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Advancing the ERCOT Market

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DC Energy supports a comprehensive review of credit exposure calculations

Exposure Calculation Reform

- **DC Energy supports the review of credit exposure calculations to see where targeted improvements can be made**

- **Our desire is to align the exposure calculations to better reflect the actual risk of a market participant's activity**
  - Instances where calculated risk is overstated ("over-collateralized") can lead to less market activity and higher liquidity premiums that are passed to load
  - Instances where calculated risk is understated ("under-collateralized") the market is exposed to default uplift risk
  - We seek to address gaps on both sides of the issue

One possible enhancement is to align the Forward Adjustment Factors with the base exposure calculation

Exposure Calculation Enhancements

-Concept 1-

- **Align the Forward Adjustment Factors (FAFs) with the base exposure calculation**
  - FAFs are intended to account for forward price movements that are not captured in the base exposure calculation
  - The problem is the adjustments (FAFs) are calculated on recent prices, but get used to adjust activity on a different set of days (i.e., RT FAF is based on a recent 14-day period whereas the maximum base exposure could be from 30+ days ago)
    - This results in implied prices that may far exceed the system-wide offer cap
  - The correct way is to take the base exposure calculation and the FAF together since they are interdependent
    - Each daily base exposure calculation has its own FAF that covers the same days of historical activity
    - This means the FAF adjustment would now correspond to the activity it is seeking to adjust
- **The alignment improves the accuracy of calculated exposure**
- **Any increase to negative credit gaps could be addressed with targeted credit scalars**

A closer look at the Operating Day misalignment between the RTLE and RFAF calculations shows it can be very significant

RTLE and RFAF misalignment

-Illustration of misalignment for EAL (excludes weekends and holidays)-

Operating Days from Today

-25 -24 -23 -22 -21 -20 -19 -18 -17 -16 -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0

RFAF denominator covers most recent 14 Operating Days with Initial Statements

Max RTLE can arise from any 14-day period in past 20-40 Operating Days with Initial Statements

EALq = Max [IEL, RFAF * Max {RTLE during the previous lrq days}, RTLF] + DFAF * DALE + Max [RTLCNS, Max {URTA during the previous lrq days}] + OUTq + ILEq

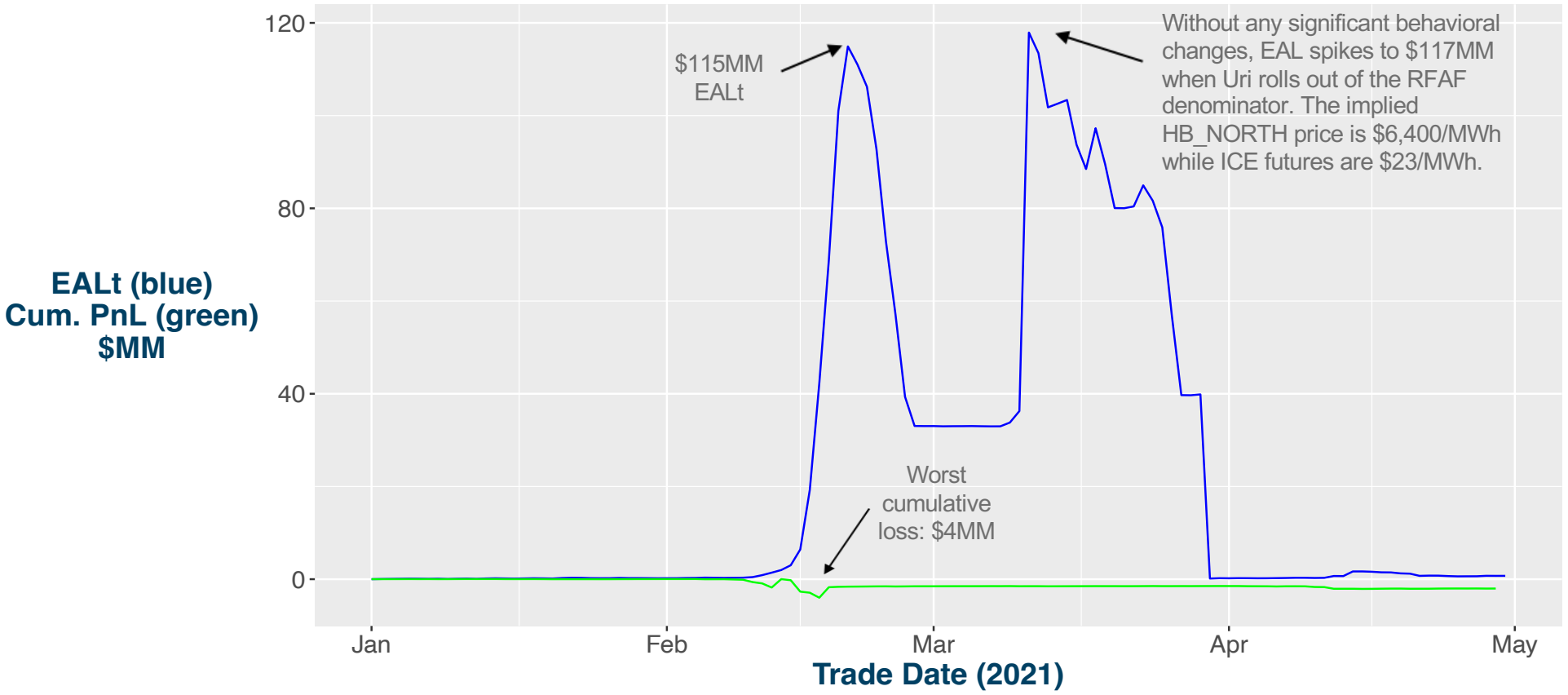
Note: IEL parameter slightly revised to fit on slide. See Protocol Section 16

Source: https://www.ercot.com/files/docs/2020/08/18/2020_08_Credit_Management.pdf

The EAL calculation can dramatically overcollateralize as demonstrated by a 50MW energy only sale traded every hour from Jan. to Apr. 2021

EALt vs Cumulative Profit and Loss

- 50MW Energy Only Sale Around The Clock, Fees Excluded-



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The credit calculations should reflect the interdependency of real-time and day-ahead exposure

Exposure Calculation Enhancements

-Concepts 2-

- **In order to reflect actual risk, the calculated exposure for the day-ahead and real-time need to be taken together so they are based on the same days and weighting factors**
  - Today RT and DA components of extrapolated and unbilled liability are treated independently, which does not reflect the real risk
    - RT Liability Extrapolated (RTLE) can cover days up to 40-days ago whereas DA Liability Exposure (DALE) up to 12 days ago
    - Unbilled RT Amount (URTA) has no corresponding extrapolated value or look back for day-ahead activity
  - This can be fixed by taking day-ahead and RT activity together before apply M1 and M2 extrapolation and look back
    - The calculation should include most recent ODs, such that RT Liability Forward is no longer needed
  - Unbilled Day-ahead Amount (UDAA) is corollary to RT Liability Completed and Not Settled (RTLCNS). These are appropriately aligned given the current RT and DAM statement timing.

The credit calculations should reflect the ability to stop trading

Exposure Calculation Enhancements

-Concept 3-

- **Pause certain credit exposure parameters for Market Participants that stop trading**
  - The current look-back nature of the exposure calculations do not recognize a market participant who willingly stops trading during high-risk periods
  - The concept recognizes the actual risk a market participant poses to the market
  - The trigger to identify when a QSE stops market activity could be programmatic as is the case for the Protocol Section 4.4.10 “e-factors”
    - This leads to a pause of certain Estimated Aggregate Liability parameters that could be carried out by adjusting the existing multipliers in the credit calculations to zero
    - The concept is self-correcting: When activity resumes, then the normal multipliers are reinstated
  - The pause would not pertain to unpaid parameters (E.g., RT Liability Completed and Not Settled (RTLCNS) and Unbilled Day-ahead Amounts (UDAA)

ERCOT Protocol Section 4.4.10 "e-factors"

-Energy Only Offers-

(b) For each MW portion of a DAM Energy-Only Offer:

(i) That has an offer price that is less than or equal to the a^{th} percentile of the DASPP for the hour over the previous 30 days, the sum of (A) and (B) shall apply.

(A) Credit exposure will be:

(1) Reduced (when the b^{th} percentile Settlement Point Price for the hour is positive). The reduction shall be the quantity of the offer multiplied by the b^{th} percentile of the DASPP for the hour over the previous 30 days multiplied by the value *e2*.

(a) The value *e2* is computed as the $ep2^{th}$ percentile of Ratio2 for the 30 days prior to the Operating Day, where Ratio2 is calculated daily as follows:

$$Ratio2 = 1 - Max[0, (\sum_{h=1,24} (Q_{cleared\ Offers} - Q_{cleared\ Bids}))/(\sum_{h=1,24} (Q_{cleared\ Offers}))]$$

except $Ratio2 = 0$ when $\sum_{h=1,24} Q_{cleared\ Offers} = 0$

(b) ERCOT may adjust the value of *e2* by changing the quantity of bids or offers to the values reported by the Counter-Party in paragraph (7) below or based on information available to ERCOT; or

(2) Increased (when the b^{th} percentile Settlement Point Price for the hour is negative). The increase shall be the quantity of the offer multiplied by the b^{th} percentile of the DASPP for the hour over the previous 30 days.

