# 64.2.3 Section 205 Filings

The Transmission Provider shall make a filing under Section 205 of the FPA with the Commission seeking authorization to apply an appropriate Mitigation Measure to conduct that departs significantly from the conduct that would be expected under competitive market conditions but does not rise to the thresholds specified in Sections 64.1.1 through 64.1.3 above, if that conduct has a significant effect on market prices or Offer Revenue Sufficiency Guarantee Payments.

# 64.3 Consultation with a Market Participant

a. If, through the application of an appropriate index or screen or other monitoring of market conditions, conduct is identified that (i) exceeds an applicable threshold, and (ii) has a substantial effect, as specified above, on one (1) or more prices or Offer Revenue Sufficiency Guarantee Payments in an Energy Market or

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 14, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (*Midwest Independent Transmission System Operator, Inc.*, 110 FERC ¶ 61,289 (2005)).

other market administered by the Transmission Provider, the IMM shall, as soon as practicable and if warranted in light of the information available to the IMM, contact the Market Participant engaging in the identified conduct to request an explanation of the conduct. If a Market Participant anticipates submitting Offers in an Energy Market or other market administered by the Transmission Provider that will exceed the thresholds specified in Section 64.1 above for identifying conduct inconsistent with competition, the Market Participant may contact the IMM to provide an explanation of any legitimate basis for any such changes in the Market Participant's Offers.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

- b. If a Market Participant's explanation of the reasons for its Offers indicates to the satisfaction of the IMM that the questioned conduct is consistent with competitive behavior, no further action will be taken.
- Participant with respect to the information and analysis used to determine Reference Levels under Section 64.1.4 for that Market Participant. If cost data or other information submitted by a Market Participant indicates to the satisfaction of the IMM that the Reference Levels for that Market Participant should be changed, revised Reference Levels shall be determined, communicated to the Market Participant, and implemented, as soon as practicable. The IMM shall provide a written explanation of its determination to the Market Participant upon request.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

# 65 Mitigation Measures

# 65.1 Purpose

If conduct is detected that meets the criteria specified in Section 63.3, the appropriate Mitigation Measure described in this Section shall be applied. The conduct specified in Sections 64.1.1 to 64.1.3 shall be remedied by the prospective application of a Default Offer measure as described in Section 65.2, below. If an entity engages in certain types of physical withholding or uneconomic production that cannot feasibly be remedied by the prospective application of a Default Offer, or if otherwise appropriate to deter either the physical withholding or uneconomic production, the Transmission Provider shall apply a sanction described in Section 65.3 below.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

#### 65.2 Default Offer

# **65.2.1** Purpose

A Default Offer shall be designed to cause a Market Participant to Offer as if it faced workable competition during a period when the Market Participant: (i) does not face workable competition; and, (ii) has responded to such condition by engaging in the physical or economic withholding of, or uneconomic production from a Generation Resource. In designing and implementing Default Offers, the IMM shall seek to avoid causing a Generation Resource to Offer below its marginal cost.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 14, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

## 65.2.2 Implementation

a. If the criteria contained in Section 64 are met, the

Transmission Provider shall prospectively substitute a

Default Offer for an Offer submitted for a Generation

Resource. The Default Offer shall establish a mitigated value for one or more components of the Offer for a

Generation Resource equal to the Reference Level for that component of the Generation Resource's Offer determined as specified in Section 64.1.4.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 14, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (*Midwest Independent Transmission System Operator, Inc.*, 110 FERC ¶ 61,289 (2005)).

- b. A Default Offer shall only be imposed on a Generation Resource if it is located in a Broad Constrained Area or a Narrow Constrained Area and if one or more transmission constraints defining the area are binding.
- c. A Generation Resource subject to a Default Offer shall be paid the LMP or other market-clearing price applicable to the output from the Generation Resource. Accordingly, a Default Offer shall not limit the price that a Generating Resource may receive unless the Default Offer determines the LMP or other market clearing price applicable to that Generation Resource.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: October 11, 2006

Filed to comply with the July 20, 2006 Order in Docket No. ER06-731 (Midwest Independent Transmission System Operator, Inc., 116 FERC ¶ 61,068 (2006)).

Effective: July 21, 2006

d. The Transmission Provider shall not use a Default Offer to determine revised market clearing prices for periods prior to the imposition of the Default Offer, except as may be specifically authorized by the Commission.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

Third Revised Sheet No. 790 Superseding Second Revised Sheet No. 790

e. With respect to both physical and economic withholding, a
Mitigation Measure imposed in a Narrow Constrained Area
or Broad Constrained Area in accordance with the conduct
thresholds of Sections 64.1.1 and 64.1.2, and the impact
thresholds of Section 64.2.1 shall remain in effect for the
duration of any hour in which there is an interval for which
such mitigation is deemed warranted.

f. Safety-Net Day-Ahead Mitigation Method:

Pending an Automated Mitigation Procedure (AMP) to perform the impact test and implement mitigation on the same market day that the conduct occurred, the following process will be employed by the IMM:

Resources with Day-Ahead Generation Offers that
exceed the conduct thresholds specified in
Sections 64.1.1 and 64.1.2 for a given Operating
Day in an active NCA or BCA will be tested for
impact.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: October 11, 2006

Filed to comply with the July 20, 2006 Order in Docket No. ER06-731 (Midwest Independent Transmission System Operator, Inc., 116 FERC ¶ 61,068 (2006)).

Effective: July 21, 2006

- ii. If the conduct of these Generation Resources results in market impacts that exceed the impact thresholds specified in Section 64.2.1 for a given Operating Day, all Generation Resources owned by the same supplier in the same NCA or active BCA will be considered for mitigation in the Day-Ahead Energy Market for the following day.
- iii. When the Day-Ahead Energy Market is run for the following day, if a Generation Resource identified in (ii) submits a Day-Ahead Generation Offer that exceeds its conduct threshold, the Transmission Provider shall prospectively substitute a Default Offer for that Offer submitted by the Generation Resource.
- Generation Offers that exceed both the conduct thresholds and impact thresholds for the same NCA or active BCA within the next 90 days, the supplier's Generation Resources in that NCA or active BCA will be considered for mitigation in the Day-Ahead Energy Market for the following seven (7) days.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: October 11, 2006

Filed to comply with the July 20, 2006 Order in Docket No. ER06-731 (Midwest Independent Transmission System Operator, Inc., 116 FERC ¶ 61,068 (2006)).

Effective: July 21, 2006

v. In any of these seven (7) days, if a Generation

Resource identified in (iv) submits Day-Ahead

Generation Offer(s) that exceeds the conduct

threshold, the Transmission Provider shall

prospectively substitute a Default Offer for such

Offer submitted for that Generation Resource.

#### 65.3 Sanctions

#### 65.3.1 Imposition

a. If the IMM identifies potential Tariff violations for which penalty charges are provided under this Tariff, the IMM must make a confidential referral of such violations to the Commission so that the Commission can determine the appropriate penalty charges under this Section. If the IMM determines in accordance with the thresholds and other standards specified in this Module D, Part III that: (i) a Market Participant has engaged in physical withholding, or (ii) a Market Participant has engaged in uneconomic production; or (iii) a

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: November 23, 2005

Filed to comply with the October 24, 2005 Order on Compliance Filings in Docket Nos. ER04-691-046, ER04-691-050, EL04-104-044 and EL04-104-048 (Midwest Independent Transmission System Operator, Inc., 113 FERC ¶ 61,083 (2005)).

First Revised Sheet No. 791 Superseding Third Substitute Original Sheet No. 791

Load Serving Entity is subject to a Penalty Level payment in accordance with Section 65.4 below; or (iv) a Transmission Owner has physically withheld of transmission that causes transmission congestion, including operating network control devices in a manner that is not economic, the IMM must make a confidential referral of such violations to the Commission.

- b. The Transmission Provider shall impose penalty charges up to the amounts provided in this Section 65.3 as determined by the Commission.
  - A Market Participant that is found to have engaged in the conduct described in Section 65.3.1.a above, may be subject to a penalty charge only if the conduct has caused a substantial increase in one or more prices or Offer Revenue Sufficiency Guarantee Payments in the Energy Markets or other markets administered by the Transmission Provider. Generation Resources that are not designated to satisfy resource adequacy requirements under Module E shall not be subject to penalty charges for physical withholding from the Day-Ahead Energy Market or Reliability Assessment Commitment process.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (*Midwest Independent Transmission System Operator, Inc.*, 110 FERC ¶ 61,289 (2005)).

- d. This Section 65.3 shall apply to a Generation Resource only if it is located in a Broad Constrained Area or a Narrow Constrained Area and if one (1) or more transmission constraints that give rise to locational market power in the area are binding.
- e. The formulas used to determine the penalty charges in Sections 65.3.2 and 65.3.3 below shall constitute the maximum penalty charges that may be assessed. The Commission may, at its sole discretion, determine when penalty charges below the maximum level would be appropriate.

# 65.3.2 Base Penalty Amount

a. Penalty charges shall be determined by assessing a penalty up to the product of a Base Penalty Charge, as specified below, times the appropriate multiplier specified in Section 65.3.3:

Base Penalty = Charge

Capability (MW) Affected \*Penalty LMP during Penalty blurs

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: October 11, 2006

Filed to comply with the July 20, 2006 Order in Docket No. ER06-731 (Midwest Independent Transmission System Operator, Inc., 116 FERC ¶ 61,068 (2006)).

Effective: July 21, 2006

- b. For purposes of determining a Base Penalty Charge, the term Penalty Hurs'shall mean: (i) for a Day-Ahead Energy Market, the hours in which conduct occurred; (ii) for a Real-Time Energy Market, the Hurs in the calendar Day commencing in the Hur in which the conduct first occurred and concluding at the Hur in which the conduct was determined to have ceased; and (iii) for Market Participant Bids to serve Load, the hours giving rise to Penalty Level payments.
- c. For purposes of determining a Base Penalty Charge, the term Penalty LMP'shall mean: (i) for a Generation Resource, the LMP at the Bus of the withheld Generation Resource; (ii) for a Market Participant on behalf of a Load Serving Entity, the LMPs at the location of the Load being served; and (iii) for an entity withholding equipment used for transmission of electricity or engaged in uneconomic production, the LMP most affected by the conduct.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

- d. For purposes of determining a Base Penalty Charge, the term Capability (MW) Affe cted'shall include (i) the quantity of the Generation Resources physically withheld or uneconomically produced, (ii) the transmission capability reduced by a Transmission Owner, or (iii) the Load under-scheduled by a Market Participant for an LSE. It shall not include economically withheld resources.
- e. Real-Time LMPs shall not be revised as a result of the imposition of a penalty charge as specified in this Section, except as may be specifically authorized by the Commission.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

# 65.3.3 Multipliers

The Base Penalty Charge specified in Section 65.3.2 shall be subject to the following multipliers:

- a. For the first instance of a type of conduct by a Market

  Participant meeting the standards for mitigation, the

  multiplier shall be one (1).
- b. For the second instance within eighteen (18) months of substantially similar conduct regarding the same product (e.g., Energy, regardless of whether it is in the Day-Ahead or Real-Time Energy Market) by a Market Participant or its Affiliates, the multiplier shall be two (2),
- c. For the third instance or any additional instance within eighteen (18) months of substantially similar conduct regarding the same product (e.g., Energy, regardless of whether it is in the Day-Ahead or Real-Time) by a Market Participant or its Affiliates, the multiplier shall be three (3).

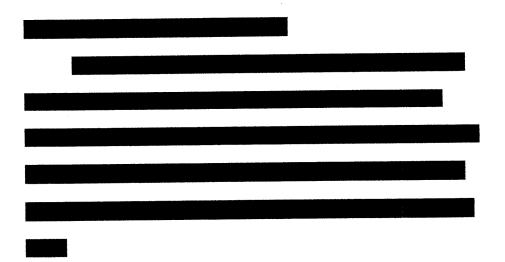
Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 14, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

# 65.3.4 Disposition of Penalty Charges

Except as specified in Section 65.4.3, amounts collected as a result of the imposition of penalty charges shall be credited against costs collectable under Schedule 17 of this Tariff.



#### 65.4. Load Measures

# 65.4.1 Purpose

As initially implemented, the Transmission Provider market rules allow Market Participants to choose to purchase power to serve Load in either the Day-Ahead Energy Market or in the Real-Time Energy Market.

As a result of this and other design features, certain bidding practices may cause LMPs in the Day-Ahead Energy Market not to achieve the degree of convergence with the LMPs in the Real-Time Energy Market that would be expected in a workably competitive market.

Issued by: T. Graham Edwards, Issuing Officer
Issued on: January 24, 2007

Effective: Ten days following notification by the Transmission
Provider that software has been implemented

Filed to comply with the December 22, 2007 Order on Accepting Compliance Filing in Docket No. ER06-1552 (Midwest Independent Transmission System Operator, Inc., 117 FERC ¶ 61,365 (2006)).

# 65.4.2 Implementation

- a. LMPs in the Day-Ahead and Real-Time Energy Markets shall be monitored to determine whether there is a persistent hourly deviation between them in any location that would not be expected in a workably competitive market.
- b. The IMM shall compute the average hourly deviation between Day-Ahead and Real-Time Energy Market LMPs, measured as: (LMP<sub>real time</sub> /LMP <sub>day ahead</sub>) 1. The average hourly deviation shall be computed over a rolling four week period or such other period determined by the IMM to be appropriate to achieve the purpose of this Mitigation Measure.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

- c. The IMM shall also estimate and monitor the average percentage of each Market Participant's Bid to serve Load scheduled in the Day-Ahead Energy Market, using a methodology intended to identify a sustained pattern of under-bidding as accurately as deemed practicable. The average percentage will be computed over a specified time period determined by the IMM to be appropriate to achieve the purpose of this Mitigation Measure.
- d. If the IMM, determines that: (i) The average hourly deviation computed over a rolling four week period is greater than ten percent (10%) or less than negative ten percent (10%), (ii) one or more Market Participants on behalf of one or more LSEs have been purchasing a more than ten percent (10%) of their Loads with purchases in the Real-Time Energy Market,

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

(iii) this practice has contributed to the divergence of LMP between the two markets, as defined in 65.4.2.d.i above, and (iv) this practice has created operational problems which shall be determined by the IMM in concert with the Transmission Provider, then the following Mitigation Measure may be imposed. A description of any such problem will be posted on the Transmission Provider's website. Any such measure shall be rescinded upon a determination by the IMM that any one or more of the foregoing conditions is not met.

# 65.4.3 Description of the Measure

A Market Participant that makes purchases on behalf of a a. Load Serving Entity may be required to purchase or schedule all of its expected power requirements in the Day-Ahead Energy Market. A Market Participant subject to this requirement may purchase up to five percent (5%)

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

of the actual Load requirements of the LSE on whose behalf the Market Participant is making such purchases (the 'Allowance Level') in the Real-Time Energy Market without penalty, as determined by the IMM to be appropriate in recognition of the uncertainty of load forecasting.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

Second Revised Sheet No. 801 Superseding Substitute First Revised Sheet No. 801

- b. Effective with the imposition of the foregoing requirement, all purchases in the Real-Time Energy Market in excess of this Allowance Level (the Pen alty Level) shall be settled at a specified premium over the applicable LMP. Revenues from such premiums, if any, shall be rebated on a *pro rata* basis to the Market Participants that scheduled Energy for delivery in the Day-Ahead Energy Market for the Day in which the revenues were collected.
- c. The Allowance Level and the Penalty Level shall be established at levels deemed effective and appropriate to mitigate the market effects described in this Section 65.4.

  In addition, the Penalty Level payments shall be waived in any hour in which the Allowance Level is exceeded because of unexpected system conditions.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

## 65.5 Virtual Transaction Measures

## **65.5.1** Purpose

The provisions of this Section 65.5 specify the market monitoring and Mitigation Measures applicable to Virtual Transactions.

# 65.5.2 Implementation

a. LMPs in the Day-Ahead and Real-Time Energy Markets shall be monitored to determine whether there is a persistent hourly deviation between them that would not be expected in a workably competitive market.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

- b. The IMM shall compute the average hourly deviation between LMPs in the Day-Ahead and Real-Time Energy Markets, measured as: (LMP<sub>real time</sub> /LMP <sub>day ahead</sub>) 1. The average hourly deviation shall be computed over a rolling four week period or such other period determined to be appropriate to achieve the purpose of this Mitigation Measure.
- c. If the IMM determines that (i) the average hourly deviation computed over a rolling four week period is greater than ten percent (10%) or less than negative ten percent (10%), and (ii) the Virtual Transaction practices of one or more Market Participants causes this divergence of LMPs between the two (2) markets, then the following Mitigation Measure may be imposed. Any such measure shall be rescinded upon a determination by the IMM that the foregoing conditions are not met.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

## 65.5.3 Description of the Measure

Section 65.5.2 exist, the Transmission Provider may limit the hourly quantities of Virtual Offers or Bids for supply or Load that may be offered in a location by a Market Participant. The IMM will restrict the Market Participant for a period of three (3) months from submitting any virtual transactions at the same or electrically similar Nodes to the Nodes where it had submitted the Virtual Transactions that contributed to the unwarranted divergence between LMPs in the Day-Ahead and Real-Time Energy Markets.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC § 61,289 (2005)).

b. As part of the foregoing determination, the IMM shall request explanations of the relevant Virtual Transaction practices from any Market Participant submitting such Bids or Offers. Prior to imposing a Virtual Bid or Offer quantity limitation as specified above, the Transmission Provider shall notify the affected Market Participant of the limitation.

# 65.6 Duration of Mitigation Measures

Any Mitigation Measure imposed as specified above shall expire not later than six (6) months after the occurrence of the conduct giving rise to the measure, or at such earlier time as may be specified by the Transmission Provider.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

#### 66 Annual Review

- a. As a component of the IMM's annual report as required in Module D, Part II to this Tariff, the IMM shall review and report on:
  - i. The extent to which mitigation has taken place, including the number of Generation Resources mitigated, and the number of MWh mitigated. The foregoing results should be reported by location as appropriate under the Transmission Provider's information policies.
  - ii. The economic incentives for maintaining existing generation, investing in new generation or transmission facilities, or developing additional demand response in various locations within the Transmission Provider Region.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

b. If the IMM determines that inappropriate application of the Mitigation Measures causes an inability of existing Generation Resources or new Generation Resources to operate profitably, or an understatement of Energy prices during shortage conditions, the IMM shall recommend changes to the Mitigation Measures to prevent such inappropriate effects in future periods.

# 67 Dispute Resolution

Offer and it is subsequently determined that the Offer should not have been mitigated, the Market Participant shall be compensated for each MW for which the Default Offer was substituted, at the higher of the LMP or its full, as-submitted Offer for all intervals during which it was improperly mitigated, including any applicable Offer Revenue Sufficiency Guarantee Payment.

This Section 67 shall not restrict the right of any party to make such filing with the Commission as may otherwise be appropriate under the Federal Power Act.

Issued by: Ronald R. McNamara, Issuing Officer

Issued on: April 6, 2005

Filed to comply with the March 16, 2005 Order on Certification and Conditionally Approving Revised Tariff Sheets in Docket Nos. ER04-691-014, ER04-691-025, EL04-104-013 and EL04-104-024 (Midwest Independent Transmission System Operator, Inc., 110 FERC ¶ 61,289 (2005)).

#### ATTACHMENT DD

## **Reliability Pricing Model**

## 1. INTRODUCTION

This Attachment sets forth the terms and conditions governing the Reliability Pricing Model for the PJM Region. As more fully set forth in this Attachment and the PJM Manuals, and in conjunction with the Reliability Assurance Agreement, the Reliability Pricing Model provides:

- (a) support for LSEs in satisfying Daily Unforced Capacity Obligations for future Delivery Years through Self Supply of Capacity Resources;
- (b) a competitive auction mechanism to secure the forward commitment of additional Capacity Resources and Qualifying Transmission Upgrades as necessary to satisfy the portion of LSEs' Unforced Capacity Obligations not satisfied through Self-Supply, in order to ensure the reliability of the PJM Region for future Delivery Years;
- (c) long-term pricing signals for the development of Capacity Resources, including demand resources and planned generation resources, to ensure the reliability of the PJM Region;
- (d) recognition for the locational benefits of Capacity Resources;
- (e) deficiency charges to ensure progress toward, and fulfillment of, forward commitments by demand and generation resources to satisfy capacity requirements;
- (f) measures to identify and mitigate capacity market structure deficiencies; and
- (g) a Reliability Backstop mechanism to ensure that sufficient generation, transmission and demand response solutions will be available to preserve system reliability.

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On: September 29, 2006

## 2. **DEFINITIONS**

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

#### 2.1 Annual Revenue Rate

"Annual Revenue Rate" shall mean the rate employed to assess a compliance penalty charge on a Demand Resource Provider or ILR Provider under section 11.

## 2.2 Avoidable Cost Rate

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

#### 2.3 Base Load Generation Resource

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

# 2.4 Base Offer Segment

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

#### 2.5 Base Residual Auction

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

#### 2.6 Buy Bid

"Buy Bid" shall mean a bid to buy Capacity Resources in the First Incremental Auction or Third Incremental Auction.

# 2.7 Capacity Credit

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

Issued By:

Craig Glazer

Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On:

September 29, 2006

PJM Interconnection, L.L.C. FERC Electric Tariff
Sixth Revised Volume No. 1

## 2.8 Capacity Emergency Transfer Limit

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

# 2.9 Capacity Emergency Transfer Objective

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

## 2.10 Capacity Market Buyer

"Capacity Market Buyer" shall mean a Member that submits bids to buy Capacity Resources in the First Incremental Auction or Third Incremental Auction.

# 2.11 Capacity Market Seller

"Capacity Market Seller" shall mean a Member that owns, or has the contractual authority to control the output or load reduction capability of, a Capacity Resource, that has not transferred such authority to another entity, and that offers such resource in the Base Residual Auction or an Incremental Auction.

### 2.12 Capacity Resource

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

# 2.13 Capacity Resource Clearing Price

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

#### 2.14 Capacity Transfer Right

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

# 2.15 CONE Area

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

## 2.16 Cost of New Entry

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

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On: September 29, 2006

PJM Interconnection, L.L.C. FERC Electric Tariff Sixth Revised Volume No. 1

## 2.17 Daily Deficiency Rate

"Daily Deficiency Rate" shall mean the rate employed to assess certain deficiency charges under sections 7, 8, 9, or 12.

# 2.18 Daily Unforced Capacity Obligation

"Daily Unforced Capacity Obligation" shall mean the capacity obligation of a Load Serving Entity during the Delivery Year, determined in accordance with Schedule 8 of the Reliability Assurance Agreement.

## 2.19 Delivery Year

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

#### 2.20 Demand Resource

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

#### 2.21 Demand Resource Factor

"Demand Resource Factor" shall have the meaning specified in the Reliability Assurance Agreement.

### 2.22 Demand Resource Provider

"Demand Resource Provider" shall mean a Member that has the capability to reduce load, or that aggregates customers capable of reducing load. A Curtailment Service Provider, as defined in the Operating Agreement, may be a Demand Resource Provider, provided it qualifies its load reduction capability as a Demand Resource.

## 2.23 EFORd

"EFORd" shall have the meaning specified in the PJM Reliability Assurance Agreement.

# 2.24 EFORd Offer Segment

"EFORd Offer Segment" shall mean a component of a Sell Offer permitted under section 6 to address the potential for changes in EFORd in the time period between the conduct of an auction and the final determination of EFORd for a Delivery Year. If the Sell Offers of multiple Market Sellers are based on a single existing Generation Capacity Resource, the EFORd Offer Segments of such Market Sellers shall be determined pro rata based on their entitlements to Unforced Capacity from such resource.

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On: September 29, 2006

PJM Interconnection, L.L.C. FERC Electric Tariff Sixth Revised Volume No. 1

### 2.25 Equilibrium Zone

"Equilibrium Zone" shall mean: (a) for the VRR Curve for the PJM Region, any quantity of Unforced Capacity between (i) [the PJM Region Reliability Requirement multiplied by (100% plus IRM%) divided by (100% plus IRM%)] minus the Forecast RTO ILR Obligation; and (ii) [the PJM Region Reliability Requirement multiplied by (100% plus IRM% plus 2%) divided by (100% plus IRM%)] minus the Forecast RTO ILR Obligation; and (b) for the VRR Curve for any Locational Deliverability Area, any quantity of Unforced Capacity between (i) [the LDA Reliability Requirement multiplied by (100% plus IRM%)] minus the Forecast LDA ILR Obligation; and (ii) [the LDA Reliability Requirement multiplied by (100% plus IRM%)] minus the Forecast LDA ILR Obligation (if not previously accounted for in establishing the CETO for such LDA), where "Forecast LDA ILR Obligation" shall mean the sum of the Forecast Zonal ILR Obligations for all Zones in such LDA.

# 2.26 Final RTO Unforced Capacity Obligation

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

#### 2.27 First Incremental Auction

"First Incremental Auction" shall mean an auction conducted pursuant to Section 5 in which Market Sellers that committed Capacity Resources in the Base Residual Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year, may submit Buy Bids for replacement Capacity Resources.

#### 2.28 Forecast Pool Requirement

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

#### 2.29 Forecast RTO ILR Obligation

"Forecast RTO ILR Obligation" shall mean, in unforced capacity terms, the ILR Forecast for the PJM Region times the DR Factor, times the Forecast Pool Requirement.

### 2.30 Forecast Zonal ILR Obligation

"Forecast Zonal ILR Obligation" shall mean, in unforced capacity terms, the ILR Forecast for the Zone times the DR Factor, times the Forecast Pool Requirement.

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: September 29, 2006

Effective: June 1, 2007

PJM Interconnection, L.L.C. FERC Electric Tariff
Sixth Revised Volume No. 1

# 2.31 Generation Capacity Resource

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

#### 2.32 ILR Forecast

"ILR Forecast" shall mean, for a Delivery Year, the average annual megawatt quantity of ILR certified for the five Planning Periods preceding the date of the forecast; provided, however, that before such data becomes available for five Delivery Years under the Reliability Pricing Model, comparable data on Active Load Management (as defined in the preexisting reliability assurance agreements) from up to five prior Planning Periods shall be substituted as necessary; and provided further that, for transmission zones that were integrated into the PJM Region less than five years prior to the conduct of the Base Residual Auction for the Delivery Year, data on incremental load subject to mandatory interruption by Electric Distribution Companies within such zones shall be substituted as necessary.

#### 2.33 ILR Provider

"ILR Provider" shall mean a Member that has the capability to reduce load, or that aggregates customers capable of reducing load. A Curtailment Service Provider, as such term is defined in the PJM Operating Agreement, may be an ILR Provider, provided it obtains certification of its load reduction capability as ILR.

#### 2.34 Incremental Auction

"Incremental Auction" shall mean any of the First Incremental Auction, Second Incremental Auction, or Third Incremental Auction.

# 2.35 Incremental Capacity Transfer Right

"Incremental Capacity Transfer Right" shall mean a Capacity Transfer Right allocated to a Generation Interconnection Customer or Transmission Interconnection Customer obligated to fund a transmission facility or upgrade, to the extent such upgrade or facility increases the transmission import capability into a Locational Deliverability Area.

#### 2.36 Interruptible Load for Reliability (ILR)

"Interruptible Load for Reliability" or "ILR" shall have the meaning specified in the Reliability Assurance Agreement.

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On: September 29, 2006

PJM Interconnection, L.L.C. FERC Electric Tariff Sixth Revised Volume No. 1

# 2.37 Load Serving Entity (LSE)

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

# 2.38 Locational Deliverability Area (LDA)

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

### 2.39 Locational Deliverability Area Reliability Requirement

"Locational Deliverability Area Reliability Requirement" shall mean the projected internal capacity in the Locational Deliverability Area plus the Capacity Emergency Transfer Objective for the Delivery Year, as determined by the Office of the Interconnection in connection with preparation of the Regional Transmission Expansion Plan.

#### 2.40 Locational Price Adder

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

#### 2.41 Locational Reliability Charge

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

#### 2.42 Net Cost of New Entry

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

#### 2.43 Nominated Demand Resource Value

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

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On: September 29, 2006

PJM Interconnection, L.L.C. FERC Electric Tariff Sixth Revised Volume No. 1

#### 2.44 Nominated ILR Value

"Nominated ILR Value" shall mean the amount of load reduction that an ILR resource commits to provide either through direct load control, firm service level or guaranteed load drop programs. For ILR, the maximum Nominated ILR Capacity Value is limited, in accordance with the PJM Manuals, to the value appropriate for the method by which the load reduction would be accomplished, at the time the ILR is certified.

#### 2.45 **Opportunity Cost**

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

#### 2.46 **Peak-Hour Dispatch**

"Peak-Hour Dispatch" shall mean, for purposes of calculating the Energy and Ancillary Services Revenue Offset under section 5 of this Attachment, an assumption, as more fully set forth in the PJM Manuals, that the Reference Resource is dispatched in four distinct blocks of four hours of continuous output for each block from the peak-hour period beginning with the hour ending 0800 EPT through to the hour ending 2300 EPT for any day when the average real-time LMP for the area for which the Net Cost of New Entry is being determined is greater than, or equal to, the cost to generate (including the cost for a complete start and shutdown cycle) for at least two hours during each four-hour block, where such blocks shall be assumed to be dispatched independently; provided that, if there are not at least two economic hours in any given four-hour block, then the Reference Resource shall be assumed not to be dispatched for such block.

## 2.47 Peak Season

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

#### Percentage Internal Resources Required 2.48

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

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

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

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

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

Issued By:

Craig Glazer

Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On:

September 29, 2006

## 2.51 Planning Period

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

### 2.52 PJM Region

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

### 2.53 PJM Region Installed Reserve Margin

"PJM Region Installed Reserve Margin" shall have the meaning specified in the Reliability Assurance Agreement.

# 2.54 PJM Region Peak Load Forecast

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

### 2.55 PJM Region Reliability Requirement

"PJM Region Reliability Requirement" shall mean, for purposes of the Base Residual Auction, the Forecast Pool Requirement multiplied by the Preliminary PJM Region Peak Load Forecast; and, for purposes of the Second Incremental Auction, the Forecast Pool Requirement multiplied by the Final PJM Region Peak Load Forecast.

#### 2.56 Projected PJM Market Revenues

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

## 2.57 Qualifying Transmission Upgrade

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

### 2.58 Reference Resource

"Reference Resource" shall mean a combustion turbine generating station, configured with two General Electric Frame 7FA turbines with inlet air cooling to 50 degrees, Selective Catalytic Reduction technology, dual fuel capability, and a heat rate of 10,500 Mmbtu/MWh.

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

## 2.59 Reliability Assurance Agreement

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

## 2.60 Reliability Pricing Model Auction

"Reliability Pricing Model Auction" shall mean the Base Residual Auction or any Incremental Auction.

# 2.61 Resource Substitution Charge

"Resource Substitution Charge" shall mean a charge assessed on Capacity Market Buyers in a First Incremental Auction or Third Incremental Auction to recover the cost of replacement Capacity Resources.

### 2.62 Second Incremental Auction

"Second Incremental Auction" shall mean an auction conducted pursuant to Section 5, to secure the commitment of Capacity Resources as necessary to satisfy an increase in the PJM Region Peak Load Forecast above that reflected in the Base Residual Auction.

### 2.63 Sell Offer

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

#### 2.64 Sell Offer Price Cap

"Sell Offer Price Cap" shall mean a maximum offer price applicable to certain Market Sellers under certain conditions, as determined in accordance with Section 6.

#### 2.65 Self-Supply

"Self-Supply" shall mean Capacity Resources secured by a Load-Serving Entity, by ownership or contract, outside a Reliability Pricing Model Auction, and used to meet obligations under this Attachment or the Reliability Assurance Agreement through submission in a Base Residual Auction of a Sell Offer indicating such Market Seller's intent that such Capacity Resource be committed regardless of clearing price. An LSE may submit a Sell Offer with a price bid for an owned or contracted Capacity Resource, but such Sell Offer shall not be deemed "Self-Supply," solely as such term is used in this Attachment.

Issued By: C1

Craig Glazer

Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On:

September 29, 2006

### 2.66 Third Incremental Auction

"Third Incremental Auction" shall mean an auction conducted pursuant to Section 5, in which Market Sellers that committed Capacity Resources in the Base Residual, First Incremental, or Second Incremental Auction for a Delivery Year, which subsequently are determined to be unavailable to deliver the committed Unforced Capacity in such Delivery Year, may submit Buy Bids for replacement Capacity Resources.

### 2.67 Transition Adder

"Transition Adder" shall mean a component of a Sell Offer permitted for certain Capacity Market Sellers for the Transition Period, as set forth in section 17.

### 2.68 Transition Period

"Transition Period" shall mean the four-year period consisting of the Delivery Years commencing June 1, 2007, June 1, 2008, June 1, 2009, and June 1, 2010.

# 2.69 Unforced Capacity

"Unforced Capacity" shall have the meaning specified in the Reliability Assurance Agreement.

# 2.70 Variable Resource Requirement Curve

"Variable Resource Requirement Curve" shall mean a series of maximum prices that can be cleared in a Base Residual Auction for Unforced Capacity, corresponding to a series of varying resource requirements based on varying installed reserve margins, as determined by the Office of the Interconnection for the PJM Region and for certain Locational Deliverability Areas in accordance with the methodology provided in Section 5.

# 2.71 Zonal Capacity Price

"Zonal Capacity Price" shall mean the clearing price required in each Zone to meet the demand for Unforced Capacity and satisfy Locational Deliverability Requirements for the LDA or LDAs associated with such Zone. If the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA.

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: September 29, 2006

#### RESPONSIBILITIES OF THE OFFICE OF THE INTERCONNECTION 3.

#### **Support for Self-Supply** 3.1

The Office of the Interconnection shall (a) support electronic tools to facilitate communication by Market Sellers and Market Buyers of information to the Office of the Interconnection concerning Self-Supply arrangements; (b) support an electronic bulletin board providing a forum for prospective buyers and sellers to transact Capacity Resources outside the Reliability Pricing Model Auctions, in accordance with procedures set forth in the PJM Manuals; (c) define one or more capacity trading hubs and determine and publicize values for such hubs based on the capacity prices determined for one or more Locational Deliverability Areas, in accordance with the PJM Manuals; and (d) establish procedures by which obligations to pay Locational Reliability Charges may be transferred between and among Load-Serving Entities and other Market Participants for purposes of settlement and billing, including procedures by which, before or after any Base Residual Auction, a Load Serving Entity or other Market Participant seeking to effectuate any such transfer shall identify to the Office of the Interconnection the transferee, transferor, quantity of obligations to be transferred, start and end date of the transfer, and the location (for example, the LDA), including pricing for such location, for which an obligation to pay Locational Reliability Charges is calculated; provided, however, that any such transfer shall not alter the physical supply and demand balance in the Base Residual Auction, and that such transfers shall not establish any obligations that are incompatible with any such auction.

#### Administration of the Base Residual Auction and Incremental Auctions 3.2

The Office of the Interconnection shall conduct and administer the Base Residual Auction and Incremental Auctions in accordance with this Attachment, the Operating Agreement, and the Reliability Assurance Agreement. Administration of the Base Residual Auction and Incremental Auctions shall include, but not be limited to, the following:

- Determining the qualification of entities to become Capacity Market Sellers and Capacity Market Buyers;
- Determining PJM Region Peak Load Forecasts and Locational Deliverability Area Reliabilty Requirements;
- Determining ILR Forecasts; c)
- Determining the need, if any, for a Second Incremental Auction and calculating the PJM Region Peak Load Forecast for use in such auction;
- Calculating the EFORd for each Generation Capacity Resource in the PJM Region to be used in the Third Incremental Auction;

Issued By: Craig Glazer

Vice President, Federal Government Policy

September 29, 2006 Issued On:

- f) Receiving Buy Bids and Sell Offers, determining Locational Deliverability Requirements and Variable Resource Requirement Curves, and determining the clearing price that reflects all such inputs;
- g) Conducting settlements for auction transactions, including but not limited to rendering bills to, receiving payments from, and disbursing payments to, participants in Base Residual Auctions and Incremental Auctions.
- h) Maintaining such records of Sell Offers and Buy Bids, clearing price determinations, and other aspects of auction transactions, as may be appropriate to the administration of Base Residual Auctions and Incremental Auctions; and
- i) Posting of selected non-confidential data used in Reliability Pricing Model Auctions to calculate clearing prices and other auction results, as appropriate to inform market participants of auction conditions.

# 3.3 Records and Reports

The Office of the Interconnection shall prepare and maintain such records as are required for the administration of the Base Residual Auction and Incremental Auctions. For each auction conducted, the Office of the Interconnection shall, consistent with section 18.17 of the Operating Agreement, publish the following: (i) Zonal Capacity Prices for each LDA; (ii) Capacity Resource Clearing Prices for each LDA; (iii) Locational Price Adders; (iv) the total megawatts of Unforced Capacity that cleared; and (v) such other auction data as may be appropriate to the efficient and competitive conduct of the Base Residual Auction and Incremental Auctions. Such information shall be available on the PJM internet site through the end of the Delivery Year to which such auctions apply.

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: September 29, 2006

#### 4. GENERAL PROVISIONS

### 4.1 Capacity Market Sellers

Only Capacity Market Sellers shall be eligible to submit Sell Offers into the Base Residual Auction and Incremental Auctions. Capacity Market Sellers shall comply with the terms and conditions of all Sell Offers, as established by the Office of the Interconnection in accordance with this Attachment and the Operating Agreement.

### 4.2 Capacity Market Buyers

Only Capacity Market Buyers shall be eligible to submit Buy Bids into the First Incremental Auction or Third Incremental Auction. Capacity Market Buyers shall comply with the terms and conditions of all Buy Bids, as established by the Office of the Interconnection in accordance with this Attachment and the Operating Agreement.

### 4.3 Agents

A Capacity Market Seller may participate in the Base Residual Auction through an Agent, provided that the Capacity Market Seller informs the Office of the Interconnection in advance in writing of the appointment and authority of such Agent. A Capacity Market Buyer may participate in a First Incremental Auction or a Third Incremental Auction through an Agent, provided that the Capacity Market Buyer informs the Office of the Interconnection in advance in writing of the appointment and authority of such Agent. A Capacity Market Buyer or Capacity Market Seller participating in such an auction through an Agent shall be bound by all of the acts or representations of such Agent with respect to transactions in such auction. Any written instrument establishing the authority of such Agent shall provide that any such Agent shall comply with the requirements of this Attachment and the Operating Agreement.

# 4.4 General Obligations of Capacity Market Buyers and Capacity Market Sellers

Each Capacity Market Buyer and Capacity Market Seller shall comply with all laws and regulations applicable to the operation of the Base Residual and Incremental Auctions and the use of these auctions shall comply with all applicable provisions of this Attachment, the Operating Agreement, and the Reliability Assurance Agreement, and all procedures and requirements for the conduct of the Base Residual and Incremental Auctions and the PJM Region established by the Office of the Interconnection in accordance with the foregoing.

### 4.5 Confidentiality

The following information submitted to the Office of the Interconnection in connection with any Base Residual Auction, Incremental Auction, or Reliability Backstop Auction shall be deemed confidential information for purposes of Section 18.17 of the Operating Agreement: (i) the terms and conditions of the Sell Offers and Buy Bids; and (ii) the terms and conditions of any bilateral transactions for Capacity Resources.

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

# 5. CAPACITY RESOURCE COMMITMENT

#### 5.1 Introduction

In accordance with the Reliability Assurance Agreement, each Load Serving Entity is obligated to pay a Locational Reliability Charge for each Zone in which it serves load based on the Daily Unforced Capacity Obligation of its loads in such Zone. An LSE may offset the Locational Reliability charge for a Delivery Year, in whole or in part, by: (a) Self-Supply of Capacity Resources in the Base Residual Auction; (b) offering and clearing Capacity Resources in the Base Residual Auction or, if one is conducted, a Second Incremental Auction (but only to the extent of the additional resources allocated through such Second Incremental Auction to such Zone); (c) obtaining certification of load reduction capability as ILR three months prior to the start of the Delivery Year; (d) receiving payments from Capacity Transfer Rights; or (e) offering and clearing Qualifying Transmission Upgrades in the Base Residual Auction.

# 5.2 Nomination of Self Supplied Capacity Resources

A Capacity Market Seller, including a Load Serving Entity, may designate a Capacity Resource as Self-Supply for a Delivery year by submitting a Sell Offer for such resource in the Base Residual Auction in accordance with the procedure and time schedule set forth in the PJM Manuals, except that the LSE shall indicate its intent in the Sell Offer to commit the resource regardless of clearing price. Upon receipt of a Self-Supply Sell Offer, the Office of the Interconnection will verify that the designated Capacity Resource is available, in accordance with Section 5.6, and will treat such Capacity Resource as committed in the clearing process of the Base Residual Auction for such Delivery Year. To address capacity obligation quantity uncertainty associated with the Variable Resource Requirement Curve, a Load Serving Entity may submit a Sell Offer with a contingent designation of a portion of its Capacity Resources as either Self-Supply (to the extent required to meet a portion (as specified by the LSE) of the LSE's peak load forecast in each transmission zone) or as subject to an offer price (to the extent not so required), in accordance with the PJM Manuals.

# 5.3 Commitment of Contractually Purchased Capacity Resources

A Load Serving Entity that has purchased the right to the capacity output of a generation resource and desires to commit such right as a Capacity Resource for a Delivery Year shall be considered a Capacity Market Seller. Such an LSE must submit a Sell Offer in the Base Residual Auction for such Delivery Year, in accordance with the procedure and time schedule set forth in the PJM Manuals. In such Sell Offer, the Capacity Resource offered by the LSE may be submitted as Self-Supply or with an offer price.

# 5.4 Reliability Pricing Model Auctions

The Office of the Interconnection shall conduct the following Reliability Pricing Model Auctions:

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: September 29, 2006

# a) Base Residual Auction.

PJM shall conduct for each Delivery Year a Base Residual Auction to secure commitments of Capacity Resources as needed to satisfy the portion of the Final RTO Unforced Capacity Obligation not satisfied through Self-Supply of Capacity Resources for such Delivery Year. All Self-Supply Capacity Resources must be offered in the Base Residual Auction. As set forth in section 6.6, all other Capacity Resources, and certain other existing generation resources, must be offered in the Base Residual Auction. Except during the Transition Period, the Base Residual Auction shall be conducted in the month of May that is three years prior to the start of such Delivery Year. The cost of payments to Capacity Market Sellers for Capacity Resources that clear such auction shall be collected from Load Serving Entities through the Locational Reliability Charge during such Delivery Year.

# b) First Incremental Auction.

PJM shall conduct for each Delivery Year a First Incremental Auction to allow Capacity Market Sellers that committed Capacity Resources in the Base Residual Auction for such Delivery Year to submit Buy Bids for replacement Capacity Resources. The need to purchase replacement Capacity Resources may arise from resource retirement, resource cancellation or construction delay, resource derating, EFORd increase, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences. The cost of payments to Capacity Market Sellers for Capacity Resources that clear such auction shall be collected from Capacity Market Buyers that purchase replacement Capacity Resources in such auction. Except during the Transition Period, the First Incremental Auction shall be conducted in the month of June that is twenty-three months prior to the start of the Delivery Year.

## c) Second Incremental Auction.

PJM shall conduct for any Delivery Year a Second Incremental Auction if necessary to secure additional commitments of Capacity Resources to satisfy an increase in the Unforced Capacity Obligation of the PJM Region due to a load forecast increase. Such auction shall be conducted only if the Final RTO Unforced Capacity Obligation less the Forecast ILR Obligation, as calculated in accordance with the PJM Manuals immediately prior to the conduct of the Second Incremental Auction, is 100 megawatts or greater than the quantity of megawatts cleared in the Base Residual Auction for such Delivery Year. If held, the Second Incremental Auction shall be conducted in the month of April that is thirteen months prior to the start of such Delivery Year. The cost of payments to Market Sellers for Capacity Resources cleared in such auction shall be collected from Load Serving Entities through an adjustment to the Locational Reliability Charge for such Delivery Year.

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

# d) Third Incremental Auction.

PJM shall conduct for each Delivery Year a Third Incremental Auction to allow Capacity Market Sellers that committed Capacity Resources in the Base Residual Auction, First Incremental auction, or Second Incremental Auction for such Delivery Year to submit Buy Bids for replacement Capacity Resources. The need to purchase replacement Capacity Resources may arise from resource retirement, resource cancellation or construction delay, resource derating, EFORd increase, a decrease in the Nominated Demand Resource Value of a Planned Demand Resource, delay or cancellation of a Qualifying Transmission Upgrade, or similar occurrences. The cost of payments to Capacity Market Sellers for Capacity Resources that clear such auction shall be collected from Capacity Market Buyers that purchase replacement Capacity Resources in such auction. Except during the Transition Period, the Third Incremental Auction shall be conducted in the month of January that is four months prior to the start of such Delivery Year.

# 5.5 Eligibility for Participation in RPM Auctions

A Capacity Market Seller may submit a Sell Offer for a Capacity Resource in a Base Residual or Incremental Auction only if such seller owns or has the contractual authority to control the output or load reduction capability of such resource and has not transferred such authority to another entity. Capacity Resources must satisfy the capability and deliverability requirements of Schedules 9 and 10 of the PJM Reliability Assurance Agreement, and, as applicable, the requirements for Demand Resources in Attachment DD-1 and Schedule 6 of the Reliability Assurance Agreement.

### 5.6 Sell Offers

Sell Offers shall be submitted or withdrawn via the internet site designated by the Office of the Interconnection, in accordance with the procedures and time schedule set forth in the PJM Manuals.

# 5.6.1 Specifications

A Sell Offer shall state quantities in increments of 0.1 megawatts and shall specify, as appropriate:

- a) Identification of the Generation Capacity Resource or Demand Resource on which such Sell Offer is based;
- b) The period of time during the Delivery Year that such Sell Offer is applicable; provided, however, that a Generation Capacity Resource located inside the PJM Region must offer its Unforced Capacity into the auction in accordance with section 6.6 of this Attachment.

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: February 20, 2007

Filed to comply with order of the Federal energy Regulatory Commission, Docket Nos. ER05-1410, EL05-148, issued on December 22, 2006, 117 FERC ¶ 61,331.

- c) Minimum and maximum megawatt quantity of installed capacity that the Capacity Market Seller is willing to offer (notwithstanding such specification, the product offered shall be Unforced Capacity), or designate as Self-Supply, from a Generation Capacity Resource;
  - i) Price, in dollars and cents per megawatt-day, that will be accepted by the Capacity Market Seller for the megawatt quantity of Unforced Capacity offered from such Generation Capacity Resource.
  - ii) The Sell Offer may take the form of offer segments with varying price-quantity pairs for varying output levels from the underlying resource, but may not take the form of an offer curve with nonzero slope. If the Capacity Market Seller wishes to include an EFORd Offer Segment, then the Sell Offer shall indicate the quantity level corresponding to the Base Offer Segment.
  - d) EFORd of each Generation Capacity Resource offered.
    - i) If a Capacity Market Seller is offering such resource in a Base Residual Auction, First Incremental Auction, or Second Incremental Auction, the Capacity Market Seller shall specify the EFORd to apply to the offer.
    - ii) If a Capacity Market Seller is committing the resource as Self-Supply, the Capacity Market Seller shall specify the EFORd to apply to the commitment.
    - iii) The EFORd applied to the Third Incremental Auction will be the final EFORd established by the Office of the Interconnection six (6) months prior to the Delivery Year, based on the actual EFORd in the PJM Region during the 12-month period ending September 30 that last precedes such Delivery Year.

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- e) The Nominated Demand Resource Value for each Demand Resource offered. The Office of the Interconnection shall convert such value to an Unforced Capacity basis by multiplying such value by the DR Factor times the Forecast Pool Requirement.
- f) The price at which the Capacity Market Seller is willing to sell a Demand Resource, which must be expressed as greater than or equal to a stated Capacity Resource Clearing Price.
- g) For a Qualifying Transmission Upgrade, the Sell Offer shall identify such upgrade, and the Office of the Interconnection shall determine and certify the increase in CETL provided by such upgrade. The Capacity Market Seller may offer the upgrade with an associated increase in CETL to an LDA in accordance with such certification, including an offer price that will be accepted by the Capacity Market Seller, stated in dollars and cents per megawatt-day as a price difference between a Capacity Resource located outside such an LDA and a Capacity Resource located inside such LDA; and the increase in CETL into such LDA to be provided by such Qualifying Transmission Upgrade, as certified by the Office of the Interconnection.

# 5.6.2 Compliance with PJM Credit Policy

Capacity Market Sellers shall comply with the provisions of the PJM Credit Policy as set forth in Attachment Q to this Tariff, including the provisions specific to the Reliability Pricing Model, prior to submission of Sell Offers in any Reliability Pricing Model Auction.

## 5.6.3 Demand Resources

A Sell Offer for a Delivery Year that is based on an existing Demand Resource located in an LDA that fails the Market Structure Screen for such Delivery Year pursuant to section 6 shall not be eligible to set the clearing price in any Base Residual or Incremental Auction.

# 5.6.4 Qualifying Transmission Upgrades

A Qualifying Transmission Upgrade may not be the subject of any Sell Offer in a Base Residual Auction unless it has been approved by the Office of the Interconnection, including certification of the increase in Import Capability to be provided by such Qualifying Transmission Upgrade, no later than 45 days prior to such Base Residual Auction. No such approval shall be granted unless, at a minimum, a Facilities Study Agreement has been executed with respect to such upgrade, and such upgrade conforms to all applicable standards of the Regional Transmission Expansion Plan process.

# 5.6.5 Market-based Sell Offers

Subject to section 6, a Market Seller authorized by FERC to sell electric generating capacity at market-based prices, or that is not required to have such authorization, may submit Sell Offers that specify market-based prices in any Base Residual Auction or Incremental Auction.

Issued By: Craig Glazer Effective: June 1, 2007

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# 5.6.6 Availability of Capacity Resources for Sale

- a) The Office of the Interconnection shall determine the maximum quantity of megawatts of Unforced Capacity each Market Seller may offer in any Base Residual Auction or Incremental Auction, through verification of the availability of megawatts of Unforced Capacity from: (i) Capacity Resources owned by or under contract to the Market Seller, including Capacity Resources obtained through bilateral contract; (ii) the results of prior Reliability Pricing Model Auctions, if any, for such Delivery Year,; and (iii) such other information as may be available to the Office of the Interconnection. The Office of the Interconnection shall reject Sell Offers or portions of Sell Offers for Capacity Resources determined by it not to be available for sale.
- b) The Office of the Interconnection shall determine the maximum amount of Capacity Resources available for sale in a Base Residual Auction or Incremental Auction as of the beginning of the period during which Buy Bids and Sell Offers are accepted for each market, as applicable, in accordance with the time schedule set forth in the PJM Manuals. To enable the Office of the Interconnection to make this determination, no bilateral transactions for Capacity Resources applicable to the period covered by an auction will be processed from the beginning of the period for submission of Sell Offers and Buy Bids, as appropriate, for that auction until completion of the clearing determination for that market. Processing of such bilateral transactions will reconvene once clearing for that auction is completed.
- c) In order for a bilateral transaction for the purchase and sale of a Capacity Resource to be processed by the Office of the Interconnection, both parties to the transaction must notify the Office of the Interconnection of the transfer of the Capacity Resource from the seller to the buyer in accordance with procedures established by the Office of the Interconnection and set forth in the PJM Manuals.

### 5.7 Buy Bids

Buy Bids shall be submitted only in a First Incremental Auction or Third Incremental Auction. Buy Bids shall specify, as appropriate:

- a) The quantity of Unforced Capacity desired, in increments of 0.1 megawatt;
- b) The maximum price, in dollars and cents per megawatt per day, that will be paid by the buyer for the megawatt quantity of Unforced Capacity desired; and
- c) The desired LDA for a replacement Capacity Resource. In the event of delay or cancellation of a Qualifying Transmission Upgrade, the Buy Bid shall specify Capacity Resources in the LDA for which such Qualifying Transmission Upgrade was to increase CETL.

Issued By: Craig Glazer Effective: June 1, 2007

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## 5.8 Submission of Sell Offers and Buy Bids

Submission of Sell Offers and Buy Bids shall be subject to the following requirements:

- a) A Sell Offer or Buy Bid that fails to specify a positive megawatt quantity shall be rejected by the Office of the Interconnection.
- b) A Buy Bid that fails to specify price shall be rejected by the Office of the Interconnection. A Sell Offer that fails to either designate such offer as self-scheduled or to specify an offer price shall be rejected by the Office of the Interconnection
- c) All Sell Offers and Buy Bids must be received by the Office of the Interconnection during a specified period, as determined by the Office of the Interconnection, in accordance with the PJM Manuals. A Sell Offer or Buy Bid may be withdrawn by a notification of withdrawal received by the Office of the Interconnection at any time during the foregoing period, but may not be withdrawn after such period.
- d) Sell Offers or Buy Bids shall be submitted or withdrawn via the Internet site designated by the Office of the Interconnection; provided, however, that if the Internet site cannot be accessed at any time during the period specified for the applicable auction, a Sell Offer or Buy Bid may be submitted or withdrawn by electronic mail transmitted to the e-mail address, or faxed to the fax number, specified by the Office of the Interconnection in the PJM Manuals.
- e) Sell Offers must be based on the Capacity Market Seller's Capacity Resource position at the opening of the auction's bidding window.
- f) The Office of the Interconnection shall accept a Sell Offer only up to the megawatt amount of installed capacity of Capacity Resources owned or controlled by such Capacity Market Seller that has not previously been committed for the applicable Delivery Year.
- g) No Sell Offer shall be accepted from an FRR Entity unless it meets the requirements applicable to such offers under Schedule 8.1 of the Reliability Assurance Agreement.

### 5.9 Time Standard

All deadlines for the submission or withdrawal of Sell Offers or Buy Bids, or for other purposes specified in this Attachment, shall be determined by the prevailing time observed in the Eastern Time zone.

### 5.10 Auction Clearing Requirements

The Office of the Interconnection shall clear each Base Residual Auction and Incremental Auction for a Delivery Year in accordance with the following:

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a) Variable Resource Requirement Curve

The Office of the Interconnection shall determine Variable Resource Requirement Curves for the PJM Region and for such Locational Deliverability Areas as determined appropriate in accordance with subsection (a)(iii) for such Delivery Year to establish the level of Capacity Resources that will provide an acceptable level of reliability consistent with the Reliability Principles and Standards. It is recognized that the variable resource requirement reflected in the Variable Resource Requirement Curve can result in an optimized auction clearing in which the level of Capacity Resources committed for a Delivery Year exceeds the PJM Region Reliability Requirement (less the Forecast RTO ILR Obligation) or Locational Deliverability Area Reliability Requirement (less the Forecast Zonal ILR Obligation for the Zones associated with such LDA) for such Delivery Year.

- i) Methodology to Establish the Variable Resource Requirement Curve
  Prior to the Base Residual Auction, in accordance with the schedule in the
  PJM Manuals, the Office of the Interconnection shall establish the Variable
  Resource Requirement Curve for the PJM Region as follows:
  - Each Variable Resource Requirement Curve shall be plotted on a graph on which Unforced Capacity is on the x-axis and price is on the y-axis;
  - The Variable Resource Requirement Curve for the PJM Region shall be plotted by first combining (i) a horizontal line from the y-axis to point (1), (ii) a straight line connecting points (1) and (2), (iii) a straight line connecting points (2) and (3), and (iv) a vertical line from point (3) to the x-axis, where,:
    - For point (1), price equals: [1.5 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)] divided by (one minus the pool-wide average EFORd) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by (100% plus the approved PJM Region Installed Reserve Margin ("IRM")% minus 3%) divided by (100% plus IRM%)] minus the Forecast RTO ILR Obligation;
    - For point (2), price equals: (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset) divided by (one minus the pool-wide average EFORd) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by (100% plus IRM% plus 1%) divided by (100% plus IRM%)] minus the Forecast RTO ILR Obligation; and

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- For point (3), price equals [0.2 times (the Cost of New Entry minus the Net Energy and Ancillary Service Revenue Offset)] divided by (one minus the pool-wide average EFORd) and Unforced Capacity equals: [the PJM Region Reliability Requirement multiplied by (100% plus IRM% plus 5%) divided by (100% plus IRM%)] minus the Forecast RTO ILR Obligation;
- For any Delivery Year, the Office of the Interconnection shall establish a ii) separate Variable Resource Requirement Curve for each LDA for which the Capacity Emergency Transfer Limit is less than 1.05 times the Capacity Emergency Transfer Objective, as determined by the Office of the Interconnection in accordance with NERC and Applicable Regional Reliability Council guidelines; provided however that the Office of the Interconnection may establish a separate Variable Resource Requirement Curve for an LDA for which such margin is greater than 105% if it finds that such is required to achieve an acceptable level of reliability consistent with the Reliability Principles and Standards, in which case the Office of the Interconnection shall post such finding, such LDA, and such Variable Resource Requirement Curve on its internet site no later than the March 31 last preceding the Base Residual Auction for such Delivery Year. The same process as set forth in subsection (a)(i) shall be used to establish the Variable Resource Requirement Curve for any such LDA, except that the Locational Deliverability Area Reliability Requirement for such LDA shall be substituted for the PJM Region Reliability Requirement, and the Forecast Zonal ILR Obligation for the Zones associated with such LDA shall be substituted for the Forecast RTO ILR Obligation; provided, however, that the Forecast Zonal ILR Obligation shall not be subtracted from the LDA Reliability Requirement for such LDA if such ILR obligation previously was accounted for in determining the CETO for such LDA.
- iii) Procedure for ongoing review of Variable Resource Requirement Curve shape

At least every three years, the Office of the Interconnection shall perform a review of the shape of the Variable Resource Requirement Curve, as established by the requirements of the foregoing subsection. Such analysis shall be based on simulation of market conditions to quantify the ability of the market to invest in new Capacity Resources and to meet the applicable reliability requirements on a probabilistic basis. Based on the results of such review, PJM shall prepare a recommendation to either modify or retain the

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existing Variable Resource Requirement Curve shape. The Office of the Interconnection shall post the recommendation and shall review the recommendation through the stakeholder process to solicit stakeholder input. If a modification of the Variable Resource Requirement Curve shape is recommended, the following process shall be followed:

- A) If the Office of the Interconnection determines that the Variable Resource Requirement Curve shape should be modified, Staff of the Office of the Interconnection shall propose a new Variable Resource Requirement Curve shape on or before September 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
- B) The PJM Members shall review the proposed modification to the Variable Resource Requirement Curve shape.
- C) The PJM Members shall either vote to endorse the proposed modification, to propose alternate modifications or to recommend no modification by January 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
- D) The PJM Board of Managers shall consider a proposed modification to the Variable Resource Requirement Curve shape, and the Office of the Interconnection shall file any approved modified Variable Resource Requirement Curve shape with the FERC by January 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

# iv) Cost of New Entry

A) During the Transition Period, and continuing thereafter unless and until changed pursuant to subsection (B) below, the Cost of New Entry for the PJM Region shall be \$ 198 per MW-Day. The Cost of New Entry for each Locational Deliverability Area shall be determined based upon the Transmission Owner zones that comprise such Locational Deliverability Area, as provided in the table below. If an LDA combines transmission zones with differing Cost of New Entry values, the lowest such value shall be used.

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Geographic Location Within the PJM Region Encompassing These Zones	Cost of New Entry in \$/MW-Day
PS, JCP&L, AE, PECO, DPL, RECO	198
PPL, BGE, PEPCO, MetEd, Penelec, APS, DQL	203
AEP, Dominion, Dayton, ComEd	202

- B) Following the Transition Period, the CONE shall be subject to adjustment in accordance with the following:
- (1) The CONE in a CONE Area shall be evaluated for possible adjustment when there is a Net Demand for New Resources in the Base Residual Auctions over a period of three consecutive Delivery Years.
- (2) Net Demand for New Resources means that, for any such three-year period evaluated, the following formula yields a positive number:

FPR Adjusted Load Growth in Years 1 to 3 + Generation Retirements in Years 1 to 3 - Surplus Resources in Year 1 + (CETL in Year 3 - CETL in Year 1);

#### where:

FPR Adjusted Load Growth in Years 1 to 3 = (Preliminary Zonal Peak Load Forecast for all Zones in such CONE Area for the third Delivery Year in such evaluation minus the Preliminary Zonal Peak Load Forecast for such Zones for the Delivery Year immediately preceding the three Delivery Years evaluated) times the Forecast Pool Requirement (substituting in such calculation, however, a percentage figure of IRM + 1, rather than IRM);

Generation Retirements in Years 1 to 3 = all announced deactivations, pursuant to Part V of the PJM Tariff, of Existing Generation Capacity Resources in such CONE Area with an effective date of any day during the three consecutive Delivery Years evaluated, stated on an Unforced Capacity basis;

Surplus Resources in Year 1 = the total Unforced Capacity of all existing Generation Capacity Resources located in such CONE Area that are subject to the offer requirement in section 6.6 of this Attachment for the first Delivery Year evaluated, less the total Unforced Capacity corresponding to "Point Two" (as defined in section 5.10(a)(i)) on the

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Variable Resource Requirement Curves for all LDAs in such CONE Area for such Delivery Year.

CETL = Capacity Emergency Transfer Limit to the area for which there is a separate VRR curve.

- (3) For each CONE Area for which there is a Net Demand for New Resources over such three-year period, as determined pursuant to subsection (2) above, the CONE shall be adjusted (if at all) as prescribed by subsection (6) to the extent required based on the quantity of Unforced Capacity cleared in the Base Residual Auction, as set forth in subsection (5).
- (4) If a CONE Area encompasses areas with separate VRR Curves, then the procedures described in subsections (5) and (6) below will be applied separately for each area with a separate VRR Curve, and the CONE for the CONE Area will be determined as the average of the resulting CONE value for the areas, the average to be weighted by the LDA Reliability Requirement of each area. If, pursuant to subsection (7) below, a CONE Area that had been composed of areas with separate VRR Curves is divided into multiple CONE Areas, then the CONE for each new CONE Area will be reset based on the historical CONE values computed for that area, not the weighted average of the now-defunct CONE Area.
- (5) If the quantity of Unforced Capacity cleared in the Base Residual Auction for the third Delivery Year evaluated is:
  - (i) in the Equilibrium Zone, no change to CONE is required.
  - (ii) above the Equilibrium Zone, CONE shall be decreased in accordance with subsection (e); provided, however, that no change to CONE is required if the excess of Unforced Capacity relative to the Equilibrium Zone for the third Delivery Year evaluated is less than or equal to the excess of Unforced Capacity relative to the Equilibrium Zone for the first Delivery Year evaluated.
  - (iii) below the Equilibrium Zone, CONE shall be increased in accordance with subsection (6); provided, however, if CONE was increased as a result of Unforced Capacity clearing below the Equilibrium Zone in a CONE adjustment evaluation hereunder for such CONE Area for the immediately preceding Delivery Year, then CONE shall be increased only if the shortage of Unforced Capacity relative to the Equilibrium Zone for the third Delivery Year evaluated is greater than or equal to the shortage of Unforced Capacity relative to the Equilibrium Zone for the first Delivery Year evaluated.
- (6) In any case where an increase or decrease to CONE in a CONE Area is required by the above provisions:
  - (i) the then-current value of the Cost of New Entry for such CONE Area shall be compared against the Empirical CONE for such area,

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where:

Empirical CONE = the weighted average for all LDAs in the CONE Area (weighted by load in such LDAs) of: (i) the average Capacity Resource Clearing Price in each such LDA determined in the Base Residual Auctions for such three Delivery Years; plus (ii) the average of the Net Energy and Ancillary Market Revenue Offsets used in the Variable Resource Requirement Curve for such LDA for such three years.

- (ii) if an increase is required, CONE shall be increased by the lesser of (a) 0.50 times the positive difference between Empirical CONE and CONE; and (b) 0.10 times CONE.
- (iii) where a decrease is required, CONE shall be decreased by the lesser of (a) 0.50 times the negative difference between Empirical CONE and CONE; and (b) 0.10 times CONE.
- (7) Any LDA for which a separate VRR Curve has been established for the Base Residual Auctions for each of three consecutive Delivery Years shall be evaluated under the provisions of this section. If the result of such evaluation is that the CONE calculated for such LDA would differ by at least 10 percent from the CONE then applicable to such LDA, then such LDA shall be established as a CONE Area, with a Cost of New Entry adjusted based on the Cost of New Entry computed over the prior three Delivery Years for that LDA.
  - v) Net Energy and Ancillary Services Revenue Offset
    - A) The Office of the Interconnection shall determine the Net Energy and Ancillary Services Revenue Offset each year for the PJM Region as (A) the annual average of the revenues that would have been received by the Reference Resource during a period of consecutive calendar years (as specified in (B) below) preceding the time of the determination, based on (1) the heat rate and other characteristics of such Reference Resource; (2) fuel prices reported during such period at an appropriate pricing point for the PJM Region, with a fuel transmission adder appropriate for such region, as set forth in the PJM Manuals, assumed variable operation and maintenance expenses for such resource of \$5.00 per MWh, and actual PJM hourly average Locational Marginal Prices recorded in the PJM Region during such period; and (3) an assumption that the Reference Resource would be dispatched on a Peak-Hour Dispatch basis; plus (B) ancillary service revenues of \$2,254 per MW-year.

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- B) For each of the first three Delivery Years of the Transition Period, such determination shall be based on the six consecutive calendar years preceding the relevant BRA. For any subsequent Delivery Year, such determination shall be based on the three consecutive calendar years preceding the relevant BRA.
- C) The Office of the Interconnection also shall determine a Net Energy and Ancillary Market Revenue Offset each year for each subregion of the PJM Region for which the Cost of New Entry is determined, as identified above, using the same procedures and methods as set forth in the previous paragraph; provided, however, that: (1) the average hourly LMPs for the transmission zone in which such resource was assumed to be installed for purposes of the CONE estimate (as specified in the PJM Manuals) shall be used in place of the PJM Region-average hourly LMPs; (2) if such sub-region was not integrated into the PJM Region for the entire applicable period, then the offset shall be calculated using only those whole calendar years during which the sub-region was integrated; and (3) a posted fuel pricing point in such sub-region, if available, and (if such pricing point is not available) a fuel transmission adder appropriate to each assumed Cost of New Entry location from an appropriate PJM Region pricing point shall be used for each such sub-region.

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- vi) Process for Establishing Parameters of Variable Resource Requirement Curve
  - A) The parameters of the Variable Resource Requirement Curve will be established prior to the conduct of the Base Residual Auction for a Delivery Year and will be used for such Base Residual Auction.
  - B) The Office of the Interconnection shall determine the PJM Region Reliability Requirement and the Locational Deliverability Area Reliability Requirement for each Locational Deliverability Area for which a Variable Resource Requirement Curve has been established for such Base Residual Auction on or before February 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values will be applied, in accordance with the Reliability Assurance Agreement.
  - C) At least every three years, the Office of the Interconnection shall review the calculation of the Cost of New Entry for the PJM Region and for each Zone.
    - 1) If the Office of the Interconnection determines that the Cost of New Entry values should be modified, Staff of the Office of the Interconnection shall propose new Cost of New Entry values on or before September 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
    - 2) The PJM Members shall review the proposed values.
    - 3) The PJM Members shall either vote to endorse the proposed values or propose alternate values by January 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
    - The PJM Board of Managers shall consider Cost of New Entry values, and the Office of the Interconnection shall file any approved modified Cost of New Entry values with the FERC by January 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.
  - D) At least every three years, the Office of the Interconnection shall review the methodology set forth in this Attachment for determining the Net Energy and Ancillary Services Revenue Offset for the PJM Region and for each Zone.

Issued By: Craig Glazer Effective: June 1, 2007

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- 1) If the Office of the Interconnection determines that the Net Energy and Ancillary Services Revenue Offset methodology should be modified, Staff of the Office of the Interconnection shall propose a new Net Energy and Ancillary Services Revenue Offset methodology on or before September 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new methodology would be applied.
- 2) The PJM Members shall review the proposed methodology.
- The PJM Members shall either vote to endorse the proposed methodology or propose an alternate methodology by January 1, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new methodology would be applied.
- The PJM Board of Managers shall consider the Net Revenue Offset methodology, and the Office of the Interconnection shall file any approved modified Net Energy and Ancillary Services Revenue Offset values with the FERC by January 31, prior to the conduct of the Base Residual Auction for the first Delivery Year in which the new values would be applied.

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# b) Locational Requirements

The Office of Interconnection shall establish locational requirements prior to the Base Residual Auction to quantify the amount of Unforced Capacity that must be committed in each Locational Deliverability Area, in accordance with the PJM Reliability Assurance Agreement.

c) Preliminary PJM Region Peak Load Forecast for the Delivery Year

The Office of the Interconnection shall establish the Preliminary PJM Region Load Forecast for the Delivery Year in accordance with the PJM Manuals by February 1, prior to the conduct of the Base Residual Auction for such Delivery Year.

d) Final PJM Region Peak Load Forecast for Second Incremental Auction

The Office of the Interconnection shall establish the Final PJM Region Peak Load Forecast for a Delivery Year in accordance with the PJM Manuals by February 28, prior to the conduct of the Second Incremental Auction for such Delivery Year.

# 5.11 Posting of Information Relevant to the RPM Auctions

- a) In accordance with the schedule provided in the PJM Manuals, PJM will post the following information for a Delivery Year prior to conducting the Base Residual Auction for such Delivery Year:
  - i) The Preliminary PJM Region Peak Load Forecast (for the PJM Region, and allocated to each Zone) and the ILR Forecast by Locational Deliverability Area;
  - ii) The PJM Region Installed Reserve Margin, the Pool-wide average EFORd, and the Forecast Pool Requirement;
  - iii) The Demand Resource Factor;
  - iv) The PJM Region Reliability Requirement, and the Variable Resource Requirement Curve for the PJM Region;
  - v) The Locational Deliverability Area Reliability Requirement and the Variable Resource Requirement Curve for each Locational Deliverability Area for which a separate Variable Resource Requirement Curve has been established for such Base Residual Auction, and the CETO and CETL values for all Locational Deliverability Areas;
  - vi) Any Transmission Upgrades that are expected to be in service for such Delivery Year;
  - vii) The bidding window time schedule for each auction to be conducted for such Delivery Year

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- viii) The Net Energy and Ancillary Services Revenue Offset values for the PJM Region for use in the Variable Resource Requirement Curves for the PJM Region and each Locational Deliverability Area for which a separate Variable Resource Requirement Curve has been established for such Base Residual Auction; and
- ix) The results of the Preliminary Market Structure Screen in accordance with section 6.2(a).
- b) The information listed in (a), with the exception of the Preliminary PJM Region Peak Load Forecast and the Variable Resource Requirement Curves, will continue to be posted and applicable for the First, Second, and Third Incremental Auctions for such Delivery Year. The Variable Resource Requirement Curves shall remain posted during the auction process for a Delivery Year, but shall be used only in the Base Residual Auction for such Delivery Year.
- c) In accordance with the schedule provided in the PJM Manuals, PJM will post the Final PJM Region Peak Load Forecast and the allocation to each zone of the incremental obligation resulting from such final forecast, prior to conducting the Second Incremental Auction for such Delivery Year;
- d) In accordance with the schedule provided in the PJM Manuals, PJM will advise owners of Generation Capacity Resources of the updated EFORd values for such Generation Capacity Resources prior to the conduct of the Third Incremental Auction for such Delivery Year.

### 5.12 Conduct of RPM Auctions

The Office of the Interconnection shall employ an optimization algorithm for each Base Residual Auction and each Incremental Auction to evaluate the Sell Offers and other inputs to such auction to determine the Sell Offers that clear such auction.

a) Base Residual Auction

For each Base Residual Auction, the optimization algorithm shall consider:

- all Sell Offers submitted in such auction;
- the Variable Resource Requirement Curves for the PJM Region and each LDA;
- any constraints resulting from the Locational Deliverability Requirement;
- the PJM Region Reliability Requirement, minus the Forecast RTO ILR Obligation.

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Effective: June 1, 2007

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The optimization algorithm shall be applied to calculate the overall clearing result to minimize the cost of satisfying the reliability requirements across the PJM Region, regardless of whether the quantity clearing the Base Residual Auction is above or below the applicable target quantity, while respecting all applicable requirements and constraints. Where the supply curve formed by the Sell Offers submitted in an auction falls entirely below the Variable Resource Requirement Curve, the auction shall clear at the price-capacity point on the Variable Resource Requirement Curve corresponding to the total Unforced Capacity provided by all such Sell Offers. Where the supply curve consists only of Sell Offers located entirely below the Variable Resource Requirement Curve and Sell Offers located entirely above the Variable Resource Requirement Curve, the auction shall clear at the price-capacity point on the Variable Resource Requirement Curve corresponding to the total Unforced Capacity provided by all Sell Offers located entirely below the Variable Resource Requirement Curve. In determining the lowestcost overall clearing result that satisfies all applicable constraints and requirements, the optimization may select from among multiple possible alternative clearing results that satisfy such requirements, including, for example (without limitation by such example), accepting a lower-priced Sell Offer that intersects the Variable Resource Requirement Curve and that specifies a minimum capacity block, accepting a higher-priced Sell Offer that intersects the Variable Resource Requirement Curve and that contains no minimum-block limitations, or rejecting both of the above alternatives and clearing the auction at the higher-priced point on the Variable Resource Requirement Curve that corresponds to the Unforced Capacity provided by all Sell Offers located entirely below the Variable Resource Requirement Curve.

The Sell Offer price of a Qualifying Transmission Upgrade shall be treated as a capacity price differential between the LDAs specified in such Sell Offer between which CETL is increased, and the Import Capability provided by such upgrade shall clear to the extent the difference in clearing prices between such LDAs is greater than the price specified in such Sell Offer. The Capacity Resource clearing results and Capacity Resource Clearing Prices so determined shall be applicable for such Delivery Year.

## b) First Incremental Auction

For each First Incremental Auction, the optimization algorithm shall consider:

- the same locational constraints that were modeled in the Base Residual Auction; and
- the Sell Offers and Buy Bids submitted in such auction.

The optimization algorithm shall calculate the overall clearing result to minimize the cost of committing replacement Capacity Resources in response to the Buy Bids submitted, while satisfying or honoring such reliability requirements and constraints.

### c) Second Incremental Auction

For each Second Incremental Auction, the optimization algorithm shall consider:

• The PJM Region Reliability Requirement, less the Forecast RTO ILR Obligation;

Issued By: Craig Glazer Effective: June 1, 2007

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- For each LDA, such LDA's share of the Final RTO Peak Load Forecast less the Forecast RTO ILR Obligation;
- The Sell Offers submitted in such auction;
- The Unforced Capacity previously committed for such Delivery Year; and
- the same Locational Deliverability Requirements that were modeled in the Base Residual Auction.

The optimization algorithm shall calculate the overall clearing result to minimize the cost to satisfy the Unforced Capacity Obligation of the PJM Region to account for the Final PJM Peak Load Forecast, while satisfying or honoring such reliability requirements and constraints, in the same manner as set forth in subsection (a) above.

# Third Incremental Auction

For each Third Incremental Auction, the optimization algorithm shall consider:

- the same Locational constraints that were modeled in the Base Residual Auction; and
- the Sell Offers and Buy Bids submitted in such auction.

The optimization algorithm shall calculate the overall clearing result to minimize the cost of committing replacement Capacity Resources in response to the Buy Bids submitted, while satisfying or honoring such reliability requirements and constraints.

#### Equal-priced Sell Offers (e)

If two or more Sell Offers submitted in any auction satisfying all applicable constraints include the same offer price, and some, but not all, of the Unforced Capacity of such Sell Offers is required to clear the auction, then the auction shall be cleared in a manner that minimizes total costs, including total make-whole payments if any such offer includes a minimum block and, to the extent consistent with the foregoing, in accordance with the following additional principles:

- as necessary, the optimization shall clear such offers that have a flexible megawatt quantity, and the flexible portions of such offers that include a minimum block that already has cleared, where some but not all of such equal-priced flexible quantities are required to clear the auction, pro rata based on their flexible megawatt quantities; and
- when equal-priced minimum-block offers would result in equal overall costs, including make-whole payments, and only one such offer is required to clear the auction, then the offer that was submitted earliest to the Office of the Interconnection, based on its assigned timestamp, will clear.

Craig Glazer Issued By:

September 29, 2006 Issued On:

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### 5.13 Certification of ILR

No later than three months prior to the start of the Delivery Year, ILR Providers may submit resources for review and certification by the Office of the Interconnection, in accordance with Attachment DD-1, the Reliability Assurance Agreement, and the PJM Manuals, as ILR Resources for the Delivery Year. In accordance with Attachment DD-1 and Schedule 6 of the Reliability Assurance Agreement, ILR Providers must provide the Nominated ILR Value for the ILR resources certified.

# 5.14 Clearing Prices and Charges

# a) Capacity Resource Clearing Prices

For each Base Residual Auction and Incremental Auction, the Office of the Interconnection shall calculate a clearing price to be paid for each megawatt-day of Unforced Capacity that clears in such auction. The Capacity Resource Clearing Price for each LDA will be the sum of the following: (1) the marginal value of system capacity for the PJM Region, without considering locational constraints, and (2) the Locational Price Adder, if any in such LDA all as determined by the Office of the Interconnection based on the optimization algorithm. If a Capacity Resource is located in more than one Locational Deliverability Area, it shall be paid the highest Locational Price Adder in any applicable LDA in which the Sell Offer for such Capacity Resource cleared.

## b) Resource Make-Whole Payments

If a Sell Offer specifies a minimum block, and only a portion of such block is needed to clear the market in a Base Residual or Incremental Auction, the MW portion of such Sell Offer needed to clear the market shall clear, and such Sell Offer shall set the marginal value of system capacity. In addition, the Capacity Market Seller shall receive a Resource Make-Whole Payment equal to the Capacity Resource Clearing Price in such auction times the difference between the Sell Offer's minimum block MW quantity and the Sell Offer's cleared MW quantity. The cost for any such Resource Make-Whole Payments required in a Base Residual Auction or Second Incremental Auction shall be collected pro rata from all LSEs in the LDA in which such payments were made, based on their Daily Unforced Capacity Obligations. The cost for any such Resource Make-Whole Payments required in a First or Third Incremental Auction shall be collected from all Capacity Market Buyers in the LDA in which such payments were made, on a pro-rata basis based on the MWs purchased in such auction.

Issued By:

Craig Glazer

Effective: June 1, 2007

Vice President, Federal Government Policy

Issued On: February 20, 2007

Filed to comply with order of the Federal energy Regulatory Commission, Docket Nos. ER05-1410, EL05-148, issued on December 22, 2006, 117 FERC ¶ 61,331.

c) New Entry Price Adjustment

A Capacity Market Seller that submits a Sell Offer based on a Planned Generation Capacity Resource that clears in the BRA for a Delivery Year may, at its election, submit Sell Offers with a New Entry Price Adjustment in the BRAs for the two immediately succeeding Delivery Years if:

- a. Such Capacity Market Seller provides notice of such election at the time it submits its Sell Offer for such resource in the BRA for the first Delivery Year for which such resource is eligible to be considered a Planned Generation Capacity Resource;
- b. Acceptance of such Sell Offer in such BRA increases the total Unforced Capacity in the LDA in which such Resource will be located from a megawatt quantity below the LDA Reliability Requirement to a megawatt quantity corresponding to a point on the VRR Curve where price is no greater than 0.40 times the applicable Net CONE divided by (one minus the pool-wide average EFORd); and
- c. Such Capacity Market Seller submits Sell Offers in the BRA for the two immediately succeeding Delivery Years for the entire Unforced Capacity of such Generation Capacity Resource equal to the lesser of: 1) the price in such seller's Sell Offer for the BRA in which such resource qualified as a Planned Generation Capacity Resource; or 2) 0.90 times the then-current Net CONE, on an Unforced Capacity basis, for such LDA.

If the Sell Offer is submitted consistent with the foregoing conditions, then:

- i. in the first Delivery Year, the Resource sets the Capacity Resource Clearing Price for the LDA and all resources in the LDA receive the Capacity Resource Clearing Price.
- ii. in the subsequent two BRAs, if the Resource clears, it shall receive the higher of the foregoing Sell Offer price and the Capacity Resource Clearing Price for such LDA. If the Sell Offer price exceeds the Capacity Resource Clearing Price, the difference will be paid as a Resource Make-Whole Payment in accordance with Section 5.14(b). Other capacity resources that clear the BRA in such LDA receive the Capacity Resource Clearing Price as determined in Section 5.14(a).

Issued By: Craig Glazer Effective: June 1, 2007

Vice President, Federal Government Policy

iii. The failure to submit a Sell Offer consistent with Section 5.14(c)(i)-(iii) in the BRA for Delivery Year 3 shall not retroactively revoke the New Entry Price Adjustment for Delivery Year 2.

For each Delivery Year that the foregoing conditions are satisfied, the Office of the Interconnection shall maintain and employ in the auction clearing for such LDA a separate VRR Curve, notwithstanding the outcome of the test referenced in Section 5.10(a)(ii) of this Attachment.

# d) Qualifying Transmission Upgrade Payments

A Capacity Market Seller that submitted a Sell Offer based on a Qualifying Transmission Upgrade that clears in the Base Residual Auction shall receive a payment equal to the Capacity Resource Clearing Price, including any Locational Price Adder, of the LDA into which the Qualifying Transmission Upgrade is to increase Capacity Emergency Transfer Limit, less the Capacity Resource Clearing Price, including any Locational Price Adder, of the LDA from which the upgrade was to provide such increased CETL, multiplied by the megawatt quantity of increased CETL cleared from such Sell Offer. Such payments shall be reflected in the Locational Price Adder determined as part of the Final Zonal Capacity Price for the Zone associated with such LDAs.

# e) Locational Reliability Charge

In accordance with the Reliability Assurance Agreement, each LSE shall incur a Locational Reliability Charge (subject to certain offsets as described in sections 5.13 and 5.15) equal to such LSE's Daily Unforced Capacity Obligation in a Zone during such Delivery Year multiplied by the applicable Final Zonal Capacity Price in such Zone.

- f) The Office of the Interconnection shall determine Zonal Capacity Prices in accordance with the following, based on the optimization algorithm:
  - i) The Office of the Interconnection shall calculate and post the Preliminary Zonal Capacity Prices for each Delivery Year following the Base Residual Auction for such Delivery Year. The Preliminary Zonal Capacity Price for each Zone shall be the sum of: 1) the marginal value of system capacity for the PJM Region, without considering locational constraints; 2) the Locational Price Adder, if any, for the LDA in which such Zone is located; provided however, that if the Zone contains multiple LDAs with different Capacity Resource Clearing Prices, the Zonal Capacity Price shall be a weighted average of the Capacity Resource Clearing Prices for such LDAs, weighted by the Unforced Capacity of Capacity Resources cleared in each such LDA; and 3) an adjustment, if required, to account for Resource Make-Whole Payments, all as determined in accordance with the optimization algorithm.

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: September 29, 2006

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- ii) The Office of the Interconnection shall calculate and post the Adjusted Zonal Capacity Price following each Second Incremental Auction. The Adjusted Zonal Capacity Price for each Zone shall equal (1) the Preliminary Zonal Capacity Price, plus (2) the Zonal Capacity Price for such Zone in the Second Incremental Auction minus the Preliminary Zonal Capacity Price for such Zone, multiplied by the ratio of (y) the total megawatts of Unforced Capacity cleared in the Second Incremental Auction divided by (z) the sum of the megawatts of Unforced Capacity cleared in the Base Residual Auction and the megawatts of Unforced Capacity cleared in the Second Incremental Auction, plus the Forecast RTO ILR Obligation.
- iii) The Office of the Interconnection shall calculate and post the Final Zonal Capacity Price after all ILR resources are certified for the Delivery Year. The Final Zonal Capacity Price for each Zone shall equal the Adjusted Zonal Capacity Price, as further adjusted to reflect the certified ILR compared to the ILR Forecast previously used for such Delivery Year, and any decreases in the Nominated Demand Resource Value of any existing Demand Resource cleared in the Base Residual Auction and Second Incremental Auction.

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: September 29, 2006

# g) Resource Substitution Charge

Each Capacity Market Buyer in the First Incremental Auction or Third Incremental Auction shall pay a Resource Substitution Charge equal to the Capacity Resource Clearing Price resulting from such auction multiplied by the megawatt quantity of Unforced Capacity purchased by such Market Buyer in such auction.

- h) Minimum Offer Price Rule for Certain Planned Generation Capacity Resources
  - (1) Prior to each Base Residual Auction, the Market Monitoring Unit shall develop locational asset-class estimates of competitive, cost-based, real levelized (year one) Cost of New Entry, net of energy and ancillary service revenues ("Net Asset Class Cost of New Entry"). Other than the levelization approach. determination of the Cost of New Entry component of the Net Asset Class Cost of New Entry shall be consistent with the methodology used to determine the Cost of New Entry set forth in Section 5.10(a)(iv)(A) of this Attachment. Notwithstanding the foregoing, the Net Asset Class Cost of New Entry shall be zero for: (i) base load resources, such as nuclear, coal and Integrated Gasification Combined Cycle, that require a period for development greater than three years; (ii) any facility associated with the production of hydroelectric power; (iii) any upgrade or addition to an existing Generation Capacity Resource; or (iv) any Planned Generation Capacity Resource being developed in response to a state regulatory or legislative mandate to resolve a projected capacity shortfall in the Delivery Year affecting that state, as determined pursuant to a state evidentiary proceeding that includes due notice, PJM participation, and an opportunity to be heard.
  - (2) The Market Monitoring Unit shall evaluate any Sell Offer that is based on a Planned Generation Capacity Resource submitted in a Base Residual Auction for the first Delivery Year in which such resource qualifies as such a resource, in any LDA for which a separate VRR Curve has been established, and shall determine whether such Sell Offer meets each of the following criteria:
    - i. Sell Offer affects the Clearing Price;
  - ii. Sell Offer is less than 80 percent of the applicable Net Asset Class Cost of New Entry or, if there is no applicable Net Asset Class Cost of New Entry, less than 70 percent of the Net Asset Class Cost of New Entry for the Reference Resource effective in such LDA; and

Issued By: Craig Glazer

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Issued On: September 29, 2006

- iii. The Capacity Market Seller and any Affiliates has or have a "net short position" in such Base Residual Auction for such LDA that equals or exceeds (a) ten percent of the LDA Reliability Requirement, if less than 10,000 megawatts, or (b) five percent of the total LDA Reliability Requirement, if equal to or greater than 10,000 megawatts. A "net short position" shall be calculated as the actual retail load obligation minus the portfolio of supply. An "actual retail load obligation" shall mean the LSE's combined load served in the LDA at or around the time of the Base Residual Auction adjusted to account for load growth up to the Delivery Year, using the Forecast Pool Requirement. A "portfolio of supply" shall mean the Generation Capacity Resources (on an unforced capacity basis) owned by the Capacity Market Seller and any Affiliates at the time of the Base Residual Auction plus or minus any generation that is, at the time of the BRA, under contract for the Delivery Year.
- (3) If the Market Monitoring Unit determines that all of the criteria of Section 5.14(h)(2) are met, it shall notify the Capacity Market Seller of this determination. Within five business days, or such other period to which the Market Monitoring Unit consents, such Capacity Market Seller may supply the Market Monitoring Unit with specific information about the costs and operational parameters relating to its Sell Offer. If the Capacity Market Seller fails to supply any such information within the specified time, or if the Market Monitoring Unit determines (subject to the procedures in section 6.2(c) of this Attachment) that the information provided, combined with revenues that would be earned in PJM-administered markets as determined by PJM, does not support the offer, the applicable cost-based net Cost of New Entry determined in Section 5.14(h)(1) shall be used to establish an alternative Sell Offer. The alternative Sell Offer employed in place of the actual Sell Offer shall be equal to 90 percent of the applicable Net Asset Class Cost of New Entry or, if there is no applicable Net Asset Class Cost of New Entry equal to 80 percent of the Net Asset Class Cost of New Entry for the Reference Resource. Upon timely receipt of such information, the Market Monitoring Unit shall determine whether such Sell Offer is consistent with the real levelized (year one) competitive, costbased, fixed, net cost of new entry were the resource to rely solely on revenues from PJM-administered markets (i.e., were all output from the unit sold in PJM-administered spot markets). The Market Monitoring Unit shall adjust the alternative Sell Offer if appropriate on the basis of the relevant and reliable supporting information available and the application of an objective analysis.

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: January 22, 2007

Filed to comply with order of the Federal Energy Regulatory Commission, Docket No. ER05-1410, EL05-148, issued on Deember 22, 2006, 117 FERC ¶ 61,331.

- The Market Monitoring Unit shall request that the Office of the Interconnection perform a sensitivity analysis on any Base Residual Auction that included Sell Offers meeting the criteria of Section 5.14(h)(2), for which an acceptable alternative Sell Offer was not provided consistent with Section 5.14(h)(3). Such analysis shall re-calculate the clearing price for the Base Residual Auction employing in place of each actual Sell Offer meeting the criteria a substitute Sell Offer equal to 90 percent of the applicable estimated cost determined in accordance with Section 5.14(h)(1) above, or, if there is no applicable estimated cost, equal to 80 percent of the then-applicable Net CONE. If the resulting difference in price between the new clearing price and the initial clearing price differs by an amount greater than the greater of 20 percent or 25 dollars per megawatt-day for a total LDA Reliability Requirement greater than 15,000 megawatts; or the greater of 25 percent or 25 dollars per megawatt-day for a total LDA Reliability Requirement greater than 5,000 and less than 15,000 megawatts; or the greater of 30 percent or 25 dollars per megawatt-day for a total LDA Reliability Requirement of less than 5,000 megawatts; then the Market Monitoring Unit shall discard the results of the Base Residual Auction and determine a replacement clearing price and the identity of the accepted Capacity Resources using the procedure set forth in section 5.14(h)(5) below.
- (5) Including all of the Sell Offers in a single Base Residual Auction that meet the criteria of 5.14(h)(4) above, PJM shall first calculate the replacement clearing price and the total quantity of Capacity Resources needed for the LDA. PJM shall then accept Sell Offers to provide Capacity Resources in accordance with the following priority and criteria for allocation: (i) first, all Sell Offers in their entirety designated as self-supply; (ii) then, all Sell Offers of zero, prorating to the extent necessary, and (iii) then all remaining Sell Offers in order of the lowest price, subject to the optimization principles set forth in Section 5.14.
- (6) Notwithstanding the foregoing, this provision shall terminate when there exists a positive net demand for new resources, as defined in Section 5.10(a)(iv)(B) of this Attachment, calculated over a period of consecutive Delivery Years beginning with the first Delivery Year for which this Attachment is effective and concluding with the last Delivery Year preceding such calculation, in an area comprised of the Unconstrained LDA Group in existence during such first Delivery Year. Notwithstanding the foregoing, the Market Monitoring Unit shall reinstate the provisions of this section, solely under conditions in which a

Issued By: Craig Glazer Effective: June 1, 2007

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constrained LDA has a gross Cost of New Entry equal to or greater than 150 percent of the greatest prevailing gross Cost of New Entry in any adjacent LDA.

## 5.15 Capacity Transfer Rights

- (a) To recognize the value of Import Capability and provide a partial offset to potential Locational Price Adders that may be determined for an LDA (as to any Zone that encompasses two or more LDAs, the term "LDA" as used herein shall refer to such Zone, rather than to the LDAs it encompasses), the Office of the Interconnection shall allocate Capacity Transfer Rights to each LSE serving load in such LDA pro rata based on such LSE's Daily Unforced Capacity Obligation in such LDA. The total megawatts of Capacity Transfer Rights available for allocation shall equal the megawatts of Unforced Capacity imported into such LDA as determined in the Base Residual Auction ("Capacity Imported"), less any Incremental Capacity Transfer Rights into such LDA allocated pursuant to section 5.16 (but not less than zero), and shall be subject to change in subsequent Delivery Years as a result of changes in the quantity of such Capacity Imported into such LDA. Each change in an LSE's Daily Unforced Capacity Obligation during a Delivery Year shall result in a corresponding change in the Capacity Transfer Rights allocated to such LSE.
- Locational Price Adder, the holder of the Capacity Transfer Rights shall receive a payment during the Delivery Year equal to (i) the Locational Price Adder determined as a result of such auction for such LDA minus the Locational Price Adder for the LDA from which Unforced Capacity is imported to determine the Capacity Transfer Right, multiplied by (ii) the megawatt quantity of the Capacity Transfer Right allocated to such LSE.(c) For purposes of any Second Incremental Auction in such LDA that results in a positive Locational Price Adder, the holder of a Capacity Transfer Right shall receive a payment during the Delivery Year equal to (i) the difference between the Locational Price Adder determined as a result of such auction for such LDA and the Locational Price Adder for the LDA from which Unforced Capacity is imported to determine the Capacity Transfer Right, multiplied by (ii) the megawatt quantity of the Capacity Transfer Right allocated to such LSE, multiplied by (iii) the ratio of the increase in the quantity of Capacity Imported into such LDA from the Base Residual Auction to the Second Incremental Auction, divided by the quantity of Unforced Capacity imported into such LDA in the Base Residual Auction.
- (d) Where an LDA is entirely contained within another LDA: (i) a portion of the Capacity Imported into the larger LDA will be allocated to the smaller LDA, based on the smaller LDA's proportion of the larger zone's unforced capacity obligation; (ii) the CTRs available for allocation to LSEs in the smaller LDA will include the product of the assigned portion of the larger LDA's Capacity Imported times the difference between the Locational Price Adder in the smaller LDA and the Locational Price Adder in the area from which capacity was imported into the larger LDA; and (iii) the total amount of Imported Capacity into the smaller LDA remaining for determination of further credits will be reduced by the allocation of credits attributable to Capacity Imported into the larger LDA.

Issued By: Craig Glazer Effective: June 1, 2007

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(e) Capacity Transfer Rights shall be transferable. A purchaser of Capacity Transfer Rights from the original party allocated such rights shall receive any payments due under this section or section 5.16, provided the seller and purchaser of such rights timely notify the Office of the Interconnection of such purchase, in accordance with procedures specified in the PJM manuals.

# 5.16 Incremental Capacity Transfer Rights

- The Office of the Interconnection shall allocate Incremental Capacity Transfer (a) Rights to a Generation Interconnection Customer or Transmission Interconnection Customer obligated to fund a transmission facility or upgrade through a rate or charge specific to such facility or upgrade, to the extent such upgrade or facility increases the Import Capability into a Locational Deliverability Area, with respect to any such transmission facility or upgrade interconnected to the Transmission System pursuant to Part IV of this Tariff, including transmission facilities or upgrades interconnected to the Transmission System pursuant to Part IV prior to the effective date of this Attachment. Incremental Capacity Transfer Rights shall be available for a facility or upgrade for a Delivery Year only if the Office of the Interconnection certifies the quantity of Import Capability provided by such facility or upgrade at least 45 days prior to the Base Residual Auction for such Delivery Year. The megawatt quantity of Incremental Capacity Transfer Rights allocated to such an Interconnection Customer shall equal the megawatt quantity of the increase in Import Capability across a locational constraint resulting from such upgrade or facility, provided that the total Incremental Capacity Transfer Rights awarded as to an LDA may not exceed the total Capacity Transfer Rights determined as to such LDA. A Capacity Market Seller that offers and clears a Qualifying Transmission Upgrade in the Base Residual Auction for a Delivery Year shall not receive Incremental Capacity Transfer Rights with respect to such upgrade for such Delivery Year.
- (b) For any Base Residual or Incremental Auction that results in a positive Locational Price Adder for such LDA, the holder of an Incremental Capacity Transfer Right shall receive a payment equal to such Locational Price Adder multiplied by the megawatt quantity of the Incremental Capacity Transfer Right allocated to such Interconnection Customer.

# 6. MARKET POWER MITIGATION

### 6.1 Applicability

The provisions of the Market Monitoring Plan in Attachment M to this Tariff apply to the Reliability Pricing Model Auctions. In addition, PJM shall apply market power mitigation measures, as set forth in this section 6, to any Base Residual Auction or Incremental Auction for any Locational Deliverability Area having a Locational Price Adder greater than zero as determined by the optimization algorithm pursuant to section 5.12, but only in the event the Sell Offers that were accepted by such algorithm to resolve any locational constraint giving rise to the Locational Price Adder (and that would not have been accepted absent such constraint), and all Sell Offers that would resolve such constraint remaining available but unaccepted by such algorithm, collectively fail the Market Structure Screen set forth in this section 6. PJM shall also apply market power mitigation measures, as set forth in this section 6, to any Base Residual Auction or Incremental Auction for the entire PJM Region. This section also specifies an offer requirement applicable to all Capacity Resources, regardless of Locational Deliverability Area.

Issued By: Craig Glazer Effective: June 1, 2007

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### 6.2 Process

- (a) By no later than three months (or such other time period as established for purposes of the Transition Period) prior to the conduct of the Base Residual Auction and each Incremental Auction for such Delivery Year, the Office of the Interconnection shall post the results of the Market Monitoring Unit's application of the Preliminary Market Structure Screen set forth below to each such LDA and to the entire PJM Region.
- (b) In accordance with the schedule specified in the PJM Manuals, following PJM's conduct of a Base Residual Auction or Incremental Auction pursuant to section 5.12, but prior to PJM's final determination of clearing prices and charges pursuant to section 5.14, PJM shall: (i) apply the Market Structure Test to any LDA having a Locational Price Adder greater than zero and to the entire PJM region; (ii) apply Offer Caps, if required under this section 6; and (iii) recompute the optimization algorithm to clear the auction with the Offer Caps in place.
- (c) Within seven days after the deadline for submission of Sell Offers in a Base Residual Auction or Incremental Auction, the Office of the Interconnection shall file with FERC a report of any determination made pursuant to sections 5.14(h), 6.5(a)(ii), or 6.7(c) identified in such sections as subject to the procedures of this section. Such report shall list each such determination, the information considered in making each such determination, and an explanation of each such determination. Any entity that objects to any such determination may file a written objection with FERC no later than seven days after the filing of the report. Any such objection must not merely allege that the determination was in error, and must provide support for the objection, demonstrating that the determination overlooked or failed to consider relevant evidence. In the event that no objection is filed, the determination shall be final. In the event that an objection is filed, FERC shall issue any decision modifying the determination no later than 60 days after the filing of such report; otherwise, the determination shall be final. Final auction results shall reflect any decision made by FERC regarding the report.

### 6.3 Market Structure Tests

- (a) Preliminary Market Structure Screen.
- (i) In sufficient time to permit the posting required by section 6.2(a), the Market Monitoring Unit shall apply the Preliminary Market Structure Screen to identify the LDAs in which Capacity Market Sellers must provide the data specified in section 6.7(b) for any auction conducted with respect to such Delivery Year and whether Capacity Market Sellers must provide this data for the entire PJM Region. For each LDA and for the PJM Region, the Preliminary Market Structure Screen will be based on: (1) the Unforced Capacity available for such Delivery Year from Generation Capacity Resources located in such area; and (2) the Locational Deliverability Area Reliability Requirement and the PJM Reliability Requirement. For purposes of this screen, any LDA for which a separate Variable Resource Requirement Curve has not been established under section 5.10 of this Attachment shall be combined with all other such LDAs that form an electrically contiguous area ("Unconstrained LDA Group"), and the screen shall be applied to such area in the aggregate, rather than to each such LDA

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: January 22, 2007

Filed to comply with order of the Federal Energy Regulatory Commission, Docket No. ER05-1410, EL05-148, issued on Deember 22, 2006, 117 FERC ¶ 61,331.

individually. Any such Unconstrained LDA Groups shall be identified in the posting required by section 6.2(a).

(ii) An LDA, Unconstrained LDA Group, or the entire PJM Region shall fail the Preliminary Market Structure Screen, and Capacity Market Sellers owning or controlling any Generation Capacity Resource located in such LDA, Unconstrained LDA Group, or region shall be required to provide the information specified in section 6.7, if any one of the following three conditions is met: (1) the market share of any Capacity Market Seller exceeds twenty percent; (2) the HHI for all such sellers is 1800 or higher; or (3) there are not more than three jointly pivotal suppliers.

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: January 22, 2007

Filed to comply with order of the Federal Energy Regulatory Commission, Docket No. ER05-1410, EL05-148, issued on Deember 22, 2006, 117 FERC ¶ 61,331.

#### (b) Market Structure Test.

- (i) In accordance with the schedule set under section 6.2, the Market Monitoring Unit shall apply the Market Structure Test to an LDA or the PJM Region if the conditions specified in section 6.5 are met as to such LDA.
- (ii) An LDA, Unconstrained LDA Group, or the PJM Region shall fail the Market Structure Test, and mitigation shall be applied to all jointly pivotal suppliers (including all Affiliates of such suppliers, and all third-party supply in the relevant LDA or Unconstrained LDA Group controlled by such suppliers by contract), if, as to the Sell Offers described in section 6.1, there are not more than three jointly pivotal suppliers.

#### (c) Determination of Incremental Supply

In applying the market structure screen and market structure test, the Market Monitoring Unit shall consider all incremental supply up to and including all such supply available at an effective cost less than or equal to 150% of the cost-based clearing price calculated using the incremental megawatts of supply available to solve the constraint and the need for megawatts to solve the constraint giving rise to a Locational Price Adder.

#### 6.4 Market Seller Offer Caps

The Market Seller Offer Cap, stated in dollars per MW-year, applicable to price-quantity offers within the Base Offer Segment for an existing Generation Capacity Resource shall be the Avoidable Cost Rate for such resource, less the Projected PJM Market Revenues for such resource. During the first three Delivery Years of the Transition Period, the Market Seller Offer Cap shall be increased for Sell Offers submitted by eligible Capacity Market Sellers in any Unconstrained LDA Group by the Transition Adder set forth in section 17.5 of this Attachment. The Market Seller Offer Cap applicable to price-quantity offers within the EFORd Offer Segment for an existing Generation Capacity Resource shall be the net Cost of New Entry for the Delivery Year. Notwithstanding the foregoing, the Market Seller Offer Cap for an existing Generation Capacity Resource shall be the Opportunity Cost for such resource, if applicable in accordance with section 6.7. Nothing herein shall preclude any Capacity Market Seller and the Market Monitoring Unit from agreeing to, nor require either such entity to agree to, an alternative market seller offer cap determined on a mutually agreeable basis. Any such alternative offer cap shall be filed with the FERC for its approval.

#### 6.5 Mitigation

The Office of the Interconnection shall apply market power mitigation measures to any Base Residual Auction or Incremental Auction for any LDA, Unconstrained LDA Group, or the PJM Region that, without mitigation, would have a Locational Price Adder greater than zero, but only in the event the cost-based Sell Offers that would be accepted by the optimization algorithm

Issued By: Craig Glazer Effective: June 1, 2007

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to resolve any locational constraint giving rise to the Locational Price Adder (and that would not have been accepted absent such constraint), and all cost-based Sell Offers made at a price less than or equal to 150 percent of the clearing price determined by the optimization algorithm that would help resolve such constraint remaining available but unaccepted by such algorithm, collectively fail the Market Structure Test.

- (a) Mitigation for Generation Capacity Resources.
  - i) Existing Generation Resource.

Mitigation will be applied on a unit-specific basis and only if the Sell Offer of Unforced Capacity from a Generation Capacity Resource: (1) is greater than the Market Seller Offer Cap applicable to such resource; and (2) would, absent mitigation, increase the Capacity Resource Clearing Price in the relevant auction. If such conditions are met, such Sell Offer shall be set equal to the Market Seller Offer Cap.

- ii) Planned Generation Capacity Resources
- (A) Sell Offers based on Planned Generation Capacity Resources shall be presumed to be competitive and shall not be subject to market power mitigation in the Base Residual Auction or Second Incremental Auction for the first Delivery Year for which such resource qualifies as a Planned Generation Capacity Resource, but may be rejected if found by the PJM Market Monitoring Unit not to be competitive in accordance with the criteria and procedures set forth below. Such resources shall be treated as Existing Generation Capacity Resources in the auctions for any subsequent Delivery Year; provided, however, that such resources may receive certain price assurances for the two Delivery Years immediately following the first Delivery Year of service under certain conditions as set forth in section 5.14 of this Attachment.
- (B) Sell Offers based on Planned Generation Capacity Resources submitted for the first year in which such resources qualify as Planned Generation Capacity Resources shall be deemed competitive and not be subject to mitigation if: (1) collectively all such Sell Offers provide Unforced Capacity in an amount equal to or greater than two times the incremental quantity of new entry required to meet the LDA Reliability Requirement; and (2) at least two unaffiliated suppliers have submitted Sell Offers for Planned Generation Capacity Resources in such LDA. Notwithstanding the foregoing, any Capacity Market Seller, together with Affiliates, whose Sell Offers based on Planned Generation Capacity Resources in that LDA are pivotal, shall be subject to mitigation.

Issued By: Craig Glazer Effective: June 1, 2007

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Where the two conditions stated in Paragraph (B) are not met, or the Sell Offer is pivotal, the Market Monitoring Unit shall (1) compare each such Sell Offer to Sell Offers submitted in other LDAs (with due recognition for locational differences) and to the Cost of New Entry for the LDA in which the offer otherwise would clear and other LDAs (with due recognition for locational differences); (2) evaluate potential barriers to new entry on the basis of interviews with potential suppliers and other market participants; and (3) determine (subject to the procedures in section 6.2(c) of this Attachment), based on that analysis, whether to reject such Sell Offer as non-competitive. Following the conduct of the applicable auction and before the final determination of clearing prices, in accordance with Section 6.2(b) above, the Market Monitoring Unit shall notify a Capacity Market Seller whose Sell Offer is deemed non-competitive and allows such Capacity Market Seller an opportunity to submit a revised Sell Offer. The Office of the Interconnection then shall clear the auction with such revised Sell Offer in place if the Market Monitoring Unit determines that such revised offer is competitive in accordance with the above criteria. If the revised Sell Offer is not deemed competitive, it will be rejected.

#### (b) Mitigation for Demand Resources

The Market Seller Offer Cap shall not be applied to Sell Offers of Planned Demand Resources. When the Market Structure Test is failed, any Sell Offers of existing Demand Resources shall not be considered in determining the Capacity Resource Clearing Price in any auction for the market for which such test was failed.

#### 6.6 Offer Requirement for Capacity Resources

- (a) To avoid application of subsection (d), all Unforced Capacity of all existing Generation Capacity Resources located in the PJM Region shall be offered (which may include submission as Self-Supply) in the Base Residual Auction for each Delivery Year, where Unforced Capacity is determined using an EFORd less than or equal to the EFORd for the 12 months ending on the September 30 that last precedes the submission of such offers.
- (b) Notwithstanding the foregoing, to address the risk of a change in EFORd between the auction and the Delivery Year, a Capacity Market Seller may include an EFORd Offer Segment in its Sell Offer(s) pursuant to section 6.7.
- (c) Existing generation resources in the PJM Region capable of qualifying as a Generation Capacity Resource may not avoid the rule in subsection (a) by failing to qualify as a Generation Capacity Resource, or by attempting to remove a unit previously qualified as a Generation Capacity Resource from classification as a Capacity Resource, excepting only generation resources that, as shown by appropriate documentation: (i) are reasonably expected to be physically unable to participate in the relevant Delivery Year; (ii) have a financially and physically firm commitment to an external sale of its capacity, or (iii) were interconnected to the Transmission System as Energy Resources and not subsequently converted to a Capacity Resource.
- (d) Any existing generation resource located in the PJM Region that is not offered into the Base Residual Auction for a Delivery Year, and that does not meet any of the

Issued By: Craig Glazer

Effective: June 1, 2007

SMM - 002043

Vice President, Federal Government Policy

Issued On: January 22, 2007

Filed to comply with order of the Federal Energy Regulatory Commission, Docket No. ER05-1410, EL05-148, issued on Deember 22, 2006, 117 FERC ¶ 61,331.

exceptions stated in the prior subsection: (i) may not participate in any subsequent auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year; and (iii) shall not be permitted to satisfy any LSE's Unforced Capacity Obligation, or any entity's obligation to obtain the commitment of Capacity Resources, for such Delivery Year.

- (e) To avoid application of subsection (f), any existing Generation Capacity Resource located in the PJM Region that is offered into the Base Residual Auction for a Delivery Year, but that does not clear in such auction, shall be offered in the First, Second, and Third Incremental Auctions for such Delivery Year, unless such Generation Capacity Resource, as shown by appropriate documentation, (i) is reasonably expected to be physically unable to participate in the relevant auction; (ii) has a financially and physically firm commitment to an external sale of its capacity; or (iii) was interconnected to the Transmission System as an Energy Resource and not subsequently converted to a Capacity Resource.
- (f) Any existing Generation Capacity Resource located in the PJM Region that is offered into the Base Residual Auction for a particular Delivery Year, does not clear in such auction, is not offered into the First, Second, or Third Incremental Auctions for such Delivery Year, and does not meet any of the exceptions stated in subsection (c): (i) may not participate in any subsequent auctions conducted for such Delivery Year; (ii) shall not receive any payments under section 5.14 for such Delivery Year; and (iii) shall not be permitted to satisfy any LSE's Unforced Capacity Obligation, or any entity's obligation to obtain the commitment of Capacity Resources, for such Delivery Year.
- (g) In addition to the remedies set forth in subsections (c), (d), (e), and (f), if the Market Monitoring Unit determines that one or more Capacity Market Sellers' failure to offer part or all of one or more existing generation resources into an auction would result in an increase of greater than five percent in any Zonal Capacity Price determined through such auction, the Office of the Interconnection shall apply to FERC for an order, on an expedited basis, directing such Capacity Market Seller to participate in the auction, or for other appropriate relief, and PJM will postpone clearing the auction pending FERC's decision on the matter.

#### 6.7 Data Submission

(a) Potential participants in any PJM Reliability Pricing Model Auction shall submit the following data, (all submitted data is subject to verification by the MMU) together with supporting documentation for each item, to the Market Monitoring Unit no later than four months prior to the posted date for the conduct of such auction a list of owned or controlled generation resources by PJM transmission zone for the specified Delivery Year, including the amount of gross capacity, the EFORd and the net (unforced) capacity.

Issued By: Craig Glazer

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Issued On: September 29, 2006

- (b) Except as provided in subsection (c) below, potential participants in any PJM Reliability Pricing Model Auction in any LDA or Unconstrained LDA Group that fails the Preliminary Market Structure Screen (or, if such region fails the screen, potential auction participants in the entire PJM Region) shall, in addition, submit the following data, (all submitted data is subject to verification by the MMU) together with supporting documentation for each item, to the Market Monitoring Unit no later than two months prior to the conduct of such auction:
  - i. If the Capacity Market Seller intends to submit a non-zero price in its Sell Offer in any such auction, the Capacity Market Seller shall submit a calculation of the Avoidable Cost Rate, EFORd Offer Segment, and Projected PJM Market Revenues, as defined in subsection (d) below, together with detailed supporting documentation.
  - ii. If the Capacity Market Seller intends to submit a Sell Offer based on opportunity cost, the Capacity Market Seller shall also submit a calculation of Opportunity Cost, as defined in subsection (d), with detailed supporting documentation.
- (c) Potential auction participants identified in subsection (b) above need not submit the data specified in that subsection for any Generation Capacity Resource:
  - i. that is in an Unconstrained LDA Group or, if this is the relevant market, the entire PJM Region, and is in a resource class determined by the Market Monitoring Unit as not likely to include the marginal price-setting resources in such auction; or
  - ii. for which the potential participant commits that any Sell Offer it submits as to such resource shall not include any price above the level identified for the relevant resource class by the Market Monitoring Unit.

The Market Monitoring Unit shall determine (subject to the procedures in section 6.2(c) of this Attachment), in its discretion, following stakeholder consultation, the resource classes and corresponding prices described in this subsection and shall identify such resource classes and prices in the posting required by section 6.2(a). Nothing herein precludes the Market Monitoring Unit from requesting additional information from any potential auction participant as deemed necessary by the Market Monitoring Unit, including, without limitation, additional cost data on resources in a class that is not otherwise expected to include the marginal price setting resource; and compliance with such request shall be a condition of participation in any auction. Any Sell Offer submitted in any auction that is inconsistent with any commitment made pursuant to this subsection shall be rejected, and the Capacity Market Seller shall be required promptly to resubmit a Sell Offer that complies with such commitments. If the Capacity Market Seller does not timely resubmit its Sell Offer, it shall be deemed to have submitted a Sell Offer that complies with the commitments made under this subsection, with a default price equal to the maximum price for the class of resource identified in the Sell Offer, as previously specified by the Market Monitoring Unit in the posting required by section 6.2(a). Notwithstanding the foregoing, if the Capacity Market Seller demonstrates to the satisfaction of the Market Monitoring Unit that a significant change in circumstances warrants submission of a Sell Offer that is inconsistent with a prior commitment under this subsection, then the Market Monitoring Unit shall allow such Sell Offer provided that the Capacity Market Seller promptly notifies the Market Monitoring Unit upon becoming aware of the change in circumstances and provides all information deemed necessary by the Market Monitoring Unit to

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: January 22, 2007

Filed to comply with order of the Federal Energy Regulatory Commission, Docket No. ER05-1410 FI 05-148 issued on Deember 22, 2006, 117 FFRC ¶ 61, 331

support such Sell Offer and that the offer is otherwise consistent with the requirements of this section 6. The obligation imposed under section 6.6(a) shall not be satisfied unless and until the Capacity Market Seller submits (or is deemed to have submitted) a Sell Offer that conforms to its commitments made pursuant to this subsection.

- (d) In order for costs to qualify for inclusion in the Market Seller Offer Cap, the Capacity Market Seller must provide to PJM relevant cost data concerning each data item specified. Based on the data and calculations submitted by the Capacity Market Sellers for each existing generation resource and the formulas specified below, the MMU shall calculate the Market Seller Offer Cap for each such resource, and notify the Capacity Market Seller one month prior to the auction whether such submittal will be accepted, and if not, provide to such seller detailed information as to why such submittal was not accepted. If a Capacity Market Seller fails to submit costs consistent with the above, it shall be required to submit any Sell Offer in such auction as Self-Supply. (All submitted data is subject to verification by the MMU.)
  - i. Avoidable Cost Rate: The Avoidable Cost Rate for an existing generation resource shall be determined using the formula below and applied to the unit's Base Offer Segment.
  - ii. Opportunity Cost: Opportunity Cost shall be the documented price available to an existing generation resource in a market external to PJM. In the event that the total MW of existing generation resources submitting opportunity cost offers in any auction for a Delivery Year exceeds the firm export capability of the PJM system for such Delivery Year, or the capability of external markets to import capacity in such year, PJM will accept such offers on a competitive basis. PJM will construct a supply curve of opportunity cost offers, ordered by opportunity cost, and accept such offers to export starting with the highest opportunity cost, until the maximum level of such exports is reached. The maximum level of such exports is the lesser of PJM's ability to permit firm exports or the ability of the importing area(s) to accept firm imports or imports of capacity, taking account of relevant export limitations by location. If, as a result, an opportunity cost offer is not accepted from an existing generation resource, the Market Seller Offer Cap applicable to Sell Offers relying on such generation resource shall be the Avoidable Cost Rate.

Issued By: Craig Glazer Effective: June 1, 2007

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- iii. EFORd Offer Segment: To address the risk of a change in EFORd for an existing generation resource between the auction and the Delivery Year, a Capacity Market Seller may submit a Sell Offer that includes a quantity of megawatts priced at up to the Net Cost of New Entry. Such quantity of megawatts shall be no greater than such resource's demonstrated summer net capability of installed capacity, as determined in accordance with the PJM Manuals, multiplied by, at the Capacity Market Seller's election, either: (A) the positive difference between such resource's five-year average EFORd for the five consecutive years ending three months prior to the submission of such Sell Offer and such resource's twelve-month average EFORd for the twelve months ending three months prior to the submission of such Sell Offer, or (B) the positive difference between the EFORd reasonably anticipated, based on known and measurable changes and supported by appropriate documentation, for the twelve months ending on the September 30 last preceding the commencement of the Delivery Year, and the twelve-month average EFORd for the twelve months ending three months prior to the submission of such Sell Offer.
- iv. Projected PJM Market Revenues, as defined by section 6.8(d), for any Generation Capacity Resource to which the Avoidable Cost Rate is applied.

#### 6.8 Avoidable Cost Definition

(a) Avoidable Cost Rate: The Avoidable Cost Rate for a Generation Capacity Resource that is the subject of a Sell Offer shall be determined using the following formula, expressed in dollars per MW-year:

#### Where:

• AOML (Avoidable Operations and Maintenance Labor) consists of the avoidable labor expenses related directly to operations and maintenance of the generating unit for the twelve months preceding the month in which the data must be provided. The categories of expenses included in AOML are those incurred for: (a) on-site based labor engaged in operations and maintenance activities; (b) off-site based labor engaged in on-site operations and maintenance activities directly related to the generating unit; and (c) off-site based labor engaged in off-site operations and maintenance activities directly related to generating unit equipment removed from the generating unit site.

Issued By:

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September 29, 2006

- AAE (Avoidable Administrative Expenses) consists of the avoidable administrative expenses related directly to employees at the generating unit for twelve months preceding the month in which the data must be provided. The categories of expenses included in AAE are those incurred for: (a) employee expenses (except employee expenses included in AOML); (b) environmental fees; (c) safety and operator training; (d) office supplies; (e) communications; and (f) annual plant test, inspection and analysis.
- AME (Avoidable Maintenance Expenses) consists of avoidable maintenance expenses (other than expenses included in AOML) related directly to the generating unit for the twelve months preceding the month in which the data must be provided. The categories of expenses included in AME are those incurred for: (a) chemical and materials consumed during maintenance of the generating unit; and (b) rented maintenance equipment used to maintain the generating unit.
- AVE (Avoidable Variable Expenses) consists of avoidable variable expenses related directly to the generating unit incurred in the twelve months preceding the month in which the data must be provided. The categories of expenses included in AVE are those incurred for: (a) water treatment chemicals and lubricants; (b) water, gas, and electric service (not for power generation); and (c) waste water treatment.
- ATFI (Avoidable Taxes, Fees and Insurance) consists of avoidable expenses related directly to the generating unit incurred in the twelve months preceding the month in which the data must be provided. The categories of expenses included in AFTI are those incurred for: (a) insurance, (b) permits and licensing fees, (c) site security and utilities for maintaining security at the site; and (d) property taxes.
- ACC (Avoidable Carrying Charges) consists of avoidable short-term carrying charges related directly to the generating unit in the twelve months preceding the month in which the data must be provided. Avoidable short-term carrying charges shall include short term carrying charges for maintaining reasonable levels of inventories of fuel and spare parts that result from short-term operational unit decisions as measured by industry best practice standards. For the purpose of determining ACC, short term is the time period in which a reasonable replacement of inventory for normal, expected operations can occur.

Issued By: Craig Glazer

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Issued On: September 29, 2006

- ACLE (Avoidable Corporate Level Expenses) consists of avoidable corporate level expenses directly related to the generating unit incurred in the twelve months preceding the month in which the data must be provided. Avoidable corporate level expenses shall include only such expenses that are directly linked to providing tangible services required for the operation of the generating unit proposed for Deactivation. The categories of avoidable expenses included in ACLE are those incurred for: (a) legal services, (b) environmental reporting; and (c) procurement expenses.
- APIR (Avoidable Project Investment Recovery Rate) = PI \* CRF
   Where:
  - PI is the amount of project investment reasonably required to enable a Generation Capacity Resource that is the subject of a Sell Offer to continue operating or improve availability during Peak-Hour Periods during the Delivery Year.
  - CRF is the annual capital recovery factor from the following table, applied in accordance with the terms specified below.

1 to 5	20	0.125
6 to 10	15	0.146
11 to 15	10	0.198
16 Plus	5	0.363
Mandatory Capital Expenditures ("CapEx")	4	0.450
40 Plus Alternative	1	1.100

Unless otherwise stated, Age of Existing Unit shall be equal to the number of years since the Unit commenced commercial operation, up to and through the relevant Delivery Year.

Remaining Life of Plant defines the amortization schedule (i.e., the maximum number of years over which the Project Investment may be included in the Avoidable Cost Rate.)

# **Capital Expenditures and Project Investment**

For any given Project Investment, a Capacity Market Seller may make a one-time election to recover such investment using: (i) the highest CRF and associated recovery schedule to which it is entitled; or (ii) the next highest CRF and associated recovery schedule. For these purposes, the CRF and recovery schedule for the "16 Plus" category is the next highest CRF and recovery schedule for both the "Mandatory CapEx" and the "40 Plus Alternative" categories. The Capacity Market Seller using the above table must provide the PJM Market Monitoring Unit with information, identifying and supporting such election, including but not limited to the age of the unit, the amount of the Project Investment, the purpose of the investment, evidence of corporate commitment (e.g., an SEC filing, a press release, or a letter from a duly authorized

Issued By: Craig Glazer Effective: June 1, 2007

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corporate officer indicating intent to make such investment), and detailed information concerning the governmental requirement (if applicable). Absent other written notification, such election shall be deemed based on the CRF such Seller employs for the first Sell Offer reflecting recovery of any portion of such Project Investment. A Sell Offer submitted in the BRA for either or both of the 2007-2008 and 2008-2009 Delivery Years for which the "16 Plus" CRF and recovery schedule is selected may not exceed an offer price equal to the then-current Net CONE (on an unforced-equivalent basis).

For any resource using the CRF and associated recovery schedule from the CRF table that set the Capacity Resource Clearing Price in any Delivery Year, such Capacity Market Seller must also provide to the PJM Market Monitoring Unit, for informational purposes only, evidence of the actual expenditure of the Project Investment, when such information becomes available.

If the project associated with a Project Investment that was included in a Sell Offer using a CRF and associated recovery schedule from the above table has not entered into commercial operation prior to the end of the relevant Delivery Year, and the resource's Sell Offer sets the clearing price for the relevant LDA, the Capacity Market Seller shall be required to elect to either (i) pay a charge that is equal to the difference between the Capacity Resource Clearing Price for such LDA for the relevant Delivery Year and what the clearing price would have been absent the APIR component of the Avoidable Cost Rate, this difference to be multiplied by the cleared MW volume from such Resource ("rebate payment"); (ii) hold such rebate payment in escrow, to be released to the Capacity Market Seller in the event that the project enters into commercial operation during the subsequent Delivery Year or rebated to LSEs in the relevant LDA if the project has not entered into commercial operation during the subsequent Delivery Year; or (iii) make a reasonable investment in the amount of the PI in other existing Generation Capacity Resources owned or controlled by the Capacity Market Seller or its Affiliates in the relevant LDA. The revenue from such rebate payments shall be allocated pro rata to LSEs in the relevant LDA(s) that were charged a Locational Reliability Charge for such Delivery Year, based on their Daily Unforced Capacity Obligation in the relevant LDA(s). If the Sell Offer from the Generation Capacity Resource did not set the Capacity Resource Clearing Price in the relevant LDA, no alternative investment or rebate payment is required. If the difference between the Capacity Resource Clearing Price for such LDA for the relevant Delivery Year and what the clearing price would have been absent the APIR amount does not exceed the greater of \$10 per MW-day or a 10% increase in the clearing price, no alternative investment or rebate payment is required.

Issued By: Craig Glazer Effective: June 1, 2007

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# **Mandatory CapEx Option**

The Mandatory CapEx CRF and recovery schedule is an option available, beginning in the third BRA (Delivery Year 2009-10), to a resource that must make a Project Investment to comply with a governmental requirement that would otherwise materially impact operating levels during the Delivery Year, where: (i) such resource is a coal, oil or gas-fired resource that began commercial operation no fewer than fifteen years prior to the start of the first Delivery Year for which such recovery is sought, and such Project Investment is equal to or exceeds \$200/kW of capitalized project cost; or (ii) such resource is a coal-fired resource located in an LDA for which a separate VRR Curve has been established for the relevant Delivery Years, and began commercial operation at least 50 years prior to the conduct of the relevant BRA.

A Capacity Market Seller that wishes to elect the Mandatory CapEx option for a Project Investment must do so beginning with the Base Residual Auction for the Delivery Year in which such project is expected to enter commercial operation. A Sell Offer submitted in any Base Residual Auction for which the "Mandatory CapEx" option is selected may not exceed an offer price equivalent to 0.90 times the then-current Net CONE (on an unforced-equivalent basis).

# **40 Year Plus Alternative Option**

The 40 Plus Alternative CRF and recovery schedule is an option available, beginning in the third BRA (Delivery Year 2009-10), for a resource that is a gas- or oil-fired resource that began commercial operation no less than 40 years prior to the conduct of the relevant BRA (excluding, however, any resource in any Delivery Year for which the resource is receiving a payment under Part V of the PJM Tariff Generation Capacity Resources electing this 40 Plus Alternative CRF shall be treated as At Risk Generation for purposes of the sensitivity runs in the RTEP process). Resources electing the 40 Year Plus Option will be modeled in the RTEP process as "at-risk" at the end of the one-year amortization period.

A Capacity Market Seller that wishes to elect the 40 Plus Alternative option for a Project Investment must provide written notice of such election to the Office of the Interconnection no later than six months prior to the Base Residual Auction for which such election is sought; provided however that shorter notice may be provided if unforeseen circumstances give rise to the need to make such election and such seller gives notice as soon as practicable.

The Office of the Interconnection shall give market participants reasonable notice of such election, subject to satisfaction of requirements under the PJM Operating Agreement for protection of confidential and commercially sensitive information. A Sell Offer submitted in any Base Residual Auction for which the "40 Plus Alternative" option is selected may not exceed an offer price equivalent to the then-current Net CONE (on an unforced-equivalent basis).

Issued By: Craig Glazer

Vice President, Federal Government Policy

Issued On: January 22, 2007

Filed to comply with order of the Federal Energy Regulatory Commission, Docket No. ER05-1410, EL05-148, issued on Deember 22, 2006, 117 FERC ¶ 61,331.

- (b) For the purpose of determining an Avoidable Cost Rate, avoidable expenses are incremental expenses directly required to operate a Generation Capacity Resource that a Generation Owner would not incur if such generating unit did not operate in the Delivery Year or meet Availability criteria during Peak-Hour Periods during the Delivery Year.
- (c) For the purpose of determining an Avoidable Cost Rate, avoidable expenses shall exclude variable costs recoverable under cost-based offers to sell energy from operating capacity on the PJM Interchange Energy Market under the Operating Agreement.
- (d) Projected PJM Market Revenues for any Generation Capacity Resource to which the Avoidable Cost Rate is applied shall include all actual unit-specific revenues from PJM energy markets, ancillary services, and unit-specific bilateral contracts from such Generation Capacity Resource, net of marginal costs for providing such energy (i.e., costs allowed under cost-based offers pursuant to Section 6.4 of Schedule 1 of the Operating Agreement) and ancillary services from such resource.
  - (i) For the first three BRAs (for Delivery Years 2007-08, 2008-09, 2009-10), the calculation of Projected PJM Market Revenues shall be equal to the simple average of such net revenues as described above for calendar years 2001-2006; and
  - (ii) For the fourth BRA (delivery year 2010-11) and thereafter, the calculation of Projected PJM Market Revenues shall be equal to the rolling simple average of such net revenues as described above from the three most recent whole calendar years prior to the year in which the BRA is conducted.

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If a Generation Capacity Resource did not receive PJM market revenues during the entire relevant time period because the Generation Capacity Resource was not integrated into PJM during the full period, then the Projected PJM Market Revenues shall be calculated using only those whole calendar years within the full period in which such Resource received PJM market revenues.

If a Generation Capacity Resource did not receive PJM market revenues during the entire relevant time period because it was not in commercial operation during the entire period, then the Projected PJM Market Revenues shall be calculated based upon net revenues received over the entire period by comparable units, to be developed by the MMU and the Capacity Market Seller.

# 7. GENERATION RESOURCE RATING TEST FAILURE CHARGE

## 7.1 Generation Resource Rating Test Failure Charges

A Generation Resource Rating Test Failure Charge shall be assessed on any Market Seller that commits a Generation Capacity Resource for a Delivery Year if such resource fails a generation resource capacity test, as provided herein.

# a) Generation Resource Fails Capacity Test in Delivery Year

Each Generation Capacity Resource committed for a Delivery Year shall be obligated to complete a generation resource capacity test, as described in the PJM Manuals, for both the Summer and Winter Seasons. The Market Seller that committed the resource may perform an unlimited number of tests during each such period. If none of the tests during a testing period certify full delivery of the megawatt amount of installed capacity the Market Seller committed for such Delivery Year, the Market Seller shall be assessed a daily Generation Resource Rating Test Failure Charge for each day from the first day of the Summer or Winter Season in which such resource failed the rating test through the last day of such Delivery Year, provided, however, that a Capacity Market Seller that fails or is expected to fail a rating test may obtain and commit Unforced Capacity from a replacement Generation Capacity Resource meeting the same locational requirements. Such Unforced Capacity may include uncommitted or uncleared Sell Offer blocks from Generation Capacity Resources that were otherwise committed. In such case, the charge prescribed below shall be assessed from the first day of the season for which the test was failed through the last day before the effective date of the commitment of such replacement Generation Capacity Resource in an amount equal to the full shortage of Unforced Capacity determined in subsection (b) below. Any such commitment of replacement capacity shall be effective upon no less than one day's notice to the Office of the Interconnection. Thereafter, any charges assessed on the Capacity Market Seller that fails such a rating test shall be assessed for the quantity of Unforced Capacity less any amount from such replacement Generation Capacity Resource.

Issued By: Craig Glazer

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# b) Generation Resource Rating Test Failure Charge

The Generation Resource Rating Test Failure Charge shall equal the Daily Deficiency Rate multiplied by the following megawatt quantity, converted to an Unforced Capacity basis using the EFOR<sub>D</sub> associated with such Market Seller's cleared Sell Offer: (i) the installed capacity in such Sell Offer for such resource, minus (ii) the highest installed capacity rating determined for such resource in any test during the relevant testing period. The Daily Deficiency Rate shall equal the greater of: (iii) two times the Capacity Resource Clearing Price, in \$/MW-day, applicable to the Generation Capacity Resource; or (iv) the Net Cost of New Entry. If a single resource is the basis for cleared Sell Offers of multiple Capacity Market Sellers, the installed capacity shortfall determined under (i) and (ii) above shall be assessed upon such Capacity Market Sellers on a pro-rata basis in accordance with the megawatts of capacity from such resource in their cleared Sell Offers.

c) Allocation of Revenue Collected from Generation Resource Rating Test Failure Charges.

The revenue collected from Generation Resource Rating Test Failure Charges shall be distributed on a pro-rata basis to LSEs that were charged a Locational Reliability Charge for the Delivery Year for which the Generation Resource Rating Test Failure Charge was assessed. The charges shall be allocated on a pro-rata basis to LSEs based on their Daily Unforced Capacity Obligation.

# 8. CAPACITY RESOURCE DEFICIENCY CHARGE

- 8.1 A Capacity Resource Deficiency Charge shall be assessed on any Capacity Market Seller that commits a Capacity Resource for a Delivery Year that is unable or unavailable to deliver Unforced Capacity for all or any part of such Delivery Year for any of the following reasons, and that does not obtain replacement Unforced Capacity in the megawatt quantity required to satisfy its cleared Sell Offer:
- a) Unit Derating Such Capacity Resource is a Generation Capacity Resource and its capacity value is derated prior to or during the Delivery Year;
- b) EFOR<sub>D</sub> Increase Such Capacity Resource is a Generation Capacity Resource and the EFOR<sub>D</sub> value determined for such resource two (2) months prior to the Third Incremental Auction is lower than the EFOR<sub>D</sub> value submitted in the Capacity Market Seller's cleared Sell Offer;
- c) Planned Generation Resource Such Capacity Resource is a Planned Generation Capacity Resource and Interconnection Service has not commenced as to such resource prior to the start of the Delivery Year;
- d) Planned Demand Resource Such Capacity Resource is a Planned Demand Resource and the associated demand response program is not installed prior to the start of the Delivery Year; or
- e) Existing Demand Resource Such Capacity Resource is an existing Demand Resource and, subject to section 8.4, is not capable of providing the megawatt quantity of load response specified in the cleared Sell Offer.

Issued By: Craig Glazer

Effective: June 1, 2007

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### 8.2. Capacity Resource Deficiency Charge

The Capacity Resource Deficiency Charge shall equal the Daily Deficiency Rate (as defined in section 7) multiplied by the megawatt quantity of deficiency below the level of capacity committed in such Capacity Market Seller's Sell Offer, for each day such Capacity Market Seller is deficient.

# 8.3. Allocation of Revenue Collected from Capacity Resource Deficiency Charges

The revenue collected from the assessment of a Capacity Resource Deficiency Charge shall be distributed on a pro-rata basis to all LSEs that were charged a Locational Reliability Charge for the day for which such Capacity Resource Deficiency Charge was assessed. Such revenues shall be distributed on a pro-rata basis to such LSEs based on their Daily Unforced Capacity Obligations.

#### 8.4 Relief from Charges

A Capacity Market Seller that is otherwise subject to the Capacity Resource Deficiency Charge solely as a result of section 8.1(e) may receive relief from such Charge if it demonstrates that the inability to provide the level of demand response specified in its Sell Offer is due to the permanent departure (due to plant closure, efficiency gains, or similar reasons) from the Transmission System of load that was relied upon for load response in such Sell Offer; provided, however, that the Capacity Market Seller must provide the Office of the Interconnection with all information deemed necessary by the Office of the Interconnection to assess the merits of the request for relief.

# 9. PEAK SEASON MAINTENANCE COMPLIANCE PENALTY CHARGE.

# a) Purpose

To preserve and maintain the reliability of the PJM Region and to recognize the impact of planned outages and maintenance outages of Generation Capacity Resources during the Peak Season, each Capacity Market Seller that commits a Generation Capacity Resource for a Delivery Year must ensure that such Generation Capacity Resource has available sufficient Unforced Capacity during the Peak Season to satisfy the megawatt amount specified in the cleared Sell Offer for such resource.

# b) Peak Season Requirement

To the extent the Generation Capacity Resource will not be available due to a planned or maintenance outage that occurs during the Peak Season without the approval of the Office of the Interconnection, the Capacity Market Seller must obtain replacement Unforced Capacity from a Capacity Resource that is not already committed for such Delivery Year and that meets all characteristics specified in the Sell Offer, including the megawatt quantity of Unforced Capacity committed for such Delivery Year, or otherwise pay a Peak Season Maintenance Compliance Penalty Charge. The Capacity Market Seller shall commit such replacement Capacity Resource in accordance with the procedure set forth in the PJM Manuals.

Issued By: Craig Glazer

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Issued On: September 29, 2006

c) Peak Season Planned and Maintenance Outages

The Office of the Interconnection shall adopt and maintain rules and procedures for determining the allowable Peak Season planned and maintenance outages.

d) Peak Season Maintenance Compliance Penalty Charge

The Peak Season Maintenance Compliance Penalty Charge shall equal the Daily Deficiency Rate (as defined in section 7) multiplied by the megawatt quantity of capacity committed from such Generation Capacity Resource in the cleared Sell Offer, for each day during the Peak Season that such resource is out-of-service on a maintenance outage that is not authorized by the Office of the Interconnection.

e) Allocation of Revenue Collected from Peak Season Maintenance Compliance Penalty Charges

The revenue collected from assessment of a Peak Season Maintenance Compliance Penalty Charge shall be distributed on a pro-rata basis to all LSEs that were charged a Locational Reliability Charge for the day for which the Capacity Resource Deficiency Charge was assessed. Such revenues shall be distributed on a pro-rata basis to all such LSEs based on their Daily Unforced Capacity Obligation.

# 10. PEAK-HOUR-PERIOD AVAILABILITY CHARGES AND CREDITS

- (a) To preserve and maintain the reliability of the PJM Region and to encourage Capacity Market Sellers to maintain the availability of Generation Capacity Resources during critical peak hours of the Delivery Year, each Capacity Market Seller that commits a Generation Capacity Resource for a Delivery Year shall be credited or charged to the extent the critical peak-period availability of its committed Generation Capacity Resources exceeds or falls short, respectively, of the expected availability of such resources. Charges and credits hereunder shall not apply to wind or solar resources.
- (b) Critical peak periods for purposes of this assessment ("Peak-Hour Periods") shall be the hour ending 1500 EPT through the hour ending 1900 EPT on any day during the calendar months of June through August that is not a Saturday, Sunday, or federal holiday, and the hour ending 800 EPT through the hour ending 900 EPT and the hour ending 1900 EPT through the hour ending 2000 EPT on any day during the calendar months of January and February that is not a Saturday, Sunday or federal holiday.

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c) Peak-Period Equivalent Forced Outage Rate and Peak-Period Capacity Calculations

The Peak-Period Equivalent Forced Outage Rate shall be calculated for Peak-Hour Periods based on the following formula:

 $EFOR_{P}(\%) = (FOH + EFPOH) / (SH + FOH)$ 

where

FOH = full forced outage hours when the unit was called upon, excluding those outages deemed as OMC (as defined below);

EFPOH = equivalent forced partial outage hours when the unit was called upon, excluding those outages deemed as OMC (as defined below); and

SH = service hours as defined pursuant to NERC GADS standards.

The Peak-Period Capacity of a Generation Capacity Resource shall be calculated as follows:

 $PCAP = ICAP * (1.0 - EFOR_P)$ 

where

ICAP = the installed capacity rating of such Generation Capacity
Resource

d) Determination of Expected EFOR<sub>P</sub> and PCAP for Generation Capacity Resources

For each Delivery Year, the expected EFORP and PCAP of each Generation Capacity Resource committed to serve load in such Delivery Year shall be the EFORD and UCAP, respectively, calculated on a rolling-average basis using such resource's service history during the five consecutive annual periods of twelve consecutive months ending September 30 last preceding such Delivery Year. Such EFORD and UCAP shall be determined in accordance with Schedule 5 of the Reliability Assurance Agreement, which excludes (for purposes of Capacity Resource UCAP calculations) outages deemed outside management control in accordance with the standards and guidelines of NERC, as defined in the Generating Availability Data System, Data Reporting Instructions in Attachment K or its successor ("Outside Plant Management Control" or "OMC").

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- For each Delivery Year, the actual EFOR<sub>P</sub> and PCAP of each Generation Capacity Resource shall be calculated during the Peak-Hour Periods of such Delivery Year. provided however, that such calculation shall not include any day such a resource was unavailable if such unavailability resulted in a charge or penalty due to delay, cancellation, retirement, de-rating, or rating test failure. The full or partial forced outage hours when called upon shall be those outage hours during which the cost-based offer for energy from the resource would have been less than the applicable Locational Marginal Price for such resource, or when the Office of the Interconnection would have called upon the resource (absent the outage) for operating reserves, in both cases as determined by the Office of the Interconnection in accordance with the procedures specified in the PJM Manuals (including, without limitation, respecting such unit's current operating constraints). In addition, for single-fueled, natural gasfired units, a failure to perform during the winter Peak-Hour Period shall be excused for purposes of this section if the Capacity Market Seller can demonstrate to the Office of the Interconnection that such failure was due to non-availability of gas to supply the unit.
- If the calculation under subsection (e) for any Generation Capacity Resource for a Delivery Year results in fewer than fifty total Service Hours during Peak Hours, then the actual EFORP for purposes of such calculation shall be the resource's EFORD and the actual PCAP for purposes of such calculation shall be the resource's UCAP, in both cases considering all hours in the Delivery Year (to the extent required by the EFOR<sub>D</sub> and UCAP calculations).
- For each Delivery Year, the excess or shortfall in Peak-Hour Period availability for each Generation Capacity Resource shall be determined by comparing such resource's expected and actual PCAP, subject to the limitation under subsection (i) below. The net Peak-Hour Period availability shortfall or excess for each Capacity Market Seller and FRR Entity in each Locational Deliverability Area shall be the net of the shortfalls and excesses of all Generation Capacity Resources in such Locational Deliverability Area committed by such Capacity Market Seller for such Delivery Year.
- As to any Generation Capacity Resource experiencing or expected to experience a full or partial outage during any Peak-Hour Period that would or could result in a shortfall under subsection (g) above, a Capacity Market Seller may obtain and commit Unforced Capacity from a replacement Generation Capacity Resource (not previously committed) meeting the same locational requirements as such resource. Such Unforced Capacity shall be recognized for purposes of this section prospectively from the effective date of commitment of such replacement resource, and to the extent such replacement Unforced Capacity thereafter is available during Peak-Hour Periods, any shortfall that otherwise would have been calculated shall be reduced to that extent. Any such commitment of replacement capacity shall be effective upon no less than one day's notice to the Office of the Interconnection.
- The shortfall determined for any Generation Capacity Resource shall not exceed an amount equal to 0.50 times the Unforced Capacity of such resource; provided, however, that if such limitation is triggered as to any Generation Capacity Resource for a Delivery Year, then the decimal multiplier for this calculation as to such resource in the immediately succeeding Delivery Year shall be increased to 0.75, and if such limitation again is triggered in such succeeding Delivery Year, then the multiplier shall be increased to 1.00. The multiplier shall remain at either such elevated level for each succeeding Delivery Year until the shortfall

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experienced by such resource is less than 0.50 times the Unforced Capacity of such resource for three consecutive Delivery Years.

- (j) A Peak-Hour Period Availability Charge shall be assessed on each Capacity Market Seller with a net shortfall in PCAP in an LDA, where such charge is equal to such shortfall times the Capacity Resource Clearing Price determined for such Locational Deliverability Area for such Delivery Year.
- (k) The revenues from such charges shall be distributed to the Capacity Market Sellers, and FRR Entities that committed Generation Capacity Resources, in such Locational Deliverability Area that have net excess PCAP for such Delivery Year, provided however that any such seller shall be paid no more than the product of such seller's net excess PCAP times the Capacity Clearing Price determined for such Locational Deliverability Area for such Delivery Year. Any excess revenues remaining after such distribution shall be distributed on a pro-rata basis to all LSEs in the Zone that were charged the same Locational Reliability Charge for the Delivery Year for which the Peak Hour Availability Charge was assessed, and to all FRR Entities in the Zone that are LSEs and whose FRR Capacity Plan resources over-performed in the Delivery Year, on a pro-rata basis in accordance with each LSE's Daily Unforced Capacity Obligation.
- (l) The Office of the Interconnection shall provide estimated charges and credits based on the summer Peak-Hour Periods within three calendar months after the end of the summer period. Final charges and credits for the Delivery Year shall be billed within three calendar months following the end of the winter period.

# 11. DEMAND RESOURCE AND ILR COMPLIANCE PENALTY CHARGE

- (a) The Office of the Interconnection shall separately evaluate compliance of each Demand Resource offered and cleared in a Reliability Pricing Model Auction and each nominated ILR resource certified for a Delivery Year, in accordance with procedures set forth in the PJM Manuals. The compliance is evaluated separately in each LDA (or Zone, where such Zone encompasses two or more LDAs). Capacity Market Sellers that committed Demand Resources and ILR Providers that nominated ILR for a Delivery Year that cannot demonstrate the hourly performance of such resource in real-time based on the capacity commitment reflected in the applicable Sell Offer or ILR certification shall be assessed a Demand Resource and ILR Compliance Penalty charge; provided, however, that such under compliance shall be determined on an aggregate basis for all Demand Resources and ILR offered by the same Capacity Marker Seller or by the same ILR Provider in a single Zone.
- b) The Demand Resource and ILR Compliance Penalty Charge shall equal 0.20 times the Annual Revenue Rate multiplied by the following megawatt quantity, converted to an Unforced Capacity basis using the applicable DR Factor and Forecast Pool Requirement: (i) the megawatts of load reduction capability committed in the applicable Sell Offer or ILR certification minus (ii) the under-compliance megawatts of load reduction actually provided during a reduction event called by the Office of the Interconnection. The Annual Revenue Rate for a Demand Resource shall be the Resource Clearing Price that the resource received in the auction in which it cleared. The Annual Revenue Rate for an ILR resource shall be the

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Adjusted Zonal Capacity Price for the Zone in which such ILR was certified, but no to exceed the Locational Reliability Charges assessed on loads in such LDA, net of any Capacity Transfer Right credits allocated to such loads. The total charge per megawatt that may be assessed on a Demand Resource or ILR resource in a Delivery Year shall be capped at the Annual Revenue Rate the resource would receive in the Delivery Year.

Revenues from assessment of a Demand Resource and ILR Compliance Penalty Charge shall be distributed by the third billing month following the event that gave rise to such charge on a pro-rata basis to Demand Resource Providers and ILR Providers that provided load reductions in excess of the amount such resources were committed or certified to provide. Such revenue distribution, however, shall not exceed for any resource the quantity of excess megawatts provided by such resource during a single event times 0.20 times the Annual Revenue Rate received by such resource. To the extent any such revenues remain after such distribution, the remaining revenues shall be distributed to LSEs based on each LSE's average Daily Unforced Capacity Obligation for the month in which the non-compliance event occurred.

#### 12. QUALIFYING TRANSMISSION **UPGRADE** COMPLIANCE PENALTY CHARGE

If a Qualifying Transmission Upgrade forming the basis of a Sell Offer that cleared in the Base Residual Auction for a Delivery Year is not in service at the commencement of such Delivery Year, and the Capacity Market Seller does not obtain replacement Capacity Resources in the LDA for which such upgrade was to increase CETL, such seller shall pay a compliance penalty charge for each day such upgrade is delayed during such Delivery Year equal to the megawatt quantity of Import Capability cleared in the Base Residual Auction based on such upgrade, multiplied by the greater of: (i) two times the Locational Price Adder of the LDA into which the Qualifying Transmission Upgrade is cleared, in \$/MW-day; or (ii) the Net Cost of New Entry less the clearing price in the LDA from which CETL was increased. The revenue collected from the assessment of Qualifying Transmission Upgrade Compliance Penalty Charges shall be distributed on a pro-rata basis to all LSEs that were charged a Locational Reliability Charge for the day for which such charge was assessed. Such revenues shall be distributed on a pro-rata basis to such LSEs based on their Daily Unforced Capacity Obligations.

#### 13. EMERGENCY PROCEDURE CHARGE

### **Application of the Emergency Procedure Charge**

Following an Emergency, the compliance during the period of such Emergency with the instructions of the Office of the Interconnection of: (a) each Capacity Market Seller that committed Capacity Resources during such period; and (b) each ILR Provider responsible for ILR certified for such period, shall be evaluated as recommended by the Reliability Committee and directed by the PJM Board. If, based on such evaluation, it is determined that a Capacity Market Seller or ILR Provider refused to comply with, or otherwise failed to employ its best efforts to comply with, the instructions of the Office of the Interconnection to implement PJM emergency procedures, then such Market Seller or ILR Provider shall pay an Emergency Procedure Charge.

Issued By: Craig Glazer

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Issued On: September 29, 2006

#### 13.2 Emergency Procedure Charge

The Emergency Procedure Charge shall equal 365 multiplied by the Daily Deficiency Rate for such Delivery Year times each megawatt of a Demand Resource or ILR that was not implemented as directed, and each megawatt of a Generation Capacity Resource that was not made available as directed despite being capable of producing energy at the time, and that is deliverable to the PJM Region in the case of a Generation Capacity Resource located outside the PJM Region.

#### 13.3 Allocation of Revenue from Emergency Procedure Charges

The revenue collected from assessment of an Emergency Procedure Charge shall be distributed on a pro-rata basis to all LSEs that were charged a Locational Reliability Charge for the day for which the Emergency Procedure Charge was assessed. The charges shall be allocated on a pro-rata basis to all such LSEs based on their Daily Unforced Capacity Obligation.

# 14. CONVERSION OF CAPACITY CREDITS FROM PRIOR CAPACITY ADEQUACY REGIME

#### 14.1 Purpose

Capacity Credits shall not be accepted as satisfaction of the Daily Unforced Capacity Obligation of any LSE. Parties to Capacity Credit transactions may agree bilaterally to convert such transactions on a basis that permits them to clear in a Reliability Pricing Model Auction, or may settle such transactions financially as described in section 14.2.

#### 14.2 Settlement

For the 2007/2008 Delivery Year, only Capacity Credits confirmed by the Office of the Interconnection to have been entered into prior to April 1, 2006 will be settled based on the marginal value of system capacity (\$/MW-day) as determined under section 5.14(a) in the Base Residual Auction for such Delivery Year, plus any Locational Price Adder determined in such auction for the Locational Deliverability Area that corresponds to the Mid-Atlantic Region plus the Allegheny Power System Zone. The party that purchased such Capacity Credit shall receive this value multiplied by the megawatt quantity of the Capacity Credit shall be assessed this value, multiplied by the megawatt quantity of the Capacity Credit, for the duration of such transaction. For the 2008/2009 Delivery Year, and thereafter, Capacity Credits will be settled based on the marginal value of system capacity (\$/MW-day) as determined under section 5.14(a) in the Base Residual Auction for such Delivery Year. The party that purchased such Capacity Credit shall receive this value multiplied by the megawatt quantity of the Capacity Credit, for the duration of the transaction. The party that sold such Capacity Credit will be assessed this value multiplied by the megawatt quantity of the Capacity Credit, for the duration of the transaction. The party that sold such Capacity Credit will be assessed this value multiplied by the megawatt quantity of the Capacity Credit, for the duration of the transaction.

Issued By: Craig Glazer Effective: June 1, 2007

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# 15. COORDINATION WITH ECONOMIC PLANNING PROCESS

Following each Base Residual Auction, the Office of the Interconnection shall review each LDA that has a Locational Price Adder to determine if Planned Generation Capacity Resources, Planned Demand Resources, or Qualifying Transmission Upgrades submitted Sell Offers that cleared in such auction. If a Locational Price Adder results from the clearing of an LDA for two consecutive Base Residual Auctions, and no such planned resources or upgrades clear in such auctions for such LDA, then the Office of the Interconnection shall evaluate in the RTEP process the costs and benefits of a transmission upgrade that would reduce to zero the Locational Price Adder for such LDA. Such evaluation will compare the cost of the upgrade over ten years against the value of elimination of the Locational Price Adder over such period. If such upgrade is found to be feasible and beneficial, it shall be included in the RTEP as soon as practicable. The annual costs of such upgrade shall be allocated to all LSEs serving load in such LDA, pro rata based on such loads.

# 16. RELIABILITY BACKSTOP

#### 16.1. Purpose

The Reliability Backstop provides a mechanism to resolve reliability criteria violations caused by: (a) lack of sufficient capacity committed through the Reliability Pricing Model Auctions; or (b) near-term transmission deliverability violations identified after the Base Residual Auction is conducted. These backstop mechanisms are intended to guarantee that sufficient generation, transmission and demand response solutions will be available to preserve system reliability. The backstop mechanisms are based on specific triggers that signal a need for a targeted solution to a reliability problem that was not resolved by the long-term commitment of Capacity Resources through Self-Supply or the Reliability Pricing Model Auctions.

### 16.2 Investigation of Capacity Shortfall

If the total Unforced Capacity of Capacity Resources committed for a Delivery Year following the Base Residual Auction equates to an installed reserve margin that is more than one percentage point lower than the approved PJM Region Installed Reserve Margin, the Office of the Interconnection shall investigate the cause for the shortage, and recommend corrective action, including, without limitation, adjusting the Cost of New Entry to the extent determined necessary by such investigation, or addressing other barriers to entry identified by such investigation. No Reliability Backstop Auction will be conducted to address such a shortfall unless it occurs in the Base Residual Auctions for three consecutive Delivery Years.

#### 16.3 Triggering Conditions

- a) Either of the following two conditions will trigger reliability backstop measures provided in this section, as described below:
  - i) If the total Unforced Capacity of all Capacity Resources committed through Self-Supply or the Base Residual Auctions for three consecutive Delivery Years, equates to an installed reserve margin that is more than one percentage point lower than the approved PJM Region Installed Reserve Margin, the Office of the Interconnection will declare a capacity shortage and make a filing with FERC for approval to conduct a Reliability Backstop Auction. Upon receipt of such approval, the Office of the Interconnection will conduct a Reliability Backstop Auction in accordance with Section 16.4.

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- ii) If the total Unforced Capacity of all Base Load Generation Resources committed in a Base Residual Auction for a Delivery Year is less than the forecasted minimum hourly load calculated by the Office of the Interconnection for such Delivery Year, the Office of the Interconnection will investigate the cause of shortfall. If such a shortfall occurs in the Base Residual Auctions for three consecutive Delivery Years, the Office of the Interconnection shall declare a capacity shortage and make a filing with FERC for approval to conduct a Reliability Backstop Auction. Upon receipt of such approval, the Office of the Interconnection will conduct a Reliability Backstop Auction in accordance with Section 16.4.
- b) In addition to the foregoing events that trigger reliability backstop measures, if a near-term, i.e., later in time than the conduct of the Base Residual Auction for a Delivery Year, transmission criteria violation caused by an announced generation resource deactivation is identified by the regional transmission reliability planning analysis performed by the Office of the Interconnection in accordance with Part V of this Tariff, the Office of the Interconnection will identify the necessary transmission upgrade. In accordance with such rules, such generation resource may remain in service until the transmission upgrade is installed. No Reliability Backstop Auction will be conducted.

#### 16.4. Reliability Backstop Auction

#### a) Scope of Auction

The Office of the Interconnection shall conduct each Reliability Backstop Auction to commit additional Generation Capacity Resources, or in the case of an auction triggered by section 16.3(a)(ii), additional Base Load Generation Resources to the PJM Region to resolve the system-wide reliability criteria violation that triggered the need for such auction. Capacity Resources committed in a Reliability Backstop Auction for a Delivery Year shall not include any Planned Generation Capacity Resources previously committed in the Base Residual Auction for such Delivery Year. The Reliability Backstop Auction shall obtain commitments of additional Generation Capacity Resources (or, as applicable, additional Base Load Generation Resources) for a term of up to fifteen (15) Delivery Years. If a Reliability Backstop Auction is required, the offer period for such auction shall commence, subject to FERC approval as specified above, no later than four months after the Base Residual Auction in which the third consecutive Capacity Resource shortfall occurs. Upon verification and notification by the PJM Board of Managers that a Reliability Backstop Auction is required, the Office of the Interconnection shall post notification that a Reliability Backstop Auction is to be held. Upon such notification, the offer period shall commence, and shall remain open for six (6) months.

#### b) Sell Offers

Each Sell Offer shall specify the following information, as further specified in the PJM Manuals:

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- the minimum price in \$/MW-day required by the Capacity Market Seller to provide additional Unforced Capacity from a Generation Capacity Resource (or from a Base Load Generation Resource, in the case of an auction triggered by section 16.3(a)(ii));
- the megawatts of Unforced Capacity to be provided by such resource;
- the specific location of the proposed plant;
- all information required from a Generation Interconnection Customer by Part IV of this Tariff and the PJM Manuals;
- general plant technical specifications, as specified in the PJM Manuals;
- the term of cost recovery ("Backstop Period") requested, not to exceed 15 years; and
- the first full Delivery Year for which such resource shall be available, which shall also be the first year of the Backstop Period.

Each Generation Capacity Resource (or Base Load Generation Resource) accepted in a Reliability Backstop Auction shall comply with the procedures for new generation interconnection in Part IV of this Tariff, and each such resource shall be responsible for satisfying all capability and deliverability requirements for Capacity Resources, pursuant to the Reliability Assurance Agreement.

#### c) Submission of Sell Offers

The Sell Offer period shall begin at 00:01 Eastern Prevailing Time on the date specified by the Office of the Interconnection in the notification posting and shall end at 23:59 Eastern Prevailing Time six calendar months after such date. Sell offers shall be submitted during such period in writing to the Office of the Interconnection, and shall conform to the submission procedures as specified in the PJM Manuals. The Office of the Interconnection shall confirm in writing the receipt of each Sell Offer, within two weeks after receipt of each such offer.

d) Posting of Information by the Office of the Interconnection

Upon notification by the PJM Board of Managers that a Reliability Backstop Auction will be conducted, the Office of the Interconnection shall post the following information:

- System condition that necessitates a Reliability Backstop Auction;
- Megawatt quantity of Unforced Capacity required from additional Generation Capacity Resources, or from additional Base Load Generation Resources:
- Date by which the resources must be capable of delivering Unforced Capacity;
- Any other required specifications for the additional Unforced Capacity sought through such auction.

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#### e) Conduct of the Reliability Backstop Auction

#### i) Auction Clearing Procedure

The Reliability Backstop Auction shall select the Sell Offer or combination of Sell Offers that that satisfies the requirements posted by the Office of the Interconnection at the lowest offer price(s). If more than one Sell Offer must be selected to satisfy the specified requirements, the Sell Offers shall be selected in rank order from lowest offer price to highest offer price until the requirement is satisfied. In the event two or more Sell Offers specify the same offer price, and fewer than all of such offers are needed to satisfy the specified requirements, the Office of the Interconnection shall select the Sell Offer(s) proposing Generation Capacity Resource(s), or, as applicable, Base Load Generation Resource(s) that will best satisfy overall reliability requirements for the PJM Region, as determined by the Office of the Interconnection using transmission reliability analysis.

#### ii) Market Settlement

Pursuant to the agreement specified below, each Capacity Market Seller submitting a Sell Offer that is accepted in a Reliability Backstop Auction shall be paid the offer price in such Sell Offer for each MW-day in the Backstop Period, less any payments the Capacity Market Seller is entitled to receive pursuant to section 5 of this Attachment as a result of Sell Offers submitted with respect to such Generation Capacity Resource in any Base Residual Auction or Incremental Auction, including, without limitation, payments of Capacity Resource Clearing Prices (including for Self-Supply) and Resource Make-Whole Payments; and less any payments the Capacity Market Seller is entitled to receive for energy or ancillary services pursuant to Schedule 1 of the Operating Agreement with respect to services provided by such resource, net of the Variable Operations and Maintenance costs of such resource, as determined in accordance with the PJM Manuals.

PJM shall recover the costs of any such payments to Capacity Market Sellers for such resources through a charge, in addition to the Locational Reliability Charge, assessed on all LSEs in the PJM Region, pro rata based on each such LSE's Daily Unforced Capacity Obligations in all LDAs in which such LSE serves load.

#### iii) Standard Contract Provisions

The Office of the Interconnection, on behalf of all LSEs in the PJM Region, will enter into an agreement with each Capacity Market Seller that submitted an accepted Sell Offer in any Reliability Backstop Auction providing for the payments specified above. Such agreement shall include the provisions and address the standards set forth in Section 16.4(b), and shall include such other terms and conditions as are customary in the industry, as specified in the PJM Manuals.

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### d) FERC Approval

Any such agreement shall provide that it shall be filed with FERC as a rate schedule pursuant to section 205 of the Federal Power Act, and that the effectiveness of such agreement shall be conditioned on receipt of FERC acceptance or approval of such agreement.

#### 16.5 Must Offer into Base Residual Auction

All Capacity Market Sellers submitting a Sell Offer that is selected in a Reliability Backstop Auction must offer all Unforced Capacity of the Generation Capacity Resource underlying such Sell Offer into the Base Residual Auctions conducted subsequent to the Reliability Backstop Auction for all Delivery Years in the Backstop Period. The Market Seller shall offer the Unforced Capacity of such resources into each such auction at zero price, and shall receive the Capacity Resource Clearing Price as determined in each such auction.

### 16.6 Reliability Backstop Resource Deficiency Charges

- (a) Any Capacity Market Seller that submits a Sell Offer that was selected in a Reliability Backstop Auction and that is not able to deliver in a Delivery Year all megawatts of Unforced Capacity specified in the selected Sell Offer, shall not receive any payments that such Capacity Market Seller otherwise would have been eligible to receive for such Delivery Year pursuant to the Reliability Backstop Auction.
- (b) Any Capacity Market Seller that submits a Sell Offer that was selected in a Reliability Backstop Auction and that fails to deliver all megawatts of Unforced Capacity specified in the selected Sell Offer at any time during the Backstop Period specified in such Sell Offer must refund all payments received by such Market Seller pursuant to section 16.4(b).

Issued By: Craig Glazer Effective: June 1, 2007

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#### 17. TRANSITION

#### 17.1 Phase-in of the Reliability Pricing Model

The Reliability Pricing Model shall be phased in during the Transition Period as described below.

### 17.2 Reliability Pricing Model Auctions Conducted During Transition Period

(a) The Office of the Interconnection shall conduct Base Residual Auctions for each Delivery Year in the Transition Period in accordance with the following schedule:

Delivery Year	Base Residual Auction Held	
June 1, 2007 – May 31, 2008	April 2007	
June 1, 2008 – May 31, 2009	July 2007	
June 1, 2009 – May 31, 2010	October, 2007	
June 1, 2010 - May 31, 2011	January, 2008	
June 1, 2011 – May 31, 2012	May 2008	

b) The Office of the Interconnection shall conduct Incremental Auctions for each Delivery Year in the Transition Period in accordance with the following schedule:

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