

PJM Review of Winter Events

Lisa Drauschak VP, CFO and Treasurer Risk Management Committee May 25, 2021

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Pre-Crisis Planning



Weather forecasts predicted cold weather across much of the U.S.

Feb. 8th: FTR Collateral Assessment

- Credit Risk and Trade Surveillance
- Anticipated potential valuation impacts on margin requirements
- Ongoing FTR auction left participants significantly overcollateralized

Feb. 10th: Weather Meeting

- Risk, Gas, Generation and Meteorology
- Focused on western PJM territory and potential gas/ electric load impacts
- Evaluated gas pipeline constraints

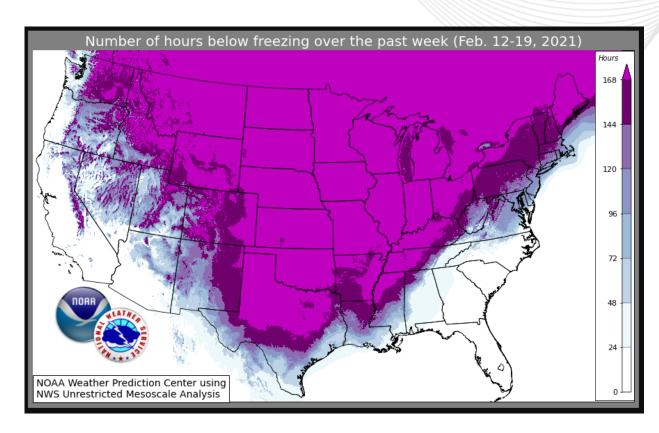
Feb. 12th: Preliminary Due Diligence

Gathering / creation of cross-ISO membership lists

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Weather Event

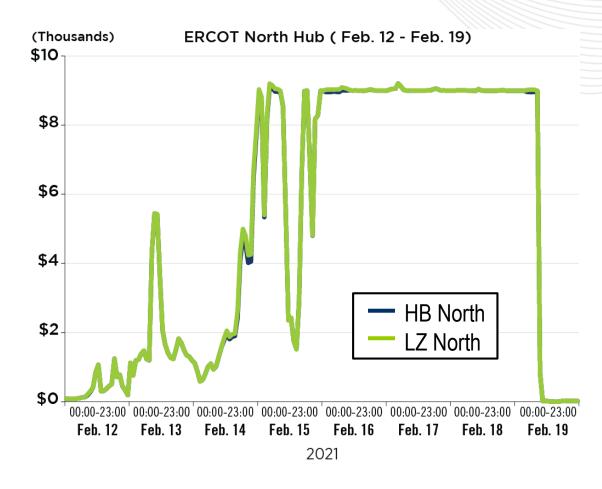


https://twitter.com/NWSWPC/status/1362862162037866508/photo/1 https://www.wsj.com/articles/washingtons-power-to-respond-to-texas-electric-disaster-is-limited-11614345010?mod=searchresults_pos5&page=2

- Length and severity exceeded initial assumptions
- Significant portion of the country
- Extended time frame
- PJM-specific territory primarily affected on western edge
- ERCOT, MISO, SPP squarely in-path. Services affected at many levels including down to water utilities. All 3 institute rolling blackouts beginning Feb. 15th
- Nearly 185 generating units in Texas were tripped offline as wind blades, gas pipes, coal beds froze



Return Week: Feb 16th - 19th



Credit Team continues research on cross-ISO membership

- Quick focus on common members
- Gathers membership lists from other ISOs
- Connects affiliated LSE's and retailers to each other.
- Began investigating collateral return requests in detail (financial scoring, news research, SEC filings, etc.)

Began scheduling phone calls with key participants

- Identified 2 entities with unsecured exposure
- Credit pushed for and received increased guarantee from both (by A-rated and above partners)
- Plus ~30 other market participants requesting collateral returns
- Informational exchange about on-the-ground happenings



Key Takeaways / Ongoing Efforts

Feedback from Participants

- Some anticipated weather, chose to abstain due to risk tolerances
- Some exported from PJM to affected markets (increased collateral postings to PJM)
- Larger shops participated and collected successfully
- Most viewed due diligence calls favorably

Cross-ISO Credit Managers Discussions

- MISO, NYISO, ISONE, PJM do not publicly announce defaults (sent to membership and regulators only)
- Cite Tariff confidentiality clauses
- CALISO, ERCOT publicly list shortpayments and defaults as they occur
- Credit continues to research defaults in other ISOs

Risks Related to Highly Related Entities

 Ensure adequate risk review for Entities that are "A" quality



Tools & Limitations

PJM Tariff-related Emergency Credit Tools

Margin call return discretion (Att Q.V. ¶3): "Collateral which may no longer be required to be maintained under provisions of the Agreements, shall be returned at the request of a Participant, no later than two (2) Business Days following determination by PJM within a commercially reasonable period of time that such Collateral is not required."

Creditworthiness adjustment discretion (Att Q.II.E.¶1): "If appropriate, PJM will revise the MP's Unsecured Credit Allowance and/or change its determination of creditworthiness... or other assurances pursuant to PJM's ongoing risk evaluation process."

Collateral Demand Discretion via "Unreasonable Credit Risk" letters (Att Q.II.D.¶2): "If PJM determines that an Applicant poses unreasonable credit risk to the PJM Markets, PJM may require additional Collateral... and/or deny Applicant's participation in the PJM Markets..."



Tools, Limitations, Areas for Consideration

<u>Tools:</u> Surveillance and mitigation data tools are improving (CubeLogic, eCredit, Tableau FTR exposure reports, etc.)

Limitations:

- Cross-ISO membership lookup lists are manual Potential improvement: searchable digitization of affiliate disclosure forms
- Tariff confidentiality clauses disallow sharing of default information across-ISOs (excl. CAISO and ERCOT)

Areas for Credit research include:

- Evaluate risk policies for discretionary tools used to manage market events
- Waivers during extreme events (similar to MISO)
- Potential cap on unsecured credit to qualified entities
- Catastrophe Bond as last resort

Research in other PJM areas:

- Evaluation of PJM weatherization requirements, PJM's wholesale price cap
- Evaluation of grid interconnectivity for high import/ export volumes in emergency situations
- Does PJM's capacity market solve emergency dispatch needs?



Facilitator:

James Gluck, jim.gluck@pjm.com

Secretary:

Emmy Messina, emmy.messina@pjm.com

SME/Presenter:

Lisa Drauschak, lisa.drauschak@pjm.com

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Member Hotline

(610) 666 - 8980

(866) 400 - 8980

custsvc@pjm.com