end of each Planning Period, beginning with the first full Planning Period following the Effective Date, the Reliability Committee shall elect from among the representatives to the Reliability Committee a new Vice Chair for a one year term of office beginning on the first day of the next Planning Period.

(c) On the first day of each Planning Period following the first full Planning Period after the Effective Date, the Vice Chair from the most recently completed Planning Period shall become the Chair of the Reliability Committee.

(d) The Chair shall have the following duties:

(i) Call meetings of the Reliability Committee;

(ii) Establish the agenda for meetings of the Reliability Committee, provided, however, at any meeting matters may be added to the agenda for that meeting upon the affirmative vote of a majority of the Voting Shares;

(iii) Cause minutes of each meeting of the Reliability Committee to be taken and maintained;

(iv) Act as directed by the Reliability Committee to communicate with and to direct the actions of any contractors that are retained by the Parties pursuant to this Agreement consistent with the requirements of any agreement with such contractors; and

(v) Undertake such other duties as may be specified by the Reliability Committee.

(e) In the event the Chair ceases to be the representative of a Party or if the Party for which the Chair is the representative withdraws or is removed from this Agreement, the Vice Chair shall become the Chair and a new Vice Chair shall be elected to fulfill the remaining term of office of the Vice Chair.

(f) In the event the Vice Chair ceases to be the representative of a Party or if the Party for which the Chair is the representative withdraws or is removed from this Agreement, a new Vice Chair shall be elected to fulfill the remaining term of office of the Vice Chair.

(g) The Vice Chair shall perform such duties as specified by the Reliability Committee to assist the Chair.

**6.2 Responsibilities of Reliability Committee.** (a) The Reliability Committee shall be responsible for all matters pertaining to the Parties' performance of this Agreement, including, but not limited to, approval of the annual Forecast Pool Requirement margin and approval of the ALM Factor; provided, however, that the Reliability Committee shall have

no authority to control or direct the actions of the Office of the Interconnection with regard to the assurance of the short-term reliability of grid operations within the PJM Control Area.

(b) The Reliability Committee shall coordinate, as necessary, with the Office of the Interconnection and with the parties to the Operating Agreement and the Transmission Owners Agreement to (i) establish the Forecast Pool Requirement for Capacity Resources, (ii) establish criteria for use of Capacity Resources and serving load during Emergencies, (iii) establish the Planning Period, and (iv) carry out such other planning and analyses or to take such other actions necessary to satisfy the Reliability Principles and Standards, including, but not limited to, those matters addressed in the Schedules hereto.

(c) The Reliability Committee shall be responsible for obtaining any Required Approvals.

(d) The Reliability Committee shall take such other action as may be appropriate to carry out the purposes and objectives of this Agreement.

(e) The Reliability Committee may establish generation planning principles, procedures and standards relating to the adequacy and reliability of the Capacity Resources of the Parties consistent with the Reliability Principles and Standards.

**6.3 Meetings of the Reliability Committee.** (a) The initial meeting of the Reliability Committee, for the election of officers and to conduct any other business, shall be held in Wilmington, Delaware at the Hotel duPont at 10 a.m. on the first Wednesday of the second month following the month in which the Effective Date occurs.

(b) The Reliability Committee shall meet quarterly or as otherwise called more frequently by the Chair. The Chair shall call for a meeting of the Reliability Committee upon (i) the written request of representatives to the Reliability Committee with at least one-third of the Voting Shares or (ii) upon a complaint by a Party regarding the performance of any contractors retained by the Parties. The Chair shall provide notice of the date, time and location of all meetings of the Reliability Committee at least 30 days prior to such meeting and the Chair shall circulate an agenda at least 10 days prior to such meeting; provided, however, a meeting may be called with notice of less than 30 days if, in the reasonable judgment of the Chair, circumstances require such a meeting.

(c) Meetings of the Reliability Committee may be conducted in person or by telephone or other electronic means, but attendance in person or by telephone or other electronic means of a Party's representative or duly designated alternate shall be required for the exercise of a Party's vote.

**6.4 Voting by the Reliability Committee.** The vote of a Party shall be cast by that Party's representative to the Reliability Committee or its duly designated alternate.

**6.4.1 Matters Requiring Approval by Two-Thirds.** The following matters require an affirmative vote of at least two-thirds of the Voting Shares:

(a) Modifications to this Agreement;

(b) Termination of this Agreement;

(c) Removal of a Party; and

(d) Changes to the current Forecast Pool Requirement margin or ALM Factor.

If an affirmative vote of two-thirds of the Voting Shares is not obtained to modify or terminate this Agreement, the Agreement shall remain in full force and effect as previously amended or supplemented. If an affirmative vote of two-thirds of the Voting Shares is not obtained to change the Forecast Pool Requirement margin or ALM Factor for a given Planning Period, the Forecast Pool Requirement margin or the ALM Factor, as the case may be, for the immediately preceding Planning Period shall remain in effect.

**6.4.2 Matters Requiring Approval by a Majority.** All matters coming before the Reliability Committee other than those set forth in Sections 6.1.3(d)(ii) and 6.4.1 shall be decided on the basis of the majority of the Voting Shares of the Parties represented at a meeting of the Reliability Committee where a Quorum is present.

**6.5 Subcommittees.** The Reliability Committee may form such subcommittees as deemed necessary to carry out specific studies or to undertake other required activities. The Reliability Committee may establish the voting procedures for any subcommittee so established.

**6.6 Technical Support.** (a) Subject to the agreement of the parties to the Operating Agreement, the Parties agree to delegate to the Office of the Interconnection the technical administration and implementation of this Agreement, as set forth in more detail in Schedule 15.

(b) The Reliability Committee shall have the authority to exercise the Parties' rights under any contract with independent contractors retained to provide additional technical support for the administration of this Agreement.

**6.7 Cost of Meetings.** The Parties shall pay all costs of meetings as determined by the Reliability Committee. Each Party is responsible for all costs of its representative.

## ARTICLE 7 -- DETERMINATION OF RESERVE REQUIREMENTS

**7.1 Forecast Pool Requirement and Forecast LSE Obligations.** (a) The Forecast Pool Requirement shall be established to ensure a sufficient amount of capacity to meet the forecast load plus reserves adequate to provide for the unavailability of Capacity

Resources, load forecasting uncertainty, and planned and maintenance outages. Consistent with the guidelines set forth in Schedule 4, the Reliability Committee shall determine the Forecast Pool Requirement for Capacity Resources of all of the Parties. Each Party's Forecast LSE Obligation shall be determined as set forth in Schedule 5.

(b) Unless the Party and its customer who is also a Load Serving Entity agree that such customer is to bear direct responsibility for the obligations set forth in this Agreement, (i) any Party that supplies full requirements service to a Load Serving Entity within the PJM Control Area shall be responsible for all of that Load Serving Entity's share of the Forecast Pool Requirement and (ii) any Party that supplies partial requirements service to a Load Serving Entity within the PJM Control Area shall be responsible for such portion of the Forecast Pool Requirement of that Load Serving Entity as agreed by the Party and the Load Serving Entity so long as the Load Serving Entity's full share of the Forecast Pool Requirement is allocated between or among Parties to this Agreement.

(c) Whenever a Party joins, withdraws from or is removed from this Agreement such that the boundaries of the PJM Control Area are expanded or contracted, the Forecast Pool Requirement and the Parties' equitable shares thereof shall be recalculated.

(d) Beginning on the Effective Date, each Party's Forecast LSE Obligation and planned Capacity Resources shall be as established pursuant to the PJM Interconnection Agreement for the Planning Periods through May 31, 1999, subject to any adjustments that may be required to reflect new Parties, withdrawing Parties or Access-Eligible Loads (as defined in Schedule 5).

**7.2 Planning Period Load Diversity Entitlements**. Planning Period load diversities, and the associated entitlements and obligations, shall be defined and determined in accordance with Schedule 5.1.

**7.3 Responsibility to Plan for Forecast LSE Obligation**. As set forth in Schedule 6, each Party shall (i) plan to install or contract for sufficient Capacity Resources to satisfy its Forecast LSE Obligation, (ii) submit its plans for such Capacity Resources as directed by the Reliability Committee, (iii) designate those Capacity Resources as Network Resources under the PJM Tariff to allow firm delivery of the output of those Capacity Resources to the Party's load within the PJM Control Area, and (iv) obtain any necessary Firm Transmission Service in an amount sufficient to deliver Capacity Resources from outside of the PJM Control Area to the border of the PJM Control Area to reliably serve the Party's load within the PJM Control Area.

**7.4 Responsibility to Provide for Accounted-For Obligation**. Each Party shall install or contract for sufficient Capacity Resources to satisfy its Accounted-For Obligation in each month, as determined pursuant to Schedule 7. If the amount of a Party's Unforced Capacity, as measured on a day-by-day basis, is less than the greater of that Party's Forecast LSE Obligation associated with Sole-Supplier Load or its Accounted-For Obligation, that Party shall be considered to be deficient.

**7.5 Responsibility During Peak Season.** (a) Each Party shall install or contract for sufficient Capacity Resources to satisfy its requirements during the Peak Season, as set forth in Schedule 8.

(b) A Party that fails to have Unforced Capacity adequate to satisfy its requirements during the Peak Season shall be considered to be deficient, as set forth in Schedule 8, but only to the extent of any megawatts of deficiency in excess of the number of megawatts for which such Party already has paid a deficiency charge related to Section 7.4.

**7.6 Payment for Deficiencies.** Any Party that is deficient pursuant to Sections 7.4 or 7.5 shall pay the applicable deficiency charge set forth in Schedule 11.

**7.7 Nature of Resources.** Each Party shall provide or arrange for specific, firm Capacity Resources that are capable of supplying the energy requirements of its own load on a firm basis without interruption for economic conditions and with such other characteristics that are necessary to support the reliable operation of the PJM Control Area, as set forth in more detail in Schedules 9 and 10.

**7.8 Compliance Audit of Parties.** (a) For the 36 months following the end of each Planning Period, each Party shall make available the records and supporting information related to the performance of this Agreement from such Planning Period for audit.

(b) The Reliability Committee shall evaluate and determine the need for an audit of a Party and shall, upon a decision to require such an audit, provide the Party or Parties to be audited with notice at least 90 days in advance of the audit.

(c) Any audit of a Party conducted pursuant to this Agreement shall be performed by an independent consultant to be selected by the Reliability Committee. Such audit shall include a review of the Party's compliance with the procedures and standards adopted pursuant to this Agreement.

(d) The Reliability Committee shall direct that, prior to the completion of its audit, the independent consultant shall review its preliminary findings with the Party being audited and, upon the completion of its audit, the independent consultant shall issue a final audit report detailing the results of the audit, which final report shall be issued to the Party being audited and the Reliability Committee.

(e) If, based on a final audit report, an adjustment is required to any amounts due to or from the Parties pursuant to Schedule 11, such adjustment shall be accounted for in determining the amounts due to or from the Parties pursuant to Schedule 11 for the month in which the adjustment is identified.

**7.9 Compliance Audit of Contractors.** The Reliability Committee may retain an independent consultant to audit or review the studies performed and any other services provided by any contractors retained to provide technical support to the Reliability

Committee and to assist with the administration of this Agreement. Such audits or reviews shall evaluate whether the contractor has complied with the procedures and standards imposed pursuant to any agreement with the contractor.

## ARTICLE 8 -- DEFICIENCY, DATA SUBMISSION, AND EMERGENCY CHARGES

**8.1 Nature of Charges.** The Reliability Committee shall, subject to any Required Approvals, establish certain charges to be imposed on a Party for its failure to satisfy its obligations under this Agreement. Such charges are set forth in Schedules 11, 13, and 14.

**8.2 Determination of Charge Amounts.** No later than April 1 of each year, the Reliability Committee shall establish the charges to be applicable under this Agreement during the following Planning Period and Schedules 11, 13, and 14 shall be modified accordingly, subject to the receipt of all Required Approvals. In addition, the Reliability Committee may establish projected charges for estimating purposes only.

**8.3 Distribution of Charge Receipts.** All of the monies received as a result of any charges imposed pursuant to this Agreement shall be disbursed as provided in Schedules 11, 13, and 14.

## ARTICLE 9 -- COORDINATED PLANNING AND OPERATION

**9.1 Overall Coordination.** Each Party shall cooperate with the other Parties in the coordinated planning and operation of their owned or contracted for Capacity Resources to obtain a degree of reliability consistent with the Reliability Principles and Standards. In furtherance of such cooperation each Party shall:

(a) coordinate its Capacity Resource plans with the other Parties to maintain reliable service to its own electric customers and those of the other Parties;

(b) cooperate with the members and associate members of MAAC to ensure the reliability of the region;

(c) make available its Capacity Resources to the other Parties through the Office of the Interconnection for coordinated operation and to supply the needs of the PJM Control Area for Operating Reserves;

(d) provide or arrange for Network Transmission Service for service to the projected load of the Party and include all Capacity Resources as Network Resources designated pursuant to the PJM Tariff;

(e) provide or arrange for sufficient reactive capability and voltage control facilities to meet Good Utility Practice and to be consistent with the Reliability Principles and *Standards*;

(f) implement emergency procedures, share Capacity Resources, and take such other coordination actions (including, if within the capabilities of the Party, shedding load and the initiation of ALM programs) as may be necessary in accordance with the directions of the Office of the Interconnection in times of Emergencies;

(g) maintain or arrange for Black Start Capability for a portion of its Capacity Resources at least equal to that approved from time-to-time by the Reliability Committee.

**9.2 Generator Planned Outage Scheduling.** Each Party shall develop, or cause to be developed, its schedules of planned outages of its Capacity Resources. Such schedules of planned outages shall be submitted to the Office of the Interconnection for coordination with the schedules of planned outages of other Parties and anticipated transmission planned outages.

**9.3 Data Submissions.** As directed by the Reliability Committee, each Party shall submit the data and other information necessary for the performance of this Agreement, including its plans for the addition, modification and removal of Capacity Resources, its load forecasts, and such other data set forth in Schedule 12.

**9.4 Charges for Failures to Comply.** (a) An emergency procedure charge, as set forth in Schedule 14, shall be imposed on any Party that fails to comply with the directions of the Office of the Interconnection pursuant to Section 9.1(f).

(b) A data submission charge, as set forth in Schedule 13, shall be imposed on any Party that fails to submit the data, plans or other information required by this Agreement in a timely or accurate manner as provided in Schedule 12.

**9.5 Metering.** Each Party shall comply with the metering standards for the PJM Control Area, as set forth in the PJM Manuals.

## ARTICLE 10 -- SHARED COSTS

**10.1 Recording and Audit of Costs.** (a) Any costs related to the performance of this Agreement that the Reliability Committee determines are to be shared by the Parties shall be documented and recorded in a manner acceptable to the Parties.

(b) The Reliability Committee may require an audit of such costs; provided, however, the cost records shall be available for audit by any Party, at the sole expense of such Party, for 36 months following the end of the Planning Period in which the costs were incurred.

**10.2 Cost Responsibility.** Unless otherwise agreed by the Reliability Committee, each Party shall be responsible for a portion of any costs to be shared by the Parties so that (i) each Party bears 0.5% of those costs and (ii) the remainder of the costs is borne in proportion to the Weighted Votes of the Parties for the billing month.

## ARTICLE 11 -- BILLING AND PAYMENT

**11.1 Periodic Billing.** At the direction of the Reliability Committee, each Party shall receive a statement periodically setting forth (i) any amounts due from or to that Party as a result of any charges imposed pursuant to this Agreement and (ii) that Party's share of any costs allocated to that Party pursuant to Article 10. To the extent practical, such statements are to be coordinated with any billings or statements required pursuant to the Operating Agreement or PJM Tariff.

**11.2 Payment.** The payment terms and conditions shall be as set forth in the billing statement and shall, to the extent practicable, be the same as those then in effect under the PJM Tariff.

**11.3 Failure to Pay.** If any Party fails to pay its share of the costs allocated pursuant to Article 10, those unpaid costs shall be allocated to and paid by the other Parties hereto based on their Weighted Votes for the billing month. The Reliability Committee shall enforce collection of a Party's share of the costs.

## ARTICLE 12 -- INDEMNIFICATION AND LIMITATION OF LIABILITIES

**12.1 Indemnification.** (a) Each Party agrees to indemnify and hold harmless each of the other Parties, its officers, directors, employees or agents (other than PJM Interconnection, L.L.C., its board or the Office of the Interconnection) for all actions, claims, demands, costs, damages and liabilities asserted by third parties against the Party seeking indemnification and arising out of or relating to acts or omissions in connection with this Agreement of the Party from which indemnification is sought, except (i) to the extent that such liabilities result from the willful misconduct of the Party seeking indemnification and (ii) that each Party shall be responsible for all claims of its own employees, agents and servants growing out of any workmen's compensation law.

(b) The amount of any indemnity payment under this Section 12.1 shall be reduced (including, without limitation, retroactively) by any insurance proceeds or other amounts actually recovered by the Party seeking indemnification in respect of the indemnified actions, claims, demands, costs, damages or liabilities. If any Party shall have received an indemnity payment in respect of an indemnified action, claim, demand, cost, damage, or liability and shall subsequently actually receive insurance proceeds or other amounts in respect of such action, claim, demand, cost, damage, or liability, then such Party shall pay to the Party that made such indemnity payment the lesser of the amount of such insurance proceeds or other amounts actually received and retained or the net amount of the indemnity payments actually received previously.

**12.2 Limitations on Liability.** No Party will be liable to another Party for any claim for indirect, incidental, special or consequential damage or loss of the other Party including, but not limited to, loss of profits or revenues, cost of capital or financing, loss of goodwill and cost of replacement power arising from such Party's carrying out, or failure to

carry out, any obligations contemplated by this Agreement; provided, however, nothing herein shall be deemed to reduce or limit the obligation of any Party with respect to the claims of persons or entities not a party to this Agreement.

**12.3 Insurance**. Each Party shall obtain and maintain in force such insurance as is required of Load Serving Entities by the states in which it is doing business within the PJM Control Area.

## ARTICLE 13 -- SUCCESSORS AND ASSIGNS

**13.1 Binding Rights and Obligations**. The rights and obligations created by this Agreement and all Schedules and supplements thereto shall inure to and bind the successors and assigns of the Parties; provided, however, no Party may assign its rights or obligations under this Agreement without the written consent of the Reliability Committee unless the assignee concurrently becomes the Load Serving Entity with regard to the end-users previously served by the assignor.

**13.2 Consequences of Assignment**. Upon the assignment of all of its rights and obligations hereunder to a successor consistent with the provisions of Section 13.1, the assignor shall be deemed to have withdrawn from this Agreement

## ARTICLE 14 -- NOTICE

Except as otherwise expressly provided herein, any notice required hereunder shall be in writing and shall be sent: overnight courier, hand delivery, telecopy or other reliable electronic means to the representative on the Reliability Committee of such Party at the address for such Party previously provided by such Party to the other Parties, or as otherwise directed by the Reliability Committee. Any notice shall be deemed to have been given (i) upon delivery if given by overnight courier, hand delivery or certified mail or (ii) upon confirmation if given by facsimile or other reliable electronic means.

## ARTICLE 15 -- REPRESENTATIONS AND WARRANTIES

**15.1 Representations and Warranties at Effective Date**. Each Party represents and warrants to the other Parties that, as of the date it becomes a Party:

(a) the Party is duly organized, validly existing and in good standing under the laws of the jurisdiction where organized;

(b) the execution and delivery by the Party of this Agreement and the performance of its obligations hereunder have been duly and validly authorized by all requisite action on the part of the Party and do not conflict with any applicable law or with any other agreement binding upon the Party. The Agreement has been duly executed and delivered by the Party, and this Agreement constitutes the legal, valid and binding obligation of the Party enforceable against it in accordance with its terms except insofar as the enforceability thereof

may be limited by applicable bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws affecting the enforcement of creditor's rights generally and by general principles of equity regardless of whether such principles are considered in a proceeding at law or in equity; and

(c) there are no actions at law, suits in equity, proceedings or claims pending or, to the knowledge of the Party, threatened against the Party before or by any federal, state, foreign or local court, tribunal or governmental agency or authority that might materially delay, prevent or hinder the performance by the Party of its obligations hereunder.

**15.2 Continuing Representations and Warranties.** Each Party represents and warrants to the other Parties that throughout the term of this Agreement:

(a) the Party is a Load Serving Entity;

(b) the Party satisfies the requirements of Schedule 2;

(c) the Party is a member or associate member of MAAC;

(d) the Party is a signatory, or its principals are signatories, to the agreements set forth in Schedule 3;

(e) the Party is in good standing in the jurisdiction where incorporated; and

(f) the Party will endeavor in good faith to obtain any corporate or regulatory authority necessary to allow the Party to fulfill its obligations hereunder.

## ARTICLE 16 -- OTHER MATTERS

**16.1 Relationship of the Parties.** This Agreement shall not be interpreted or construed to create any association, joint venture, or partnership between or among the Parties or to impose any partnership obligation or partnership liability upon any Party.

**16.2 Governing Law.** This Agreement shall be interpreted, construed and governed by the laws of the State of Delaware.

**16.3 Severability.** Each provision of this Agreement shall be considered severable and if for any reason any provision is determined by a court or regulatory authority of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions of this Agreement shall continue in full force and effect and shall in no way be affected, impaired or invalidated, and such invalid, void or unenforceable provision shall be replaced with valid and enforceable provision or provisions which otherwise give effect to the original intent of the *invalid, void* or unenforceable provision.

**16.4 Amendment.** This Agreement may be amended by action of the Reliability Committee as specified in Section 6.4.1, or by written agreement of all Parties not in default at the time the amendment is agreed upon. Notwithstanding the foregoing, an Applicant eligible to become a Party in accordance with the procedures set forth in Article 4 shall become a Party by executing a counterpart of this Agreement without the need for execution of such counterpart by any other Party. If and as necessary, the Reliability Committee may file with FERC any amendment to this Agreement.

**16.5 Headings**. The article and section headings used in this Agreement are for convenience only and shall not affect the construction or interpretation of any of the provisions of this Agreement.

**16.6 Confidentiality**. (a) No Party shall have a right hereunder to receive or review any documents, data or other information of another Party, including documents, data or other information provided to the Office of the Interconnection, to the extent such documents, data or information have been designated as confidential pursuant to the procedures adopted by the Office of the Interconnection or to the extent that they have been designated as confidential by another Party; provided, however, a Party may receive and review any composite documents, data and other information that may be developed based on such confidential documents, data or information if the composite document does not disclose any individual Party's confidential data or information.

(b) Notwithstanding anything in this Section to the contrary, if a Party is required by applicable laws, or in the course of administrative or judicial proceedings, to disclose information that is otherwise required to be maintained in confidence pursuant to this Section, that Party may make disclosure of such information; provided, however, that as soon as the Party learns of the disclosure requirement and prior to making disclosure, that Party shall notify the affected Party or Parties of the requirement and the terms thereof and the affected Party or Parties may direct, at their sole discretion and cost, any challenge to or defense against the disclosure requirement and the Party shall cooperate with such affected Parties to the maximum extent practicable to minimize the disclosure of the information consistent with applicable law. Each Party shall cooperate with the affected Parties to obtain proprietary or confidential treatment of such information by the person to whom such information is disclosed prior to any such disclosure.

(c) The Reliability Committee shall endeavor to impose on any contractors retained to provide technical support or to otherwise assist with the administration of this Agreement a contractual duty of confidentiality that is consistent with this Section.

**16.7 Counterparts**. This Agreement may be executed in any number of counterparts, each of which shall be an original but all of which together will constitute one instrument, binding upon all parties hereto, notwithstanding that all of such parties may not have executed the same counterpart.

**16.8 No Implied Waivers**. The failure of a Party or the Reliability Committee to insist upon or enforce strict performance of any of the provisions of this Agreement shall not be construed as a waiver or relinquishment to any extent of such Party's or the Reliability Committee's right to assert or rely upon any such provisions, rights and remedies in that or any other instance; rather, the same shall be and remain in full force and effect.

**16.9 No Third Party Beneficiaries**. This Agreement is intended to be solely for the benefit of the Parties and their respective successors and permitted assigns and is not intended to and shall not confer any rights or benefits on any third party not a signatory hereto.

**16.10 Dispute Resolution**. Except as otherwise specifically provided in the Operating Agreement, disputes arising under this Agreement shall be subject to the dispute resolution provisions of the Operating Agreement.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

[Signatures]

## SCHEDULE 1

## PROCEDURES TO BECOME A PARTY

### A. Notice

Any entity that is or will become a Load Serving Entity within the PJM Control Area and thus a Party to the Reliability Assurance Agreement shall submit a notice to the Office of the Interconnection together with (i) its representation that it has satisfied or will (prior to the date the Reliability Assurance Agreement is to become effective as to that entity) satisfy the requirements to become a Party, (ii) all data required to coordinate planning and operations within the PJM Control Area, including the data specified in Schedule 1.1, as applicable, in a format defined in the PJM Manuals and (iii) a deposit in an amount to be specified that will be applied toward the costs of the required analysis.

The required notice, representations, data and deposit must be submitted in sufficient time to conduct an analysis of the data submitted and to adjust the obligations of the Parties for the month in which the entity desires to become a Party:

- If the then existing boundaries of the PJM Control Area would be expanded by an entity becoming a Party, that entity shall submit the required notice, representation, data and deposit as far in advance as possible but in no event shall that entity be required to make that submission more than 28 months before the beginning of the Planning Period in which its load is to be included within the PJM Control Area.

- If an entity will serve load within the then existing boundaries of the PJM Control Area, that entity shall submit the required notice, representations, data and deposit as soon as possible prior to the month (i) in which is to begin serving loads within the PJM Control Area or (ii) in which any agency relationship through the entity's obligations under this Agreement had been satisfied is terminated; provided, however, that such submission shall not be required sooner than any request for Network Transmission Service or any change in the designation of Network Resources and loads under the PJM Open Access Tariff associated with providing service to those loads.

### B. Analysis of Data

The notice, representations and data submitted to the Office of the Interconnection are to be analyzed in accordance with procedures consistent with this Agreement and the encouragement of reliable operation of the PJM Control Area.

## C. Response

Upon completion of the analysis, the Office of the Interconnection will inform the entity of (a) the estimated costs and expenses associated with modifications to communication, computer and other facilities and procedures, including any filing fees, needed to include the entity as a Party, (b) the entity's share of any costs pursuant to Article 10, and (c) the earliest date upon which the entity could become a Party. In addition, a counterpart of the Agreement shall be forwarded for execution.

## D. Agreement by New Party

After receipt of the response from the Office of the Interconnection, the entity shall identify its representative to the Reliability Committee and execute the counterpart of the Agreement, indicating the desired effective date; provided, however, such effective date shall be the first day of a month, may be no earlier than the date indicated in the response from the Office of the Interconnection and shall be no later than (i) the date on which the entity begins serving loads within the PJM Control Area or (ii) the termination date of any agency relationship through which its obligations under this Agreement had been satisfied. The executed counterpart of the Agreement, together with payment of its share of any costs then due, shall be returned as directed by the Office of the Interconnection.

## SCHEDULE 1.1

## DATA REQUIREMENTS

To the extent the data set forth herein is already available to the Office of the Interconnection or is inapplicable to a Party or potential new party (*e.g.*, data that relates to transmission characteristics would not be required if an entity does not own transmission facilities), such data need not be submitted.

A. Data for all Generating Units to be Nominated as a Capacity Resource

1. Unit Name
2. Summer and Winter Capacity Ratings
3. Unit Ownership and Operator
4. Unit Geographical Location
5. Unit In-Service date
6. Unit Type (*e.g.*, steam, CT, hydro)
7. Unit Fuel Type (*e.g.*, coal, oil, gas, hydro)
8. Unit Outage Data (in accordance with the PJM Manuals)
9. Unit Projected Ten-Year Maintenance Schedule

B. Data for all Capacity Resource Transactions

1. Specific Unit(s)
   - (a) All data specified in "A" above
   - (b) Start and end dates of transactions
2. Slice-of-System
   - (a) Identity of selling parties
   - (b) Monthly/weekly/daily magnitudes of transaction
   - (c) Start and end dates of transactions

(d) Average forced outage rate of selling party

(e) Average unit size of selling party

(f) Projected peak load of selling party

3. Deliverability Information

(a) Demonstration that the installed capacity transaction is for firm deliveries, including the portion of the underlying purchase agreement that addresses transmission and the firmness of the purchase

(b) Demonstration that capacity from sources located outside of the metered boundaries of the PJM Control Area is deliverable to the PJM Control Area (including any underlying transmission tariff or agreement) via firm transmission service

C. Active Load Management (ALM)

1. Megawatt value of load reduction of active load management programs to be nominated for inclusion in installed capacity accounting

2. Demonstration of compliance with provisions of Schedule 5.3 of the Agreement

D. Load Data

1. Load history, including hourly loads for the most recent seven years

2. Load forecasts for seasonal peak loads based on a 50 percent probability of exceeding (or not exceeding) in the same season for a 10 year period

E. System Data

1. A file containing the load flow representation of the new Party's transmission system in a common industry format modeled in sufficient detail to permit a detailed analysis of the impact of the new Party on the Parties to the Agreement. The data should include (but not be limited to) the modeling of:

(a) All circuits considered to be transmission facilities by the new Party

(i) circuit impedances

(ii) summer and winter, normal and emergency (4-hour) ratings

(iii) circuit charging

(b) All transformers connecting the above transmission circuits

(i) transformer impedances

(ii) summer and winter, normal and emergency (4-hour) ratings

(iii) transformer tap range (note if fixed tap)

(iv) regulated bus and voltage (if regulating transformer)

(c) All buses associated with the circuits and transformers included above

(i) bus name

(ii) bus voltage

(iii) peak bus load (MW and MVAR)

(iv) bus capacitors (static and switched)

(d) All generating facilities located within the system

(i) generator summer and winter net MW rating

(ii) range of reactive capability

(iii) regulated bus and voltage (if generator regulates)

(e) All other facilities that have a potential impact on the bulk transmission system (such as SVCs, FACTS devices)

2. A file containing the dynamic representation of the new Party's generators in a common industry format modeled in sufficient detail to permit a detailed analysis of the impact of the new Party on the stability of the systems of the Parties to the Agreement. The data should include (but not be limited to) the modeling of:

(a) Machine rotors

(b) Exciters

(c) Governors

## SCHEDULE 2

## STANDARDS FOR INTERCONNECTIONS

A. The following standards will be applied by the Office of the Interconnection to determine the eligibility of an entity to become a part of the PJM Control Area. For an entity to be integrated into the PJM Control Area it must possess generation and transmission attributes that would enable the entity to share its reserves with other entities in the PJM Control Area. Appropriate transmission and reliability studies are to be performed to determine the adequate transmission capability necessary to integrate the entity into the PJM Control Area consistent with Good Utility Practice.

B. In addition, the entity shall meet the following requirements to be included in the PJM Control Area:

1. All load, generation and transmission operating as part of the PJM Control Area's interconnected system must be included within the metered boundaries of the PJM Control Area.

2. The entity will accept and comply with the PJM Control Area's standards with respect to system design, equipment ratings, operating practices and maintenance practices as set forth in the PJM Manuals so that sufficient electrical equipment, control capability, information and communication are available to the Office of the Interconnection for planning and operation of the PJM Control Area.

3. The load, generation and transmission facilities of each entity shall be included in the telemetry to a Control Area with a 24-hour control center. Each system operator in these control centers must be trained and delegated sufficient authority to take any action necessary to assure that the system for which the operator is responsible is operated in a stable and reliable manner.

4. Each entity must have compatible operational communication mechanisms, maintained at its expense, to interact with the Office of the Interconnection and for internal requirements.

5. Each entity must assure the continued compatibility of its local system energy management system monitoring and telecommunications systems to satisfy the technical requirements of interacting with the Office of the Interconnection as it directs the operation of the PJM Control Area.

## SCHEDULE 3

## OTHER AGREEMENTS TO BE EXECUTED BY THE PARTIES

- Any agreement for Network Transmission Service that is required under the PJM Tariff for service consistent with the requirements of Section 9.1(d); and

- The Operating Agreement.

## SCHEDULE 4

## GUIDELINES FOR DETERMINING THE FORECAST POOL REQUIREMENT

### A. Objective Of The Forecast Pool Requirement

The Forecast Pool Requirement shall be determined for the specified Planning Periods to establish the level of Capacity Resources and ALM that will provide an acceptable level of reliability consistent with the Reliability Principles and Standards.

### B. Forecast Pool Requirement To Be Determined Annually

Two years in advance for each Planning Period based on the projections described in section C of this Schedule, the Reliability Committee shall establish the Forecast Pool Requirements for the Parties annually before April 30. Subject to the provisions of Section 7.1(c) or unless otherwise agreed by the Reliability Committee, the Forecast Pool Requirement for each of the next three full Planning Periods following such annual determination shall be considered firm and not subject to redetermination thereafter.

### C. Methodology

Each year, the Forecast Pool Requirement for at least each of the next five Planning Periods shall be projected by applying suitable probability methods to the data and forecasts provided by the Parties and obtained from Electric Distributors, as described in Schedule 12 and in the PJM Manuals. The projection of the Forecast Pool Requirements shall consider the following data and forecasts as necessary:

1. Seasonal peak load forecasts for each Planning Period as provided by each Party pursuant to Schedule 5.1 reflecting (a) load forecasts with a 50 percent probability of being too high or too low and (b) summer peak diversities determined at the direction of the Reliability Committee from recent experience.

2. Forecasts of aggregate seasonal load shape of the Parties which are consistent with forecast averages of 52 weekly peak loads prepared by the Parties and obtained from Electric Distributors for their respective systems.

3. Variability of loads within each week, due to weather and other recurring and random factors, as determined at the direction of the Reliability Committee.

4. Generating unit capability and types for every existing and proposed unit.

5. Generator Forced Outage rates for existing mature generating units, as determined at the direction of the Reliability Committee, based on data

submitted by the Parties for their respective systems, from recent experience, and for immature and proposed units based upon forecast rates related to unit types, capabilities and other pertinent characteristics.

6. Generator Maintenance Outage factors and planned outage schedules as determined at the direction of the Reliability Committee based on forecasts and historical data submitted by the Parties for their respective systems.

7. Miscellaneous adjustments to capacity due to all causes, as determined at the direction of the Reliability Committee, based on forecasts submitted by the Parties for their respective systems.

8. The emergency capacity assistance available as a function of interconnections of the PJM Control Area with other Control Areas, as limited by the capacity benefit margin considered in the determination of available transfer capability and the probable availability of generation in excess of load requirements in such areas.

## D. Capacity Benefit Margin

The capacity benefit margin initially shall be 3,500 megawatts. Periodically, in consultation with the Reliability Committee, the Office of the Interconnection shall review and modify, if necessary, the capacity benefit margin to balance external emergency capacity assistance and internal installed capacity reserves so as to minimize the total cost of the capacity reserves of the Parties, consistent with the Reliability Principles and Standards. The Reliability Committee will reflect such modification prospectively in its determination of the Forecast Pool Requirement for future Planning Periods.

## SCHEDULE 4.1

## DETERMINATION OF UNFORCED CAPACITY REQUIREMENT

A. The Forecast Pool Requirement ("FPR") shall be determined in accordance with Schedule 4.

B. The PJM Control Area equivalent demand forced outage rate ("$EFOR_D$") shall be determined as the capacity weighted $EFOR_D$ for all units expected to serve loads within the PJM Control Area as determined pursuant to Schedule 5.2.

C. The PJM Control Area unforced capacity requirement ("UCR") shall be determined as: $UCR = FPR * (1 - EFOR_D)$.

D. The PJM Control Area reserve requirement ("R") in percent shall be determined as: R = [(UCR/Peak of the PJM Control Area) - 1] * 100.

## SCHEDULE 5

## DETERMINATION OF FORECAST REQUIREMENTS AND OBLIGATIONS

A. The Forecast Pool Requirement shall be allocated to the Parties in accordance with this schedule.

B. **Transition To Pool-Wide Choice.**

1. For Planning Periods through May 31, 1999, the Forecast LSE Obligation of a Party shall be as set forth in Section 7.1(d).

2. For the transition period from June 1, 1999 until the Pool-Wide Choice Date, the Forecast Pool Requirement shall be allocated first to the Zones specified in Schedule 16, and then, the Forecast LSE Obligation shall be calculated for each Load Serving Entity serving load in a Zone pursuant to section C below. Zones shall not be subdivided, but may be combined at the election of the Parties serving at least 80% of the loads in each Zone combined. In furtherance of the transition to pool-wide allocation, combined Zones shall remain combined until the Pool-Wide Choice Date.

3. The Forecast LSE Obligations of the Parties shall be calculated on a pool-wide, load-ratio-share basis pursuant to section D below after the Pool-Wide Choice Date.

C. **Prior to Pool-Wide Choice Date.** For any Planning Period after May 31, 1999 but before the Pool-Wide Choice Date, the Forecast LSE Obligation of a Party shall be calculated as set forth in this section C.

1. The Forecast Pool Requirement for each Planning Period shall be as established by the Reliability Committee pursuant to Schedule 4.

2. Annually, two years in advance of each Planning Period, the Forecast Pool Requirement shall be allocated to each Zone within the PJM Control Area, as follows:

$$\textit{Forecast Zone Requirement} = P \times \left(1 + \frac{R}{100}\right)$$

Where:

P = the forecast Diversified Planning Period Peak of the Zone, in megawatts, determined in accordance with *Schedule 5.1 hereof;*

R = the margin of the Forecast Pool Requirement for the Planning Period over the forecast Planning Period peak of the PJM Control Area, in percent of such Planning Period peak as stated in terms of Unforced Capacity, determined in accordance with Schedule 4.1 hereof.

3. Annually, two years in advance of each Planning Period, the forecast Diversified Planning Period Peak of each Zone shall be allocated between (a) the portion with choice of suppliers including (i) that retail load anticipated to be eligible to participate in a state-administered retail access program and (ii) that wholesale load for which there is no contractual commitment ("Access-Eligible Load") and (b) that portion without choice of suppliers throughout the relevant Planning Period ("Sole-Supplier Load").

4. Annually, two years in advance of each Planning Period, the Forecast Zone Requirement determined in C.2 above shall be allocated between the Access-Eligible Load and the Sole-Supplier Load.

5. Annually, two years in advance of each Planning Period, the portion of the Forecast Zone Requirement allocated to the Sole-Supplier Load in a Zone, determined in C. 4 above, shall be further allocated to the Load Serving Entities with responsibility for serving that Sole-Supplier Load in proportion to their load forecasts and the provisions of Schedule 6 shall apply to those Load Serving Entities.

6. Three months (or such shorter time period consistent with the ability of the Office of the Interconnection to evaluate requests for Network Transmission Service or the designation of Network Resources) prior to each month during the Planning Period, the portion of the Forecast Zone Requirement allocated to the Access-Eligible Load in a Zone for that Planning Period shall be further allocated to the Load Serving Entities with responsibility for serving that Access-Eligible Load in proportion to their most recent monthly peak load forecasts and the provisions of Schedule 6 shall apply to those Load Serving Entities.

7. A Party's Forecast LSE Obligation shall be the sum of (a) its allocation of the Forecast Zone Requirement related to Sole-Supplier Load and (b) its allocation of the Forecast Zone Requirement related to Access-Eligible Load.

8. In the event responsibility for serving an Identifiable Load amounting to more than one percent of a Party's allocated Sole-Supplier Load for purposes of Schedule 6 is reassigned from that Party to another Party after the Forecast Zone Requirements are set and allocated for a specific Planning Period, the affected Parties may request the Reliability Committee to transfer the Forecast LSE Obligation equal to the Forecast LSE Obligation originally associated with

the Identifiable Load to the Forecast LSE Obligation of the Party accepting assignment of the responsibility for serving the Identifiable Load; provided, however, the Party accepting assignment of the responsibility for serving the Identifiable Load shall identify planned Capacity Resources to meet the increase in its Forecast LSE Obligation. If the Reliability Committee determines that a reassignment of responsibility for serving the Identifiable Load has occurred, the transfer of the Forecast LSE Obligation shall be approved.

9. If a Party (i) loses an Identifiable Load accounting for more than one percent of such Party's allocated Sole-Supplier Load for purposes of Schedule 6 or (ii) more than one percent of the Sole-Supplier Load becomes Access-Eligible Load for purposes of Schedule 6, then that Party may request the Reliability Committee to reduce its obligations under Schedule 6 equal to the obligation originally assigned to that load. If the Reliability Committee determines that the change does not affect the reliability of the PJM Control Area, the reduction in the requesting Party's obligations shall be approved.

D. **After Pool-Wide Choice Date**. For each month following the Pool-Wide Choice Date, the Forecast LSE Obligation of a Party shall be calculated as set forth in this section D.

1. The Forecast Pool Requirement for each Planning Period shall be as established by the Reliability Committee pursuant to Schedule 4.

2. Three months (or such shorter time period consistent with the ability of the Office of the Interconnection to evaluate requests for Network Transmission Service or the designation of Network Resources) prior to each month during a Planning Period, the Forecast Pool Requirement shall be allocated in proportion to the then most recent monthly peak load forecasts of the Load Serving Entities with responsibility for serving the loads within the PJM Control Area during that up-coming month and the provisions of Schedule 6 shall apply to those Load Serving Entities.

3. A Party's Forecast LSE Obligation shall be its allocation of the Forecast Pool Requirement.

E. It is recognized that changing conditions and improvements in techniques may require from time to time the addition of other factors in the above equation and the revision or deletion of factors currently included therein. If, in the opinion of a Party, any such change is required, such Party shall request that the Reliability Committee have the matter studied and a recommendation made. Upon approval of a change by the Reliability Committee, this schedule and related subschedules shall be appropriately revised and supplemented and shall thereupon be made effective.

## SCHEDULE 5.1

## FORECAST DIVERSIFIED PLANNING PERIOD PEAKS (P)

**Prior to the Pool-Wide Choice Date**:

A. The forecast Diversified Planning Period Peaks of the Zones (P) shall be determined in accordance with this schedule so long as the coincident forecast Planning Period peak of the Parties is a summer peak.

B. For the purposes of this schedule, the forecast maximum one hour load of a Zone during the period June through September of a Planning Period shall be its summer peak, and the forecast maximum one hour load of a Zone during the period December through March of the Planning Period shall be its winter peak, each of which is reduced by the ALM credit determined pursuant to Schedule 5.3.

C. In a Planning Period each Zone shall be classified as either a summer peaking system or a winter peaking system. In the determination of such classification, the winter peak of each Zone shall be reduced by the excess of the total capability of the Capacity Resources designated to satisfy the obligations of the Parties related to the Zone under winter operating conditions over the total capability of those Capacity Resources under summer operating conditions. For the purpose of this schedule, such total capabilities shall be defined as the respective net capabilities of its Capacity Resources planned to be in service as of December 1. A Zone having a summer peak which exceeds its winter peak so reduced shall be classified as a summer peaking system, and its Planning Period peak shall be equal to such summer peak. A Zone which has a winter peak so reduced which exceeds its summer peak shall be classified as a winter peaking system. The Planning Period peak of a winter peaking system shall be equal to the average of (i) its reduced winter peak for the Planning Period and (ii) the greater of its summer peak for the Planning Period or its reduced winter peak for the Planning Period immediately preceding.

D. The forecast Diversified Planning Period Peak of a Zone shall be its Planning Period peak as defined herein reduced by the sum of: (1) its Planning Period peak diversity entitlement, as described in paragraph E and (2) its summer peak diversity entitlement, as described in paragraph F of this Schedule 5.1.

E. The Planning Period peak diversity entitlement of a winter peaking system shall be one half the difference between its Planning Period peak and its summer peak. The Planning Period peak diversity entitlement of a summer peaking system shall be the ratio of the difference between the summer peak load and the reduced winter peak load to the sum of such differences for all the summer peaking systems multiplied by the sum of the Planning Period peak diversity entitlements of the winter peaking systems. In the event that the total of the Planning Period peak diversity entitlements

of all Zones so determined exceeds the sum of the differences between the summer peaks and reduced winter peaks of the summer peaking systems, such entitlements shall be proportionately reduced to equal in total such lower sum.

F. The summer peak diversity entitlement of a Zone shall be the ratio of its summer peak to the sum of the summer peaks of all Zones multiplied by the difference between such sum of summer peaks and the coincident forecast Planning Period peak of all of the Zones.

**After The Pool-Wide Choice Date**: The Schedule will not be applicable.

## SCHEDULE 5.2

## FORCED OUTAGE RATE CALCULATION

A. The equivalent demand forced outage rate ("$EFOR_D$") shall be calculated as defined in the PJM Manuals.

B. **Calculation of average $EFOR_D$ for Forecast Unforced Capacity Requirements and Obligations**

The forecast average $EFOR_D$ in a Planning Period shall be the average of the forced outage rates, weighted for unit capability and expected time in service, attributable to all of the Capacity Resources of the Parties serving load within the PJM Control Area that are planned to be in service including Capacity Resources purchased from specified units and excluding Capacity Resources sold outside the PJM Control Area from specified units. Such rate shall also include (i) an adjustment, if any, for capacity unavailable due to energy limitations determined in accordance with definitions and criteria approved by the Reliability Committee and (ii) any other adjustments authorized by the Reliability Committee to adjust the parameters of a designated unit when such parameters are or will be used to determine a future PJM Control Area reserve requirement and such adjustment is required to more accurately predict the future performance of such unit in light of extraordinary circumstances. For the purposes of this Schedule, the average $EFOR_D$ shall be the average of the capacity-weighted $EFOR_D$s of all units committed to serve load in the PJM Control Area. All rates shall be in percent.

1. The $EFOR_D$ of a unit not yet in service or which has been in service less than one full calendar year at the time of forecast shall be the class average rate for units with that capability and of that type, as estimated and used in the calculation of the Forecast Pool Requirement.

2. The $EFOR_D$ of a unit in service three or more full calendar years at the time of forecast shall be the average rate experienced by such unit during the three most recent calendar years. Historical data shall be based on official reports of the Parties under rules and practices approved by the Reliability Committee.

3. The $EFOR_D$ of a unit in service at least one full calendar year but less than three full calendar years at the time of the forecast shall be determined as follows:

| Full Calendar Years of Service | |
|---|---|
| 1 | One-third the rate experienced during the calendar year, plus two-thirds the class average rate. |
| 2 | Two-thirds the average rate experienced during the two calendar years, plus one-third the class average rate. |

C. **Calculations of average $EFOR_D$ for Accounted-For Obligations for Unforced Capacity**

The average $EFOR_D$ used to determine a Load Serving Entity's ability to meet its Accounted-For Obligation for Unforced Capacity in a month shall be the average of the forced outage rates, weighted for unit capability, calculated on a twelve-month rolling average basis, attributable to all of the generating units of the Load Serving Entity committed to serve load within the Zone. These resources include Capacity Resources purchased from specified units and exclude Capacity Resources sold from specified units. Such rate shall also include (i) an adjustment, if any, for capacity unavailable due to energy limitations determined in accordance with definitions and criteria approved by the Reliability Committee and (ii) any other adjustments authorized by the Reliability Committee to adjust the parameters of a designated unit.

1. The $EFOR_D$ of a unit in service twelve or more full calendar months prior to the calculation month shall be the average rate experienced by such unit during the twelve most recent calendar months, allowing for up to a two month period to collect data and calculate rates. Historical data shall be based on official reports of the Parties under rules and practices approved by the Reliability Committee.

2. The $EFOR_D$ of a unit in service at least one full calendar month but less than twelve full calendar months prior to the calculation month shall be the average of the actual $EFOR_D$ experienced by the unit weighted by full months of service, and the class average rate for units with that capability and of that type weighted by twelve minus months of service, allowing for up to a two month period to collect data and calculate rates. Historical data shall be based on official reports of the Parties under rules and practices approved by the Reliability Committee.

## SCHEDULE 5.3

## PROCEDURES FOR THE ACTIVE LOAD MANAGEMENT CREDIT

A. Parties can receive an adjustment to their Forecast LSE Obligation and Accounted-For Obligation through the appropriate adjustment to load for ALM that is operated under the direction of the Office of the Interconnection, to be called upon prior to voltage reduction. ALM must satisfy the following criteria for a Party to receive an adjustment to its obligations.

1. A Party must formally notify the Office of the Interconnection of the ALM that it is placing under the direction of the Office of the Interconnection.

2. The initiation of load interruption, upon the request of the Office of the Interconnection, must be within the authority of the dispatchers of the Party. No additional approvals should be required.

3. A period of no more than 2 hours prior notification must apply to interruptible customers.

4. The initiation of ALM upon the request of the Office of the Interconnection is considered an emergency action and will be implemented prior to a voltage reduction.

5. A Party must agree to reserve, for interruption at the direction of the Office of the Interconnection, at least 10 interruptions per Planning Period in order to receive ALM credit.

6. A Party must agree to reserve interruptions of at least 6-hour durations. ALM should, as a minimum, be available for interruption on weekdays during the 6 hour period of a day within the 8 hour daily peak window for the appropriate season. There will be no credit given to Parties who choose to provide interruption less than 6 hours and/or exclusive of the above time period.

7. The sum of the ALM that meets the above criteria for credit purposes will be defined as the Party's allowable ALM. Such sum shall be limited to a percentage share for each Party to be determined by the Reliability Committee recognizing an allowable overall level of ALM for the PJM Control Area.

B. All other interruptible load not meeting the minimum requirements for active load management may nevertheless be treated by a Party as a reduction of its forecast load as used to determine its Forecast LSE Obligation pursuant to Schedule 5. The Accounted-For Obligation of the Party, however, will be determined pursuant to

Schedule 7 based on the actual load of the Party, reflecting only the actual interruption of loads at the time of the peak load in the PJM Control Area.

C. A Party's ALM credit value will be determined using the PJM ALM factor. The PJM ALM factor is the increase in the peak load carrying capability in the PJM Control Area due to ALM for the PJM Control Area divided by the total nominal amount of ALM in the PJM Control Area. The PJM ALM factor will be determined using an analytical program that uses a probablistic approach to determine reliability. The determination of the PJM ALM factor will consider the reliability of the active load management, the number of interruptions, and the total amount of active load management. The detailed procedures used for calculating the PJM ALM factor shall be set forth in writing and made available to the Parties.

D. The ALM credit value for the individual Parties shall be calculated using the following formula:

ALM Credit = (Megawatt Value of Party's ALM) X (ALM Factor)

This credit shall be used as an adjustment to load.

E. The Parties need to demonstrate that their ALM performed during periods when load management procedures were invoked by the Office of the Interconnection. The Reliability Committee shall adopt and maintain rules and procedures for verifying the performance of ALM.

F. Determining the ALM credit for adjusting the Accounted-For Obligation shall be in accordance with verification and compliance procedures defined in the PJM Manuals.

G. For recognizing new ALM in adjusting the Accounted-For Obligation, Parties can receive credit for ALM programs added or changed subsequent to fixing the planning period through use of the same assumptions used in determining the forecast ALM credits.

## SCHEDULE 6

## PLANS TO MEET CAPACITY OBLIGATIONS

A. Each Party shall submit to the Reliability Committee its plans for satisfying its Forecast LSE Obligation as determined pursuant to Schedule 5, through:

1. Capacity Resources, including

   (a) installation of generating resources or

   (b) purchases.

2. Such other adjustments as may be approved by the Reliability Committee.

Prior to the Pool-Wide Choice Date, each Party must submit its plans (or revisions to plans submitted previously) to install or contract for sufficient Capacity Resources (i) to satisfy the portion of its Forecast LSE Obligation associated Sole-Supplier Loads 24 months prior to each Planning Period and (ii) to satisfy the portion of its Forecast LSE Obligation associated with Access-Eligible Loads three months (or such shorter time period consistent with the ability of the Office of the Interconnection to evaluate requests for Network Transmission Service or the designation of Network Resources) prior to each month in a Planning Period.

After the Pool-Wide Choice Date, each Party must submit its plans (or revisions to plans submitted previously) to install or contract for sufficient Capacity Resources to satisfy its Forecast LSE Obligation three months (or such shorter time period consistent with the ability of the Office of the Interconnection to evaluate requests for Network Transmission Service or the designation of Network Resources) prior to each month in a Planning Period.

B. Capacity Resources planned to be installed or purchased by a Party may be used to satisfy its Forecast LSE Obligation only after the date on which such capacity is scheduled to be in service. The plans of each Party shall also indicate the nature and current status of commitments with respect to each addition, retirement and sale or purchase of capacity included in its plans. The Reliability Committee will review the adequacy of the submittals hereunder both as to timing and content.

C. Unless otherwise agreed by the Reliability Committee, the plans submitted by each Party under paragraph A for a Planning Period shall be considered a firm commitment as to the total amount of Capacity Resources required. The specific Capacity Resources designated to satisfy that firm commitment may be adjusted at any time; provided, however, no such adjustment may be retroactive and any new Capacity Resource must also be a Network Resource deliverable to loads on a firm basis under the PJM Tariff.

D. If, as a result of its projection of Forecast Pool Requirements, the Reliability Committee determines that the committed and planned Capacity Resources may be inadequate to assure reliability within the PJM Control Area in one or more of those Planning Periods, the Reliability Committee may issue a request for proposals to make available to Parties in the required time-frame the additional amount of installed capacity needed to assure reliability.

## SCHEDULE 7

## DETERMINATION AND FULFILLMENT OF ACCOUNTED-FOR OBLIGATION

A. The Accounted-For Obligation for each Party shall be determined in accordance with this schedule.

B. **Prior to the Pool-Wide Choice Date.** Each Party's Accounted-For Obligation shall be determined pursuant to the provisions of this section B prior to the Pool-Wide Choice Date.

1. For each billing month during a Planning Period, the Forecast Zone Requirement for each Zone, as determined in section C.2 of Schedule 5 for that Planning Period or as adjusted in section B.2 below for a Planning Period, shall be allocated to each Load Serving Entity serving loads within the Zone during that billing month in proportion to the load of the Load Serving Entity as reduced by the ALM credits at the time of the peak load for the PJM Control Area during that month. The amount so allocated shall be the Party's Accounted-For Obligation.

2. In the billing month following the month in which the peak load for the PJM Control Area during the summer period is known:

   (a) The Forecast Zone Requirement of each Zone shall be redetermined by reallocating the Forecast Pool Requirement using the difference between the forecast summer peak for each Zone and the actual load of each Zone at the time of the summer peak of the PJM Control Area. The sum of the revised Forecast Zone Requirements shall be adjusted proportionally to equal the Forecast Pool Requirement for that Planning Period, as established pursuant to Schedule 4.

   (b) The Accounted-For Obligation for a Load Serving Entity during each billing month prior to the determination under B.2(a) above shall be redetermined by allocating the revised Forecast Zone Requirement from B.2(a) to each Load Serving Entity serving loads within the Zone in proportion to the actual load of that Load Serving Entity at the time of the peak load for the PJM Control Area during the billing month in question.

   (c) At the same time the Accounted-For Obligation of a Party is redetermined pursuant to section B.2(b) above, the deficiencies shall be redetermined with the appropriate true-up adjustment being made in the billings for the month when the redeterminations are made.

3. A Party shall be deficient and shall pay the deficiency charge set forth in Schedule 11 if the Party's Unforced Capacity is less than the greater of its Forecast LSE Obligation associated with Sole-Supplier Load or its Accounted-For Obligation. Such deficiencies shall be measured on a day-by-day basis as required by changes in a Party's Unforced Capacity

C. **After the Pool-Wide Choice Date.** Each Party's Accounted-For Obligation shall be determined pursuant to the provisions of this section C after the Pool-Wide Choice Date. For each billing month during a Planning Period, the Forecast Pool Requirement, as determined pursuant to Schedule 4 for that Planning Period, shall be allocated to each Load Serving Entity serving loads within the PJM Control Area during that billing month in proportion to the load of the Load Serving Entity as reduced by the ALM credits at the time of the peak load for the PJM Control Area during that month. The amount so allocated shall be the Party's Accounted-For Obligation. A Party shall be deficient and shall pay the deficiency charge set forth in Schedule 11 if the Party's Unforced Capacity is less than its Accounted-For Obligation. Such deficiencies shall be measured on a day-by-day basis as required by changes in a Party's Unforced Capacity.

## SCHEDULE 8

## PEAK SEASON MAINTENANCE

A. To preserve and maintain the reliability of the PJM Control Area and to recognize the impact of planned outages and maintenance outages during the Peak Season, each Party is obligated to have sufficient Unforced Capacity to satisfy its Accounted-For Obligation plus its Peak Season Maintenance Obligation during the Peak Season.

B. The Peak Season shall be defined to be those weeks containing the 24th through 36th Wednesdays of the calendar year. Each such week shall begin on a Monday and end on the following Sunday, except for the week containing the 36th Wednesday, which shall end on the following Friday.

C. Peak Season Maintenance is defined as planned outages and maintenance outages during the Peak Season.

D. For each day during the Peak Season, the Peak Season Maintenance Obligation of a Party shall be the amount, in megawatts, of that Party's Peak Season Maintenance at the time of the PJM Control Area daily peak, excluding outages for maintenance when released by the Office of the Interconnection for a specified period and other outages as specified by the Reliability Committee from time to time.

E. A Party shall be deficient and shall pay the charge set forth in Schedule 11 if its Unforced Capacity is less than the sum of its Peak Season Maintenance Obligation and its Accounted-For Obligation (as determined pursuant to Schedule 7); provided, however, that a Party shall be considered to be deficient only to the extent of any megawatts of deficiency in excess of the number of megawatts for which such Party already has paid a deficiency charge related to Schedule 7.

F. The Office of the Interconnection may, in accordance with the Operating Agreement and the PJM Manuals, withdraw its approval of a Generator Planned Outage in connection with anticipated implementation or avoidance of Emergency procedures. If this delay in the start of a Generator Planned Outage causes the end of such outage (based on its planned duration at the time of the delay) to be in the Peak Season, there will be no requirement for additional Capacity Resources for the number or Peak Season days equal to the number of days of delay in the start of the Generator Planned Outage.

G. Subject to the provisions of Section 9.2 of the Agreement, the Reliability Committee shall adopt and maintain rules and procedures for determining the allowable Peak Season Maintenance.

## SCHEDULE 9

## PROCEDURES FOR
## ESTABLISHING THE CAPABILITY OF CAPACITY RESOURCES

A. Such rules and procedures as may be required to determine and demonstrate the capability of Capacity Resources for the purposes of a Load Serving Entity in meeting its Forecast LSE Obligation and Accounted-For Obligation under the Agreement shall be adopted and maintained.

B. The rules and procedures for determining and demonstrating the capability of generating units to serve load in the PJM Control Area shall be consistent with achieving uniformity for planning, operating, accounting and reporting purposes.

C. The rules and procedures shall recognize the difference in types of generating units and the relative ability of units to maintain output at stated capability over a specified period of time. Factors affecting such ability include, but are not limited to, fuel availability, stream flow for hydro units, reservoir storage for hydro and pumped storage units, mechanical limitations, and system operating policies.

## SCHEDULE 10

## PROCEDURES FOR ESTABLISHING DELIVERABILITY OF CAPACITY RESOURCES

Capacity Resources must be deliverable, consistent with a loss of load expectation as specified by the Reliability Principles and Standards, to the total system load, including portion(s) of the system in the PJM Control Area that may have a capacity deficiency at any time. Deliverability shall be demonstrated by either obtaining or providing for Network Transmission Service within the PJM Control Area such that each Capacity Resource is also a Network Resource. In addition, for Capacity Resources located outside the metered boundaries of the PJM Control Area that are used to meet a Forecast LSE Obligation, the capacity and energy of such Capacity Resources must be delivered to the metered boundaries of the PJM Control Area through firm transmission service.

Certification of deliverability means that the Load Serving Entity has obtained or provided for Network Transmission Service to have capacity delivered on a firm basis under specified terms and conditions and that the physical capability of the transmission network has been tested by the Office of the Interconnection and found to provide that service consistent with the assessment of available transfer capability as set forth in the PJM Tariff.

## SCHEDULE 11

## DEFICIENCY CHARGES

A. Deficiency Rate

The rate for deficiencies determined pursuant to Schedules 7 and 8 shall be established annually by the Reliability Committee based on the annual carrying charges for a new combustion turbine, installed and connected to the transmission system. Until otherwise changed by the Reliability Committee, the rate for deficiencies shall be $58.400 per kilowatt-year or $160 per megawatt-day.

B. Calculation of Deficiency Charges -- Schedule 7

The deficiency charge for a deficiency determined pursuant to Schedule 7 shall be calculated, as follows

If C is greater than or equal to .95, then $DC = (R \times L)$

If C is less than .95, then $DC = (R \times L) \times (1.1)^{(n-1)}$

Where:

C is $(LSE_r / LSE_o)$

$LSE_r$ is a Load Serving Entity's Unforced Capacity in megawatts, pursuant to Schedules 7

$LSE_o$ is (a) prior to the Pool-Wide Choice Date, the greater of a Load Serving Entity's Forecast LSE Obligation associated with Sole-Supplier Load or Accounted-For Obligation in megawatts or (b) after the Pool-Wide Choice Date, the Load Serving Entity's Accounted-For Obligation

DC is the daily deficiency charge in dollars

R is (a) the daily deficiency rate in dollars per megawatt in any month in which the total of the Unforced Capacity of the Parties meets or exceeds the Forecast Pool Requirement or (b) two times the daily deficiency rate in dollars per megawatt in any month in which the total of the Unforced Capacity of the Parties is less than the Forecast Pool Requirement

L is the deficiency (a) calculated pursuant to section B.3 of Schedule 7 prior to the Pool-Wide Choice Date or (b) calculated pursuant to section *C of* Schedule 7 after the Pool-Wide Choice Date

n is the number of months, on a rolling twelve-month basis, in which the Load Serving Entity has a "C" of less than .95; provided, however, in the event (n-1) is negative, (n-1) shall be set to zero.

C. Calculation of Deficiency Charges -- Schedule 8

The deficiency charge for deficiencies determined pursuant to Schedule 8 shall be DC = (R x P), where the meanings of DC and R are as set forth above and P means the deficiency determined in pursuant to section E of Schedule 8.

D. Distribution Of Deficiency Charges

Each Party that has satisfied an obligation for which a deficiency charge has been established pursuant to this Agreement, without incurring a deficiency charge related to that obligation, shall share in any deficiency charges paid by any other Party that has failed to satisfy said obligation. Such shares shall be in proportion to each such Party's share of the amount by which the total Unforced Capacity exceeds the Forecast Pool Requirement.

In the event all of the Parties have incurred deficiency charges with respect to an obligation, the deficiency charges related to that obligation shall be distributed as directed by the Reliability Committee.

## SCHEDULE 12

## DATA SUBMITTALS

To perform the studies required to determine the Forecast Pool Requirement, Forecast Zone Requirements, Forecast LSE Obligations and Accounted-For Obligations under this Agreement and to determine compliance with the obligations imposed by this Agreement, each Party shall submit data as directed by the Reliability Committee, including, but not limited to the following requirements:

1. All data submitted shall satisfy the requirements, as they may change from time to time, of any procedures adopted by the Reliability Committee.

2. Data shall be submitted in an electronic format, or as otherwise specified by the Reliability Committee.

3. Actual outage data for each month for Generator Forced Outages, Generator Maintenance Outages and Generator Planned Outages shall be submitted so that it is received by the 20th of the following month or such other date specified by the Reliability Committee.

4. On or before February 1 of each Planning Period or such other date specified by the Reliability Committee, planned and maintenance outage data for all Capacity Resources and load forecasts (including seasonal and average weekly peaks) shall be submitted.

5. On or before March 10 of each Planning Period or such other date specified by the Reliability Committee, adjustments to forecasts shall be submitted.

6. On or before May 31 of each Planning Period, or such other date or schedule for updates specified by the Reliability Committee, revisions to capacity and load forecasts (including the plans for satisfying the Forecast LSE Obligation of the Party) shall be submitted.

7. As desired by a Party, revisions to capacity and monthly peak load forecasts may be submitted.

8. Each Party shall make available the data set forth in Schedule 1.1.

## SCHEDULE 13

## DATA SUBMISSION CHARGES

A. Data Submission Charge

For each working day of delay in the submittal of information required to be submitted under this Agreement, a data submission charge of $500 shall be imposed.

B. Distribution Of Data Submission Charge Receipts

1. Each Party that has satisfied its obligations for data submittals pursuant to Schedule 12 during a Planning Period, without incurring a data submission charge related to that obligation, shall share in any data submission charges paid by any other Party that has failed to satisfy said obligation during such Planning Period. Such shares shall be in proportion to the Weighted Votes of the Parties entitled to share in the data submission charges for the most recent month.

2. In the event all of the Parties have incurred a data submission charge during a Planning Period, those data submission charges shall be distributed as directed by the Reliability Committee.

## SCHEDULE 14

## EMERGENCY PROCEDURE CHARGES

A. Emergency Procedure Charge

Following an Emergency, the compliance of each Party with the instructions of the Office of the Interconnection shall be evaluated as directed by the Reliability Committee. If, based on such evaluation, it is determined that a Party failed to comply with the instructions of the Office of the Interconnection to implement ALM or to otherwise follow the instructions of the Office of the Interconnection, that Party shall demonstrate that it employed its best efforts to comply with such instructions. In the event a Party failed to employ its best efforts to comply with the instructions of the Office of the Interconnection, that Party shall pay an emergency procedure charge as follows: for each megawatt of ALM that was not implemented as directed, the Party shall pay 365 times the daily deficiency rate per megawatt set forth in Section A of Schedule 11.

B. Distribution Of Emergency Procedure Charges

1. Each Party that has complied with the emergency procedures imposed by this Agreement during an Emergency, without incurring an emergency procedure charge, shall share in any emergency procedure charges paid by any other Party that has failed to satisfy said obligation during such Emergency. Such shares shall be in proportion to the Weighted Votes of the Parties entitled to share in the emergency procedure charges for the most recent month.

2. In the event all of the Parties have incurred emergency procedure charges with respect to an Emergency, the emergency procedure charges related to that Emergency shall be distributed as directed by the Reliability Committee.

## SCHEDULE 15

## DELEGATION TO THE OFFICE OF THE INTERCONNECTION

The following responsibilities shall be delegated by the Parties to the Office of the Interconnection:

1. **New Parties**. With regard to the addition, withdrawal or removal of a Party:

   (a) Receive and evaluate the information submitted by entities that plan to serve loads within the PJM Control Area, including entities whose participation in the Agreement will expand the boundaries of the PJM Control Area. Such evaluation shall be conducted in accordance with the requirements of the Agreement.

   (b) Evaluate the effects of the withdrawal or removal of a Party from this Agreement.

2. **Implementation of Reliability Assurance Agreement**. With regard to the implementation of the provisions of this Agreement:

   (a) Receive all required data and forecasts from the Parties;

   (b) Perform all calculations and analyses necessary to determine the Forecast Pool Requirement, the Forecast Zone Requirement and the Forecast LSE Obligation, including periodic reviews of the capacity benefit margin for consistency with the Reliability Principles and Standards;

   (c) Monitor the compliance of each Party with its obligations under the Agreement;

   (d) Keep cost records, and bill and collect any costs or charges due from the Parties and distribute those charges in accordance with the terms of the Agreement;

   (e) Assist with the development of rules and procedures for determining and demonstrating the capability of Capacity Resources;

   (f) Establish the capability and deliverability of Capacity Resources consistent with the requirements of the Reliability Assurance Agreement;

   (g) Collect and maintain generator availability data;

(h) Perform any other studies or analyses required to administer the Agreement;

(i) Coordinate maintenance schedules for generation resources operated as part of the PJM Control Area;

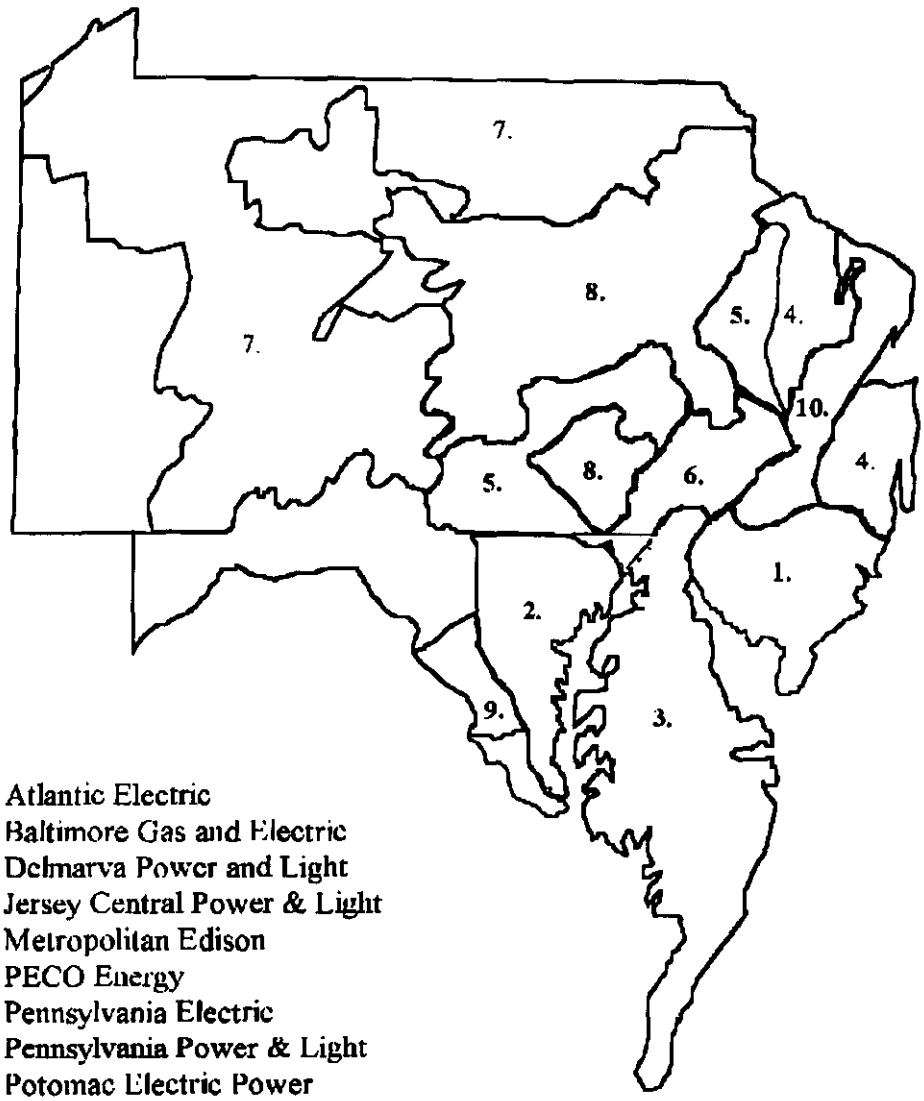
(j) Determine and declare that an Emergency exists or ceases to exist in all or any part of the PJM Control Area or in a Control Area interconnected with the PJM Control Area;

(k) Enter into agreements for (i) the transfer of energy in Emergencies in the PJM Control Area or in a Control Area interconnected with the PJM Control Area and (ii) mutual support in such Emergencies with other Control Areas interconnected with the PJM Control Area; and

(l) Coordinate the curtailment or shedding of load, or other measures appropriate to alleviate an Emergency, to preserve reliability in accordance with FERC, NERC or MAAC principles, guidelines, standards and requirements, and to ensure the operation of the PJM Control Area in accordance with Good Utility Practice.

## SCHEDULE 16

## ZONES WITHIN THE PJM CONTROL AREA




1. Atlantic Electric
2. Baltimore Gas and Electric
3. Delmarva Power and Light
4. Jersey Central Power & Light
5. Metropolitan Edison
6. PECO Energy
7. Pennsylvania Electric
8. Pennsylvania Power & Light
9. Potomac Electric Power
10. Public Service Electric and Gas

CALCULATION OF RATES

| **Point Of Delivery** | (1) **Annual Revenue Requirement** | (2) **12 CP** (MW) | (3) **Annual Charge** ($/kW) | (4) **Monthly Charge** ($/kW) | (5) **Weekly Charge** ($/kW) | (6) **Daily Charge** ($/kW) | (7) **Hourly Charge** ($/MWh) |
|---|---|---|---|---|---|---|---|
| Border Of PJM Control Area | | | 22.382 | 1.865 | 0.4304 | 0.0861 | 5.38 |
| AE Zone | $34,344,987 | 1,611 | 21.319 | 1.777 | 0.4100 | 0.0820 | 5.12 |
| BG&E Zone | $84,124,139 | 4,940 | 17.029 | 1.419 | 0.3275 | 0.0655 | 4.09 |
| Delmarva Zone | $46,842,773 | 2,037 | 22.996 | 1.916 | 0.4422 | 0.0884 | 5.53 |
| JCPL Zone | $98,762,045 | 3,340 | 29.569 | 2.464 | 0.5686 | 0.1137 | 7.11 |
| MetEd Zone | $25,211,390 | 1,878 | 13.425 | 1.119 | 0.2582 | 0.0516 | 3.23 |
| Penelec Zone | $25,532,586 | 2,318 | 11.015 | 0.918 | 0.2118 | 0.0424 | 2.65 |
| PECO Zone | $154,469,000 | 5,776 | 26.743 | 2.229 | 0.5143 | 0.1029 | 6.43 |
| PPL Zone | $144,774,000 | 5,616 | 25.779 | 2.148 | 0.4958 | 0.0992 | 6.20 |
| Pepco Zone | $95,880,433 | 4,546 | 21.091 | 1.758 | 0.4056 | 0.0811 | 5.07 |
| PSE&G Zone | $157,587,365 | 6,697 | 23.531 | 1.961 | 0.4525 | 0.0905 | 5.66 |

Attachment I

Calculation Notes:

(1) The annual revenue requirements are the same amounts submitted in the December 31, 1996 filing placed into effect by the Commission in its February 28 Order.

(2) The 12 CP amounts are the same amounts used to determine the point-to-point rates placed into effect by the Commission in its February 28 Order.

(3) The annual charge for the deliveries to the borders of the PJM Control Area is calculated by dividing the sum of column (1) by the sum of column (2) (stated in kW), yielding the same pool-wide point-to-point rate as that placed into effect by the Commission in its February 28 Order. The amounts shown for each of the zones is the quotient of the annual revenue requirement in column (1) for the zone and the 12 CP amount (stated in kW) in column (2) for the zone.

(4) The monthly charge is the annual charge in column (3) divided by 12 months.

(5) The weekly charge is the annual charge in column (3) divided by 52 weeks.

(6) The daily charge is the weekly charge in column (5) divided by 5 days.

(7) The hourly charge is the annual charge in column (3) divided by 4,160 hours and multiplied by 1,000.

**Attachment J**

LIST OF PERSONS TO WHOM
COMMUNICATIONS SHOULD BE ADDRESSED

Atlantic City Electric Company

Mr. Joseph A. Isabella
Atlantic City Electric Company
6801 Black Horse Pike
Egg Harbor Township, NJ 08234-4130

James E. Franklin, II, Esq.
Atlantic City Electric Company
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Baltimore, MD 21201

Mark A. MacDougall, Esq.
Baltimore Gas and Electric Company
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Baltimore, MD 21201

Delmarva Power & Light Company

Mr. Ralph E. Klesius
Delmarva Power & Light Company
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800 King Street
Wilmington, DE 19899

Dale G. Stoodley, Esq.
Delmarva Power & Light Company
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800 King Street
Wilmington, DE 19899

GPU Service Inc.

Mr. Samuel C. Thomas
GPU Energy
2800 Pottsville Pike
Reading, PA 19605

Kenneth G. Jaffe, Esq.
Swidler & Berlin, Chartered
3000 K Street, NW, Suite 300
Washington, DC 20007

Pennsylvania Power & Light Company

Mr. Robert M. Geneczko
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, PA 18101

Robert J. Grey, Esq.
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, PA 18101

Potomac Electric Power Company

Mr. Andrew W. Williams
Potomac Electric Power Company
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Allen C. Barringer, Esq.
Potomac Electric Power Company
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Washington, DC 20068

Public Service Electric and Gas Company

Mr. Pierre R.H. Landrieu
Public Service Electric and Gas Company
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Richard P. Bonnifield, Esq.
Public Service Electric and Gas Company
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Washington, DC 20006

Michael J. Connolly, Esq.
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Parsippany, NJ 07054

**Attachment K**

LIST OF PERSONS TO WHOM
THE FILING IS BEING SENT

Delaware Public Service Commission
1560 South DuPont Highway
Dover, DE 19901

District of Columbia Public Service Commission
450 Fifth Street, N.W., 8th Floor
Washington, DC 20001

Mr. Daniel P. Gahagan
Executive Secretary
Maryland Public Service Commission
6 St. Paul Centre, 16th Floor
Baltimore, MD 21202-6806

James A. Nappi, Esq.
Secretary
New Jersey Board of Public Utilities
2 Gateway Center
Newark, NJ 07102

Pennsylvania Public Utility Commission
Office of the Secretary
Commonwealth & North Street
G-28 North Office Building
P.O. Box 3265
Harrisburg, PA 17120

Mr. George W. Bryant
Clerk of the Commission
Virginia State Corporation Commission
Post Office Box 1197
1300 E. Main Street, Tyler Building
Richmond, VA 23219

In addition, the Supporting Companies are submitting copies of this filing to Parties to Docket Nos. OA97-261-000 and ER97-1082-000, to the Members of PJM Interconnection, L.L.C., and to those entities who have executed Service Agreements under the PJM Tariff.

**Attachment L**

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

| | | |
|---|---|---|
| Atlantic City Electric Company | ) | |
| Baltimore Gas and Electric Company | ) | |
| Delmarva Power & Light Company | ) | |
| Jersey Central Power & Light Company | ) | |
| Metropolitan Edison Company | ) | Docket No. ER97-___-000 |
| Pennsylvania Electric Company | ) | |
| Pennsylvania Power & Light Company | ) | |
| Potomac Electric Power Company | ) | |
| Public Service Electric and Gas Company | ) | |

NOTICE OF FILING

(_____, 1997)

Take notice that on June 2, 1997, Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power & Light Company, Jersey Central Power & Light Company, Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power & Light Company, Potomac Electric Power Company, and Public Service Electric and Gas Company filed the following documents: (1) Amended and Restated Operating Agreement of PJM Interconnection, L.L.C.; (2) a revised Transmission Owners Agreement and (3) a revised PJM Open Access Transmission Tariff (PJM Tariff). The same companies also filed a Reliability Assurance Agreement Among Load Serving Entities.

Copies have been served on the regulatory commissions of Delaware, the District of Columbia, Maryland, New Jersey, Pennsylvania and Virginia, on the parties to Docket Nos. OA97-261-000 and ER97-1082-000, on those who have executed Service Agreements under the PJM Tariff, and on the Members of PJM Interconnection, L.L.C.

Any person desiring to be heard or to protest said filing should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 18 CFR 385.214). All such motions 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 motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell
Secretary

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

| | | |
|---|---|---|
| Atlantic City Electric Company | ) | |
| Baltimore Gas and Electric Company | ) | |
| Delmarva Power & Light Company | ) | |
| Jersey Central Power & Light Company | ) | |
| Metropolitan Edison Company | ) | Docket No. EC97-___-000 |
| Pennsylvania Electric Company | ) | |
| Pennsylvania Power & Light Company | ) | |
| Potomac Electric Power Company | ) | |
| Public Service Electric and Gas Company | ) | |

NOTICE OF APPLICATION PURSUANT TO SECTION 203

(_____, 1997)

Take notice that on June 2, 1997, Atlantic City Electric Company, Baltimore Gas and Electric Company, Delmarva Power & Light Company, Jersey Central Power & Light Company, Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power & Light Company, Potomac Electric Power Company, and Public Service Electric and Gas Company filed an application pursuant to Section 203 of the Federal Power Act to permit PJM Interconnection, L.L.C. to be recognized as an Independent System Operator.

Copies have been served on the regulatory commissions of Delaware, the District of Columbia, Maryland, New Jersey, Pennsylvania and Virginia, on the parties to Docket Nos. OA97-261-000 and ER97-1082-000, on those who have executed Service Agreements under the PJM Tariff, and on the Members of PJM Interconnection, L.L.C.

Any person desiring to be heard or to protest said filing should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 18 CFR 385.214). All such motions 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 motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection.

Lois D. Cashell
Secretary