FTR Credit Requirement Filing

Special Members Committee Meeting
April 14, 2022

Background and Summary

FERC issued an order Feb. 28 rejecting PJM's FTR Credit Requirement revisions including HSIM 97% Confidence Interval (CI) as unsupported by the record.

FERC found PJM proposed use of HSIM model at a 97% CI was not supported by the record.	• Lower aggregate collateral amounts to be collected • PJM failed to demonstrate how the FTR Credit Requirement is calibrated to ensure Market Participants will be required to provide adequate collateral relative to risk of positions • Lack of evidence that adequate margin will be in place for riskiest FTR counterparties • Recent defaults in the FTR Markets
FERC had concerns regarding imposing use of HSIM model at a 99% CI.	• Unspecified transition to go from 97% CI to 99% CI • Concern that some participants may unwind their portfolios

FERC cited concerns that the existing FTR Credit Requirement is no longer just and reasonable and instituted a 206 proceeding. FERC also recognized that PJM could propose revisions to its Tariff in a 205 filing.

Overview of Considerations

1. Member and stakeholder feedback/voting
2. Cost-benefit analysis
3. Protection against risks to members
4. Likelihood of success at FERC
5. Pending FPA Section 206 proceeding

Stakeholder Feedback Obtained

PJM held two meetings to share its thoughts on a recommended path and to seek feedback.	• March 9 Special RMC • March 14 TOA-AC
PJM also sought feedback by an electronic feedback form through March 15.	• 20 stakeholders representing all five sectors provided feedback through the form.

March 23 Members Committee meeting included an advisory vote by members on path forward.

File the FTR Credit Requirement revisions, including the HSIM Initial Margining proposal, filed by PJM on Dec. 21, 2021, as amended with one of these three:	
With the 97% CI accompanied by some new supporting rationale	**3.903** in favor
Replacing the 97% CI with the 99% CI	**2.257** in favor
With the 97% CI and then moving to the 99% CI in one year	**3.017** in favor

Refiling with a 97% CI led the membership's advisory vote.

Outcome of MC Preference Vote

Do you endorse the 97% CI accompanied by supporting rationale as your first preference?	**3.266** in favor
Do you endorse replacing the 97% CI with the 99% CI as your first preference?	**0.507** in favor
Do you endorse the 97% CI, and then moving to the 99% CI in one year, as your first preference?	**1.439** in favor

Refiling with a 97% CI was even a stronger preference.

PJM Filed a Rehearing Request

PJM filed a Request for Rehearing/ Alternative Clarification on March 30.

Objectives of the Request

- Refute FERC's criticisms of PJM's Initial Margin filing
- Clarify that the Feb. 28 FERC Order does not preclude PJM from submitting a second 205 filing with 97% CI

Potential Outcomes of Rehearing Request

- FERC may grant, deny or deny by operation of law through no action

Based on stakeholder feedback, PJM performed additional analyses, which we would like to share with members today:

Using data that supported the FTR Credit Filing at FERC (12/21):

- Cost benefit analysis comparing 97% CI to 99% CI

Using more recent data, as of April 4, 2022:

- Summary and detail of collateral changes moving from status quo to 97% CI and 99% CI

Cost of capital range estimated by Market Participant **two ways:**

Low Cost: LIBOR + Spread

LIBOR calculated as the average of 6-month and 12-month LIBOR published as of March 25, 2022

Spread estimated based on PNC Bank revolving credit facility rates, by credit rating

High Cost: Flat 8%

These two data points are to provide an illustrative calculation of cost of capital.
PJM welcomes input/feedback on the assumptions used.

Estimated Cost of Capital

Dollars in millions	Collateral – 97% CI ♦	Collateral – 99% CI ♦	$ Change Moving From 97% CI to 99% CI♦	% Change Moving From 97% CI to 99% CI♦
Electric Distributor	$46.4	$73.1	$26.7	57.5%
Generation Owner	$104.6	$170.5	$65.9	63.0%
Transmission Owner	$43.4	$92.9	$49.5	114.1%
Other Supplier ●	$1,026.2	$1,469.4	$443.2	43.2%
Load Serving Entity	$180.5	$280.3	$99.8	55.3%
Financial Trader	$619.0	$856.0	$237.0	38.3%
Other Supplier	$226.7	$333.1	$106.4	46.9%
Total ■	**$1,220.6**	**$1,805.9**	**$585.3**	**48.0%**

♦	Confidence interval
■	Data utilized for the FTR Credit Filing at FERC (December 2021).
●	Line of business based on member self-identification in membership records.

Electric Distributors and Transmission Owners serve a significant amount of load as well as some Generation Owners.

Estimated Cost of Capital

Dollars in millions	Collateral – 97% CI ♦	Collateral – 99% CI ♦	**Low Rate** Estimated Cost of Capital 97% CI to 99% CI ♦	**High Rate** Estimated Cost of Capital 97% CI to 99% CI ♦
Electric Distributor	$46.4	$73.1	$0.9	$2.1
Generation Owner	$104.6	$170.5	$2.9	$5.3
Transmission Owner	$43.4	$92.9	$1.6	$3.9
Other Supplier ●	$1,026.2	$1,469.4	$17.1	$35.5
Load Serving Entity	$180.5	$280.3	$3.7	$8.0
Financial Trader	$619.0	$856.0	$9.5	$19.0
Other Supplier	$226.7	$333.1	$3.9	$8.5
Total ■	**$1,220.6**	**$1,805.9**	**$22.5**	**$46.8**

♦	Confidence interval
■	Data utilized for the FTR Credit Filing at FERC (December 2021).
●	Line of business based on member self-identification in membership records.

Electric Distributors and Transmission Owners serve a significant amount of load as well as some Generation Owners.

Defaults were calculated using the shortfall from back testing previously shared with members.

Movement from a 99% CI to a 97% CI resulted in an average incremental yearly shortfall of $27.5 M.	Probability of financial default was calculated using different levels.

Those defaults were then assigned to each member using default allocation assessment percentages calculated as of January 2022 and will change over time.

Moving from a 99% CI to a 97% CI increases the incremental annual shortfall by $27.5 million.

It is difficult to determine, with accuracy, how much of that shortfall would result in financial defaults.

PJM chose three data points to calculate a range:	5%
	10%
	81% – Break even at the low rate (Where cost approximates benefit in total)

Estimated Cost vs. Benefit Analysis

Dollars in millions	Low Rate	High Rate	Default Rate♦		
	Estimated Cost of Capital Moving From 97% to 99% CI	Estimated Cost of Capital Moving From 97% to 99% CI	5%	10%	81%
			Sum of Improved Member Default Coverage across all Market Participants		
End-Use Customer	$ -	$ -	$ -	$ -	$0.1
Electric Distributor	$0.9	$2.1	$ -	$0.2	$1.2
Generation Owner	$2.8	$5.3	$0.3	$0.6	$5.0
Transmission Owner	$1.6	$4.0	$0.3	$0.5	$4.6
Other Supplier	$17.1	$35.4	$0.8	$1.4	$11.5
Load Serving Entity	$3.7	$8.0	$0.4	$0.8	$6.2
Financial Trader	$9.5	$18.9	$0.1	$0.1	$1.1
Other Supplier	$3.9	$8.5	$0.3	$0.5	$4.2
Total	**$22.4**	**$46.8**	**$1.4**	**$2.7**	**$22.4**

♦ Default rate allocations as of January 2022

Updated Collateral as of April 4, 2022

Collateral Amounts as of April 4, 2022

Dollars in millions	Status Quo	Collateral – 97% CI ♦	$ Change: Moving From Status Quo to 97% CI ♦	% Change: Moving From Status Quo to 97% CI ♦
Electric Distributor	$18.8	$15.4	$(3.4)	(18)%
Generation Owner	$66.9	$95.6	$28.7	43%
Transmission Owner	$12.4	$26.2	$13.8	111%
Other Supplier ●	$1,269.1	$648.7	$(620.4)	(48)%
Load Serving Entity	$96.9	$49.3	$(47.6)	(49)%
Financial Trader	$786.1	$421.8	$(364.3)	(46)%
Other Supplier	$386.1	$177.6	$(208.5)	(54)%
Total	**$1,367.2**	**$785.9**	**$(581.3)**	**(43)%**

♦	Confidence interval
●	Line of business based on participant self-identification in membership records.

Collateral Amounts as of April 4, 2022

Dollars in millions	Status Quo	Collateral – 99% CI ♦	$ Change	% Change
			Moving From Status Quo to 99% CI ♦	
Electric Distributor	$18.8	$26.3	$7.5	39%
Generation Owner	$66.9	$141.4	$74.5	111%
Transmission Owner	$12.4	$62.5	$50.1	404%
Other Supplier ●	$1,269.1	$870.0	$(399.1)	(31)%
Load Serving Entity	$96.9	$72.4	$(24.5)	(25)%
Financial Trader	$786.1	$552.5	$(233.6)	(29)%
Other Supplier	$386.1	$245.1	$(141.0)	(36)%
Total	**$1,367.2**	**$1,100.2**	**$(267.0)**	**(24)%**

♦	Confidence interval
●	Line of business based on participant self-identification in membership records.

PJM's Perspective on the Analysis

1. Across the membership, the increase in cost of collateral moving from 97% CI to 99% CI appears greater than the benefit, given the expected reduction in default size.
2. The conclusion appears true for each sector and in aggregate across the membership.
3. HSIM only looks at portfolio risk. To reduce the probability of material default, it is important to focus on where high portfolio risk intersects higher counterparty risk.
4. Moving from status quo to HSIM at 97% CI as of April 4, 2022, would result in PJM holding significantly less collateral in aggregate at this intersection, which requires some additional analysis to confirm that it is risk reducing.
5. Other changes than HSIM are potentially driving this outcome:
   a) Undiversified adder elimination
   b) Positive unrealized Mark to Auction can offset IM collateral requirement

Considerations for Success at FERC

PJM believes we can supplement our 205 filing with additional evidence to support use of HSIM at 97% CI to address most of FERC's concerns.

FERC Objection	Supplement to Record in 205 Filing
Support that KPMG validation would apply at 97% CI	Obtaining updated validation report
Support that FTR Credit Requirement is calibrated to provide adequate collateral	Demonstrate the projected cost of a default using shortfall amounts and risk assumptions
Support that FTR Credit Requirement will ensure adequate collateral for **riskiest of counterparties**	Discussion of existing tools and/or any additional risk management processes/tools that could be employed
Lower overall collateral at 97% CI and concerns regarding **riskiest of portfolios**	Discussion that lower overall collateral is not correlated to the collateral level of the "riskiest of portfolios" and further even 99% CI does not cover the "riskiest of portfolios"
Participants may need to unwind positions	FTR Participants have access to HSIM simulation and would be aware of any possible differentials at 99% CI
Whether 97% CI causes PJM Market Participants to collateralize for FTR MP who should absorb risk	Moving from 97% CI to 99% CI appears, in some instances, to disproportionately impact load interests (who also have other credit obligations)
Whether 97% CI improperly exposes entire PJM membership to default costs	Cost-benefit analyses and explanation of risk allocation by sector
Lack of certainty for Market Participants	Addressed by pursuing 97% CI

Other Credit Enhancements

In 2020, PJM instituted enhanced risk management tools to specifically assess counterparty risk.

- Implemented Know Your Customer reforms
- Tightened timelines for collateral calls payments
- Enhanced material adverse change language
- Required audited financials
- Implemented financial risks models
- Added unreasonable credit risk as a basis for collateral calls
- Ability to limit and suspend market participation

Counterparty risk is improved with enhanced risk management tools, whereas HSIM is designed to address portfolio risk. More communication and transparency with members is desired in the application of some of these tools.

Additional Analyses/Tools Required

Given the data we have shared about collateral changes moving from status quo to 97% as of April 4, 2022, we believe additional analysis is required to address FERC's concern about the riskiest portfolios and riskiest counterparties.

HSIM is by definition based upon historical data, analyses and volatility.

It does not incorporate potential future risks not reflected in the historical data or other tail risks.

- Additional credit tools may be required to mitigate potential tail risks – both entity and portfolio risks.
- Propose in further detail how PJM would utilize "unreasonable credit risk" to mitigate risk of counterparty.
- Explore use of PROMOD tool for analysis to evaluate extreme volatility on paths (i.e., outages).
- Member feedback received on desirability of adding more transparency to the use of unreasonable credit risk.

Proposed Next Steps

1. Perform additional analysis on drivers of large reduction in collateral held at 97% CI (compared to Status Quo) to confirm these changes are in fact risk reducing prior to submitting a 205 to FERC at 97% CI.
2. PJM plans to develop and share with Members the methods of implementing the strategic use of unreasonable credit risk and the PROMOD analysis tool to address the riskiest counterparties and portfolios.
3. PJM proposes returning to members within 2-3 weeks to present the results of our additional analysis and determine a path forward, with a filing on April 22 requesting FERC to hold their 206 in abeyance and a 205 filing targeted within 60 days.

PJM would like to receive your feedback today.

Appendix

Low Cost: LIBOR + Spread

LIBOR

6-month: 1.45%

12-month: 2.09%

Published as of March 25, 2022

Spread by Credit Rating

A+ to AAA: 0.68%

A- to A: 0.94%

BBB+: 1.19%

BBB- to BBB: 1.63%

Non-Investment Grade: 2.25%

Estimated based on PNC Bank revolving credit facility rates