



Item 10: Mitigation of Credit Tail Risk Exposure

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2015 Chair, Credit Work Group

Finance & Audit Committee Meeting

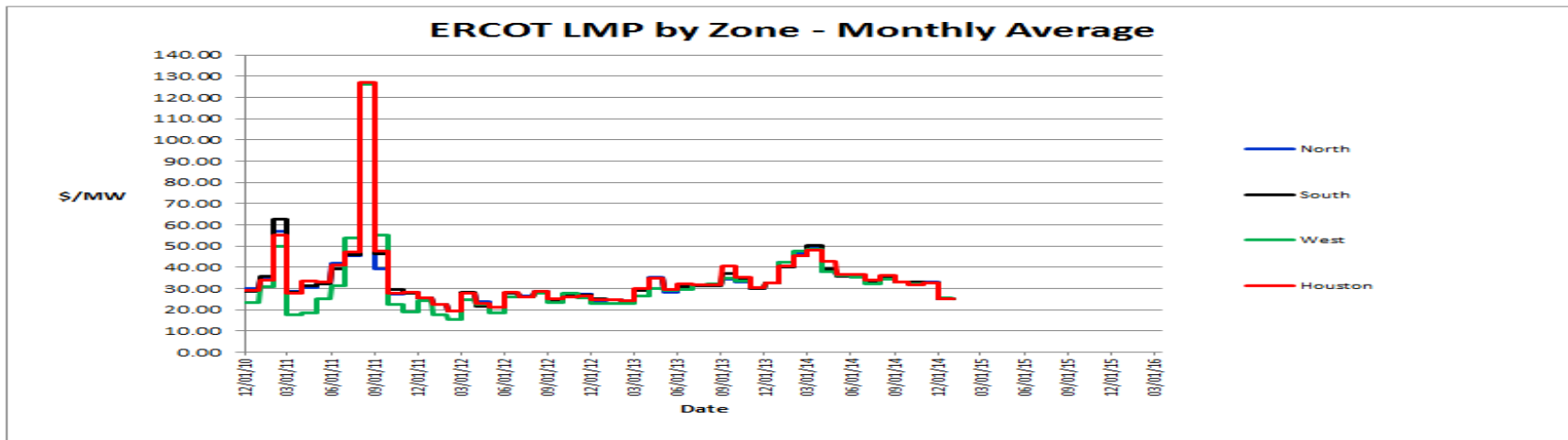
ERCOT Public

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Current ERCOT Collateral Coverage

- Currently ERCOT Protocols provide for collateral based on historical Settlement Point Prices, low (or ‘normal’) historic prices result in collateral requirements which will not cover an ‘unusual’ pricing event.
- These ‘unusual pricing’ events may be rare but they are not unforeseen and are a ‘design feature’ of the current market structure that such events occur frequently enough to properly incentivize new generation or demand response (The Brattle Group’s “Missing Money” problem).
- Once such an ‘unusual’ pricing event occurs, collateral may be held for extended (and potentially unnecessary) periods after the event has passed.

ERCOT Historical Zonal Pricing in the Nodal Market

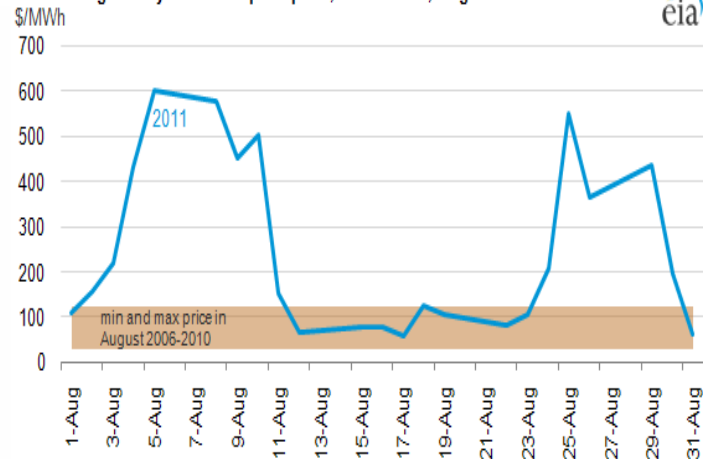


ERCOT North Zone - August 1-30, 2011

Hourly day-ahead, daily on-peak, and monthly weighted average prices

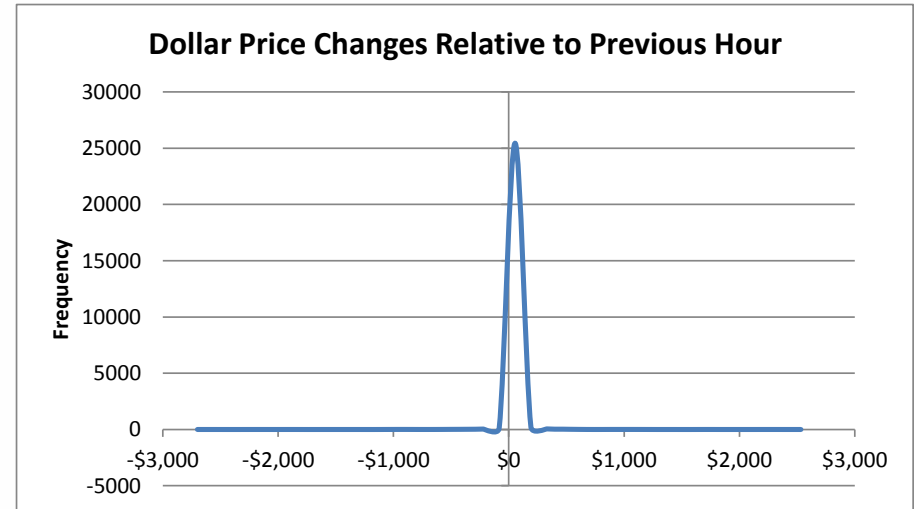
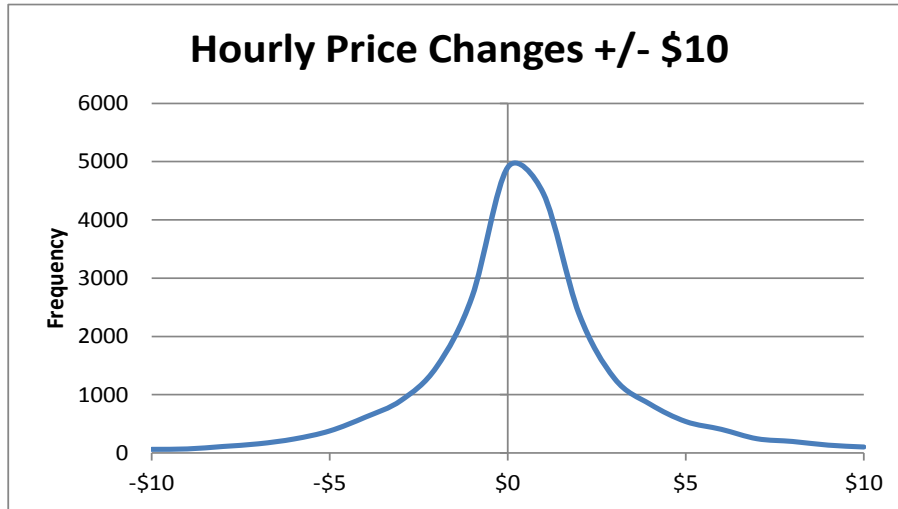


ERCOT August day-ahead on-peak price, North Zone, August 2011



“... Although the shortages in 2011 seemed relatively severe, adequate long-term incentives will only exist in ERCOT if the total value of shortages exceeds the value exhibited in 2011 every few years.” - “2013 State of the Market Report”, page v

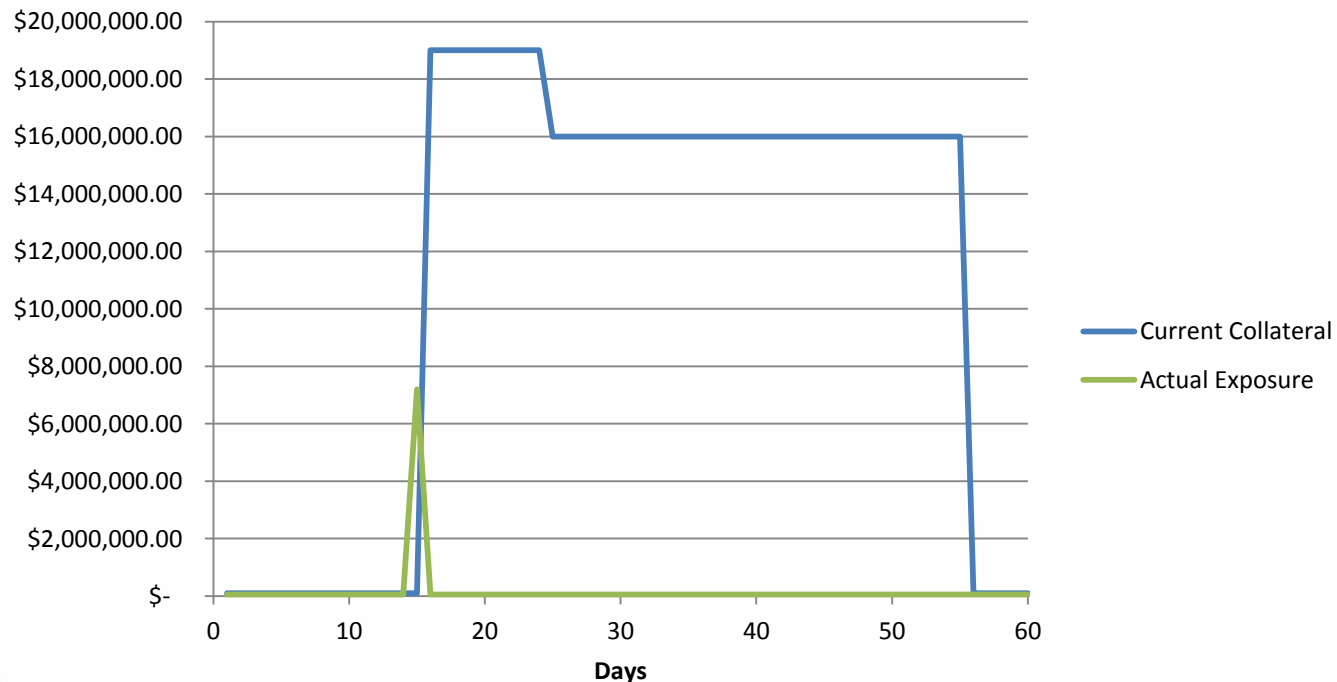
ERCOT Historical Price Movement Volatility and 'Fat Tails'



- Sample of 25,986 hourly prices in all Load Zones since Nodal opening.
- Hourly price movements follow a fairly normal distribution between values of approximately -\$10 and +\$10.
- However, price spikes and collapses cause the price change distribution as a whole to have exceedingly "Fat Tails" (or "Leptokurtosis").

Existing ERCOT Exposure and EAL Collateral Coverage

- The following graph shows how the existing ERCOT EAL credit exposure methodology performs during a pricing event (not including any pending NPRRs such as NPRR 638).
 - Pricing Event Scenario:
 - Participant is short 800 MW for hour ending 17 every day.
 - Participant's behavior results in a daily actual exposure of approximately \$50,000 when prices are normal (~\$50/MWh).
 - A pricing event occurs on day 15 where hour ending 17 clears at \$9,000/MWh.



ERCOT Counter-Party Risk Exposure

- A single pricing event of any duration may find a significant number of Market Participants with unpaid invoices greater than posted collateral.
- In addition, some Market Participants may be unable to post substantially increased collateral (to cover current and 'projected' future credit exposure).
- Any non-payments in full of additional collateral (after the breach and cure process) would result in losses to the market in the event that posted collateral was exceeded by unpaid invoices before and during a mass transition.
- These losses could be significant depending on the duration of the pricing event, the risk exposure of each defaulting Counter-Party, and the number of defaulting Counter-Parties.

Impact on Generation and Systemic ERCOT Market Risk

- The nature of ERCOT's credit Protocols and 'revenue neutrality' dictate that any Counter-Party defaults be transferred first to generation (short pays) then to the overall market after 180 days (default uplift invoices).
- Section 9.19.1(4) of the ERCOT Protocols limit default uplift invoices and resulting repayment to generation to a maximum of \$2.5 million every 30 days (after 180 days).
- The size of the losses may exceed the capacity of individual generators or other Market Participants to immediately absorb the loss – leading to potential cascading defaults as additional Market Participants are forced into default as a result of the inability to absorb 'uplifts' resulting in even greater 'uplifts' among fewer remaining Market Participants.

Systemic ERCOT Market Risk Mitigation Options

- Additional Market Participant Collateral Postings
 - Pros – decreases scenarios where exposure exceeds collateral, can be administered through current ERCOT infrastructure, does not ‘socialize’ risk, can be structured through what ever manner is easiest for each counterparty. (LC, cash, etc.)
 - Cons – does little to cover risk associated with extended price spikes, is expensive and unneeded almost all of the time, is restrictive on new market entrants or companies with limited access to credit, ultimately raises consumer prices.
- Credit Insurance (risk transfer to a non-ERCOT entity)
 - Pros – transfers a portion of the risk of ‘unacceptable’ loss.
 - Cons – may be priced at an unacceptable level, may have restrictions which limit coverage, ‘socialized’ cost to market, can not cover potential ‘extreme’ scenarios exceeding limits.

Systemic ERCOT Market Risk Mitigation Options (cont.)

- Establishing some form of ‘credit facility’ within ERCOT if uplifted losses exceed a given threshold with all Market Participants retiring any debt over time.
 - Pros – does not ‘shock’ the market by uplifting (potentially) unmanageable losses immediately to generation then the entire market – such losses are paid from the credit facility and then uplifted over time, only drawn upon if losses exceed a given predefined ‘risk tolerance level’, similar in concept to other ‘adder’ charges such as the prior Nodal Surcharge or ERCOT administration fee as a certain dollar amount per Megawatt hour, duration can be tailored to size of default.
 - Cons – cost allocation issues relating to uplifted losses, credit facilities have cost and rely on ERCOT creditworthiness, requires changes to ERCOT Protocols and perhaps Texas law.

Hypothetical Short Term ERCOT Credit Facility Structure

- ERCOT would arrange with a financial institution to obtain immediate financing in the case of a default exceeding a pre-established threshold (e.g. \$40 million) up to a maximum level (e.g. \$500 million).
- Cost of the credit facility would be shared amongst all market participants similar to the ERCOT administrative fee.
- The credit facility could be in the form of a letter of credit, commercial paper, or other short term financing.
- ERCOT's credit rating would be used as a guarantee.
- The short term financing would be rolled into debt amortized over a set period based upon default size (e.g. \$50 million over 1 year, \$100 million over 2 years, etc.) funded by a surcharge similar to Nodal (but applying to all QSEs).

Summary

- ERCOT currently maintains Counter-Party collateral sufficient to cover ‘most’ but not ‘all’ circumstances and it is cost and capital prohibitive to require coverage for 100% of events.
- Today, under current Protocols if there was a large default for what ever reason of, say, \$250 million, ERCOT would ‘short-pay’ all QSEs owed money according to the process outlined in Section 9.19, perhaps over multiple days.
- Any QSE ‘short-paid’ (mostly generation and CRR holders) would not be able to collect any of the ‘short-paid’ \$250 million until after 180-days when Default Uplift Invoices impacting all QSEs are begun under Sections 9.19.1 and 9.19.2.
- The capped maximum uplift of \$2.5 million a month under Section 9.19.1(4) results in the uplifts paid out completely after 106 months, as an interest-free loan from those ‘short-paid.’

Questions?