Credit Overview and Supplement to the PJM Credit Risk Management Policy

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Table of Contents

Table of Contents i
List of Tables and Figures iii
Introduction 1
Background 1
Overview 1
eCredit 2
Contacts 3
Credit Provisions 4
Credit Application and Related Forms 4
Credit Monitoring 4
Credit Violations 4
Initial and Ongoing Risk Evaluation 5
Unsecured Credit Allowance 8
Credit Affiliates 10
Minimum Participation Requirements 10
PJM Market Participation Eligibility Requirements 10
Annual Officer Certification Form 11
Risk Policies 11
Capitalization 12
Minimum Capitalization 12
Collateral Alternative 12
Forms of Credit Support 14
Cash Deposits 14
Letters of Credit (LC) 14
Surety Bonds 15
Guaranties 15
Foreign Guaranties 15
Canadian Guaranties 17
Credit Requirements 18
PMA Example 1: Three week total represents PMA 20
PMA Example 2: One-week number represents PMA 20
PMA Example 3: Combined - semiannual PMA reset and two-week total represents PMA 20
PMA Example 4: Early payment to reduce PMA 21
Working Credit Limit 21
Virtual Transactions 21
INC and DEC Exposure 22
Up-to Congestion Exposure 22
Credit Available for Virtual Transactions, Coordinated Transaction Scheduling and Export Transactions 23
Virtual Transactions Credit in eCredit 23
Export Transaction Screening 23
Reliability Pricing Model "RPM" – Capacity Market 24

RPM Auction Credit Requirement 24
Reduction in Credit Requirement 24
RPM Auction Credit Rate 26
For Base Capacity Resources: 26
For Capacity Performance Resources: 27
For Price Responsive Demand (PRD) Resources: 27
Additional Form of Unsecured Credit for RPM 28
Credit Responsibility for Traded Planned RPM Capacity Resources 28
RPM Credit in eCredit 28
Financial Transmission Rights 29
Establishing Credit for FTR Activity 29
FTR Credit in eCredit 29
Calculating FTR Credit Requirements 29
Intra-Auction Credit Requirements 32
Long-Term FTR Credit Recalculation 32
Release of FTR Credit Requirements 32
Other Items 32
Membership, Accounts and Net Financial Settlement 32
Invoice Adjustments for Credit Requirement Calculations 33
Fixed Resource Requirement and Other Adjustments 33
Miscellaneous Bilateral Adjustments 33
Billing Line Item (BLI) Transfers 33
Withholding of Payments 34
Municipal Electric Systems –Trade Credit 34
Default Allocation 34
Default Allocation Assessment 35
Per-Capita Assessment 35
Activity Assessment 35
Default Allocation Assessment Example 36
Recoveries 36
Bilateral Indemnification 36
Appendix 1: UTC Credit Requirement Example 37
UTC Credit Requirement Example 37
Appendix 2: Release of Collateral 37
Appendix 3: Forms, Descriptions and Links 38

List of Tables and Figures

Figure 1. Flow Chart of Minimum Capitalization and Collateral Alternative 13
Figure 2. Peak Market Activity, PMA Requirement 19
Table 1. PMA Credit Requirement Example, 3 week total 20
Table 2. PMA Credit Requirement Example, highest week 20
Table 3. PMA Credit Requirement Example, 2 week total 21
Table 4. PMA Early Payment Credit Requirement Example 21
Table 5. RPM Milestone Reduction Table 25

Introduction

Background

"PJM", as used herein, refers to PJM Interconnection, LLC and/or PJM Settlement, Inc., as appropriate for the circumstance. This overview explains the majority of credit issues and requirements that affect PJM and its Participants. This document is a summary only and does not necessarily include all credit-related provisions of the PJM Open Access Transmission Tariff, also known as the "OATT" or "Tariff", or the PJM Operating Agreement or other agreements between PJM and its Participants; collectively, these documents are known as the "PJM Agreements". All applicants, participants and members (herein referred to as "Participants") are responsible to review and understand the PJM Agreements themselves. **If conflicts exist between explanations in this Overview and any of the PJM Agreements, the PJM Agreements will govern.**

In addition, except as otherwise provided in the PJM Agreements, PJM may modify or supplement, following stakeholder review and comment, the requirements stated in this Overview.

> As provided for in Federal Energy Regulatory Commission Order 890 (¶1636), this document, when posted on OASIS, also serves as a supplement to Attachment Q of the Tariff, also known as the Credit Risk Management Policy. As a supplement, it describes practices and procedures, such as the credit scoring algorithm, which are not part of the filed tariff. Such descriptions are intended to document PJM's implementation of the PJM Agreements.

Overview

> The Credit Risk Management Policy describes requirements to transact in PJM markets, credit required by Market Participants and the types of credit that PJM will accept. It sets forth PJM's authority to monitor and manage credit risk that a Participant may represent to the PJM Markets and/or PJM membership in general. The policy also describes the types of data and information PJM will review in order to determine whether an Applicant or Market Participant presents an unreasonable risk to any PJM Markets and/or PJM membership in general, and the steps PJM may take in order to address that risk.

PJM requires all participants to maintain credit equal to the highest exposure experienced in the past year, which is generally the sum of the highest three consecutive weekly bills during that time; this is the Peak Market Activity requirement. In addition, Participants' current obligations may not exceed seventy-five percent of the credit established with PJM at any time; this is the Working Credit Limit requirement. Special credit requirements and/or rules also exist for virtual transactions, coordinated transaction scheduling, exports, financial transmission rights (FTRs), and capacity (RPM) obligations, and may be created for other special markets as well.

All Participants must submit to PJM their current written risk management policies, procedures, or controls to address how market and credit risk is managed. PJM will review such documentation to verify that it appears generally to conform to prudent risk management practices for entities participating in any PJM Markets.

Participants may establish credit by submission of cash, letter of credit, guaranty and/or by satisfaction of a creditworthiness evaluation, though certain requirements may be satisfied only by collateral (cash or letter of credit).

PJM continually monitors Participants' activity against credit available, and may issue collateral calls with one or two business days to cure if needed. Creditworthiness is also monitored regularly and reviewed at least annually.

Participants are responsible for monitoring both their positions and their credit available, including unsecured credit (which may change from time to time), and for maintaining compliance with all provisions of the Credit Risk Management Policy. Participants may see their credit position any time by using the eCredit system, which is one of applications in the PJM suite of tools.

Participants must maintain appropriate personnel resources, operating procedures and technical abilities to promptly and effectively respond to all PJM communications. To this end, Participants are responsible for maintaining both their credit contacts in the eCredit system and their Members Committee representative information with PJM's Member Relations group. PJM staff may utilize other contact information provided by Participants, but in any event, PJM's responsibility to notify the Participant will be satisfied if PJM sends an email notification to either a credit contact or a Members Committee representative for the Participant.

eCredit

eCredit is an application in the PJM suite of tools which allows Participants to do the following:

- View credit position
- Credit requirements
- Current exposure
- Available credit
- Current credit sources and amounts
- Credit available for virtual transactions
- Credit available for export transactions
- Unallocated credit
- Collateral returnable
- Allocate credit between accounts
- Allocate credit between FTRs, RPM and unallocated credit
- Request collateral returns
- View financials
- View credit contacts
- Enter and retrieve Officer Certification Forms
- View and download reports for current and historical data (most data is available after March 4, 2011), including:

- View the member's bank wire instructions
- View PJM's wire Instructions for collateral deposits and bill payments
- Billing Line Item Transfer Reports
- Cash, Letters of Credit and Surety Bonds
- Member data
- Account data
- Report data can be downloaded in a .csv file

eCredit can be accessed through the PJM suite of tools on the PJM website at PJM.com>Tools Sign In>eCredit. Individuals must have an eSuite login established by their own Company Account Manager (CAM) in order to access eCredit. Additional Information can be found under Account Manager.

Contacts

PJM Credit Department: credit_hotline@pjm.com; For questions related to credit application, Credit Risk Management Policy, credit limits, unsecured credit, collateral amounts, eCredit reports, collateral returns, etc.

PJM Treasury Department: cash_management@pjm.com; For questions related to invoice payments and receipts, invoice wire instructions, collateral accounts, eCredit Cash tab, etc.

PJM Member Relations (866-400-8980) or custsvc@pjm.com; For questions related to accounts, markets, and other PJM issues.

PJM Membership; membershipforms@pjm.com; For questions related to memberhip or credit applications.

Credit Application and Related Forms

Entities wishing to become PJM members must initially submit a Membership Enrollment form followed by the membership and credit application processwhich must be approved before any activity may take place. Additional credit-related forms may be found on the Member Services page of the PJM web site.

Credit Monitoring

Participants may view their credit position through eCredit. If a Participant violates the PJM credit or payment requirements, PJM may issue a collateral call or payment breach notice, and the Participant will have one or two business days (hereinafter, "applicable cure period") from notice to cure the violation, as specified in Tariff, Attachment Q and Operating Agreement, section 15.1.5. If the Participant fails to cure the violation after the applicable cure period, PJM will declare the violating Participant in default, and may terminate its ability to participate in PJM markets and possibly liquidate any outstanding positions. Defaults are listed in a monthly exposure report that is sent to the entire PJM membership. If a defaulting Participant is serving load, PJM may initiate a process to transfer load back to the provider of last resort. PJM may also require the Market Participant and/or each Guarantor to provide Collateral, additional Collateral or additional Restricted Collateral that is commensurate with the amount of risk in which the Market Participant wants to engage and will issue a collateral call when a Participant exceeds its credit limit. PJM may draw upon a defaulting Participant's collateral to satisfy the Participant's obligations.

Credit Violations

A Participant will be in default if it does not cure a collateral call or payment notice within the applicable cure period. Participants in default may be reinstated, but may have the following restrictions imposed:

A. Following cure of the first collateral default in any 12-month period: No restrictions.

B. Following cure of the first payment default or second default of any type in any 12-month period: Loss of stakeholder privileges, including voting privileges and loss of unsecured credit for 12 months.

C. Following a second payment default or third default of any type in any 12 month period: Loss of reinstatement right, termination of membership rights, subject to filing with the FERC, liquidation of positions, prohibition from seeking readmission for membership.

A Member may appeal these restrictions through the PJM Dispute Resolution Procedure and may be reinstated provided that the Member can demonstrate all of the following: a) it has otherwise consistently complied with its obligations the PJM Tariff; and b) the failure to comply was not material; and c) the failure to comply was due in large part to conditions that were not in the common course of business.

Members who pay their bills late more than once in a 12-month period are subject to a penalty equal to the greater of $1,000 or two percent of the amount due, up to $100,000 for each occurrence.

Initial and Ongoing Risk Evaluation

PJM will perform an initial risk evaluation of each Applicant and/or its Guarantor. As part of the initial risk evaluation, PJM will consider certain Minimum Participation Requirements, calculate an Internal Risk Score based on quantitative and qualitative factors, establish an Unsecured Credit Allowance, if appropriate, based on its external rating or its Internal Credit Score, and make a determination regarding required levels of Collateral, creditworthiness, credit support, Restricted Collateral and other assurances for participation in certain PJM Markets.

Each Applicant and/or its Guarantor must provide the required information at the time of its initial application and on an ongoing basis in order to remain eligible to participate in any PJM Markets. The same determinants used in the initial risk evaluation will be used to evaluate Participants on an ongoing basis. PJM may also review public information regarding a Market Participant and/or its Guarantor as part of its ongoing risk evaluation. If appropriate, PJM will revise the Market Participant's Unsecured Credit Allowance and/or change its determination of creditworthiness, credit support, Restricted Collateral, required Collateral or other assurances pursuant to PJM's ongoing risk evaluation process.

The following items, which are described in detail in section II.A of the Credit Risk Management Policy, will be considered in the initial and ongoing risk evaluations:

- Rating agency reports
- Financial statements and related information
- Trade references
- Litigation and contingencies
- History of defaults in energy projects
- Other disclosures including principal information
- History of activity in PJM markets
- Material adverse changes

Credit Rating and Internal Credit Score

PJM will determine the Internal Credit Score using the credit risk scoring methodologies described below. The Internal Credit Score will be used as an input into the determination of the overall risk profile. Internal Credit Scores, ranging from 1-6, will be determined with the following mappings:

1 = Very Low Risk (S&P/Fitch: AAA to AA-; Moody's: Aaa to Aa3)

2 = Low Risk (S&P/Fitch: A+ to BBB+; Moody's: A1 to Baa1)

3 = Low to Medium Risk (S&P/Fitch: BBB; Moody's: Baa2)

4 = Medium Risk (S&P/Fitch: BBB-; Moody's: Baa3)

5 = Medium to High Risk (S&P/Fitch: BB+ to BB; Moody's Ba1 to Ba2)

6 = High Risk (S&P/Fitch: BB- and below; Moody's: Ba3 and below)

PJM will employ a framework, as outlined in Tables 1-5 below, based on internal metrics, including capital and leverage, cash flow coverage of fixed obligations, liquidity, profitability, and other qualitative factors. The particular metrics and scoring rules differ according to the line of business and the PJM Markets in which participation is expected, in order to account for varying sources and degrees of risk to the PJM Markets and PJM members.

Table 1. Quantitative Metrics by Line of Business: Leverage and Capital Structure	**Investor-Owned Utilities**	**Municipal Utilities**	**Co-Operative Utilities**	**Power Transmission**	**Merchant Power**	**Project Developers**	**Exploration & Production**	**Financial Institutions**	**Commodity Trading**	**Private Equity**
Debt / Total Capitalization (%)	primary	primary	primary	primary	secondary	secondary	primary		primary	primary
FFO / Debt (%)	secondary	secondary	primary	secondary	primary	primary	secondary		primary	
Debt / EBITDA (x)	secondary	secondary	secondary	secondary	primary	primary	secondary		primary	
Debt / Property, Plant & Equipment (%)	secondary	secondary	secondary	secondary						
Retained Earnings / Total Assets (%)	primary	primary		primary			primary			
Debt / Avg Daily Production or KwH ($)	secondary	secondary	secondary	secondary			primary			
Tangible Net Worth ($)						secondary		primary	secondary	secondary
Core Capital / Total Assets (%)								primary		
Risk-Based Capital / RWA (%)								primary		
Tier 1 Capital / RWA (%)								primary		
Equity / Investments (%)										primary
Debt / Investments (%)										primary

primary metric *secondary metric* *FFO = Funds From Operations* *RWA = Risk-Weighted Asserts*

Table 2. Quantitative Metrics by Line of Business: Fixed Charge Coverage and Funding	**Investor-Owned Utilities**	**Municipal Utilities**	**Co-Operative Utilities**	**Power Transmission**	**Merchant Power**	**Project Developers**	**Exploration & Production**	**Financial Institutions**	**Commodity Trading**	**Private Equity**
EBIT / Interest Expense (x)	primary	primary	primary	primary	primary	primary	primary		primary	primary
EBITDA / Interest Expense (x)	primary	primary	secondary	primary	primary	primary	primary			
EBITDA / [Interest Exp + CPLTD] (x)	secondary	secondary	primary	secondary	secondary	secondary	secondary			
[FFO + Interest Exp] / Interest Exp (x)	secondary	secondary	primary	secondary	secondary	secondary	secondary			
Loans / Total Deposits (%)								primary		
NPL / Gross Loans (%)								primary		
NPL / [Net Worth + LLR] (%)								primary		
Market Funding/Tangible Bank Assets (%)								primary		

primary metric *secondary metric* *CPLTD = Current Portion of Long-Term Debt EBIT = Earnings Before Interest and Taxes EBITDA = Earnings Before Interest, Taxes, Depreciation and Amortization LLR = Loan Loss Reserves NPL = Non-Performing Loans*

Table 3. Quantitative Metrics by Line of Business: Liquidity	**Investor-Owned Utilities**	**Municipal Utilities**	**Co-Operative Utilities**	**Power Transmission**	**Merchant Power**	**Project Developers**	**Exploration & Production**	**Financial Institutions**	**Commodity Trading**	**Private Equity**
CFFO / Total Debt (x)										
Current Assets / Current Liabilities (x)										
Liquid Assets / Tangible Bank Assets (%)										
Sources / Uses of Funds (x)										
Weighted Avg Maturity of Debt (yrs)										
Floating Rate Debt / Total Debt (%)										

primary metric *secondary metric* *CFFO = Cash Flow From Operations*

Table 4. Quantitative Metrics by Line of Business: Profitability	**Investor-Owned Utilities**	**Municipal Utilities**	**Co-Operative Utilities**	**Power Transmission**	**Merchant Power**	**Project Developers**	**Exploration & Production**	**Financial Institutions**	**Commodity Trading**	**Private Equity**
Return on Assets (%)										
Return on Equity (%)										
Profit Volatility (%)										
Return on Revenue (%)										
Net Income / Tangible Assets (%)										
Net Profit ($)										
Net Income / Dividends (x)										

primary metric *secondary metric*

Table 5. Qualitative Factors: Industry Level	**Sample Reference Metrics**	**Investor-Owned Utilities**	**Municipal Utilities**	**Co-Operative Utilities**	**Power Transmission**	**Merchant Power**	**Project Developers**	**Exploration & Production**	**Financial Institutions**	**Commodity Trading**	**Private Equity**
Need for PJM Markets to Achieve Business Goals	Rating Agency criteria or other industry analysis	High	High	High	High	Med	Low	Med	Low	Low	N/A

Ability to Grow/Enter Markets other than PJM	Rating Agency criteria or other industry analysis	Very Low	Very Low	Very Low	Very Low	High	High	Med	Med	High	N/A
Other Participants' Ability to Serve Customers	Rating Agency criteria or other industry analysis	Low	Low	Low	Low	Low	Med	Low	Low	High	N/A
Regulation of Participant's Business	RRA regulatory climate scores, S&P BICRA	PUCS	Govt	N/A	FERC PUCs	N/A	N/A	N/A	N/A	N/A	N/A
Primary Purpose of PJM Activity	**Investment ("Inv.")/ Trading ("Trade")/ Hedging or Mitigating Commercial Risk of Operations ("CRH")**	CRH	CRH	CRH	CRH/ Trade	CRH/ Trade	CRH/ Trade	CRH/ Trade	Inv./ Trade	Inv./ Trade	Inv./ Trade

RRA = Regulatory Research Associates, a division of S&P Global, Inc. *BICRA = Bank Industry Country Risk Assessment*

Unsecured Credit Allowance

As its source for calculating the Unsecured Credit Allowance, PJM will rely on the Rating Agencies' senior unsecured debt or their issuer ratings or corporate ratings if senior unsecured debt ratings are not available. If there is a split rating between the Rating Agencies, the lower of the ratings shall apply. If no external credit rating is available PJM will utilize its Internal Credit Score in order to calculate the Unsecured Credit Allowance.

In its credit evaluation of Municipalities and Cooperatives, PJM may request additional information as part of the ongoing risk evaluation process and will also consider qualitative factors in determining financial strength and creditworthiness.

For Cooperatives, this additional information may include but not be limited to:

- Size in term of members (diversity/concentration of membership profile)
- General financial profile/strength of members (economic strength of members and consideration of exposure to specific industries)
- Profile of long-term wholesale power supply contracts with members (tenor of supply agreements with members and risk of member departure)
- Ability to increase rates as needed with/without PUC approval
- Competitiveness of wholesale rates (compared to local investor-owned utility if applicable)

For Municipalities, the overall financial strength of the governmental body owning the utility is an important factor in determining creditworthiness.

Unsecured Credit Allowance Calculation

PJM will determine a Participant's Unsecured Credit Allowance based on its external rating or its Internal Credit Score, as applicable, and the parameters in the table below. The maximum Unsecured Credit Allowance is the lower of:

a. A percentage of the Participant's Tangible Net Worth, as stated in the table below, with the percentage based on the Participant's external rating or Internal Credit Score, as applicable; and
b. A dollar cap based on the external rating or Internal Credit Score, as applicable, as stated in the table below:

Internal Credit Score	Risk Ranking	Tangible Net Worth Factor	Maximum Unsecured Credit Allowance ($ Million)
1.00 – 1.99	1 – Very Low (AAA to AA-)	Up to 10.00%	$50
2.00 – 2.99	2 – Low (A+ to BBB+)	Up to 8.00%	$42
3.00 – 3.49	3 – Low to Medium (BBB)	Up to 6.00%	$33
3.50 – 4.49	4 – Medium (BBB-)	Up to 5.00%	$7
4.50 – 5.49	5 – Medium to High (BB+ to BB)	0%	$0
> 5.49	6 – High (BB- and below)	0%	$0

If a Corporate Guaranty is utilized to establish an Unsecured Credit Allowance for a Participant, the value of a Corporate Guaranty will be the lesser of:

a. The limit imposed in the Corporate Guaranty;
b. The Unsecured Credit Allowance calculated for the Guarantor; and
c. A portion of the Unsecured Credit Allowance calculated for the Guarantor in the case of Credit Affiliates.

PJM has the right at any time to modify any Unsecured Credit Allowance and/or require additional Collateral as may be deemed reasonably necessary to support current market activity. Failure to remit the required amount of additional Collateral within the applicable cure period shall be deemed an Event of Default.

PJM will maintain a posting of each Participant's Unsecured Credit Allowance, along with certain other credit related parameters, in eCredit. Each Participant will be responsible for monitoring such information and recognizing changes that may occur.

Credit Affiliates

If two or more Participants are Credit Affiliates and have requested an Unsecured Credit Allowance, PJM will consider the overall creditworthiness of the Credit Affiliates when determining the Unsecured Credit Allowances in order not to establish more Unsecured Credit for the Credit Affiliates collectively than the overall corporate family could support.

Example: Participants A and B each have a $10.0 million Corporate Guaranty from their common parent, a holding company with an Unsecured Credit Allowance calculation of $12.0 million. PJM may limit the Unsecured Credit Allowance for each Participant to $6.0 million so the total Unsecured Credit Allowance does not exceed the corporate family total of $12.0 million.

In addition, no group of affiliates may receive more than $50 million of unsecured credit in total. PJM will work with affiliates to allocate their available unsecured credit in order to assure that the group of affiliates does not receive more than $50 million in unsecured credit.

Minimum Participation Requirements

The Credit Risk Management Policy includes a set of eligibility, risk management and capitalization requirements designed to establish compliance with FERC direction in Order 741 and with Commodities Futures Trading Commission (CFTC) requirements for exemption of PJM market transactions from CFTC reporting requirements established pursuant to Dodd-Frank legislation. Participants are required to certify annually to continued compliance with many of these requirements. It is possible to be in compliance with some of these requirements but not others, however, compliance with all requirements is necessary for participation in PJM markets.

Application of certain financial provisions in these requirements may reduce the unsecured credit and/or collateral actually available to satisfy a Participant's credit requirements.

PJM Market Participation Eligibility Requirements

To be eligible to transact in any PJM markets, an Applicant or Market Participant must demonstrate that it qualifies in one of the following ways (which also correspond to section 6 of the Annual Officer Certification form):

1. an "appropriate person," as that term is defined under Section 4(c)(3), or successor provision, of the Commodity Exchange Act, or;
2. an "eligible contract participant," as that term is defined in Section 1a(18), or successor provision, of the Commodity Exchange Act, or;

3. a business entity or person who is in the business of: generating, transmitting, or distributing electric energy, or providing electric energy services that are necessary to support the reliable operation of the transmission system, or;
4. an Applicant or Market Participant seeking eligibility as an "appropriate person" providing an unlimited Corporate Guaranty in a form acceptable to PJM Settlement as described in Section V Attachment Q from a Guarantor that has demonstrated it is an "appropriate person" and that has at least $1 million of total net worth or $5 million of total assets per Applicant and Participant for which the Guarantor has issued an unlimited Corporate Guaranty, or;
5. an Applicant or Market Participant providing a letter of credit of at least $5 million to PJM Settlement in a form acceptable to PJM Settlement as described in Section V of Attachment Q that the Applicant or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM Settlement
6. an Applicant or Market Participant providing a surety bond of at least $5 million to PJM Settlement in a form acceptable to PJM Settlement as described in Section V of Attachment Q that the Applicant or Market Participant acknowledges is separate from, and cannot be applied to meet, its credit requirements to PJM Settlement.

Certain Participants certifying as an Appropriate Person or Eligible Contract Participant must provide financials showing the minimum requirements to the PJM Credit Department.

If, at any time, a Participant does not meet the eligibility requirements, it shall immediately notify PJM Settlement and immediately cease conducting transactions in any PJM Markets. If PJM Settlement becomes aware that the Market Participant does not meet the minimum eligibility requirements, it may terminate the Participant's transaction rights and may liquidate or otherwise take action on the Participant's existing positions.

Annual Officer Certification Form

Every Participant must submit to PJM annually by April 30 an Officer Certification Form certifying to conditions that are required for its continued activity in the PJM markets. Applicants must submit the form prior to initiating activity. A Market Participant that fails to provide its annual certification by April 30 will not be able to transact in any PJM Markets and PJM will disable the Market Participant's access to any PJM Markets until PJM receives the certification. Upon request Market Participants are required to submit any additional information or documentation reasonably or legally required to confirm their compliance with the Agreements and the annual certification. The form must be completed on the Membership Management Community web page.

Risk Policies

All Market Participants are required to maintain current written risk management policies, procedures or controls applicable to their PJM market activity, and submit a copy to PJM. Participants shall submit their risk management policies during the PJM application process or within 14 days of any PJM request for such policies.

PJM will review such documentation to verify that it appears generally to conform to prudent risk management practices for entities participating in any PJM Markets.

All Market Participants are subject to a one-time risk policy review payment of $1,500.00 to PJM to cover administrative costs. If a Participant's risk policies change substantively from the time they were originally submitted to PJM, it shall submit such modified documentation to PJM for review and verification, which may be subject to an administrative fee. PJM will notify all Market Participants that their annual certification including any risk policies, has been accepted.

Capitalization

In advance of certification, Applicants shall meet the minimum capitalization requirements below. A Market Participant must satisfy the minimum capitalization requirements on an annual basis. A Participant must demonstrate that it meets the minimum financial requirements appropriate for the PJM Markets in which it transacts by satisfying either the minimum capitalization or the Collateral alternative provisions.

Minimum Capitalization

Minimum capitalization may be met by demonstrating minimum levels of Tangible Net Worth or tangible assets. FTR Participants must demonstrate a tangible net worth in excess of $1 million or tangible assets in excess of $10 million. Other Participants must demonstrate a tangible net worth in excess of $500,000 or tangible assets in excess of $5 million. Demonstration must be through presentation of unqualified audited financials or an acceptable Corporate Guaranty for at least $500,000 (or unlimited) from an affiliate company that satisfies the tangible net worth or tangible assets requirements.

Collateral Alternative

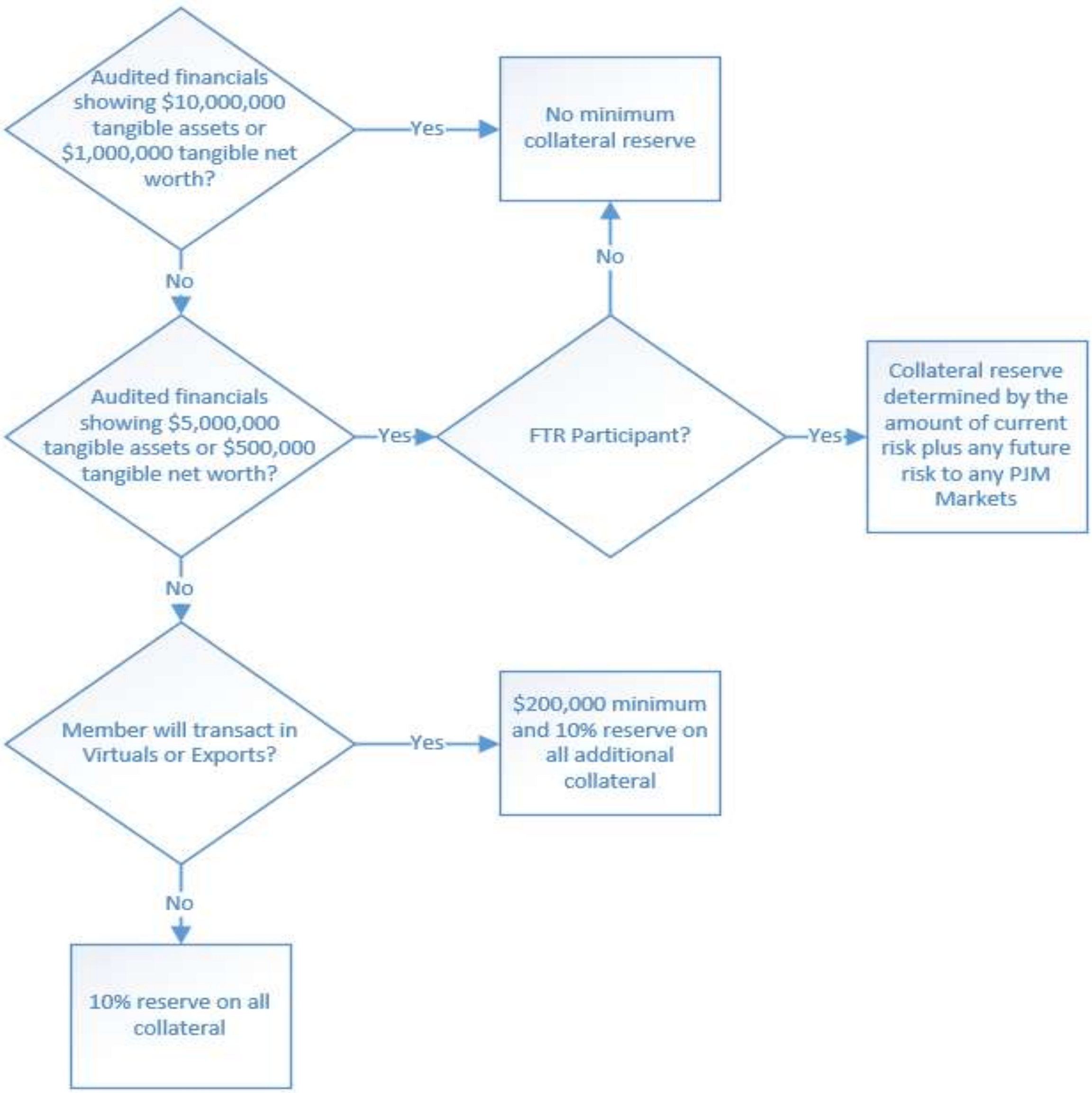
If a Participant does not satisfy the Minimum Capitalization requirements above, it may still qualify to participate in the PJM markets by posting Collateral, additional Collateral, and/or Restricted Collateral, with the following restrictions:

a. collateral provided by Market Participants that engage in FTR transactions shall be reduced by an amount of the current risk plus any future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity. The remaining value shall be considered the amount available to satisfy requirements of the Attachment Q.

b. collateral provided by other Participants that engage in virtual and export transactions shall be reduced by $200,000 and then further reduced by 10%. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity.

c. collateral provided by other Participants that do not engage in virtual and export transactions shall be reduced by 10%. The amount of this Restricted Collateral shall not be available to cover any credit requirements from market activity.

Figure 1. Flow Chart of Minimum Capitalization and Collateral Alternative



These reduced collateral values will be considered the collateral available to satisfy other requirements of the Credit Risk Management Policy. In the event a Participant that satisfies the Minimum Participation Requirements through provision of collateral and also provides a Corporate Guaranty to increase its available credit, then the Participant's resulting Unsecured Credit Allowance conveyed through such Guaranty shall be the lesser of:

a. the applicable Unsecured Credit Allowance available to the Participant by the Corporate Guaranty pursuant to the creditworthiness provisions of the Credit Risk Management Policy, or,

b. the face value of the Guaranty, commensurate with the amount of the current risk plus any anticipated future risk to any PJM Markets and PJM membership in general, and may coincide with limitations on market participation.

Forms of Credit Support

In order to satisfy their PJM credit requirements Participants may provide credit support in a PJM-approved form and amount as described below. Only cash and letters of credit may be used to meet FTR credit requirements. Excess collateral will be returned no later than two (2) Business Days following determination by PJM within a commercially reasonable period of time that such Collateral is not required. Unless otherwise restricted by PJM, credit support provided may be used by PJM to secure the payment of Participant's financial obligations under the Agreements. When a Participant withdraws from PJM, PJM will return the Participant's security in a phased manner, as it is no longer needed. PJM may hold some of the Participant's security as long as positions exist at PJM, and through the billing period that includes the 90th day following the withdrawal notice, in order to cover billing true-ups.

Cash Deposits

Cash collateral received by PJM is deposited into special interest-bearing deposit accounts separate from other PJM funds. Interest accrues daily, though funds received late in a day may not receive interest that day. Participants may work with PJM to establish a monthly return of interest to the Participant. Each Participant's cash deposit account is separate from other Participants' cash deposits. PJM must have all the proper Participant information (including tax identification number) to set up the account. Although collateral may satisfy the Participant's credit requirement when received, interest cannot accrue until the account is properly set up.

Letters of Credit (LC)

LCs must be issued using the PJM standard form. Any variations must be approved by PJM prior to acceptance. PJM highly recommends that any new LC be sent to PJM in final but unexecuted form for review prior to issuance, so that PJM may review both the LC and the bank for acceptability.

An LC must be issued by a domestic financial institution ("bank") that is rated "A" (not "A-") or better by all agencies which rate it. A domestic branch of a foreign bank may also issue an acceptable LC as long as the domestic branch itself has the requisite rating. PJM may accept a letter of credit from a bank that does not satisfy these requirements provided it is supported by a confirmation, in the PJM standard form, from a bank that does meet the requirements.

PJM does not accept letters of credit without an evergreen clause, though the evergreen clause may have a notice of non-renewal provision. The initial period must be at least one year. If an LC issuer properly provides PJM a notice of cancellation and the LC is not replaced before the earlier of 30 days prior to the cancellation date and 90 days after the notice of cancellation, the Participant will be in default.

Surety Bonds

Surety bonds must be issued using the PJM standard form. Any variations must be approved by PJM prior to acceptance. PJM highly recommends that any new surety bond be sent to PJM in final but unexecuted form for review prior to issuance, so that PJM may review both the surety bond and the issuer for acceptability.

A surety bond must be issued by a U.S. Treasury-listed approved surety that is rated “A” (not “A-”) or better by all agencies which rate it

PJM does not accept surety bonds without an evergreen clause, though the evergreen clause may have a notice of non-renewal provision. The initial period must be at least one year. If a surety bond issuer properly provides PJM a notice of cancellation and the surety bond is not replaced before the earlier of 30 days prior to the cancellation date and 90 days after the notice of cancellation, the Participant will be in default.

PJM will not accept surety bonds with an aggregate value greater than $10 million dollars ($10,000,000) issued by any individual surety on behalf of any individual Participant. PJM will also not accept surety bonds with an aggregate value greater than $50 million dollars ($50,000,000) issued by any individual surety.

Surety bonds cannot be used to meet FTR credit requirements.

Guaranties

Participants may provide a PJM-approved corporate guaranty from a creditworthy entity to establish credit with PJM. A guaranty is considered a transfer of unsecured credit, not a form of collateral or financial security, and the Participant utilizing the guaranty will be subject to all requirements imposed on a company with its own unsecured credit. If a Participant provides such a guaranty to PJM to support its credit, then PJM will perform the unsecured credit analysis on the guarantor instead of the Participant. . If the Guaranty is not unlimited, then the amount usable for satisfying credit requirements will be the face value less $500,000 and less an additional 10% of the remainder; also, any additional collateral will be reduced in value by 10%.

A domestic guarantor need not be an affiliate of the Participant.

Guaranties must be in the PJM standard form (available online), with an appropriate secretary’s seal or other acceptable demonstration of authority. Any requested modifications to the form must be specifically approved by PJM counsel prior to acceptance. If there is a Material change in the financial condition of the Guarantor or if the Corporate Guaranty comes within 30 days of expiring without renewal, the Participant will be required to provide Collateral as replacement.

Canadian and other foreign guaranties may be accepted under the following specific conditions.

Foreign Guaranties

PJM reserves the right to deny, reject, or terminate acceptance of any Foreign Guaranty at any time, including for material adverse circumstances or occurrences.

A Foreign Guaranty is a Corporate Guaranty that is provided by aCredit Affiliate entity that is domiciled in a country other than the United States or Canada. The entity providing a Foreign Guaranty on behalf of a Participant is a

Note: This document is an overview and supplement, and does not contain every detail of the actual Credit Risk Management Policy. Please refer to the Credit Risk Management Policy (Attachment Q of the PJM OATT) and other official documents when researching details on a particular topic.

Foreign Guarantor. A Participant may provide a Foreign Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJM provided that all of the following conditions are met:

A. A Foreign Guaranty:

i. Must contain provisions equivalent to those contained in the PJM standard form of Foreign Guaranty with any modifications subject to review and approval by PJM counsel.

ii. Must be denominated in US currency.

iii. Must be written and executed solely in English, including any duplicate originals.

iv. Will not be accepted towards a Participant's Unsecured Credit Allowance for more than the following limits, depending on the Foreign Guarantor's credit rating:

Rating of Foreign Guarantor	Maximum Accepted Guaranty if Country Rating is AAA	Maximum Accepted Guaranty if Country Rating is AA+
A- and above	USD50,000,000	USD30,000,000
BBB+	USD30,000,000	USD20,000,000
BBB	USD10,000,000	USD10,000,000
BBB- or below	USD 0	USD 0

v. May not exceed 50% of the Participant total credit, if the Foreign Guarantor is rated less than BBB+.

B. A Foreign Guarantor:

i. Must satisfy all provisions of the Credit Risk Management Policy applicable to domestic Guarantors.

ii. Must be an Affiliate of the Participant.

iii. Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.

iv. Must be rated by at least one Rating Agency acceptable to PJM; the credit strength of a Foreign Guarantor may not be determined based on an evaluation of its audited financial statements without an actual credit rating as well.

v. Must have a Senior Unsecured (or equivalent, in PJM's sole discretion) rating of BBB (one notch above BBB-) or greater by any and all agencies that provide rating coverage of the entity.

vi. Must provide audited financial statements in US GAAP format or any other format acceptable to PJM with clear representation of net worth, intangible assets, and any other information PJM may require in order to determine the entity's Unsecured Credit Allowance.

vii. Must provide a Secretary's Certificate certifying the adoption of Corporate Resolutions:

- Authorizing and approving the Guaranty; and
- Authorizing the Officers to execute and deliver the Guaranty on behalf of the Guarantor.

viii. Must be domiciled in a country with a minimum long-term sovereign (or equivalent) rating of AA+/Aa1, with the following conditions:

- Sovereign ratings must be available from at least two rating agencies acceptable to PJM (e.g. S&P, Moody's, Fitch, DBRS).
- Each agency's sovereign rating for the domicile will be considered to be the lowest of: country ceiling, senior unsecured government debt, long-term foreign currency sovereign rating, long-term local currency sovereign rating, or other equivalent measures, at PJM's sole discretion.
- Whether ratings are available from two or three agencies, the lowest will be used.

ix. Must be domiciled in a country that recognizes and enforces judgments of US courts.

x. Must demonstrate financial commitment to activity in the United States as evidenced by one of the following:

- American Depository Receipts (ADR) are traded on the New York Stock Exchange, American Stock Exchange, or NASDAQ.
- Equity ownership worth over USD 100,000,000 in the wholly-owned or majority owned subsidiaries in the United States.

xi. Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including the Credit Risk Management Policy.

xii. Must pay for all expenses incurred by PJM related to reviewing and accepting a foreign guaranty beyond nominal in-house credit and legal review.

xiii. Must, at its own cost, provide PJM with independent legal opinion from an attorney/solicitor of PJM's choosing and licensed to practice law in the United States and/or Guarantor's domicile, in form and substance acceptable to PJM in its sole discretion, confirming the enforceability of the Foreign Guaranty, the Guarantor's legal authorization to grant the Guaranty, the conformance of the Guaranty, Guarantor, and Guarantor's domicile to all of these requirements, and such other matters as PJM may require in its sole discretion.

Canadian Guaranties

PJM reserves the right to deny, reject, or terminate acceptance of any Canadian Guaranty at any time for reasonable cause, including material adversecircumstances or occurences.

A Canadian Guaranty is a Corporate Guaranty that is provided by an Affiliate entity that is domiciled in Canada and satisfies all of the provisions below. The entity providing a Canadian Guaranty on behalf of a Participant is a

Canadian Guarantor. A Participant may provide a Canadian Guaranty in satisfaction of part of its credit obligations or voluntary credit provision at PJM provided that all of the following conditions are met.

A. A Canadian Guaranty:

i. Must contain provisions equivalent to those contained in the PJM standard form of Foreign Guaranty with any modifications subject to review and approval by PJM counsel.

ii. Must be denominated in US currency.

iii. Must be written and executed solely in English, including any duplicate originals.

B. A Canadian Guarantor:

i. Must be a Credit Affiliate of the Participant.

ii. Must satisfy all provisions of the Credit Risk Management Policy applicable to domestic Guarantors.

iii. Must be an Affiliate of the Participant.

iv. Must maintain an agent for acceptance of service of process in the United States; such agent shall be situated in the Commonwealth of Pennsylvania, absent legal constraint.

v. Must be rated by at least one Rating Agency acceptable to PJM; the credit strength of a Canadian Guarantor may not be determined based on an evaluation of its audited financial statementswithout an actual credit rating as well.

vi. Must provide audited financial statements, in US GAAP format or any other format acceptable to PJM with clear representation of net worth, intangible assets, and any other information PJM may require in order to determine the entity's Unsecured Credit Allowance.

vii. Must satisfy all other applicable provisions of the PJM Tariff and/or Operating Agreement, including the Credit Risk Management Policy.

Credit Requirements

PJM establishes and monitors credit requirements on two general levels: long-term, also known as the Peak Market Activity requirement, and short-term, also known as the Working Credit Limit requirement. The long-term requirement establishes the credit (unsecured or secured) that a Participant must maintain with PJM. The short-term requirement involves measuring current obligations and comparing them with a Working Credit Limit to see if current exposure has reached or exceeded a Participant’s Working Credit Limit.

PJM also has established special credit provisions for certain markets or activities. Virtual transactions, exports, RPM, and the FTR Market are each subject to special credit provisions. PJM may carve out a portion of a Participant’s credit in order to satisfy these provisions, but such carve-out does not restrict PJM’s ability to apply the credit to any obligations of the Participant in event of default.

Figure 2. Peak Market Activity, PMA Requirement

			PMA Reset						PMA Reset		
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

For normal market activity and its associated general obligations, PJM uses historical activity as a measure of potential future credit needs. For this purpose, the year is divided into two semiannual periods ending in early April and October. Within each semiannual period, each Participant must have credit with PJM equal to the three highest consecutive weeks of total PJM bills ending in that semiannual period (or one or two week period if greater than the three highest consecutive weeks combined). This is called the Participant's Peak Market Activity also known as PMA. At the beginning of each semiannual period, the PMA value is reset to the three-week average of all non-zero weekly invoices over the prior 52 weeks, unless the most recent three-week calculation is higher, in which case the higher value is used.

Note that three weeks is used since that is the approximate maximum exposure period for non-FTR Market activity, and consists on any Friday, for example, of the following obligations: the invoice (billed obligations) due that day for the week ending nine days prior, the unbilled obligations for the subsequent week ending two days prior to the Friday, unbilled obligations for Thursday and Friday, and potential obligations for five additional days of exposure arising from the two-business-day cure period (ending Tuesday afternoon) extending over a two-day weekend, plus obligations for Wednesday resulting from bids that could have been bid into the markets on Tuesday morning.

When calculating PMA, virtual and export related items on the weekly grid bills are removed, since they are separately screened as explained later. Note, however, that each member must have enough credit to support such screened exposure while it is considered current exposure (on a current unpaid grid bill or when it is accrued but unbilled), as described later. Some members may also have charges and credits related to non-PJM obligations (most typically related to Fixed Resource Requirement, also known as FRR, obligations during a transition period when new geographic regions join PJM) removed from credit requirement calculations since they are pass-through amounts and are not subject to PJM membership assessment in event of default.

For billing purposes,daily regulation credits are billed on the month-end invoice while daily energy charges are billed weekly. For credit purposes, daily regulation credits may be re-allocated to weekly in order to properly reflect their actual accrual, and to correct the credit exposure that would otherwise be incorrectly be reported for PMA and current exposure purposes.

Limited exceptions to the PMA credit requirement exist if either PJM believes that prior activity is no longer a reasonable measure of future activity (such as with permanent load shifts due to state-run load auctions) or the Participant has entered into a prepayment agreement acceptable to PJM.

For new Participants, PJM works with the Participant to establish an estimated activity level, which becomes the basis for a credit requirement. At a minimum, PJM requires $50,000 of credit for any new Participant (other than a generation resource that is only selling in to PJM, or certain demand response resources) until/unless it demonstrates twelve consecutive months of activity.

PMA Example 1: Three week total represents PMA

If a Participant's total bills in the past five weeks (e.g. late July through August) were as in Table 1, and assuming that all other weeks in the past year were less than $500,000, then the credit requirement would be $1.6 million – the sum of weeks 2 thru 4 – because they are the greatest three consecutive weeks in the past 52 weeks, and no single week or two consecutive weeks exceeds that amount.. The peak requirement could go up if week 6 has activity greater than $600,000, or at any time in the future, if the 1-, 2-, or 3-consecutive-week activity exceeds this level. The PMA credit requirement would not drop until the next semiannual reset point in early October.

Table 1. **PMA Credit Requirement Example, 3 week total**

	Participant Total Bill	3 week sum	2 week sum
Week 1	$ 200,000.00		
Week 2	$ 800,000.00		$ 1,000,000.00
Week 3	$ (100,000.00)	$ 900,000.00	$ 700,000.00
Week 4	$ 900,000.00	$ 1,600,000.00	$ 800,000.00
Week 5	$ 100,000.00	$ 900,000.00	$ 1,000,000.00

PMA Example 2: One-week number represents PMA

If a Participant's total bills in the past five weeks were as in the Table 2, and assuming that all other weeks in the past year were less than $300,000, then the credit requirement would be $900,000 – the single week 3 – because it is greater than any two or three consecutive weeks together.

Table 2. **PMA Credit Requirement Example, highest week**

	Participant Total Bill	3 week sum	2 week sum
Week 1	$ 100,000.00		
Week 2	$ (200,000.00)		$ -
Week 3	$ 900,000.00	$ 800,000.00	$ 700,000.00
Week 4	$ (100,000.00)	$ 600,000.00	$ 800,000.00
Week 5	$ 50,000.00	$ 850,000.00	$ -

A Participant receiving unsecured credit may make early payments up to ten times in a rolling 52-week period in order to reduce its PMA credit requirement. Payments must be received prior to issuance of the invoice for a given week in order to qualify for an imputed reduction in that week. The imputed PMA reduction attributed to any payment may not exceed the amount of Unsecured Credit Allowance for which the Participant is eligible.

PMA Example 3: Combined - semiannual PMA reset and two-week total represents PMA

At the October reset date, a Participant's average weekly activity for the past year is $200,000. Its most recent three weeks were ($400,000), $900,000, and $100,000. The PMA calculated at the reset would be $1,000,000, which is the total of the two consecutive weeks. Those two weeks represent the recent three-week peak (since together they are higher than the three-week total), and their value is higher than the long-term 3-week average ($600,000).

Table 3. **PMA Credit Requirement Example, 2 week total**

	Participant Total Bill	3 week sum	2 week sum
Week 1	$ (400,000.00)		
Week 2	$ 900,000.00		$ 500,000.00
Week 3	$ 100,000.00	$ 600,000.00	$ 1,000,000.00

PMA Example 4: Early payment to reduce PMA

A participant receiving $2 million in unsecured credit from PJM has net invoices owed to PJM equaling $3 million each in Weeks 1, 2 and 3. Absent any early payments, the participant's Peak Market Activity would be $9 million from these three weeks alone. The participant may make early payments of up to $2 million in each of those three weeks and bring its Peak Market Activity down to an imputed $3 million total. The participant could then provide $1 million of collateral (to supplement its $2 million of unsecured credit) to meet its credit requirement rather than the $6 million of collateral that would have otherwise been required absent the early payments.

Table 4. **PMA Early Payment Credit Requirement Example**

	Participant Total Bill	3 week sum	early payment	New Amount	3 week sum after early payment
Week 1	$ 3,000,000		$ 2,000,000	$ 1,000,000	
Week 2	$ 3,000,000		$ 2,000,000	$ 1,000,000	
Week 3	$ 3,000,000	$ 9,000,000	$ 2,000,000	$ 1,000,000	$ 3,000,000

Working Credit Limit

PJM establishes a Working Credit Limit for each Participant that equals 75 percent of the Participant's available market credit (credit remaining after any applicable reductions for minimum participation requirements and not assigned directly for specific activities such as FTRs or RPM) with PJM. The 25 percent reserve provides a buffer for cure periods and for market activity close-out in case of terminating Participants. At no time may a Participant's obligations, which include current unbilled obligations plus any unpaid prior weekly or monthly invoices, exceed the working credit limit. If a Participant's obligations exceed its working credit limit, PJM requires either an early payment or increased collateral in order for the Participant to regain compliance with the policy. A Participant has one or two business days to comply, per Operating Agreement, section 15.1.5. Current obligations include all activity on the invoice, including virtual and export activity which are excluded from Peak Market Activity as described above. FTR realized gains and losses are excluded from current obligations and added to FTR credit requirements. Current obligations do not include non-PJM pass-through amounts as described above under "Long-term credit requirement."

Note that even if an early payment is made, additional collateral still may be required if the Participant's Peak Market Activity exceeds its current market credit available with PJM.

Virtual Transactions

Virtual transactions technically do not create any additional credit requirements beyond the two general requirements for all activity above. However, virtual transactions may be restricted by the amount of credit a Participant has available, so some Participants voluntarily provide some additional credit, which enables them to do more virtual transactions than they could if they established only the minimum credit requirement.

Virtual transactions consist of increment offers - also known as INCs - and decrement bids - also known as DECs - along with up-to congestions transactions. Credit provisions for each are applied through a transaction screening process that utilizes historical reference prices to calculate an INC and DEC Exposure and an Up-to Congestion Exposure and rejects submitted transactions if the sum of those two exposures exceeds the Participant's Available Market Credit for Virtual Transactions minus the Virtual Transactions Credit Requirement. The screening is performed as Virtual Transactions for each market day are submitted. When virtual transactions are uploaded in a batch process, any credit shortfall resulting from any bids submitted in an individual batch upload will cause the entire upload to be rejected; previously submitted and accepted Virtual Transactions are unaffected.

INC and DEC Exposure

Reference prices for INCs and DECs are calculated **separately for each location**. The year is divided into six two-month periods (January-February, March-April, May-June, July-August, September-October and November-December). For each period, the nodal reference prices for increment offer and decrement bids are posted on the PJM website. The nodal reference prices are the absolute value difference between the cleared day-ahead energy price and the actual real-time energy price for each hour in each day during that period in the previous year is calculated. (There will be 1,488 such hourly values for each location in July-August.) Those values are then ranked, and the 97th percentile value (e.g. the ~44th highest for July-August) is chosen as the reference for that location. Reference prices are applied to the bid locations with which they are associated, so bids at different locations will be multiplied by different reference prices.

The INC and DEC Exposure is calculated as follows. For the current market day, the total MWh hourly bids or offers, whichever is greater, at each node is multiplied by their nodal reference prices and then summed over all nodes and all hours. For the prior market day, the difference between the total MWh bids cleared and the total MWh offers cleared at each node is multiplied by its nodal reference price and then summed over all nodes and all hours. These two values added together are the INC and DEC Exposure.

Up-to Congestion Exposure

Path Reference Prices for Up-to-Congestion Bid Screening are calculated separately for every allowable path. The Up-to Congestion Reference Price for a path for a given month is the historical real-time energy price for the path at the given percentile (see below) of historical hours calculated for the prior Up-to Congestion Historical Month, averaged with the same percentile value calculated for the second prior Up-to Congestion Historical Month. An Up-to Congestion Historical Month is the month-long timeframe for which statistics are calculated and used in the Up-to Congestion Exposure calculation. In order to allow for processing and posting time, the Up-to Congestion Historical Month for up-to congestion credit calculations is time-shifted from normal calendar months. Each Up-to Congestion Historical Month consists of the first 20 days in that calendar month plus all days after the 20th in the preceding calendar month. For example, the Up-to Congestion Historical Month of April consists of March 21 through April 20. PJM may adjust this defined Up-to Congestion Historical Month to allow for sufficient calculation time, but will try to match a calendar month as closely as reasonably possible on a consistently defined basis.

A path is considered counterflow if the value of the path is negative. When bidding, the path value used for counterflow determination is the lower of the bid price and the average day-ahead energy value of the path for the prior Up-to Congestion Historical Month. For cleared paths, the value used is the actual cleared DA price of the path. A path will be deemed prevailing flow if it is not counterflow.

The Up-to Congestion Exposure for any transaction hour is the product of the MWh for the path times the difference between the bid price and the Up-to Congestion Reference Price (see below). The Up-to Congestion Exposure for a Participant for a market day is the sum of the positive transaction hour exposures across all paths and all transaction hours. The Up-to Congestion Exposure for a participant at any time is the sum of the daily exposure totals for the most recent cleared market day plus the next uncleared market day.

Up-to Congestion Reference Prices are calculated using the following historical percentiles:

For Up-to Congestion Prevailing Flow Paths: 30th percentile (both bid and cleared)

For Up-to Congestion Counterflow Paths when bid: 20th percentile

For Up-to Congestion Counterflow Paths when cleared: 5th percentile.

These percentiles provide, respectively, the 70th, 80th, and 95th percentiles of exposure when they are subtracted from the submitted or cleared price for a given path.

See Appendix 2: UTC Credit Requirement Example for examples of Up-to Congestion credit requirement calculations.

Credit Available for Virtual Transactions, Coordinated Transaction Scheduling and Export Transactions

Available Market Credit for Virtual Transactions/Coordinated Transaction Scheduling (CTS)/Export Transactions is a Participant's total credit established with PJM, after any applicable reductions for minimum participation requirements, less any special set-asides (e.g. FTR auction), less any current obligations to PJM (e.g. billed but unpaid plus unbilled), less 25 percent of the Participant's Peak Market Activity credit Requirement (see explanation of working credit limit under "Short-term credit requirement" above), plus any unbilled profits.

Virtual Transactions Credit in eCredit

The eCredit application calculates the Available Market Credit for Virtual Transactions and Virtual Transactions Credit Requirement for each Participant. Participants use eCredit to allocate their Credit Available for Virtual Transactions to their accounts by designating a percentage of that credit to be applied to each account. Periodically (~7:30 a.m. EPT and ~10:00 a.m. EPT), Markets Gateway is updated with the appropriate Virtual Transactions credit available for each account, as established by eCredit, so that the appropriate credit is available for screening bids into the PJM Day-Ahead Market. When Participants attempt to reallocate their percentage allocations of Credit Available for Virtual Transactions among accounts, eCredit will disallow a reallocation if it would cause any account's reduced credit allocation in dollars to fall below that account's current Virtual Transaction exposure (INC and DEC Exposure plus Up-to Congestion Exposure).

Export Transaction Screening

Export Transactions in the Real-Time Energy Market are screened before they are allowed to flow. Entire transactions may be screened upon entry, but each transaction is also screened in hourly or smaller blocks shortly before the energy is scheduled to flow. Portions of a transaction may be rejected if insufficient credit is available to support the activity. Screening is performed using both current-calendar-day scheduled and prior-calendar-day scheduled amounts. Calendar days switch around 11 p.m., when the current day becomes "prior day", and next day becomes "current day", and that day's submitted transactions are first screened. As implemented, if credit is insufficient to support the prior day's scheduled and the entire current day's submitted transactions, the current transactions will be curtailed to reduce sufficient MWh such that the credit requirement for the prior day plus remaining transactions of the current day is no greater than the credit available to support those transactions. Accordingly, curtailments for a member with insufficient credit typically begin around two hours prior to the scheduling interval that failed the credit screen.

The credit requirement calculation multiplies all of the MWh of current day submitted and prior day scheduled transactions by the Export Transaction Price Factor applicable for the export location at which each transaction is sourced. The Export Transaction Price Factor is the higher of a real-time energy forecast price and a historical energy price based on historical values. The historical prices are updated every two months and are posted on the PJM website for reference.

Participants must use eCredit to allocate their available credit to specific accounts for the purpose of engaging in export transactions. Since the credit available for export transactions includes (or subtracts) some amounts owed to (or due from) the Participant, the Participant's credit for virtual transactions is allocated on a percent basis, rather than specific dollar amounts, and will vary daily depending on the participant's credit provided and credit used.

Reliability Pricing Model "RPM" – Capacity Market

Additional information on RPM credit requirements can be found in PJM Manual 18: PJM Capacity Market. Resources that are offered into an RPM auction, resources that subsequently clear an RPM auction, and resources that are offered as part of an FRR plan must provide credit if they are "planned" resources (not fully existing and in service). This includes planned generation, planned demand or energy efficiency resources, planned transmission upgrades, and planned or existing capacity resources located outside of PJM that have not procured 100 percent firm transmission into PJM for the duration of the obligation.

RPM Auction Credit Requirement

The RPM credit requirement is the RPM Auction Credit Rate times the megawatts submitted or committed. The Auction Credit Requirement is determined separately for each Delivery Year, and the total RPM credit requirement for a Participant is the sum of all of its individual RPM credit requirements. Credit must be provided prior to an auction for planned resources offered into the auction, but the requirement may be reduced after the auction based on the amount of MW that cleared and the Auction Credit Rate resulting from the auction. Participants must specifically designate any credit set aside for RPM through use of the eCredit application described later.

Reduction in Credit Requirement

The RPM Auction Credit requirement for a Market Participant for any given Delivery Year will be reduced periodically, after the Market Participant has provided PJM a written request for each reduction, accompanied by documentation sufficient for PJM to verify attainment of required milestones or satisfaction of other requirements, and PJM has verified that the Market Participant has successfully met progress milestones for its Capacity Resource that reduce the risk of non-performance, as follows:

For Planned Demand Resources and Energy Efficiency resources, and for existing generation resources outside of PJM without firm transmission to the PJM border, the RPM Credit requirement will be reduced in direct proportion to the amount of demand resources, Load Management, also known as ILR, and Firm transmission that are qualified or procured.

For Planned Generation Resources located in the PJM Region, the RPM Credit Requirement will be reduced as the Capacity Resource attains the milestones stated in Table 5. Additional information can be found in PJM Manual 18: PJM Capacity Market Section 4.8.6 Credit Milestones for Planned Generation Capacity Resources. To obtain a reduction in RPM Credit Requirement (except for "ISA effective date" and "Commencement of Interconnection Service"), the Capacity Market Seller must submit a sworn, notarized certification of an independent engineer in a form acceptable to PJM, certifying that the engineer has personal knowledge, or has engaged in a diligent inquiry to determine, that the milestone has been achieved and that, based on its review of the relevant project information, the independent engineer is not aware of any information that could reasonably cause it to believe that the Capacity Resource will not be in-service by the beginning of the applicable Delivery Year. The standard certification form can be found on the PJM website. For internally financed projects, the Market Participant must submit with its request for reduction a sworn, notarized certification of a duly authorized officer of the Market Participant for the Financial Close milestone and either a duly authorized independent engineer or Professional Engineer for the Full Notice to Proceed and Commencement of Construction and the Main Power Generating Equipment Delivered milestones.

Table 5. **RPM Milestone Reduction Table**

Credit Reductions (%) for Planned Generation Capacity Resources and Planned External Generation Capacity Resources	
Credit Milestones Certified by an Independent Engineer (where applicable)	**Incremental Credit Reduction from Initial Credit Requirements**
Effective date of fully executed ISA for Planned Generation Capacity Resources or agreement equivalent to ISA for Planned External Generation Capacity Resources	50%
Financial Close	15%
Full Notice to Proceed and Commencement of construction (e.g. footers or foundation poured)	5%
Main power generating equipment delivered	5%
Commencement of Interconnection Service	25%

The following definitions apply to the terms in the tables above:

A. "Effective Date of fully executed ISA" shall be as defined in the relevant ISA.

B. "Full Notice to Proceed" means that all material third party contractors have been given the notice to proceed with construction by the Capacity Market Seller or its agent, with a guaranteed completion date backed by liquidated damages.

C. "Commencement of construction" means the beginning of major construction of the customer facility or customer interconnection facility.

D. "Main power generating equipment delivered" means the main power generating equipment has been delivered to the site. For combined cycle plants this means that all turbines are delivered on site.

E. "Financial Close" shall mean the resource demonstrated, as supported by a sworn, notarized certification of an independent engineer, certifying that the engineer has personal knowledge, or has engaged in a diligent inquiry to determine, that the Capacity Market Seller or its agent has completed the act of executing the material contracts and/or other documents necessary to (1) authorize construction of the project and (2) establish the necessary funding for the project under the control of an independent third-party entity. For resources that do not have external financing, PJM may accept instead a sworn, notarized certification by an officer of the company that the project has full funding available, specifying that the project has been duly authorized to proceed with full construction by the appropriate governing body of the company.

F. All milestones refer to activities materially related to the delivery of electricity or electric services related to the resource's commitment in the RPM auction.

For Planned Generation Capacity Resources located outside the PJM Region, the RPM Credit Requirement will be reduced as the Capacity Resource attains the milestones as stated in Table 5; provided however that the total percentage reduction in the RPM Auction credit requirement will be no greater than the quotient of (i) the MWs of firm transmission secured for the complete transmission path divided by the MWs of firm transmission service required to qualify the resource under the deliverability requirements of the Reliability Assurance Agreement. For Qualifying Transmission Upgrades, also known as QTUs, the RPM Credit Requirement will be reduced by 50 percent as of the effective date of the latest associated Interconnection Service Agreement (or, when a project has no such agreement, an Upgrade Construction Service Agreement), and will be reduced to zero on the date the QTU is placed in service.

RPM Auction Credit Rate

As set forth in the PJM Manuals, a separate Auction Credit Rate shall be calculated for each Delivery year as follows:

For Base Capacity Resources:

Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Auction Credit Rate shall be the greater of

a. 0.3 times the Net Cost of New Entry (CONE) for the PJM Region for such Delivery Year, in MW-day or

b. ($20 per MW-day) times the number of days in such Delivery Year.

Subsequent to the posting of the results from a Base Residual Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be the greater of

a. $20/MW-day or

b. 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located) times the number of days in such Delivery Year.

For Capacity Performance Resources:

Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Auction Credit Rate shall be the greater of

a. 0.5 times the Net CONE for the applicable Locational Delivery Area for such Delivery Year, in MW-day or

b. $20 per MW-day times the number of days in such Delivery Year.

Subsequent to the posting of the results from a Base Residual Auction, the Auction Credit Rate used for ongoing credit requirements for supply committed in such auction shall be the greater of

a. $20/MW-day

b. 0.2 times the Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located

c. the lesser of

   i. 0.5 times the Net CONE for the applicable Locational Delivery Area for such Delivery Year

   ii. 1.5 times the Net CONE for the applicable Locational Delivery Area for such Delivery Year minus the Installed Capacity Resource Clearing Price in such auction for the Locational Deliverability Area within which the resource is located

For Price Responsive Demand (PRD) Resources:

Prior to the posting of the results of a Base Residual Auction for a Delivery Year, the Price Responsive Demand Credit Rate shall be the greater of

a. 0.3 times Net Cone for the PJM Region for such Delivery Year

b. $20/MW-day times the number of days in such Delivery Year.

After the posting of the Base Residual Auction results, the Price Responsive Demand Credit Rate used for on-going credit requirements for price responsive demand committed in the Base Residual Auction or to the FRR Alternative, shall be the greater of

a. $20/MW-day

b. 0.2 times the Capacity Resource Clearing Price for a Capacity Performance Resource in such auction for the LDA within the PRD load is located) times the number of days in the Delivery Year times a final price uncertainty factor of 1.05.

For any additional PRD that seeks to commit in a Third Incremental Auction or seeks to commit PRD be reduce the final unforced capacity obligation of an FRR Entity, the Price Responsive Demand Credit Rate shall be the same rate that is used after posting of the Base Residual Auction results.

After the posting of the Third Incremental Auction results, the Price Responsive Demand Credit Rate used for on-going credit requirements for all Price Responsive Demand, shall be the greater of:

a. $20/MW-day

b. 0.2 times the Final Zonal Capacity Price for the zone in which the price responsive demand is located times the number of days in such Delivery Year, but no greater than the post BRA Price Responsive Demand Credit Rate.

Additional Form of Unsecured Credit for RPM

In addition to other allowed forms of credit, “RPM Seller Credit” is also available to Market Sellers, but solely for purposes of satisfying RPM Auction Credit Requirements. If a supplier has a history of being a net seller into PJM markets, on average, over the past 12 months, then PJM will count as RPM Seller Credit twice the average of that participant’s total net monthly PJM bills over the past 12 months. This unsecured credit is included in both the individual and affiliated family cap of $50 million on unsecured credit.

Credit Responsibility for Traded Planned RPM Capacity Resources

PJM may require that credit and financial responsibility for planned RPM Capacity Resources that are traded remain with the original party (which for these purposes, means the party bearing credit responsibility for the planned RPM Capacity Resource immediately prior to trade) unless the receiving party independently established consistent with the Credit Risk Management Policy, that it has sufficient credit with PJM and agrees by providing written notice to the PJM treasury department that it will fully assume the credit responsibility associated with the traded planned RPM Capacity Resource.

RPM Credit in eCredit

In order to participate in the RPM auction, a Participant that will incur an RPM Credit Requirement must specifically allocate at least the required amount of credit to RPM using the eCredit application. In eCredit, the Participant allocates RPM credit at the account level. Each time a Participant logs into eCredit, the application queries the RPM database for the latest RPM credit requirements. When a Participant submits a new RPM credit allocation through eCredit, the system first queries the RPM database to make sure the RPM credit requirement has not increased above the new allocation before submitting the change to the eCredit and RPM databases. A nightly batch run synchronizes the RPM allocations and credit requirements in the eCredit and RPM databases. During this nightly synchronization, each account in the eCredit database is updated with the current RPM credit requirement from the RPM database, and the RPM database is updated with the current RPM credit allocation from the eCredit database.

PJM credit personnel can also perform manual data synchronizations at any time through an administrative screen in eCredit.

Financial Transmission Rights

Participants holding negatively-valued ARRs will incur a credit requirement for those ARRs. Since the value of ARRs changes over the course of the four-round annual FTR auction, PJM may wait until the end of the annual auction (when the ARR values are finalized) to issue a collateral call for those negative ARRs.

Establishing Credit for FTR Activity

Each Participant wishing to bid in any FTR Auction must establish ahead of time a credit limit specifically for its FTR activity at a level that is appropriate for the bidding it will undertake. That FTR credit limit is established by the Participant through the eCredit application as described later. Credit for participation in any of the PJM FTR Auctions must be supported by collateral (cash or letter of credit); unsecured credit is not available for FTR participation. Participants may provide new collateral at any time, and PJM will endeavor to make such credit available in eCredit as soon as possible, but Participants are advised against waiting until the auction begins, because PJM will not guarantee availability of credit after the auction begins.

A single FTR credit limit is established for each Participant account, and is used to cover the credit requirements arising from that Participant's total FTR activity, whether in or from an annual auction, a Long-term FTR auction, a Balance of Planning Period (BOPP) auction, or the subsequent year's Annual and/or BOPP auctions, to the extent that credit obligations overlap across years. After a Participant establishes credit with PJM, and PJM enters it into eCredit, the Participant may allocate portions of that credit to its accounts in eCredit.

FTR Credit in eCredit

In eCredit, the Participant allocates FTR credit at the account level. When a Participant logs into eCredit, the application queries the FTR database for the latest FTR credit requirements. When a Participant submits a new FTR allocation through eCredit, the system first queries the FTR database to make sure the FTR credit requirement has not increased above the new allocation before submitting the change to the eCredit and FTR databases. A nightly batch run synchronizes the FTR allocations and credit requirements in the eCredit and FTR databases. During this nightly synchronization, each account in the eCredit database is updated with the current FTR credit requirement from the FTR database, and the FTR database is updated with the current FTR credit allocation from the eCredit database. PJM credit personnel can also perform manual data synchronizations at any time through an administrative screen in eCredit.

During the period after an FTR auction bidding window closes and before the auction results are scheduled to be posted, Participants may increase but may not decrease their FTR credit in eCredit. This lockout is lifted at 5:00 p.m. on the day the auction results are scheduled to be posted.

Calculating FTR Credit Requirements

All FTRs bid for, or purchased through, FTR Auctions have a credit requirement. The FTR Credit Requirement is calculated on a portfolio basis, allowing netting of requirements at the path level. In addition, negative ARR credits, once finalized after each annual auction, will create a credit requirement for the Participant. The FTR Credit Requirement for a Participant's FTRs is calculated as follows:

Step 1: Simulate scenarios of price movements over the defined liquidation period for all FTR Obligation products in a portfolio using historical price data.

Step 2: Use price movement scenarios to generate the distribution of portfolio value changes per FTR period and customer account of a Market Participant.

Step 2a: For FTRs bid into a currently-open auction, only buy bids will be included as part of the portfolio.

Step 2b: During a currently-open auction, FTRs are separated into two distributions of portfolio values of counter flow and prevailing flow per FTR period and customer account of a Market Participant.

Step 3: Calculate the Initial Margin (based on the Tariff definition) for each distribution of portfolio values per FTR period and customer account of a Market Participant.

Step3a: During a currently-open auction, the counter flow and prevailing flow portfolio distribution values are combined using the square root of the sum of squares per FTR period and customer account.

Step 4: ARR dollar credits are subtracted from the Initial Margin subtotal each month.

Step 5: Any individual monthly values from Step 4 that are less than zero are set to zero.

Step 6: All of the individual monthly values from Step 5 are added together using a Weighted Aggregation approach (based on the Tariff definition) followed by adding in the Initial Margin values for any Long Term positions.

Step 7: A credit value is calculated separately for FTR Option products.

Step 7a: A monthly historical value is calculated for each FTR Option path for which a bid is submitted. The value is a weighted average of the difference of sink minus source of past three calendar years' day-ahead LMPs (weighted 50 percent last year, 30 percent prior year, 20 percent two years prior).

Step 7b: Step 7a is repeated using a second historical value that has been adjusted for certain high-impact Transmission Expansion Plan (RTEP) upgrades. For each FTR Option, the RTEP-adjusted historical value is used if it would produce a higher credit requirement for the FTR Option.

Step 7c: The historical value is adjusted by 10% in order to provide some protection against year-to-year changes in value. The adjustment is a reduction for positive historical values and an increase in magnitude for negative historical values.

Step 7d: A further adjustment is made as follows: if the FTR Option is a buy and the historical value is less than zero, it is set to zero; if the FTR Option is a sell and the historical value is greater than zero, it is set to zero.

Step 7e: The adjusted historical value of each FTR Option is subtracted from the total price for that FTR Option for each month.

Step 7f: All of the individual monthly values across all FTR Options are added together within each month to come up with a monthly subtotal.

Step 7g: All of the individual positive monthly subtotals from Step 7f are added to form a credit requirement for FTR Options (negative monthly subtotals are discarded).

Step 8: The results of Step 6 and Step 7 are added together to get a total FTR Credit Requirement per FTR period and customer account.

Step 9: Calculate the portfolio Mark-to-Auction Value (MTA). To calculate the Mark-to-Auction Value, use the most recently available cleared auction price applicable to the FTR, minus the original transaction price of the FTR, multiplied by the transacted quantity. Then, sum over all the months remaining in the applicable FTR period and for all cleared FTRs and bilateral trades in the customer account.

Step 10: Subtract the Mark-to-Auction value from the results of Step 8 (a positive Mark-to-Auction value will reduce the FTR Credit Requirement whereas a negative Mark-to-Auction will increase the FTR Credit Requirement).

Step 11. A 10¢ per MWh minimum total is then compared against the results of Step 10, and the maximum value is used.

Step 12. Any Realized Gains or Losses are subtracted from the results of Step 11 (a positive, or Realized Gain, value will reduce the FTR credit requirement whereas a negative, or Realized Loss, will increase the FTR Credit Requirement).

Step 13: Any total FTR Credit Requirement values from Step 12 that are less than zero are set to zero. This results in the total FTR Credit Requirement by customer account of each Market Participant.

When bids are submitted into an auction, the credit requirement for the resulting portfolio (including all cleared FTRs and all FTRs previously submitted into the auction) is calculated. (Participants may submit bids in multiple groups during each auction or auction round.) If the credit requirement including the newly submitted bids exceeds the FTR credit available, then that set of bids is rejected, otherwise it is accepted into the auction. Note that if a set of bids is rejected, all bids in previously-accepted submittals are retained in the system because they had not caused the portfolio to exceed the FTR credit limit; only the current set of bids that would have caused the credit limit to be exceeded is rejected.

For FTR option contracts, the calculations above are applied to bids using each bid's individual bid price since it is possible that each bid could clear at its respective price. A situation can arise, however, in which a participant submits multiple bids for the same FTR option (same location and time) but at different prices. In this case, it is impossible for all bids to clear at their respective bid prices since if the cleared price matches the highest bid, then only that one bid will clear, and if the cleared price matches the lowest bid, then all bids will clear, but at the same low price, not their individual bid prices. Prices in the middle will cause different combinations of bids to clear. At some cleared price is a point at which the maximum possible cleared credit requirement can occur. The PJM system recognizes these "stacked bids" for FTR options and adjusts the bid credit requirement so that maximum possible cleared credit requirement that could occur is incorporated into the participant's bid credit requirement, not the amount that would be calculated by considering each FTR option alone.

As each auction (or auction round for the annual auction) is completed, the credit requirement is recalculated to include only those FTRs that cleared the auction (FTRs that the Participant won).

Intra-Auction Credit Requirements

As each auction or auction round is cleared, PJM will update portfolio Mark-to-Auction Value as follows:

Step 1: PJM will calculate a tentative cleared solution for the auction or auction round.

Step 2: For each month, PJM will also calculate the updated portfolio Mark-to-Auction Value using the auction prices of the tentatively cleared solution.

Step 3 PJM will compare the resulting total credit requirement of each member against its FTR Credit Available. If the total FTR Credit Requirement exceeds the FTR Credit Available for any Participant, then PJM will issue a collateral call to each such Participant. If the collateral call is not satisfied before 4:00 p.m. on the following Business Day, then all of the Participant's bids and offers into the auction are withdrawn and the auction clearing solution is rerun.

Step 4: These steps may be repeated if needed in order to result in a cleared solution for which all participants have the required credit in place

Long-Term FTR Credit Recalculation

In April any long term positions for the upcoming planning year will be converted into their respective monthly periods in preparation for the annual auction. This may result in collateral calls if requirements increase when the monthly positions have their initial margin recalculated.

Release of FTR Credit Requirements

Credit requirements for FTRs in the current month are recalculated every day based on the number of days left in the current month. If the total FTR Credit Requirement is less than the FTR Credit Available, collateral may be released upon request by the Participant.

Other Items

Membership, Accounts and Net Financial Settlement

Membership issues are discussed in other PJM documents; however, this section will address some of the credit-related aspects of membership. Note that members are not the same as accounts. Members may have multiple accounts, but each account is owned by only one member.

Every PJM member is a legal entity separate from every other PJM member. Many members are affiliated with other members, but they are all still separate legal entities with separate tax ID numbers. PJM considers each member as a stand-alone entity for credit purposes. There is no sharing of either credit or credit requirements between members, even if the members are affiliated (except through use of a corporate guaranty, which is addressed separately). Each member's invoice(s) must be settled separately from each other member's invoice(s). Netting of invoices between members, even affiliates, is not allowed.

An individual member may request that PJM establish multiple accounts/subaccounts for it so the member may segregate certain of its activities for its accounting convenience. While PJM generally accommodates these requests, each member is required to settle financially with PJM each billing period using a single net payment either to or from PJM. Multiple accounts owned by a member may not be settled with multiple payments.

Invoice Adjustments for Credit Requirement Calculations

Although credit requirements are generally calculated based on net invoice amounts, some billing line items (BLIs) on some invoices reflect amounts that are financially assigned between two PJM members (see "Billing Line Item (BLI) Transfers"). Their inclusion in credit calculations would result in credit requirements for some members lower than the actual legal exposure involved since the three-party setoff they sometimes create has been disallowed by the courts. There are generally three types of these billing adjustments for which PJM adjusts the credit requirements – those for specific market arrangements affecting multiple members for a long period of time (generally for FRR activities in new territories), those for specific BLIs transferred between two specific parties for a specified period of time ("BLI Transfers"), and those involving specific dollar amounts between two parties for a specified time period ("Misc. Bilateral Adjustments"). These adjustments are further described below.

It is important to note that the practices described herein are current practices only, and are performed as a service to accommodate requests by PJM members. PJM reserves the right to change or cancel, at any time, any of these provisions, accommodations and adjustments.

Fixed Resource Requirement and Other Adjustments

Some Transmission Owners (especially in territories joining PJM after the RPM base residual auction for a given year has been held) have utilized an FRR plan to satisfy their capacity obligations. In some of these cases, certain FRR charges and credits flow through the PJM invoices even though those amounts are actually owed between the Transmission Owner and the capacity suppliers for the FRR plan, not to or from PJM. PJM therefore removes those charges and credits from the invoices prior to calculating credit requirements for the parties involved.

Miscellaneous Bilateral Adjustments

Some Participants occasionally request that PJM charge one Participant and credit another Participant a specific dollar amount on a given invoice. All such amounts are reversed for the purpose of credit calculations.

Billing Line Item (BLI) Transfers

Some Participants request that PJM move charges and/or credits in a specified BLI from one account to another. While PJM currently accommodates such financial transfer requests, all such amounts are reversed for the purpose of credit requirements.

Withholding of Payments

PJM may withhold payment to a Participant if the Participant is in default or has been declared in breach of the Credit Risk Management Policy, or if there is a collateral call outstanding.

Municipal Electric Systems –Trade Credit

Recognizing that municipal electric systems may, at times, face unique circumstances that could temporarily prevent their ability to make payments on a weekly bill when due, PJM may allow a municipal electric system to make arrangement with PJM whereby PJM would extend trade credit to the municipal electric system sufficient to enable it to make payment on a weekly bill provided that the following conditions are met:

A. PJM determines, in its sole discretion, that it has sufficient excess working capital available to complete financial settlement with other market participants;

B. the municipal electric system reimburses PJM for the actual cost of such working capital;

C. the municipal electric system provides PJM with a binding representation that it has all legal right and authority to enter into the arrangement with PJM;

D. PJM will continue to issue weekly bills to the municipal electric system and the municipal electric system will make payment as due under the weekly bills using the proceeds it obtains under its arrangement with PJM. Reimbursement of these amounts, including PJM's actual costs of working capital, shall be due from the municipal electric system at the time payment is due for the invoice issued;

E. the aggregate of all financed amounts and accrued obligations shall not exceed the Working Credit Limit available to the municipal electric system;

F. the municipal electric system provides PJM with at least one week of notice (though PJM may waive this provision); and

G. the accumulated duration of such postponed payments shall not exceed three months in a rolling twelve-month period.

PJM may terminate this payment option at any time it determines its excess working capital is no longer sufficient to allow further or continued extension financing. In such cases, PJM shall attempt to give five business days, but not less than three business days' notice to the affected municipal electric system, and may call for immediate reimbursement of any outstanding amounts owed by the municipal electric system.

Default Allocation

Although allocation of a default is not a credit requirement, questions about default are often asked in conjunction with other credit questions, so it will be described here briefly. Default allocation is addressed in the Operating Agreement, section 15.2 Enforcement of Obligations. If there is a payment default by a Participant, two events may take place.

1. First, in the payment cycle in which the default occurs, recipients of payments from PJM that month may be "short paid" by the total amount of the default. In event of a short pay, each Participant individually is short paid in direct proportion to its share of payments otherwise scheduled to be received.
2. Second, after any collateral has been considered, the membership of PJM may be billed the total amount of the remaining default according to the default allocation assessment described in Operating Agreement, section 15.2 and summarized below. Participants who were short-paid at the time of default are likewise credited with the payment shortfall from that month.

Default Allocation Assessment

The actual default allocation assessment is calculated as follows:

Per-Capita Assessment

Ten percent of the default is allocated to the membership on a per-capita basis to those entities that are members as of 5:00 p.m. on the date the default is declared.

For example, if there were 500 members on January 19, 2010*, then each one would receive 1/500 of 10 percent, or 0.02 percent of a default by another member on a December 2009 month-end invoice. Because certain special memberships and certain municipalities may be exempt from the default allocation, the applicable membership count may be slightly smaller than that posted on membership lists.

* The month-end December 2009 invoice was due on January 15, 2010 (along with the invoice for the first six days of 2010), and would be declared a default if not paid two business days later, January 19, 2010.

Every non-exempt member regardless of voting privileges or affiliation receives a per-capita assessment.

For example, a family of affiliated companies that has one voting member plus another four affiliates that are each PJM members would receive five individual per-capita assessments.

Per-capita assessments are capped at $10,000 per individual member per calendar year, with any excess being re-allocated using the gross activity allocation method below. Calendar years are measured according to the months of activity for which a default occurred. For example, if a participant failed to pay its December 2009 month-end bill when due on January 15, 2010, that default would be counted as a 2009 default, not a 2010 default, since the activity occurred in 2009.

Activity Assessment

Ninety percent of the default is allocated according to each member's gross PJM activity over the past three full months.

For example, a default on the January 15, 2010 payment for December activity would use October through December bills for measuring member activity. Gross activity each month for this purpose is measured by taking the absolute values of every charge and every credit on that month's bill. Values are taken after same-month adjustments are made. Prior month adjustments on any given bill are not included in the calculation.

Default Allocation Assessment Example

a. Member A has one line item on its bill: a $500,000 credit for selling into the market.

b. Member B has one line item on its bill: a $500,000 charge for buying from the market.

c. Member C has two line items on its bill: a $500,000 Day-Ahead Energy Market credit for selling into the market and a $500,000 balancing spot market charge for buying from the market.

Members A and B would receive the same default allocation assessment. Member C would receive twice the Activity Assessment of either A or B, even though its net bill is zero, because it engaged in twice the activity of the other two members. The Per-capita Assessment would be the same for each.

Recoveries

Net recoveries will be reimbursed to Participants in proportion to their original assessment.

Bilateral Indemnification

Although not part of the Credit Risk Management Policy document itself, this issue is relevant to credit discussions and so is included here. On December 2, 2008, PJM filed with the FERC a request to change portions of the Operating Agreement to clarify that bilateral transactions, including Internal Bilateral Transactions (IBT), which are effectively a notification to PJM of an external bilateral between two parties, are considered non-pool transactions, and the parties to the transaction will indemnify PJM for performance under the transaction. For example, in an IBT, PJM is performing a service to the parties through recognizing the sale and subsequent transfer of title to the energy involved, which results in an invoice credit to the buyer and a debit to the seller. If, however, a seller in a bilateral defaults on an invoice payment obligation to PJM, then the buyer must indemnify PJM for the value it had been credited for the bilateral. PJM may either remove the credit related to that transaction from the invoice payment due the buyer, or invoice the buyer subsequently for the dollar amount involved. Please see the relevant Tariff or Operating Agreement section for determining whether the seller or buyer indemnifies PJM against default by the counterparty in the bilateral.

Appendix 1: UTC Credit Requirement Example

The table below shows examples of the UTC calculation requirements for two paths. A Bid transaction will be considered counterflow if either the Bid Price or the Prior Month Mean DA Price is negative. A Cleared transaction will be considered counterflow if the Cleared Price is negative.

Files with "Path Reference Prices for Up-to Congestion Bid Screening" are posted at the bottom of the Energy Market web page (below the "Nodal Reference Prices for Increment Offer and Decrement Bid Screening" files. The link is at:http://www.pjm.com/markets-and-operations/energy.aspx

UTC Credit Requirement Example

SourceName	SinkName	Bid or Cleared	Price	MW	Prior Month Mean DA Price	Prevailing or Counterflow	Up-to Congestion Reference Price	Credit Requirement
HALIFXDP TX1	BYRON 1	Bid	3.00	1	(55.69)	Counterflow	(72.53)	75.53
IRONWOOD	GRAND POINT	Bid	2.00	1	2.25	Prevailing	0.72	1.28
IRONWOOD	GRAND POINT	Bid	0.00	1	2.25	Prevailing	0.72	(0.72)
IRONWOOD	GRAND POINT	Bid	(1.00)	1	2.25	Counterflow	0.45	(1.45)
HALIFXDP TX1	BYRON 1	Bid	(3.00)	1	(55.69)	Counterflow	(72.53)	69.53
HALIFXDP TX1	BYRON 1	Cleared	1.00	1	N/A	Prevailing	(24.91)	25.91
IRONWOOD	GRAND POINT	Cleared	0.00	1	N/A	Prevailing	0.72	(0.72)
HALIFXDP TX1	BYRON 1	Cleared	(1.00)	1	N/A	Counterflow	(206.05)	205.05
IRONWOOD	GRAND POINT	Cleared	(3.00)	1	N/A	Counterflow	(2.06)	(0.94)
		Total Credit Requirement (sum of all positive individual requirements)						377.30

HALIFXDP TX1 BYRON 1

UTC Reference Price	
P05	(206.05)
P20	(72.53)
P30	(24.91)
DA	(55.69)

IRONWOOD GRAND POINT

UTC Reference Price	
P05	(2.06)
P20	0.45
P30	0.72
DA	2.25

Appendix 2: Release of Collateral

All collateral returns must be done through eCredit. Members must have read/write access with collateral (only members with this type of access can see the "Collateral Return" tab). On the collateral return screen, members can:

1. Request the amount of LCs to be returned/reduced
2. Request the amount of surety bonds to be returned/reduced
3. Request the amount of cash to be returned

4. Input bank wire information (required for cash returns). User has the option to allow eCredit to save data or require re-input each time needed
5. View recent collateral increase history
6. View recent collateral return request history
7. View recent collateral call history
8. Click "Submit" to request Collateral Return

The following message will appear in red at the bottom of the screen when the system has processed the request: "The collateral return request you entered was successfully submitted for review."

Appendix 3: Forms, Descriptions and Links

Membership Application

Letter of Credit:

Members and Transmission Customer

Interconnection Service Agreements

Designated Entity Agreements

Standard Confirming Bank Letter

Surety Bond

Corporate Guaranty:

Domestic Guarantors

Foreign Guarantors

Officer Certification Form:

Membership Management Community

RPM Planned Resource Milestone Certification Forms for Credit Reduction:

RPM Certification of Financial Close for Balance Sheet Financed Resources

RPM Independent Engineer Certification of Milestone

Training:

Credit Module Training

Cash Module Training