



## **ERCOT Monthly Operational Overview** (January 2017)

ERCOT Public  
February 15, 2017

# Grid Planning & Operations

### Operations

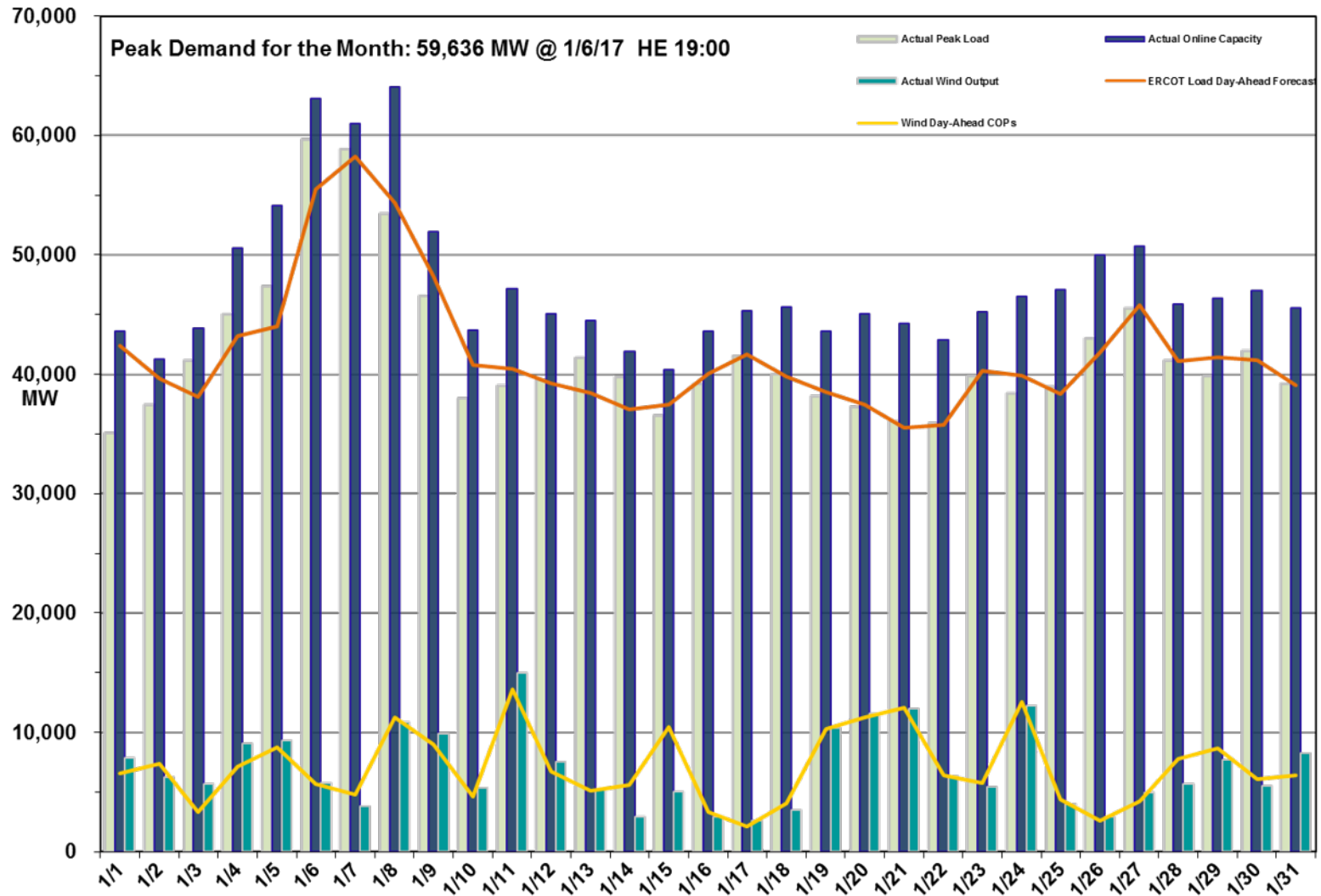
- The preliminary Settlements hourly peak demand of 59,636\* MW on January 6 was higher than the day-ahead mid-term load forecast peak of 55,526 MW for the same operating hour.
  - The operational instantaneous peak demand was 59,734 MW (telemetry)
- Day-ahead load forecast error for January was 4.07%
- ERCOT issued four notifications:
  - One OCN issued due to reserve capacity shortage
  - One Advisory issued due to Physical Responsive Capability being below 3000 MW
  - One Advisory issued due to extreme cold weather
  - One Advisory issued due to VSAT unavailability

### Planning Activities

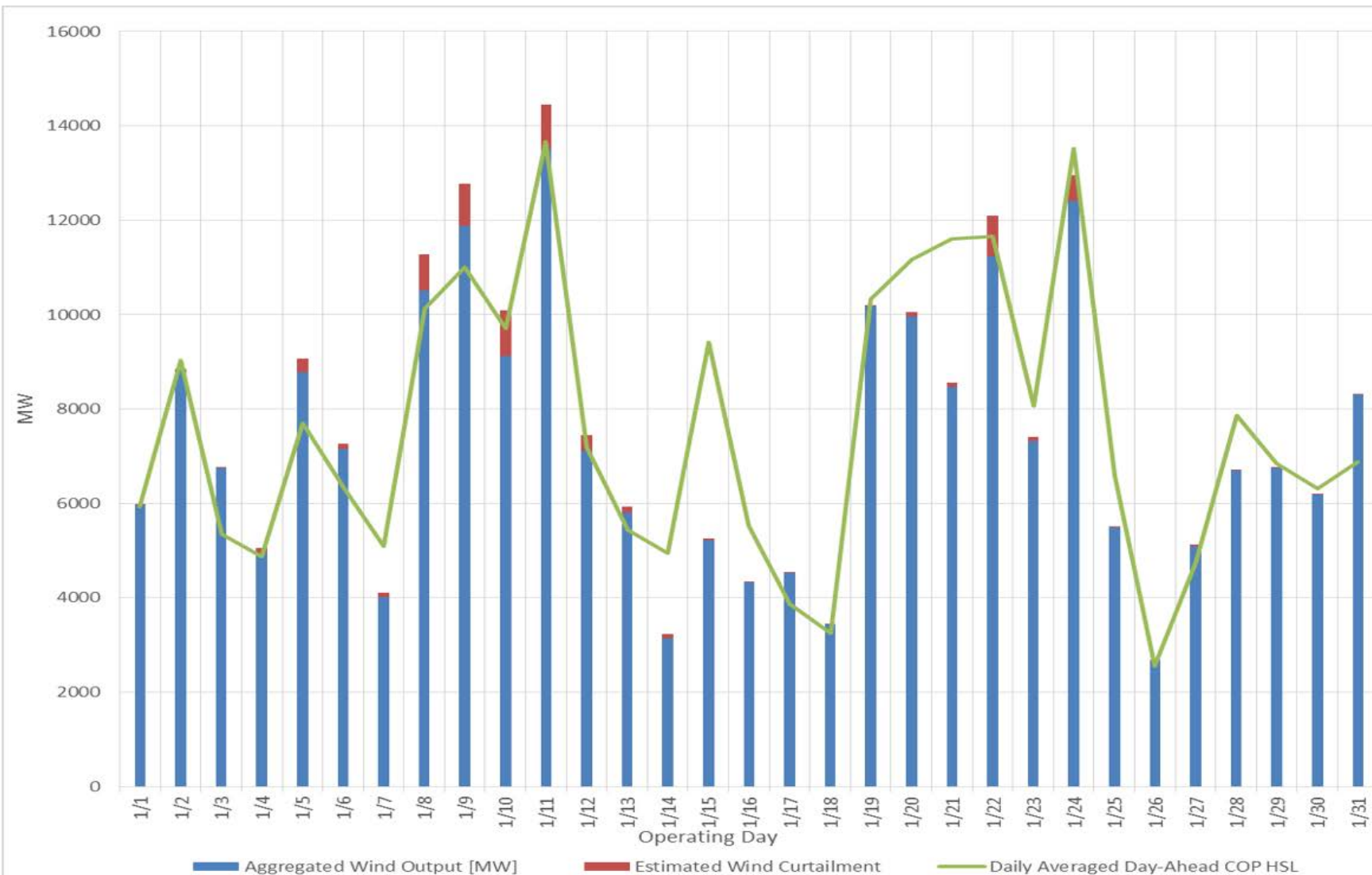
- 254 active generation interconnection requests totaling 60,108 MW, including 26,270 MW of wind generation, as of January 31, 2017. This is the same number of requests and an increase of 212 MW from December 31, 2016.
- 18,064 MW wind capacity in commercial operations on January 31, 2017.

\*Per Demand and Energy Report as of 02/07/17

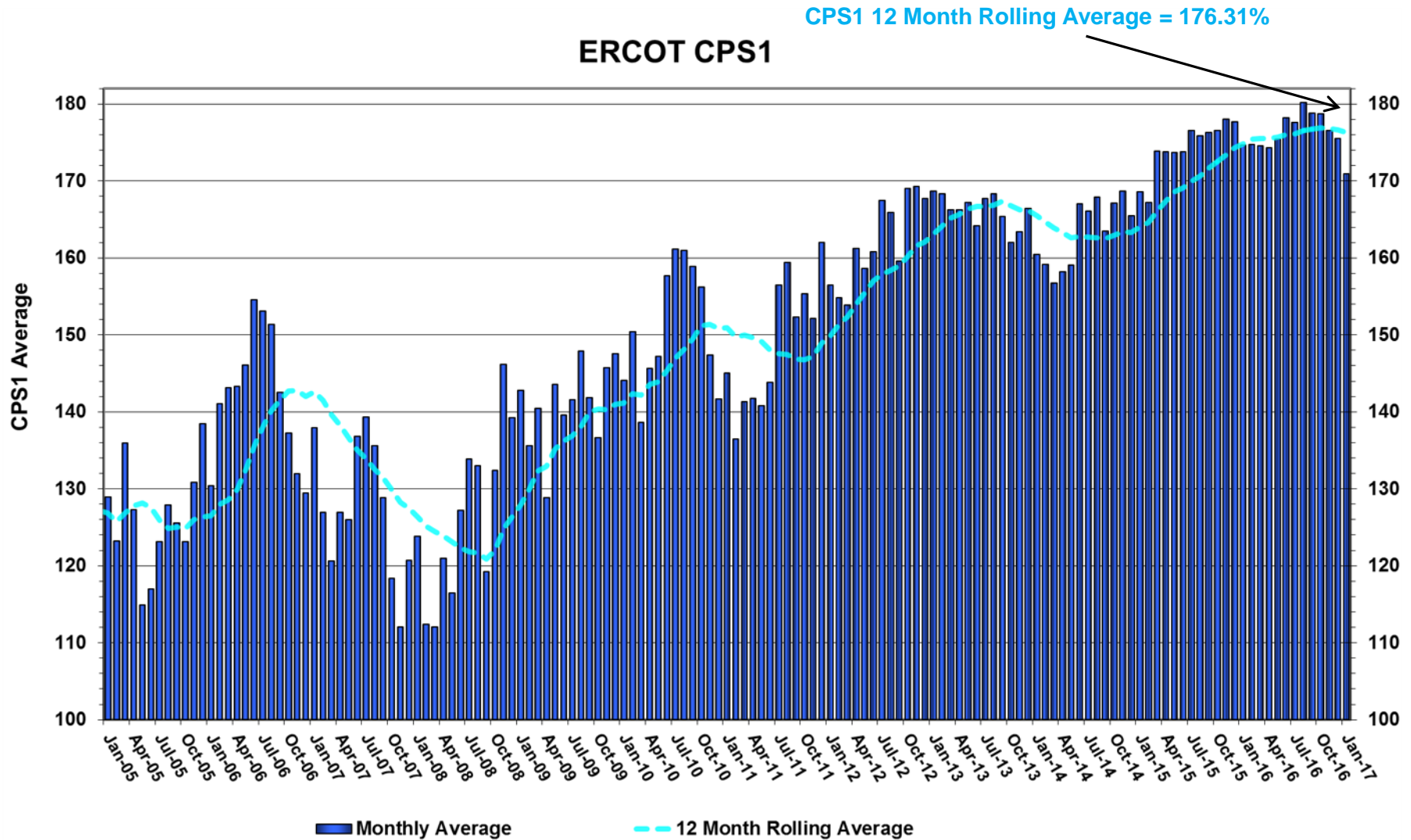
# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-Line Capacity at Peak – January 2017



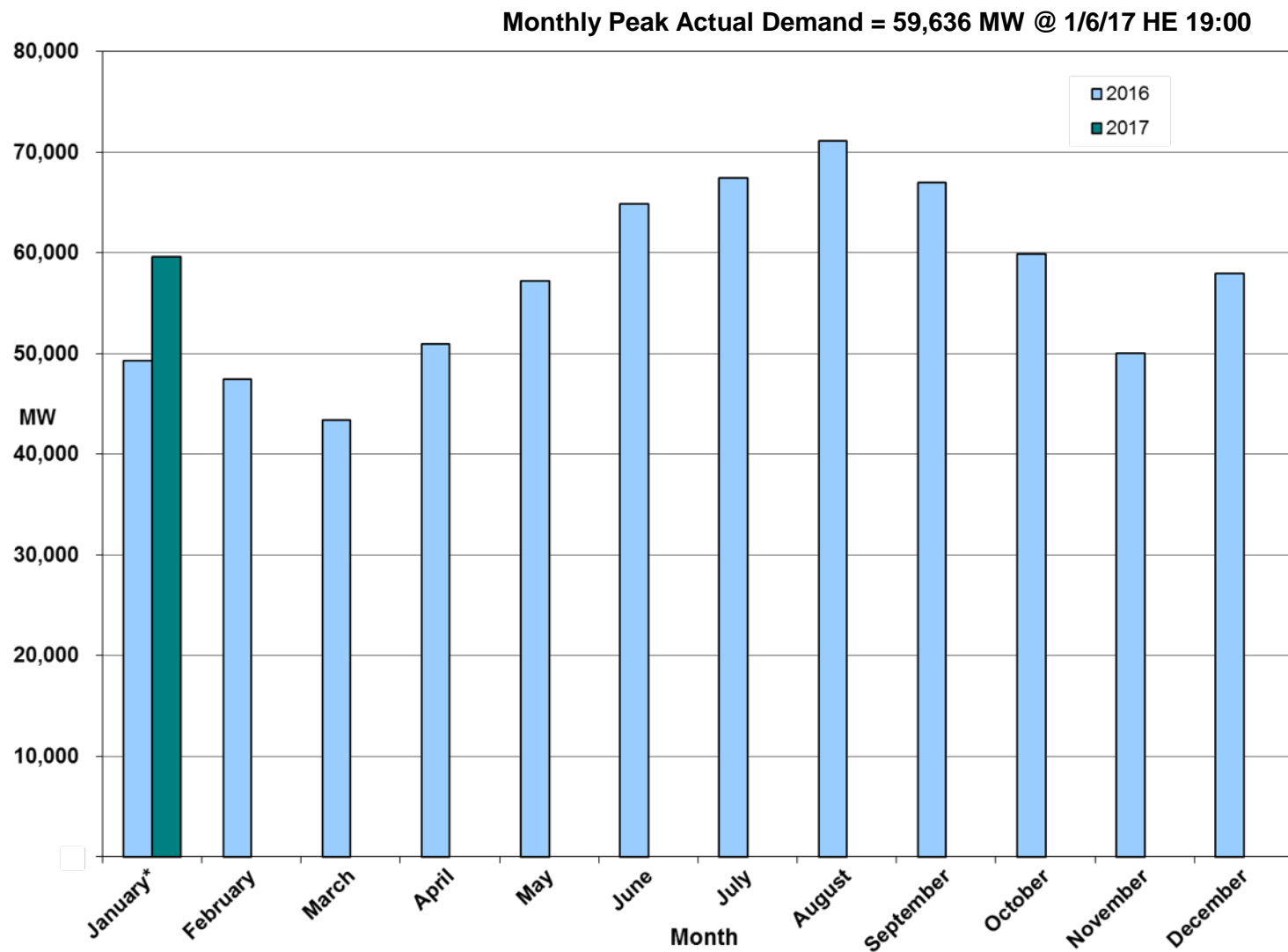
## Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – January 2017



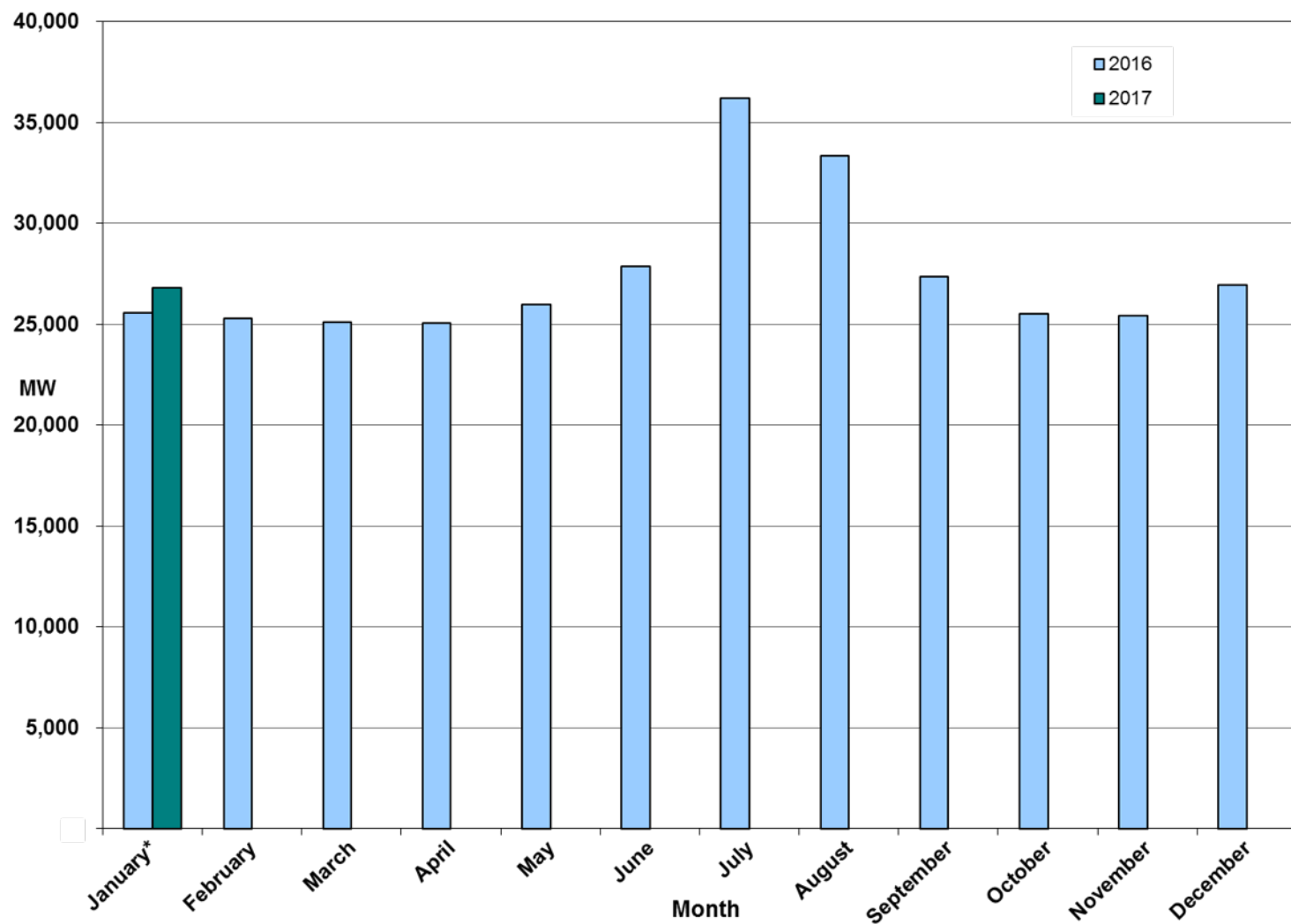
# ERCOT's CPS1 Monthly Performance – January 2017



## Monthly Peak Actual Demand – January 2017



## Monthly Minimum Actual 15-Minute Demand – January 2017



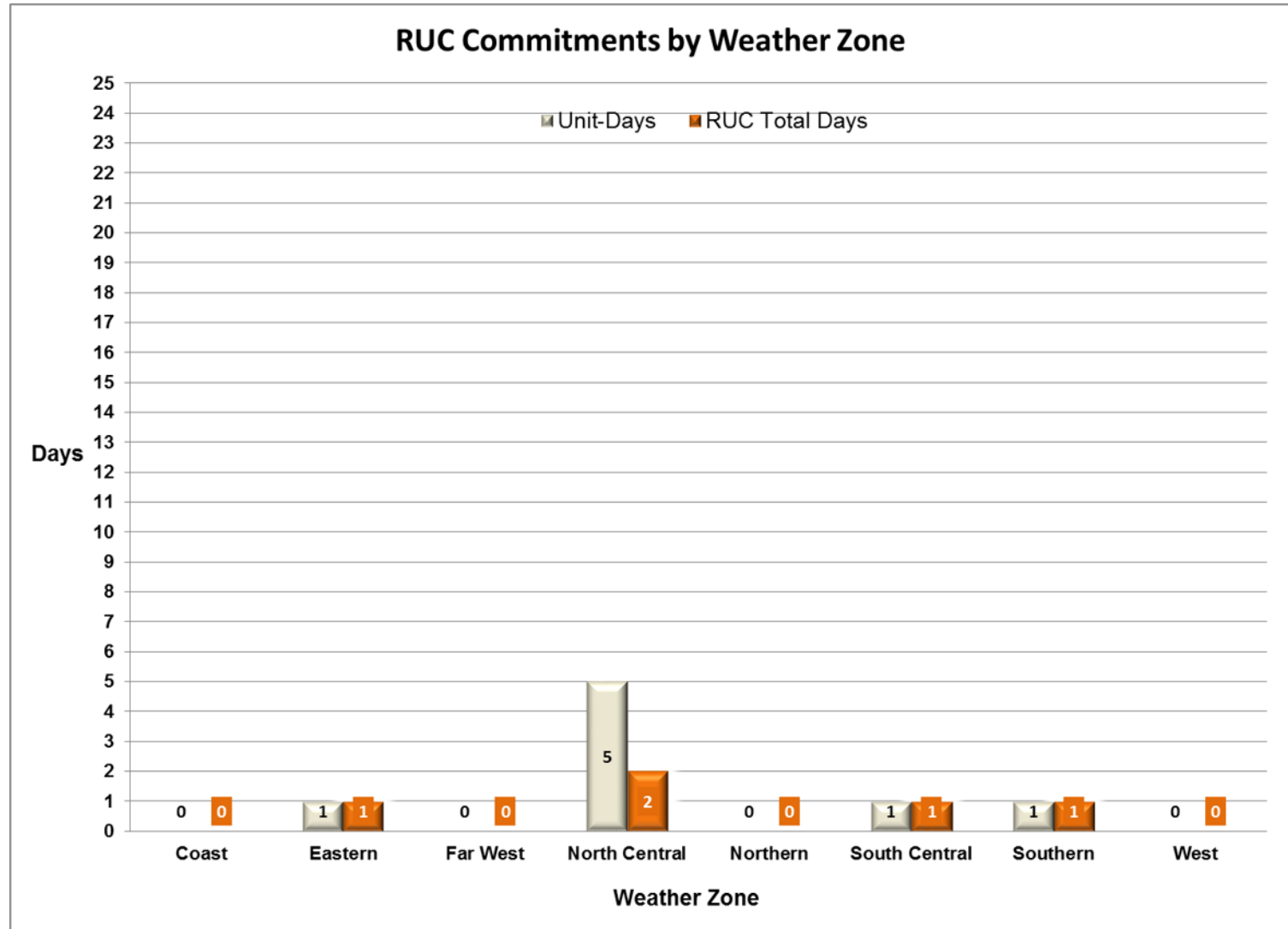
\*- Preliminary for January of the current year

## Day-Ahead Load Forecast Performance – January 2017

**Mean Absolute Percent Error (MAPE) for ERCOT Mid-Term Load Forecast (MTLF)  
Run at 14:00 Day Ahead**

	<b>2013 MAPE</b>	<b>2014 MAPE</b>	<b>2015 MAPE</b>	<b>2016 MAPE</b>	<b>January 2017 MAPE</b>	
<b>Average Annual MAPE</b>	2.86	2.83	2.86	2.62	4.07	
<b>Lowest Monthly MAPE</b>	2.07	2.15	1.89	1.94	<b>Lowest Daily MAPE</b>	0.93 January 17
<b>Highest Monthly MAPE</b>	3.50	3.70	3.81	3.86	<b>Highest Daily MAPE</b>	14.83 January 1

## Reliability Unit Commitment (RUC) Capacity by Weather Zone – January 2017



## Generic Transmission Constraints (GTCs) – January 2017

GTCs	Jan-16 Days GTCs	Nov-16 Days GTCs	Dec-16 Days GTCs	Jan-17 Days GTCs	Last 12 Months Total Days (Feb 16 – Jan 17)
North – Houston	0	0	0	1	3
Valley Import	0	0	0	0	6
Zorillo - Ajo	4	0	0	0	72
Panhandle	1	20	25	17	165
Laredo	1	0	0	0	12
Liston	20	16	13	21	263
Red Tap	-	0	0	0	0

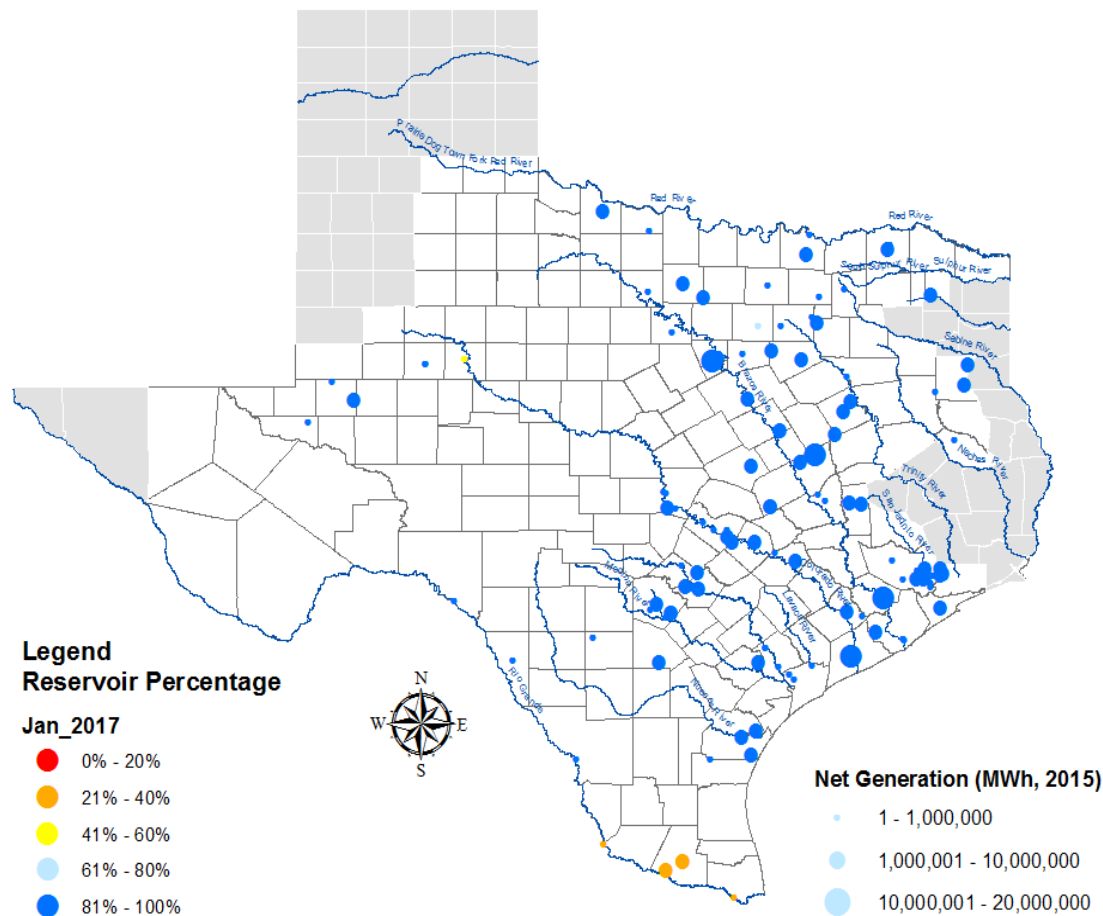
**GTC:** A transmission flow limit more constraining than a Transmission Element's normal limit established to constrain flow between geographic areas of the ERCOT Transmission System that is used to enforce stability and voltage constraints that cannot be modeled directly in ERCOT's transmission security analysis applications.

**Note:** This table lists how many times a constraint has been activated to avoid exceeding a GTC limit, it does not imply an exceedance of the GTC occurred.

## Advisories and Watches – January 2017

- One OCN issued due to reserve capacity shortage
  - Issued on 01/13
- One Advisory issued due to Physical Responsive Capability being below 3000 MW.
  - Issued on 01/13
- One Advisory issued due to extreme cold weather
  - Issued on 01/06
- One Advisory issued due to VSAT unavailability
  - Issued on 01/26

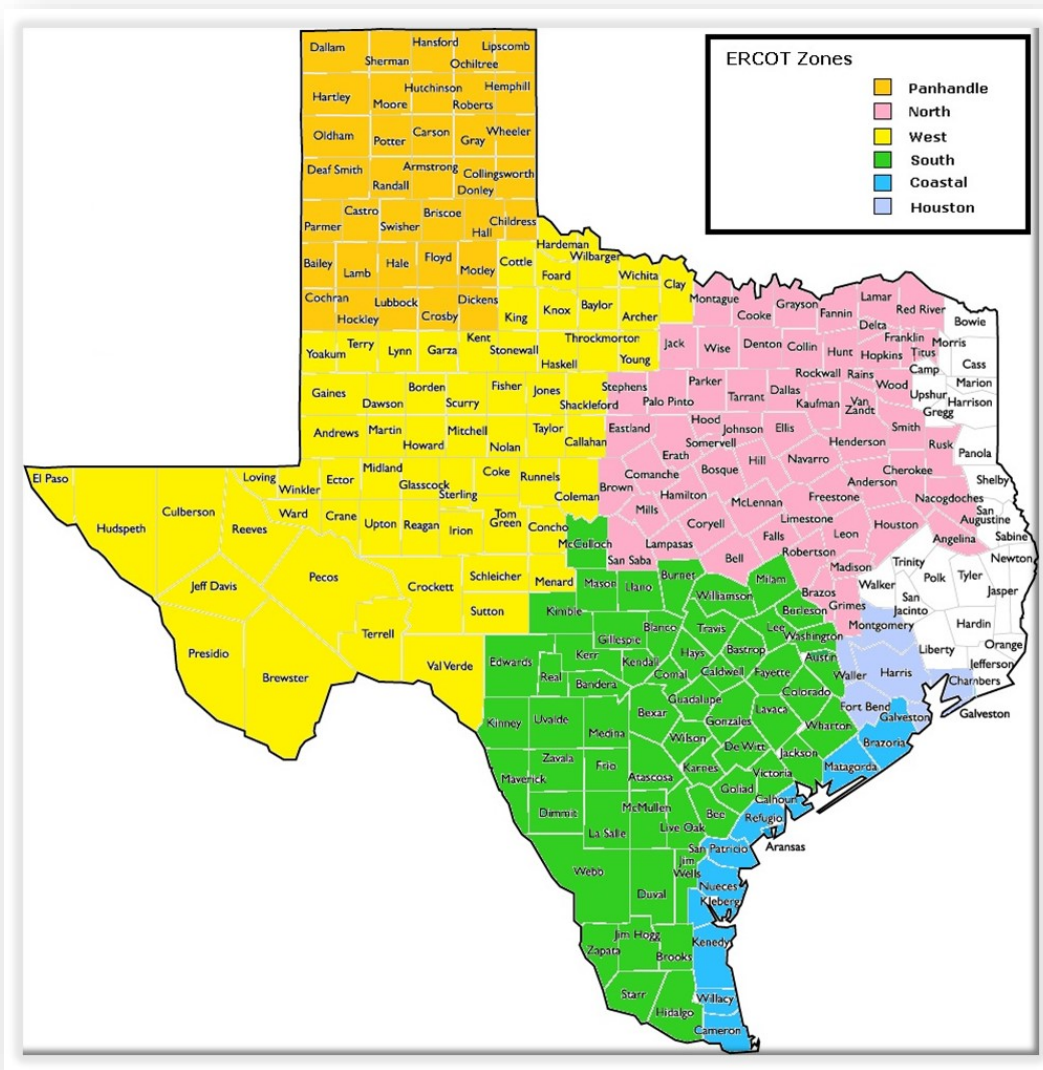
## Lake Levels Update – February 1, 2017



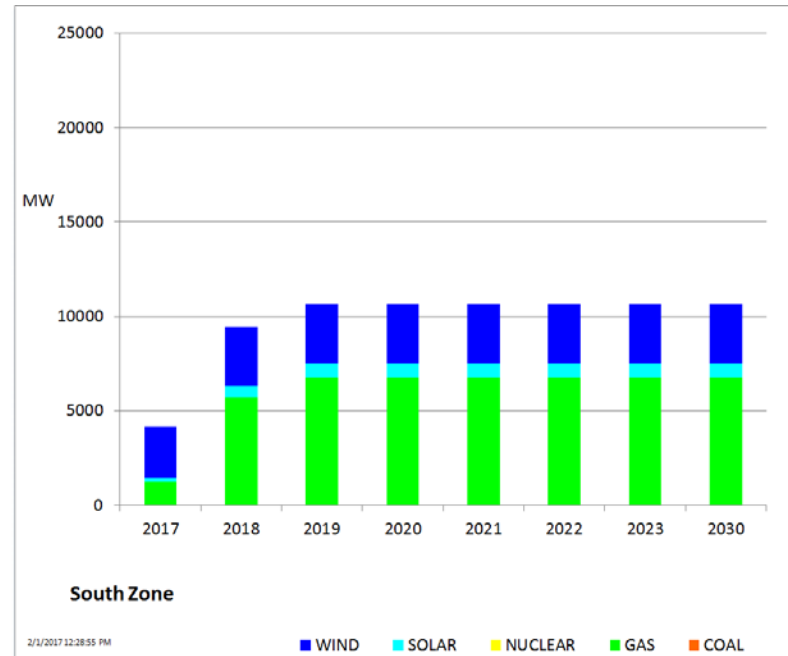
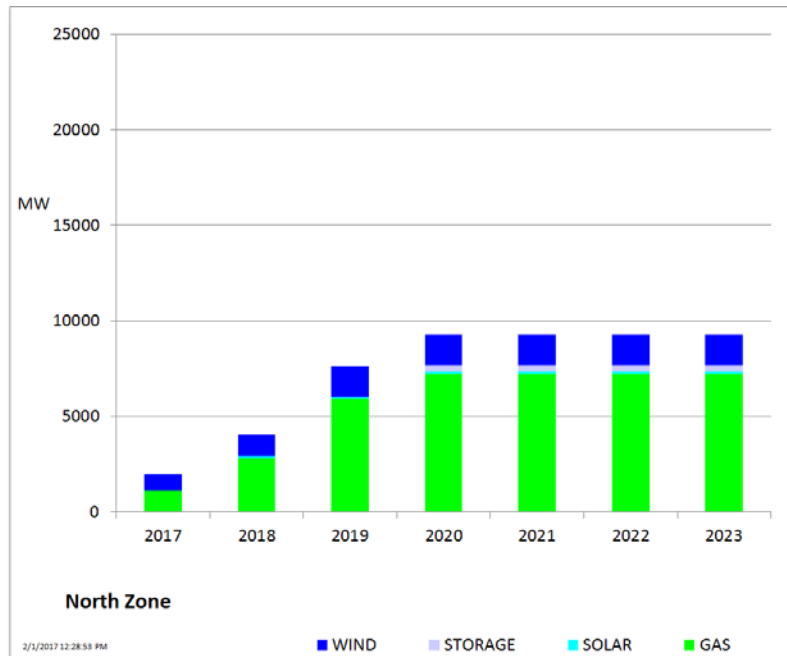
## Planning Summary – January 2017

- ERCOT is currently tracking 254 active generation interconnection requests totaling 60,108 MW. This includes 26,270 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$872.3 Million.
- Transmission Projects endorsed in 2016 total \$489.1 Million.
- All projects (in engineering, routing, licensing, and construction) total approximately \$6.23 Billion (as of October 1, 2016).
- Transmission Projects energized in 2016 total about \$1.72 Billion (as of October 1, 2016).

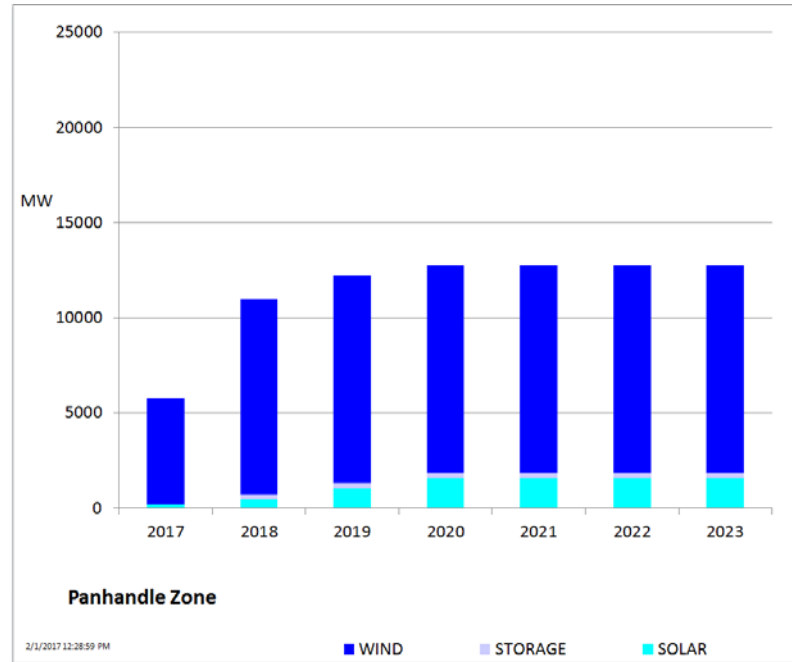
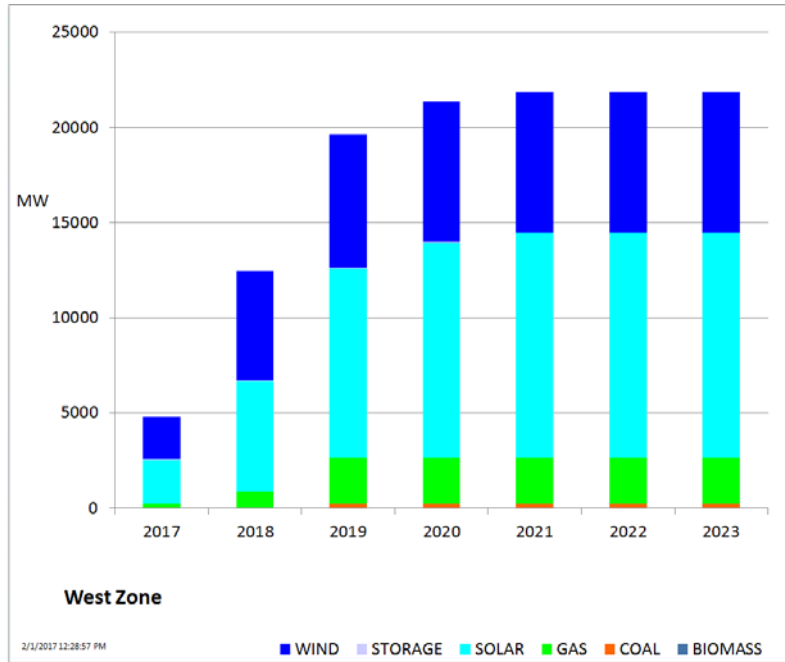
## Mapping of Counties to ERCOT Zones – January 2017



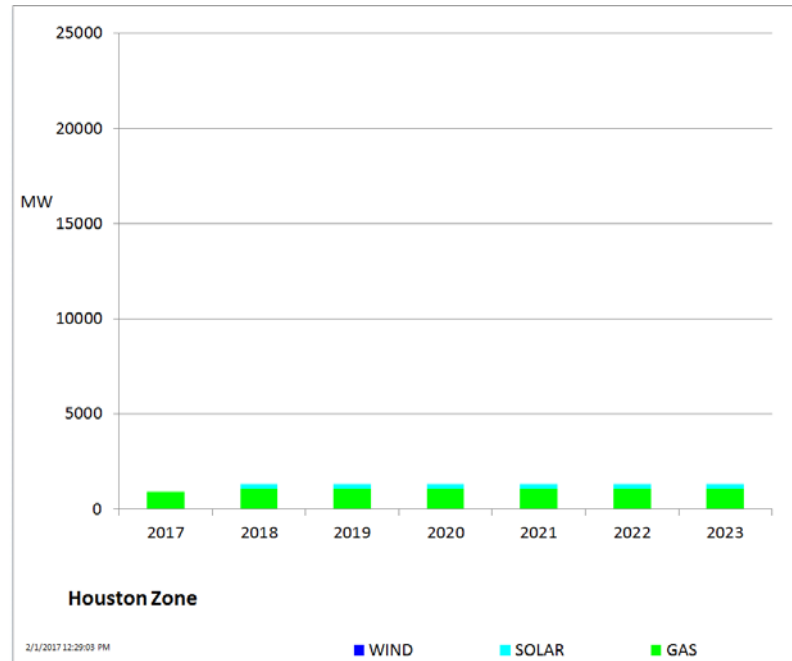
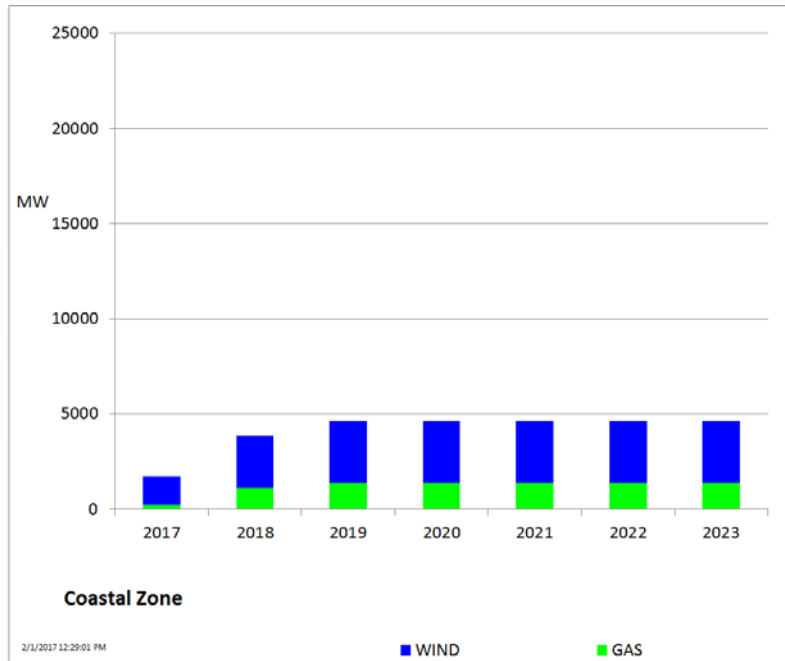
# Cumulative MW Capacity of Interconnection Requests by Zone – January 2017



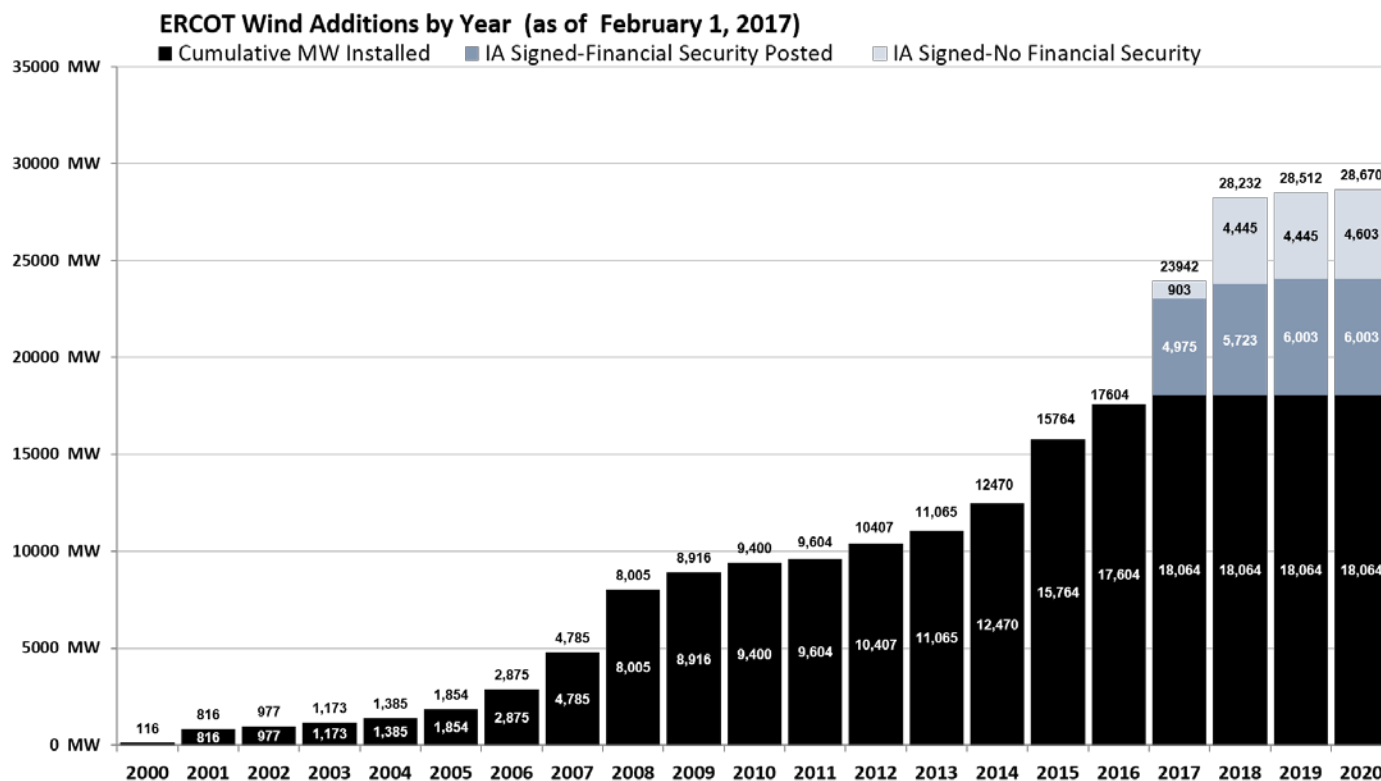
# Cumulative MW Capacity of Interconnection Requests by Zone – January 2017



# Cumulative MW Capacity of Interconnection Requests by Zone – January 2017



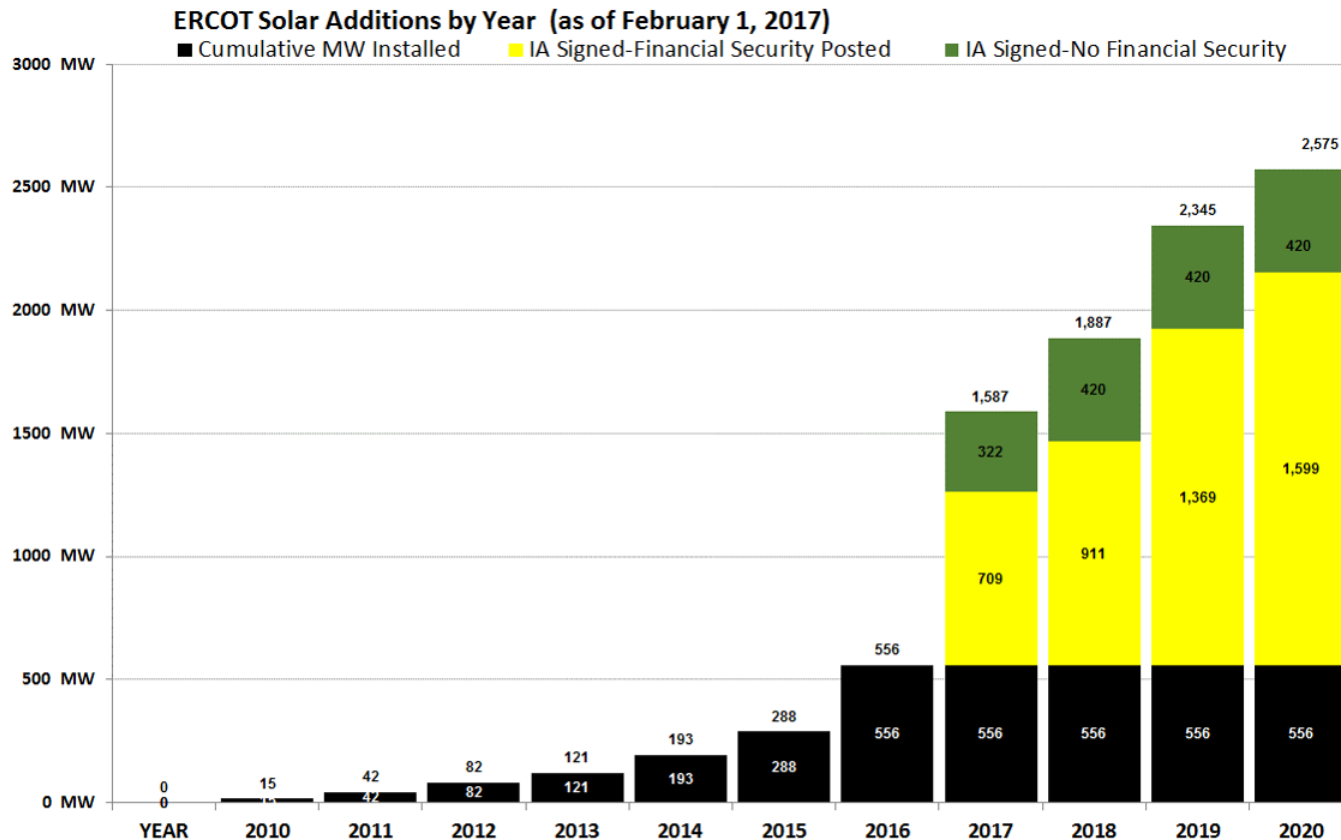
# Wind Generation – January 2017



**Notes:**

- The data presented here is based upon the latest information provided to ERCOT by resource owners and developers and can change without notice.
- Installed capacities for the current year account for changes reported by the facility owners during the reporting month, and will be reflected in subsequent years' totals.
- Installed capacities include only wind facilities that have registered with ERCOT (Those larger than one megawatt and supply power to the ERCOT system.)
- This chart reports annual planned units with projected Commercial Operations Dates throughout the calendar year. In contrast, ERCOT's Capacity, Demand and Reserves (CDR) report shows planned capacity projected to be commercially available on or before the start of the Summer and Winter Peak Load seasons.
- Financial security posted for funding interconnection facilities does not include CREZ security deposits, which are refunded to the Interconnecting Entity when an IA is signed.

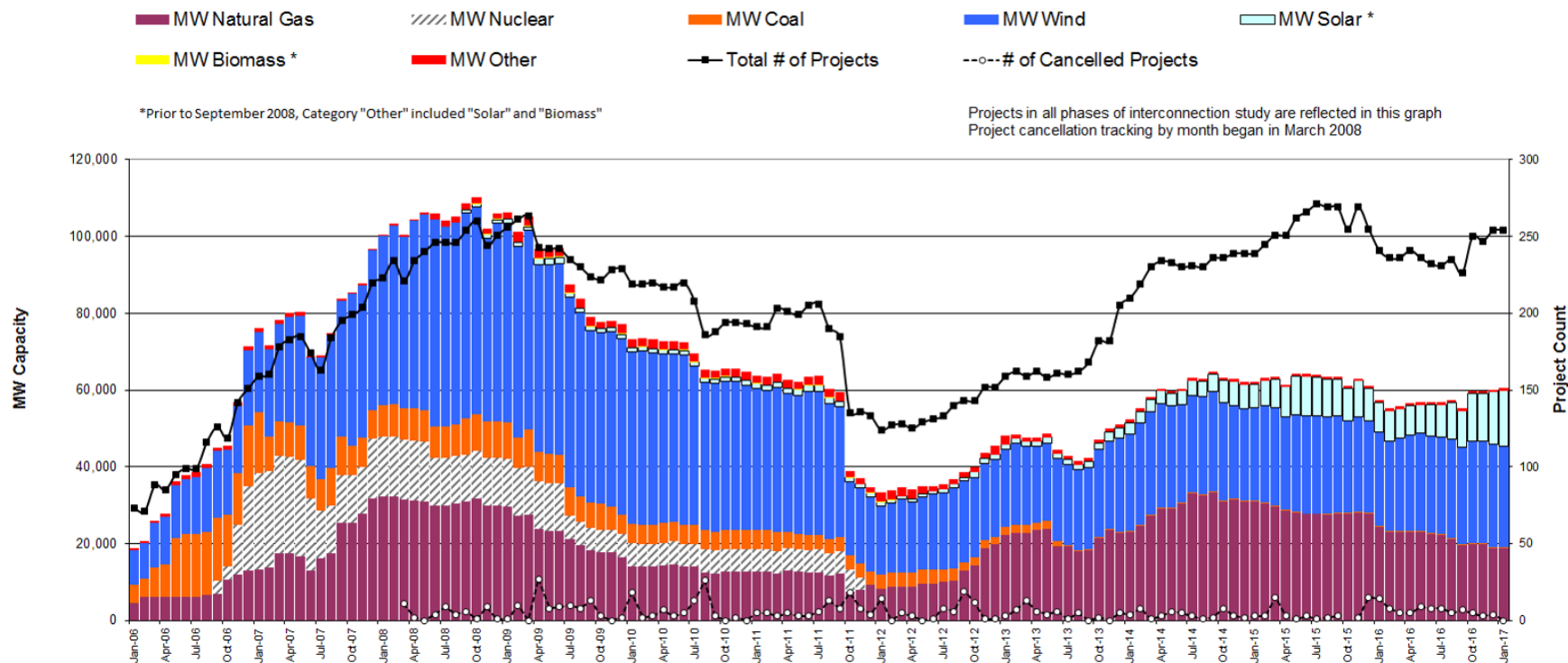
# Solar Generation – January 2017



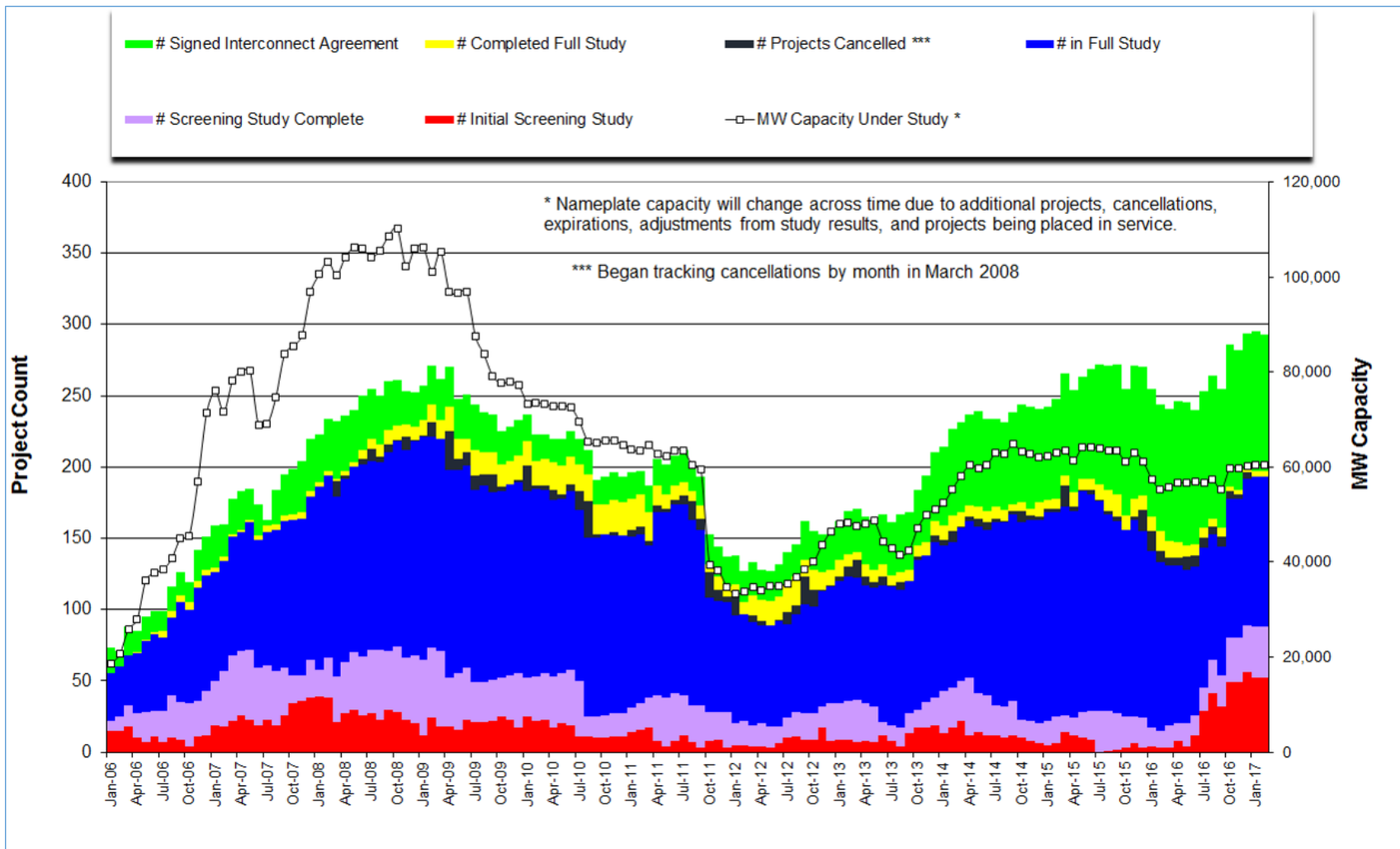
**Notes:**

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- This chart reports annual planned units with projected Commercial Operations Dates throughout the calendar year. In contrast, ERCOT's Capacity, Demand and Reserves (CDR) report shows planned capacity projected to be commercially available on or before the start of the Summer and Winter Peak Load seasons.

# Generation Interconnection Activity by Fuel – January 2017

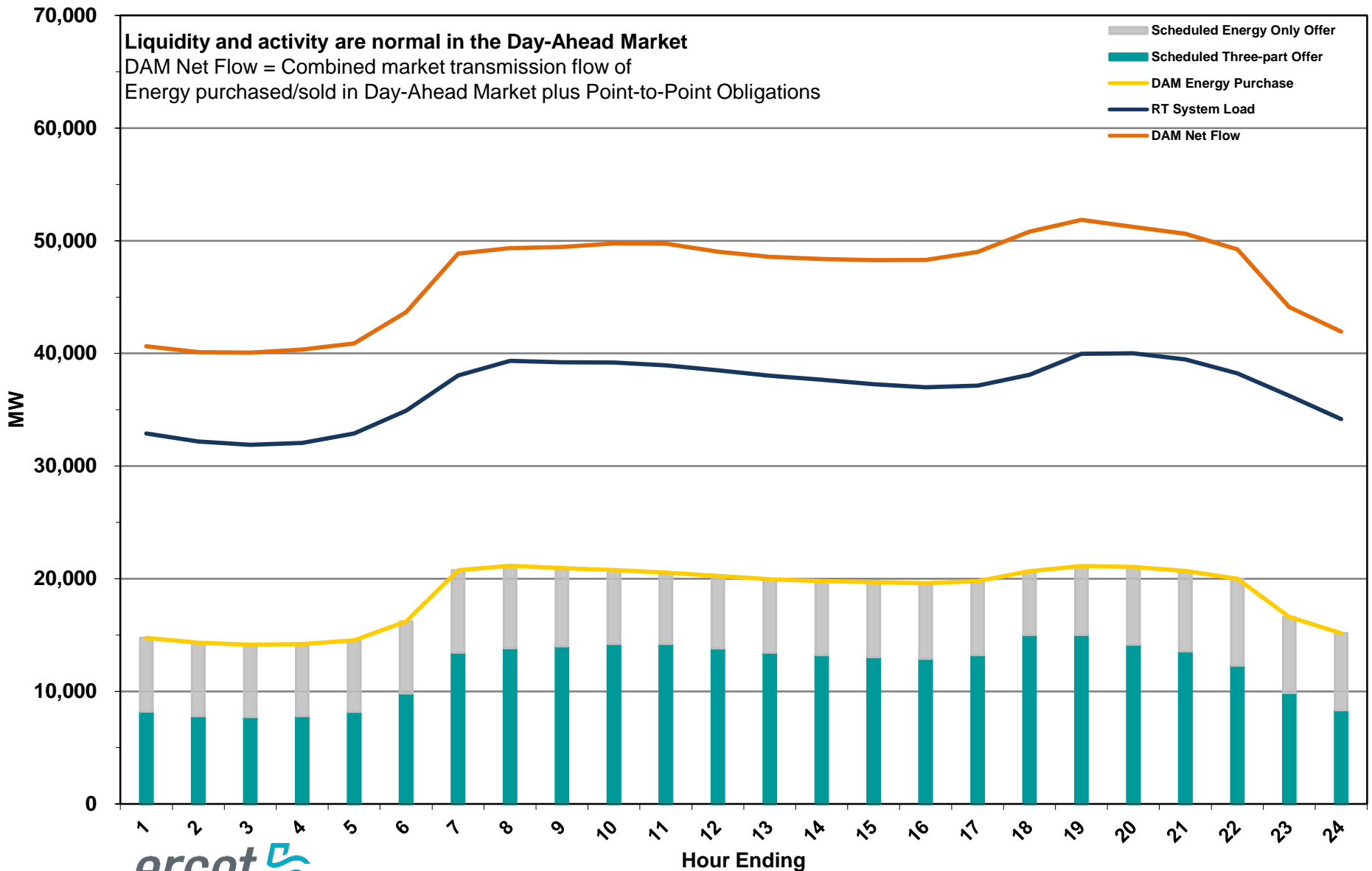


# Generation Interconnection Activity by Project Phase – January 2017

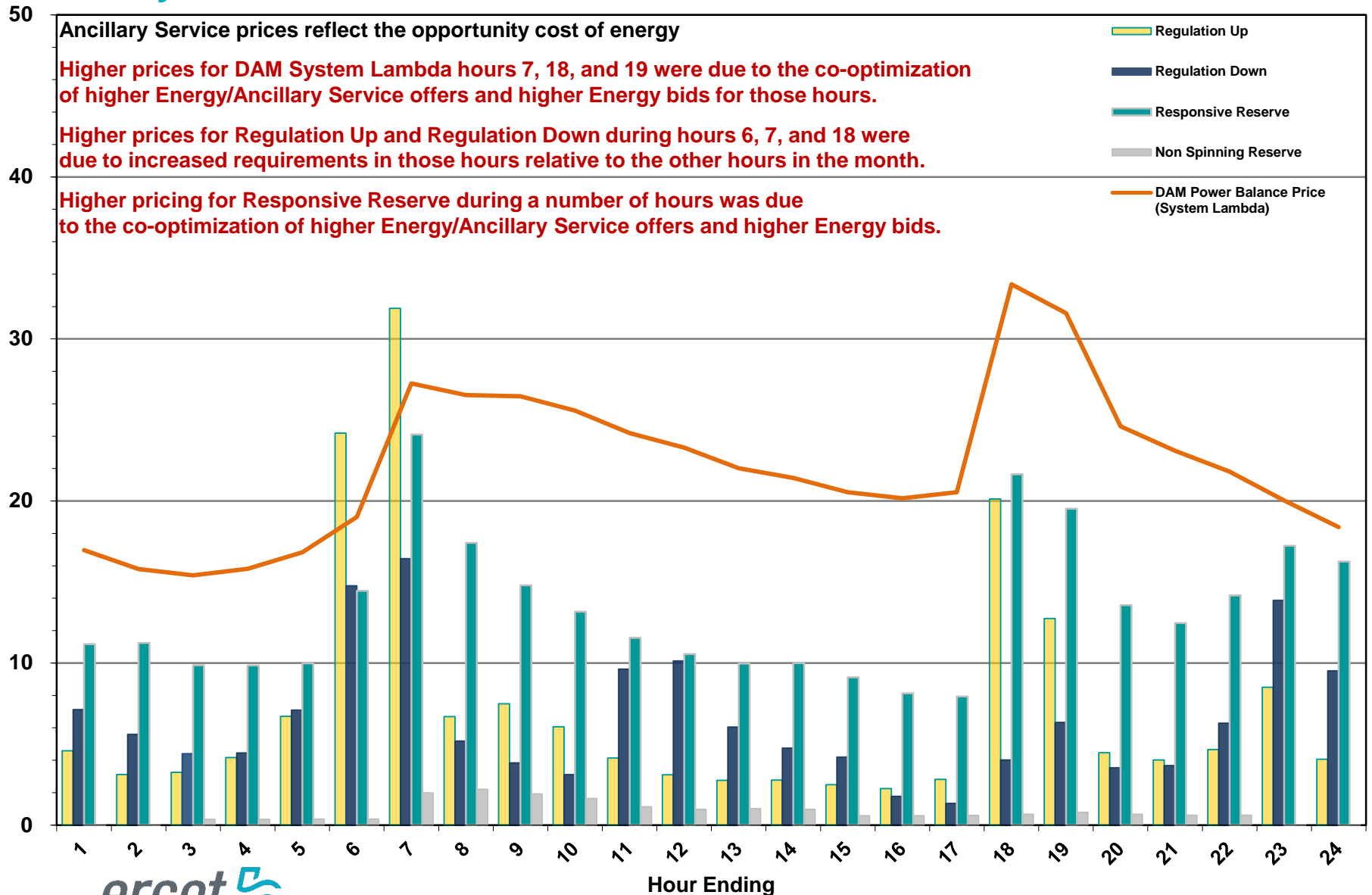


# Market Operations

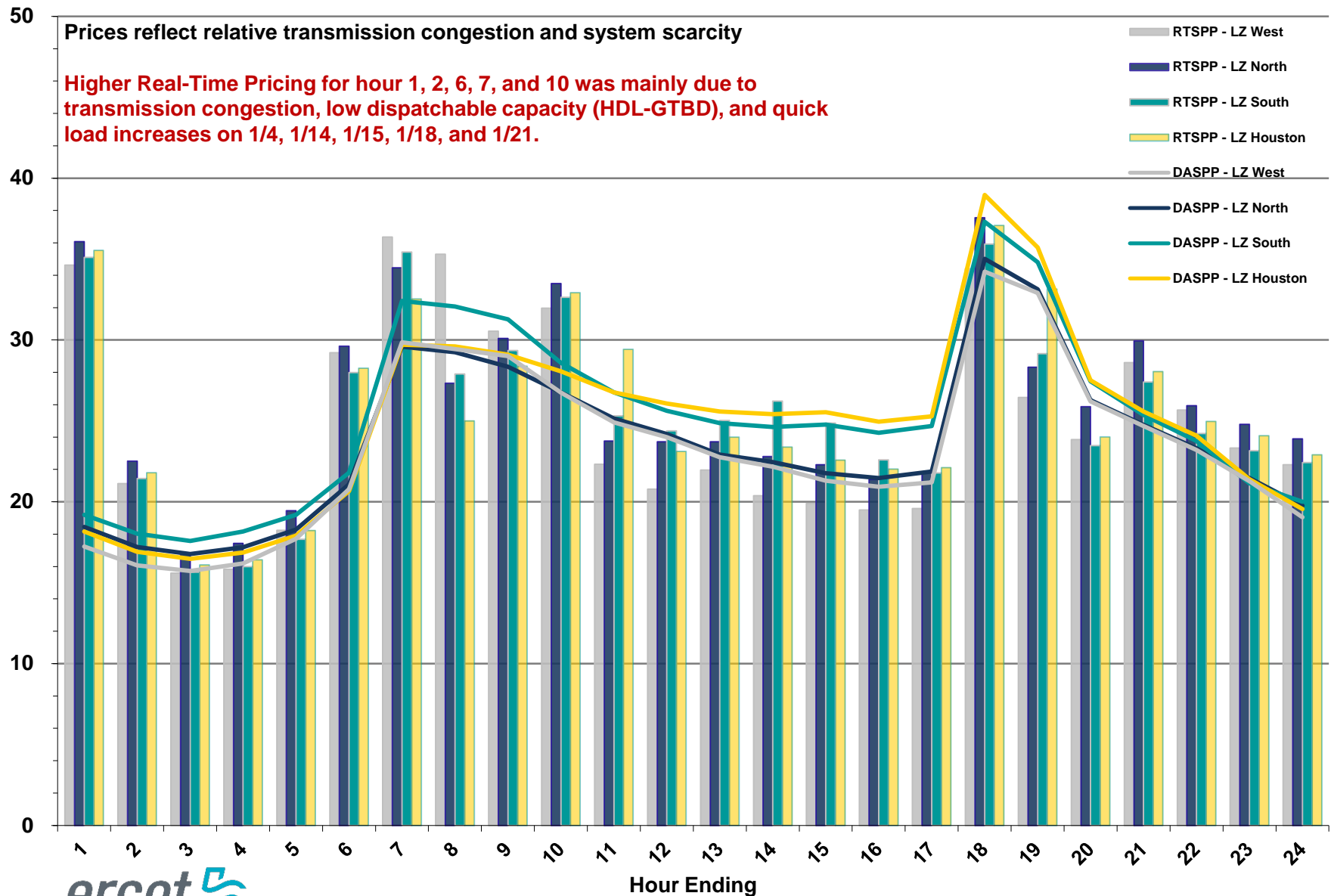
# Day-Ahead Schedule (Hourly Average) – January 2017



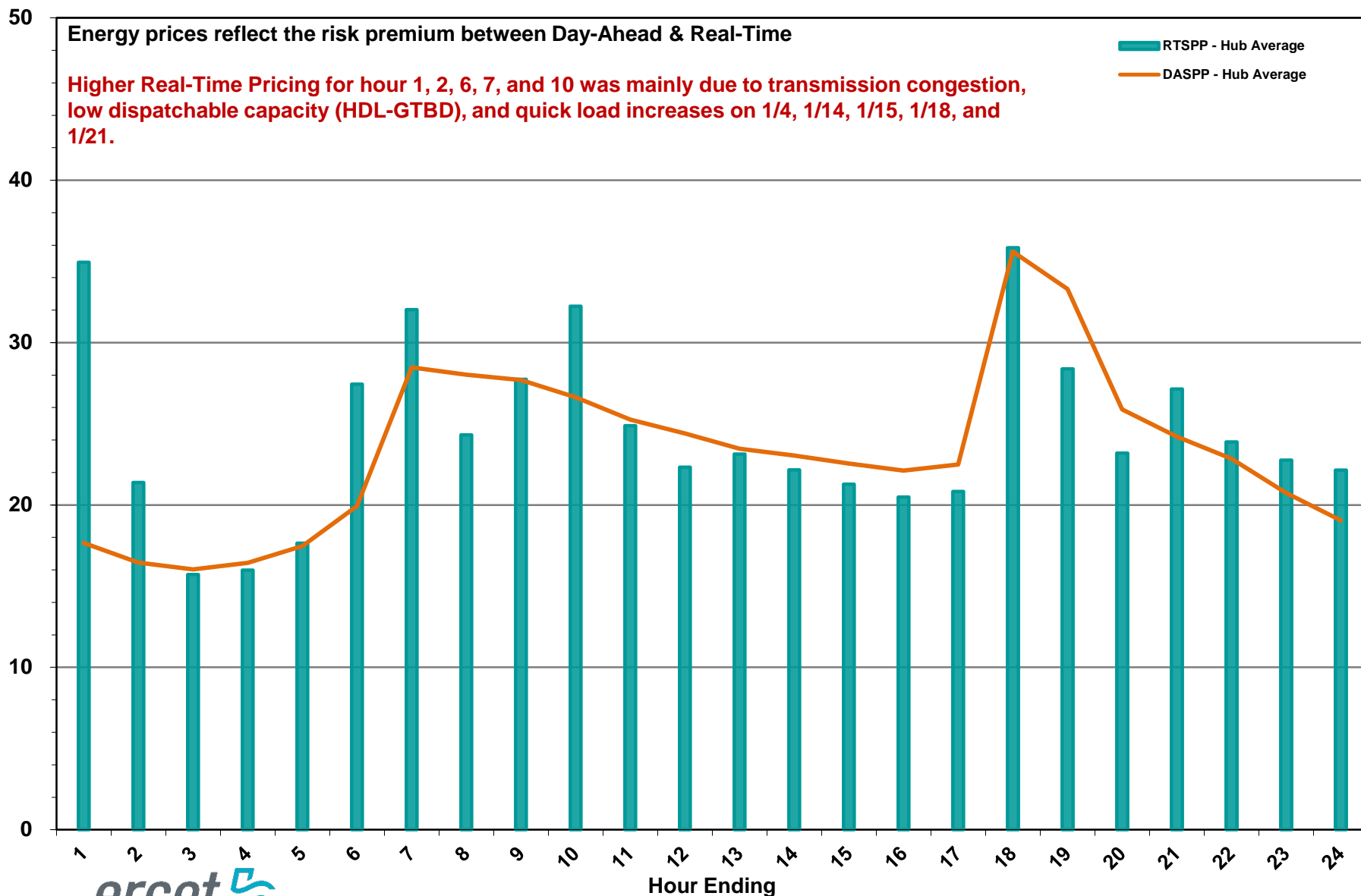
# Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – January 2017



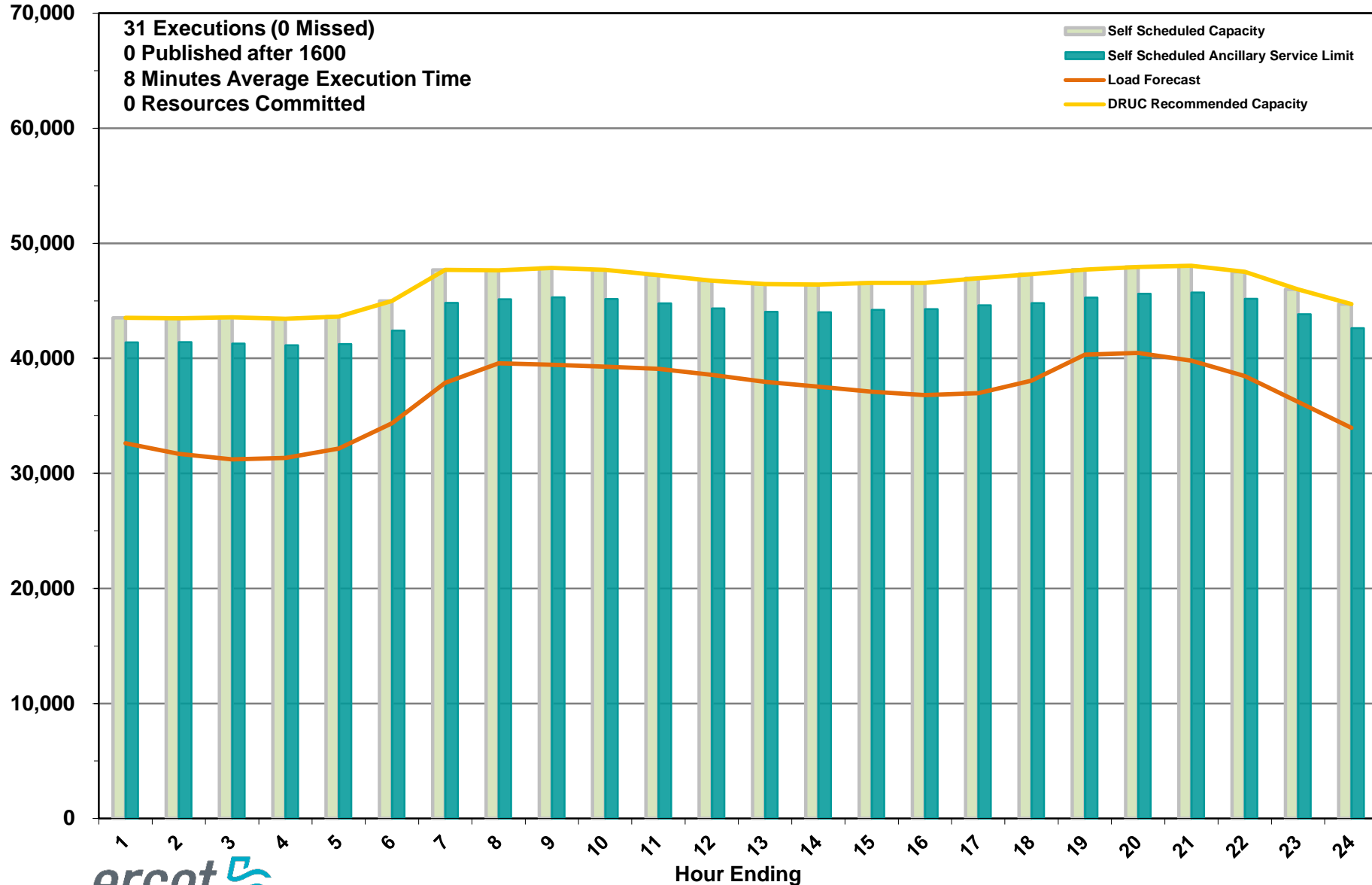
# Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – January 2017



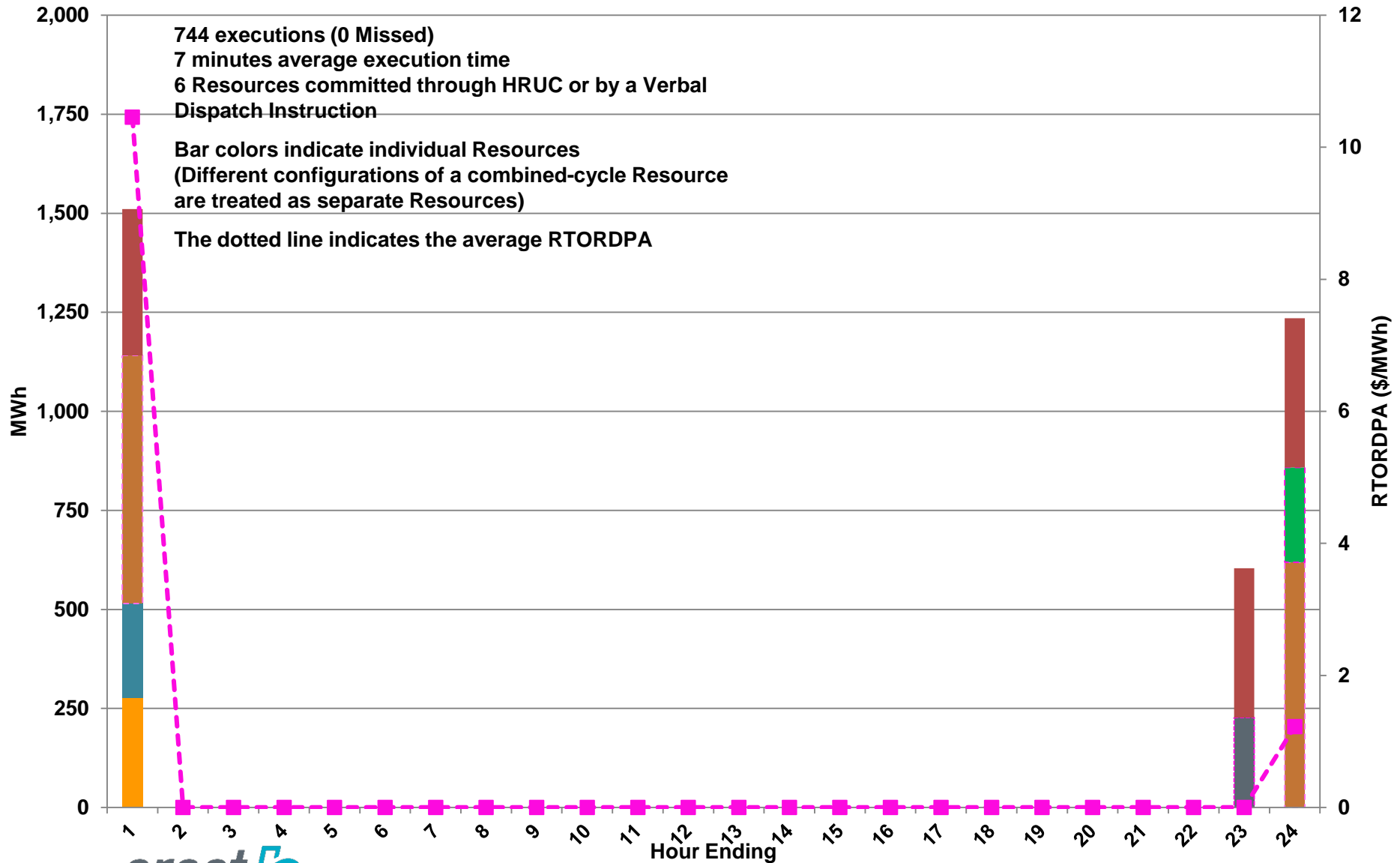
# Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – January 2017



# DRUC Monthly Summary (Hourly Average) – January 2017



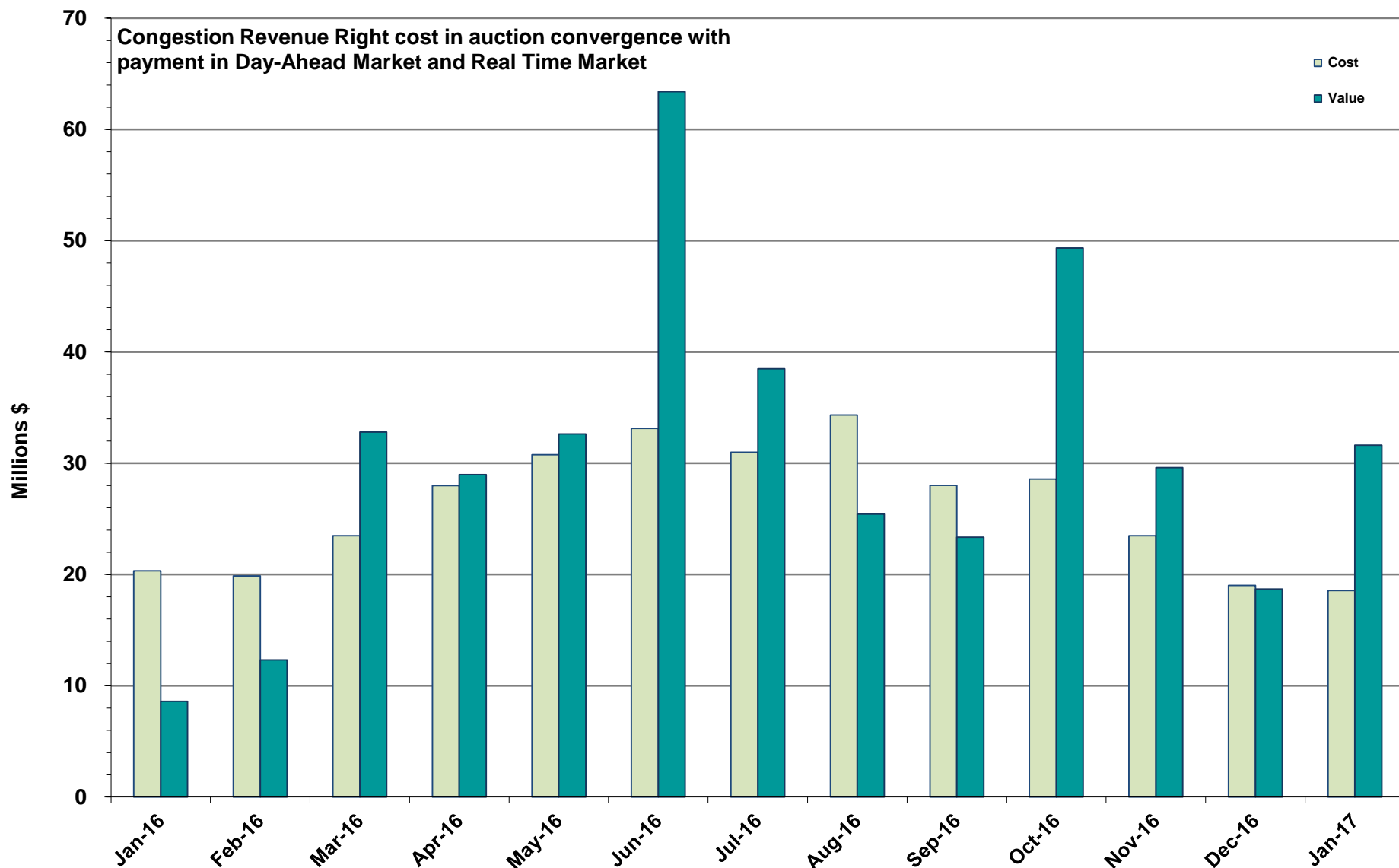
# HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – January 2017



## Non-Spinning Reserve Service Deployment – January 2017

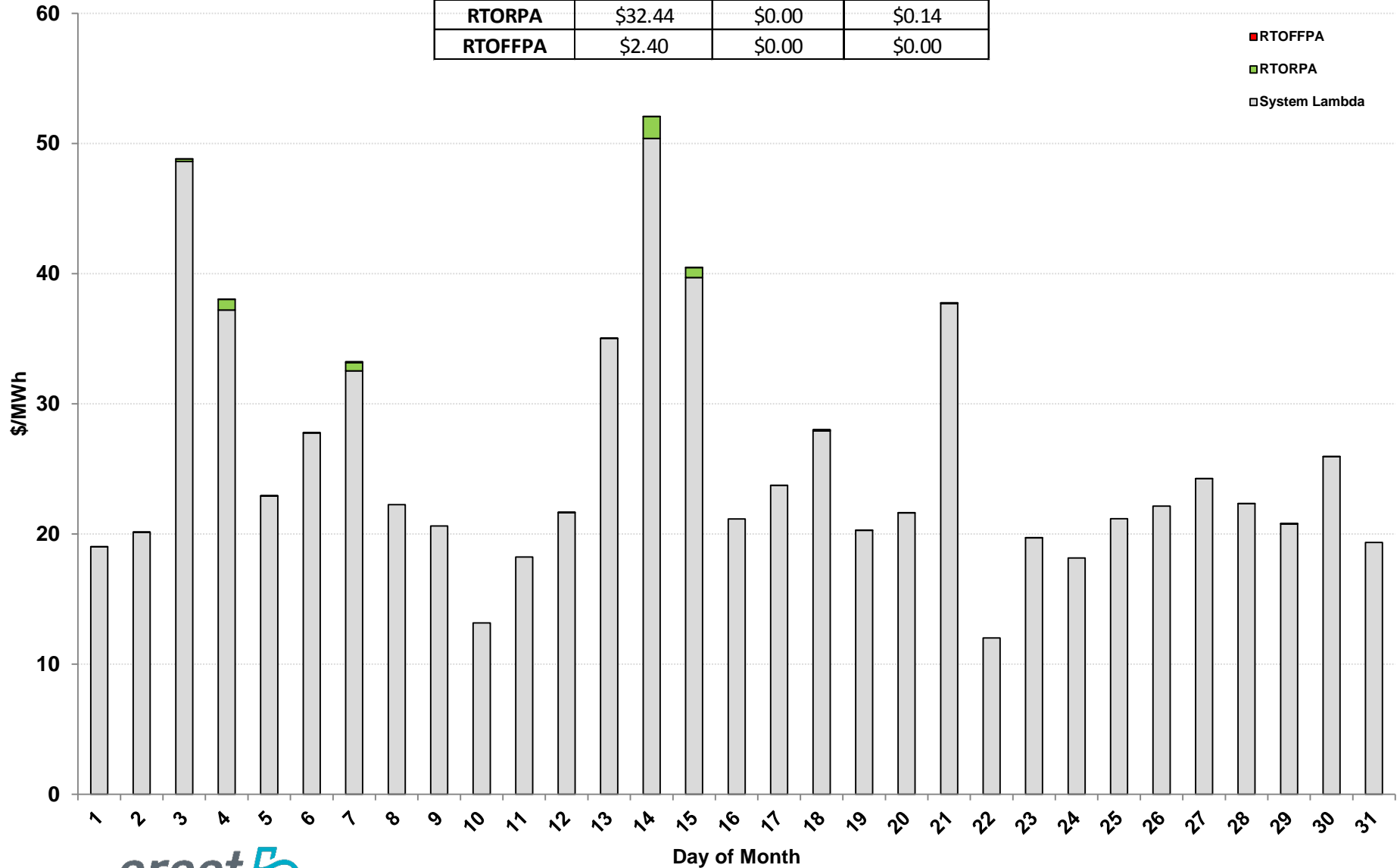
Deployment Start Time	Deployment End Time	Deployment Duration (Hours)	Max Deployment (MW)	Reason
None				

## CRR Price Convergence – January 2017



# Daily Average System Lambda and ORDC Price Adders – January 2017

Monthly	Maximum	Minimum	Average
RTORPA	\$32.44	\$0.00	\$0.14
RTOFFPA	\$2.40	\$0.00	\$0.00



## ERS Procurement for – October 2016 – January 2017

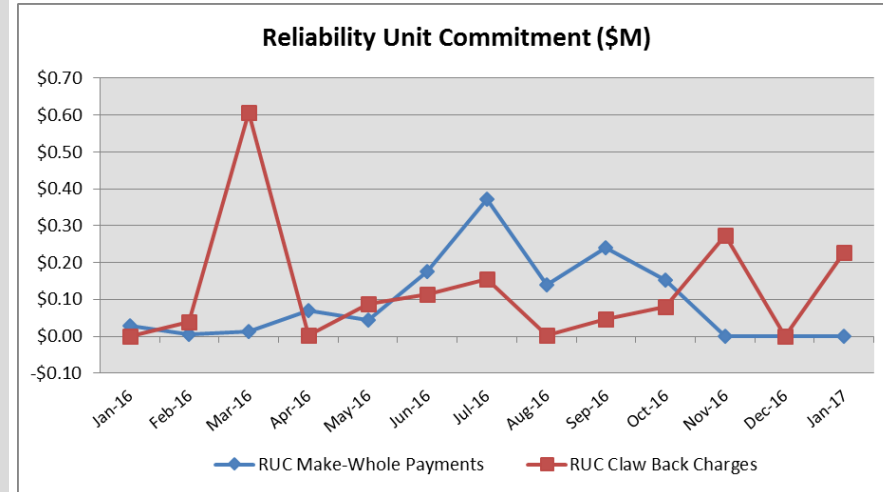
	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	299.408	309.348	307.197	301.417	297.547	270.698
Non Weather-Sensitive ERS-30 MW	544.383	586.506	572.900	562.770	540.306	479.082
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	1.91	0	1.68	2.16	0	0
Total MW Procured	845.701	895.854	881.777	866.347	837.853	749.780
Clearing Price	\$17.63	\$6.32	\$2.07	\$17.14	\$18.26	\$2.52

\*Weather-Sensitive Time Periods are TP1,TP3 and TP4.

Time Period	Time Period Hours
Time Period 1	Hours Ending 0600 - 0800 (5:00:00 a.m. to 8:00:00 a.m.) Monday through Friday except ERCOT Holidays.
Time Period 2	Hours Ending 0900 - 1300 (8:00:00 a.m. to 1:00:00 p.m.) Monday through Friday except ERCOT Holidays.
Time Period 3	Hours Ending 1400 - 1600 (1:00:00 p.m. to 4:00:00 p.m.) Monday through Friday except ERCOT Holidays.
Time Period 4	Hours Ending 1700 - 1900 (4:00:00 p.m. to 7:00:00 p.m.) Monday through Friday except ERCOT Holidays.
Time Period 5	Hours Ending 2000 - 2200 (7:00:00 p.m. to 10:00:00 p.m.) Monday through Friday except ERCOT Holidays.
Time Period 6	All other hours

## Reliability Services – January 2017

Reliability Unit Commitment (RUC)	\$ in Millions
RUC Make-Whole Payments	\$0.00
RUC Clawback Charges	\$0.23
<b>RUC Commitment Settlement</b>	<b>\$0.23</b>
RUC Capacity Short Charges	\$0.00
RUC Make-Whole Uplift	\$0.00
<b>RUC Commitment Cost Allocation</b>	<b>\$0.00</b>
RUC Decommitment Payments	\$0.00



RUC Make-Whole Payments were \$0.00M in January 2017.  
RUC Clawback Charges were \$0.23M.

There was \$0.23M allocated directly to load in January 2017, compared to:

- \$0.00M in December 2016
- \$0.00M in January 2016

## Capacity Services – January 2017

Capacity Services	\$ in Millions
Regulation Up Service	\$2.24
Regulation Down Service	\$1.56
Responsive Reserve Service	\$22.40
Non-Spinning Reserve Service	\$0.95
Black Start Service	\$0.62
Voltage Services - Reactive Power	\$0.00
Voltage Services - Lost Opportunity	\$0.00
<b>Total Charges</b>	<b>\$27.77</b>

Capacity Services costs decreased from last month and increased from January 2016.

January 2017 cost was \$27.77M, compared to:

- A charge of \$36.57M in December 2016
- A charge of \$20.70M in January 2016

## Energy Settlement – January 2017

Day-Ahead Market Energy Settlement	\$ in Millions
Energy Purchases	\$345.61
Point to Point Obligation Purchases	\$34.35
RMR Day-Ahead Revenue	\$0.00
Energy Sales	(\$340.10)
Day-Ahead Congestion Rent	\$39.86
Day-Ahead Market Make-Whole Payments	(\$0.20)

Day-Ahead Market energy settlement decreased from last month and increased from January 2016.

Real-Time Market energy settlement activity increased from last month and increased from January 2016.

Real-Time Market Energy Settlement	\$ in Millions
Energy Imbalance at a Resource Node	(\$395.75)
Energy Imbalance at a Load Zone	\$572.04
Energy Imbalance at a Hub	(\$140.22)
Real Time Congestion from Self Schedules	\$0.40
Block Load Transfers and DC Ties	(\$2.42)
Impact to Revenue Neutrality	\$34.05
Emergency Energy Payments	(\$0.11)
Base Point Deviation Charges	\$0.19
Real-Time Metered Generation (MWh in millions)	27.29

## Congestion Revenue Rights (CRR) – January 2017

	\$ in Millions
Annual Auction	(\$15.38)
Monthly Auction	(\$3.18)
<b>Total Auction Revenue</b>	<b>(\$18.56)</b>
Day-Ahead CRR Settlement	(\$31.64)
Day-Ahead CRR Short-Charges	\$0.09
Day-Ahead CRR Short-Charges Refunded	(\$0.09)
Real-Time CRR Settlement	\$0.00
Real-Time CRR Short-Charges	\$0.00
Real-Time CRR Short-Charges Refunded	\$0.00
<b>Total CRR Funding</b>	<b>(\$31.64)</b>
Day-Ahead Point to Point Obligations Settlement	\$34.35
Real-Time Point to Point Obligation Settlement	(\$44.51)
<b>Net Point to Point Obligation Settlement</b>	<b>(\$10.16)</b>

Congestion Revenue Rights settlement payments were fully funded and excess funds were deposited into the CRR Balancing Account Fund.

Point to Point Obligations settled with a net credit of \$10.16M compared to a net credit of \$1.30M last month.

## CRR Balancing Account Fund – January 2017

<b>CRR Balancing Account Fund</b>	<b>\$ in Millions</b>
<b>Beginning Balance for the Month</b>	\$5.06
<b>CRR Balancing Account Credit Total</b>	\$8.30
<b>CRR PTP Option Award Charges</b>	\$0.06
<b>Day-Ahead CRR Short-Charges Refunded</b>	(\$0.09)
<b>Load Allocated CRR Amount</b>	(\$3.33)
<b>Total Fund Amount</b>	\$10.00

ERCOT implemented the rolling CRR Balancing Account Fund beginning with Operating Month December 2014.

As of January 2017, the CRR Balancing Account Fund was increased to \$10.00M and excess funds of \$3.33M were allocated to Load.

## Revenue Neutrality – January 2017

### Revenue Neutrality Settlement

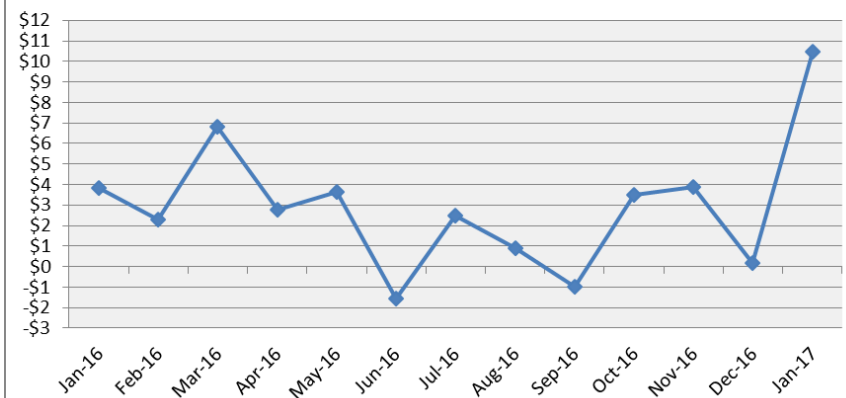
	\$ in Millions
Real-Time Point to Point Obligation Settlement	(\$44.51)
Real-Time Point to Point Options and Options with Refund Settlement	\$0.00
Real-Time Energy Imbalance Settlement	\$36.07
Real-Time Congestion from Self-Schedules Settlement	\$0.40
DC Tie & Block Load Transfer Settlement	(\$2.42)
<b>Charge to Load</b>	<b>\$10.46</b>

Revenue Neutrality charges to load increased compared to last month and increased compared to January 2016.

January 2017 was a charge of \$10.46M, compared to:

- \$0.18M charge in December 2016
- \$3.85M charge in January 2016

Revenue Neutrality Uplift (\$M)



## Real-Time Ancillary Service Imbalance (ORDC) – January 2017

Real-Time Ancillary Service Imbalance	\$ in Thousands
Real-Time AS Imbalance Payment Amount	(\$103.71)
Load Allocated AS Imbalance Revenue Neutrality Amount	\$103.70
<b>Total Charges</b>	<b>\$103.70</b>

In January 2017, total credits to QSEs w/an Ancillary Service Imbalance were \$103,709 while total credits in December 2016 were \$61,791.

14 of the 31 days in January had settlement dollars equal to \$0 for the day.

All days in January with settlement greater than \$0 were settled as a net credit to QSEs w/ an Ancillary Service Imbalance and as a charge to QSEs representing load.

The highest payment to QSEs w/an Ancillary Service Imbalance occurred on January 14<sup>th</sup> in the amount of \$30,016

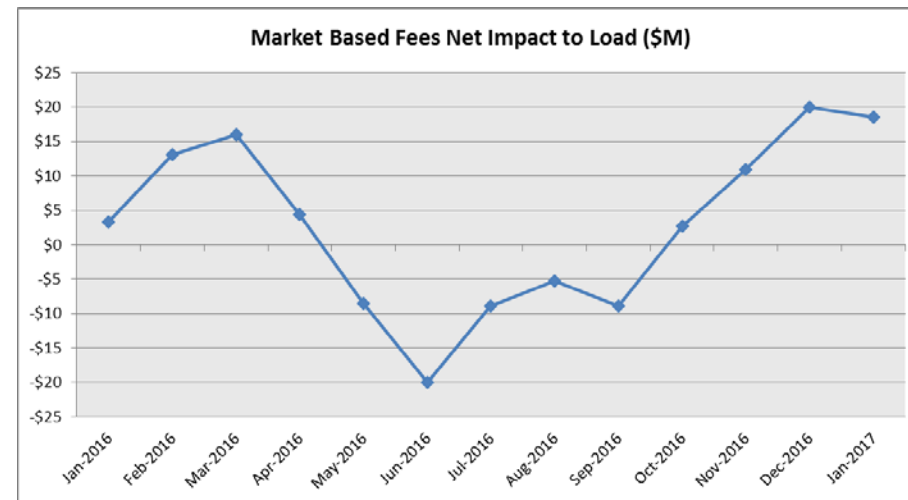
## Net Allocation to Load – January 2017

Market-Based Allocation	\$ in Millions
CRR Auction Revenue Disbursement Settlement	(\$18.56)
Balancing Account Proceeds Settlement	(\$3.33)
Net Reliability Unit Commitment Settlement	(\$0.23)
Ancillary Services Settlement	\$27.77
Reliability Must Run Settlement (incl. RMR for Capacity)	\$2.37
Real-Time Revenue Neutrality Settlement	\$10.46
Emergency Energy Settlement	\$0.11
Base Point Deviation Settlement	(\$0.19)
ORDC Settlement	\$0.10
<b>Total</b>	<b>\$18.50</b>
<b>Fee Allocation</b>	
ERCOT Administrative Fee Settlement	\$15.21
<b>Net Allocated to Load</b>	<b>\$33.71</b>

The charge for the net allocation to Load decreased from last month and increased from January 2016.

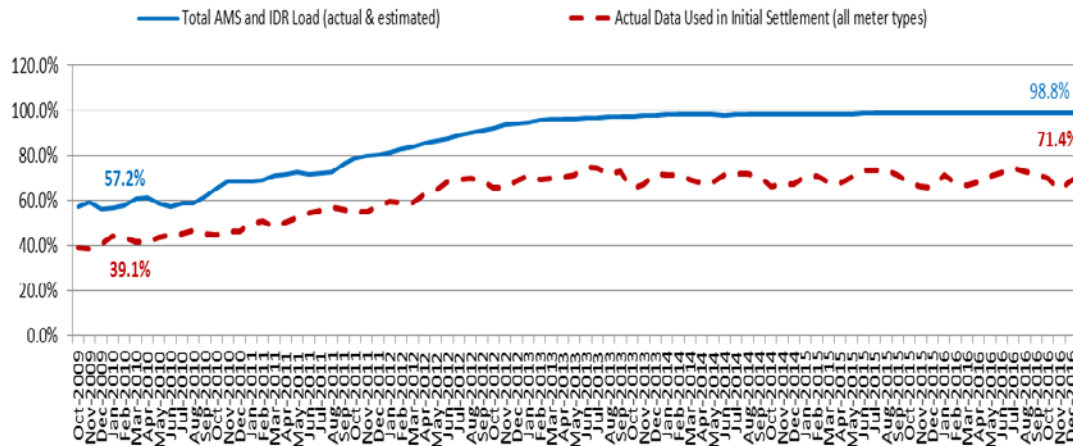
January 2017 was a charge of \$33.71M, compared to:

- A charge of \$35.43M in December 2016
- A charge of \$18.58M in January 2016



# Advanced Meter Settlement Impacts – January 2017

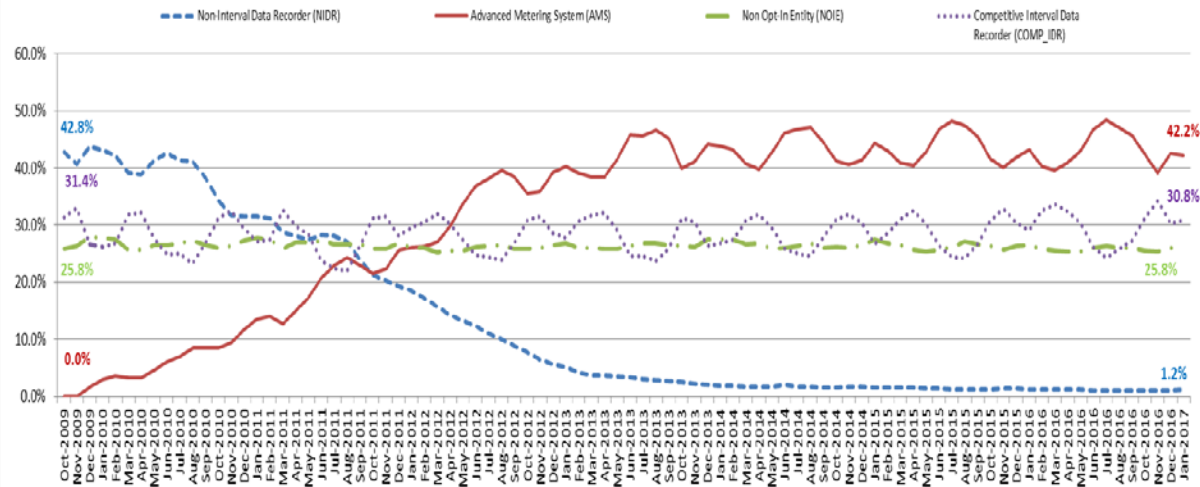
Percent Actual/Percent Interval Data Recorder (IDR)



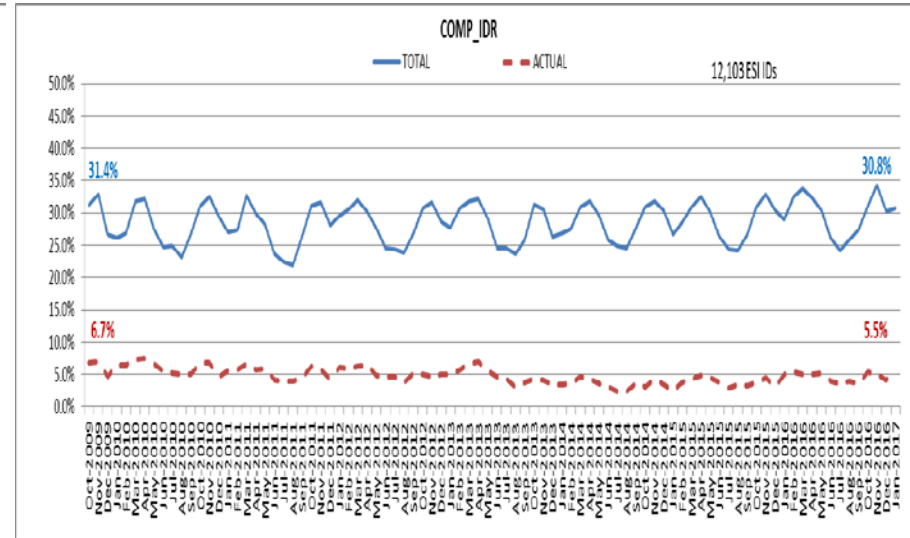
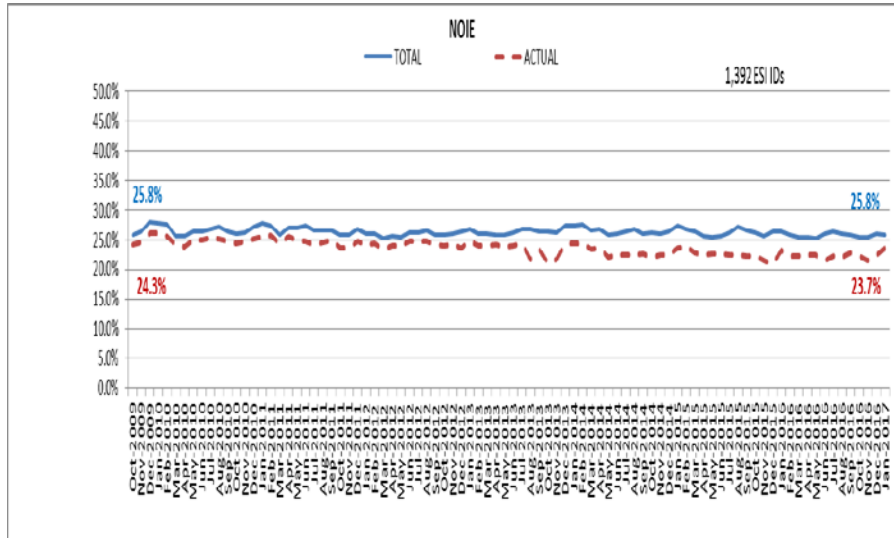
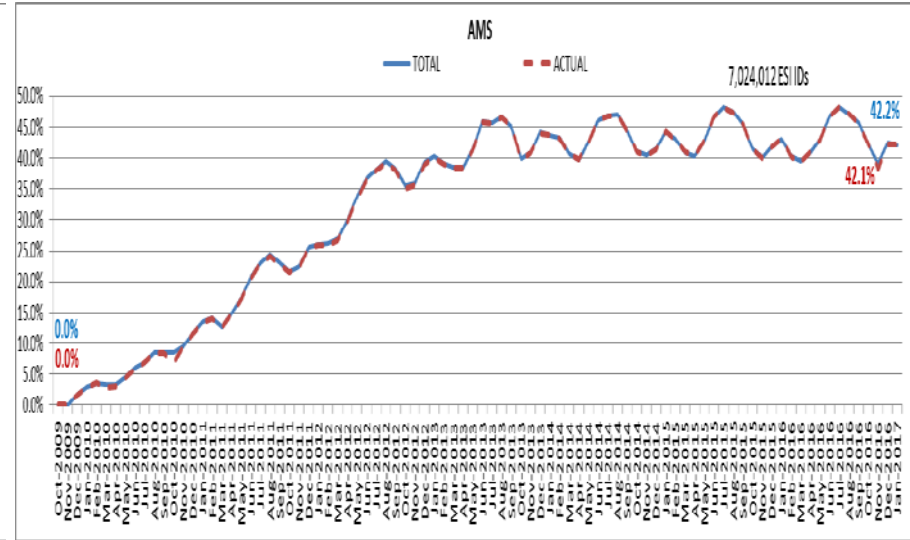
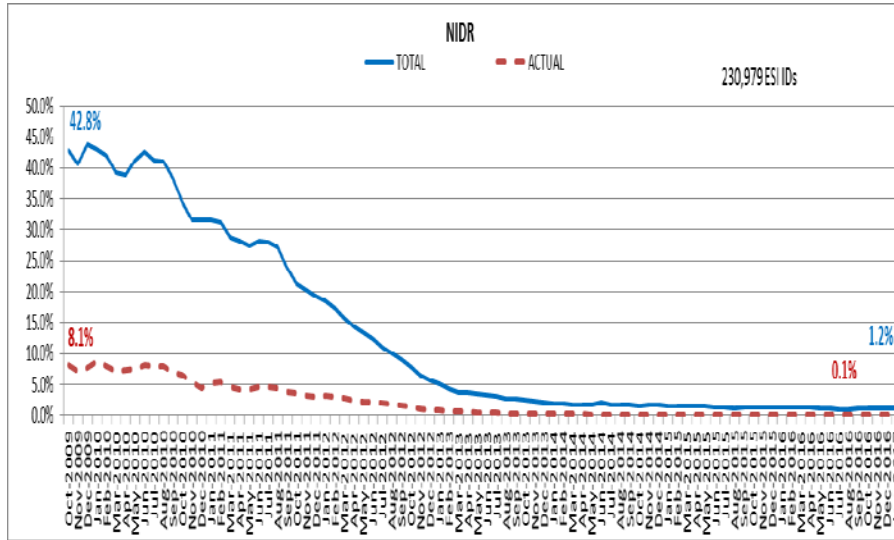
January 2017: At month end, settling 7.0M ESIIDs using Advanced Meter data.

January 2017: 98.8% of the load in ERCOT is settled with 15-min interval data (AMS, Competitive IDR, and NOIE IDR).

Percent of Load by Meter Type



# ERCOT Wide Load Volumes by Meter Type – INITIAL Settlement – January 2017

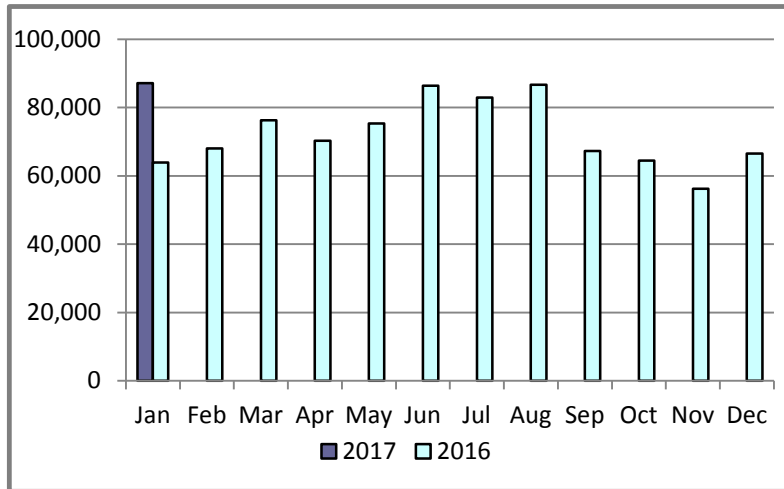


## Retail Transaction Volumes – Summary – January 2017

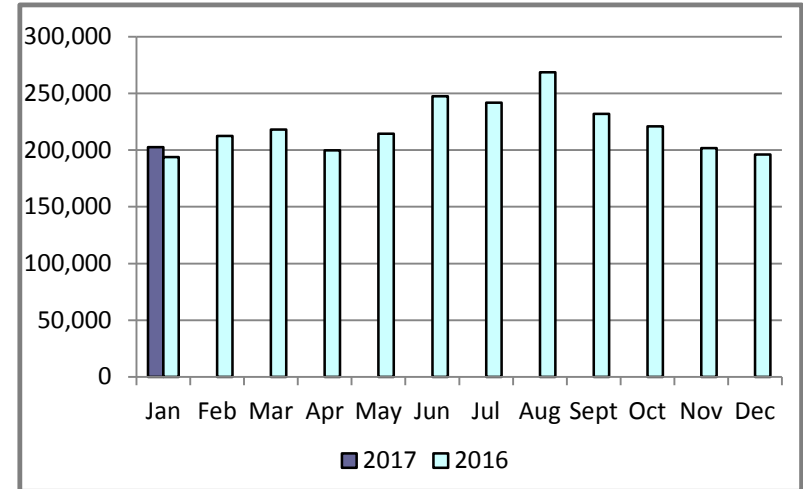
	Year-To-Date		Transactions Received	
Transaction Type	January 2017	January 2016	January 2017	January 2016
Switches	87,140	63,954	87,140	63,954
Acquisition	0	0	0	0
Move - Ins	202,612	193,716	202,612	193,716
Move - Outs	101,107	96,628	101,107	96,628
Continuous Service Agreements (CSA)	44,030	42,179	44,030	42,179
Mass Transitions	0	0	0	0
<b>Total</b>	<b>434,889</b>	<b>396,477</b>	<b>434,889</b>	<b>396,477</b>

# Retail Transaction Volumes – Summary – January 2017

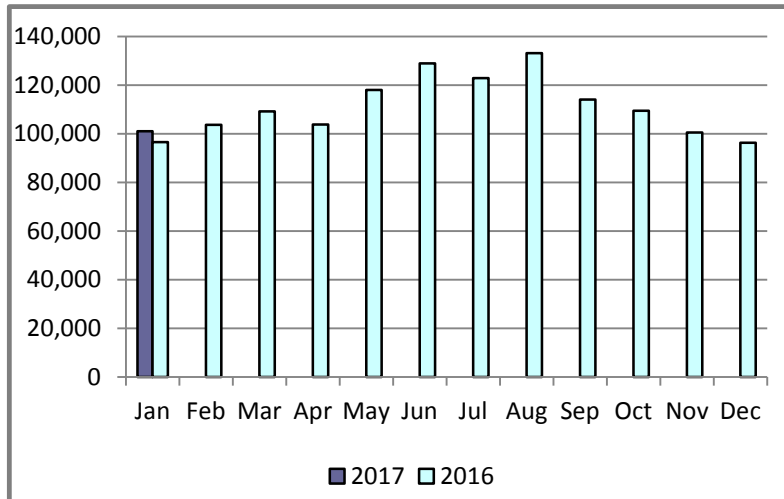
## Switches/Acquisitions



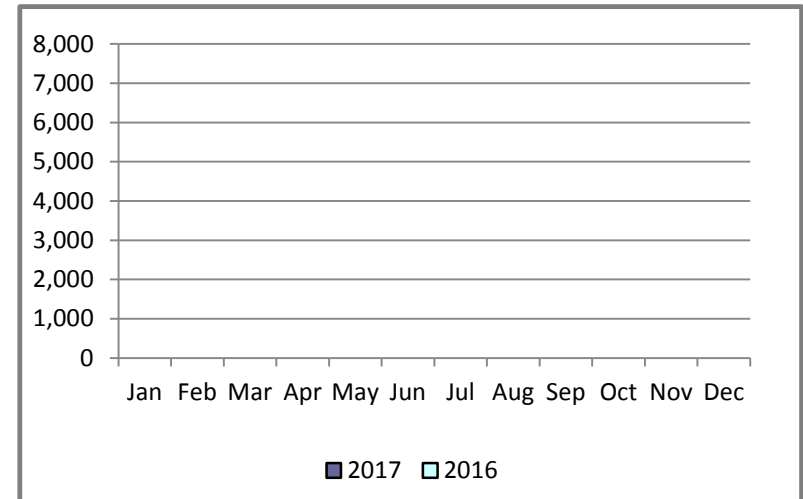
## Move-Ins



## Move-Outs

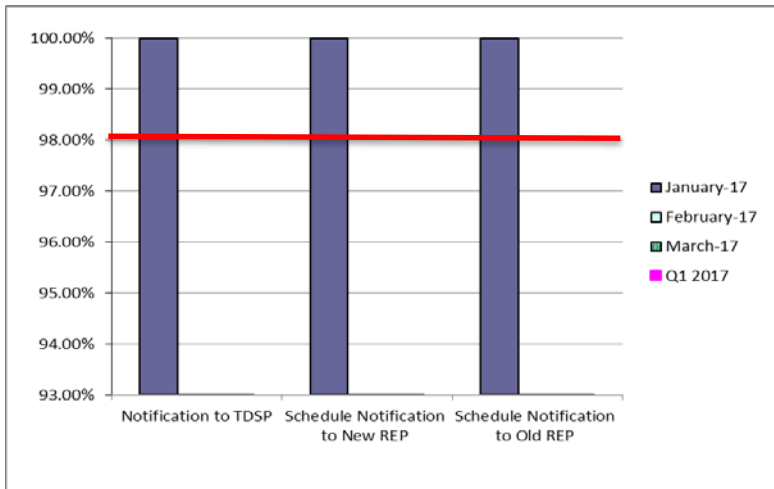


## Mass Transition

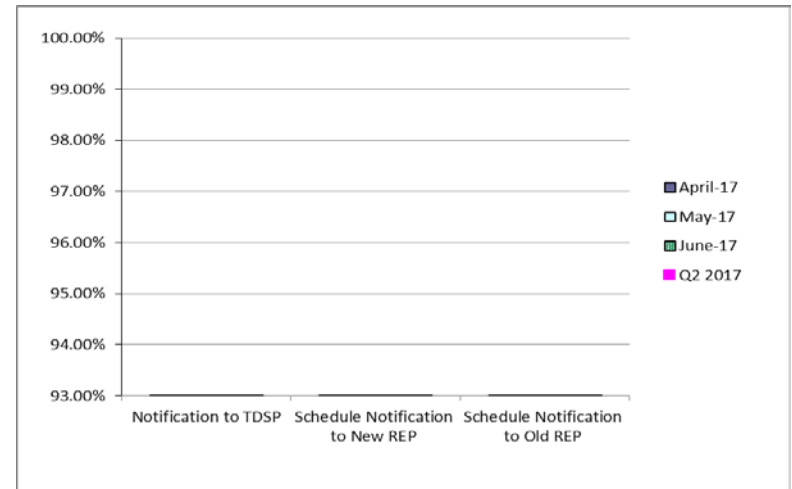


# Retail Performance Measures – Switch – January 2017

## 1<sup>st</sup> Quarter



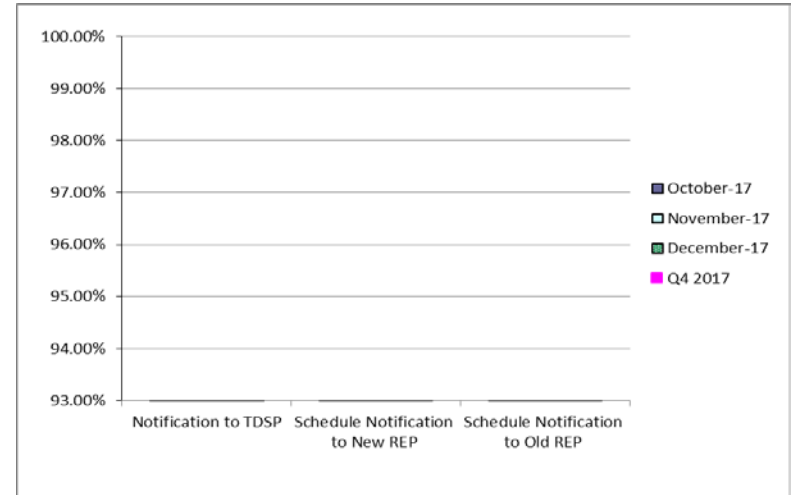
## 2<sup>nd</sup> Quarter



## 3<sup>rd</sup> Quarter

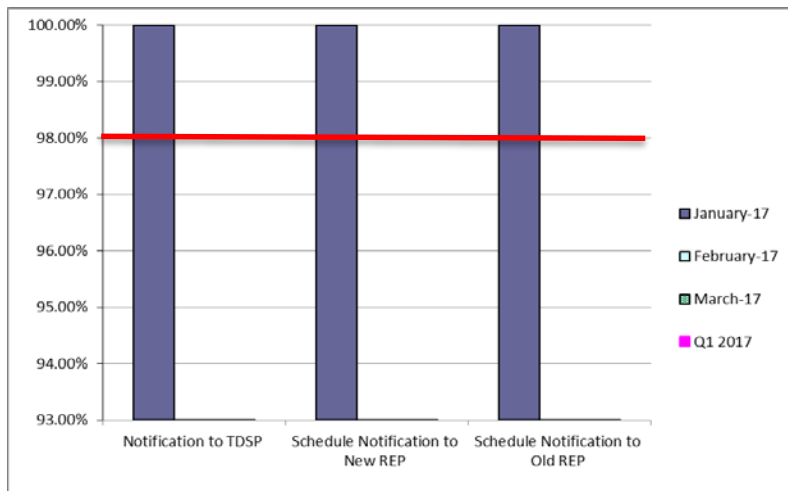


## 4<sup>th</sup> Quarter

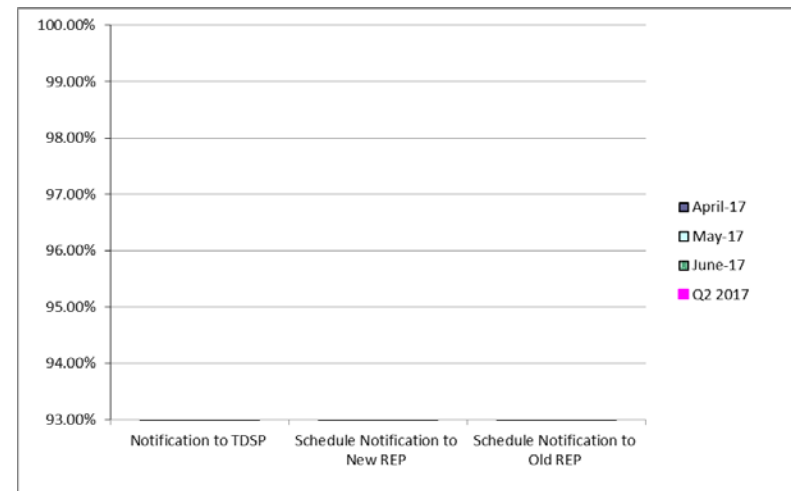


# Retail Performance Measures – Same Day Move-In – January 2017

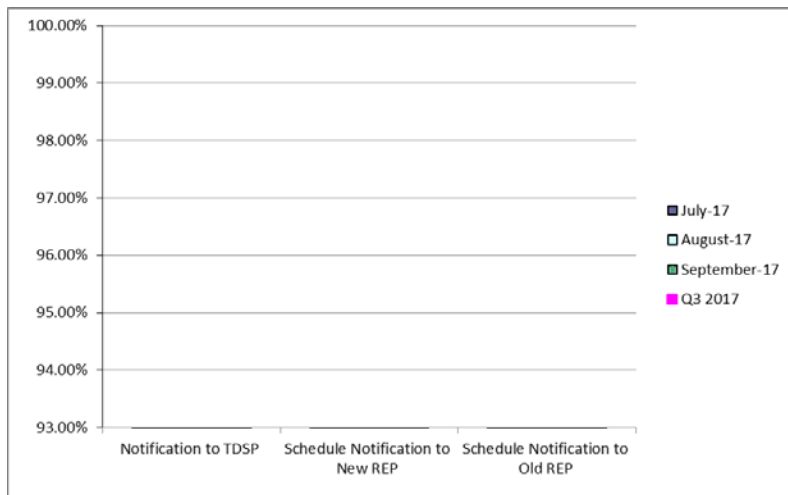
## 1<sup>st</sup> Quarter



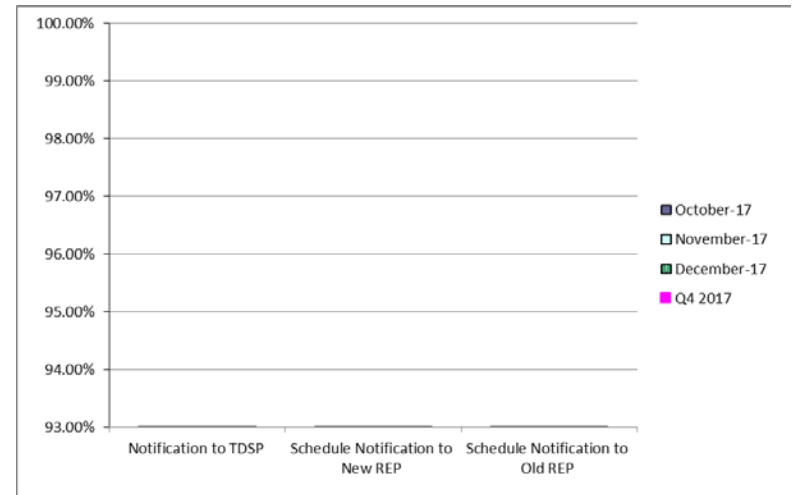
## 2<sup>nd</sup> Quarter



## 3<sup>rd</sup> Quarter

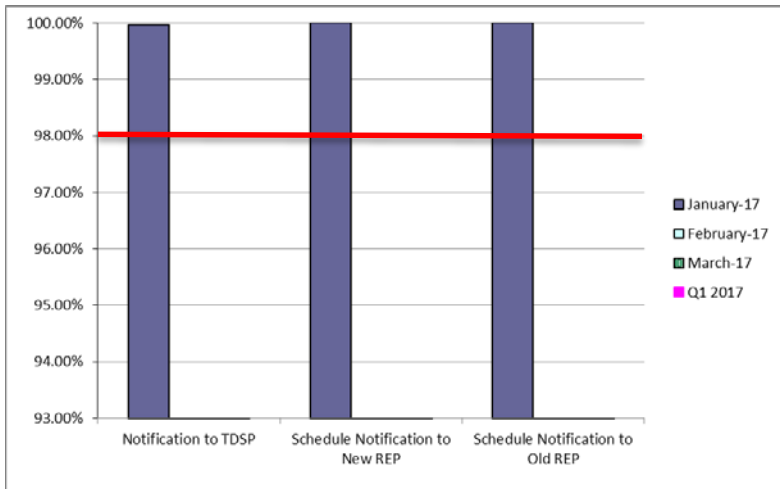


## 4<sup>th</sup> Quarter

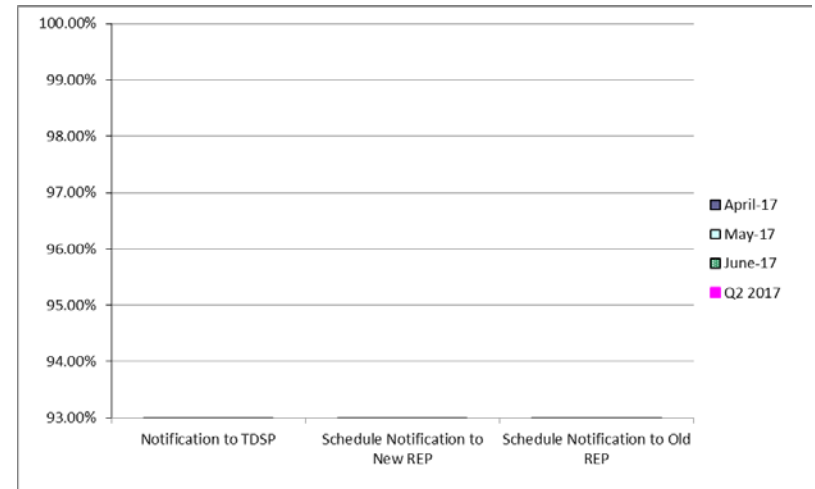


# Retail Performance Measures – Standard Move-In – January 2017

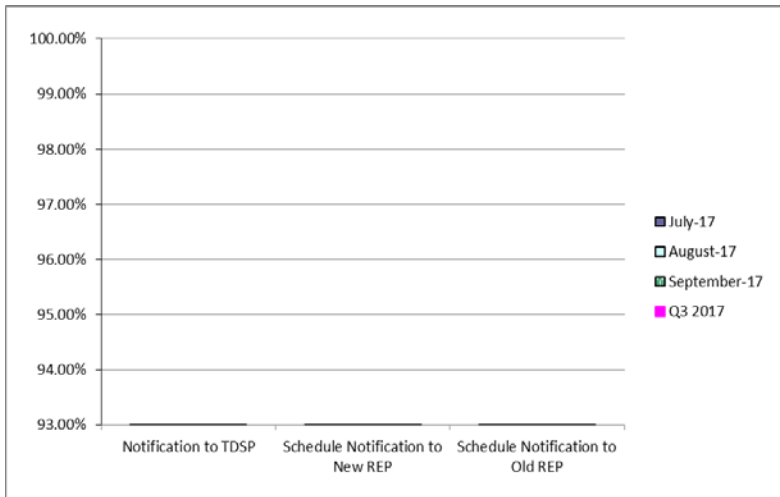
## 1<sup>st</sup> Quarter



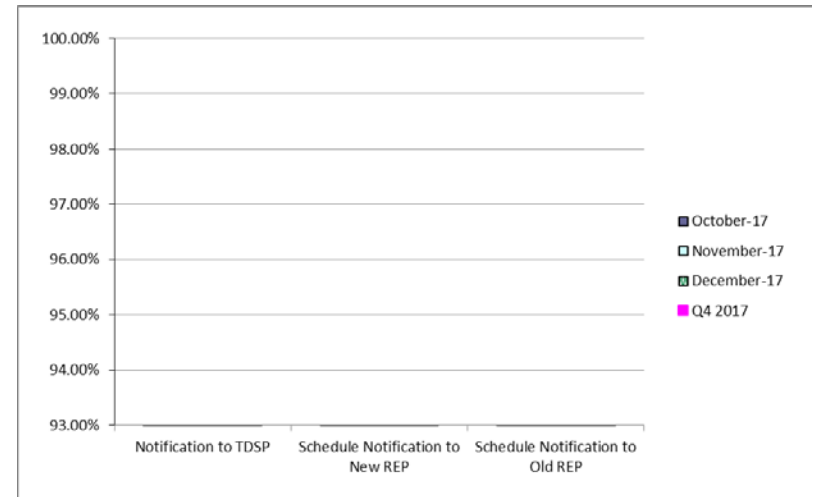
## 2<sup>nd</sup> Quarter



## 3<sup>rd</sup> Quarter



## 4<sup>th</sup> Quarter



# Projects Report

# ERCOT Portfolio Stoplight Report – January 2017

Impact Metric Tolerances	2017 Project Funding	\$20,500,000	2017 Portfolio Spending Estimate
Unfavorable variances are represented as negative numbers within the report. - Green = No more than 4.9% unfavorable variance - Yellow = Unfavorable variance between 4.9% and 9.9% - Red = Unfavorable variance more than 9.9%	Projects In Flight/On Hold (Count = 80)		\$14,937,385
	Projects Not Yet Started (Count = 17)		\$ 2,846,117
	Projects Completed (Count = 6)		\$ 11,298
	Spending Reductions Required to Maintain Capital Budget		\$ -
	<b>TOTAL</b>		<b>\$17,794,801</b>

Project Number	Projects in Initiation Phase (Count = 2)
TBD	Application Authentication Tech Refresh
NPRR782	Settlement of Infeasible Ancillary Services Due to Transmission Constraints

## Footnotes

- 1 - One or more phases took longer than expected, resulting in additional time required
- 2 - One or more phases required more labor than expected, resulting in additional funding and/or time required
- 3 - Project placed on hold
- NA - Metric not calculated because:
  - it is reported at the parent project level, or
  - it is an administrative project

# ERCOT Portfolio Stoplight Report – January 2017

Project Number	Projects in Planning Phase (Count = 31)	Phase Start	Baseline Phase Finish	Approved Phase Finish	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
173-02	ERCOT Flight Certification Website	10/5/2016	2/1/2017	7/19/2017	TBD	7/19/2017		0%		0%
183-01	CMM Tech Refresh	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
183-01	CMM-FT GUI Integration	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
190-01	SharePoint Governance Project	4/27/2016	7/20/2016	12/14/2016	TBD	2/22/2017	1	-30%		0%
193-01	PMU Tool Evaluation and Implementation	5/4/2016	11/9/2016	4/28/2017	TBD	4/26/2017		0%		0%
210-01	REC Technology Refresh	10/5/2016	1/4/2017	1/4/2017	TBD	1/18/2017	2	-15%		23%
211-01	Identity & Access Management Evaluation	10/5/2016	2/22/2017	2/22/2017	TBD	2/22/2017		0%		9%
212-01	Test Data and Environment Enhancements Initiative (TDEE)	10/5/2016	11/2/2016	4/19/2017	TBD	4/28/2017		-4%		0%
217-01	Cyber Security Project #20	12/7/2016	5/11/2017	5/11/2017	TBD	5/11/2017		0%		17%
218-01	Cyber Security Project #21	1/11/2017	5/3/2017	5/3/2017	TBD	5/3/2017		0%		5%
224-01	TelAlert Replacement	11/2/2016	2/1/2017	4/5/2017	TBD	4/5/2017		0%		0%
228-01	Enterprise Database Upgrade - Planning Phase 2	2/1/2017	6/28/2017	6/28/2017	TBD	6/28/2017		0%		0%
229-01	IT Change and Configuration Management Phase 2	1/25/2017	5/17/2017	5/17/2017	TBD	5/17/2017		0%		13%
230-01	SAS Technical Architecture Redesign	12/7/2016	3/1/2017	3/1/2017	TBD	3/1/2017		0%		4%
234-01	Reporting Solution Resiliency (RSR)	1/18/2017	3/31/2017	3/31/2017	TBD	3/22/2017		12%		0%
Various	Implementation of NPRR573 & NPRR801	1/25/2017	3/15/2017	3/15/2017	TBD	3/15/2017		0%		67%
Various	2015 CMM NPRRs	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%		10%
Various	NPRR797 & NPRR789 Load Forecast Enhancements	2/1/2017	3/8/2017	3/8/2017	TBD	3/8/2017		0%		6%
NPRR484	Revisions to Congestion Revenue Rights Credit Calculations and Payments - Phase 1b / 2	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR519	Exemption of ERS-Only QSEs from Collateral and Capitalization Requirements	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR573	Alignment of PRC Calculation	1/25/2017	3/15/2017	3/15/2017	TBD	3/15/2017		0%	NA	See Implementation of NPRR573 & 801
NPRR620	Collateral Requirements for Counter-Parties with No Load or Generation	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR648	Remove References to Flowgate Rights	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR660	Remove CRR State Change Adder	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR683	Revision to Available Credit Limit Calculation	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR702	Flexible Accounts, Payment of Invoices, and Disposition of Interest on Cash Collateral	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR741	Clarifications to TPE and EAL Credit Exposure Calculations	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR743	Revision to MCE to Have a Floor For Load Exposure	12/16/2015	8/17/2016	3/15/2017	TBD	3/8/2017		1%	NA	See 2015 CMM NPRRs
NPRR789	Publish All Mid-Term Load Forecast Results	2/1/2017	3/8/2017	3/8/2017	TBD	3/8/2017		0%	NA	See NPRR797 & NPRR789 Load Forecast Enhancements
NPRR797	Actual Load by Forecast Zone Report and Display	2/1/2017	3/8/2017	3/8/2017	TBD	3/8/2017		0%	NA	See NPRR797 & NPRR789 Load Forecast Enhancements
NPRR801	Non-Controllable Load Resource MW in PRC	1/25/2017	3/15/2017	3/15/2017	TBD	3/15/2017		0%	NA	See Implementation of NPRR573 & 801

# ERCOT Portfolio Stoplight Report – January 2017

Project Number	Projects in Execution Phase (Count = 42)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
065-01	NMMS Upgrade	12/17/2014	9/22/2016	2/13/2017	2/13/2017	4/12/2017		0%		-1%
158-01	Load Forecast Enhancements	9/28/2016	5/21/2017	5/21/2017	5/11/2017	7/19/2017		4%		-3%
170-01	Enterprise Content Alignment Program	8/26/2015	11/15/2017	9/25/2017	9/25/2017	9/25/2017		0%		56%
170-03	ECAP - Enterprise Content Management System (Proof of Concept)	11/16/2016	3/15/2017	3/15/2017	3/7/2017	3/7/2017		6%		0%
170-04	ECAP - ERCOT Information Governance and Taxonomy	11/16/2016	1/19/2017	2/17/2017	2/17/2017	2/17/2017		0%		1%
172-01	Physical Security Project #2	6/30/2016	2/13/2017	4/6/2017	5/11/2017	5/17/2017	1	-12%		1%
173-01	Serena Software (MarkeTrak) Upgrade	10/5/2016	1/29/2017	3/26/2017	3/27/2017	5/3/2017		0%		2%
177-01	Cyber Security Project #19	4/6/2016	7/13/2016	7/24/2017	7/24/2017	7/26/2017		0%		4%
181-01	CRR Framework Upgrade	10/26/2016	10/2/2017	10/2/2017	10/2/2017	11/8/2017		0%		2%
185-01	Records Management and eDiscovery	12/15/2016	5/24/2017	5/24/2017	5/24/2017	6/14/2017		0%		0%
187-00	Capital Efficiencies and Enhancements - 2016	1/1/2015	12/31/2016	12/31/2016	12/31/2016	12/31/2016		0%		0%
188-01	Mass Transition/Acquisition Enhancements (MTAQ)	5/25/2016	4/2/2017	6/22/2017	6/4/2017	7/14/2017		4%		1%
196-01	GINR Project Status Application Replacement	12/21/2016	9/14/2017	9/14/2017	9/14/2017	10/4/2017		0%		0%
197-01	AREA - Demand and Energy Report	9/14/2016	5/4/2017	5/4/2017	5/4/2017	5/11/2017		0%		13%
202-01	Email Gateway Replacement	11/9/2016	4/4/2017	4/4/2017	4/4/2017	4/5/2017		0%		22%
203-01	DW Replication Upgrade	10/26/2016	12/10/2016	2/17/2017	2/21/2017	3/22/2017		-3%		32%
205-01	TIBCO BusinessWorks Application Upgrade	1/11/2017	6/26/2017	6/26/2017	6/26/2017	8/23/2017		0%		0%
209-01	Multi Station Breaker to Breaker One Lines (Planning)	2/8/2017	3/9/2018	3/9/2018	3/9/2018	5/1/2018		0%		7%
216-01	CAT & RRS Tools for Control Room Project	11/30/2016	9/15/2017	9/15/2017	9/15/2017	10/18/2017		0%		19%
216-01	Capacity Availability Tool (CAT)	11/30/2016	9/15/2017	9/15/2017	9/15/2017	10/18/2017		0%	NA	See CAT & RRS Tools for Cntl Rm
216-01	Responsive Reserve Service Sufficiency Analysis	11/30/2016	9/15/2017	9/15/2017	9/15/2017	10/18/2017		0%	NA	See CAT & RRS Tools for Cntl Rm
222-01	Physical Security Project #3	2/8/2017	5/31/2017	5/31/2017	5/31/2017	6/21/2017		0%		-4%
227-01	Engineer Workstations and Other Equipment	11/30/2016	3/1/2017	3/1/2017	3/1/2017	3/1/2017		0%		56%
233-00	Capital Efficiencies and Enhancements - 2017	1/1/2017	12/31/2017	12/31/2017	12/31/2017	12/31/2017		0%		0%
235-01	Forecast Monitoring and HSL Tracking	2/8/2017	5/11/2017	5/11/2017	5/11/2017	6/14/2017		0%		-2%
Various	2016 RARF Enhancements	11/16/2016	2/17/2017	3/10/2017	3/9/2017	3/29/2017		0%		8%
RMGRR127	Efficiencies for Acquisition Transfer	5/25/2016	4/2/2017	6/22/2017	6/4/2017	7/14/2017		4%	NA	See #188-01
RMGRR134	Allow AMS Data Submittal Process for TDSP-Read Non-Modeled Generators	12/14/2016	3/9/2017	3/9/2017	3/9/2017	5/17/2017		0%		-3%
RRGRR003	Modifications to Improve Wind Forecasting	11/16/2016	2/17/2017	3/10/2017	3/9/2017	3/29/2017		0%	NA	See 2016 RARF Enh.
RRGRR006	Clarification of Descriptions and Alignment with Resource Asset Registration Forms	11/16/2016	2/17/2017	3/10/2017	3/9/2017	3/29/2017		0%	NA	See 2016 RARF Enh.
RRGRR007	Adding Solar Resource Registration Inputs	11/16/2016	2/17/2017	3/10/2017	3/9/2017	3/29/2017		0%	NA	See 2016 RARF Enh.
RRGRR009	Adding Voltage Limit Sets, Relay Loadability, MLSE, and GMD Data	11/16/2016	2/17/2017	3/10/2017	3/9/2017	3/29/2017		0%	NA	See 2016 RARF Enh.

# ERCOT Portfolio Stoplight Report – January 2017

Project Number	Projects in Execution Phase (Count = 42)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
NPRR272	Definition and Participation of Quick Start Generation Resources	8/3/2016	2/9/2017	2/9/2017	2/8/2017	3/1/2017		0%		15%
NPRR649	Addressing Issues Surrounding High Dispatch Limit (HDL) Overrides	11/9/2016	3/19/2017	3/19/2017	3/19/2017	3/29/2017		0%		21%
NPRR744	RUC Trigger for the Reliability Deployment Price Adder and Alignment with RUC Settlement	2/8/2017	6/29/2017	6/29/2017	6/29/2017	7/19/2017		0%		-3%
NPRR746	Adjustments Due to Negative Load	1/25/2017	5/11/2017	5/11/2017	5/11/2017	8/9/2017		0%		0%
NPRR758	Improved Transparency for Outages Potentially Having a High Economic Impact	1/11/2017	7/13/2017	7/13/2017	7/13/2017	8/3/2017		0%		3%
NPRR764	QSE Capacity Short Calculations Based on an 80% Probability of Exceedance (P80)	11/16/2016	3/9/2017	3/9/2017	3/9/2017	5/17/2017		0%		14%
NPRR785	Synchronizing WGR and PVGR COPs with the Short Term Wind and PhotoVoltaic Forecasts	11/30/2016	3/9/2017	3/9/2017	3/9/2017	3/9/2017		0%		See #187-00
NPRR792	Changing Special Protection System (SPS) to Remedial Action Scheme (RAS)	11/30/2016	3/9/2017	3/9/2017	3/9/2017	3/9/2017		0%		See #187-00
SCR777	Bilateral CRR Interface Enhancement	10/26/2016	10/2/2017	10/2/2017	10/2/2017	11/8/2017		0%	NA	See #181-01
SCR790	Wind Resource Power Production and Forecast Transparency	1/11/2017	5/11/2017	5/11/2017	3/17/2017	3/22/2017		45%		11%
Project Number	Projects in Stabilization (Count = 3)	Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Scheduled Execution Phase Finish	Schedule Health		Budget Health	
189-01	Enterprise Resource Planning	4/13/2016	9/27/2016	9/27/2016	9/27/2016	4/12/2017		0%		69%
223-01	Control Room Video Support and Upgrade	11/16/2016	2/17/2017	2/17/2017	2/3/2017	3/1/2017		15%		6%
SCR786	Retail Market Test Environment	6/22/2016	12/12/2016	12/12/2016	12/11/2016	2/15/2017		0%		28%
Project Number	Projects On Hold (Count = 2)	Forecast Start Date	Baseline Phase Finish	Approved Go-Live Target	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
SCR781	MP Online Data Entry - Market Requirements	8/20/2014	11/28/2014	TBD	TBD	TBD			3	See #106-01
106-01	MP Online Data Entry - Ph 1	10/9/2013	3/5/2014	TBD	TBD	TBD			3	
Project Number	Projects Completed (Count = 6)	Baseline Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Actual Execution Phase Finish	Schedule Health		Budget Health	
NOGRR147	Reactive Power Testing Requirements	9/14/2016	12/8/2016	12/8/2016	12/8/2016	1/11/2017		0%	NA	See NOGRR147 & SCR787
198-01	Reactive Power Coordination	7/13/2016	10/12/2016	1/11/2017	TBD	1/18/2017		-3%		15%
NPRR754	Revise Load Distribution Factors Report Posting Frequency	10/12/2016	12/11/2016	12/11/2016	12/12/2016	1/11/2017		-1%		33%
SCR787	Maintain NDCRC Data For Generator Transfer Between Resource Entities	9/14/2016	12/8/2016	12/8/2016	12/8/2016	1/11/2017		0%	NA	See NOGRR147 & SCR787
SCR788	Addition of Integral ACE Feedback to GTBD Calculation	10/5/2016	12/8/2016	12/8/2016	12/8/2016	12/16/2016		0%		28%
Various	NOGRR147 and SCR787 NDCRC Enhancement	9/14/2016	12/8/2016	12/8/2016	12/8/2016	1/11/2017		0%		4%

## ERCOT Portfolio Stoplight Report – January 2017

Project Number	2017 Projects Not Yet Started (Count = 17)	Forecast Start Date
TBD	PaperFree Replacement - Scope and Requirements Gathering	Feb-2017
NPRR755	Data Agent-Only QSE Registration	Mar-2017
NPRR760	Calculation of Exposure Variables For Days With No Activity	Mar-2017
NPRR775	Enhanced Implementation of Limits for Fast Responding Regulation Service	Mar-2017
SCR789	Update NMMS Topology Processor to PSSE 34 Capability	Mar-2017
TBD	2017 EPS Metering Enhancements	Mar-2017
TBD	Appworx Application Manager Upgrade	Mar-2017
TBD	EIF Database Utilization	Mar-2017
TBD	Standard Report for Events and Near-Miss Analysis	May-2017
NPRR778	Modifications to Date Change and Cancellation Evaluation Window	Jun-2017
TBD	AREA - Generation	Jul-2017
TBD	Automation of NPRR487 - QSGR Dispatch Adjustment	Jul-2017
TBD	Emergency Energy Settlements Inputs Automation	Jul-2017
TBD	Replace Paperfree	Jul-2017
TBD	Replace Sun DSEE	Jul-2017
TBD	Appworx Replaces TIBCO Code in CSI Framework	Jul-2017
NPRR749	Option Cost for Outstanding CRRs	Sep-2017