



## ERCOT Monthly Operational Overview (September 2017)

ERCOT Public  
October 15, 2017

# Grid Planning & Operations

## Summary – September 2017

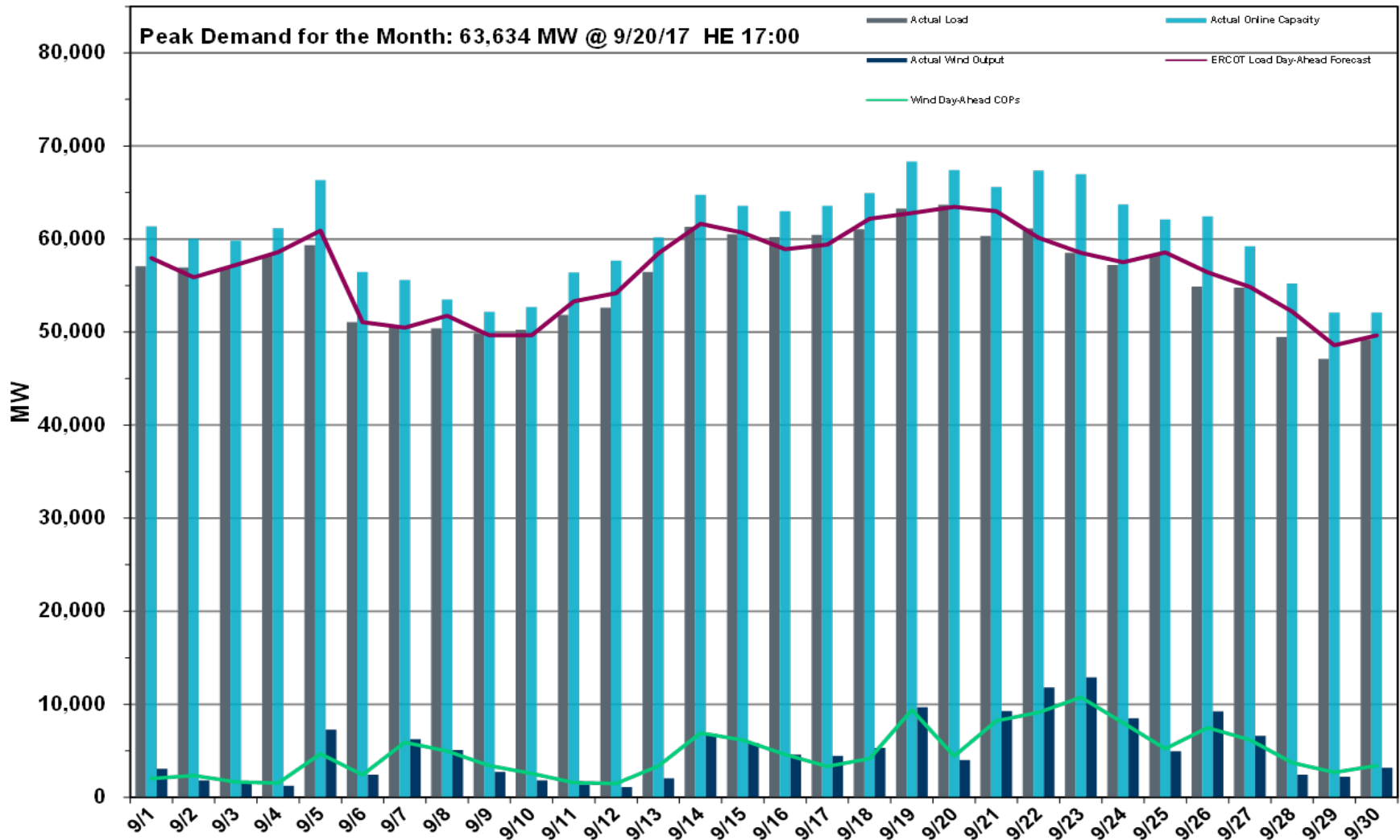
### Operations

- The preliminary Settlements hourly peak demand of 63,634\* MW on September 20 was higher than the day-ahead mid-term load forecast peak of 63,449 MW for the same operating hour.
  - The operational instantaneous peak demand was 63,831 MW (telemetry).
- Day-ahead load forecast error for September was 1.69%
- ERCOT issued 14 notifications:
  - One Watch issued due to HRUC not completing
  - Six Advisories issued due to Physical Responsive Capability being below 3000 MW
  - Seven Advisories issued for geomagnetic disturbance

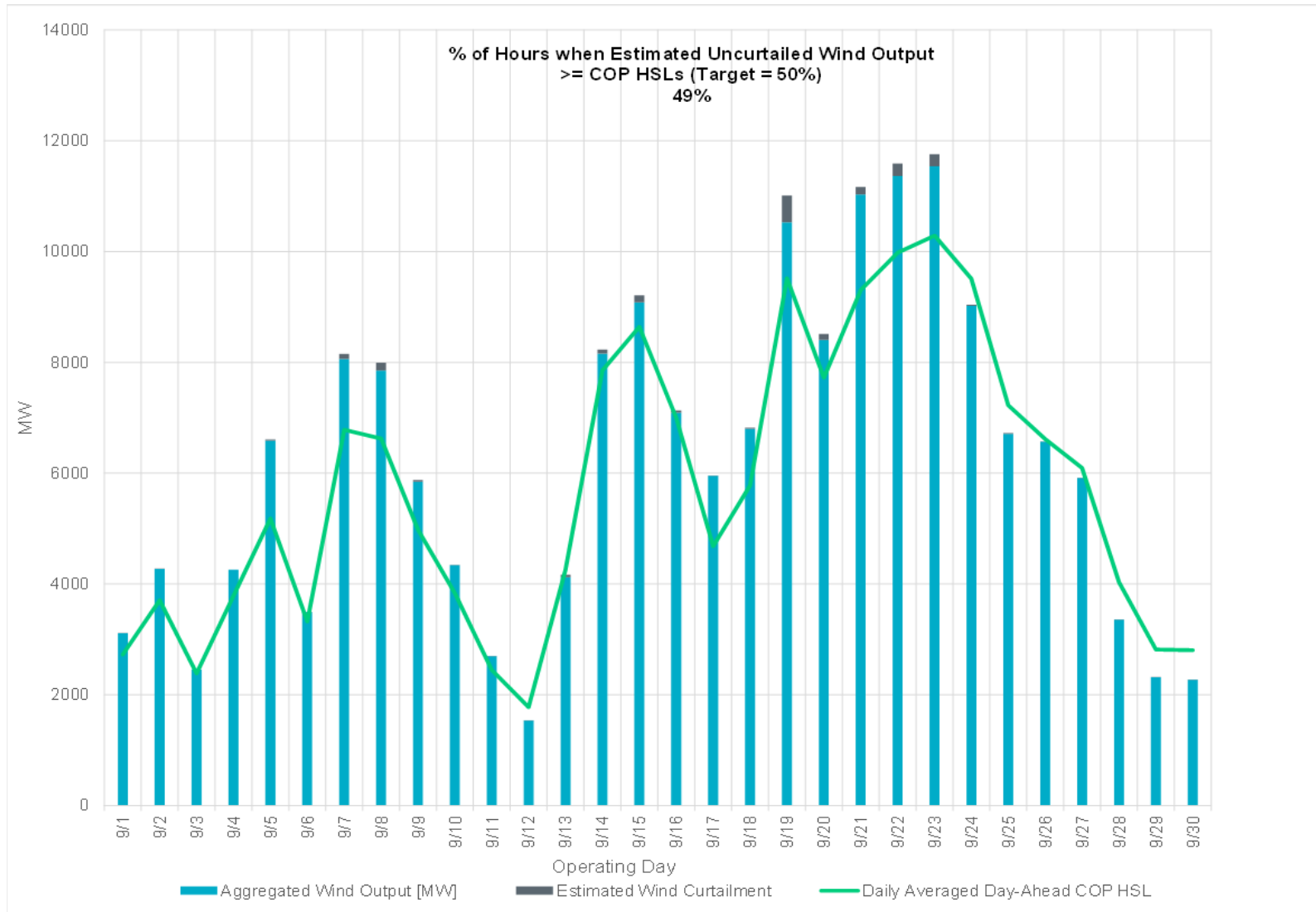
### Planning Activities

- 336 active generation interconnection requests totaling 67,736 MW, including 29,566 MW of wind generation, as of September 30, 2017. Fifteen additional requests and an increase of 894 MW from August 31, 2017.
- 19,565 MW wind capacity in commercial operations as of October 1, 2017.

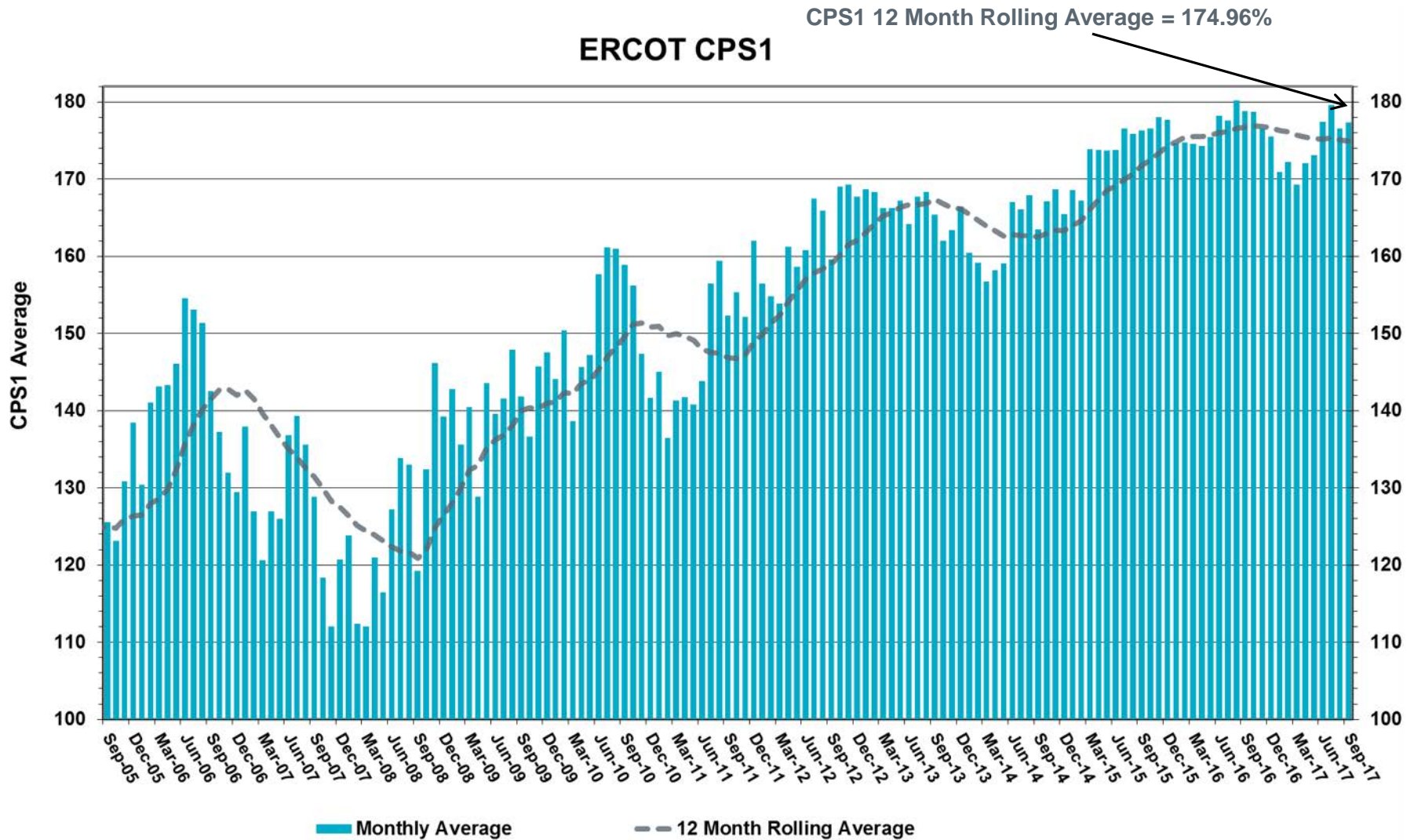
# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-Line Capacity at Peak – September 2017



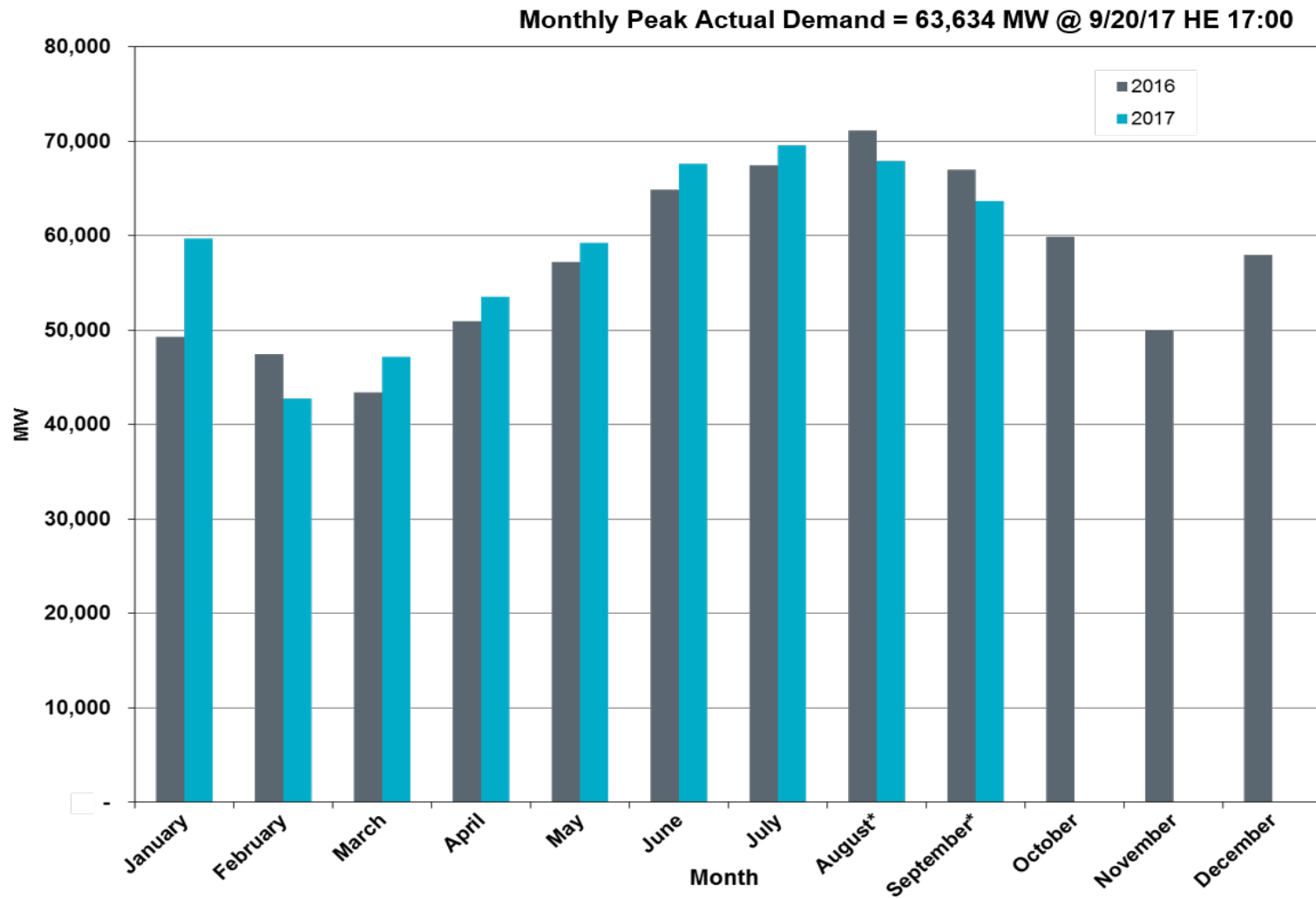
# Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – September 2017



# ERCOT's CPS1 Monthly Performance – September 2017

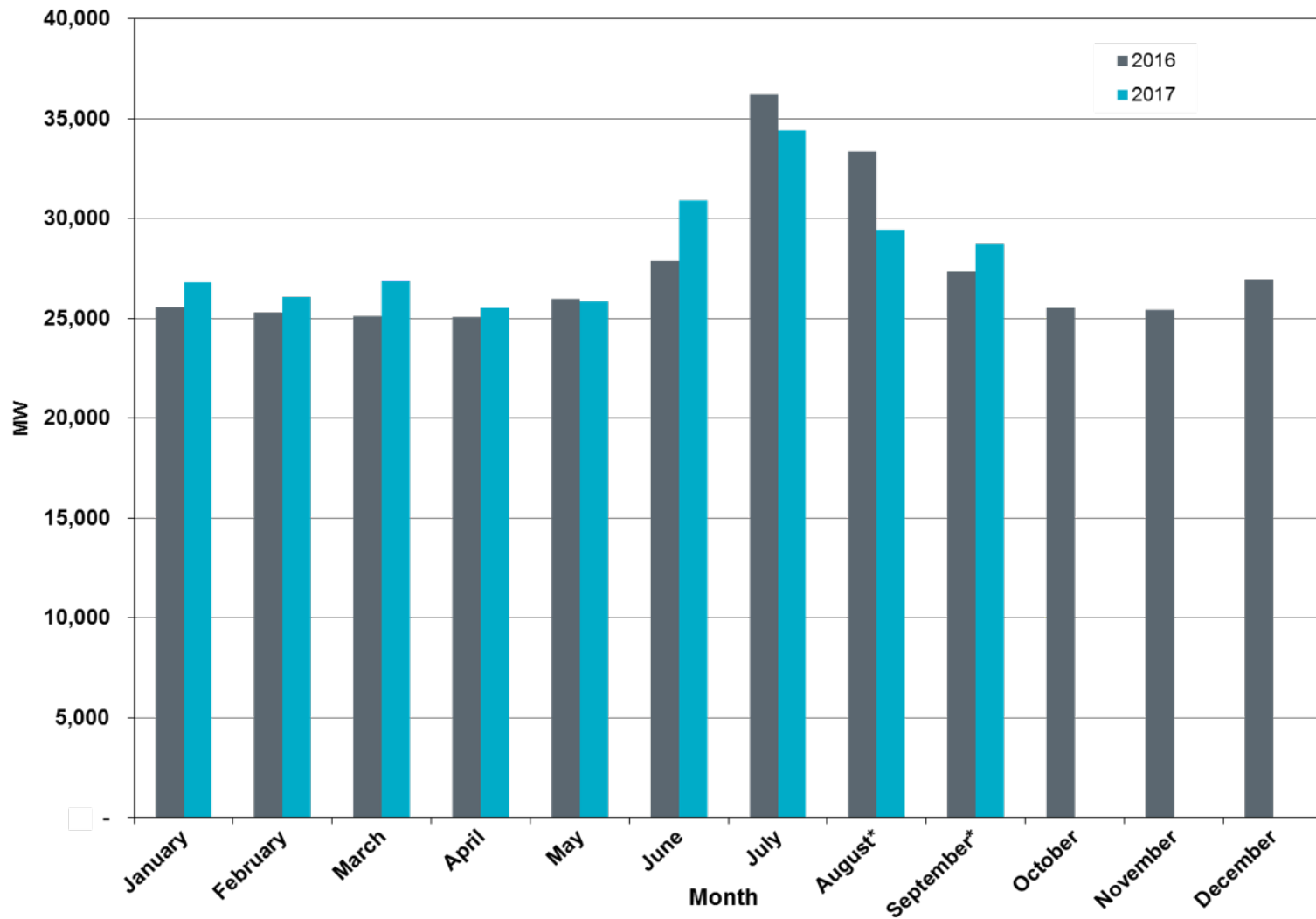


## Monthly Peak Actual Demand – September 2017



\* Preliminary for latest two months of the current year

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



\* Preliminary for latest two months of the current year

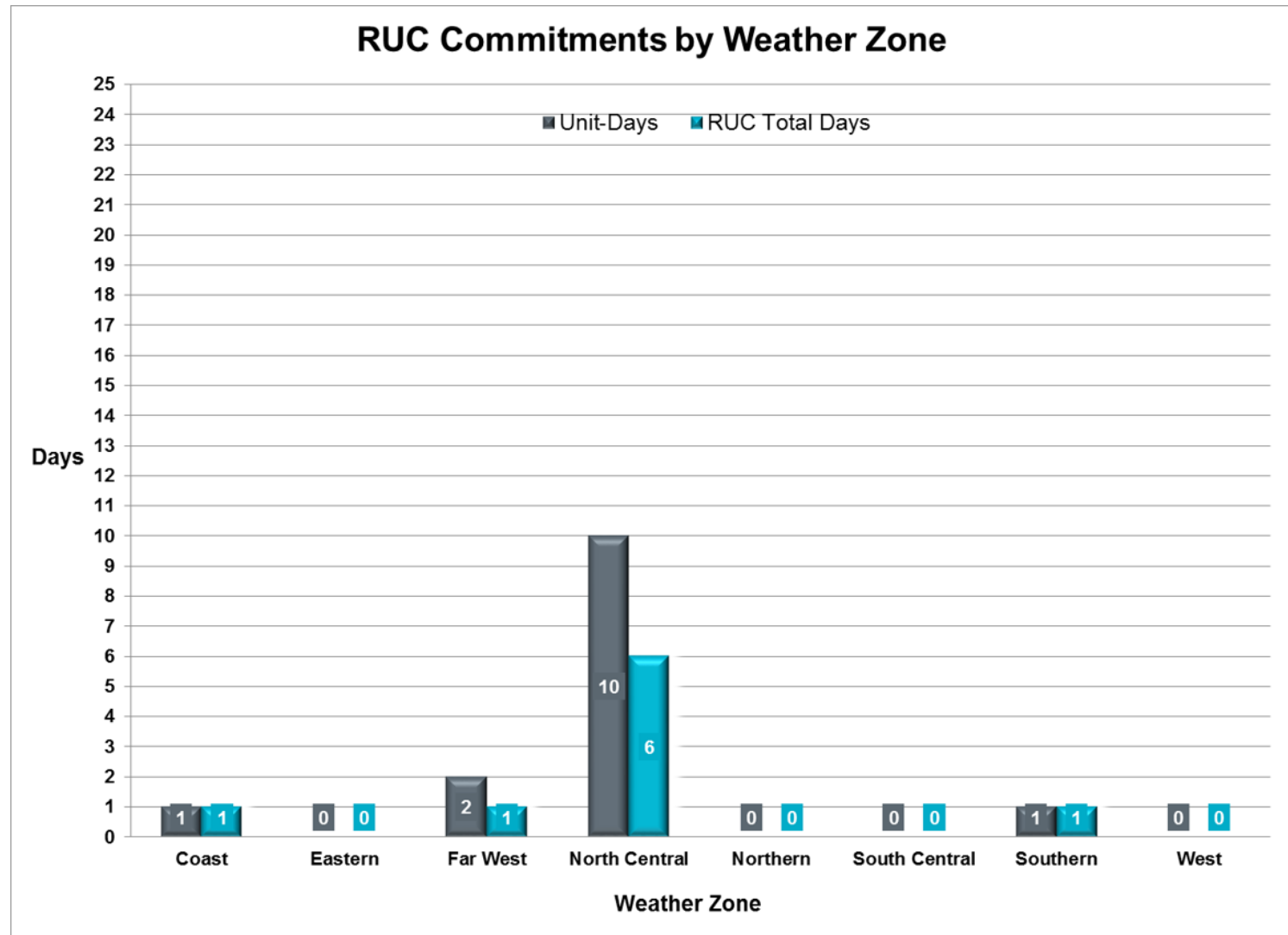


## Day-Ahead Load Forecast Performance – September 2017

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

	2014 MAPE	2015 MAPE	2016 MAPE	2017 MAPE	September 2017 MAPE	
<b>Average Annual MAPE</b>	2.83	2.86	2.62	2.52	1.69	
<b>Lowest Monthly MAPE</b>	2.15	1.89	1.94	1.69	<b>Lowest Daily MAPE</b>	0.76 Sep 27
<b>Highest Monthly MAPE</b>	3.70	3.81	3.86	4.07	<b>Highest Daily MAPE</b>	4.23 Sep 07

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



## Generic Transmission Constraints (GTCs) – September 2017

GTCs	Sep-16 Days GTCs	Jul-17 Days GTCs	Aug-17 Days GTCs	Sep-17 Days GTCs	Last 12 Months Total Days (Oct 16 – Sep 17)
North – Houston	0	1	0	0	4
Valley Import	1	0	1	0	8
Zorillo - Ajo	1	0	0	0	9
Panhandle	13	17	7	18	255
Laredo	7	0	0	0	1
Liston	19	0	0	0	80
Red Tap	0	0	0	0	0
Bakersfield	-	0	0	0	69
Pomelo	-	-	1	0	1

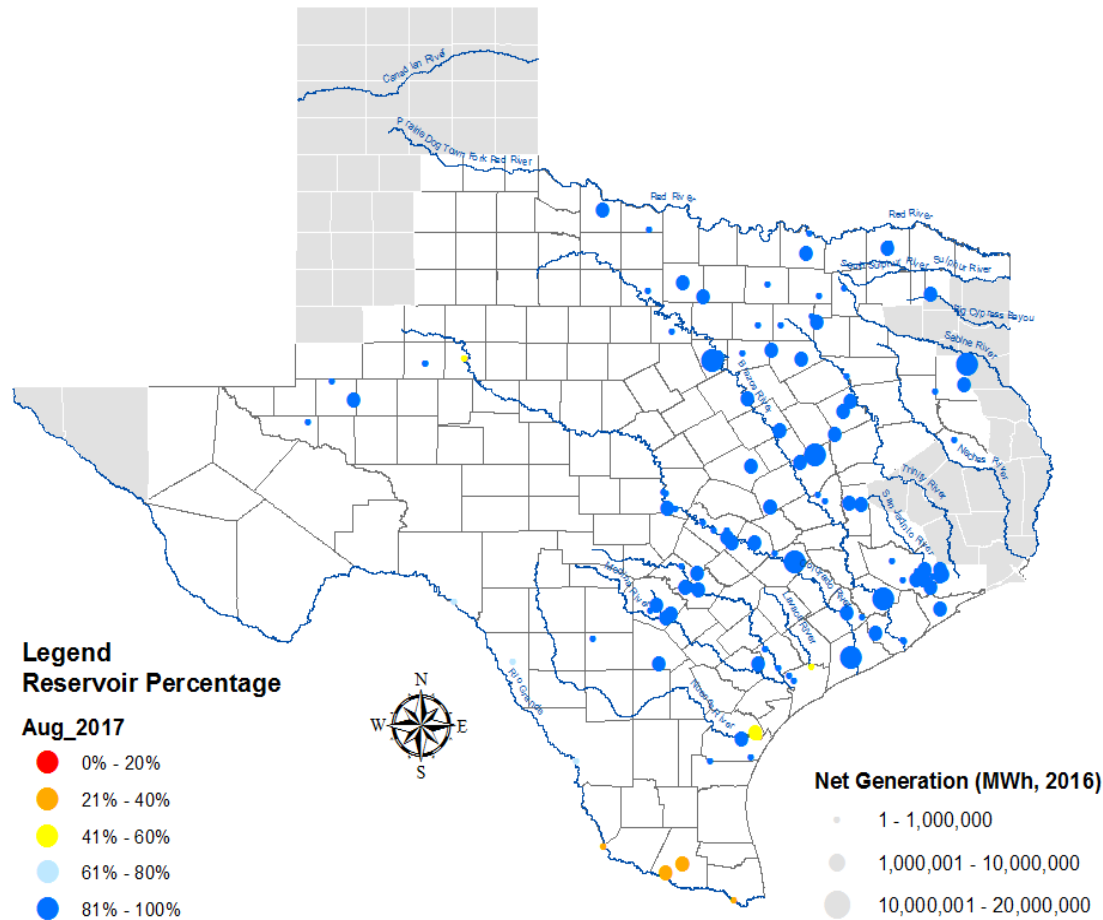
**GTC:** A transmission flow limit more constraining than a Transmission Element's normal limit established to constrain flow between geographic areas of the ERCOT Transmission System that is used to enforce stability and voltage constraints that cannot be modeled directly in ERCOT's transmission security 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 – September 2017

- One Watch issued due to HRUC not completing
  - Issued 9/19
- Six Advisories issued due to Physical Responsive Capability being below 3000 MW
  - Issued 9/9, 9/10, 9/15, 9/16, 9/25, 9/30
- Seven Advisories issued for geomagnetic disturbance
  - Issued 9/7(4), 9/8(2), 9/28

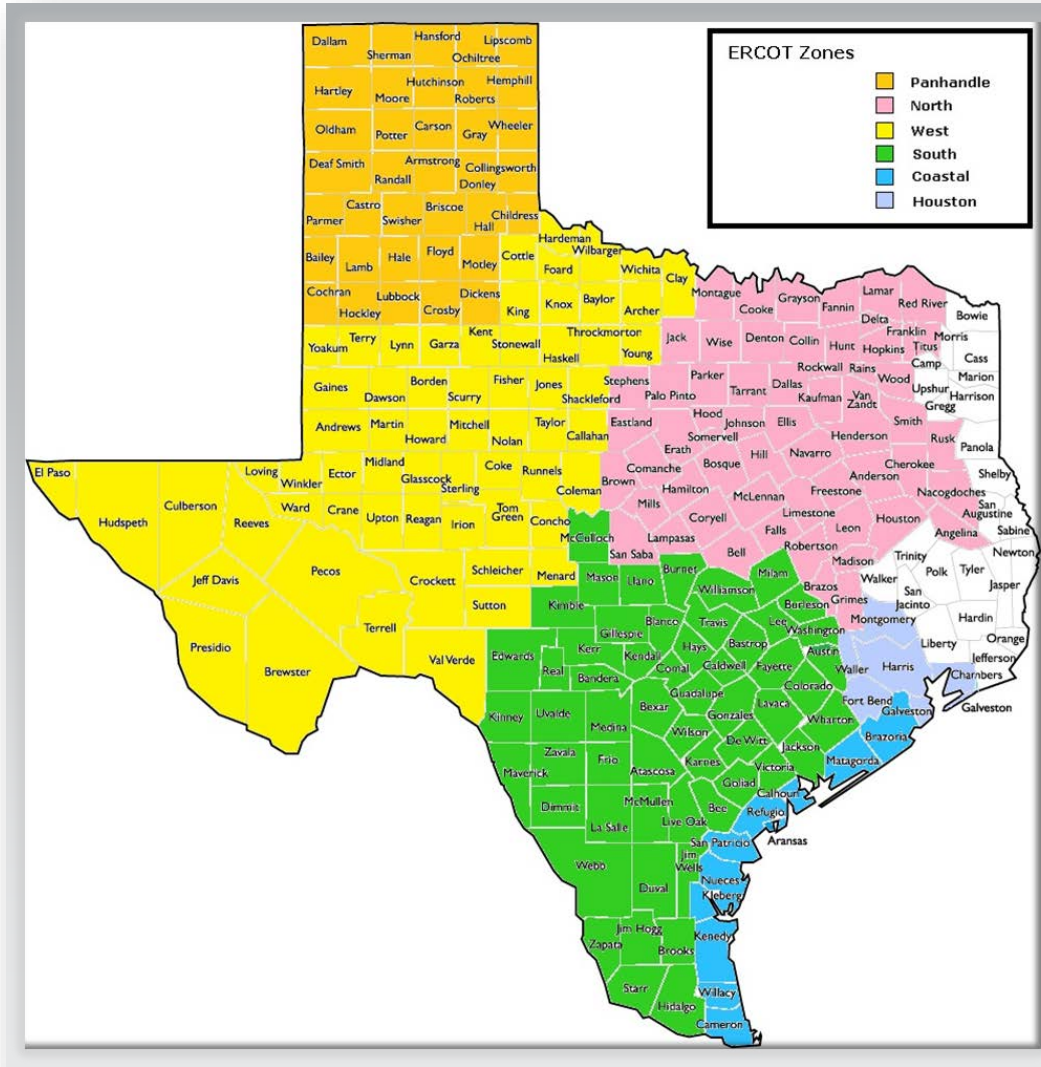
# Lake Levels Update – October 1, 2017



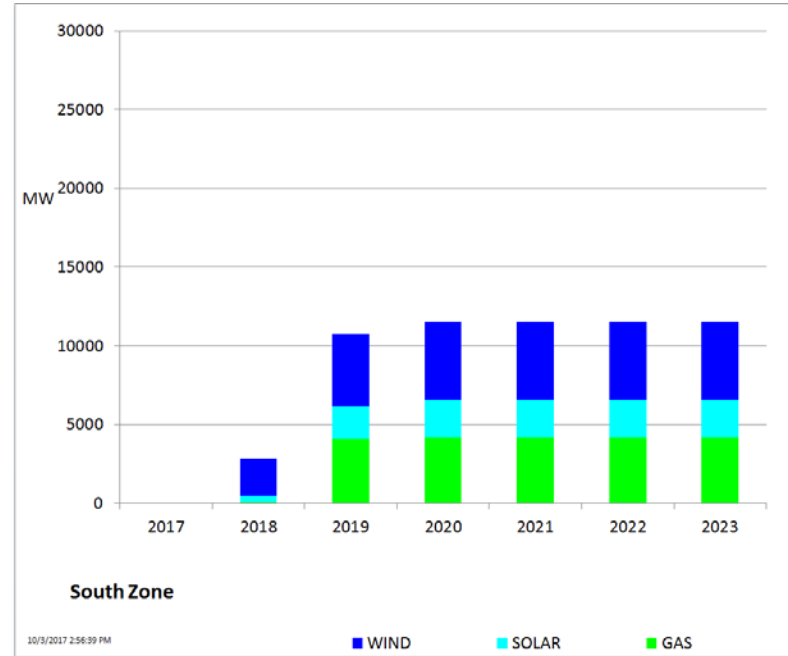
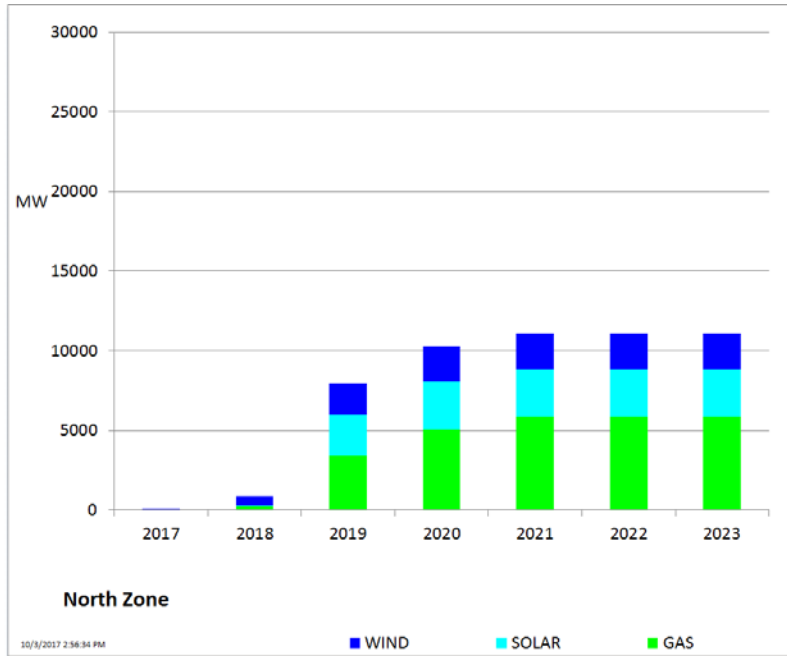
## Planning Summary – September 2017

- ERCOT is currently tracking 336 active generation interconnection requests totaling 67,736 MW. This includes 29,566 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$833.5 Million.
- Transmission Projects endorsed in 2017 total \$558.1 Million.
- All projects (in engineering, routing, licensing, and construction) total approximately \$6.94 Billion (as of February 1, 2017).
- Transmission Projects energized in 2017 total about \$551.4 Million (as of February 1, 2017).

## Mapping of Counties to ERCOT Zones – September 2017

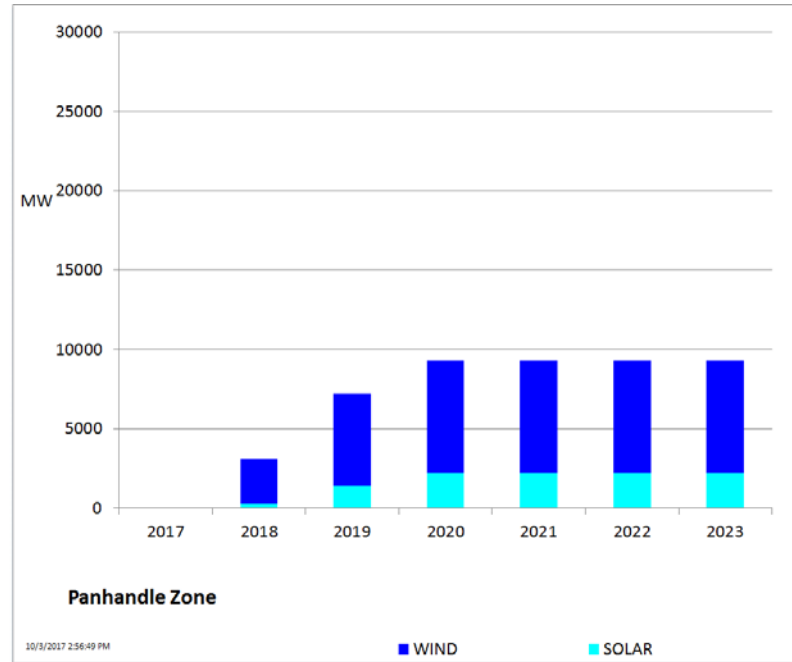
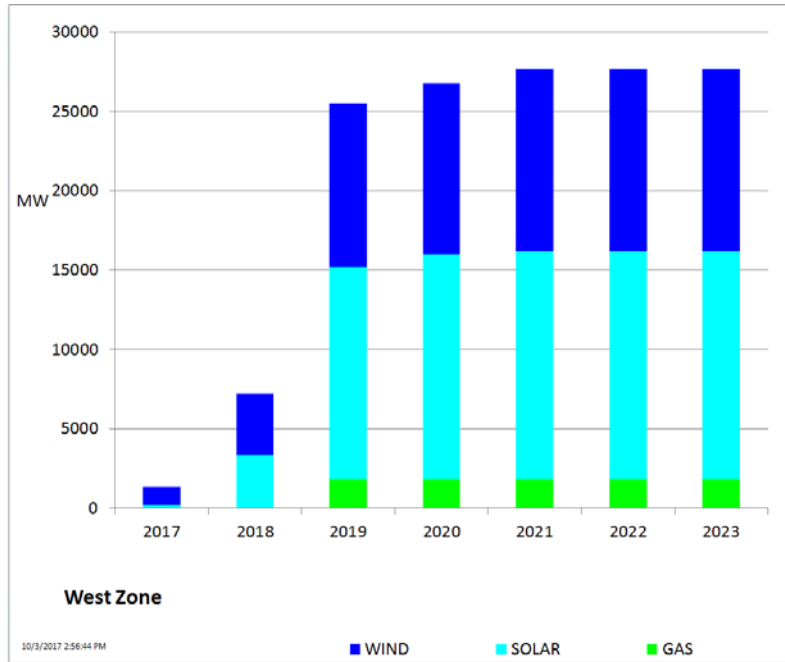


# Cumulative MW Capacity of Interconnection Requests by Zone – September 2017

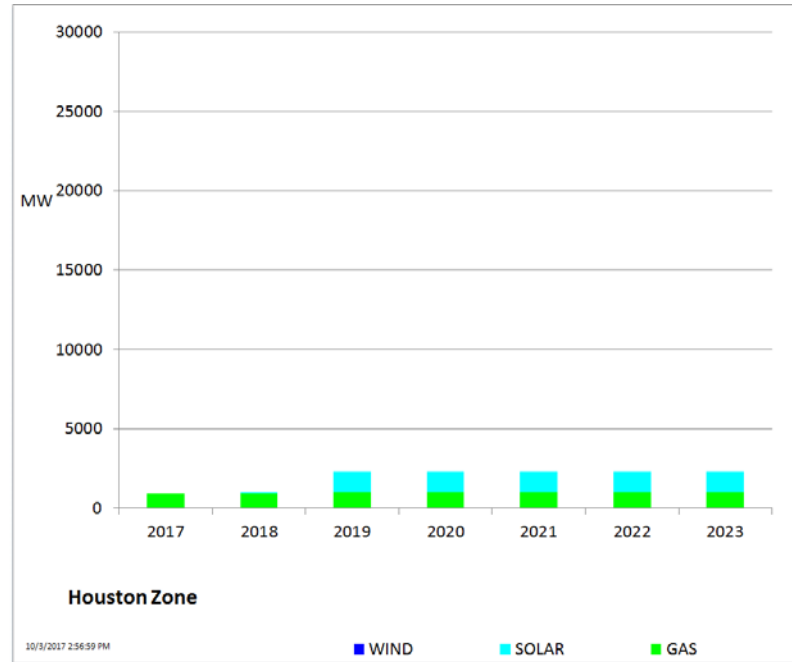
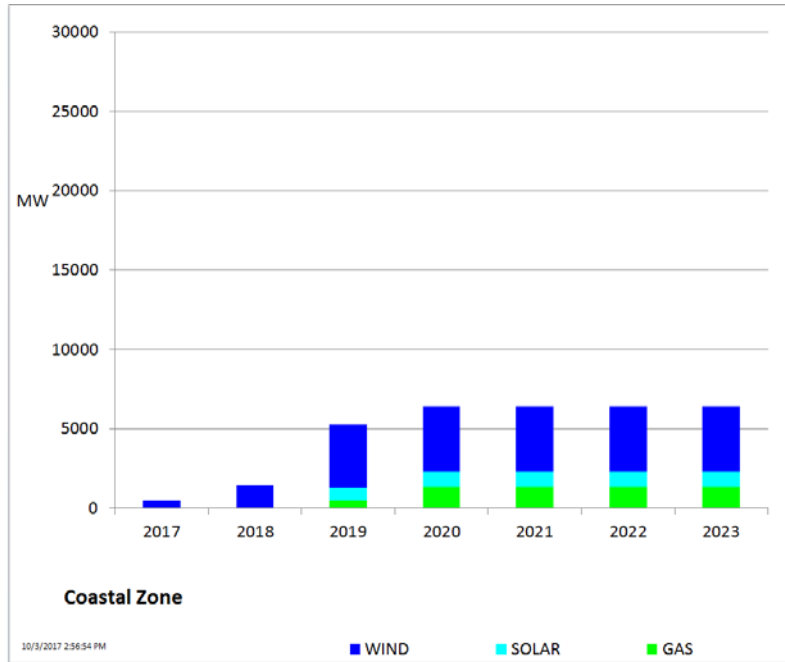




# Cumulative MW Capacity of Interconnection Requests by Zone – September 2017

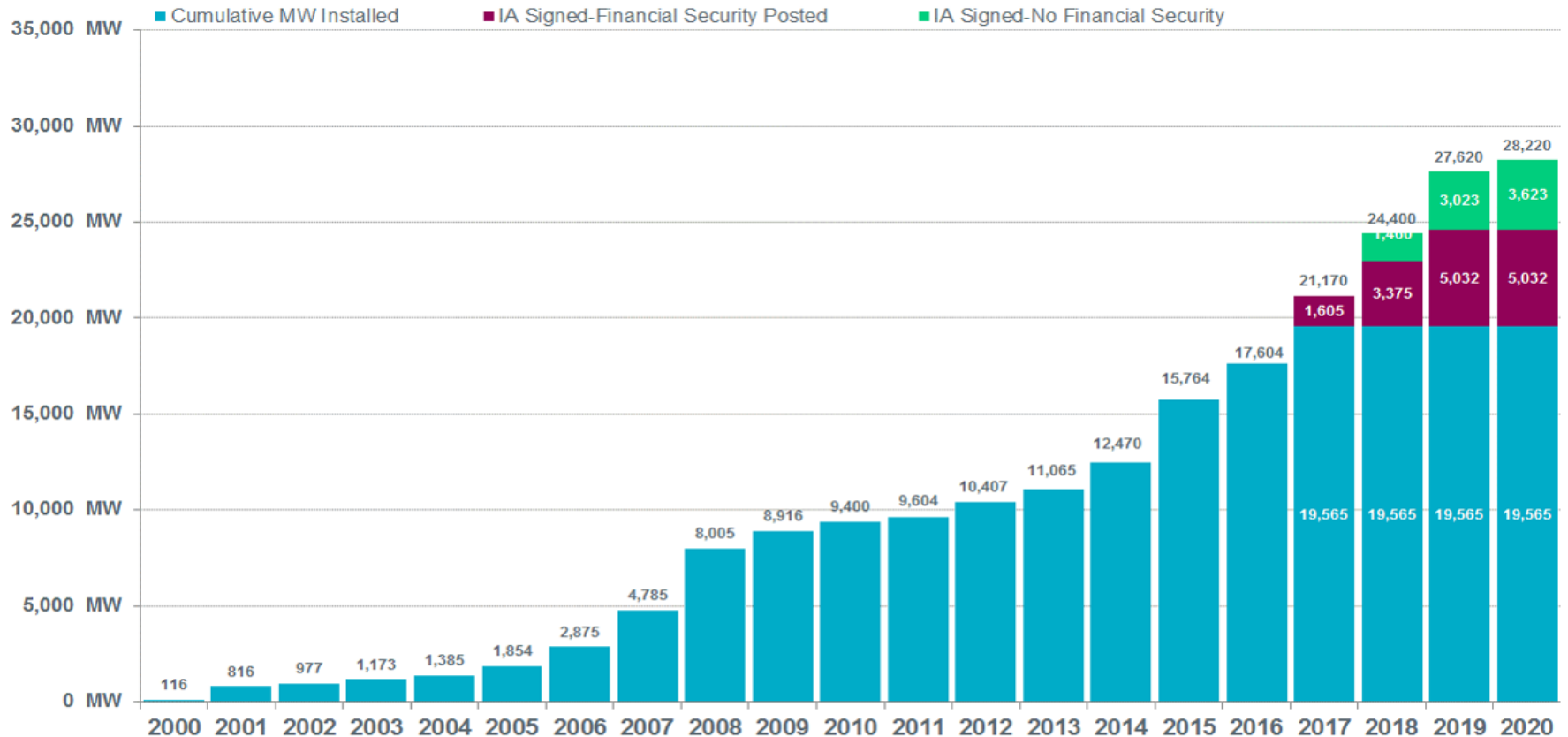


# Cumulative MW Capacity of Interconnection Requests by Zone – September 2017



# Wind Generation – September 2017

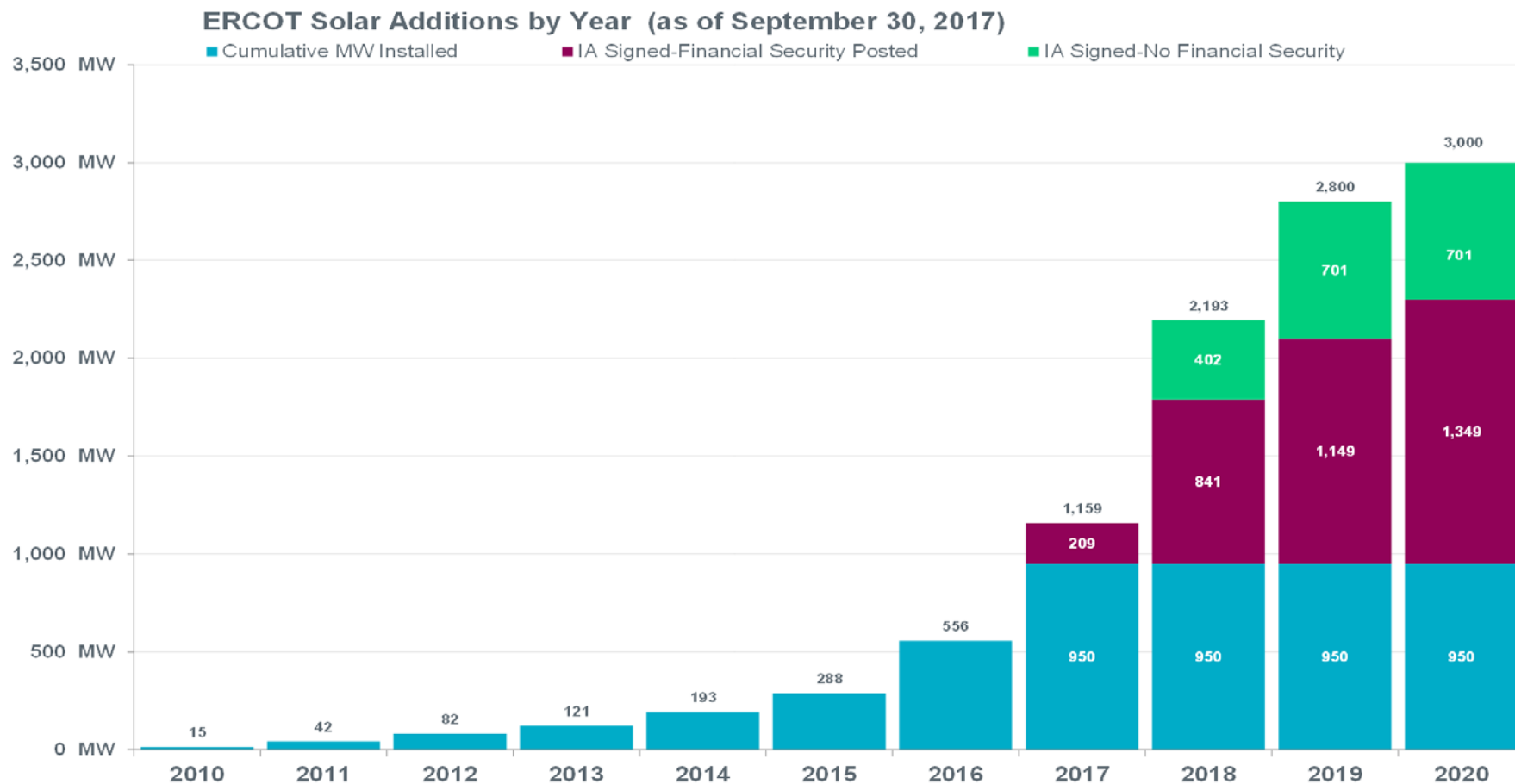
ERCOT Wind Additions by Year (as of September 30, 2017)



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.

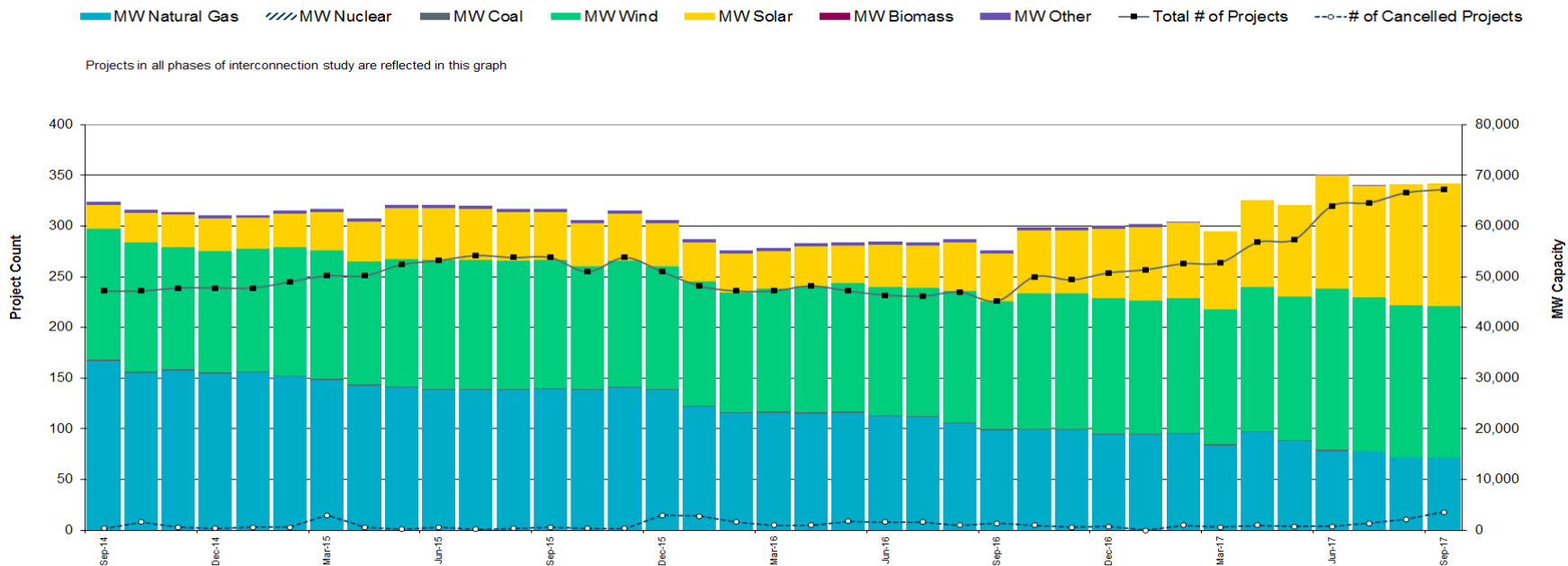
# Solar Generation – September 2017



## Notes:

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- 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 solar 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.

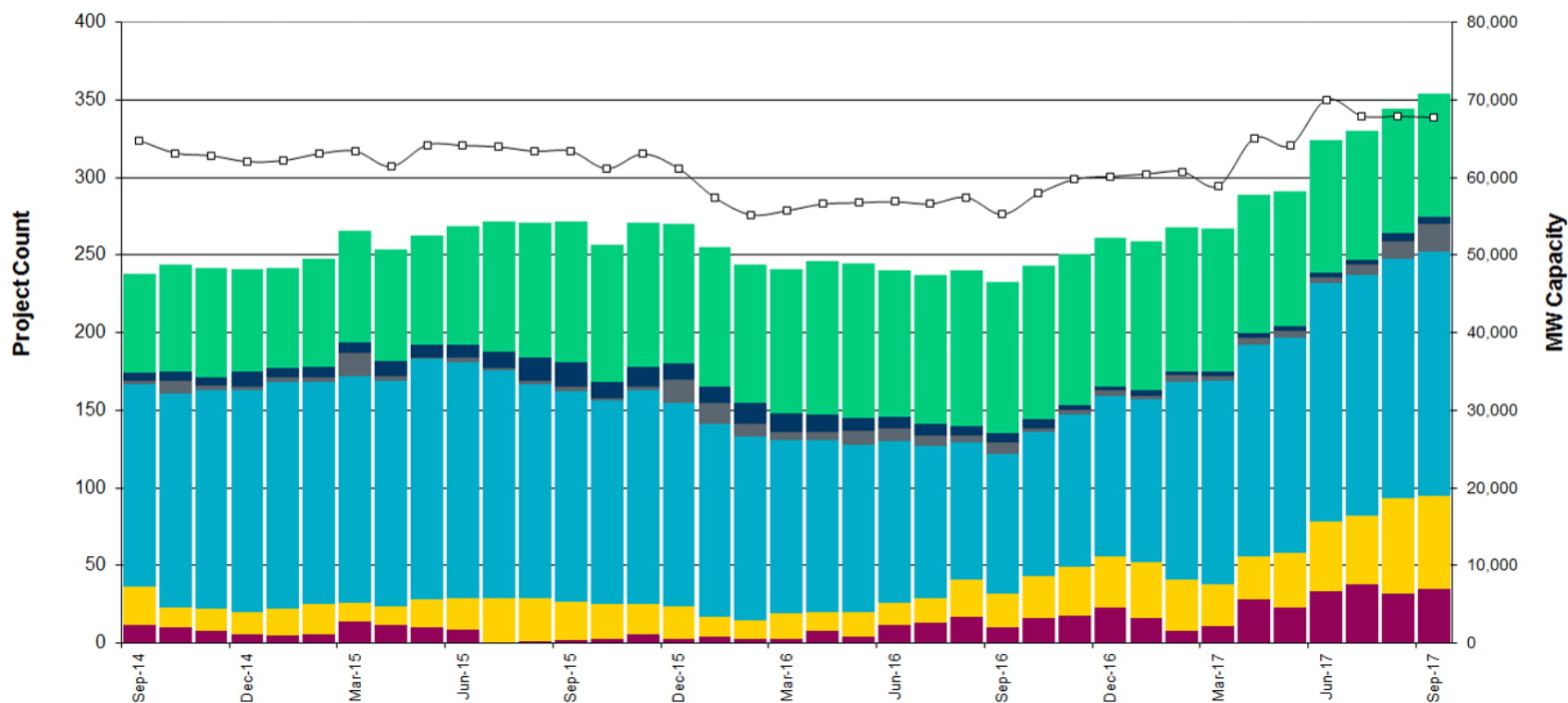
# Generation Interconnection Activity by Fuel – September 2017



# Generation Interconnection Activity by Project Phase – September 2017

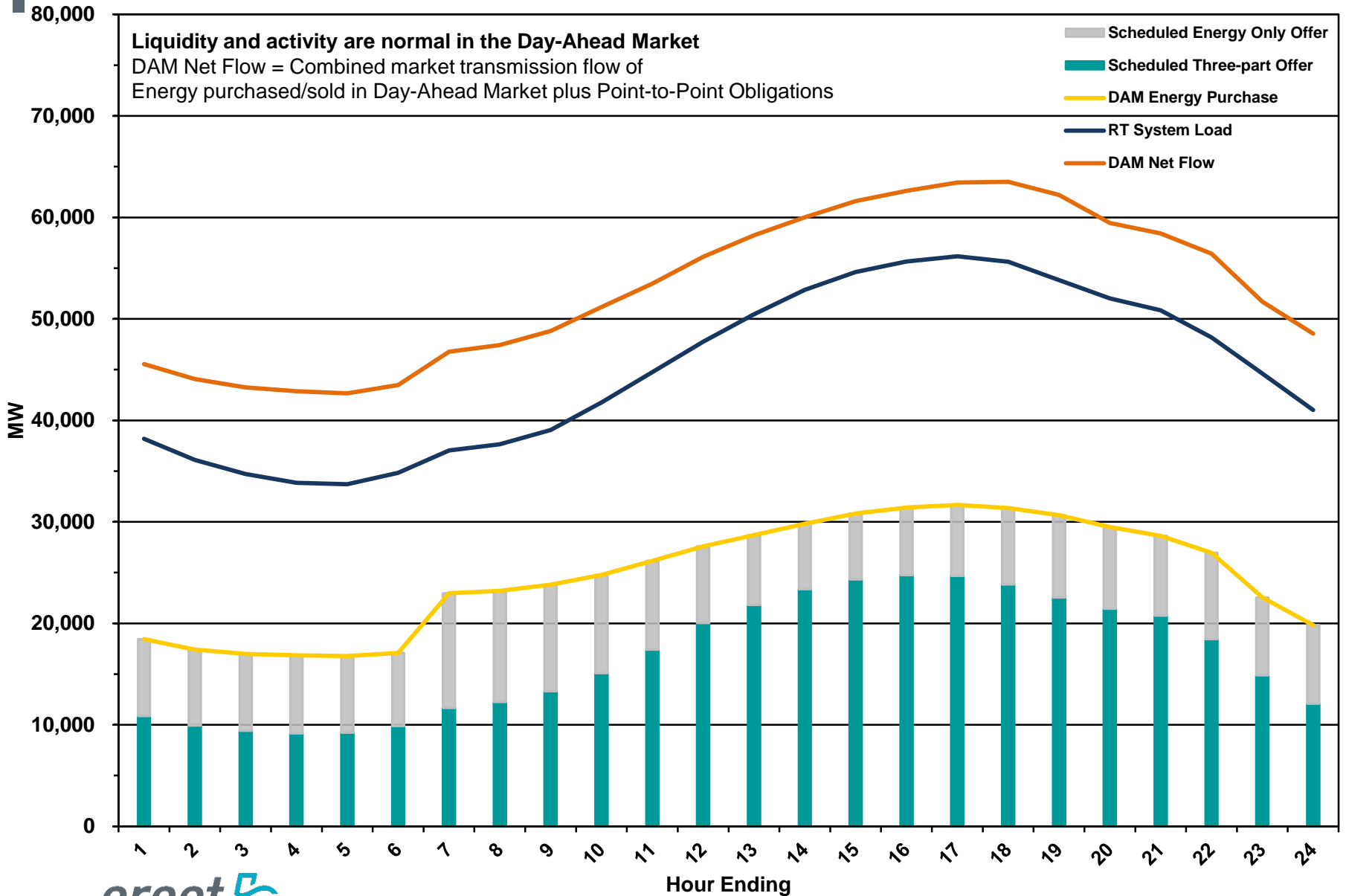
■ # Signed Interconnect Agreement   
 ■ # Completed Full Study   
 ■ # Projects Cancelled   
 ■ # in Full Study  
■ # Screening Study Complete   
■ # Initial Screening Study   
—□— MW Capacity Under Study \*

\* Nameplate capacity will change across time due to additional projects, cancellations, expirations, adjustments from study results, and projects being placed in service.



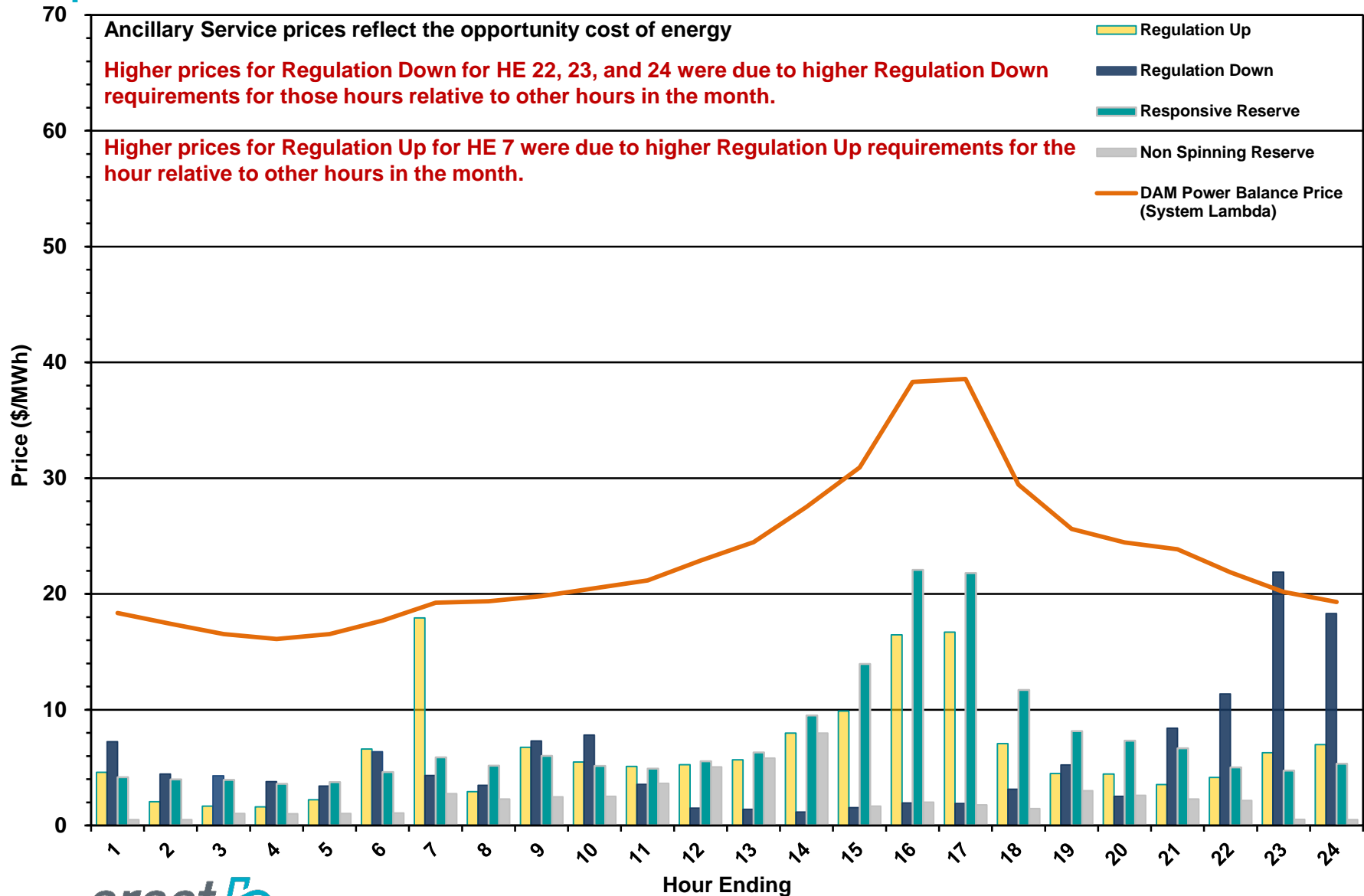
# Market Operations

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

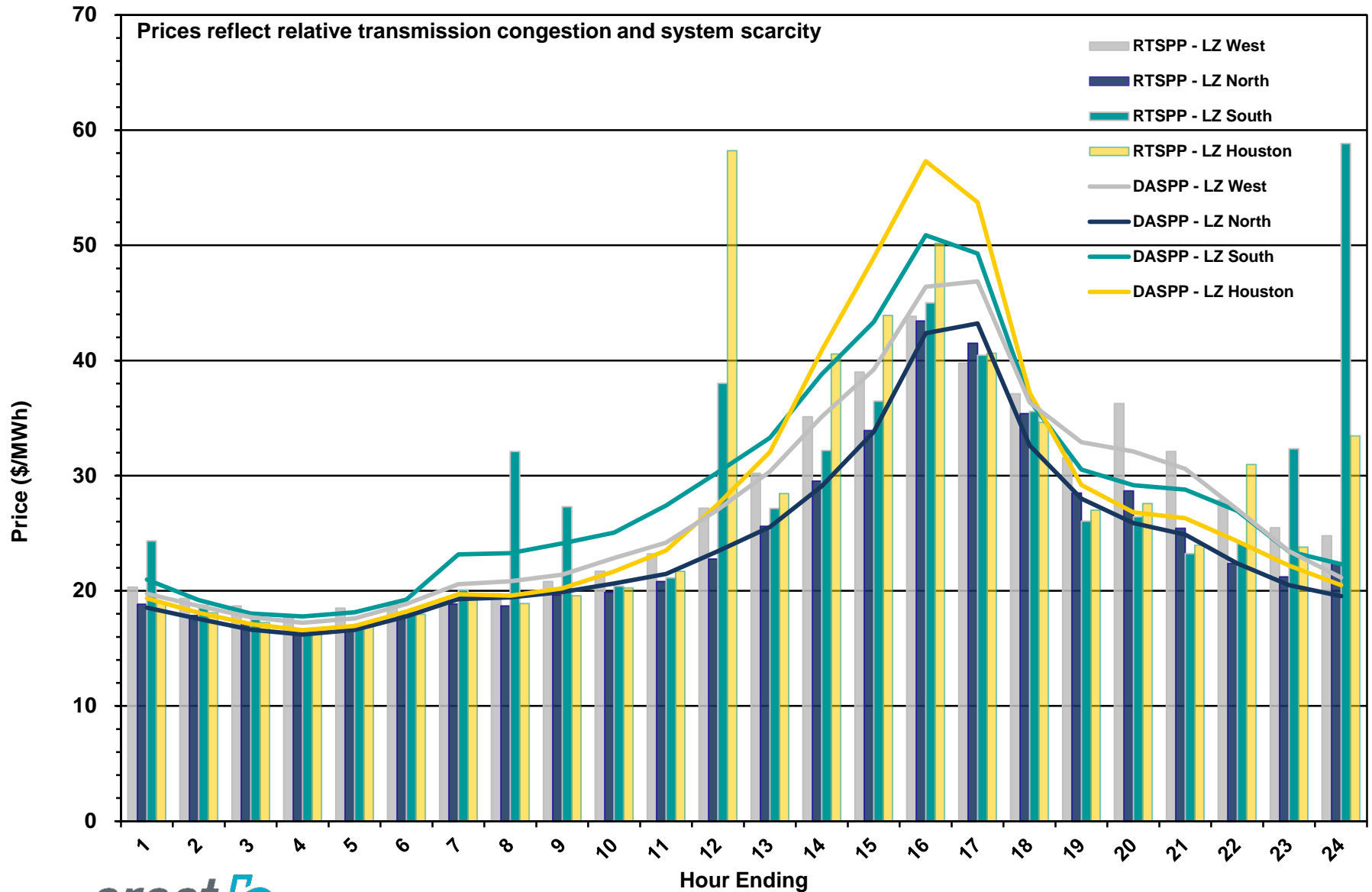




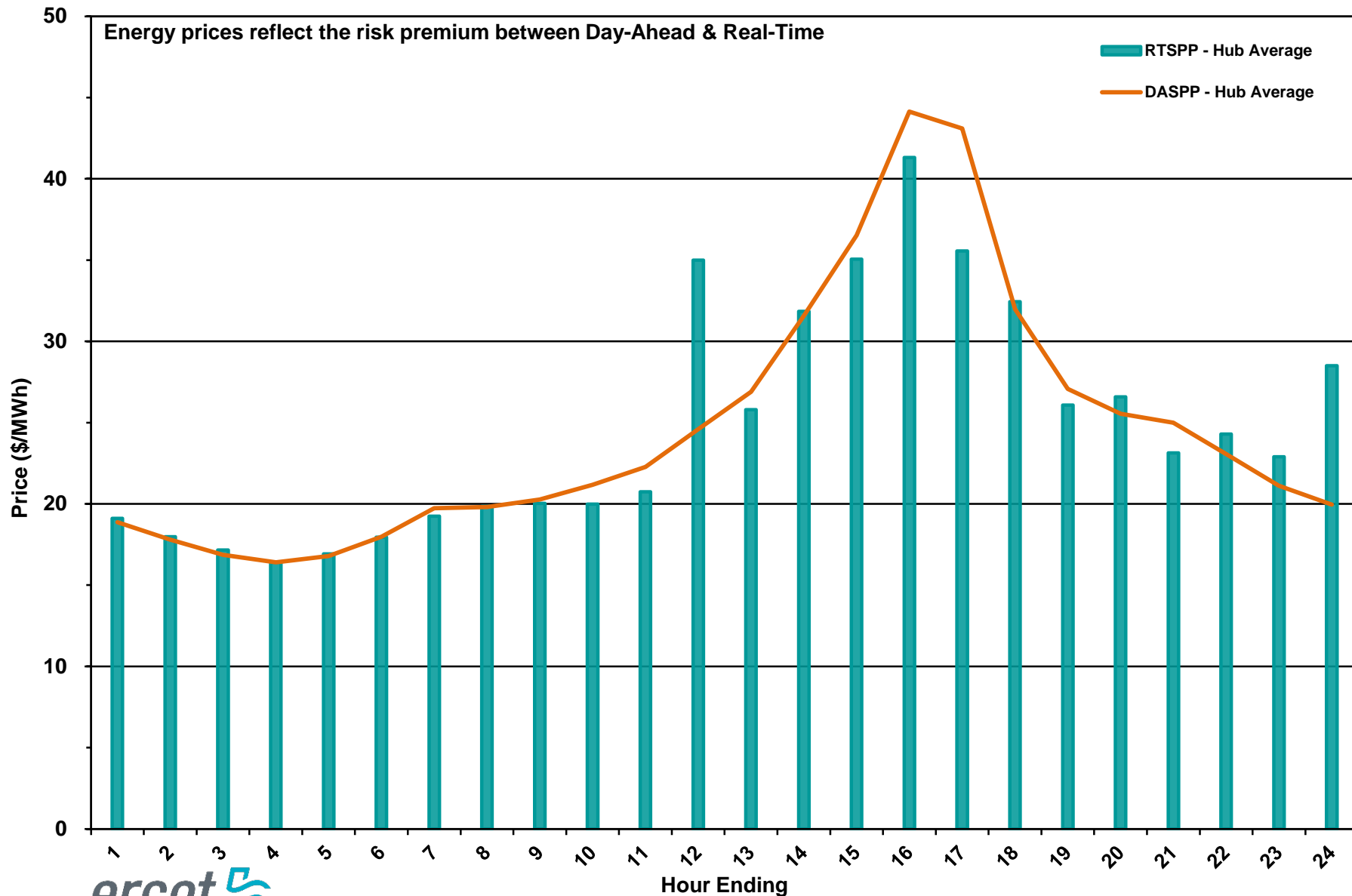
# Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – September 2017



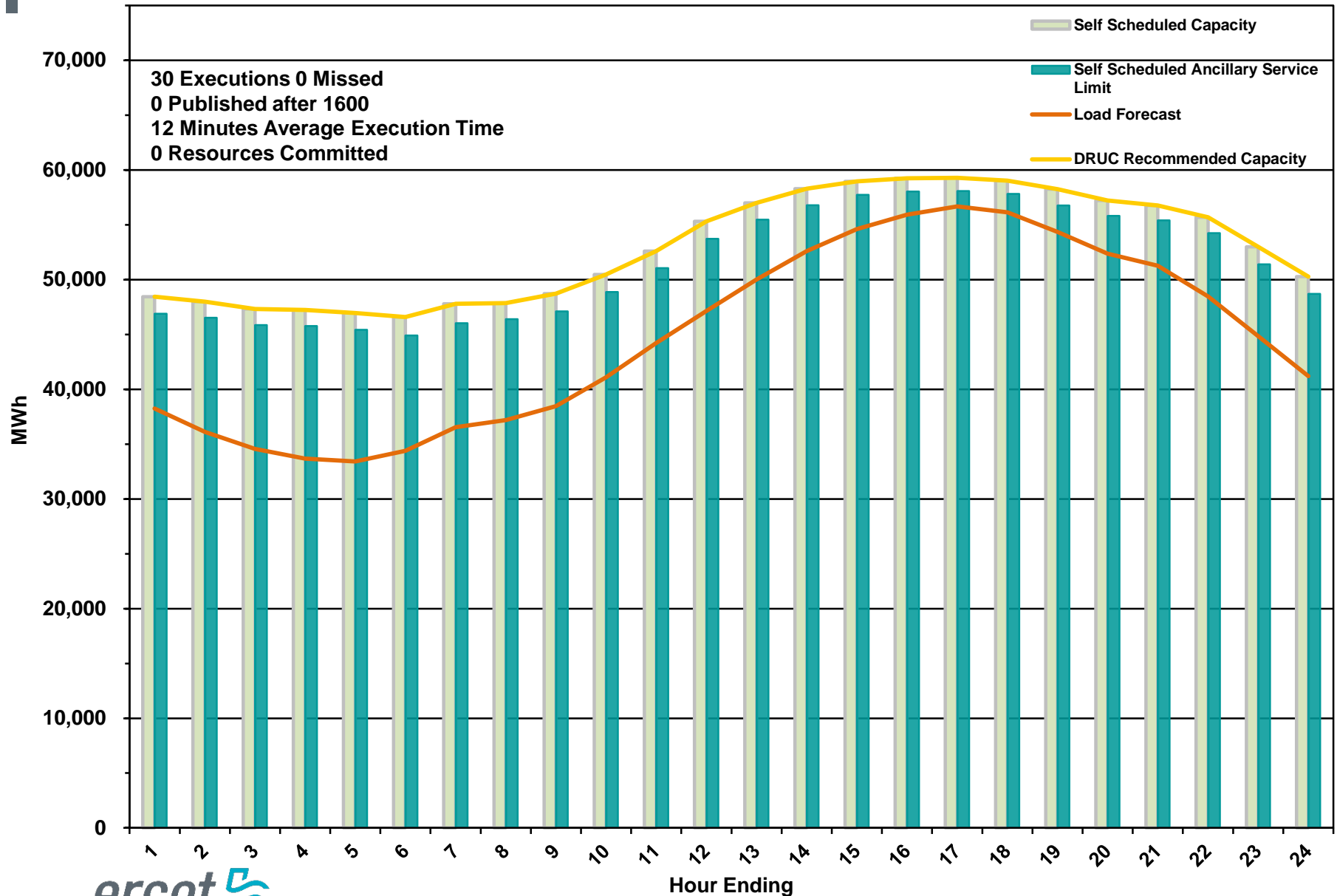
# Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – September 2017



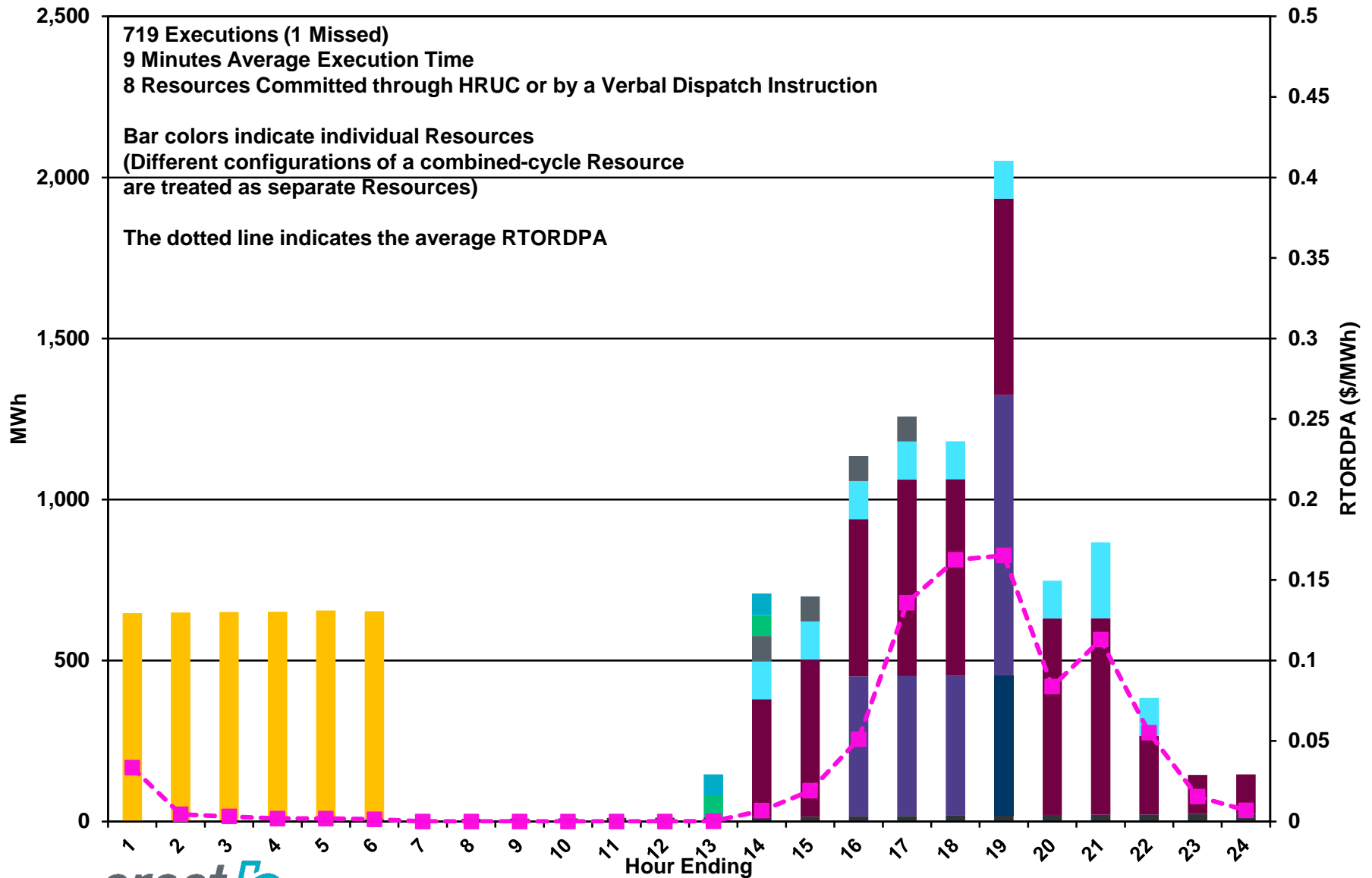
# Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – September 2017



# DRUC Monthly Summary (Hourly Average) – September 2017



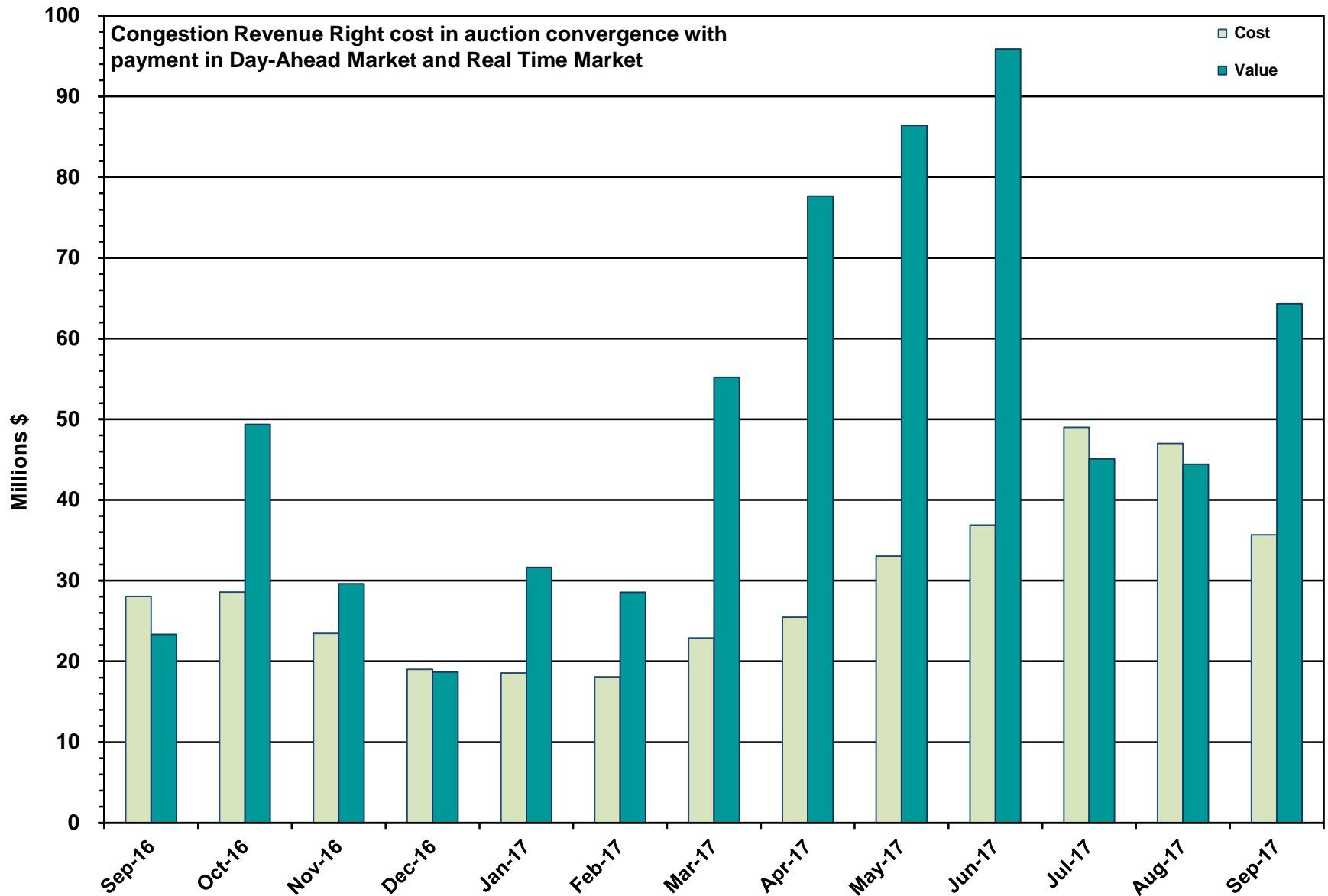
# HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – September 2017



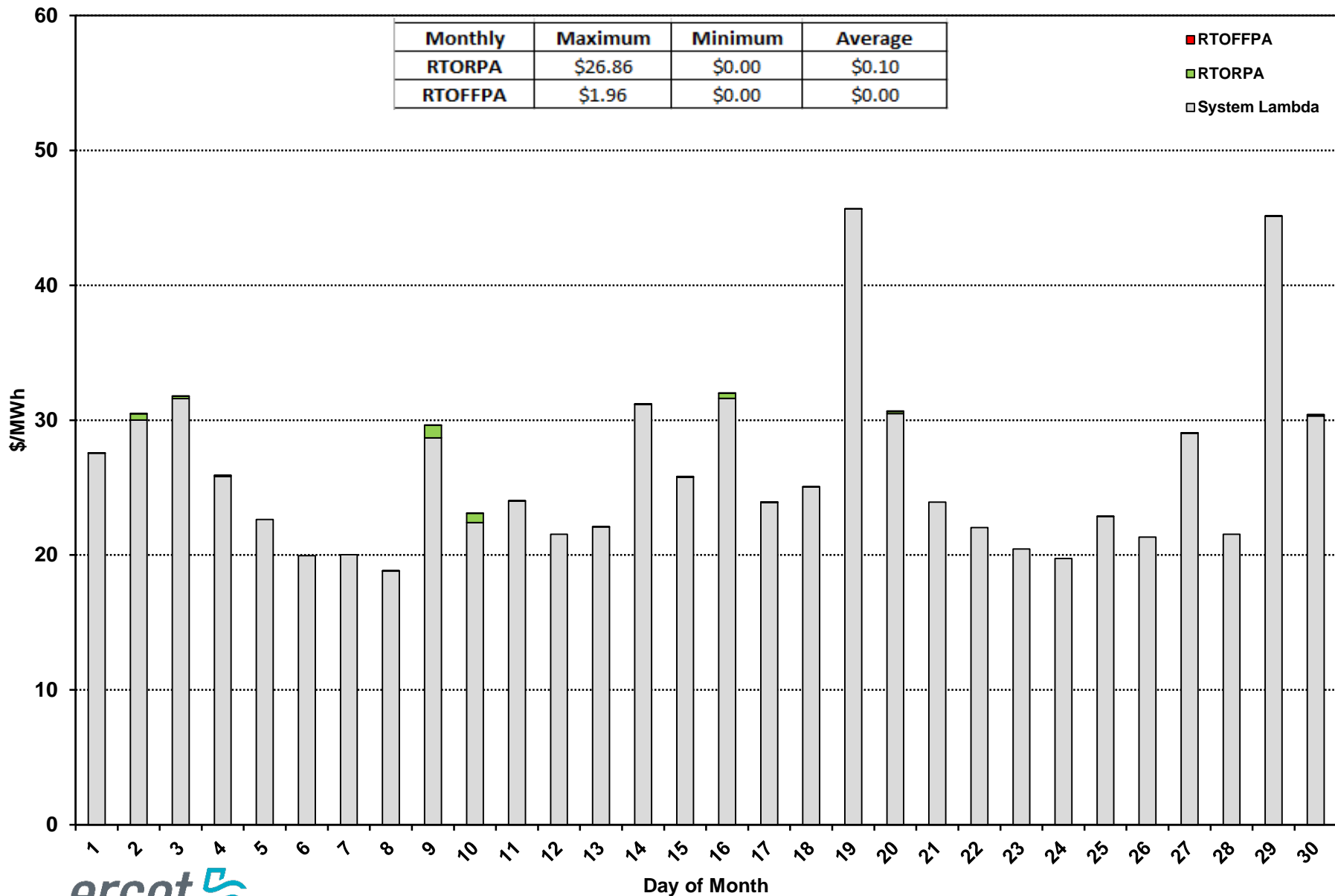
## Non-Spinning Reserve Service Deployment – September 2017

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

## CRR Price Convergence – September 2017



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





## ERS Procurement for June – September 2017

	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	238.153	238.502	226.089	220.575	234.775	229.501
Non Weather-Sensitive ERS-30 MW	644.329	701.368	631.588	606.867	659.287	567.486
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	0	0	9.172	9.172	0	0
Total MW Procured	882.482	939.870	866.849	836.614	894.062	796.987
Clearing Price	\$2.05	\$1.95	\$21.06	\$21.68	\$2.06	\$2.30

\*Weather-Sensitive Time Periods for JunSep17 are TP3 and TP4.

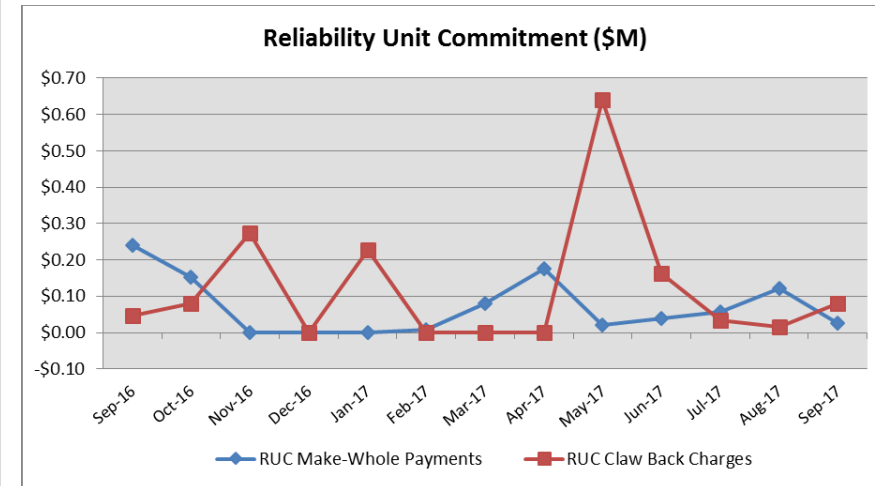
### Time Period

### 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 – September 2017

Reliability Unit Commitment (RUC)	\$ in Millions
RUC Make-Whole Payments	(\$0.02)
RUC Clawback Charges	\$0.08
<b>RUC Commitment Settlement</b>	<b>\$0.06</b>
RUC Capacity Short Charges	\$0.02
RUC Make-Whole Uplift	\$0.00
<b>RUC Commitment Cost Allocation</b>	<b>\$0.02</b>
RUC Decommitment Payments	\$0.00



RUC Make-Whole Payments were \$0.02M in September 2017.  
RUC Clawback Charges were \$0.08M.

There was \$0.08M allocated directly to load in September 2017, compared to:

- \$0.02M in August 2017
- \$0.05M in September 2016

## Capacity Services – September 2017

Capacity Services	\$ in Millions
Regulation Up Service	\$1.64
Regulation Down Service	\$1.53
Responsive Reserve Service	\$10.55
Non-Spinning Reserve Service	\$2.86
Black Start Service	\$0.59
Voltage Services - Reactive Power	\$0.00
Voltage Services - Lost Opportunity	\$0.00
<b>Total Charges</b>	<b>\$17.17</b>

Capacity Services costs decreased from last month and decreased from September 2016.

September 2017 cost was \$17.17M, compared to:

- A charge of \$17.69M in August 2017
- A charge of \$22.41M in September 2016

## Energy Settlement – September 2017

Day-Ahead Market Energy Settlement	\$ in Millions
Energy Purchases	\$472.21
Point to Point Obligation Purchases	\$60.48
Energy Sales	(\$462.18)
Day-Ahead Congestion Rent	\$70.51
Day-Ahead Market Make-Whole Payments	(\$0.26)

Day-Ahead Market energy settlement activity decreased from last month and decreased from September 2016.

Real-Time Market energy settlement activity decreased from last month and decreased from September 2016.

Real-Time Market Energy Settlement	\$ in Millions
Energy Imbalance at a Resource Node	(\$444.38)
Energy Imbalance at a Load Zone	\$706.94
Energy Imbalance at a Hub	(\$201.31)
Real Time Congestion from Self Schedules	\$0.11
Block Load Transfers and DC Ties	(\$1.01)
Impact to Revenue Neutrality	\$60.35
Emergency Energy Payments	(\$0.42)
Base Point Deviation Charges	\$0.22
Real-Time Metered Generation (MWh in millions)	32.12

## Congestion Revenue Rights (CRR) – September 2017

	\$ in Millions
Annual Auction	(\$22.28)
Monthly Auction	(\$13.38)
<b>Total Auction Revenue</b>	<b>(\$35.66)</b>
Day-Ahead CRR Settlement	(\$64.30)
Day-Ahead CRR Short-Charges	\$0.65
Day-Ahead CRR Short-Charges Refunded	(\$0.65)
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>(\$64.30)</b>
Day-Ahead Point to Point Obligations Settlement	\$60.48
Real-Time Point to Point Obligation Settlement	(\$65.02)
<b>Net Point to Point Obligation Settlement</b>	<b>(\$4.54)</b>

Congestion Revenue Rights settlement payments were fully funded and excess funds were paid to load.

Point to Point Obligations settled with a net credit of \$4.54M compared to a net charge of \$11.60M last month.

## CRR Balancing Account Fund – September 2017

<b>CRR Balancing Account Fund</b>	<b>\$ in Millions</b>
<b>Beginning Balance for the Month</b>	\$10.00
<b>CRR Balancing Account Credit Total</b>	\$6.86
<b>CRR PTP Option Award Charges</b>	\$0.05
<b>Day-Ahead CRR Short-Charges Refunded</b>	(\$0.65)
<b>Load Allocated CRR Amount</b>	(\$6.26)
<b>Total Fund Amount</b>	\$10.00

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

As of September 2017, the CRR Balancing Account Fund was at \$10.00M and excess funds of \$6.26M were allocated to Load.

## Revenue Neutrality – September 2017

### Revenue Neutrality Settlement

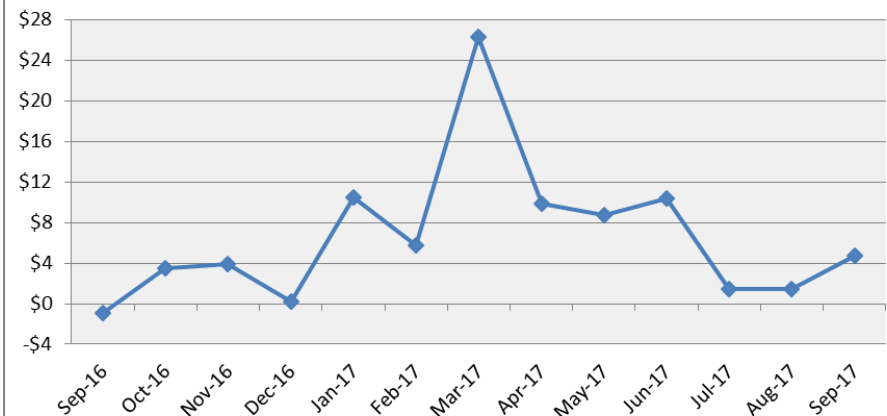
	\$ in Millions
Real-Time Point to Point Obligation Settlement	(\$65.02)
Real-Time Point to Point Options and Options with Refund Settlement	\$0.00
Real-Time Energy Imbalance Settlement	\$61.24
Real-Time Congestion from Self-Schedules Settlement	\$0.11
DC Tie & Block Load Transfer Settlement	(\$1.01)
<b>Charge to Load</b>	<b>\$4.68</b>

Revenue Neutrality charge to load increased compared to last month and increased compared to September 2016.

September 2017 was a charge of \$4.68M, compared to:

- \$1.46M charge in August 2017
- \$0.97M credit in September 2016

Revenue Neutrality Uplift (\$M)



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

Real-Time Ancillary Service Imbalance	\$ in Thousands
Load Allocated AS Imbalance Revenue Neutrality Amount	\$100.90
Load Allocated Reliability Deployment AS Imbalance Revenue Neutrality Amount	\$89.91
<b>Total Charges</b>	<b>\$190.81</b>
Real-Time AS Imbalance Amount	(\$100.91)
Real-Time Reliability Deployment AS Imbalance Amount	(\$89.91)
<b>Total Payments</b>	<b>(\$190.82)</b>

The Real-Time Ancillary Service Imbalance charge to load decreased compared to last month and decreased compared to September 2016.

September 2017 had a charge to load of \$191K, compared to:

- A charge of \$601K in August 2017
- A charge of \$692K in September 2016



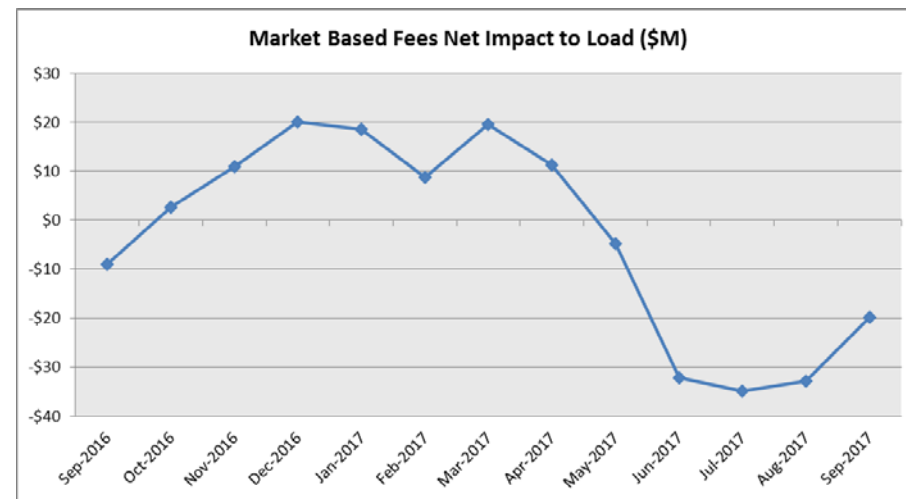
## Net Allocation to Load – September 2017

Market-Based Allocation	\$ in Millions
CRR Auction Revenue Disbursement Settlement	(\$35.66)
Balancing Account Proceeds Settlement	(\$6.26)
Net Reliability Unit Commitment Settlement	(\$0.08)
Ancillary Services Settlement	\$17.17
Reliability Must Run Settlement (incl. RMR for Capacity)	\$0.00
Real-Time Revenue Neutrality Settlement	\$4.68
Emergency Energy Settlement	\$0.42
Base Point Deviation Settlement	(\$0.22)
ORDC Settlement	\$0.19
<b>Total</b>	<b>(\$19.76)</b>
<b>Fee Allocation</b>	
ERCOT Administrative Fee Settlement	\$17.88
<b>Net Allocated to Load</b>	<b>(\$1.88)</b>

The net allocation to Load decreased from last month and increased from September 2016.

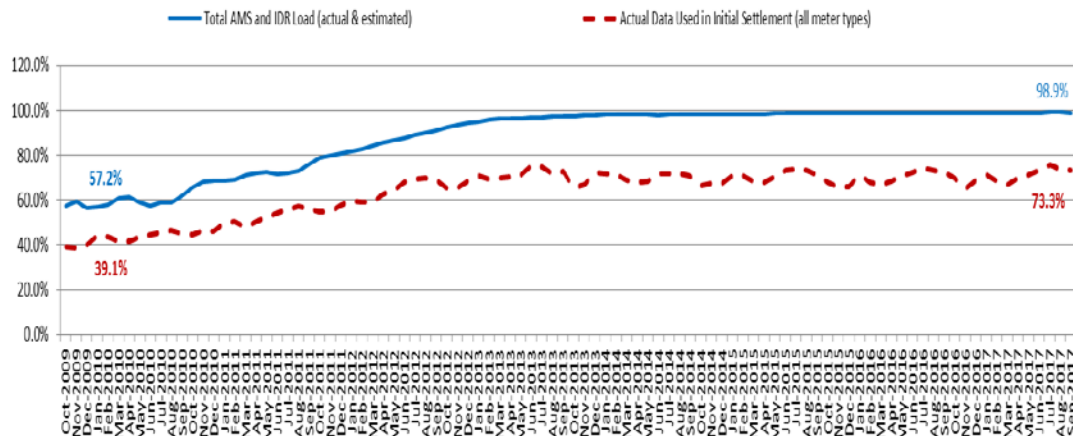
September 2017 was a credit of \$1.88M, compared to:

- A credit of \$12.58M in August 2017
- A charge of \$9.84M in September 2016



# Advanced Meter Settlement Impacts – September 2017

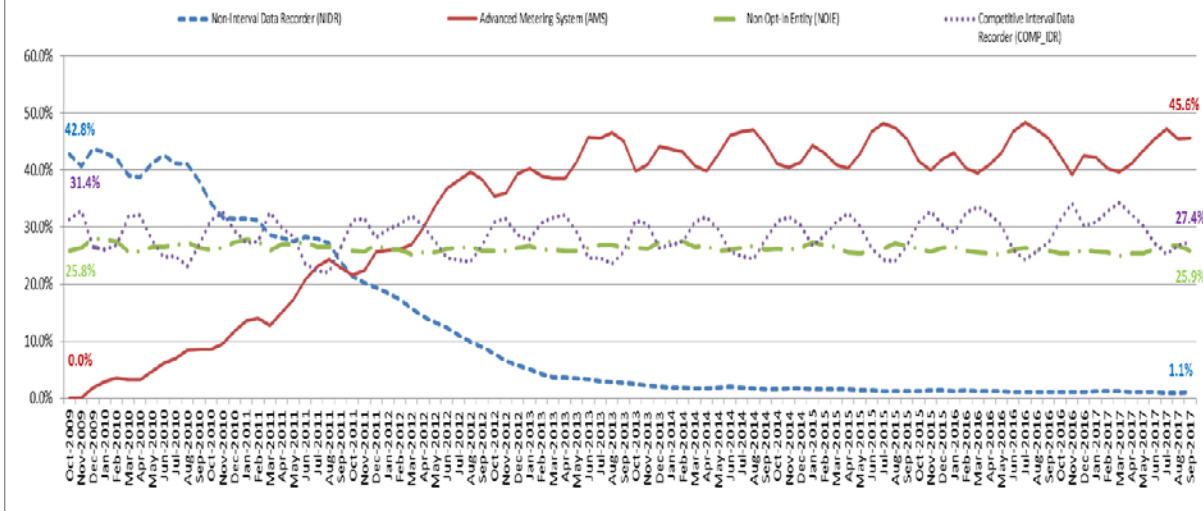
Percent Actual/Percent Interval Data Recorder (IDR)



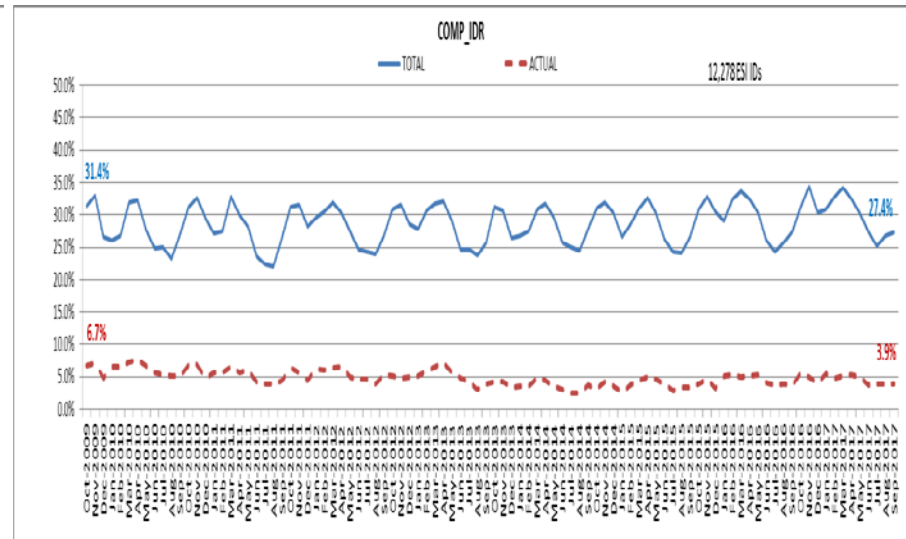
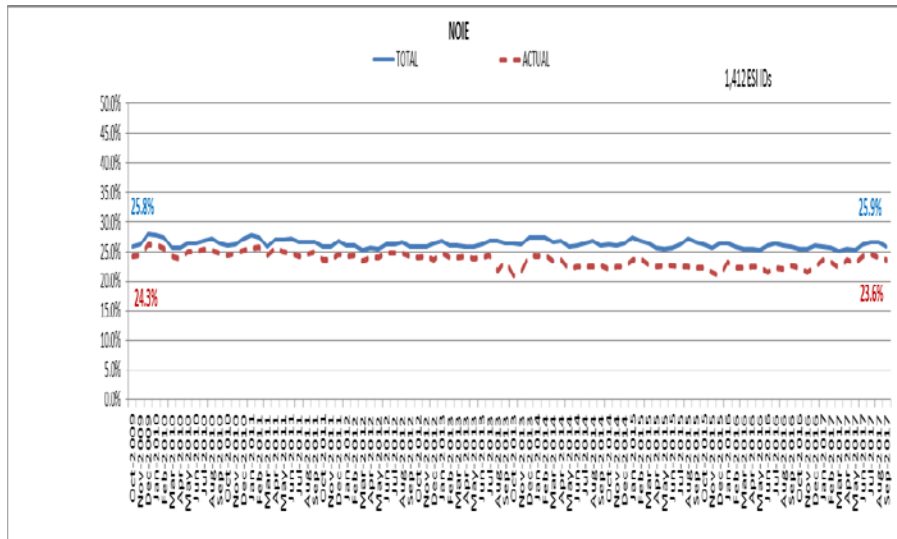
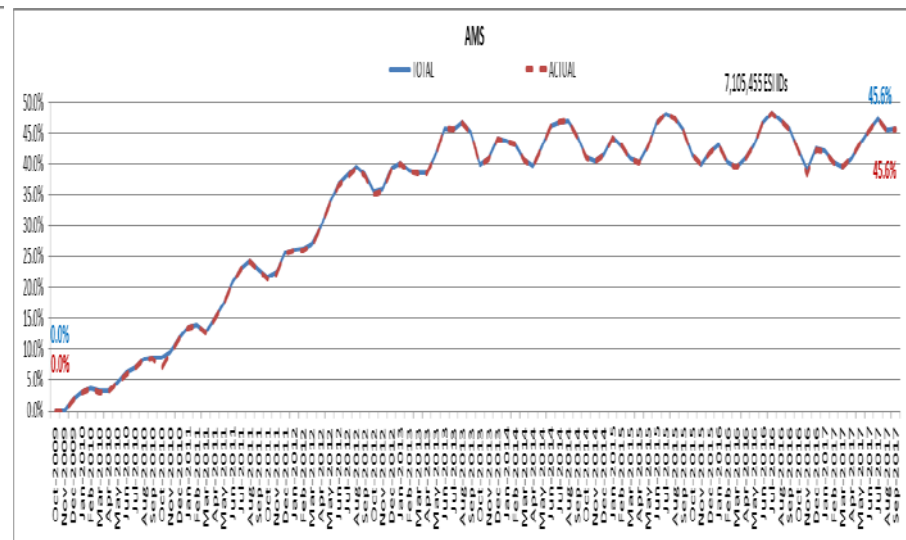
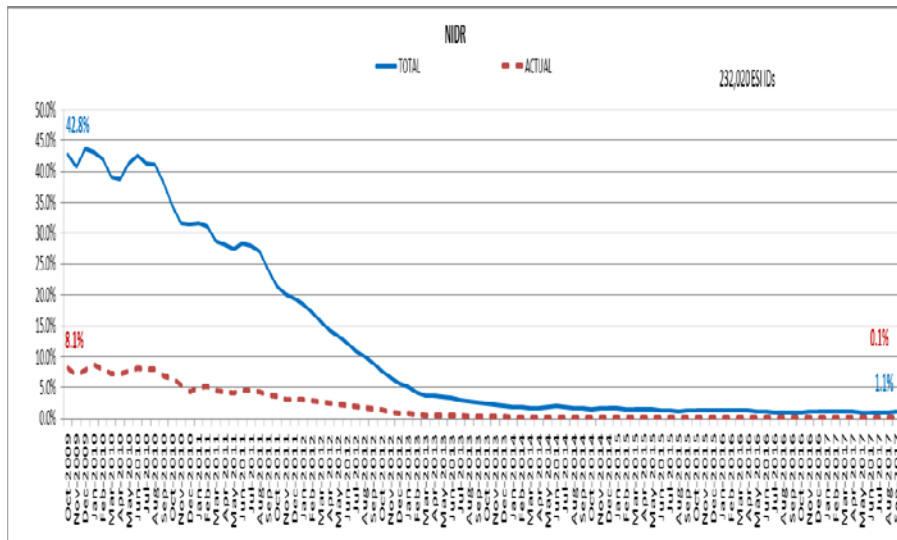
September 2017: At month end, settling 7.1M ESIIDs using Advanced Meter data.

September 2017: 98.9% 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 – September 2017

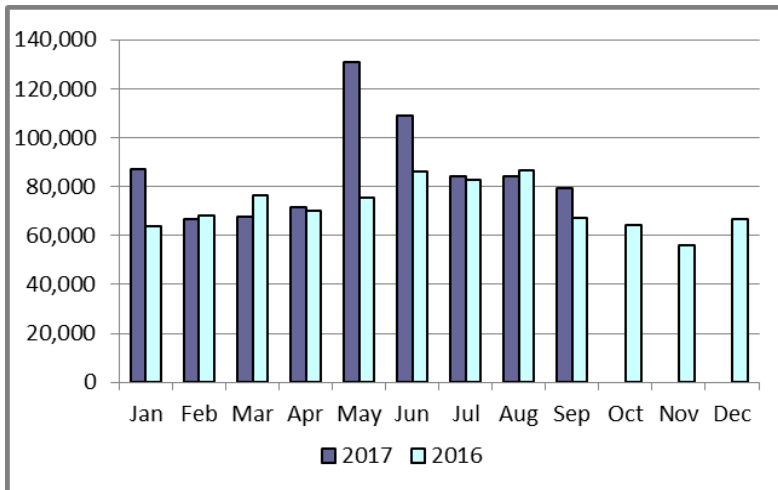


## Retail Transaction Volumes – Summary – September 2017

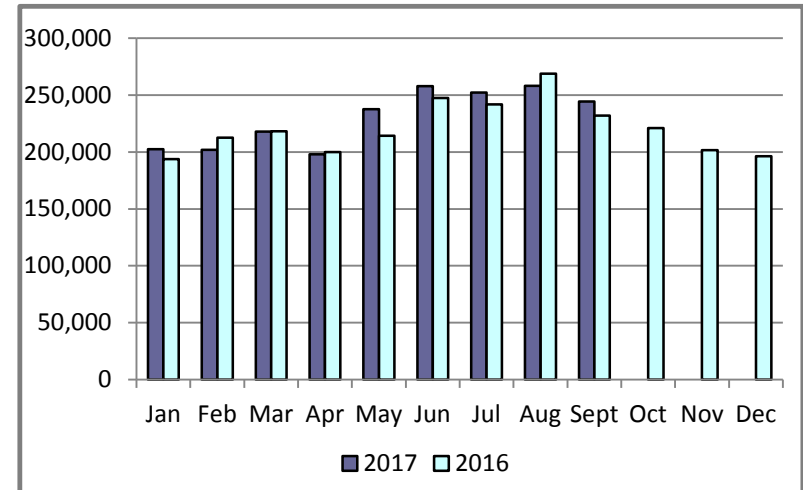
	Year-To-Date		Transactions Received	
Transaction Type	September 2017	September 2016	September 2017	September 2016
Switches	780,936	677,147	79,502	67,323
Acquisition	0	0	0	0
Move - Ins	2,070,710	2,028,727	244,511	231,999
Move - Outs	1,059,986	1,030,685	129,103	114,094
Continuous Service Agreements (CSA)	365,472	448,439	41,597	33,061
Mass Transitions	0	0	0	0
<b>Total</b>	<b>4,277,104</b>	<b>4,184,998</b>	<b>494,713</b>	<b>446,477</b>

# Retail Transaction Volumes – Summary – September 2017

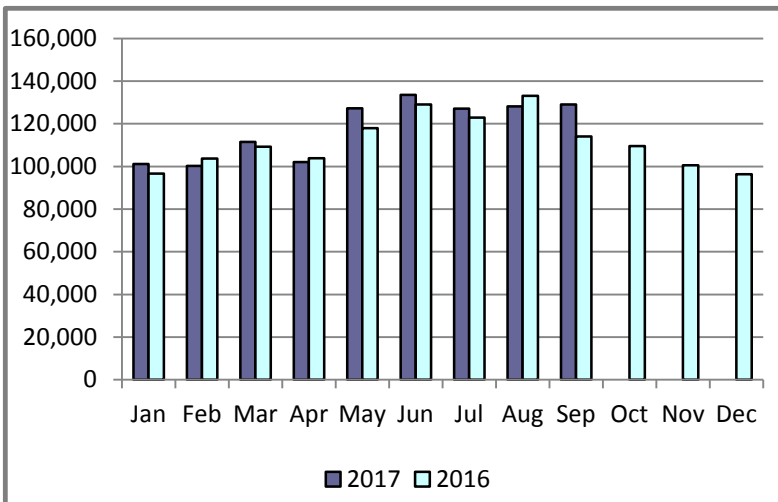
## Switches/Acquisitions



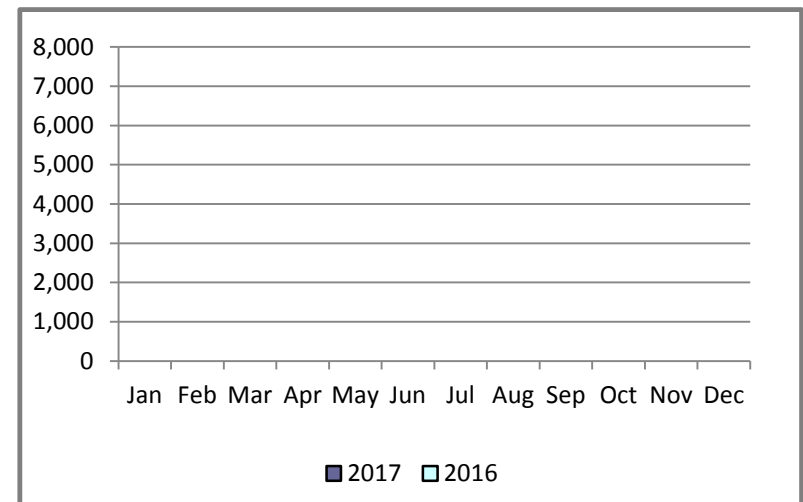
## Move-Ins



## Move-Outs

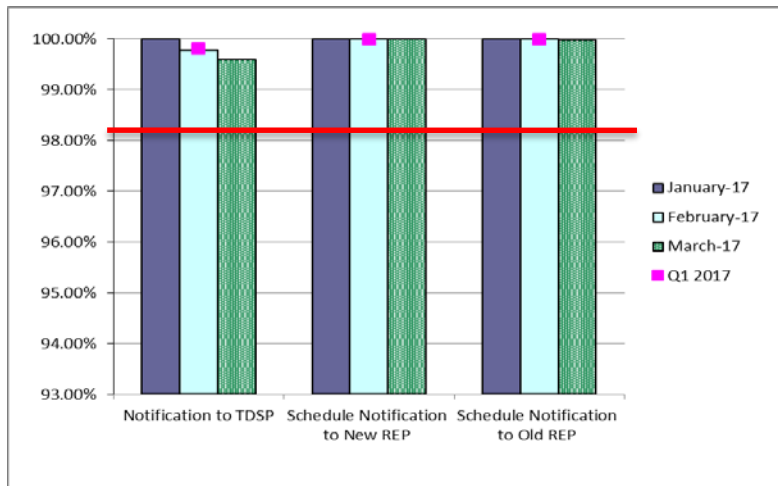


## Mass Transition

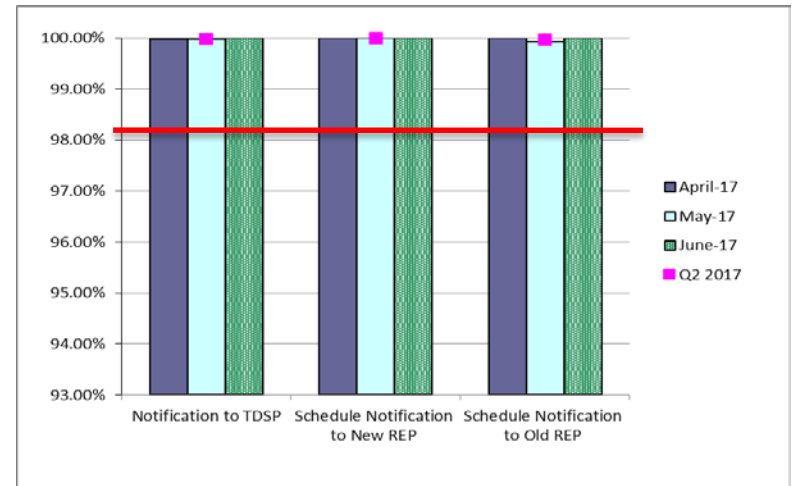


# Retail Performance Measures – Switch – September 2017

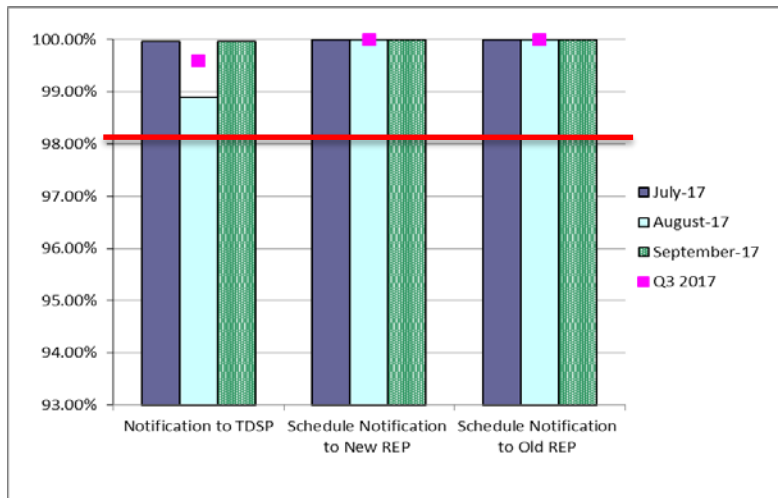
## 1<sup>st</sup> Quarter



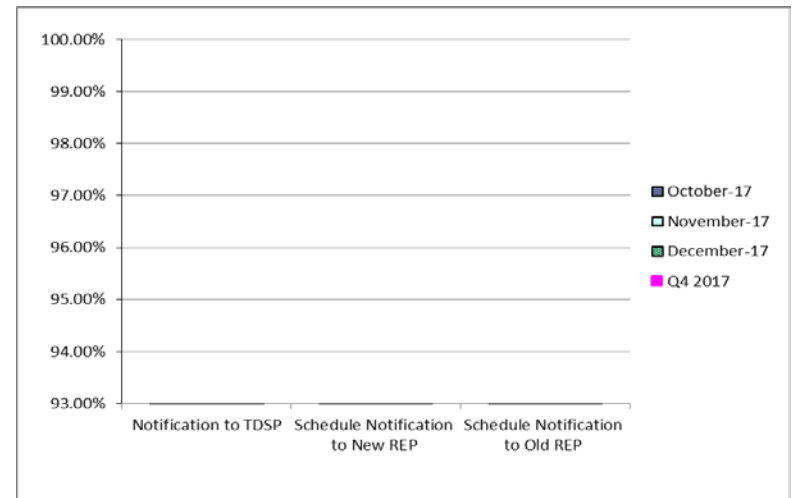
## 2<sup>nd</sup> Quarter



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

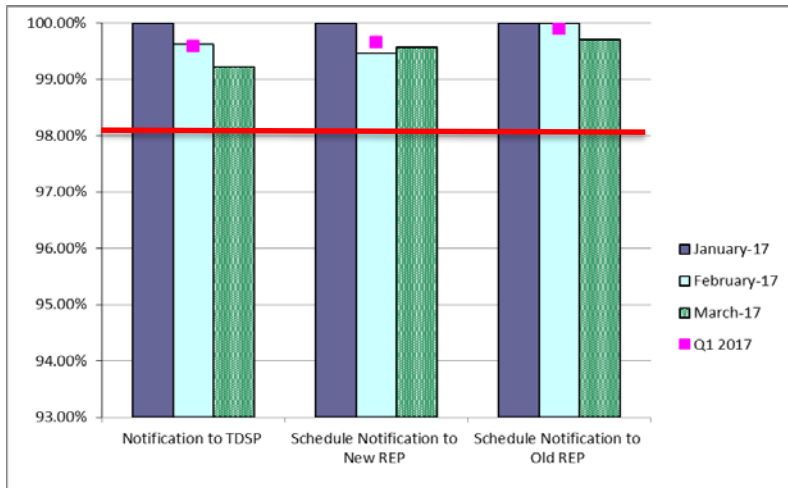


## 4<sup>th</sup> Quarter

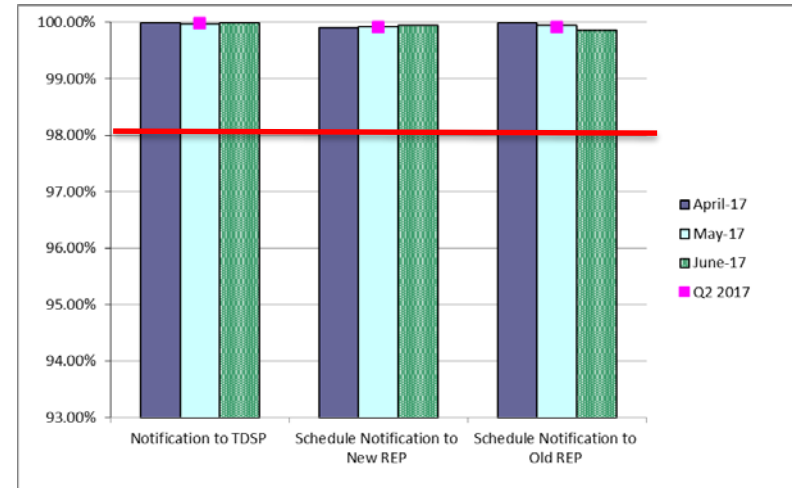


# Retail Performance Measures – Same Day Move-In – September 2017

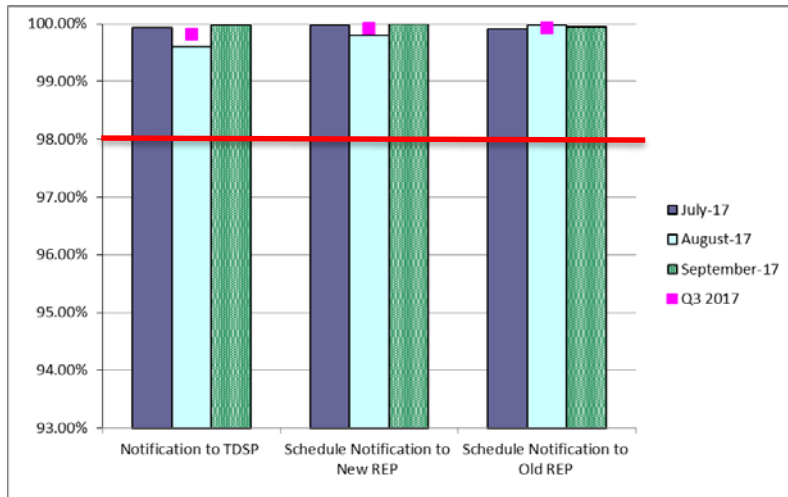
## 1<sup>st</sup> Quarter



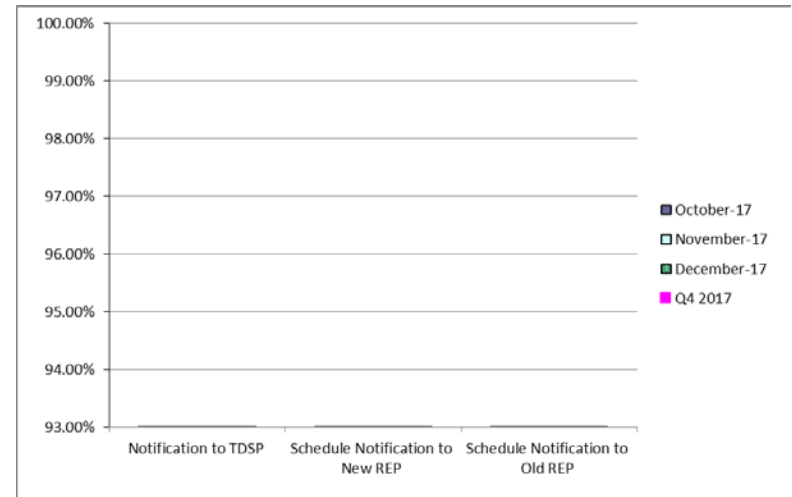
## 2<sup>nd</sup> Quarter



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

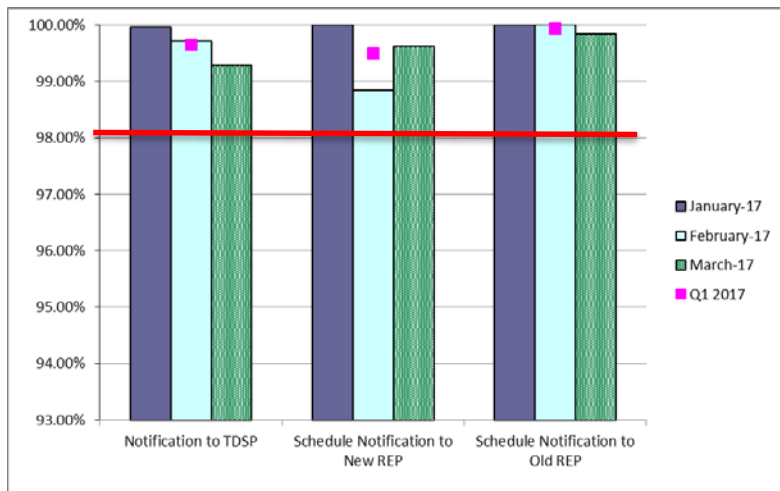


## 4<sup>th</sup> Quarter

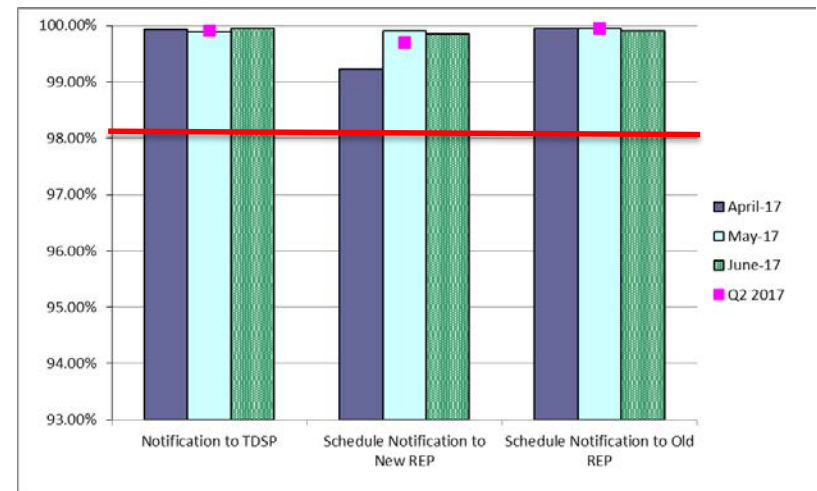


# Retail Performance Measures – Standard Move-In – September 2017

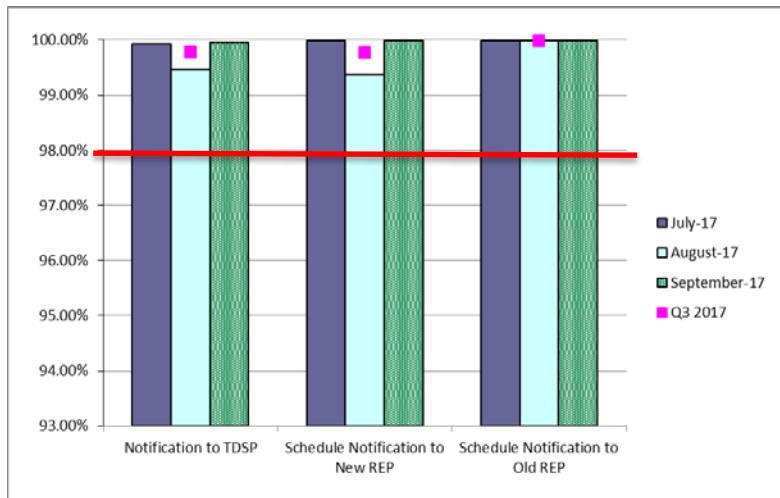
## 1<sup>st</sup> Quarter



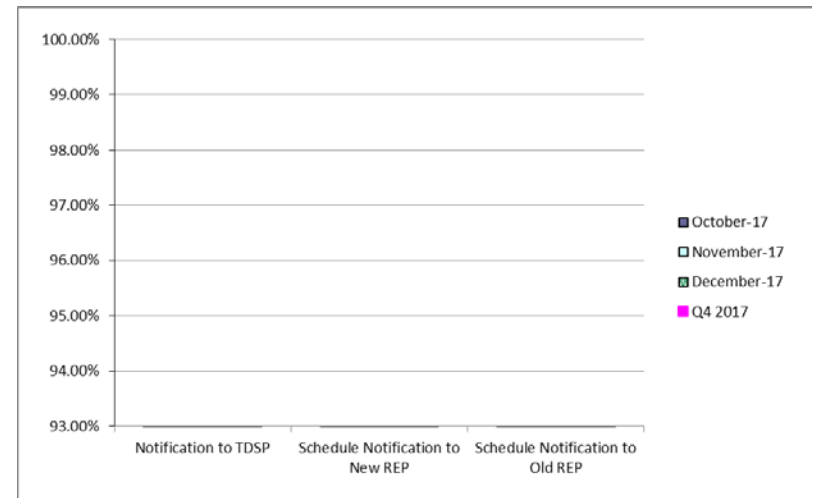
## 2<sup>nd</sup> Quarter



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



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





# Projects Report

# ERCOT Portfolio Stoplight Report – September 2017

Impact Metric Tolerances	2017 Project Funding	\$21,500,000	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 = 73)		\$19,906,373
	Projects Not Yet Started (Count = 7)		\$ 101,666
	Projects Completed (Count = 49)		\$ 5,200,778
	Spending Reductions Required to Maintain Capital Budget		\$ (3,708,817)
	<b>TOTAL</b>		<b>\$21,500,000</b>

Project Number	Projects in Initiation Phase (Count = 8)
269-01	Document Repository Redesign and Governance Implementation - Phase 1
266-01	Remote Email Access Enhancement
263-01	Market Simulator
170-06	ECAP - ECMS Implementation Phase 1
265-01	Real-Time Assessment Continuity
258-01	WD Kainos SMART Automation Testing Tool
253-01	CIP Recovery Plan Project - Planning Phase 1
245-01	2017 EPS Metering Enhancements

## 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 – September 2017

Project Number	Projects in Planning Phase (Count = 20)	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	11/1/2017	TBD	11/1/2017		0%		25%
183-01	CMM-FT GUI Integration	12/16/2015	8/17/2016	TBD	TBD	TBD		0%	NA	See 2015 CMM NPRRs
193-01	PMU Tool Evaluation and Implementation	5/31/2017	7/26/2017	7/26/2017	TBD	10/11/2017	1	-137%		23%
228-01	Enterprise Database Upgrade	2/1/2017	6/28/2017	11/1/2017	TBD	11/1/2017		0%		5%
239-01	Identity and Access Management	6/7/2017	11/8/2017	11/8/2017	TBD	11/8/2017		0%		0%
240-01	EDI Translator and Mapping Replacement Assessment	4/19/2017	9/27/2017	12/6/2017	TBD	12/6/2017		0%		3%
241-01	AREA - Generation	5/31/2017	8/2/2017	9/27/2017	TBD	10/11/2017	1	-11%		-1%
242-01	Portfolio Reporting Assessment	5/17/2017	11/1/2017	11/1/2017	TBD	11/1/2017		0%		51%
243-01	Training Facility - Scope and Design	6/21/2017	10/13/2017	10/13/2017	TBD	10/13/2017		0%		0%
244-01	Corporate Wireless	6/28/2017	10/4/2017	10/4/2017	TBD	10/4/2017		0%		66%
246-01	iTest Data Refresh	6/21/2017	10/25/2017	10/25/2017	TBD	10/25/2017		0%		0%
254-01	Retail Windows Upgrade	9/6/2017	9/27/2017	9/27/2017	TBD	10/11/2017	1	-66%		1%
255-01	Settlements Architecture Enhancements	9/6/2017	10/25/2017	10/25/2017	TBD	10/25/2017		0%		26%
257-01	Security Constrained Optimal Powerflow in Study Network Analysis	9/27/2017	11/22/2017	11/22/2017	TBD	11/22/2017		0%		57%
259-01	DC SCADA and Metering Upgrade	9/6/2017	10/5/2017	10/5/2017	TBD	10/11/2017	2	-20%	2	-27%
261-01	Generic Transmission Constraint Calculation	9/27/2017	12/22/2017	12/22/2017	TBD	12/22/2017		0%		25%
NPRR484	Revisions to Congestion Revenue Rights Credit Calculations and Payments - Phase 1b / 2	12/16/2015	8/17/2016	TBD	TBD	TBD		0%	NA	See 2015 CMM NPRRs
NPRR702	Flexible Accounts, Payment of Invoices, and Disposition of Interest on Cash Collateral	12/16/2015	8/17/2016	TBD	TBD	TBD		0%	NA	See 2015 CMM NPRRs
NPRR833	Modify PTP Obligation Bid Clearing Change	9/20/2017	10/18/2017	10/18/2017	TBD	10/18/2017		0%		3%
SCR781	RARF Replacement	3/29/2017	10/31/2017	10/31/2017	TBD	10/31/2017		0%		1%
Project Number	Projects in Execution Phase (Count = 38)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
170-01	Enterprise Content Alignment Program	8/26/2015	11/15/2017	12/13/2018	12/13/2018	12/13/2018		0%		0%
181-01	CRR Framework Upgrade	10/26/2016	10/2/2017	1/22/2018	1/22/2018	3/16/2018		0%		6%
183-01	CMM Tech Refresh	3/15/2017	5/19/2018	5/19/2018	5/19/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
196-01	GINR Project Status Application Replacement	12/21/2016	9/14/2017	3/5/2018	3/5/2018	3/28/2018		0%		-2%
198-02	Reactive Power Coordination PoC	9/6/2017	6/16/2018	6/16/2018	6/13/2018	6/13/2018		1%		5%
209-01	Multi Station Breaker to Breaker One Lines	2/8/2017	3/9/2018	3/9/2018	3/9/2018	5/1/2018		0%		4%
210-01	REC Technology Refresh	8/30/2017	3/18/2018	3/18/2018	3/18/2018	5/9/2018		0%		0%

# ERCOT Portfolio Stoplight Report – September 2017

Project Number	Projects in Execution Phase (Count = 38)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
216-01	CAT & RRS Tools for Control Room Project	11/30/2016	9/15/2017	11/2/2017	11/2/2017	11/29/2017		0%		38%
216-01	Capacity Availability Tool (CAT)	11/30/2016	9/15/2017	11/2/2017	11/2/2017	11/29/2017		0%	NA	See CAT & RRS Tools for Cntrl Rm
229-01	IT Change and Configuration Management Phase 2	8/2/2017	6/19/2018	6/19/2018	6/19/2018	9/5/2018		0%		4%
230-01	SAS Technical Architecture Redesign	3/1/2017	11/15/2017	11/15/2017	11/15/2017	2/28/2018		0%		-2%
233-00	Capital Efficiencies and Enhancements - 2017	1/1/2017	12/31/2017	12/31/2017	12/31/2017	12/31/2017		0%		0%
233-24	Job Description Repository	1/1/2017	12/31/2017	12/31/2017	12/31/2017	12/31/2017		0%		See 233-00
234-01	Reporting Solution Resiliency (RSR)	4/5/2017	8/23/2017	10/17/2017	10/17/2017	12/6/2017		0%		7%
238-01	Application Authentication Tech Refresh	9/6/2017	3/19/2018	3/19/2018	3/19/2018	5/16/2018		0%		23%
249-01	Secondary Wind Forecasting Service	8/30/2017	2/28/2018	2/28/2018	2/28/2018	3/30/2018		0%		-1%
Various	2015 CMM NPRRs									0%
NPRR519	Exemption of ERS-Only QSEs from Collateral and Capitalization Requirements	3/15/2017	5/19/2018	5/19/2018	5/19/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR620	Collateral Requirements for Counter-Parties with No Load or Generation	3/15/2017	5/19/2018	5/19/2018	5/19/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR648	Remove References to Flowgate Rights	3/15/2017	5/19/2018	5/19/2018	3/18/2018	12/31/2018		14%	NA	See 2015 CMM NPRRs
NPRR660	Remove CRR State Change Adder	3/15/2017	5/19/2018	5/19/2018	5/19/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR683	Revision to Available Credit Limit Calculation	3/15/2017	5/19/2018	5/19/2018	3/18/2018	12/31/2018		14%	NA	See 2015 CMM NPRRs
NPRR741	Clarifications to TPE and EAL Credit Exposure Calculations	3/15/2017	5/19/2018	5/19/2018	5/19/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR743	Revision to MCE to Have a Floor For Load Exposure	3/15/2017	5/19/2018	5/19/2018	3/18/2018	12/31/2018		14%	NA	See 2015 CMM NPRRs
NPRR755	Data Agent-Only QSE Registration	3/15/2017	5/19/2018	5/19/2018	5/19/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR760	Calculation of Exposure Variables For Days With No Activity	3/15/2017	5/19/2018	5/19/2018	3/18/2018	12/31/2018		14%	NA	See 2015 CMM NPRRs
NPRR776	Voltage Set Point Communication	9/20/2017	3/19/2018	3/19/2018	3/19/2018	4/4/2018		0%		0%
NPRR778	Modifications to Date Change and Cancellation Evaluation Window	7/19/2017	10/29/2017	10/29/2017	10/30/2017	11/29/2017		0%	2	-8%
NPRR782	Settlement of Infeasible Ancillary Services Due to Transmission Constraints	5/24/2017	8/31/2017	11/2/2017	11/2/2017	1/17/2018		0%		0%
NPRR800	Revisions to Credit Exposure Calculations to Use Electricity Futures Market Prices	3/15/2017	5/19/2018	5/19/2018	3/18/2018	12/31/2018		14%	NA	See 2015 CMM NPRRs
NPRR808	Three Year CRR Auction	8/23/2017	11/15/2017	11/15/2017	11/15/2017	12/1/2017		0%		7%
NPRR809	GTC or GTL for New Generation Interconnection	6/15/2017	3/31/2018	3/31/2018	3/31/2018	3/31/2018		0%	NA	See #233-00
NPRR810	Applicability of RMR Incentive Factor on Reservation and Transportation Costs Associated with Firm Fuel Supplies	7/17/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017		0%	NA	See #233-00
NPRR812	Alignment of Currently-Published Reports	7/17/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017		0%	NA	See #233-00
NPRR831	Inclusion of Private Use Networks in Load Zone Price Calculations	8/2/2017	11/2/2017	11/2/2017	11/2/2017	11/29/2017		0%		41%
PGRR052	Stability Assessment for Interconnecting Generation	6/15/2017	3/31/2018	3/31/2018	3/31/2018	3/31/2018		0%	NA	See #233-00
PGRR054	Stability Limits in the Full Interconnect Study	6/15/2017	3/31/2018	3/31/2018	3/31/2018	3/31/2018		0%	NA	See #233-00
SCR777	Bilateral CRR Interface Enhancement	10/26/2016	10/2/2017	1/22/2018	1/22/2018	3/16/2018		0%	NA	See #181-01

# ERCOT Portfolio Stoplight Report – September 2017

Project Number	Projects in Stabilization (Count = 6)	Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Scheduled Execution Phase Finish	Schedule Health		Budget Health	
NPRR758	Improved Transparency for Outages Potentially Having a High Economic Impact	1/11/2017	7/13/2017	9/13/2017	9/13/2017	10/4/2017		0%	2	-14%
158-01	Load Forecast Enhancements	9/28/2016	5/21/2017	5/21/2017	6/27/2017	10/31/2017	1	-15%		0%
185-01	Records Management and eDiscovery	12/15/2016	5/24/2017	8/29/2017	8/22/2017	12/13/2017		2%		0%
216-01	Responsive Reserve Service Sufficiency Analysis	11/30/2016	9/15/2017	8/31/2017	9/1/2017	11/29/2017		0%	NA	See CAT & RRS Tools for Cntl Rm
217-01	Cyber Security Project #20	5/17/2017	6/22/2017	6/22/2017	6/22/2017	12/6/2017		0%		2%
224-01	TelAlert Replacement	4/5/2017	6/27/2017	8/4/2017	8/4/2017	2/21/2018		0%		4%
Project Number	Projects On Hold (Count = 1)	Forecast Start Date	Baseline Phase Finish	Approved Go-Live Target	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
SCR789	Update NMMS Topology Processor to PSSE 34 Capability									
Project Number	Projects Completed (Count = 49)	Baseline Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Actual Execution Phase Finish	Schedule Health		Budget Health	
065-01	NMMS Upgrade	12/17/2014	9/22/2016	5/1/2017	5/8/2017	9/27/2017		0%		4%
170-03	ECAP - Enterprise Content Management System (Proof of Concept)	11/16/2016	3/15/2017	3/15/2017	4/11/2017	4/12/2017	1	-22%		24%
170-04	ECAP - ERCOT Information Governance and Taxonomy	11/16/2016	1/19/2017	2/17/2017	2/17/2017	2/22/2017		0%		6%
172-01	Physical Security Project #2	6/30/2016	2/13/2017	6/30/2017	6/23/2017	9/6/2017		1%		1%
173-01	Serena Software (MarkeTrak) Upgrade	10/5/2016	1/29/2017	3/26/2017	3/26/2017	6/7/2017		0%		0%
177-01	Cyber Security Project #19	4/6/2016	7/13/2016	7/24/2017	4/28/2017	8/2/2017		18%		15%
188-01	Mass Transition/Acquisition Enhancements (MTAQ)	5/25/2016	4/2/2017	6/22/2017	6/4/2017	8/23/2017		4%		2%
189-01	Enterprise Resource Planning	4/13/2016	9/27/2016	9/27/2016	9/27/2016	4/12/2017		0%		59%
190-01	Collaboration Software Governance	4/27/2016	7/20/2016	12/14/2016	TBD	4/12/2017	1	-51%		4%
197-01	AREA - Demand and Energy Report	9/14/2016	5/4/2017	6/29/2017	6/29/2017	7/12/2017		0%		-3%
198-01	Reactive Power Coordination Assessment	7/13/2016	10/12/2016	1/11/2017	1/18/2017	1/18/2017		-3%		10%
202-01	Email Gateway Replacement	11/9/2016	1/31/2017	1/31/2017	1/31/2017	5/17/2017		0%		62%
203-01	DW Replication Upgrade	10/26/2016	12/10/2016	2/17/2017	2/17/2017	3/1/2017		0%		1%
205-01	TIBCO BusinessWorks Application Upgrade	1/11/2017	6/26/2017	8/1/2017	8/1/2017	9/13/2017		0%		1%
211-01	Identity & Access Management Evaluation	10/5/2016	2/22/2017	2/22/2017	2/22/2017	3/1/2017		0%		10%
212-01	Test Data and Environment Enhancements Initiative (TDEE)	10/5/2016	11/2/2016	8/2/2017	TBD	8/2/2017		0%		0%
218-01	Cyber Security Project #21	5/24/2017	6/23/2017	6/23/2017	6/23/2017	8/16/2017		0%		11%
222-01	Physical Security Project #3	2/8/2017	5/31/2017	7/28/2017	7/24/2017	8/16/2017		2%		12%
223-01	Control Room Video Support and Upgrade	11/16/2016	2/17/2017	2/17/2017	2/3/2017	7/12/2017		15%		0%
227-01	Engineer Workstations and Other Equipment	11/30/2016	3/1/2017	3/1/2017	2/28/2017	3/8/2017		1%		5%
235-01	Forecast Monitoring and HSL Tracking	2/8/2017	5/11/2017	6/29/2017	6/29/2017	9/27/2017		0%		6%
Various	Implementation of NPRR573 & NPRR801	3/29/2017	6/29/2017	6/29/2017	6/29/2017	7/26/2017		0%		20%
Various	2016 RARF Enhancements	11/16/2016	2/17/2017	5/15/2017	5/15/2017	6/14/2017		0%		26%
Various	NPRR797 & NPRR789 Load Forecast Enhancements	3/8/2017	6/29/2017	6/29/2017	6/29/2017	7/19/2017		0%		38%

# ERCOT Portfolio Stoplight Report – September 2017

Project Number	Projects Completed (Count = 49)	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
NPRR272	Definition and Participation of Quick Start Generation Resources	8/3/2016	2/9/2017	3/9/2017	3/9/2017	4/5/2017		0%		35%
NPRR573	Alignment of PRC Calculation	3/29/2017	6/29/2017	6/29/2017	6/29/2017	7/26/2017		0%	NA	See Implementation of NPRR573 & 801
NPRR649	Addressing Issues Surrounding High Dispatch Limit (HDL) Overrides	11/9/2016	3/19/2017	3/9/2017	3/9/2017	3/29/2017		0%		39%
NPRR744	RUC Trigger for the Reliability Deployment Price Adder and Alignment with RUC Settlement	2/8/2017	6/29/2017	6/29/2017	6/1/2017	7/19/2017		19%		31%
NPRR746	Adjustments Due to Negative Load	1/25/2017	5/11/2017	5/11/2017	5/8/2017	7/12/2017		2%		28%
NPRR754	Revise Load Distribution Factors Report Posting Frequency	10/12/2016	12/11/2016	12/11/2016	12/12/2016	1/11/2017		-1%		47%
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	6/7/2017		0%		25%
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
NPRR789	Publish All Mid-Term Load Forecast Results	3/8/2017	6/29/2017	6/29/2017	6/29/2017	7/19/2017		0%	NA	See NPRR797 & NPRR789 Load Forecast Enhancements
NPRR792	Changing Special Protection System (SPS) to Remedial Action Scheme (RAS)	11/30/2016	5/21/2017	5/21/2017	5/11/2017	6/14/2017		5%		See #187-00
NPRR797	Actual Load by Forecast Zone Report and Display	3/8/2017	6/29/2017	6/29/2017	6/29/2017	7/19/2017		0%	NA	See NPRR797 & NPRR789 Load Forecast Enhancements
NPRR801	Non-Controllable Load Resource MW in PRC	3/29/2017	6/29/2017	6/29/2017	6/29/2017	7/26/2017		0%	NA	See Implementation of NPRR573 & 801
RMGRR127	Efficiencies for Acquisition Transfer	5/25/2016	4/2/2017	6/22/2017	6/4/2017	8/23/2017		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	6/7/2017		0%		24%
RMGRR140	Efficiencies for Acquisition Transfer Process	5/25/2016	4/2/2017	6/22/2017	6/4/2017	8/23/2017		4%	NA	See #188-01
RRGRR003	Modifications to Improve Wind Forecasting	11/16/2016	2/17/2017	5/15/2017	5/15/2017	6/14/2017		0%	NA	See 2016 RARF Enh.
RRGRR006	Clarification of Descriptions and Alignment with Resource Asset Registration Forms	11/16/2016	2/17/2017	5/15/2017	5/15/2017	6/14/2017		0%	NA	See 2016 RARF Enh.
RRGRR007	Adding Solar Resource Registration Inputs	11/16/2016	2/17/2017	5/15/2017	5/15/2017	6/14/2017		0%	NA	See 2016 RARF Enh.
RRGRR009	Adding Voltage Limit Sets, Relay Loadability, MLSE, and GMD Data	11/16/2016	2/17/2017	5/15/2017	5/15/2017	6/14/2017		0%	NA	See 2016 RARF Enh.
SCR786	Retail Market Test Environment	6/22/2016	12/12/2016	12/12/2016	12/12/2016	2/15/2017		0%		34%
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%		53%
SCR790	Wind Resource Power Production and Forecast Transparency	1/11/2017	5/11/2017	5/11/2017	5/11/2017	5/11/2017		0%		5%
Various	NOGRR147 and SCR787 NDCRC Enhancement	9/14/2016	12/8/2016	12/8/2016	12/8/2016	1/11/2017		0%		5%

# ERCOT Portfolio Stoplight Report – September 2017

Project Number	2017 Projects Not Yet Started (Count = 7)	Forecast Start Date
PGRR057	Responsibilities for Performing Geomagnetic Disturbance (GMD) Vulnerability	Oct-2017
NPRR830	Revision of 4-Coincident Peak Methodology	Oct-2017
TBD	Issue Tracking and Resolution Tool Assessment	Oct-2017
SCR792	Enhance Communications of BAAL Exceedances	Nov-2017
TBD	Automation of NPRR487 - QSGR Dispatch Adjustment	Nov-2017
TBD	Average Mid-Term Load Forecast	Nov-2017
TBD	Emergency Energy Settlements Inputs Automation	Nov-2017