UNINTENDED CONSEQUENCES OF FORWARD ADJUSTMENT FACTORS

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Executive Summary

Long settled market positions are preventing counterparties from sending price signals and reacting to price signals, thereby reducing grid reliability.

The credit formula must be updated to avoid this crisis.

More efficient price signals and lower counterparty default risk are expected outcomes.

Agenda

01 BACKGROUND

02 CASE FOR CHANGE

03 SOLUTION PROPOSAL

04 REAL LIFE APPLICATION

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01
BACKGROUND

Forward Adjustment Factors are a multiplier used to estimate credit risk

About Forward Adjustment Factors (FAFs)

They are based on information up to three weeks in the future

They change each day, and can vary from 1 to 10.

They are used as a multiplier to a counter-party's past positions as part of "estimated liability"

What are we talking about vs what are we NOT talking about

We are talking about …

- The GOAL of forward adjustment factors.
- The existing implementation of forward adjustment factors
- Achieving this goal more directly, without such negative consequences

We are not talking about …

- Seasonal Adjustment Factors

ERCOT’s reasoning, as we understand it

- Forward Adjustment Factors (FAFs) may influence whether LSEs become short of their obligations during anticipated market events.
- By increasing collateral requirements during market events, counterparties are less likely to default

02
CASE FOR CHANGE

What's the Problem?

- A counter-party's past, already-settled positions are unrelated to the future information that forward adjustment factors are based on.
  - The current system relies on the assumption that participant's past behavior fully predicts future behavior.
  - In reality, counter-parties change behavior in response to prices and anticipated prices.
- Forward adjustment factors limit a counter-party's ability to change their behavior in response to price movement.
  - ERCOT's objective of using price signals to provide reliability is mitigated by forward adjustment factors.
  - For a participant who commonly takes short positions, they can make taking long positions expensive.
- Counterparties' best strategy when managing credit is assume the forward adjustment factor will cap out "at some far-off point in the future," and therefore simply assume it is at the maximum at each trading day.
  - Indicates a design flaw
  - Low risk positions can have arbitrarily high liability costs, even after being fully settled

03
SOLUTION PROPOSAL

what do we need to change

How to Fix This Problem

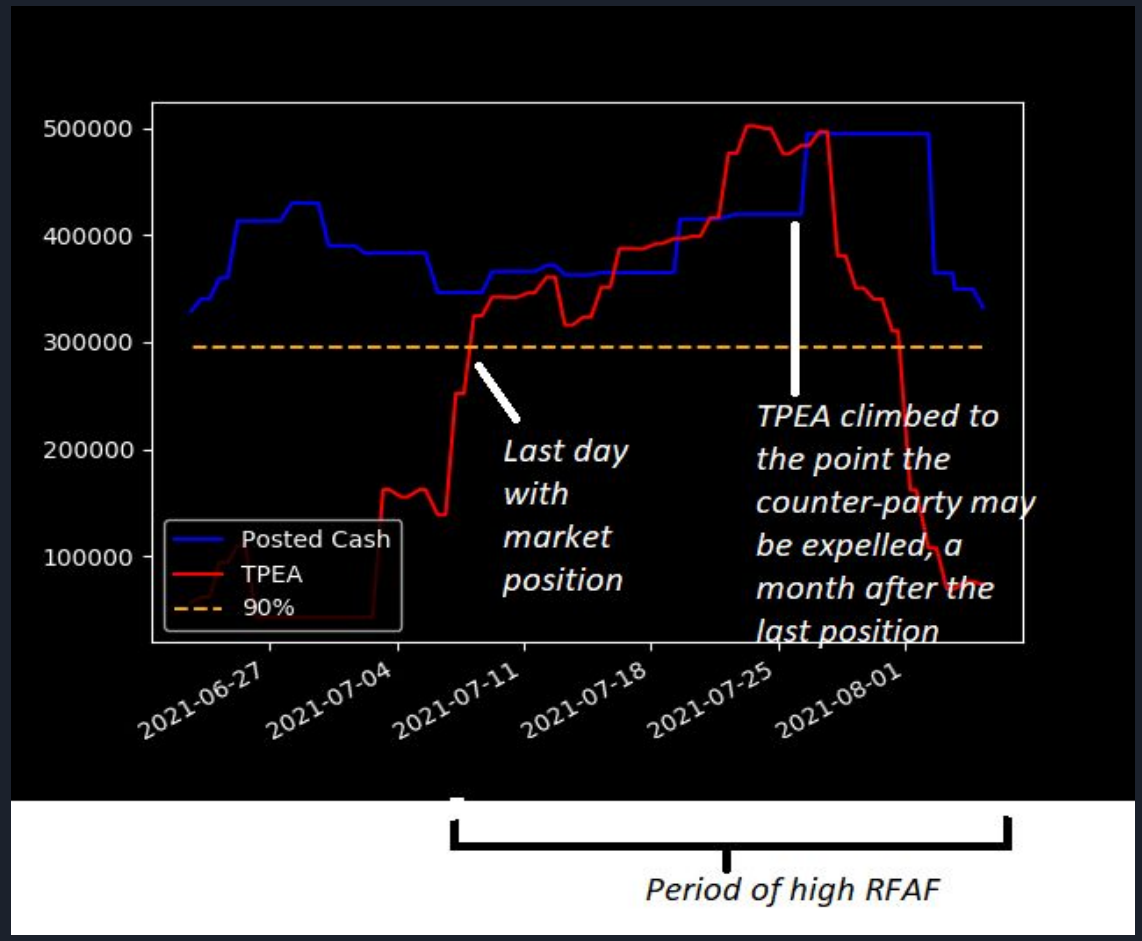
- **Forward adjustment factors should apply to forward positions.**
  - Incentivize market participants to control their risk and avoid default.
  - Load Serving Entities' **anticipated load obligations** should be multiplied by the forward adjustment factor, not their prior obligations.

04
REAL LIFE APPLICATION

Real World Example

- Counter-parties are unable to control their TPEA by reducing their actual exposure.
- Counter-parties that have no liabilities with ERCOT may have Total Potential Exposure Amounts (according to ERCOT) that are arbitrarily high.
    - This would not occur if the forward adjustment factors were only applied to unsettled or future positions.

This is an important issue to address, because it can lead beneficial market participants to be forced out of the market despite having no outstanding liabilities!



Example #1 Oracle Counter-Party Ejected

1. Suppose a counter-party has access to high resolution weather forecasts through some reliable method. In June, anticipating rain in a load center this counter-party virtual offers electricity under where the market clears, therefore taking a virtual position.
2. The next day when rain hits the load center, prices depress and the counter-party has helped produce market convergence.
3. Later, in August a heat wave approaches, and the forward adjustment factor climbs to 10.
4. The Counter-party takes no positions and has no outstanding liabilities with ERCOT.

Compare the outcomes...

Current Protocol

1. ERCOT makes a collateral request due to increased credit from the forward adjustment factor (10) being applied to the rainy day in June.
2. The Counter-party finds the request infeasible or unreasonable and either defaults or withdraws from the market.
3. ERCOT loses a valuable tool for price convergence and has reduced market liquidity.

Proposed Protocol

1. The counter-party remains a market participant and provides liquidity in August if they choose.

Example #2 Short Gambler risk is reduced

1. Suppose a counter-party has a trading strategy of shorting large price movements, and defaulting if the price moves against them.
2. A heat wave is approaching in August and the market trades up to an RFAF of 10.
3. The counter-party has no prior positions.

Current Protocol

1. The RFAF does not affect their ability to take positions since it is multiplied by prior positions.
2. The counter-party virtually shorts electricity up to their credit limit of $500k
3. The counter-party takes a 10,000 MWH short position throughout the day.
4. $500 prices are realized and the counter-party takes $5 million in losses.
5. The counter-party defaults and leaves the market with the burden of covering its short pay.

Proposed Protocol

1. The RFAF minimizes the position the counter-party can take.
2. The counter-party virtually shorts electricity up to their credit limit of $500k.
3. The counter-party takes a 1,000 MWH short position throughout the day.
4. $500 prices are realized and the counter-party takes $500k in losses.
5. The counter-party's bid credit sufficiently covers the losses.

05
Q&A

06
APPENDIX

Supplementary Examples

Example #3 Reliable Counter-Parties Increase Participation

Current Protocol

1. A counter-party decides to behave as reliably as possible.
2. They know their RTLE may at some point be multiplied by the RFAF-max for credit calculations.
3. Therefore they never deploy more than their available credit / RFAF-max at any time, regardless of the current day RFAF.

Proposed Protocol

1. A counter-party decides to behave as reliably as possible.
2. They know their TPEA will be dependent on their market position.
3. Therefore they deploy their available credit / RFAF at any day.

In both cases the counter-party behaves as reliably as possible. In the proposed protocol they deploy more capital, and, their capital deployment is a function of the RFAF for the day of the position.

Current Protocol

Example #4 Specialized Virtual Trading Companies are Disadvantaged

Specialized Virtual Trader

1. A counter-party decides to use all their available collateral to trade virtuals.
2. After profitably trading for some months, the RFAF is increased to the RFAF-max by ERCOT.
3. A collateral request is made for more than the available credit limit.
4. The counter-party was already using all their funds for virtuals, and therefore default, although they are solvent.

Large Unspecialized Company

1. A counter-party decides to designate some portion of their funds to virtuals.
2. After profitably trading for some months, the RFAF is increased to the RFAF-max by ERCOT.
3. A collateral request is made for more than the available credit limit.
4. The counter-party temporarily draws capital from another arm of the company to remain in good standing.

Thank you!