



## **Item 3: Periodic Report on Credit Work Group Activity**

*Donald Meek*

Chair, Credit Work Group

Finance & Audit Committee Meeting

ERCOT Public

April 9, 2018

# Credit Work Group Update – Reviewed NPRRs

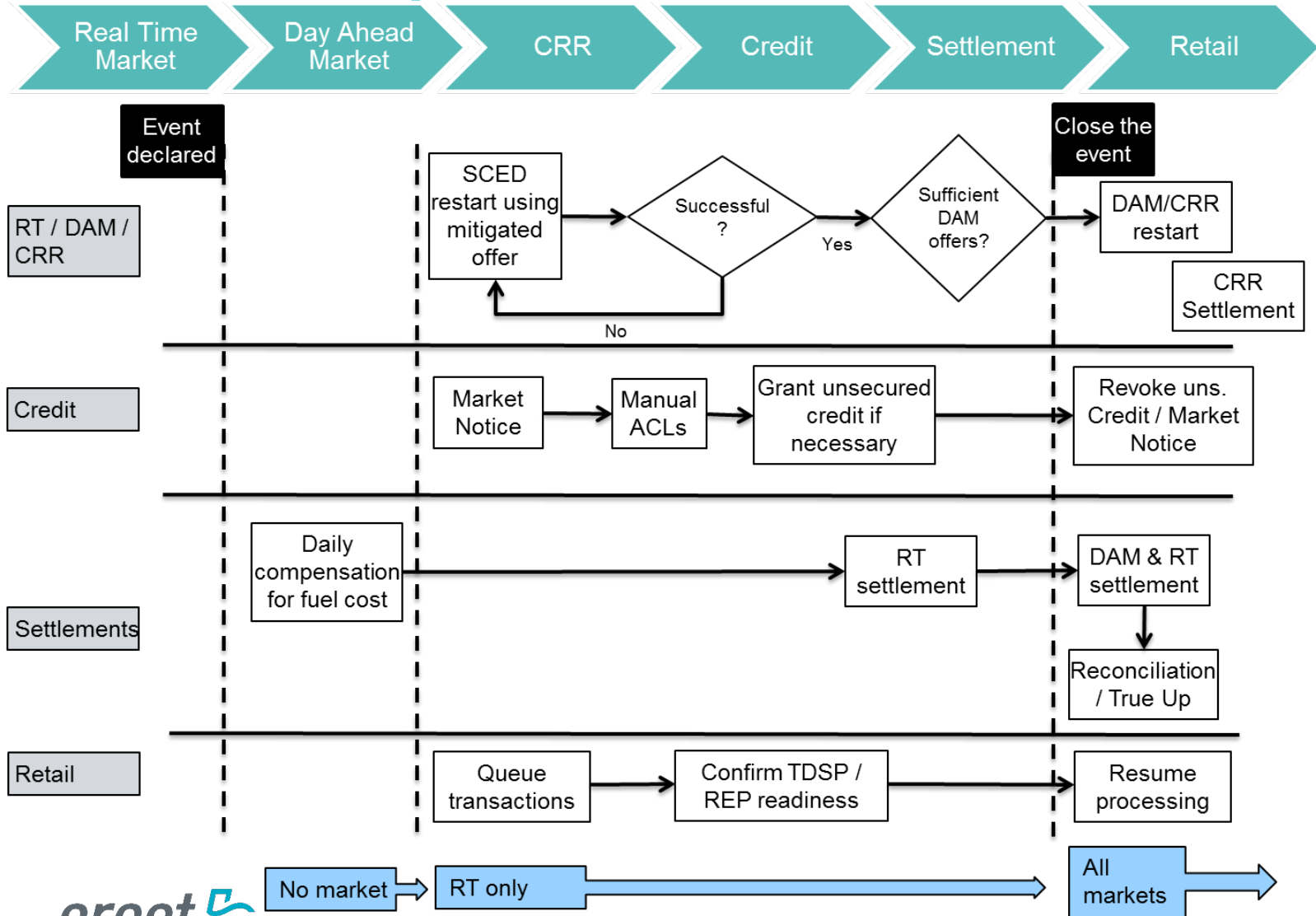
- **NPRRs Reviewed Without Credit Impact**

- NPRR 837 – Regional Planning Group (RPG) Process Reform
- NPRR 847 – Exceptional Fuel Cost Included in the Mitigated Offer Cap
- NPRR 853 – Availability of ERCOT Estimated Interval Meter Data
- NPRR 857 – Creation of Direct Current Tie Operator Market Participant Role
- NPRR 858 – Provide Complete Current Operating Plan (COP) Data
- NPRR 864 – RUC Modifications to Consider Market-Based Solutions
- NPRR 865 – Publish RTM Shift Factors for Hubs, Load Zones, and DC Ties
- NPRR 868 – As-Built Hub and Load Zone Calculation

- **NPRRs Tabled for Further Discussion**

- NPRR 850 – Market Suspension and Restart
  - Tabled for discussion until the April 2018 CWG/MCWG meeting in order to incorporate anticipated comments expected from simultaneous review by other Working Groups as well as discuss operating frameworks for the types, amounts, and duration of potential counterparty credit extensions during a market restart.

# NPRR 850 - ERCOT Market Suspension and Restart Conceptual Framework “Swim Lanes”



# CRR Auction Credit Requirements Calculator

- One of the CWG goals is to “pursue a calculator to allow market participants to calculate their credit requirements for CRR auctions” on an ad hoc basis prior to submitting CRR bids.
- A draft System Change Request (SCR) was presented for CWG to consider at the Dec. 2017 and Jan. 2018 CWG Meetings.
- Subsequently, it was determined by ERCOT that an NPRR would be more appropriate reduce excess collateral postings as a partial solution by ‘pre-screening’ CRR bids before locking auction credit.
- The CWG voted to sponsor “NPRR 867, Revisions to CRR Auction Credit Lock Amount to Reduce Excess Collateral.”
- Further discussions will take place within the CWG in the coming months on the possibility of filing an SCR to consider aspects of the “CRR Calculator Concept” not addressed by NPRR 867.

# Credit Work Group Update – CMM Refresh

- Refresh of the Credit Monitoring and Management System (CMM) incorporating previously approved NPRRs is in the execution stage and targeted for Phase 1A and 1B implementation in 2018.
- **Phase 1** is in Execution and includes delivery of the CMM technical refresh along with the majority of the Credit-related NPRRs.
  - **Phase 1A** delivered NPRRs 648, 683, 743, 760 and 800 via the existing CMM application. **Phase 1A 'go live' was completed between February 6 to February 8, 2018.**
  - **Phase 1B** will focus on delivery of the technical refresh along with delivery of the full scope of NPRRs in Phase 1 – **Phase 1B is tentatively scheduled to 'go-live' in December 2018.**
- **Phase 2** will deliver Financial Transfer functionality and additional Credit / Treasury efficiencies (NPRR 702). Team continues to document requirements and User Interface designs and workflows. The go-live date will be set once re-plan efforts for Phase 1 are complete.
- **Phase 3** will deliver any remaining low-priority scope (NPRR 484(1B)). The go-live date for this phase will be addressed following completion of Planning for Phase 2.

# Counter-Party Credit Exposure – Jan./Feb. 2018

## January 2018 compared to post-NPRR 800 February

- Market-wide average TPE decreased from \$430.6 million to \$398.5 million.
  - TPE decreased by \$39.9 million for “Load and Generation” category.
  - TPE decreased by \$4.1 million for “CRR Only” category.
  - TPE increased by \$12.1 million across all other categories.
- Excess collateral increased from \$1,822 million to \$1,828 million.
  - increased by \$26.4 million for “Load and Generation” category.
  - decreased by \$25.0 million for “Trader” category.
  - increased by \$4.1 million across all other categories.
- High volatility in Real-Time prices during both months.
- Number of active Counter-Parties decreased from 215 to 213.

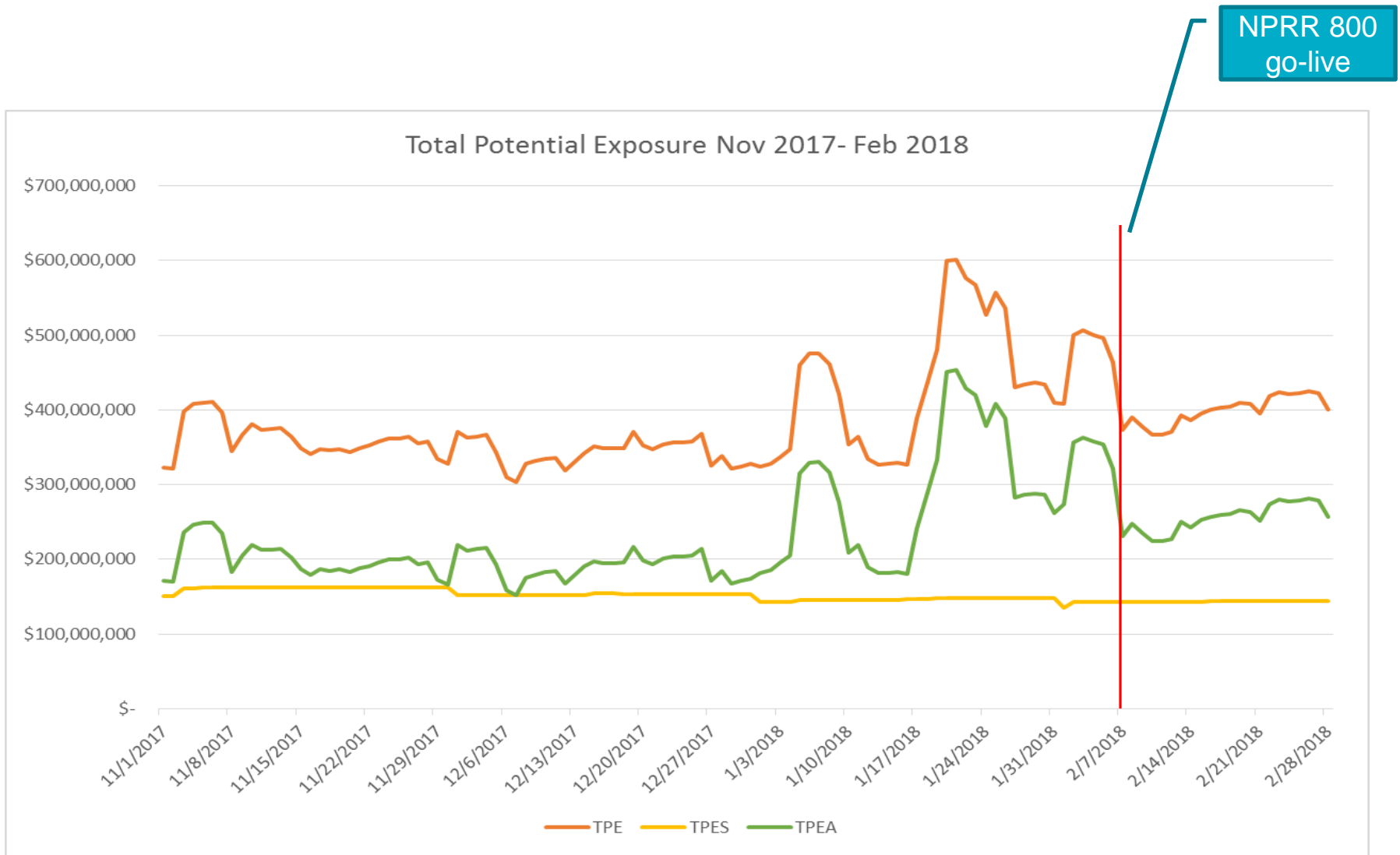
# Counter-Party Credit Exposure – Jan./Feb. 2018

ERCOT credit calculations reflect Counter-Party credit exposure as documented in Section 16.11.4.1 of the ERCOT Protocols.

A Counter-Party’s “Total Potential Exposure” (TPE) is the sum of its “Total Potential Exposure Any” (TPEA) and “Total Potential Exposure Secured” (TPES):

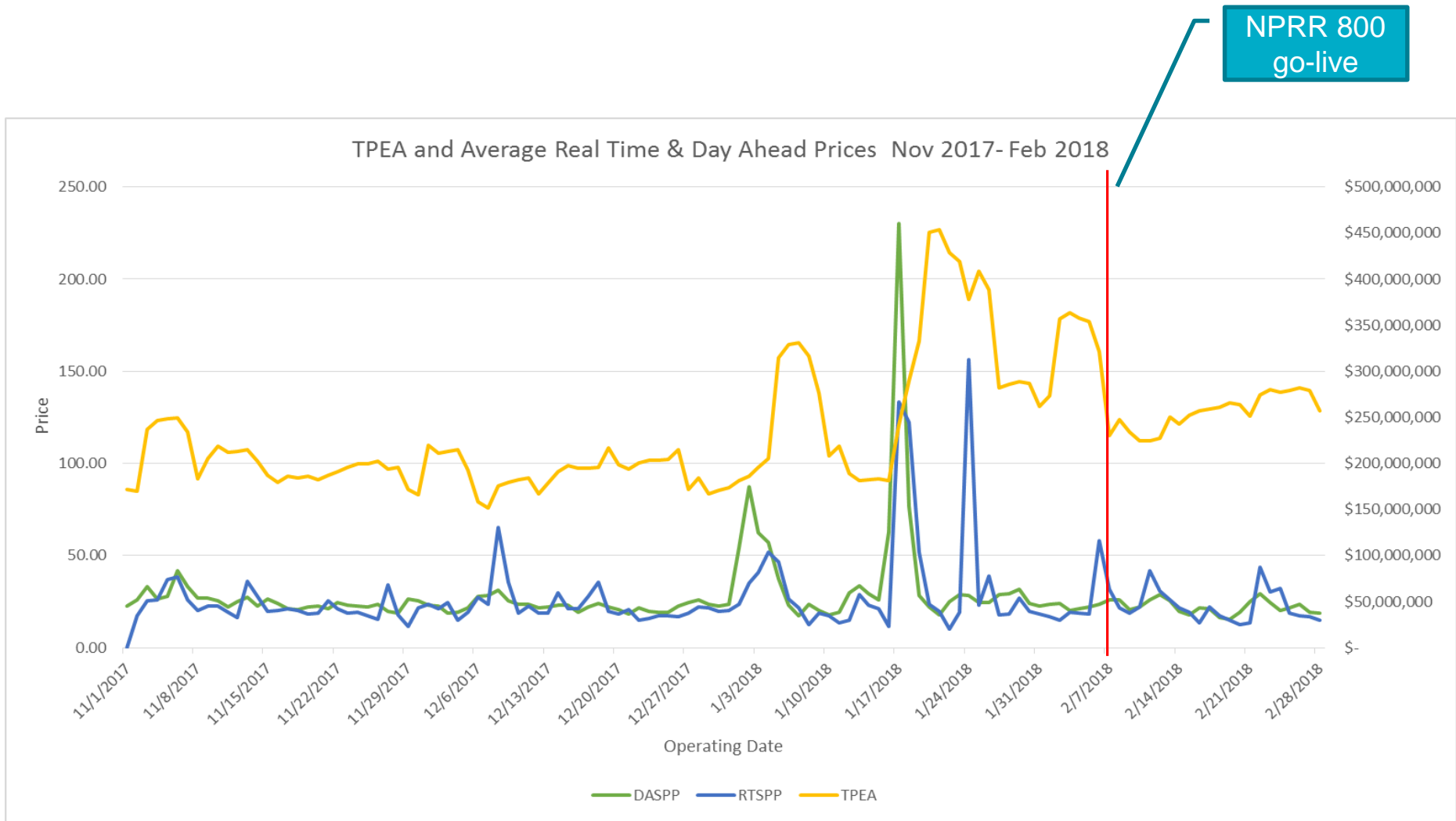
Total Potential Exposure Any (TPEA)	Total Potential Exposure Secured TPES
$\text{TPEA} = \text{Max} [0, \text{MCE}, \text{Max} [0, (\text{EAL}_q + \text{EAL}_a)]] + \text{PUL}$	$\text{TPES} = \text{Max} [0, \text{FCE}_a] + \text{IA}$
TPEA is the positive net exposure (real-time and day-ahead) of the Counter-Party that may be satisfied by Financial Security in the forms of cash, letter of credit, surety bond. Also, unsecured credit and guarantee agreements can be used.	TPES is the positive net exposure (CRR and minimum capitalization amount) of the Counter-Party that may be satisfied by Financial Security in the form of cash, letter of credit, or surety bond.

# Counter-Party Credit Exposure – Jan./Feb. 2018



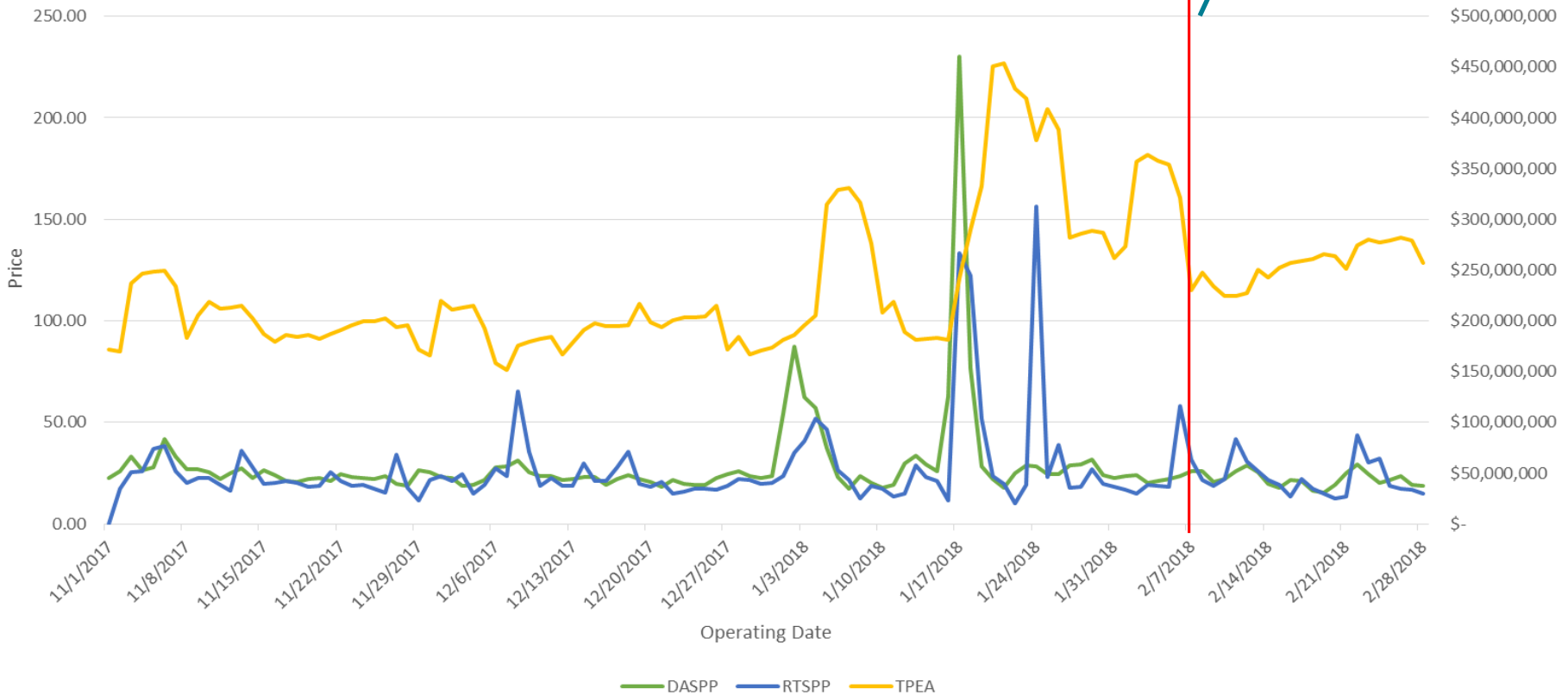


# Counter-Party Credit Exposure – Jan./Feb. 2018



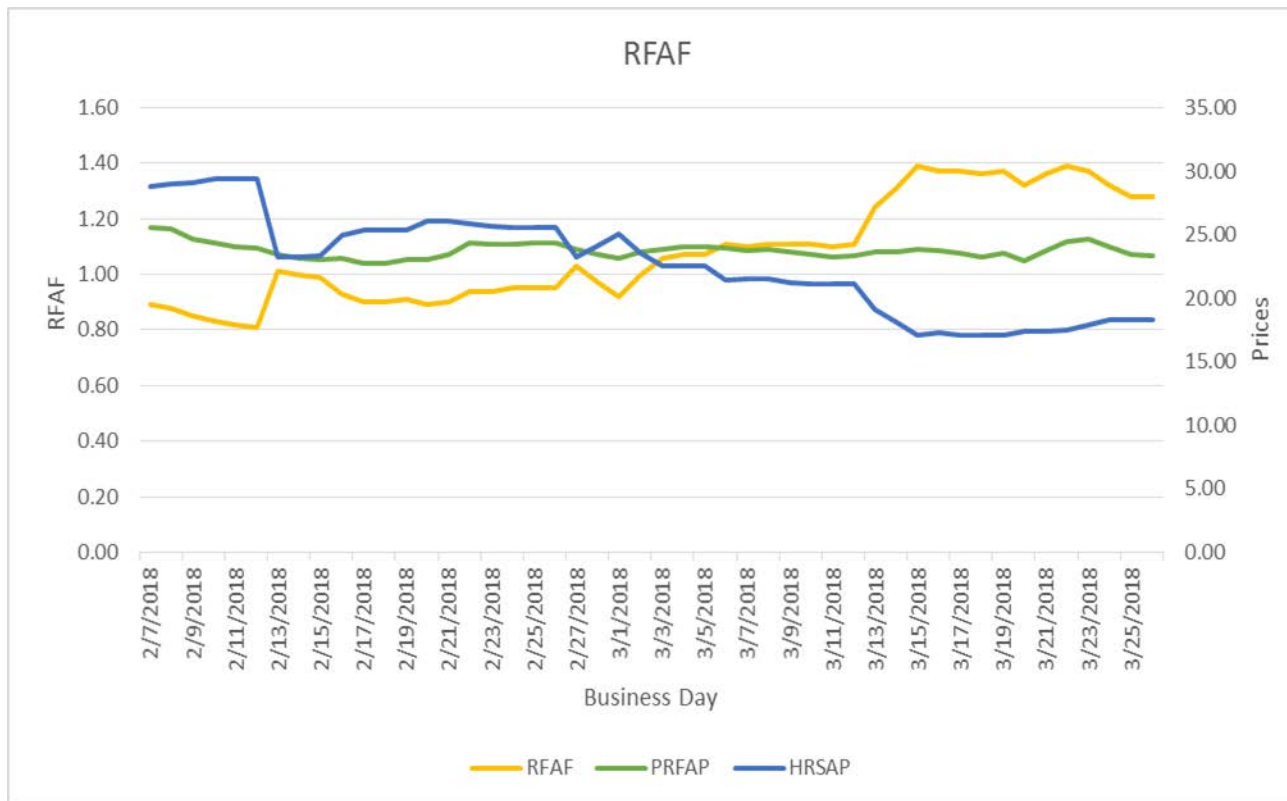
NPRR 800 go-live

TPEA and Average Real Time & Day Ahead Prices Nov 2017- Feb 2018



# Counter-Party Credit Exposure – Jan./Feb. 2018

## Real-Time Forward Adjustment Factor (RFAF)

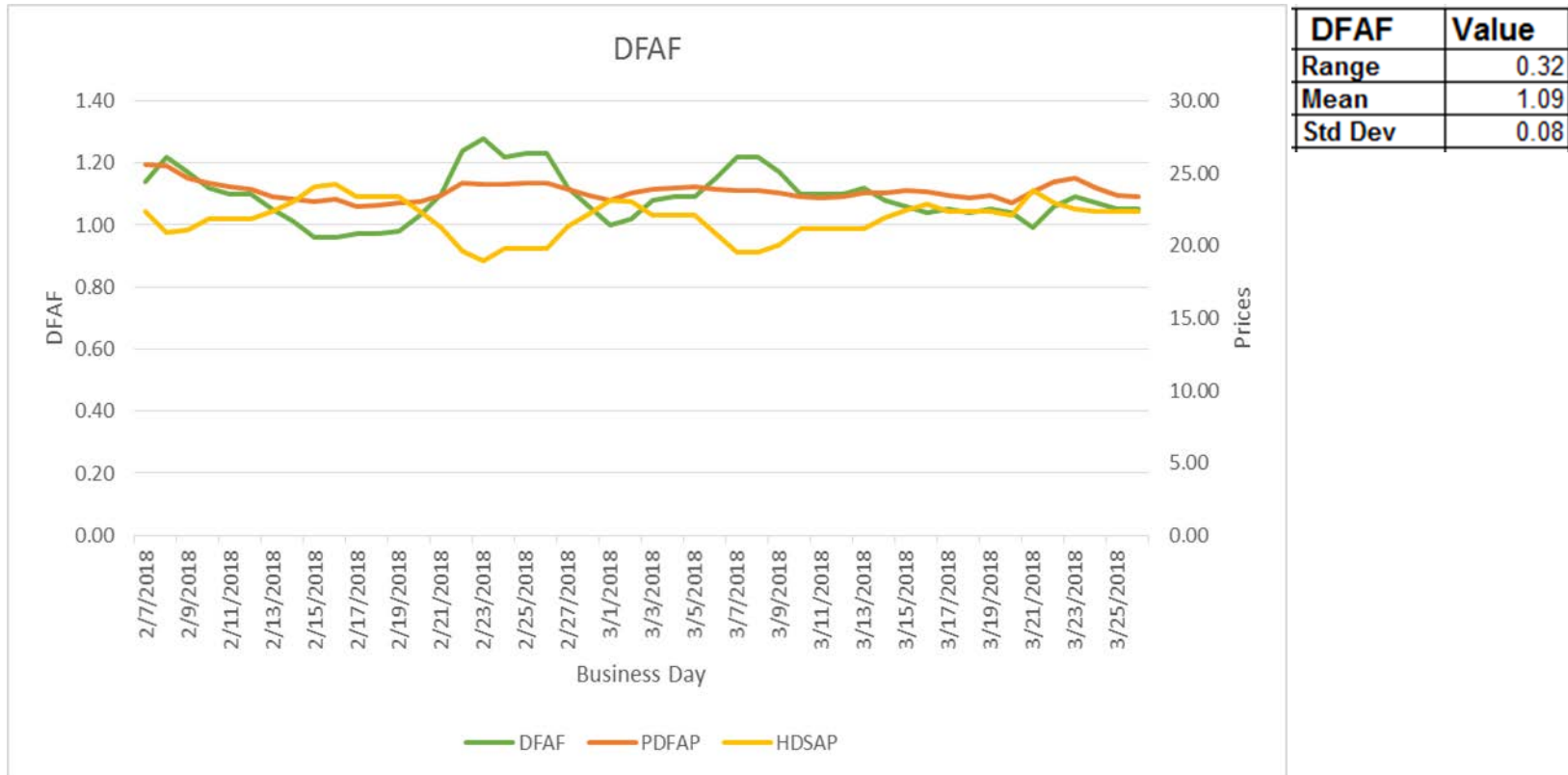


RFAF	Value
Range	0.58
Mean	1.08
Std Dev	0.19

- RFAF is calculated using 21 days of ICE future prices (PRFAP) divided by 14 days of ERCOT Real Time Settled Prices (HRSAP) for HB\_NORTH settlement point.
- PRFAP (Projected Real-Time Forward Average Price) and HRSAP (Historic Real-Time Settled Average Price) are introduced in NPRR 800.

# Counter-Party Credit Exposure – Jan./Feb. 2018

## Day-Ahead Forward Adjustment Factor (DFAF)

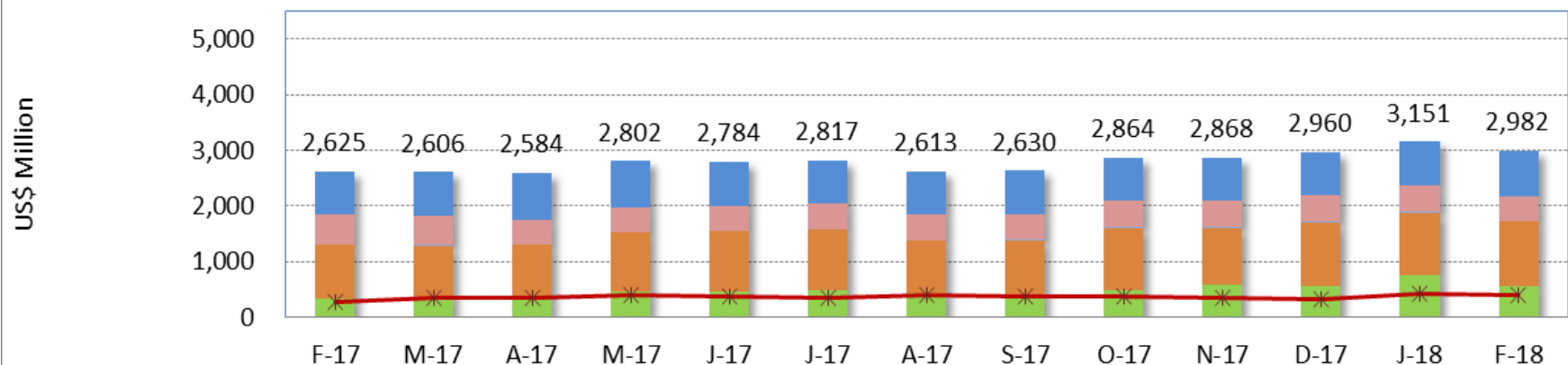


- DFAF is calculated using 21 days of ICE future prices (PDFAP) divided by 7 days of ERCOT Day Ahead Settled Prices (HDSAP) for HB\_NORTH settlement point.
- PDFAP (Projected Day-Ahead Forward Average Price) and HDSAP (Historic Day-Ahead Settled Average Price) are introduced in NPRR 800.



# Counter-Party Credit Exposure – Jan./Feb. 2018

## Credit Limit/Type of Security vs TPE



	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18
Total Credit Limit	2,625	2,606	2,584	2,802	2,784	2,817	2,613	2,630	2,864	2,868	2,960	3,151	2,982
Unsecured Credit	788	788	846	844	786	773	770	777	777	777	779	786	808
Guarantees	528	526	431	436	441	463	461	461	460	460	460	464	442
Surety Bonds	10	10	10	10	10	10	11	31	24	24	21	21	21
Letters of Credit	958	919	938	1,048	1,080	1,093	945	973	1,115	1,017	1,148	1,135	1,146
Cash	342	363	359	464	467	479	426	390	489	590	552	745	567
* TPE	271	353	352	399	380	341	402	361	357	333	327	416	401

■ Cash   
 ■ Letters of Credit   
 ■ Surety Bonds   
 ■ Guarantees   
 ■ Unsecured Credit   
 —\* TPE



# Counter-Party Credit Exposure – February 2018

Distribution of TPE by Rating and Category

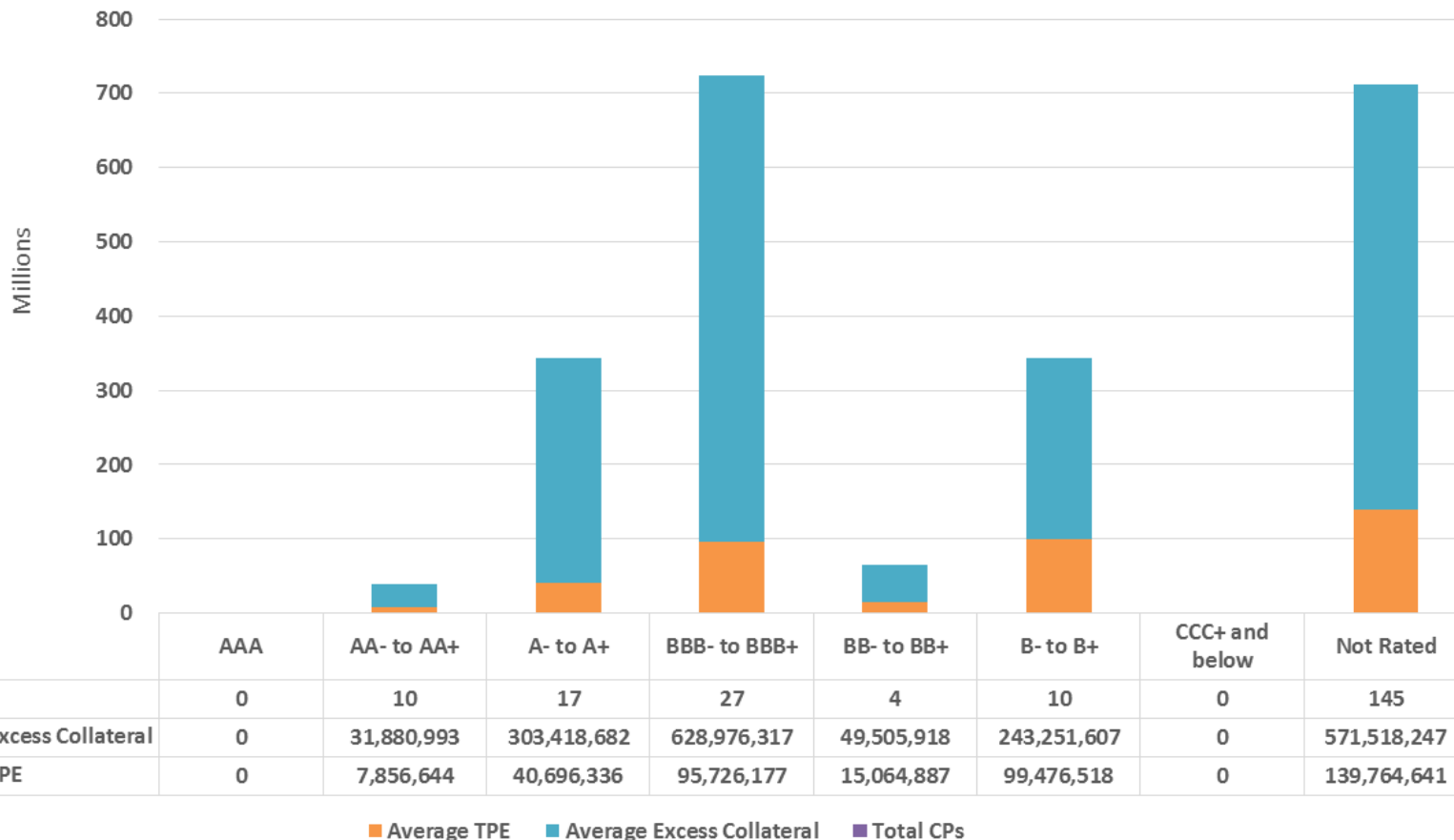
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total TPE	Percent TPE
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	7,366	0	0	7,849,278	0	7,856,644	1.97%
A- to A+	413	2,257,724	7,218,483	24,572,429	6,647,288	40,696,336	10.21%
BBB- to BBB+	0	6,035,130	6,915,532	57,549,332	25,226,183	95,726,177	24.02%
<b>Investment Grade</b>	<b>7,779</b>	<b>8,292,854</b>	<b>14,134,016</b>	<b>89,971,038</b>	<b>31,873,471</b>	<b>144,279,157</b>	<b>36.20%</b>
BB- to BB+	0	0	7,292,541	1,026,837	6,745,509	15,064,887	3.78%
B- to B+	0	9,075,259	0	58,886,500	31,514,760	99,476,518	24.96%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	21,974,948	13,877,277	24,054,282	18,043,108	61,815,025	139,764,641	35.07%
<b>Non-Investment Grade</b>	<b>21,974,948</b>	<b>22,952,537</b>	<b>31,346,823</b>	<b>77,956,445</b>	<b>100,075,294</b>	<b>254,306,046</b>	<b>63.80%</b>
<b>Total TPE</b>	<b>21,982,726</b>	<b>31,245,391</b>	<b>45,480,838</b>	<b>167,927,483</b>	<b>131,948,765</b>	<b>398,585,204</b>	<b>100.00%</b>
<b>Percent TPE</b>	<b>5.52%</b>	<b>7.84%</b>	<b>11.41%</b>	<b>42.13%</b>	<b>33.10%</b>	<b>100.00%</b>	

Distribution of Excess Collateral by Rating and Category

Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Excess Collateral	Percent Excess Collateral
AAA	0	0	0	0	0	0	0.00%
AA- to AA+	6,299,551	0	0	25,581,442	0	31,880,993	1.74%
A- to A+	14,337,237	32,742,276	53,581,517	153,612,406	49,145,246	303,418,682	16.59%
BBB- to BBB+	3,150,000	15,829,911	66,998,115	432,930,744	110,067,547	628,976,317	34.40%
<b>Investment Grade</b>	<b>23,786,788</b>	<b>48,572,187</b>	<b>120,579,632</b>	<b>612,124,592</b>	<b>159,212,793</b>	<b>964,275,993</b>	<b>52.73%</b>
BB- to BB+	0	0	6,909,768	13,801,749	28,794,401	49,505,918	2.71%
B- to B+	0	21,109,785	0	193,590,810	28,551,013	243,251,607	13.30%
CCC+ and below	0	0	0	0	0	0	0.00%
Not Rated	46,737,768	49,266,191	19,550,167	270,636,913	185,327,208	571,518,247	31.26%
<b>Non-Investment Grade</b>	<b>46,737,768</b>	<b>70,375,976</b>	<b>26,459,935</b>	<b>478,029,472</b>	<b>242,672,622</b>	<b>864,275,773</b>	<b>47.27%</b>
<b>Total Excess Collateral</b>	<b>70,524,557</b>	<b>118,948,163</b>	<b>147,039,567</b>	<b>1,090,154,064</b>	<b>401,885,415</b>	<b>1,828,551,765</b>	<b>100.00%</b>
<b>Percent Excess Collateral</b>	<b>3.86%</b>	<b>6.51%</b>	<b>8.04%</b>	<b>59.62%</b>	<b>21.98%</b>	<b>100.00%</b>	

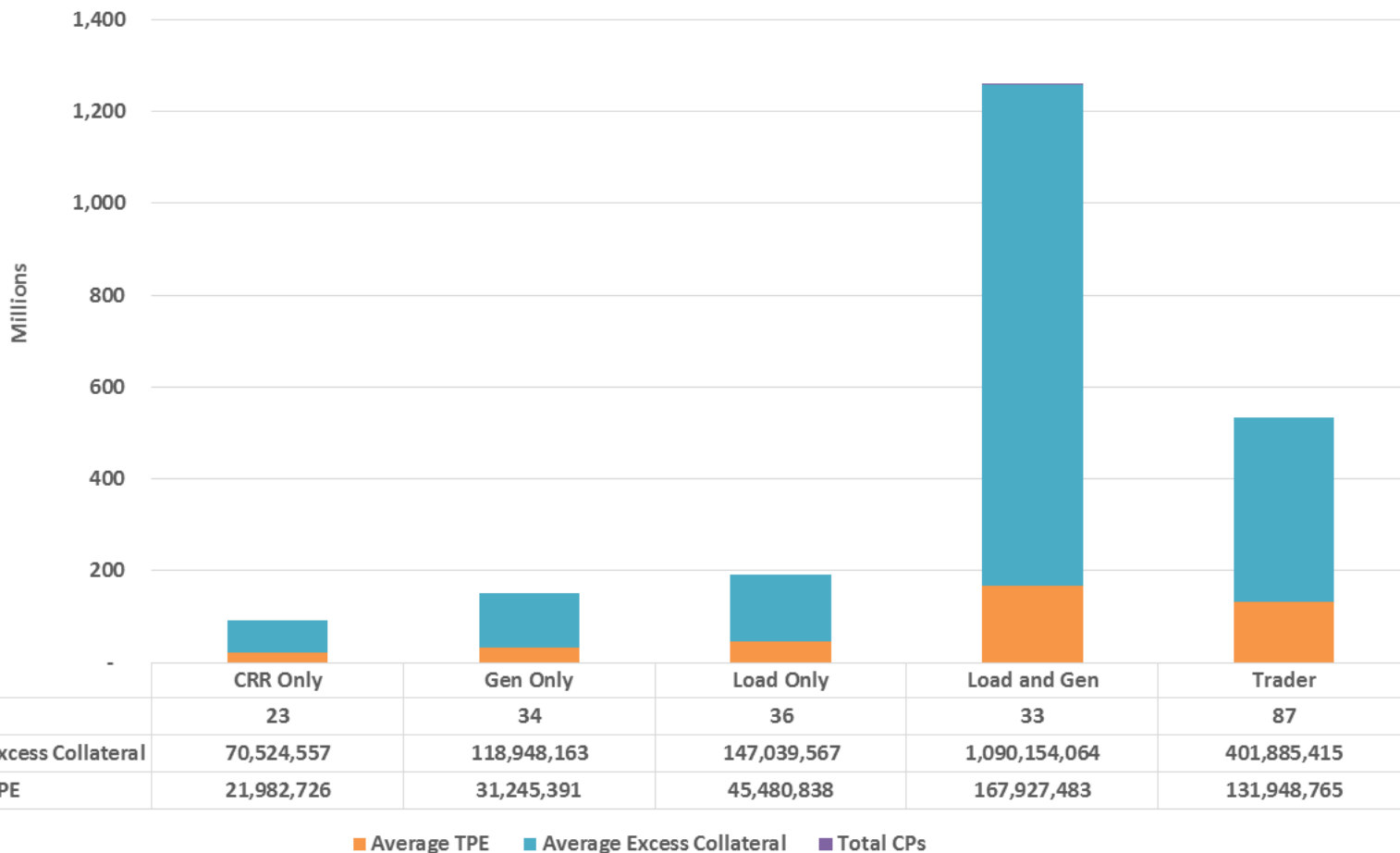
# Counter-Party Credit Exposure – February 2018

## Average TPE and Collateral Distribution by Rating Category



# Counter-Party Credit Exposure – February 2018

## Average TPE and Collateral Distribution by Market Segment



# Counter-Party Credit Changes Jan./Feb. 2018

## Summary of distribution by Category

Category	CP Distribution			Average TPE Distribution			Average Excess Collateral Distribution		
	Jan-18	Feb-18	Change	Jan-18	Feb-18	Change	Jan-18	Feb-18	Change
CRR Only	10.23%	10.80%	0.57%	6.08%	5.52%	-0.56%	3.80%	3.86%	0.05%
Gen Only	15.81%	15.96%	0.15%	4.91%	7.84%	2.93%	6.58%	6.51%	-0.08%
Load Only	16.74%	16.90%	0.16%	10.52%	11.41%	0.89%	7.85%	8.04%	0.19%
Load and Gen	15.35%	15.49%	0.14%	48.28%	42.13%	-6.15%	58.35%	59.62%	1.27%
Trader	41.86%	40.85%	-1.02%	30.22%	33.10%	2.89%	23.42%	21.98%	-1.44%

## Summary of distribution by Rating Group

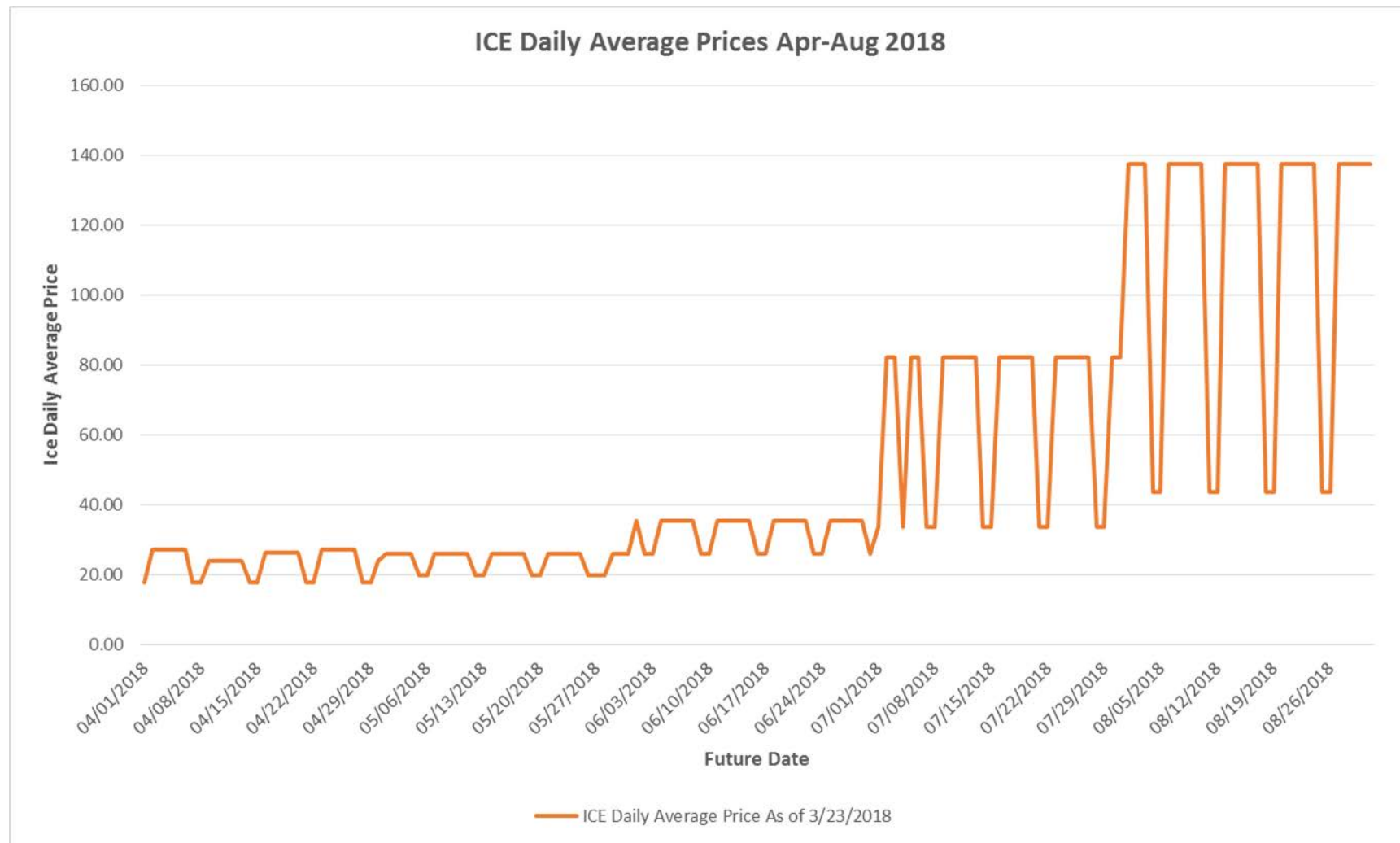
Rating Group	CP Distribution			Average TPE Distribution			Average Excess Collateral Distribution		
	Jan-18	Feb-18	Change	Jan-18	Feb-18	Change	Jan-18	Feb-18	Change
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA- to AA+	4.65%	4.69%	0.04%	3.31%	1.97%	-1.34%	1.43%	1.74%	0.32%
A- to A+	7.91%	7.98%	0.07%	9.28%	10.21%	0.93%	16.58%	16.59%	0.01%
BBB- to BBB+	12.56%	12.68%	0.12%	24.54%	24.02%	-0.52%	32.20%	34.40%	2.19%
Investment Grade	25.12%	25.35%	0.24%	37.12%	36.20%	-0.92%	50.21%	52.73%	2.52%
BB- to BB+	1.86%	1.88%	0.02%	4.82%	3.78%	-1.04%	2.24%	2.71%	0.46%
B- to B+	4.65%	4.69%	0.04%	25.50%	24.96%	-0.55%	13.04%	13.30%	0.27%
CCC+ and below	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Not Rated	68.37%	68.08%	-0.30%	32.56%	35.07%	2.51%	34.51%	31.26%	-3.26%
Non-investment Grade	74.88%	74.65%	-0.24%	62.88%	63.80%	0.92%	49.79%	47.27%	-2.52%



# Counter-Party Credit Exposure – Jan./Feb. 2018 Average TPE and Excess Collateral for the Bottom Quintile of Market Participants

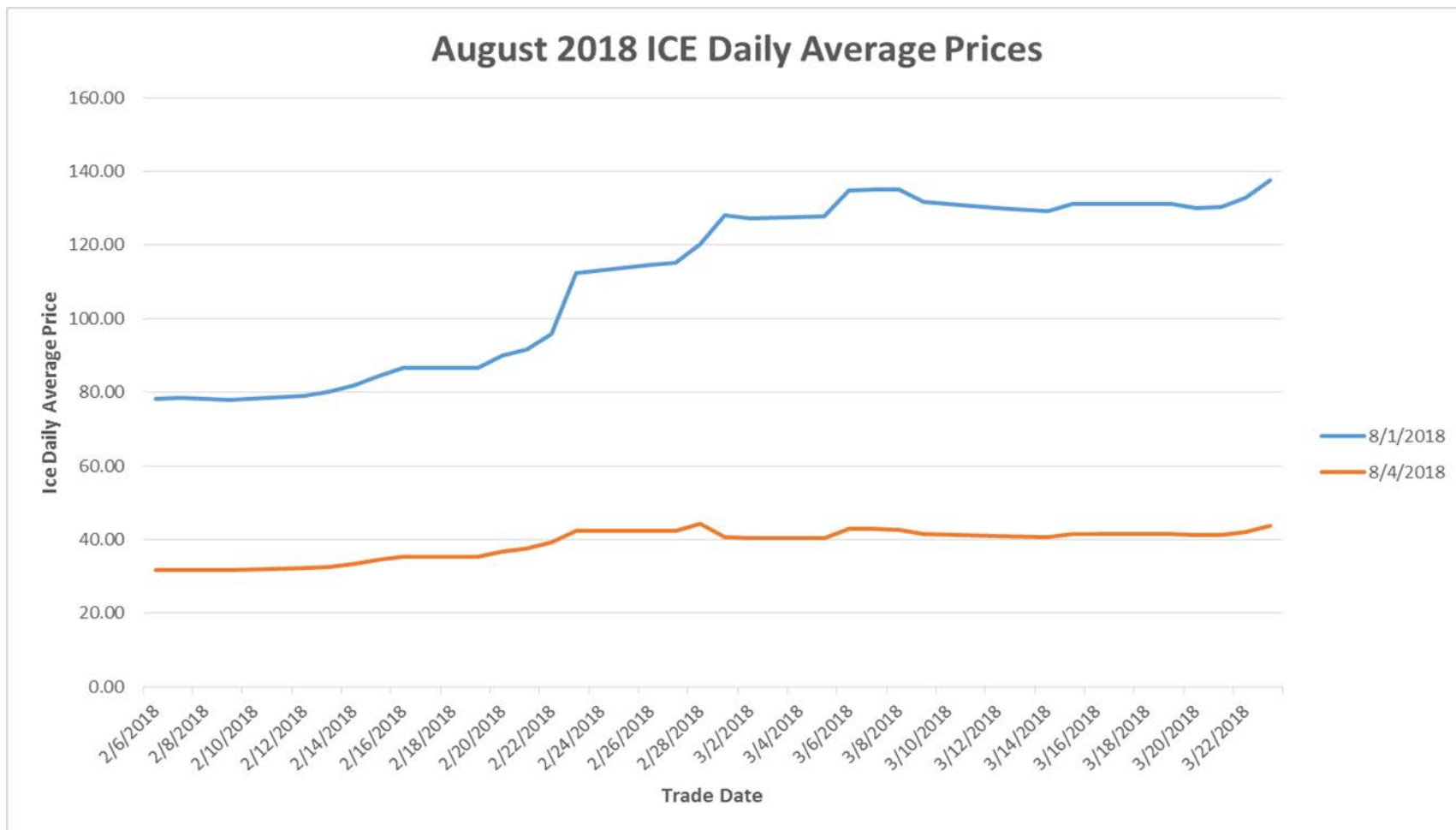
Quintile Distribution of Average TPE by Rating and Category									
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Quintile Average TPE	Percent Quintile Average TPE	Percent Total Average TPE	
AAA	0	0	0	0	0	0	0.0%	0.00%	
AA- to AA+	820	0	0	0	0	820	0.0%	0.00%	
A- to A+	413	0	0	0	0	413	0.0%	0.00%	
BBB- to BBB+	0	1,252	0	0	0	1,252	0.0%	0.00%	
<b>Investment Grade</b>	<b>1,233</b>	<b>1,252</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,485</b>	<b>0.1%</b>	<b>0.00%</b>	
BB- to BB+	0	0	0	0	0	0	0.0%	0.00%	
B- to B+	0	10,965	0	0	0	10,965	0.3%	0.00%	
CCC+ and below	0	0	0	0	0	0	0.0%	0.00%	
Not Rated	15,718	1,034,792	1,884,473	201,233	1,062,470	4,198,686	99.7%	1.05%	
<b>Non-Investment Grade</b>	<b>15,718</b>	<b>1,045,757</b>	<b>1,884,473</b>	<b>201,233</b>	<b>1,062,470</b>	<b>4,209,652</b>	<b>99.94%</b>	<b>1.06%</b>	
<b>Quintile Average TPE</b>	<b>16,950</b>	<b>1,047,010</b>	<b>1,884,473</b>	<b>201,233</b>	<b>1,062,470</b>	<b>4,212,137</b>	<b>100.0%</b>	<b>1.06%</b>	
<b>Percent Quintile Average TPE</b>	<b>0.4%</b>	<b>24.9%</b>	<b>44.7%</b>	<b>4.8%</b>	<b>25.2%</b>	<b>100.0%</b>			
<b>Percent Total Average TPE</b>	<b>0.00%</b>	<b>0.26%</b>	<b>0.47%</b>	<b>0.05%</b>	<b>0.27%</b>	<b>1.06%</b>			
Quintile Distribution of Excess Collateral by Rating and Category									
Rating Group	CRR Only	Gen Only	Load Only	Load and Gen	Trader	Total Quintile Excess Collateral	Percent Quintile Excess Collateral	Percent Total Excess Collateral	
AAA	0	0	0	0	0	0	0.00%	0.00%	
AA- to AA+	20,852	0	0	0	0	20,852	0.84%	0.00%	
A- to A+	111,137	0	0	0	6,458	117,596	4.76%	0.01%	
BBB- to BBB+	150,000	102,228	0	0	0	252,228	10.22%	0.01%	
<b>Investment Grade</b>	<b>281,990</b>	<b>102,228</b>	<b>0</b>	<b>0</b>	<b>6,458</b>	<b>390,676</b>	<b>15.83%</b>	<b>0.02%</b>	
BB- to BB+	0	0	0	0	0	0	0.00%	0.00%	
B- to B+	0	174,079	0	0	102,132	276,211	11.19%	0.02%	
CCC+ and below	0	0	0	0	0	0	0.00%	0.00%	
Not Rated	315,051	195,141	597,986	58,786	634,278	1,801,243	72.98%	0.10%	
<b>Non-Investment Grade</b>	<b>315,051</b>	<b>369,220</b>	<b>597,986</b>	<b>58,786</b>	<b>736,410</b>	<b>2,077,454</b>	<b>84.17%</b>	<b>0.11%</b>	
<b>Total Quintile Excess Collateral</b>	<b>597,041</b>	<b>471,448</b>	<b>597,986</b>	<b>58,786</b>	<b>742,869</b>	<b>2,468,130</b>	<b>100.00%</b>	<b>0.13%</b>	
<b>Percent Quintile Excess Collateral</b>	<b>24.19%</b>	<b>19.10%</b>	<b>24.23%</b>	<b>2.38%</b>	<b>30.10%</b>	<b>100.00%</b>			
<b>Percent Total Excess Collateral</b>	<b>0.03%</b>	<b>0.03%</b>	<b>0.03%</b>	<b>0.00%</b>	<b>0.04%</b>	<b>0.13%</b>			

# ICE Forward Curves April – August 2018



# ICE Forward Curves April – August 2018

August ICE forward price evolution for weekdays and weekends.



# Historic ERCOT Mass Transitions and Uplifts

## Defaults Resulting in Mass Acquisition and/or Uplift

Year	Counter-Party	Uplift (\$000s)	Approx. ESIIDs
2003	Texas Commercial Energy	\$ 15,000	4,900
2005/6	AZOR	\$ 25	511
	USAVE	\$ 210	500
	Energy West (dba Franklin Power)	\$ 395	3,000
	Utility Choice	\$ 5,043	12,000
	Bridgepoint	\$ 145	3,900
2008	NPC	\$ 1,537	15,163
	Highway 3	\$ 1,164	12,222
	Sure	\$ 1,200	6,206
	Pre-Buy	\$ 168	8,779
	Leach	\$ 93	-
2011	Abacus	\$ 620	691
2012	TexRep1 LLC dba EPCOT / EPCOT LLC	\$ 130	5,738
	Green Line / TexRep 7	\$ -	1
2014	Reach Energy -> Entrust	\$ -	4,975
	Proton Energy	\$ -	1,085
2016	Trusmart	\$ -	1,851
	Glacial	\$ -	3,083
Totals		\$ 25,730	\$ 84,605

Note: This does not include 15 additional defaults involving no Mass Transition or uplift (primarily traders).

# Planned CWG Discussions in April 2018

- Continued Observations of CMM Refresh Phase 1A ‘Go Live’ including NPRR 800 Forward Market Pricing Methodology.
  - Including changes to MIS credit reporting requirements including NPRR 870.
- Letter of Credit Concentration Report and Financial Institution Limits.
  - Note: ERCOT exceeded the Issuer Concentration threshold for a single financial institution in March 2018 and notified impacted parties.
- CRR Calculator System Change Request in addition to NPRR 867.
- Credit implications related to an ERCOT Market Suspension and Restart (NPRR 850) and an appropriate credit framework for restart.
- Review the Mass Transition Process (ERCOT is conducting a desktop exercise prior to Summer 2018) and discuss possible enhancements to the current Mass Transition/POLR process.
- Discuss TAC-created assignment “Review CWG/MCWG Scope for Meeting Efficiencies” created as an “Open Item” in January 2018.

# Questions?