



Best Practices in Risk Management and Credit Policy Updates

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1 Purpose

PJM operates various financial markets for services that are integral to the performance of reliable delivery of power through the PJM system. As a market operator, PJM has a singular view of the material risks in a marketplace connected to one or more Market Participants, and how and whether those risks may reasonably be anticipated to affect other market participants or the market as a whole. PJM must assess both a Market Participant's willingness and ability to pay.

The purpose of this discussion paper is to establish and advance into the OATT those credit best practices that are most appropriate to establish an entity's standing as a Market Participant in PJM's markets.

Below, we examine the various Market Participants ("Participants") that participate in the PJM markets and the risk that one of the Participants involved in that market might default.

2 Summary

The current PJM Credit Policy, Attachment Q, does not incorporate well-established risk management best practices across all of its markets, specifically as it relates to:

- (1) Relying solely upon independent rating agency credit ratings/reports to understand the financial health of Market Participants
- (2) Requiring audited financials for Market Participants
- (3) Requiring references for newly formed entities
- (4) Knowing the default history and current default status of Market Participants
- (5) Having the ability to limit future and current exposure by enforcing position limits
- (6) Limiting or suspending the ability of a Market Participant to introduce more risk to the PJM markets by requiring enhanced and/or restricted collateral
- (7) Having the right to ban Market Participants from participating in the PJM market based upon confirmed imposition of a ban in other markets, including the CFTC, FERC, SEC, FINRA or NFA
- (8) Performing due diligence on Market Participant risk management practices and experience

3 Background

The Independent Consultants' report¹ recommended changes to prevent, deter or mitigate defaults that may occur in PJM's FTR market in the future, and increase the robustness of the PJM FTR market going forward. While the paper specifically focused on the FTR market, the recommendations below are best-risk management practices used across all energy markets:

¹ Anderson, Wolkoff, et.al., *Report of the Independent Consultants on the GreenHat Default*, March 26, 2019

- (A) Advance credit/collateral best practices into the Tariff
- (B) Clarify the role of PJM as manager of risk in financial markets
- (C) Build a customer awareness beyond market procedures and rules
- (D) Implement technical best practices for participant risk management
- (E) Onboard and develop new expertise in risk management
- (F) Make critical organizational changes

This paper addresses the topics above for all PJM markets and establishes the tools that PJM would employ to assess the overall risk profile of current and future Market Participants. The elements below form a holistic approach to build awareness of Market Participants, advance risk management best practices, provide clarity around PJM's role to protect the PJM market, and develop tools to be used to perform initial and ongoing risk management practices in PJM. The elements should not be considered on their own, but should be considered to work in conjunction with each other to determine whether a future or current Market Participant would inflict unreasonable credit risk in the PJM markets. They also establish criteria to mitigate the risk through best practices around collateral management, position limits, or, as a last resort, banning participation.

4 Limitations of Rating Agency Reports

There are limitations and risks associated with relying on ratings from nationally recognized statistical rating organizations like Fitch Ratings, Inc. or Standard & Poor's Global Ratings. While their ratings have mostly proven to be an accurate measure of default risk, some of the following limitations exist:

- (A) Credit ratings change, and one can't assume that credit ratings will remain the same over time
- (B) Credit ratings tend to lag the market
- (C) Rating agencies also make mistakes (e.g., Enron, WorldCom, the U.S. subprime mortgage crisis)
- (D) Some risks are difficult to capture (e.g., market events, acquisitions)
- (E) Credit ratings may weigh heavily on what's happened in the past
- (F) Credit ratings may not incorporate critical qualitative factors into their models (e.g., management risk appetite, growth strategies, firm competitiveness, market signals)

Because of these limitations, it has become a best practice to implement internal credit scoring models that not only consider the propensity to default and industry-specific exposures, but also consider sufficient qualitative factors before assigning a rating.

Currently, PJM has one quantitative model that it uses for all Participants, and it is used only for provisioning an unsecured credit allowance that does not tailor those metrics to industry sectors. As noted in the previous paper, "Establishing Financial Criteria Assessment and Credit Policy Enhancements for FTR Market Participation," PJM

examined the implementation of a credit composite score (internal credit score) that is comprised of both quantitative analysis and qualitative metrics, based on Market Participant type.

PJM plans to employ a framework for scoring organizations based on capital and leverage, cash flow coverage of fixed obligations, liquidity and profitability, as well as qualitative factors. The particular metrics and scoring rules differ according to the Market Participants' sector in order to account for varying sources of risk across industries.

The scores will range from 1–6 with the following mappings: 1 = Very Low Risk (AAA to AA-); 2 = Low Risk (A+ to BBB+); 3 = Low to Medium Risk (BBB); 4 = Medium Risk (BBB-); 5 = Medium to High Risk (BB+ to BB); 6 = High Risk (BB- and below).

If a Market Participant has an external rating from a Rating Agency, PJM intends to compare the external and internal score and utilize the lower of the scores as an input into determining the overall risk profile of a Participant.

5 Audited Financials

Financial statements can be either audited or unaudited. Auditing is a process conducted by a third-party auditor who examines the financial data for accuracy. Audited financial statements act as a means for investors and the public to determine whether a business entity is investment worthy. Unaudited financials are regarded as being less accurate than audited ones, even when they contain the same set of data, which includes the balance, income and cash-flow sheets. Unaudited reports are often prepared by an internal company accountant and do not generally contain all of the disclosures and risk statements that are relied on for transparency.

It is an industry best practice to require at least three years of audited annual financial statements (e.g., 10-K) for initial and ongoing assessments of a company's financial health, as well as quarterly statements (e.g., 10-Q) and material changes to financial reporting statements – sometimes referred to as 8-Ks for publicly traded companies.

The current practice at PJM only requires audited financials for those looking to obtain unsecured credit. If audited financials are not obtainable, PJM imposes minimum collateral requirements depending on the PJM market (e.g., FTR, virtual non-FTR) that is further restricted with haircuts of 10 percent.

PJM plans to employ a framework that requires each Participant, affiliate or its guarantor, and guaranteed affiliate to submit, or cause to be submitted, audited financial statements in US GAAP format or other standard format. The statements must be for the fiscal year most recently ended, within 10 days of becoming available, and no later than 120 days after its fiscal year end.

Additionally, if requested, Market Participants would submit unaudited quarterly financial statements promptly upon their issuance, but no later than 60 days after the end of each fiscal quarter for each completed fiscal quarter of the current fiscal year.

If audited financial statements are not provided within the time frame required, the Market Participant may be limited from participating in the PJM markets and FTR auctions.

Additionally, if a potential market participant (applicant) is newly formed or does not yet have audited financials, or if the Market Participant does not routinely prepare annual financial statements, the Market Participant shall submit

equivalent financial information as described below. PJM may restrict the company from participating in certain PJM markets (e.g., FTR), including, but not limited to: restricting the position the Participant takes in the market, requiring collateral that is commensurate with the amount of risk in which the company wants to engage, and requiring restricted collateral to be held in escrow.

The information that PJM would require is below:

If publicly traded:

- (i) Annual Forms 10-K for the three (3) fiscal years most recently ended, together with any amendments thereto
- (ii) If requested by PJM, quarterly Forms 10-Q for each completed fiscal quarter of the then-current fiscal year, together with any amendments thereto
- (iii) Forms 8-K disclosing material changes, if any, that have been filed since the most recent Form 10-K

If the above information is available on the internet, the applicant, each guarantor and guaranteed affiliate may provide a letter stating where such statements may be located and retrieved by PJM.

If privately held, for each of the three (3) fiscal years most recently ended and, if requested by PJM, each completed fiscal quarter of the then-current fiscal year:

- (i) Management's discussion & analysis
- (ii) Report of independent accountants
- (iii) Audited financial statements, including:
 - Balance sheet
 - Income statement
 - Statement of cash flows
 - Statement of stockholder's or member's equity or net worth
 - Statement disclosing any material changes from last report
- (iv) Notes to audited financial statements
- (v) Auditor's opinion
- (vi) CEO or CFO certification certifying the accuracy of information presented, the statement of current and future activities, risk statements, compliance with debt covenants and indentures if not part of the audited financials

If a Market Participant or guarantor does not routinely prepare audited financial statements, or if an applicant is newly formed, does not yet have audited financials or does not routinely prepare audited financial statements:

- (i) Equivalent financial information traditionally found in:
 - Balance sheets
 - Income statements
 - Statements of cash flows
 - Statements of future and current business activities
 - Statements of risks
 - Compliance with debt covenants and indentures
 - Outstanding debt obligations
- (ii) CEO or CFO officer certification certifying the accuracy of the financial information submitted, a statement of current and future activities, risk statements and any outstanding debt obligations.

In this case, PJM has the right to restrict the company from participating in certain PJM markets (e.g., FTR), including, but not limited to: restricting the position the market participant takes in the market, requiring collateral that is commensurate with the amount of risk in which the company wants to engage, and requiring restricted collateral to be held in escrow.

6 References for Newly or Recently Formed Entities or New to PJM Markets

PJM plans to employ the right to ask for references as a means of knowing the Participant when it is either newly or recently formed, or whether they are new to the PJM markets. If deemed necessary by PJM, each applicant will provide at least one bank reference and three significant trade references as evidence of their understanding of the markets in which they plan to participate.

PJM will utilize this information as another tool to understand the risk profile of a company planning to participate in the PJM markets, and to determine whether or not any position limitations or enhanced/restricted collateral is required.

7 Default Status and Default History

In the wholesale and retail energy space, default risk is also known as counterparty risk. It is the risk that one of the parties involved in a transaction might default on its obligation to pay, post collateral, or some other contractual obligation. In the PJM market, when a default occurs that is not remedied, the PJM Board may assess and collect from non-defaulting members, in proportion to their default allocation assessment, an amount equal to the amount the defaulting member has failed to pay along with appropriate interest.

PJM plans to employ an enhanced process by which we are not solely relying on Participants to disclose their default status via an application or during annual officer's certifications. In addition, PJM plans to obtain the default history of the top 4 to 5 principals of any private company of a fund that participates in the PJM markets.

PJM will keep this information confidential, but will use it to determine the risk profile of a Market Participant, including, but not limited to, whether the Participant presents an unreasonable credit risk to the PJM market.

8 Know Your Customer Best Practices

While formal background checks are an industry standard for membership at commodity exchanges, the depth of the background check, the timeline of how long the check should be, or the amount of due diligence is not standardized. PJM spoke to several exchanges and/or clearing members and learned that each one has its own methodology or practices in place for instituting background checks for criminal, anti-money laundering or enhanced due diligence on entities or individuals.

Most clearing members determine the amount of detailed integrity or enhanced reporting based on the risk profile of the company. The higher the risk of the company, as determined by the clearing member or exchange, the more due diligence or formalized the background check is on the company or the principals of the company.

PJM plans to employ a similar framework, whereby utilizing the internal credit scores to determine the risk profile of a company, and hence the amount of due diligence. If the Market Participant, its guarantor or affiliates are considered medium to high risk, PJM would perform a background check and use the information received in its enhanced background check as an element in determining whether the entity or individual presents an unreasonable credit risk to the PJM market.

9 Position Limits

The independent report recommended establishing position limits for FTRs based on (1) company capitalization and (2) position tenor. Historically, position limits have been used as a tool to assess and prevent extreme speculation and to deter and detect market manipulation. Position limits have also been used internally by companies to mitigate potential future exposure with counterparties. It is recommended that PJM establish volumetric, forward position limits, based on risk factors such as tenor, location, instrument type and other parameters. A similar concept named "position accountability limits" was discussed in the paper titled "Position Limits and Liquidity Risk."

The limits may be set according to the Participant's financial wherewithal or may be based on thresholds for concentration of positions. Nearing this limit would trigger review of the position by PJM. Based on this review, PJM requires the authority to prevent any increase in the position, or requires the Participant to reduce its current position.

PJM plans to establish reasonable levels of authority/flexibility in setting and enforcing position limits based on unreasonable credit risk or capitalization levels of a Market Participant. The length and term of the limits would be established on a case-by-case basis and reviewed at least annually, and also at the request of the Market Participant.

10 Internal Risk Management Reports

In order to robustly monitor the PJM market, the independent report identified that a more robust capability is needed to “catch problems before they become crises.” While having the flexibility to establish limits is one step in the right direction, in order to effectively enforce those limits, PJM requires the ability to generate periodic risk management reports that examine Market Participants’ portfolio positions, exposure, tenor, collateral, mark-to-auction, concentration by guarantor, and any relationships between those measures.

11 Unreasonable Credit Risk

PJM may require additional collateral or limit participation in the PJM markets if PJM determines the Participant presents an unreasonable credit risk. Unreasonable credit risk may be determined based on, but not limited to, material provided to PJM during its risk evaluation process, including responses from the officer’s certification and information gleaned from public and non-public sources. Any requested additional collateral will be commensurate with the current and future credit risk to the PJM markets. A Participant may be suspended in accordance with the current Tariff and/or Operating Agreement and from requesting any future markets and services unless and until the Participant is determined not to present unreasonable credit risk.

An example of unreasonable credit risk may be determined by, but not limited to, material adverse change, market manipulation, a history of market manipulation, or a history of non-cured defaults. PJM will communicate its concerns, if any, with the Participant, each guarantor and/or guaranteed affiliate and attempt to better understand the circumstances surrounding that Participant’s financial and credit position before making its determination.

12 Collateral Enhancements & Restricted Collateral

PJM plans to establish the flexibility to ask a Participant for full collateral based on the determination of high or unreasonable credit risk. This includes, but is not limited to, non-performance of any material obligation, material adverse change or credit rating downgrades. The amount of collateral requested would be commensurate with the amount of the current risk, plus the future risk to the PJM markets, and may coincide with position limits.

Additionally, PJM plans to establish the authority to seek restricted collateral for Participants, its guarantors and/or affiliates that present high or unreasonable credit risk. This restricted collateral may be returned or lowered if PJM has determined that the risk has subsided. The amount of restricted collateral will be calculated as current value of the portfolio times two.

13 Banning Market Participants

PJM plans to enhance authority to take action to ban a Participant, or any of their traders or principals, from the PJM market based upon confirmed imposition or ban from other markets including, but not limited to, the CFTC, SEC, FERC, FINRA or NFA.

Banning a Market Participant from a PJM market should be considered a severe and permanent penalty. Participants maintain the right to appeal this determination as currently defined in the Operating Agreement.

14 Verification of Risk Management Practices

FERC Order 741 requires that PJM obtain risk management policies and processes from each Participant. This is certified annually for non-hedging FTR Participants, and on a random selection basis for others. As the independent consultants' report observes, however, no independent verification is made to confirm these policies are actually applied in practice.

PJM conducts verification utilizing its own personnel: This would ensure that reviews are conducted to PJM's precise requirements and with uniform quality, but would require developing a suitably qualified staff to carry out this function. The balance that must be struck in any verification process is to ensure that it is sufficiently rigorous, while not being overly burdensome to Participants, and not consuming enormous PJM resources. Therefore, PJM will prioritize the due diligence of verifying whether Participants have robust risk management policies and processes in place based on a number of criteria, including, but not limited to:

- (1) Regulated company
- (2) Longevity of company
- (3) History of participation in PJM market
- (4) History of principals
- (5) Information obtained in determining the risk profile of the Market Participant

15 Cost Considerations

In order to implement the above best practices and effectuate surveillance capabilities, PJM estimates the implementation costs to be around \$1.5 M.