Financial Risk Mitigation Senior Task Force (FRMSTF) Q&A

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Q1 PJM states, "The 95% confidence interval is expected to converge to a 5% failure rate over time." There is concern with the accuracy of this statement. Can PJM clarify?

A1 A confidence interval represents a range of values likely to include a population value with a certain degree of confidence. When evaluating based on the 95% confidence interval, PJM is collecting margin to cover 95% of the scenarios that have historically been observed based on known values. This indicates that there are scenarios that happened 5% of the time historically that will not be covered. PJM calculated a failure rate based on a smaller sample of data and a standard deviation approximation of the percentile calculation due to sample limitations. This sampled failure rate is expected to converge to the theoretical failure rate of 5% when using the 95% confidence interval. As PJM collects more data from auctions and is able to switch to the true percentile methodology, mathematically the failure rate is expected to converge with the theoretical confidence interval that is selected. The graphic below shows some initial analysis of how the failure rate converges toward the expected values as the method switches to percentile.

STANDARD DEVIATION			PERCENTILE ADJUSTED – SEPT.			PERCENTILE ADJUSTED – JAN.		
Confidence Interval	Failure Rate	Failure Rate Winter	Confidence Interval	Failure Rate	Failure Rate Winter	Confidence Interval	Failure Rate	Failure Rate Winter
99%	0.65%	1.00%	99%	0.9%	1.7%	99%	0.7%	1.3%
97%	0.90%	1.54%	97%	1.6%	2.8%	97%	2.0%	3.3%
95%	1.21%	2.16%	95%	1.9%	3.3%	95%	4.1%	6.2%

Q2 When will PJM have enough data to switch to the percentile calculation as part of the initial margin calculation?

A2 As PJM continues to collect additional financial transmission right (FTR) auction data, the initial margin calculation will switch to the percentile calculation once 150 sample points are reached. PJM currently expects to have more than 150 sample for the majority of balance of planning period positions within the next 6 months or less. Any periods that do not have at least 150 samples will continue to use the standard deviation approach until the sample threshold is met.

Q3 Why is PJM okay with going below the 99% industry standard?

A3 99% is where the industry is with regards to financial transactions and we can ultimately get there as well, however our FTR auction history is limited. As we collect more auction data, we will have the opportunity to further enhance our model. PJM is recommending that we go with a confidence interval of 97% instead of the industry standard of 99%.

Q4 When talking about moving the industry standard of 99%, what specifically are you referring to?

A4 After the defaults in 2008 across exchanges and in the financial industry, various regulators and industry leaders realized that the old industry standard use of the 95% confidence interval did not provide the appropriate coverage. Industry leaders and regulators, such as the Basel Committee for Banking Supervision, the Board of the International Organization of Securities Commissions, the International Swaps and Derivatives Association and the Commodities Futures Trade Commission have all recommended the use of the 99% confidence interval for calculating initial margin on non-cleared financial transactions. See the references below:

Organization	IM-CI	Link
Nodal	99.7%	https://www.nodalclear.com/services/risk-management/margin-methodology/
ICE	99%	https://www.theice.com/clear-europe/risk-management
CFTC	99%	https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/uncleardmargin_factsheet121615.pdf
BCBS&IOSCO	99%	https://www.bis.org/bcbs/publ/d475.pdf
ISDA	99%	https://www.isda.org/a/cgDDE/simm-for-non-cleared-20131210.pdf
ERCOT	99%	http://www.ercot.com/mktinfo/crr

Q5 Are FTRs basis swaps?

A5 An FTR is a forward contract for the price differential (or more precisely, the congestion component of the price) between two defined locations. In that sense, it is a classic 'basis swap', where the 'fixed' price is the purchase price in the auction, and the 'floating' reference price is the price differential in day-ahead market (DAM) between the two specified locations.

Q6 Does the CFTC recognize FTRs as financial products?

A6 Yes. The Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act"). Title VII of the Dodd-Frank Act amended the CEA and altered the scope of the Commodity Futures Trading Commission ("CFTC") exclusive jurisdiction to include swaps as well as futures. Noting that FTRs and other transactions were swaps, a petition was filed from Certain Independent System Operators and Regional Transmission Organizations to Exempt Specified Transactions Authorized by a Tariff or Protocol Approved by the Federal Energy Regulatory Commission or the Public Utility Commission of Texas from Certain Provisions of the

Commodity Exchange Act Pursuant to the Authority Provided in the Act. The CFTC in April 2013, exercised its authority under section 4 c (6) of the Commodity Exchange Act (CEA) and section 712(f) of the Dodd Frank Act to exempt certain contracts, agreements and transactions for the purchase or sale of specified electric energy products that are offered pursuant to a FERC or PUCT approved Tariff from most provisions of the Act.

Specifically, the final order states:

> "A ''Financial Transmission Right'' is a transaction, however named, that entitles one party to receive, and obligates another party to pay, an amount based solely on the difference between the price for electric energy, established on an electric energy market administered by a Requesting Party, at a specified source (i.e., where electric energy is deemed injected into the grid of a Requesting Party) and a specified sink (i.e., where electric energy is deemed withdrawn from the grid of a Requesting Party). The term ''Financial Transmission Rights'' includes Financial Transmission Rights and Financial Transmission Rights in the form of options (i.e., where one party has only the obligation to pay, and the other party only the right to receive, an amount as described above).
>
> Furthermore, the scope of the exemption shall only apply to such Financial Transmission Rights where:
>
> (a) Each Financial Transmission Right is linked to, and the aggregate volume of Financial Transmission Rights for any period of time is limited by, the physical capability (after accounting for counterflow) of the electric energy transmission system operated by a Requesting Party, as defined in paragraph 5(h) of this Order, offering the contract, for such period;
>
> (b) The Requesting Party serves as the market administrator for the market on which the Financial Transmission Rights are transacted;
>
> (c) Each party to the transaction is a member of the Requesting Party (or is the Requesting Party itself) and the transaction is executed on a market administered by that Requesting Party; and
>
> (d) The transaction does not require any party to make or take physical delivery of electric energy."

Limitations to this order pointed out that any material change or omission in the facts and circumstances that alter the grounds for the Proposed Order might require the Commission to reconsider its finding that the exemption contained therein is appropriate and/or in the public interest and consistent with the purposes of the CEA.

Q7 Will implementing these changes cost consumers more than today?

A7 It depends on the type of market participant you are. For example, if you are a GO or TO, one would theoretically say that if we are decreasing the default risk, theoretically you are decreasing the cost to consumers. So one would look at the tradeoff between the cost of capital and your default allocation. Costs associated with posting collateral are a part of the cost of doing business.

To that point, if market participants see an increase in the cost of capital/collateral, may be the result of multiple issues, including but not limited to: credit rating, interest rates, portfolio risk, underwriting of the issuer providing the letter of credit or other form of acceptable collateral.

Q8 Are confidence intervals and failure rates interchangeable?

A8 No. The confidence interval represents a range of values likely to include a population value with a certain degree of confidence. Failure rate represents the percent of instances when collateral was insufficient to cover actual market moves during PJM's backtesting.

Q9 Is PJM using a Monte Carlo simulation?

A9 No, PJM is not using Monte Carlo simulation approach. PJM is using a historical simulation value-at-risk (VaR) approach which uses historically observed price movements to calculate risk. This approach is used widely in the industry. It is also described in Standard Initial Margin Model for Non-Cleared Derivatives report published by ISDA in 2013.

Q10 How does PJM envision the intra-auction collateral calls working? What happens if an intra auction collateral call is not satisfied?

A10 If a participant is notified of an intra auction collateral call, the FTR Participant has until 4:00 PM the next day to post the required collateral. If the collateral is not posted, PJM will remove the bids and re-run the auction if the option is available.

Q11 How do post-auction collateral calls differ?

A11 A post-auction collateral call will be handled consistent with the current collateral call satisfaction period in PJM's Credit Policy for Credit Breaches in Tariff, Attachment Q, section VI, C.