



ERCOT Monthly Operational Overview (August 2017)

ERCOT Public
September 15, 2017

Grid Planning & Operations

Summary – August 2017

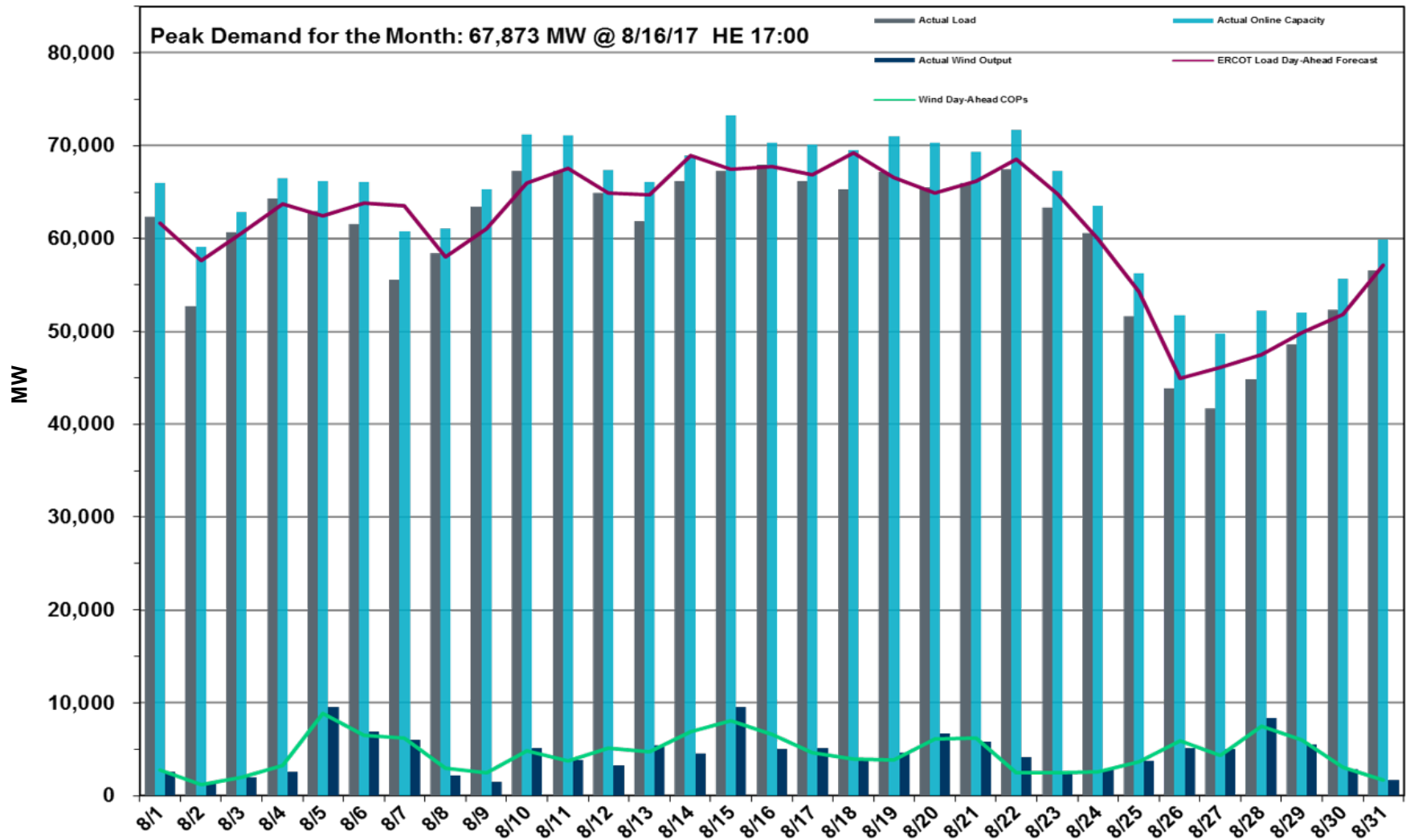
Operations

- The preliminary Settlements hourly peak demand of 67,873* MW on August 16 was higher than the day-ahead mid-term load forecast peak of 67,749 MW for the same operating hour.
 - The operational instantaneous peak demand was 68,171 MW (telemetry).
- Day-ahead load forecast error for August was 2.77%
- ERCOT issued 24 notifications:
 - One Emergency Notice issued due to Hurricane Harvey having an adverse impact on the ERCOT System due to transmission line outages
 - One Watch issued due to the Eagle Pass DC Tie tripping
 - Two Watches issued due to the Laredo DC Tie tripping
 - One Watch issued for Hurricane Harvey in the Gulf of Mexico expecting landfall near the Corpus Christi area
 - One Watch issued for the Eagle Pass DC Tie due to reliability issues
 - Nine Advisories issued due to Physical Responsive Capability being below 3000 MW
 - One Advisory issued for Tropical Storm Harvey in the Gulf of Mexico projecting an impact to the ERCOT Region
 - One Advisory issued due to ERCOT's Voltage Security Assessment Tool unavailability
 - Four OCNs issued for projected Reserve Capacity shortages
 - One OCN issued for future tropical storm Harvey
 - One OCN issued due to ERCOT developing a new Generic Transmission Constraint
 - One OCN issued for unplanned transmission outages that may impact reliability

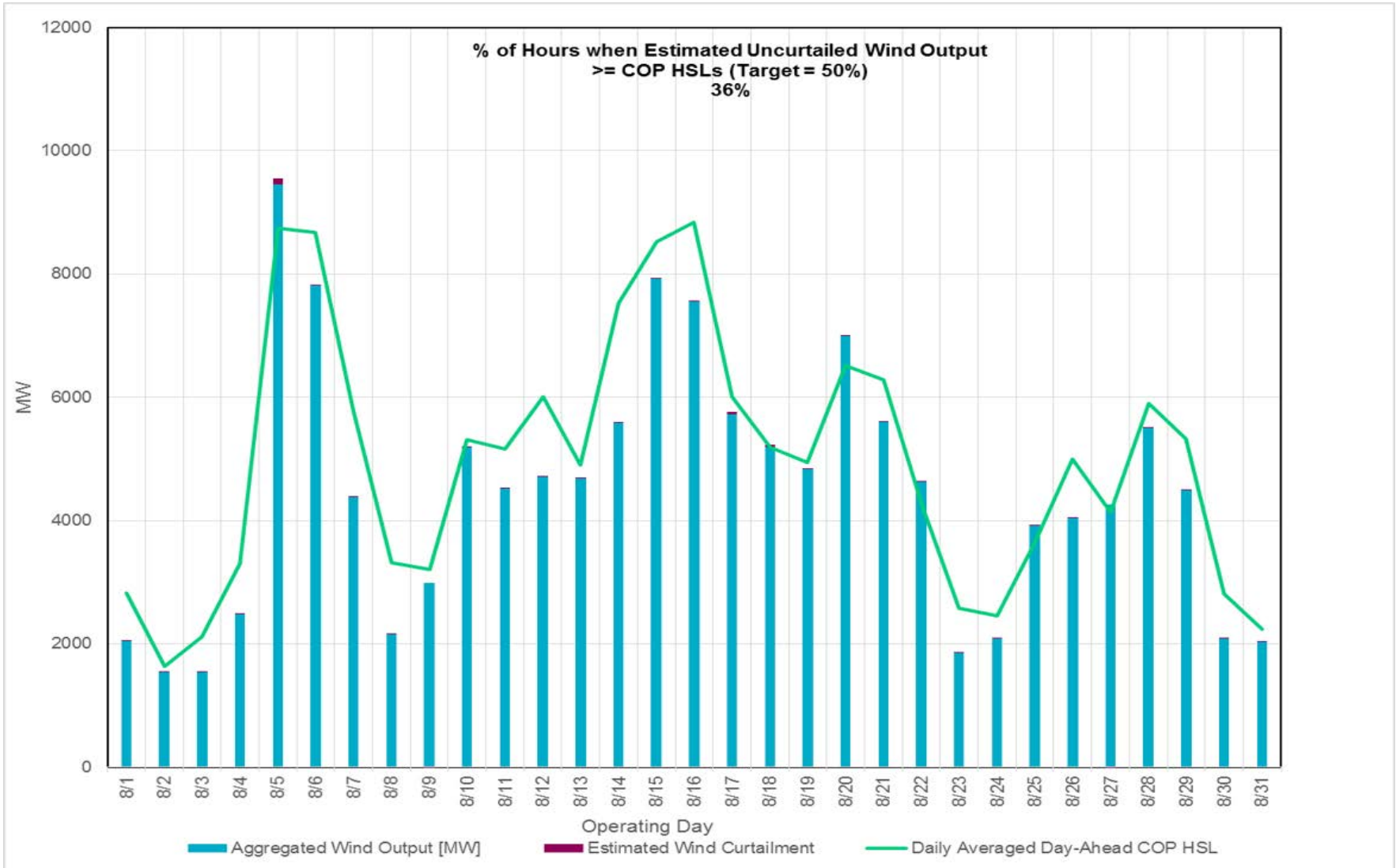
Planning Activities

- 321 active generation interconnection requests totaling 66,842 MW, including 28,605 MW of wind generation, as of August 31, 2017. Two fewer requests and a decrease of 1,097 MW from July 31, 2017.
- 19,565 MW wind capacity in commercial operations as of September 1, 2017.

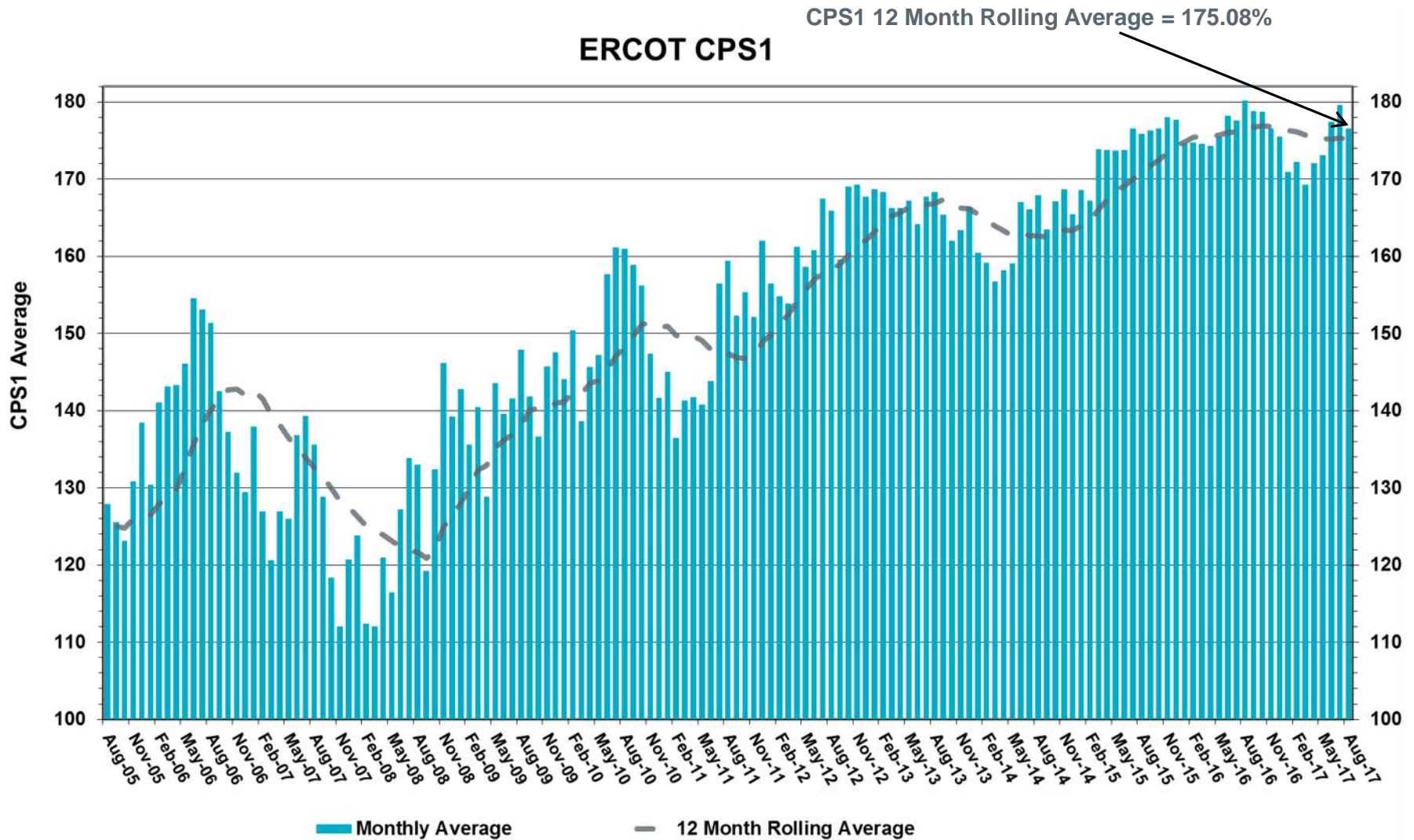
Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-Line Capacity at Peak – August 2017



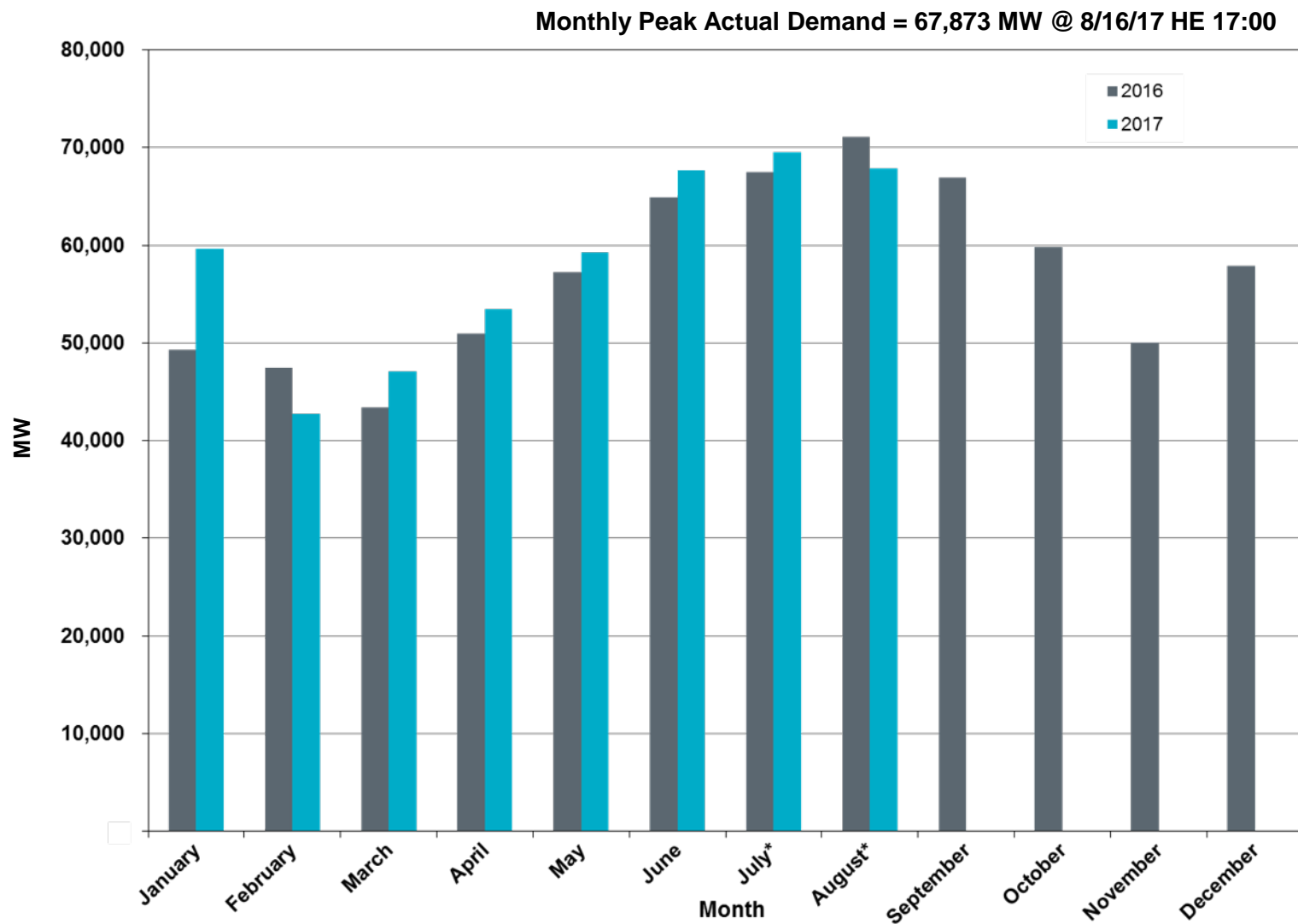
Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – August 2017



ERCOT's CPS1 Monthly Performance – August 2017

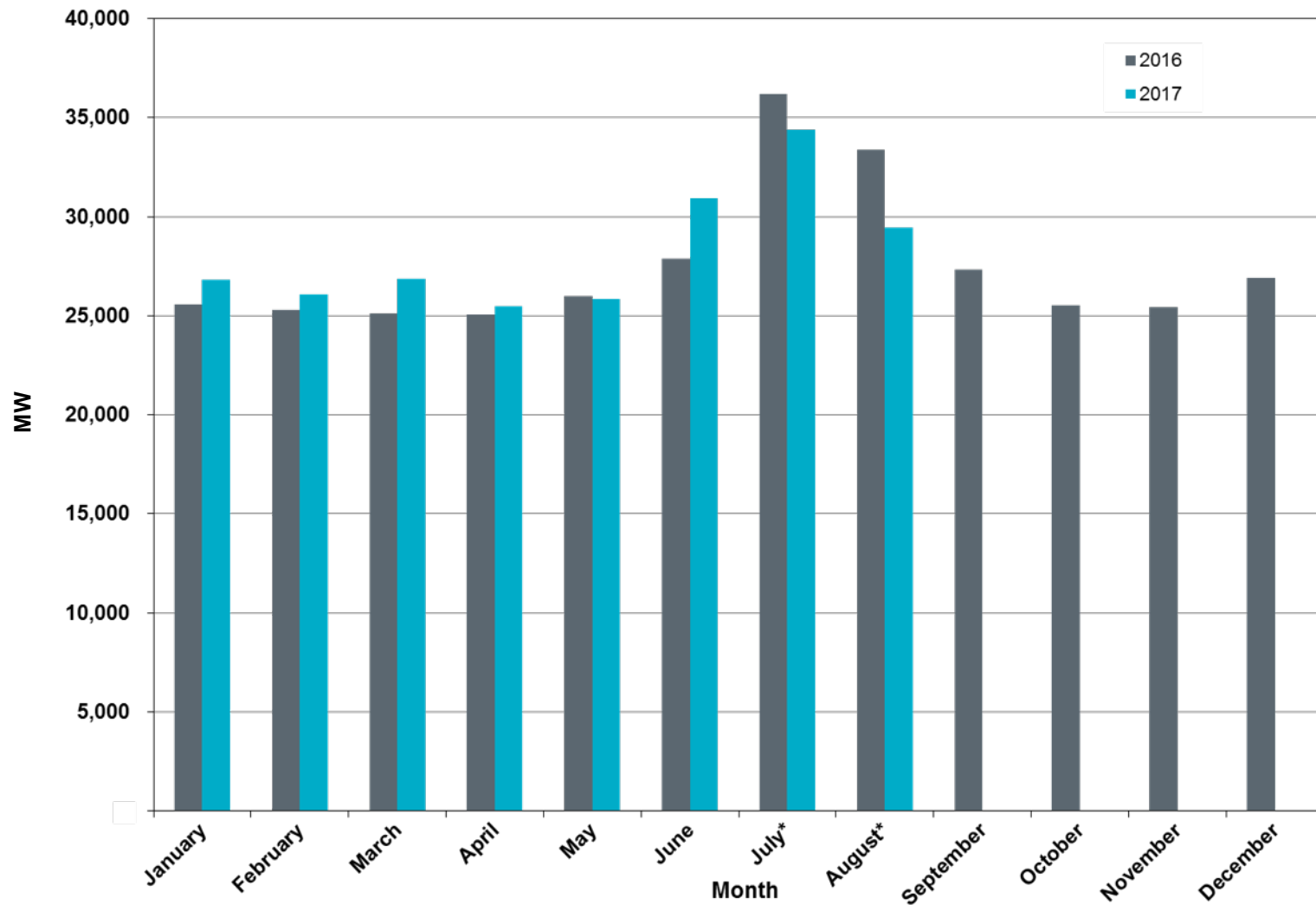


Monthly Peak Actual Demand – August 2017



* Preliminary for latest two months of the current year

Monthly Minimum Actual 15-Minute Demand – August 2017



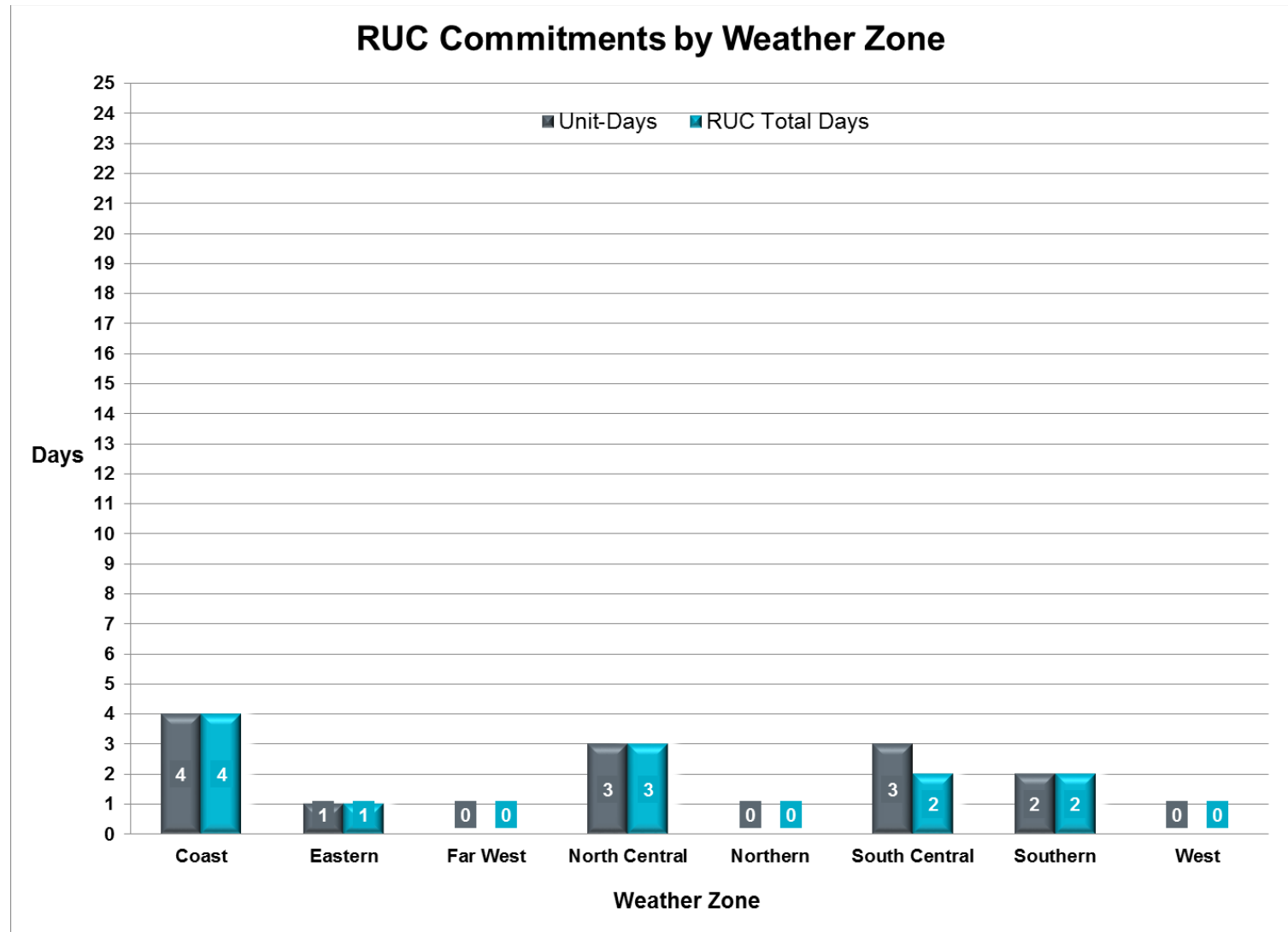
* Preliminary for latest two months of the current year

Day-Ahead Load Forecast Performance – August 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	August 2017 MAPE	
Average Annual MAPE	2.83	2.86	2.62	2.63	2.77	
Lowest Monthly MAPE	2.15	1.89	1.94	2.02	Lowest Daily MAPE	0.51 Aug 22
Highest Monthly MAPE	3.70	3.81	3.86	4.07	Highest Daily MAPE	8.97 Aug 07

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



Generic Transmission Constraints (GTCs) – August 2017

GTCs	Aug-16 Days GTCs	Jun-17 Days GTCs	Jul-17 Days GTCs	Aug-17 Days GTCs	Last 12 Months Total Days (Sep 16 – Aug 17)
North – Houston	0	0	1	0	4
Valley Import	0	4	0	1	9
Zorillo - Ajo	4	0	0	0	10
Panhandle	2	21	17	7	250
Laredo	4	1	0	0	8
Liston	25	0	0	0	99
Red Tap	0	0	0	0	0
Bakersfield	-	0	0	0	69
Pomelo	-	-	-	1	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.

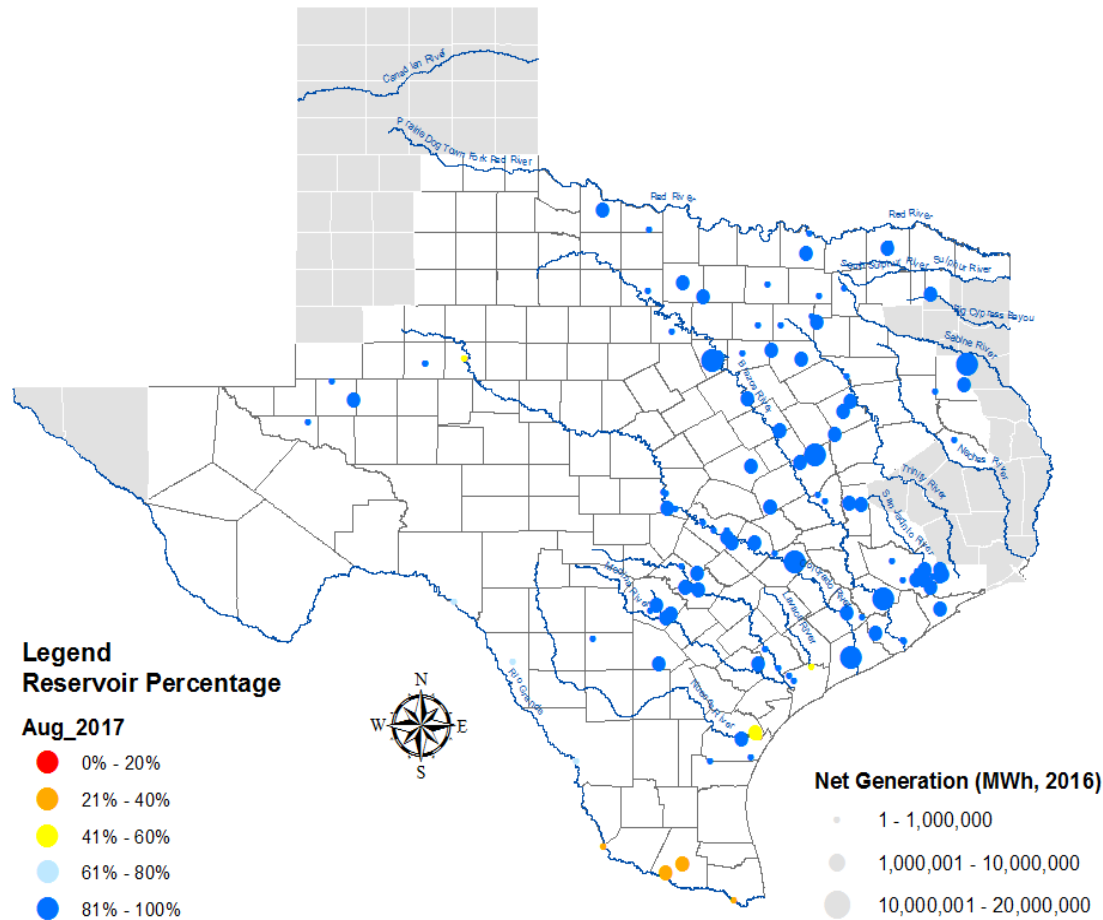
Advisories and Watches – August 2017

- One Emergency Notice issued due to Hurricane Harvey having an adverse impact on the ERCOT System due to transmission line outages
 - Issued 8/25
- One Watch issued due to the Eagle Pass DC Tie tripping
 - Issued on 8/1
- Two Watches issued due to the Laredo DC Tie tripping
 - Issued on 8/17, 8/24
- One Watch issued for Hurricane Harvey in the Gulf of Mexico expecting landfall near the Corpus Christi area
 - Issued on 8/24
- One Watch issued for the Eagle Pass DC Tie due to reliability issues
 - Issued on 8/25
- Nine Advisories issued due to Physical Responsive Capability being below 3000 MW
 - Issued on 8/3, 8/8, 8/9, 8/16, 8/19, 8/22, 8/24, 8/29, 8/30

Advisories and Watches – August 2017

- One Advisory issued for Tropical Storm Harvey in the Gulf of Mexico projecting an impact to the ERCOT Region
 - Issued on 8/24
- One Advisory issued due to ERCOT's Voltage Security Assessment Tool unavailability
 - Issued on 8/30
- Four OCNs issued for projected Reserve Capacity shortages
 - Issued on 8/3, 8/4, 8/5, 8/6
- One OCN issued for future tropical storm Harvey
 - Issued on 8/23
- One OCN issued due to ERCOT developing a new Generic Transmission Constraint
 - Issued 8/24
- One OCN issued for unplanned transmission outages that may impact reliability
 - Issued on 8/30

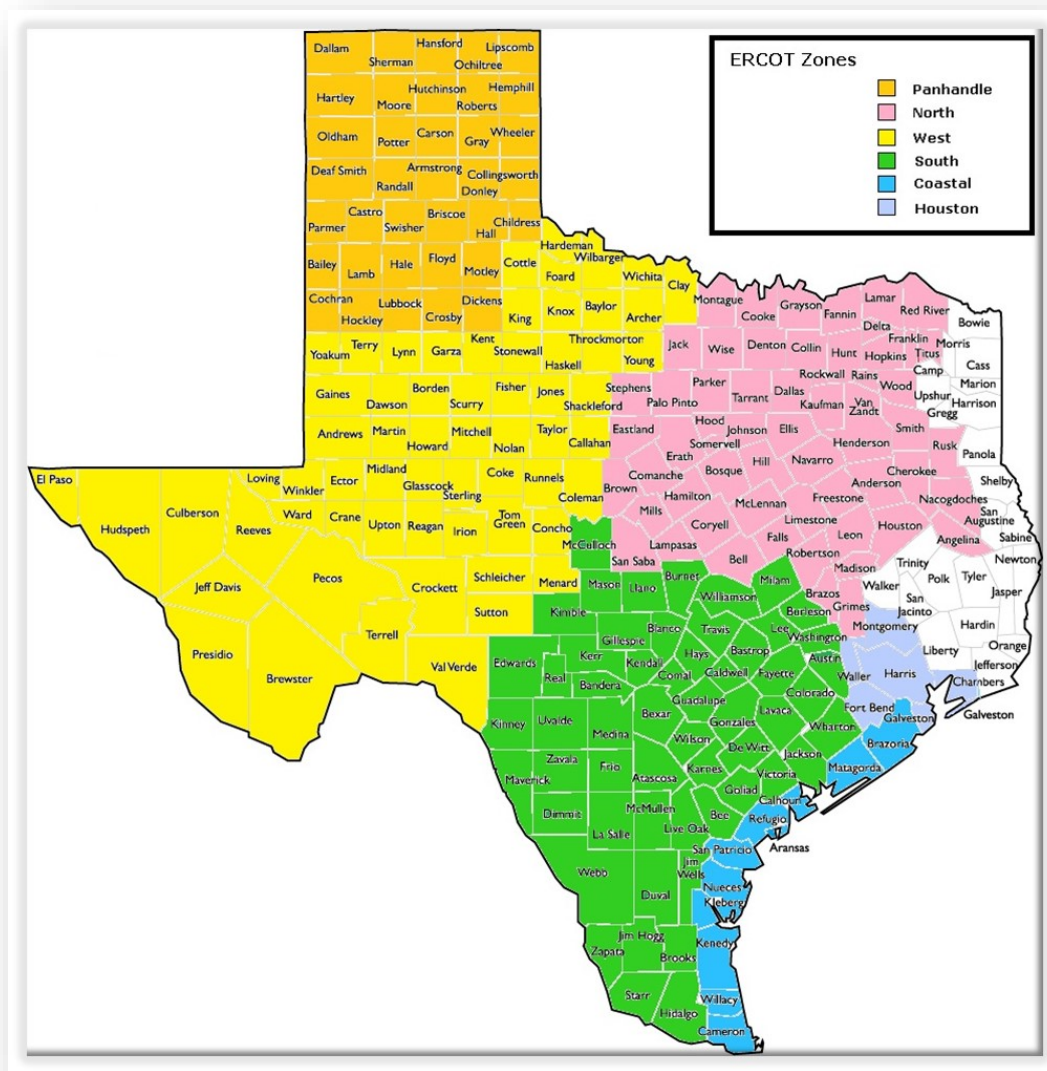
Lake Levels Update – September 1, 2017



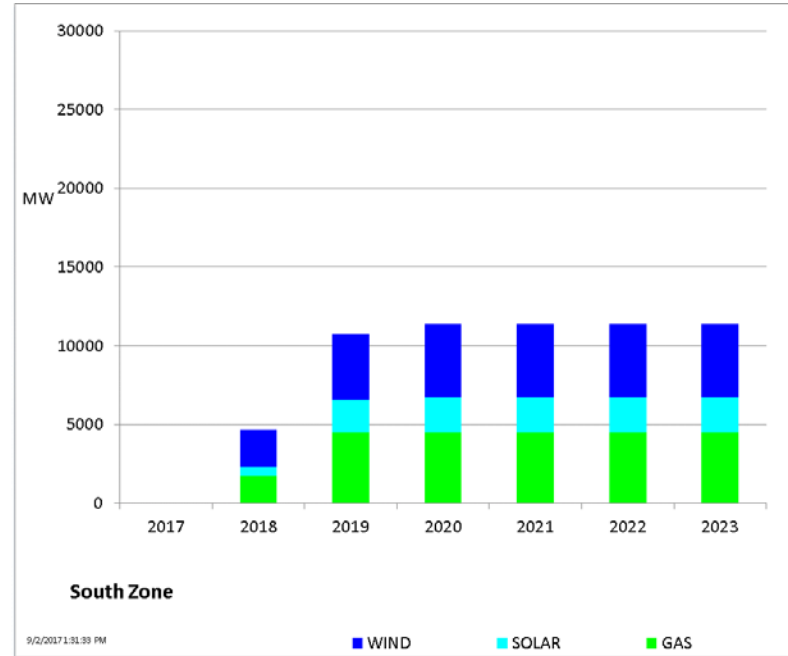
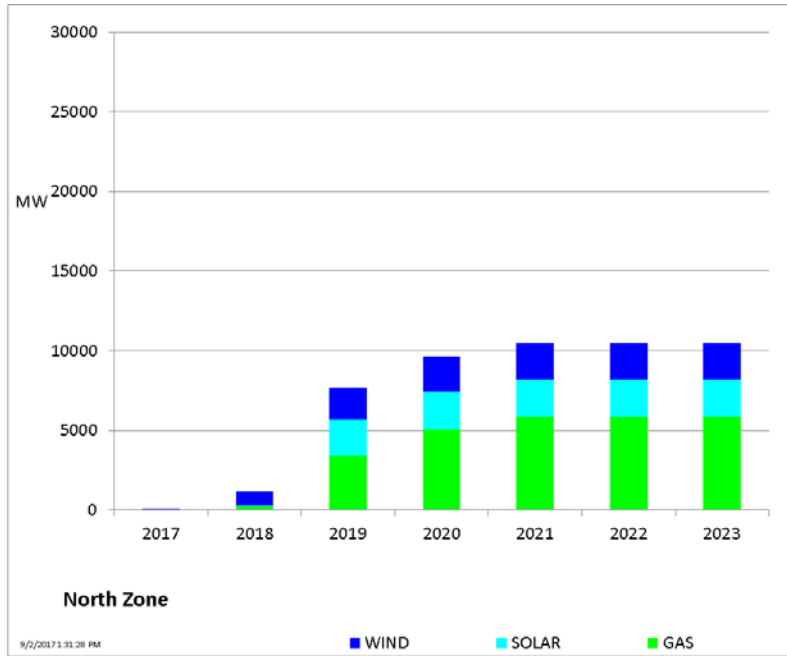
Planning Summary – August 2017

- ERCOT is currently tracking 321 active generation interconnection requests totaling 66,842 MW. This includes 28,605 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$870.8 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).

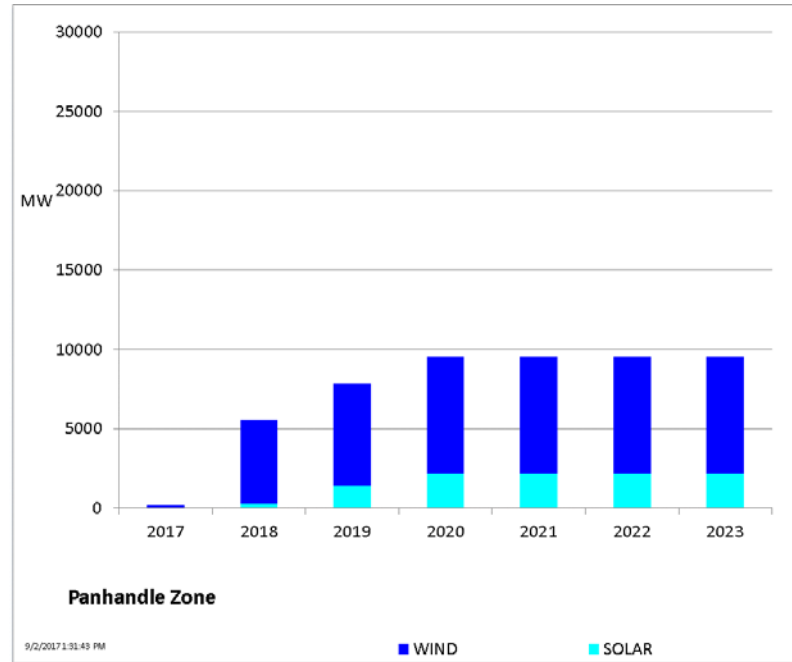
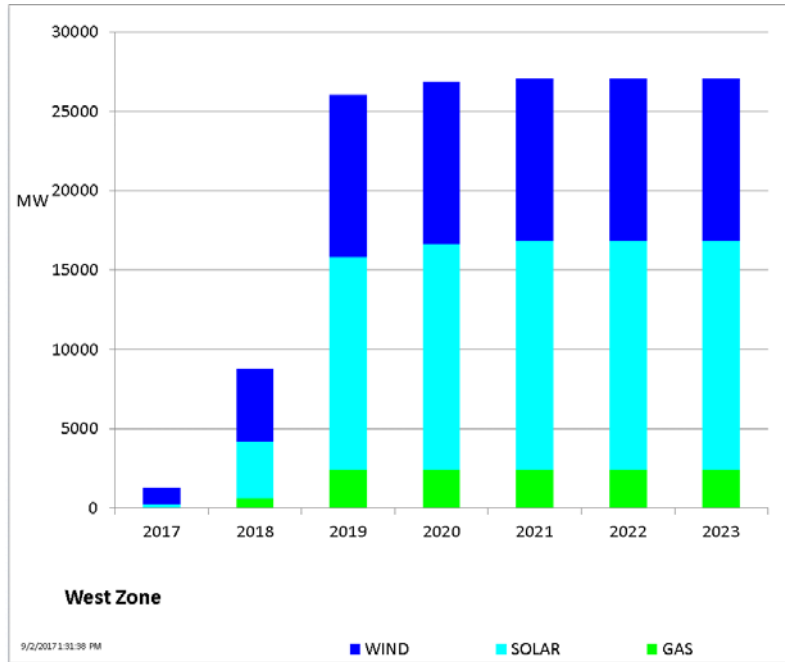
Mapping of Counties to ERCOT Zones – August 2017



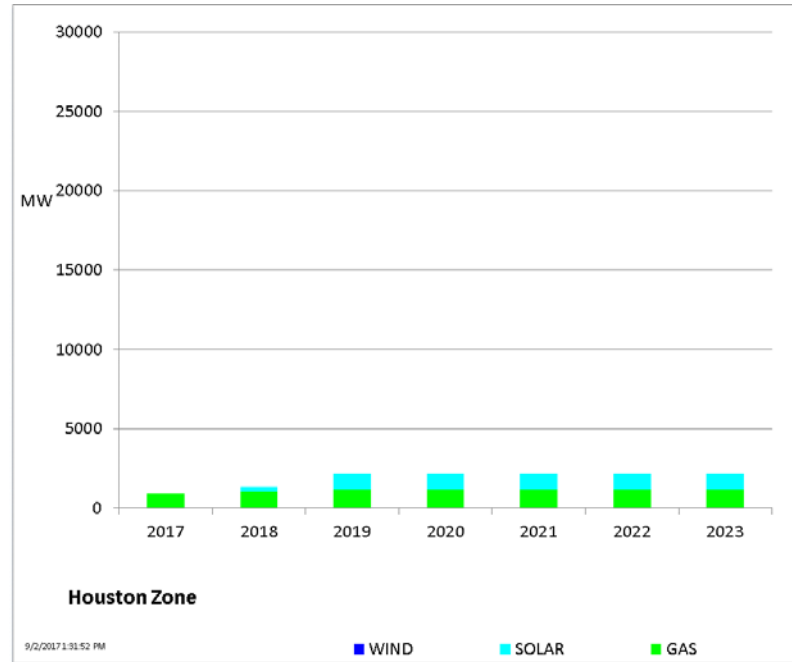
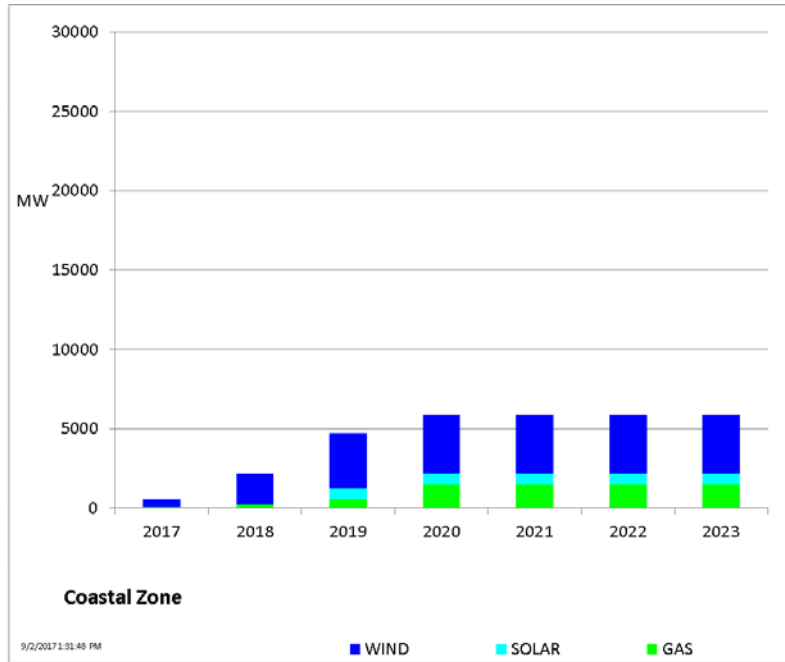
Cumulative MW Capacity of Interconnection Requests by Zone – August 2017



Cumulative MW Capacity of Interconnection Requests by Zone – August 2017

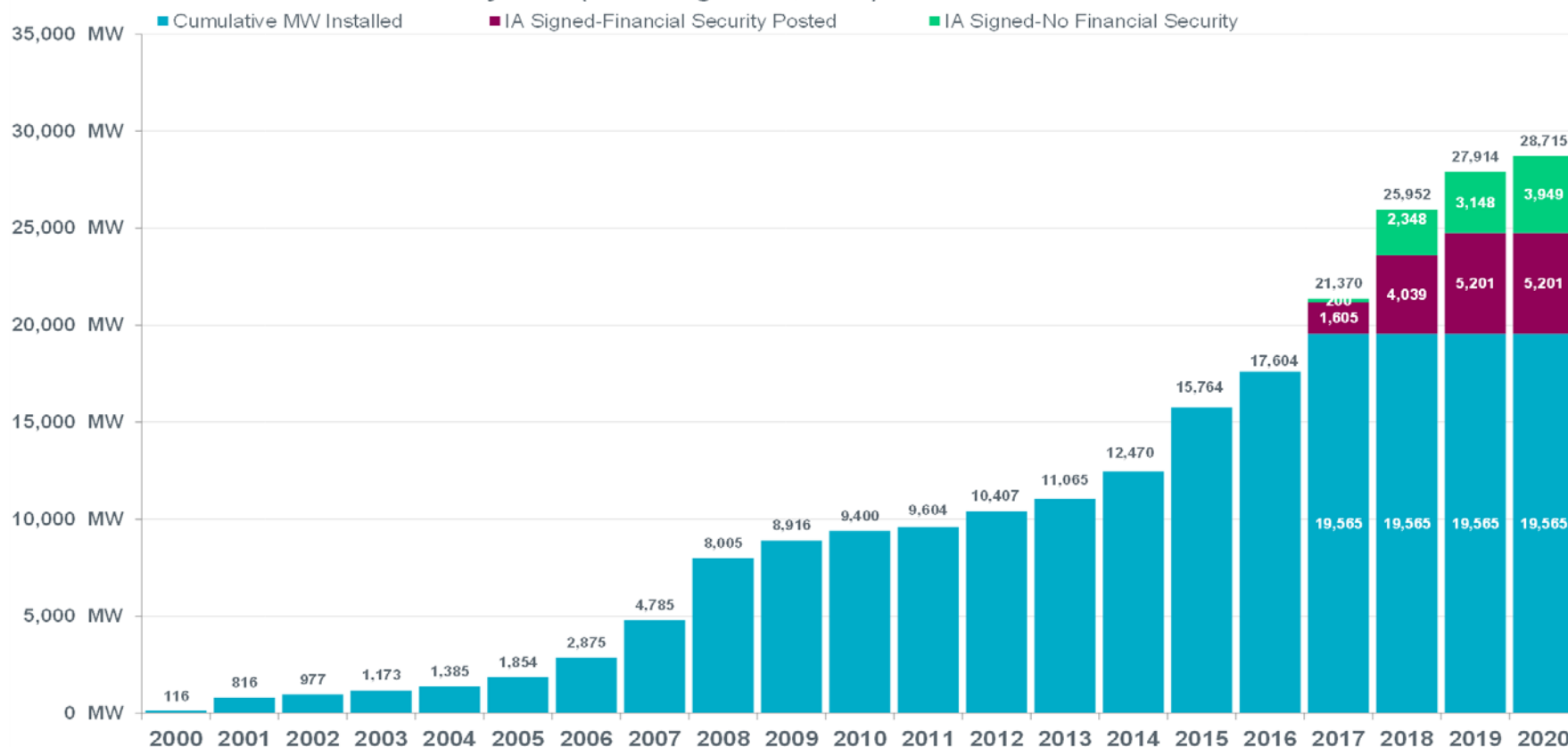


Cumulative MW Capacity of Interconnection Requests by Zone – August 2017



Wind Generation – August 2017

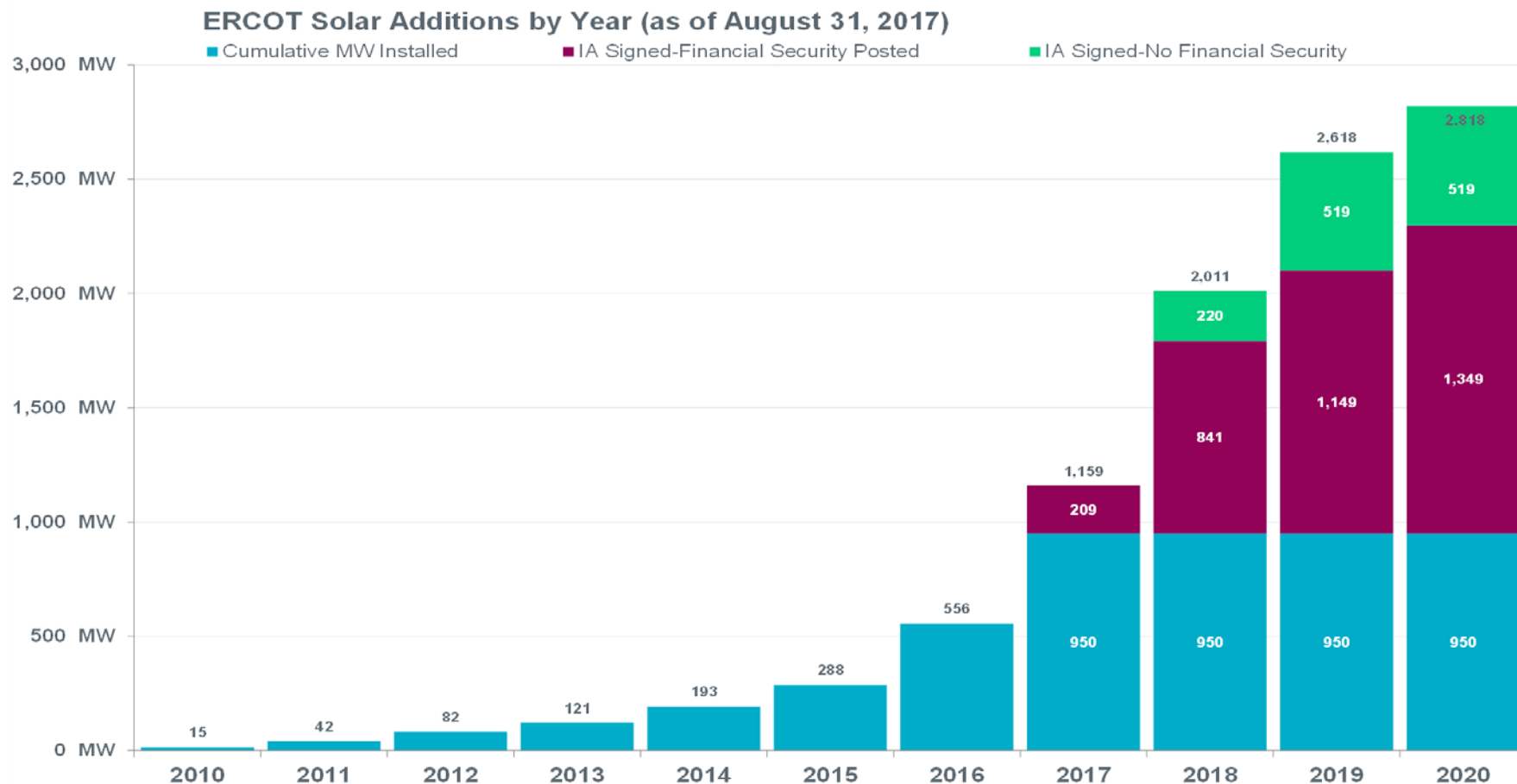
ERCOT Wind Additions by Year (as of August 31, 2017)



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.

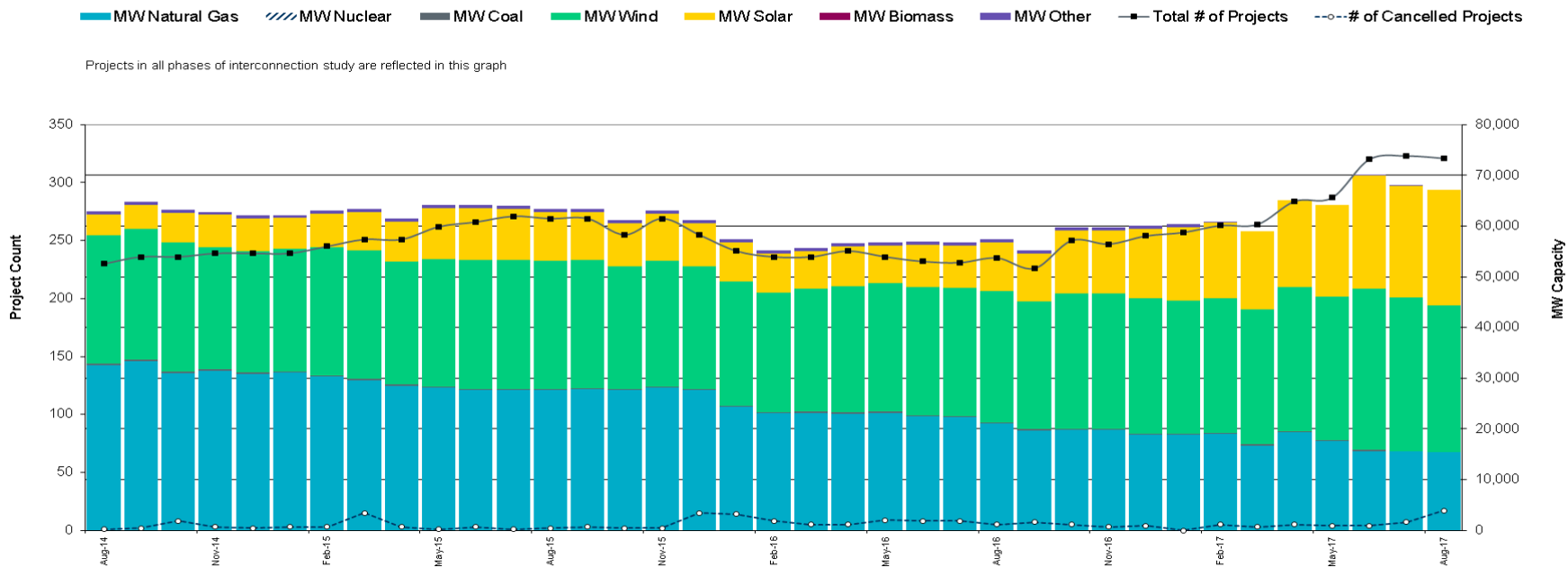
Solar Generation – August 2017



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 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.

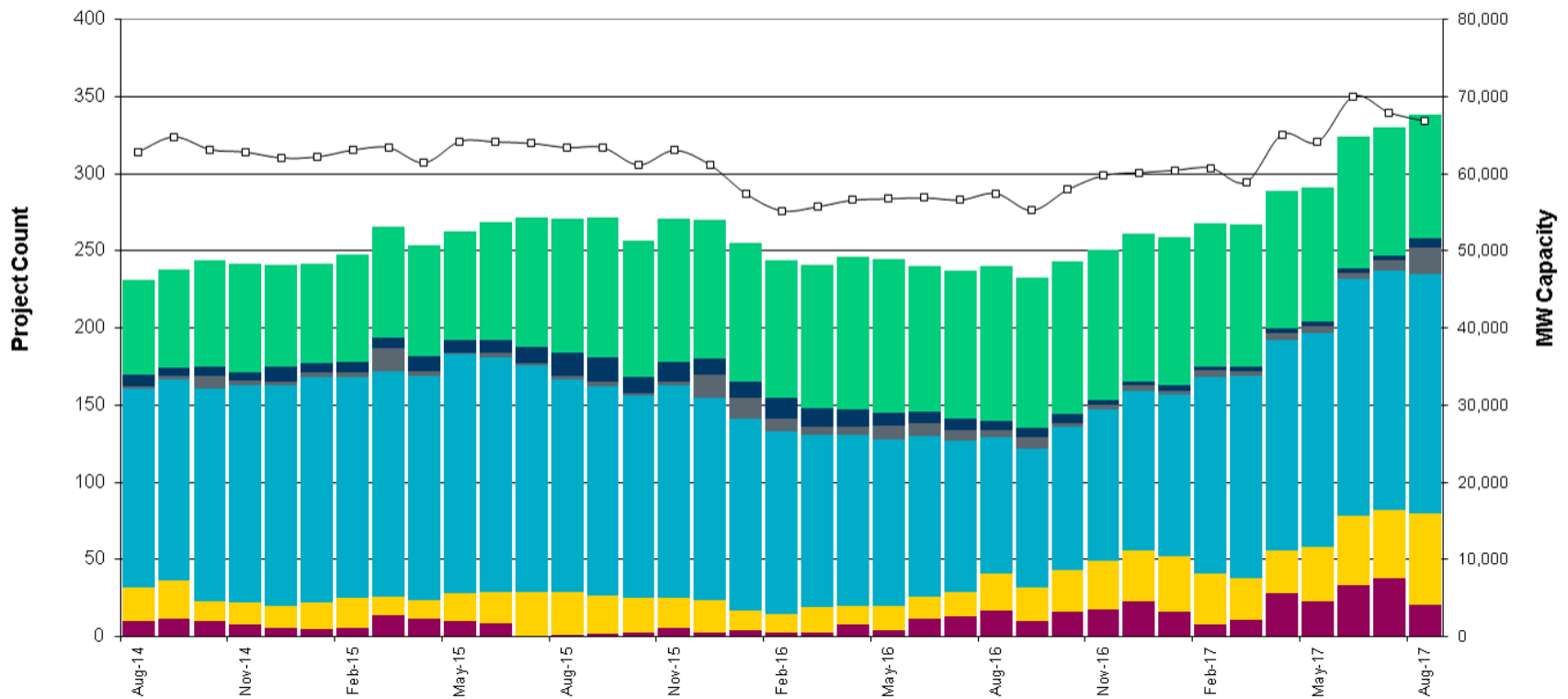
Generation Interconnection Activity by Fuel – August 2017



Generation Interconnection Activity by Project Phase – August 2017

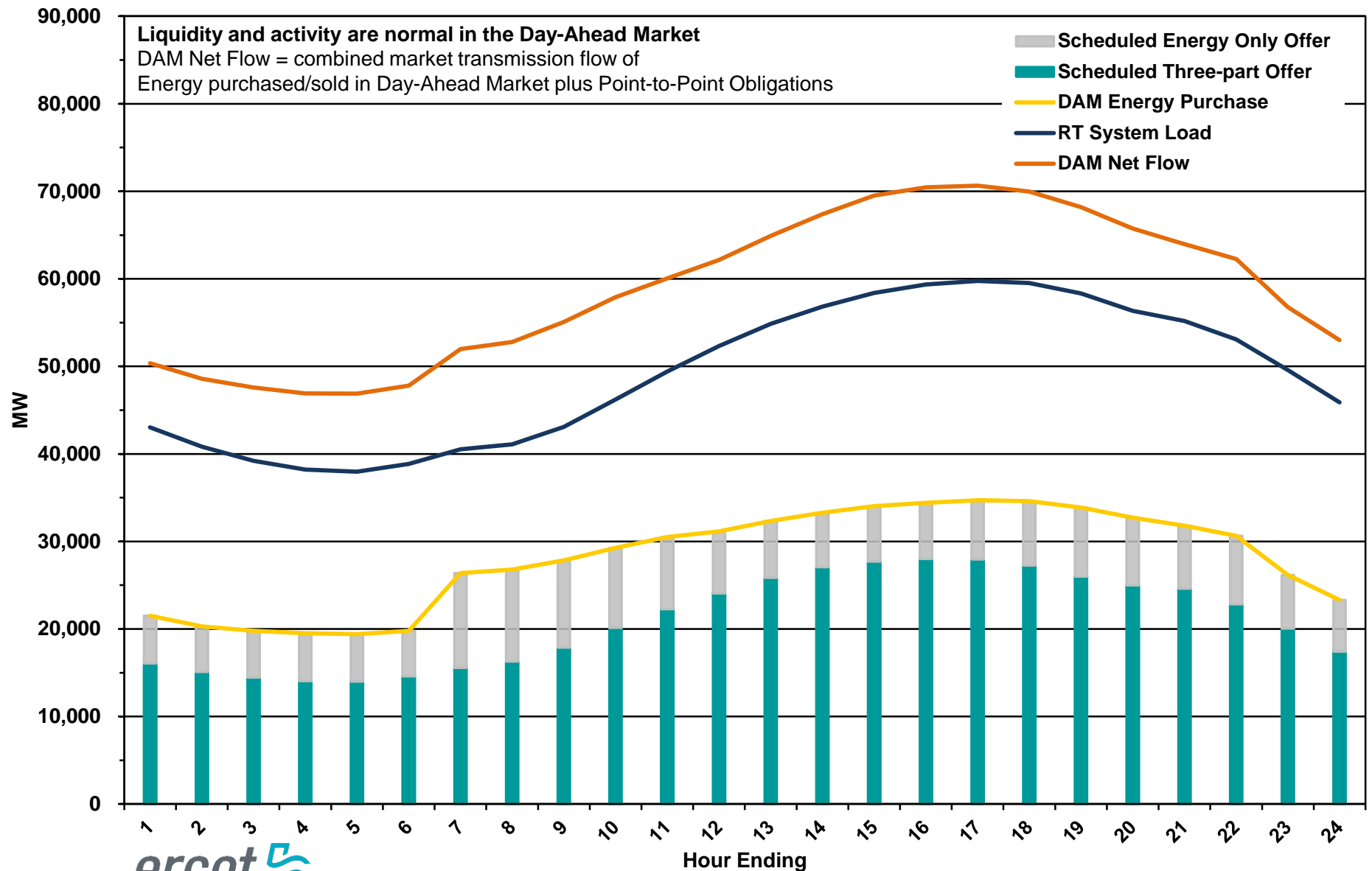
■ # Signed Interconnect Agreement
 ■ # Completed Full Study
 ■ # Projects Cancelled
 ■ # in Full Study
■ # Screening Study Complete
■ # Initial Screening Study
—□— MW Capacity Under Study *

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

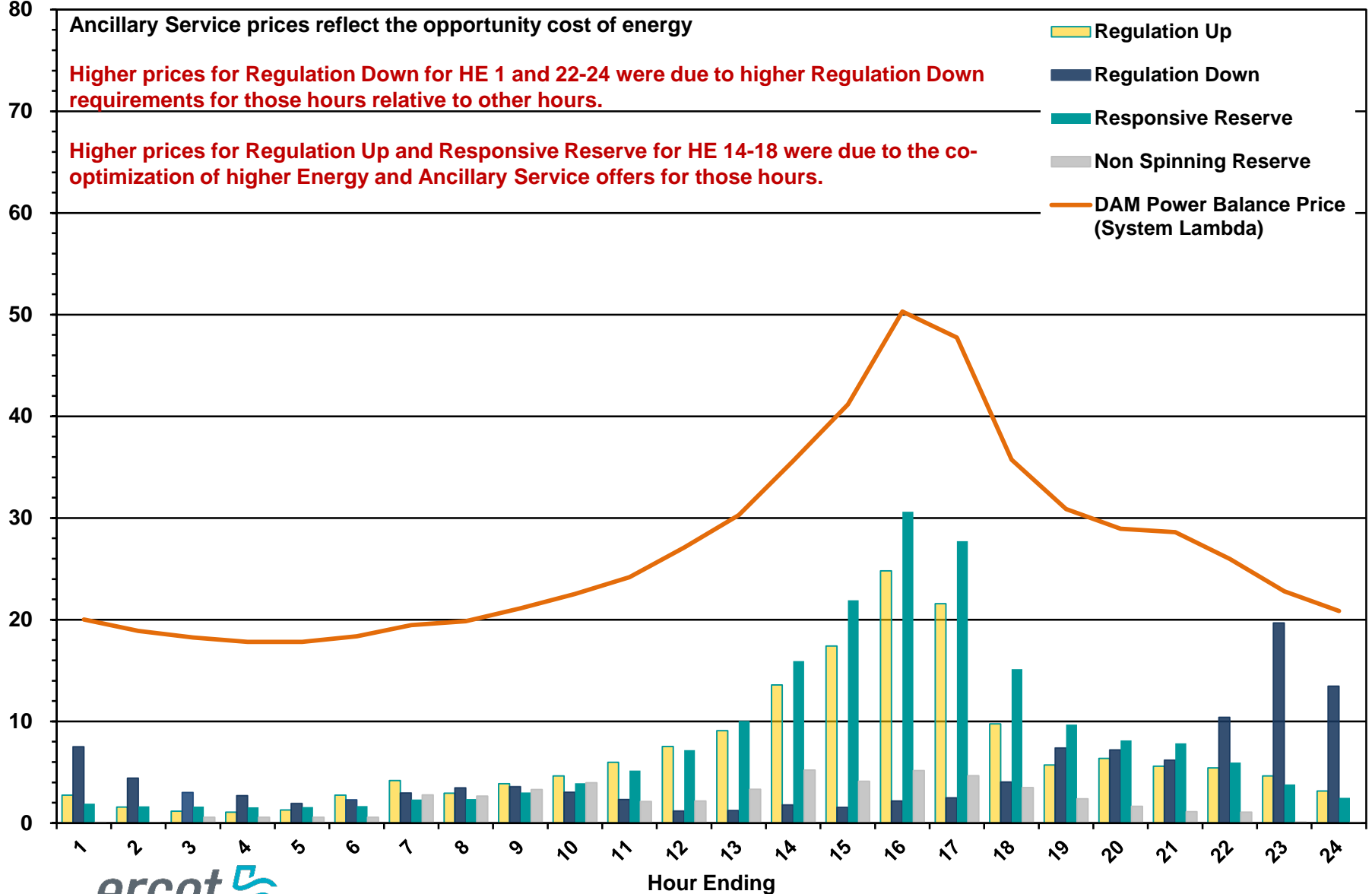


Market Operations

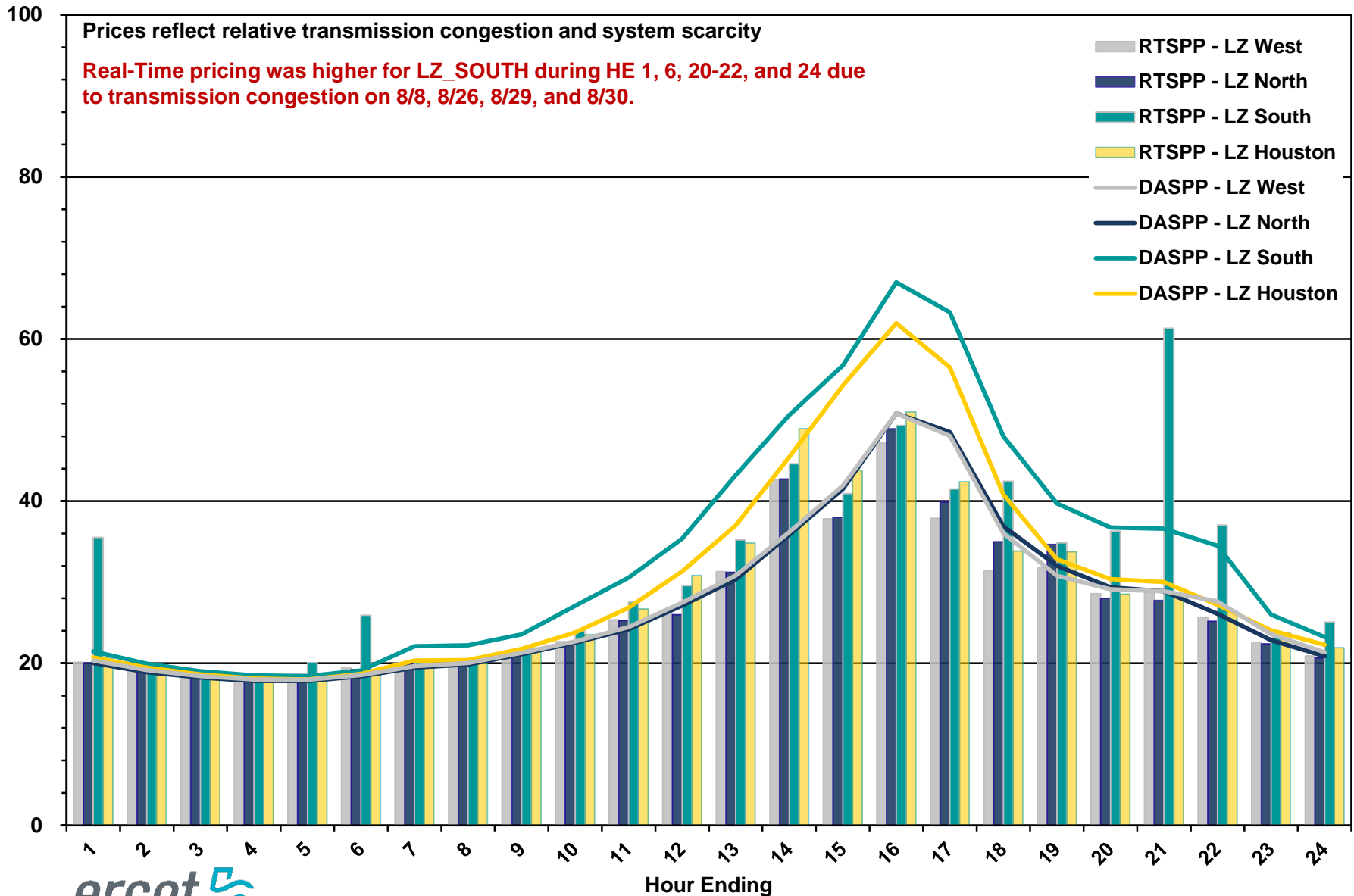
Day-Ahead Schedule (Hourly Average) – August 2017



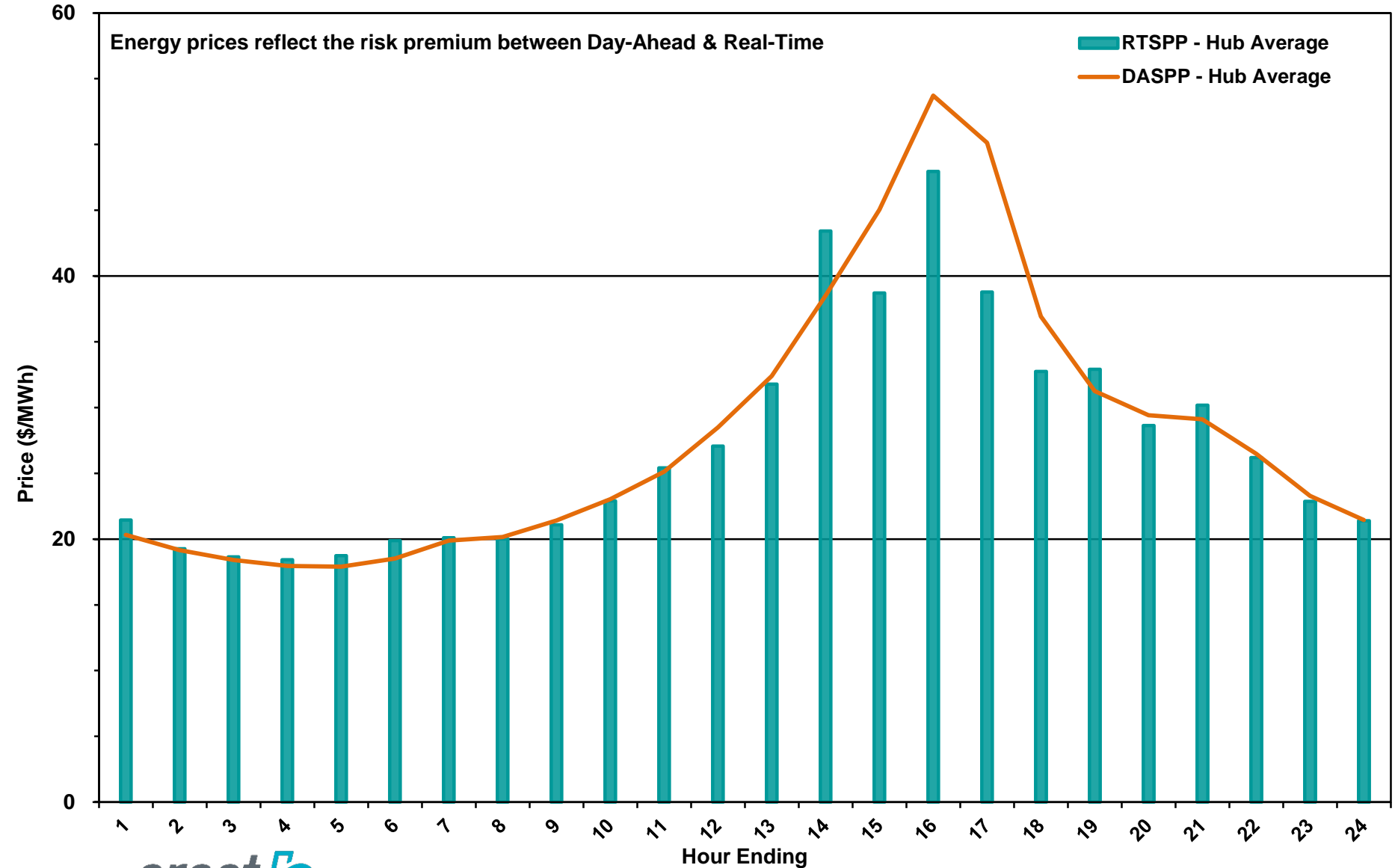
Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – August 2017



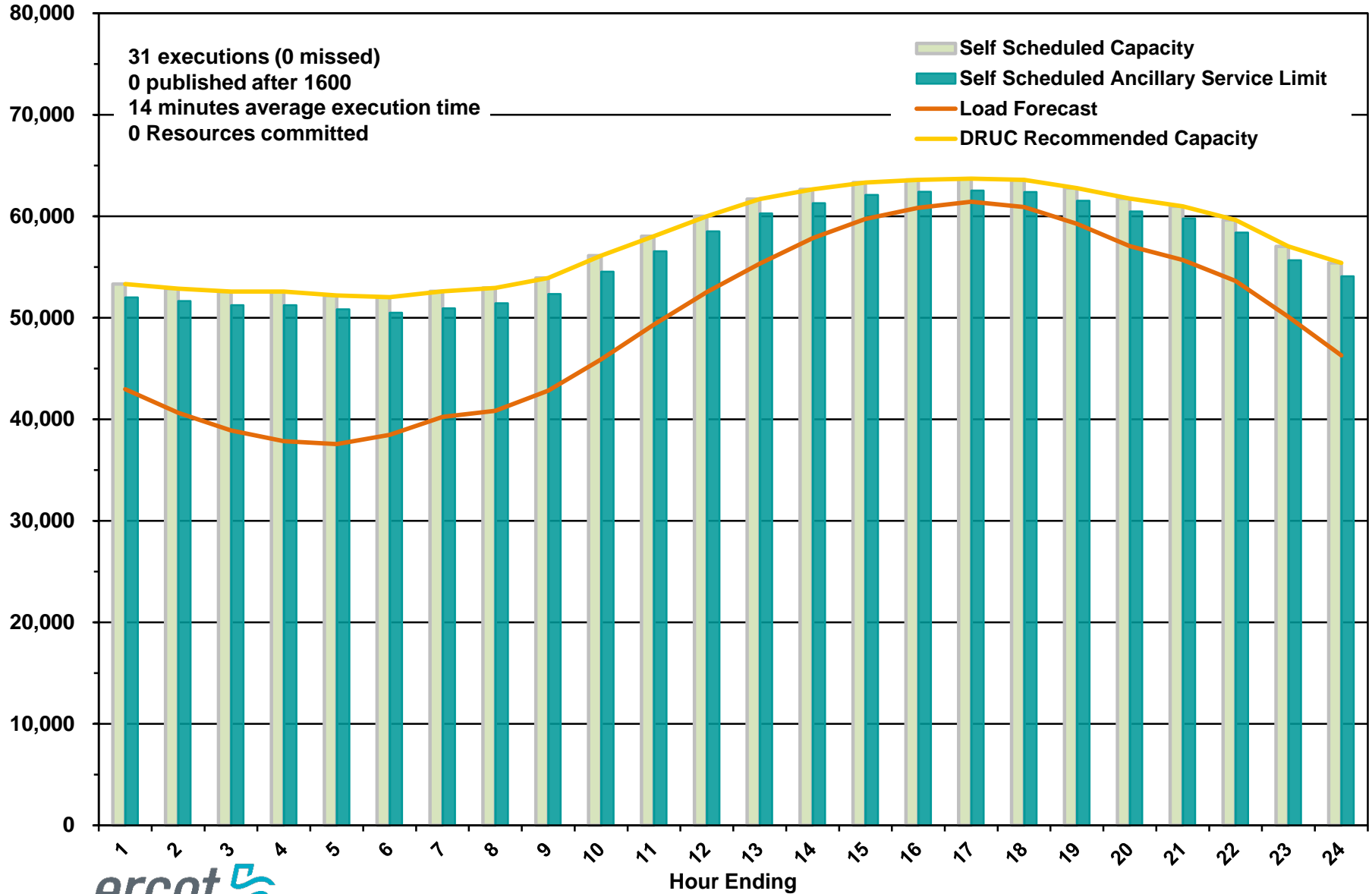
Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – August 2017



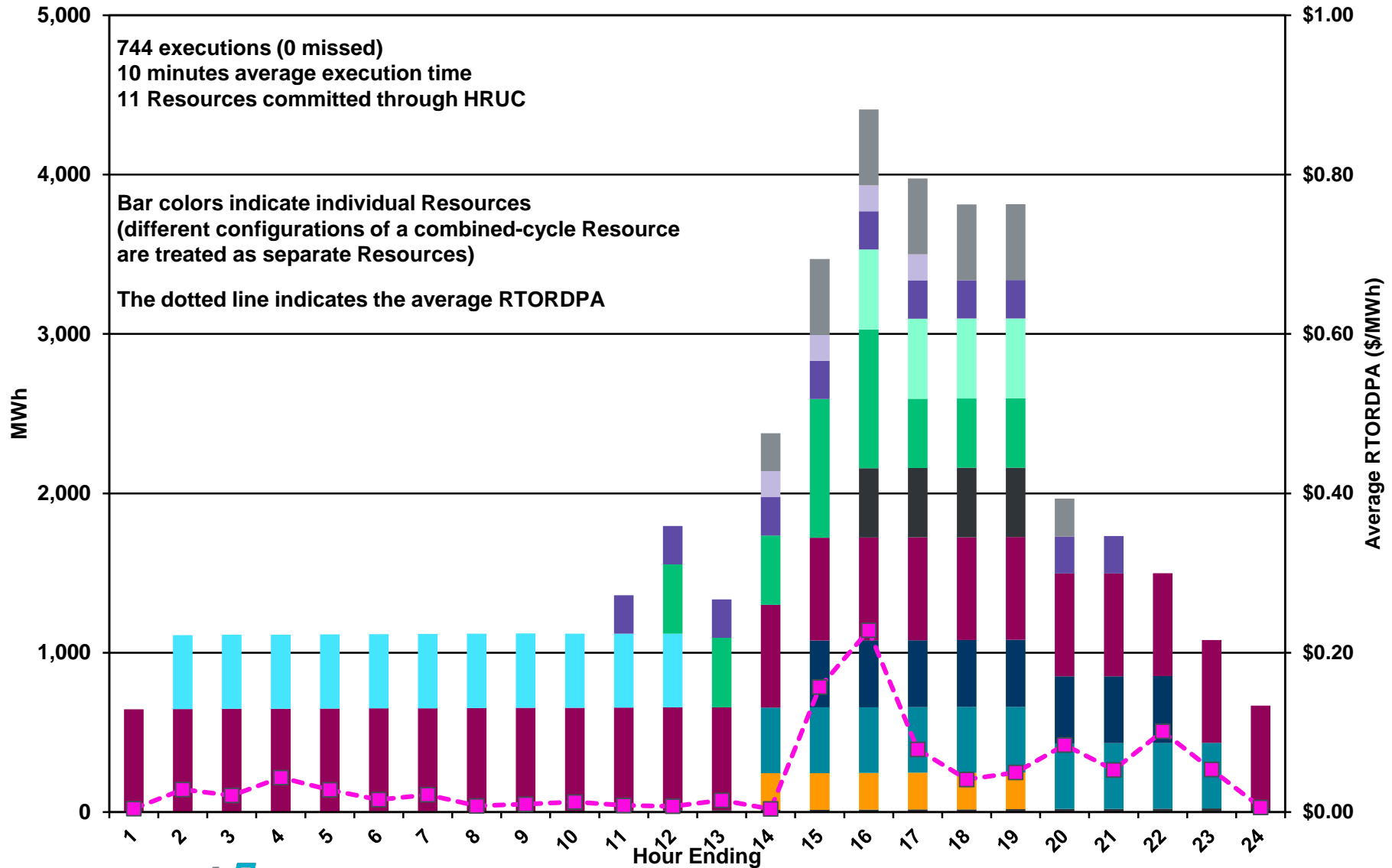
Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – August 2017



DRUC Monthly Summary (Hourly Average) – August 2017



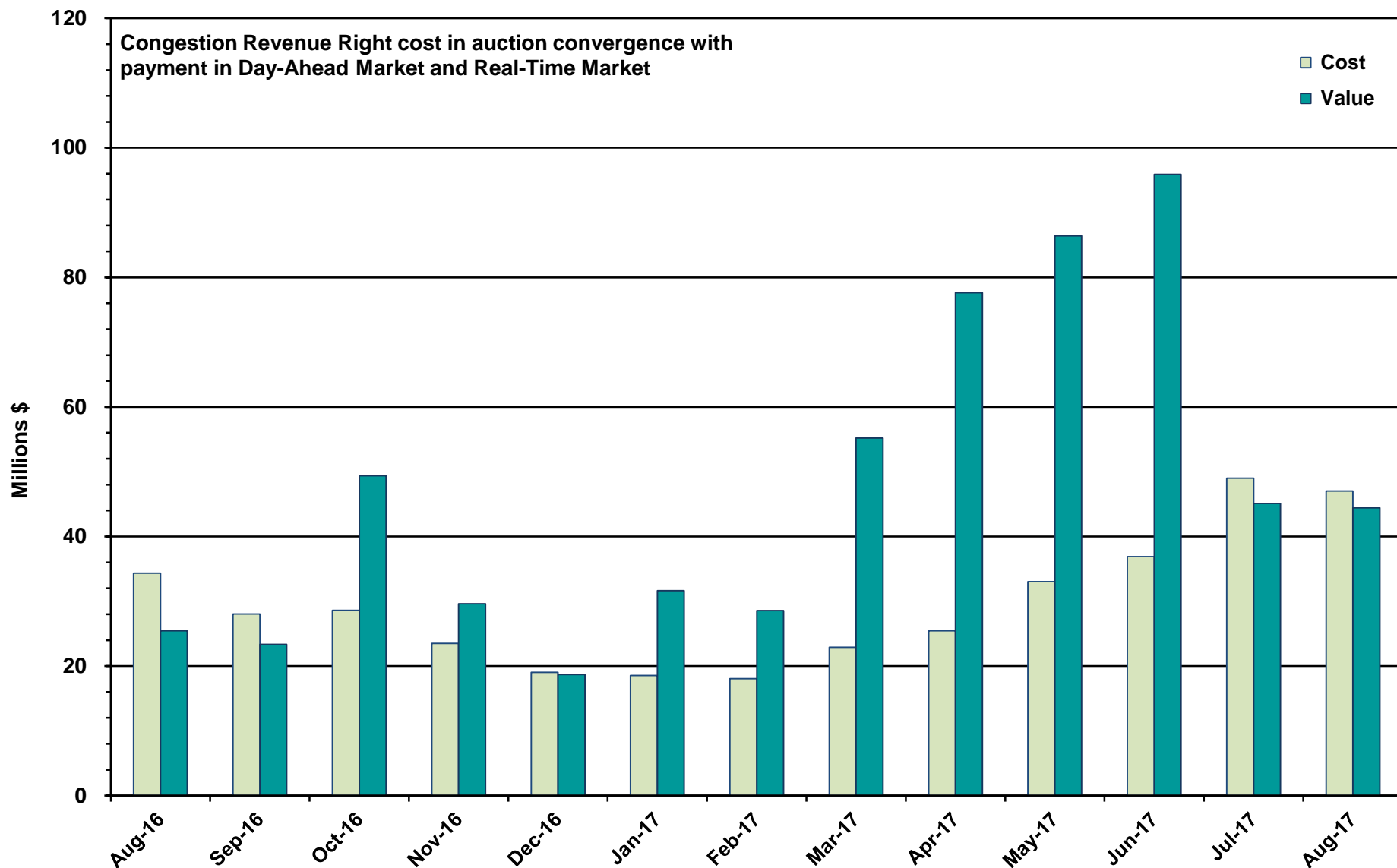
HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – August 2017



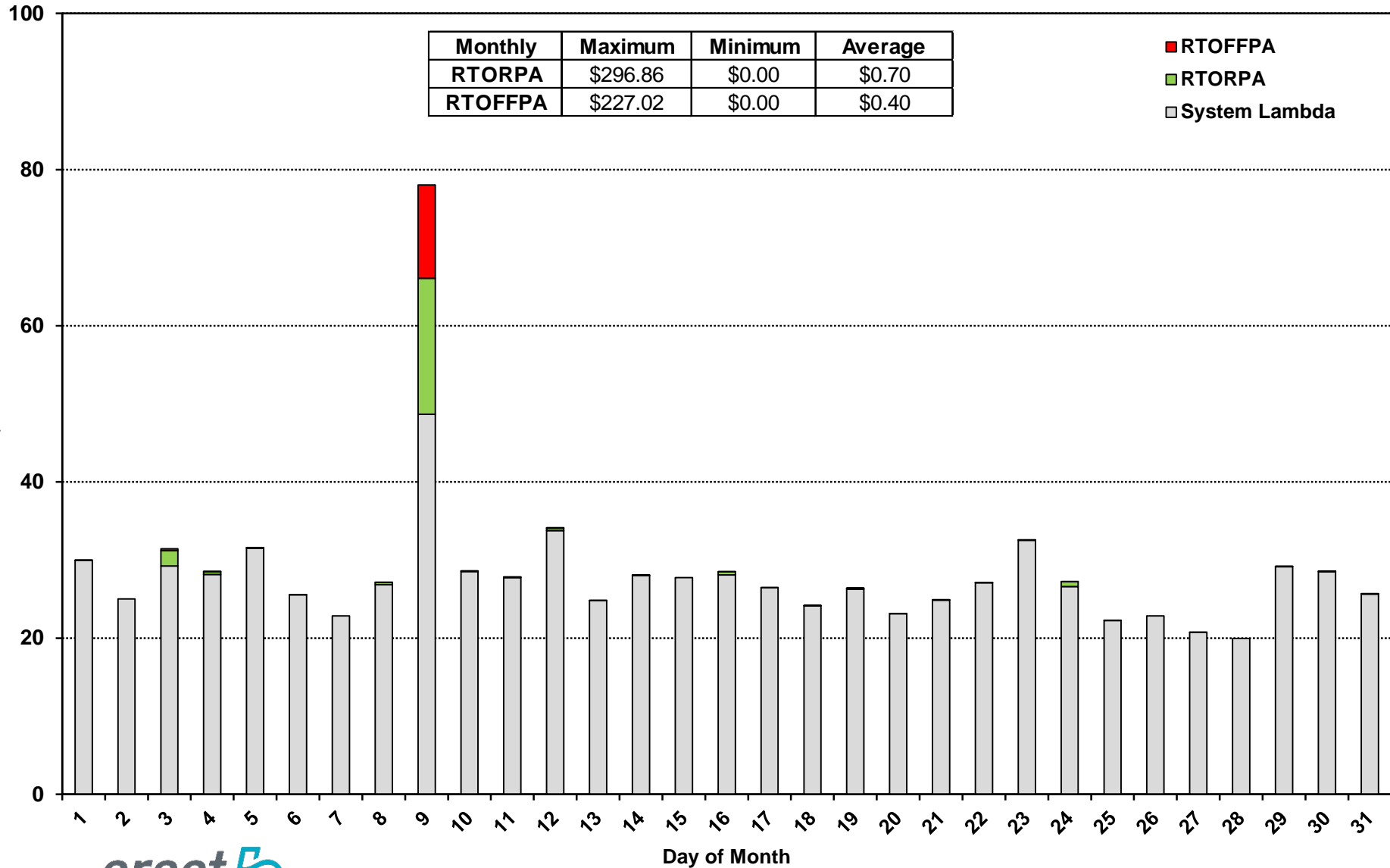
Non-Spinning Reserve Service Deployment – August 2017

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

CRR Price Convergence – August 2017



Daily Average System Lambda and ORDC Price Adders – August 2017



ERS Procurement for June – September 2017

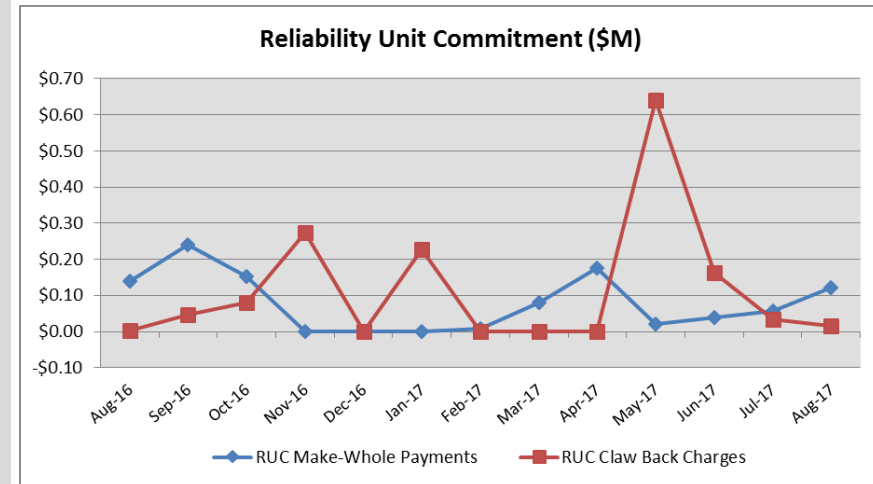
	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	238.153	238.502	226.089	220.575	234.775	229.501
Non Weather-Sensitive ERS-30 MW	644.329	701.368	631.588	606.867	659.287	567.486
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	0	0	9.172	9.172	0	0
Total MW Procured	882.482	939.870	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.

<u>Time Period</u>	<u>Time Period Hours</u>
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 – August 2017

Reliability Unit Commitment (RUC)	\$ in Millions
RUC Make-Whole Payments	(\$0.12)
RUC Clawback Charges	\$0.02
RUC Commitment Settlement	(\$0.10)
RUC Capacity Short Charges	\$0.12
RUC Make-Whole Uplift	\$0.00
RUC Commitment Cost Allocation	\$0.12
RUC Decommitment Payments	\$0.00



RUC Make-Whole Payments were \$0.12M in August 2017.
RUC Clawback Charges were \$0.02M.

There was \$0.02M allocated directly to load in August 2017, compared to:

- \$0.03M in July 2017
- \$0.00M in August 2016

Capacity Services – August 2017

Capacity Services	\$ in Millions
Regulation Up Service	\$1.71
Regulation Down Service	\$1.44
Responsive Reserve Service	\$11.51
Non-Spinning Reserve Service	\$2.43
Black Start Service	\$0.60
Voltage Services - Reactive Power	\$0.00
Voltage Services - Lost Opportunity	\$0.00
Total Charges	\$17.69

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

August 2017 cost was \$17.69M, compared to:

- A charge of \$23.22M in July 2017
- A charge of \$32.16M in August 2016

Energy Settlement – August 2017

Day-Ahead Market Energy Settlement	\$ in Millions
Energy Purchases	\$622.43
Point to Point Obligation Purchases	\$45.24
Energy Sales	(\$617.93)
Day-Ahead Congestion Rent	\$49.73
Day-Ahead Market Make-Whole Payments	(\$0.04)

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

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

Real-Time Market Energy Settlement	\$ in Millions
Energy Imbalance at a Resource Node	(\$531.76)
Energy Imbalance at a Load Zone	\$859.40
Energy Imbalance at a Hub	(\$291.21)
Real Time Congestion from Self Schedules	\$0.26
Block Load Transfers and DC Ties	(\$4.51)
Impact to Revenue Neutrality	\$32.18
Emergency Energy Payments	(\$0.13)
Base Point Deviation Charges	\$0.35
Real-Time Metered Generation (MWh in millions)	36.32

Congestion Revenue Rights (CRR) – August 2017

	\$ in Millions
Annual Auction	(\$26.72)
Monthly Auction	(\$20.29)
Total Auction Revenue	(\$47.01)
Day-Ahead CRR Settlement	(\$44.44)
Day-Ahead CRR Short-Charges	\$2.66
Day-Ahead CRR Short-Charges Refunded	(\$2.66)
Real-Time CRR Settlement	\$0.00
Real-Time CRR Short-Charges	\$0.00
Real-Time CRR Short-Charges Refunded	\$0.00
Total CRR Funding	(\$44.44)
Day-Ahead Point to Point Obligations Settlement	\$45.24
Real-Time Point to Point Obligation Settlement	(\$33.64)
Net Point to Point Obligation Settlement	\$11.60

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

Point to Point Obligations settled with a net charge of \$11.60M compared to a net charge of \$25.78M last month.

CRR Balancing Account Fund – August 2017

CRR Balancing Account Fund	\$ in Millions
Beginning Balance for the Month	\$10.00
CRR Balancing Account Credit Total	\$7.95
CRR PTP Option Award Charges	\$0.04
Day-Ahead CRR Short-Charges Refunded	(\$2.66)
Load Allocated CRR Amount	(\$5.34)
Total Fund Amount	\$10.00

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

As of August 2017, the CRR Balancing Account Fund was at \$10.00M and excess funds of \$5.34M were allocated to Load.

Revenue Neutrality – August 2017

Revenue Neutrality Settlement

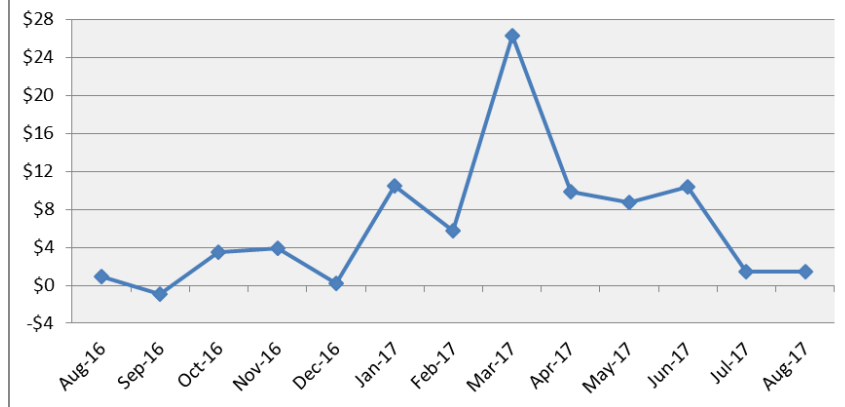
	\$ in Millions
Real-Time Point to Point Obligation Settlement	(\$33.64)
Real-Time Point to Point Options and Options with Refund Settlement	\$0.00
Real-Time Energy Imbalance Settlement	\$36.43
Real-Time Congestion from Self-Schedules Settlement	\$0.26
DC Tie & Block Load Transfer Settlement	(\$4.51)
Charge to Load	\$1.46

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

August 2017 was a charge of \$1.46M, compared to:

- \$1.45M charge in July 2017
- \$0.92M charge in August 2016

Revenue Neutrality Uplift (\$M)



Real-Time Ancillary Service Imbalance (ORDC) – August 2017

Real-Time Ancillary Service Imbalance	\$ in Thousands
Load Allocated AS Imbalance Revenue Neutrality Amount	\$471.32
Load Allocated Reliability Deployment AS Imbalance Revenue Neutrality Amount	\$129.80
Total Charges	\$601.12
Real-Time AS Imbalance Amount	(\$471.32)
Real-Time Reliability Deployment AS Imbalance Amount	(\$129.80)
Total Payments	(\$601.12)

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

August 2017 had a charge to load of \$601k, compared to:

- A charge of \$534k in July 2017
- A charge of \$699k in August 2016

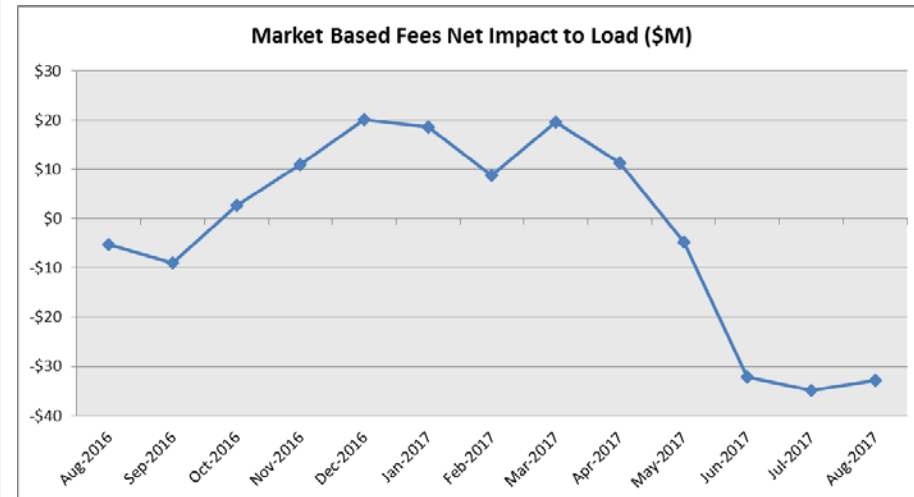
Net Allocation to Load – August 2017

Market-Based Allocation	\$ in Millions
CRR Auction Revenue Disbursement Settlement	(\$47.01)
Balancing Account Proceeds Settlement	(\$5.34)
Net Reliability Unit Commitment Settlement	(\$0.02)
Ancillary Services Settlement	\$17.69
Reliability Must Run Settlement (incl. RMR for Capacity)	\$0.00
Real-Time Revenue Neutrality Settlement	\$1.46
Emergency Energy Settlement	\$0.13
Base Point Deviation Settlement	(\$0.35)
ORDC Settlement	\$0.60
Total	(\$32.84)
Fee Allocation	
ERCOT Administrative Fee Settlement	\$20.26
Net Allocated to Load	(\$12.58)

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

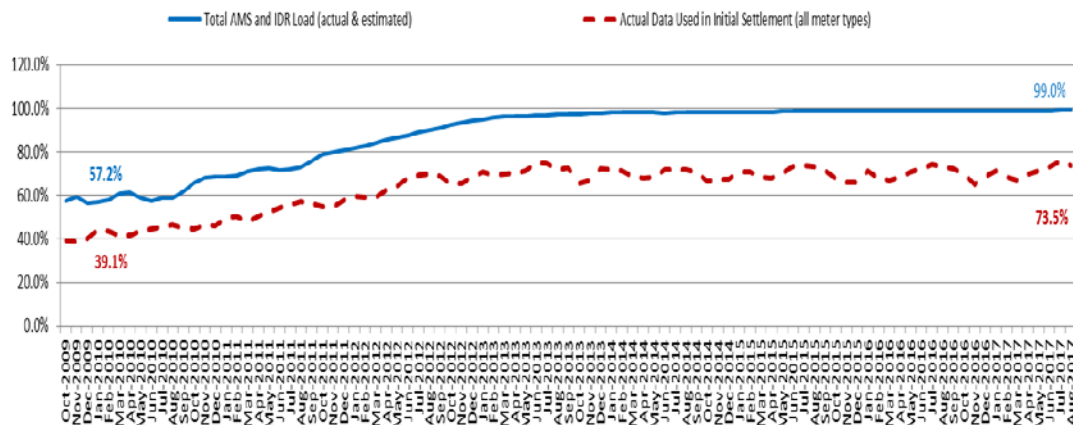
August 2017 was a credit of \$12.58M, compared to:

- A credit of \$13.63M in July 2017
- A charge of \$15.36M in August 2016



Advanced Meter Settlement Impacts – August 2017

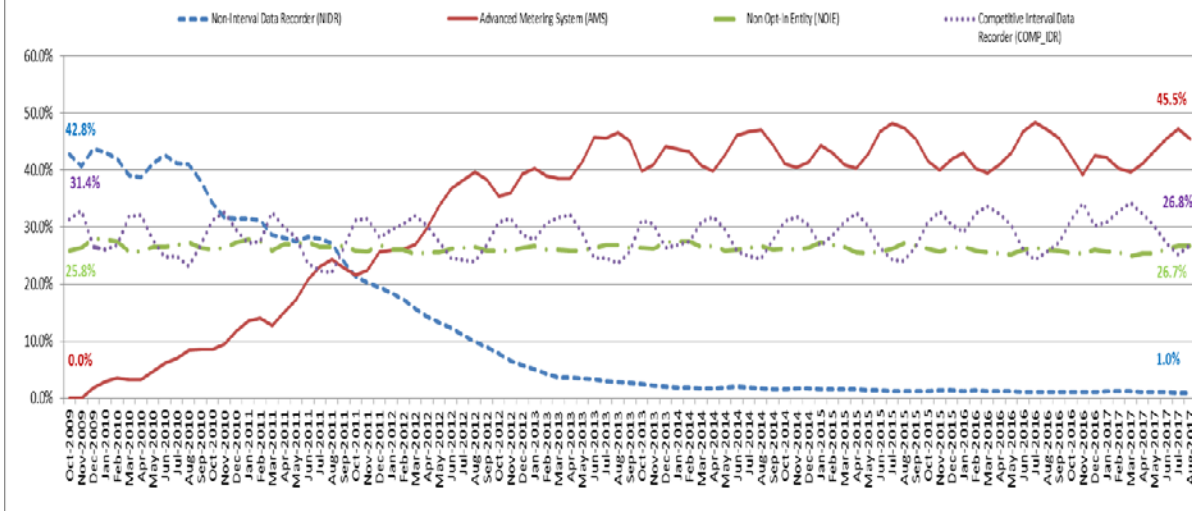
Percent Actual/Percent Interval Data Recorder (IDR)



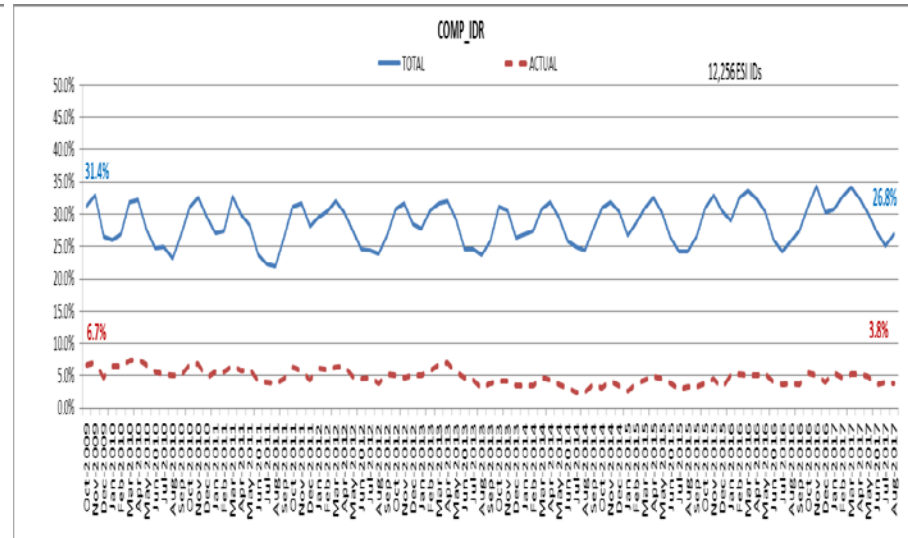
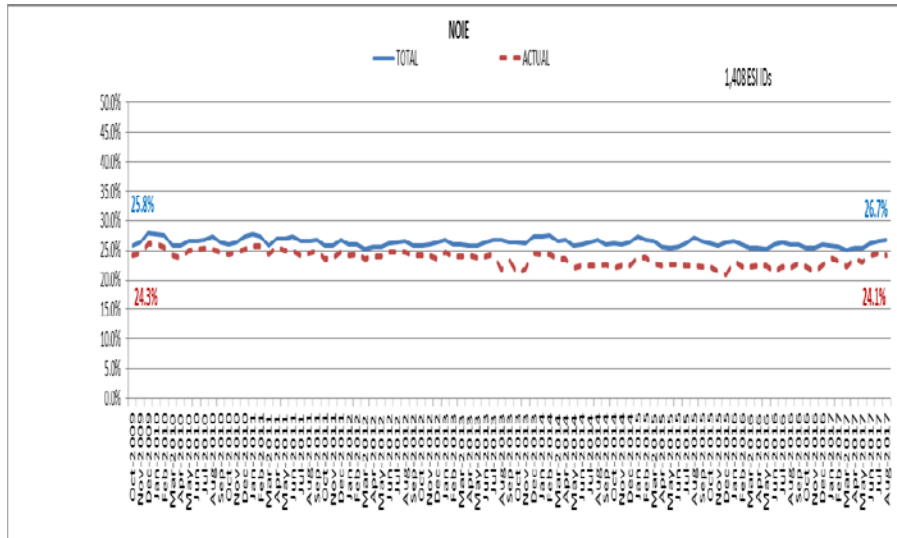
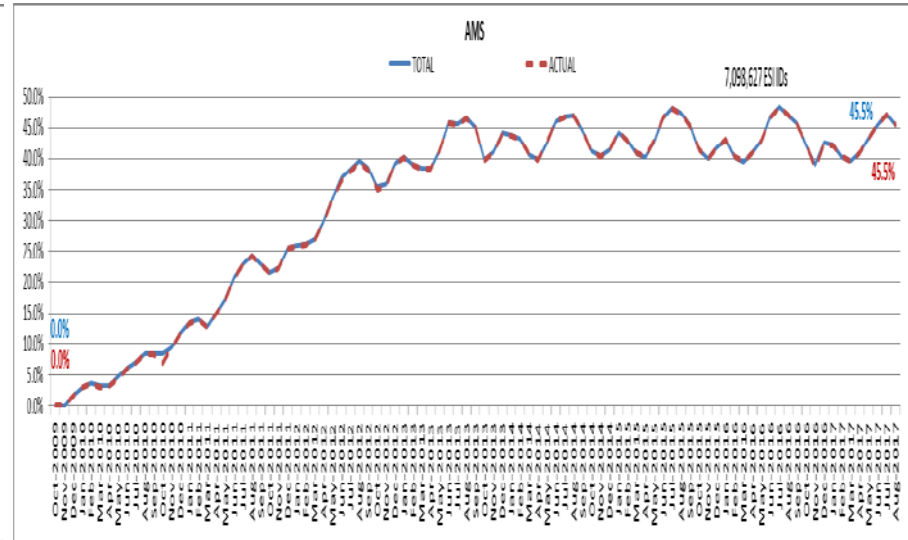
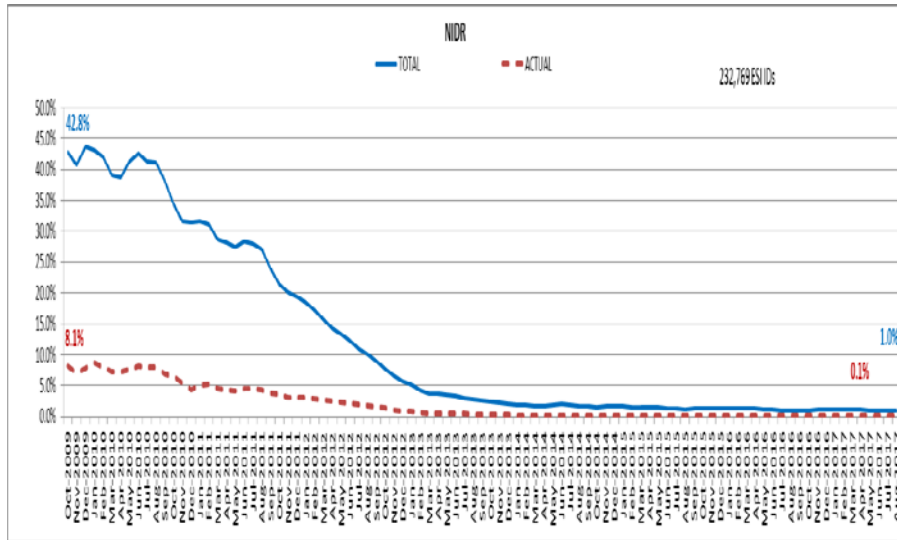
August 2017: At month end, settling 7.0M ESIIDs using Advanced Meter data.

August 2017: 99.0% 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 – August 2017

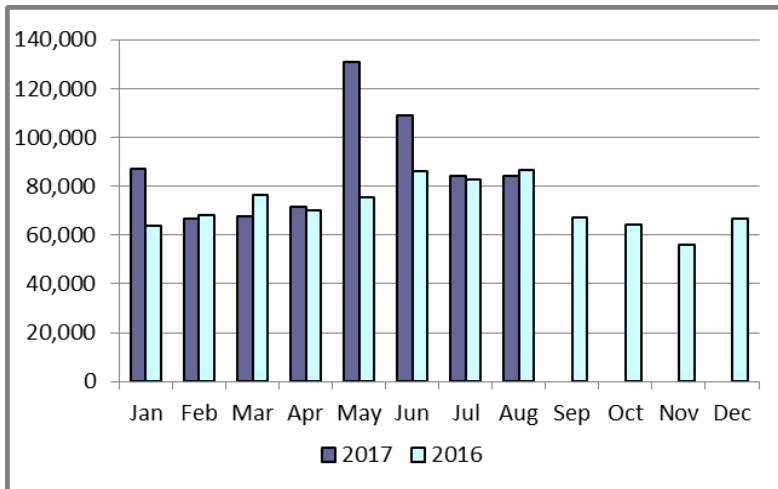


Retail Transaction Volumes – Summary – August 2017

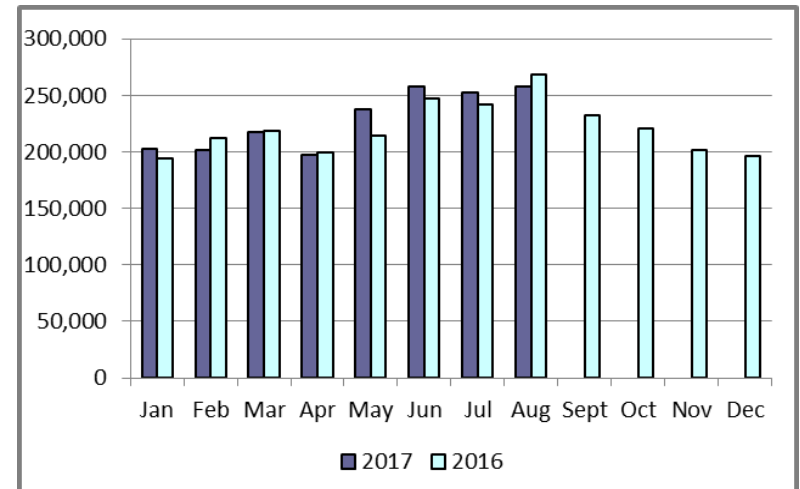
	Year-To-Date		Transactions Received	
Transaction Type	August 2017	August 2016	August 2017	August 2016
Switches	701,434	609,824	84,134	86,656
Acquisition	0	0	0	0
Move - Ins	1,826,199	1,796,728	258,046	268,781
Move - Outs	930,883	916,591	128,104	133,170
Continuous Service Agreements (CSA)	323,875	415,378	40,616	42,622
Mass Transitions	0	0	0	0
Total	3,782,391	3,738,521	510,900	531,229

Retail Transaction Volumes – Summary – August 2017

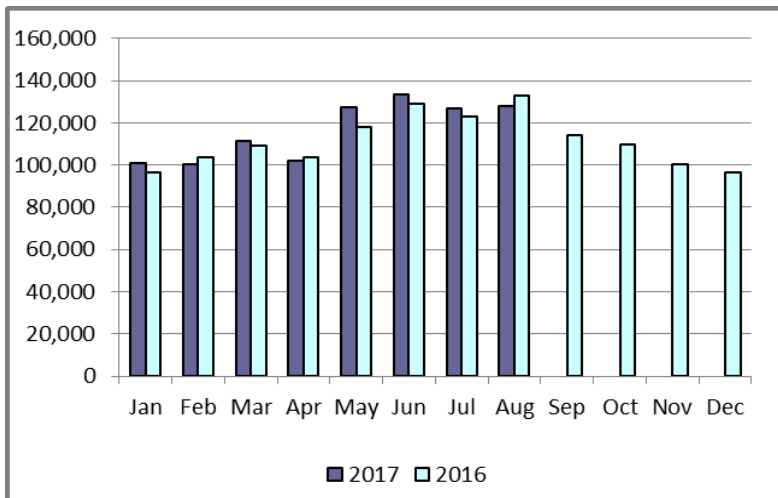
Switches/Acquisitions



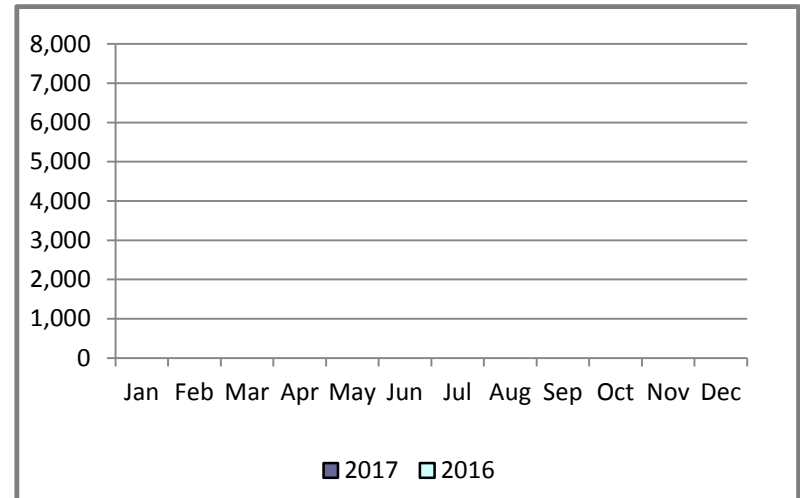
Move-Ins



Move-Outs

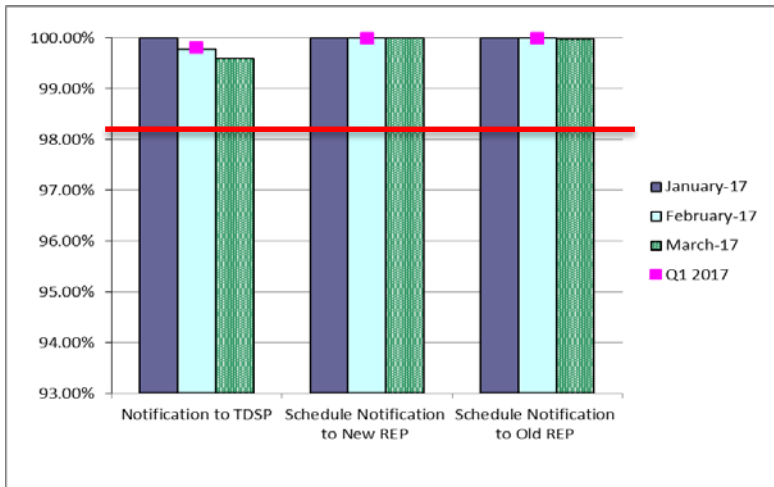


Mass Transition

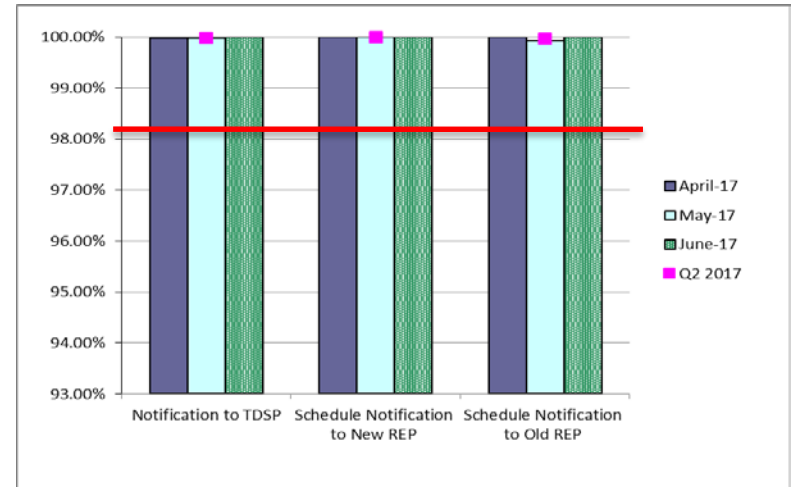


Retail Performance Measures – Switch – August 2017

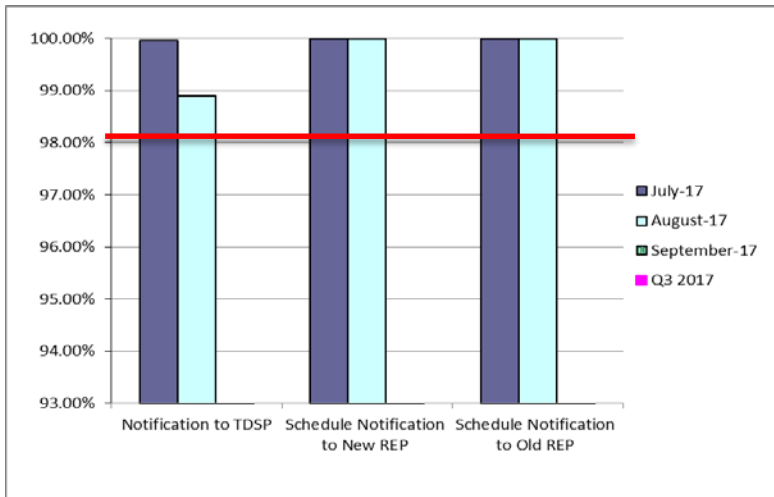
1st Quarter



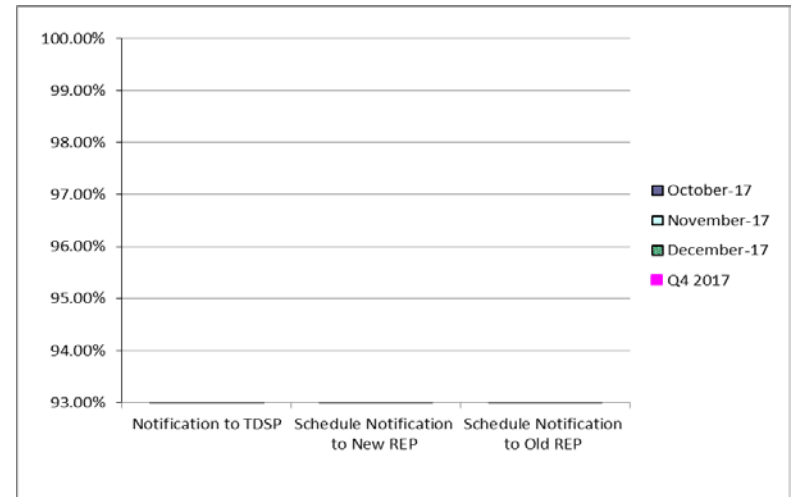
2nd Quarter



3rd Quarter

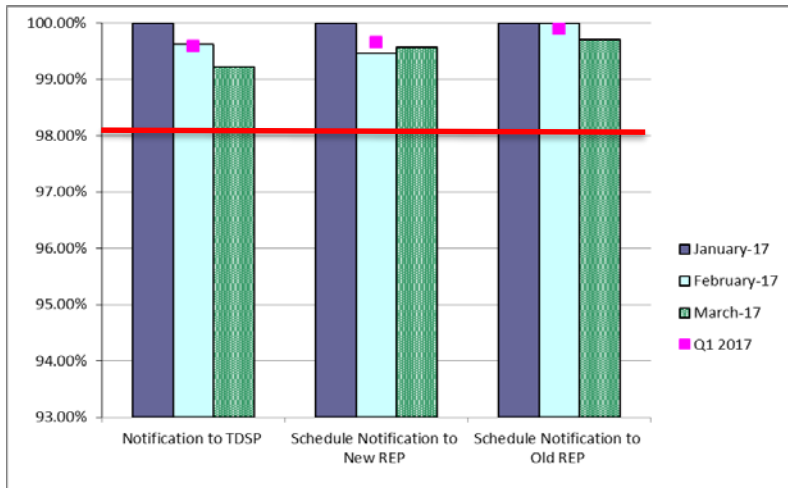


4th Quarter

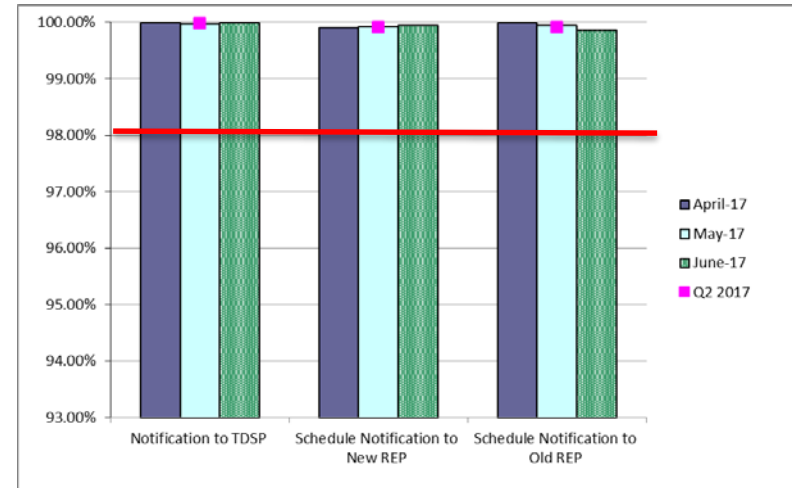


Retail Performance Measures – Same Day Move-In – August 2017

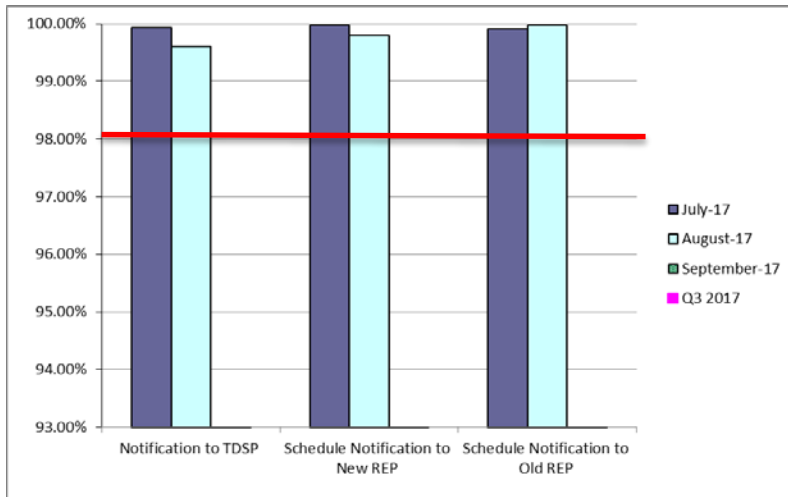
1st Quarter



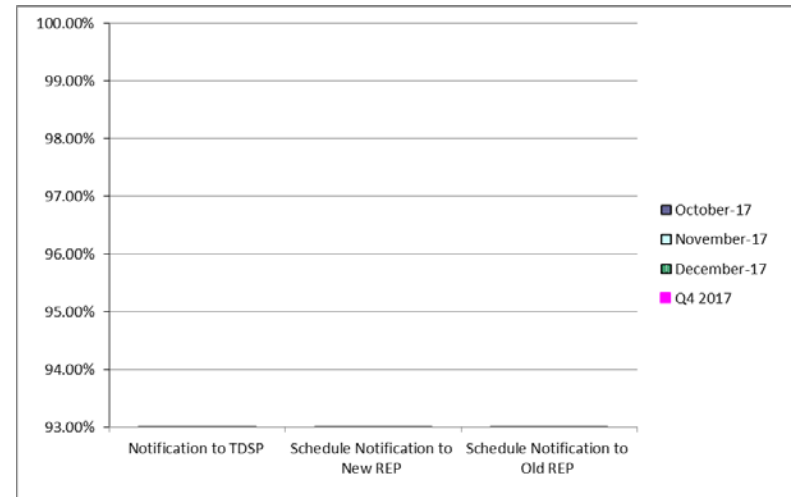
2nd Quarter



3rd Quarter

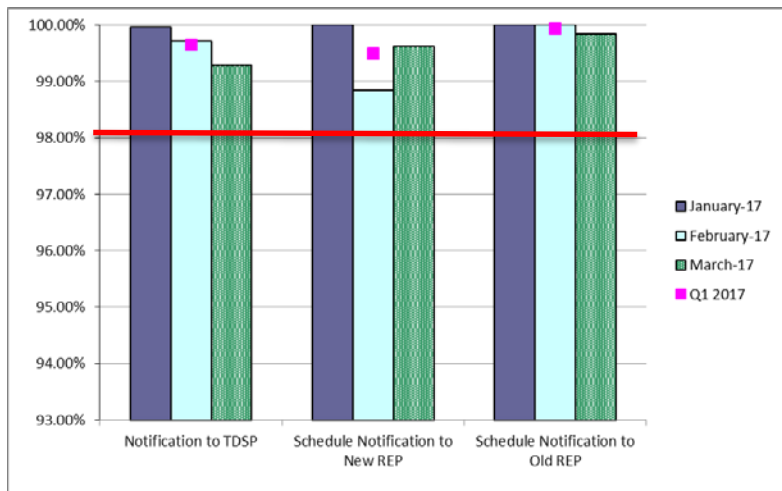


4th Quarter

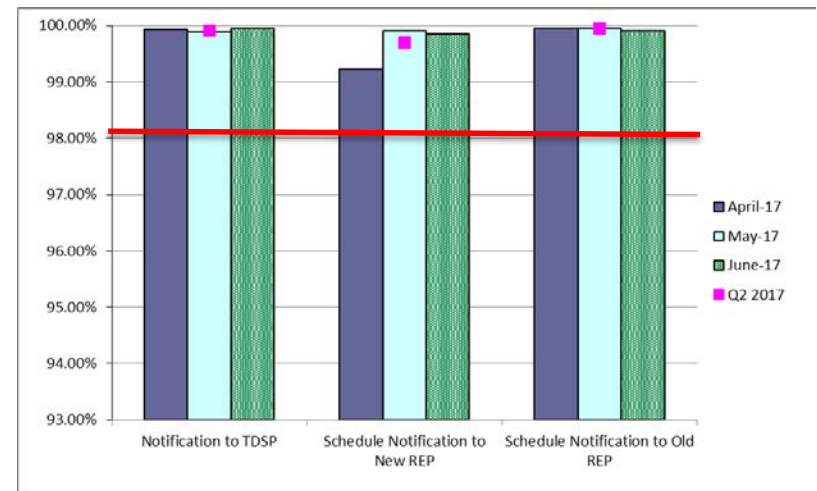


Retail Performance Measures – Standard Move-In – August 2017

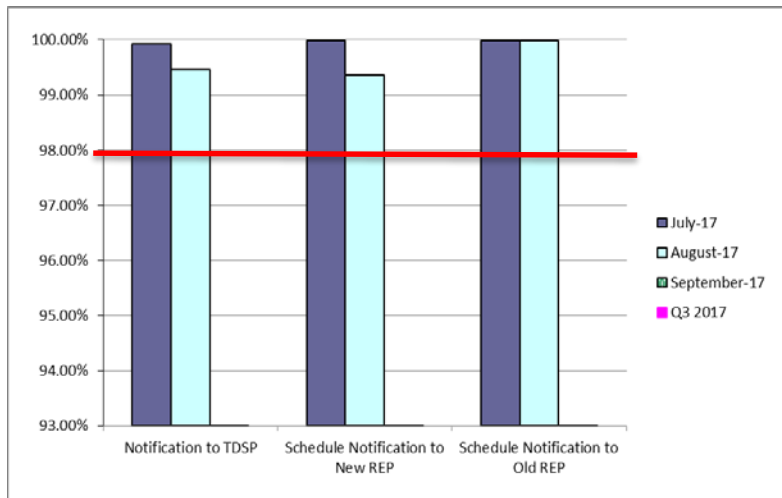
1st Quarter



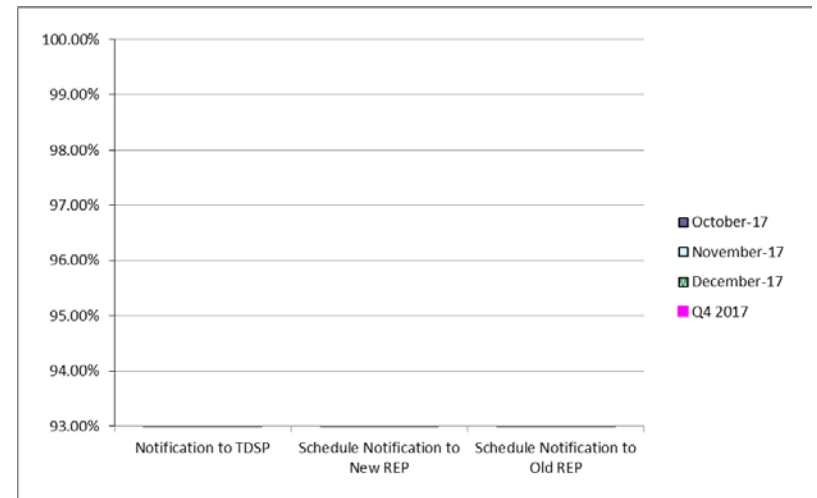
2nd Quarter



3rd Quarter



4th Quarter



Projects Report

ERCOT Portfolio Stoplight Report – August 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 = 74)			\$23,987,453
	Projects Not Yet Started (Count = 12)			\$ 1,558,331
	Projects Completed (Count = 46)			\$ 2,969,957
	Spending Reductions Required to Maintain Capital Budget			\$ (8,015,741)
	TOTAL			\$20,500,000

Project Number	Projects in Initiation Phase (Count = 9)
263-01	Market Simulator
170-06	ECAP - ECMS Implementation Phase 1
265-01	Real-Time Assessment Continuity
NPRR833	Modify PTP Obligation Bid Clearing Change
257-01	Security Constrained Optimal Powerflow in Study Network Analysis
258-01	WD Kainos SMART Automation Testing Tool
253-01	CIP Recovery Plan Project - Planning Phase 1
245-01	2017 EPS Metering Enhancements
261-01	Generic Transmission Constraint Calculation

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 – August 2017

Project Number	Projects in Planning Phase (Count = 18)	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	9/27/2017	TBD	9/27/2017		0%		0%
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	9/13/2017	1	-87%		20%
228-01	Enterprise Database Upgrade	2/1/2017	6/28/2017	11/1/2017	TBD	11/1/2017		0%		3%
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	9/27/2017	TBD	9/27/2017		0%		56%
241-01	AREA - Generation	5/31/2017	8/2/2017	9/27/2017	TBD	9/27/2017		0%		13%
242-01	Portfolio Reporting Assessment	5/17/2017	11/1/2017	11/1/2017	TBD	11/1/2017		0%		49%
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%		3%
246-01	iTest Data Refresh	6/21/2017	10/25/2017	10/25/2017	TBD	10/25/2017		0%		24%
254-01	Retail Windows Upgrade	9/6/2017	9/27/2017	9/27/2017	TBD	9/27/2017		0%		6%
255-01	Settlements Architecture Enhancements	9/6/2017	10/25/2017	10/25/2017	TBD	10/25/2017		0%		0%
259-01	DC SCADA and Metering Upgrade	9/6/2017	10/5/2017	10/5/2017	TBD	10/5/2017		0%		0%
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
NPRR776	Voltage Set Point Communication	8/23/2017	9/20/2017	9/20/2017	TBD	9/20/2017		0%		16%
SCR781	RARF Replacement	3/29/2017	10/31/2017	10/31/2017	TBD	10/31/2017		0%		2%
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	9/25/2017	9/25/2017	9/25/2017		0%		1%
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%		0%
198-02	Reactive Power Coordination PoC	9/6/2017	6/16/2018	6/16/2018	6/16/2018	6/16/2018		0%		56%
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%		-1%
210-01	REC Technology Refresh	8/30/2017	3/18/2018	3/18/2018	3/18/2018	5/9/2018		0%		0%
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%		29%
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

ERCOT Portfolio Stoplight Report – August 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	
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%		2%
230-01	SAS Technical Architecture Redesign	3/1/2017	11/15/2017	11/15/2017	11/15/2017	2/28/2018		0%		0%
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	9/20/2017	10/4/2017	12/6/2017	1	-8%		12%
238-01	Application Authentication Tech Refresh	9/6/2017	3/19/2018	3/19/2018	3/19/2018	4/1/2018		0%		26%
249-01	Secondary Wind Forecasting Service	8/30/2017	2/28/2018	2/28/2018	2/28/2018	3/30/2018		0%		-3%
Various	2015 CMM NPRRs							0%		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
NPRR758	Improved Transparency for Outages Potentially Having a High Economic Impact	1/11/2017	7/13/2017	9/13/2017	9/13/2017	9/22/2017		0%	2	-7%
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
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	-5%
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%		0%
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%		42%
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 – August 2017

Project Number	Projects in Stabilization (Count = 8)	Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Scheduled Execution Phase Finish	Schedule Health		Budget Health	
065-01	NMMS Upgrade	12/17/2014	9/22/2016	5/1/2017	5/8/2017	9/13/2017		0%		3%
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	9/13/2017		2%		4%
205-01	TIBCO BusinessWorks Application Upgrade	1/11/2017	6/26/2017	8/1/2017	8/1/2017	9/13/2017		0%		8%
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	9/27/2017		0%		19%
224-01	TelAlert Replacement	4/5/2017	6/27/2017	8/4/2017	8/4/2017	2/21/2018		0%		4%
235-01	Forecast Monitoring and HSL Tracking	2/8/2017	5/11/2017	6/29/2017	6/29/2017	9/27/2017		0%		9%
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 = 46)	Baseline Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Actual Execution Phase Finish	Schedule Health		Budget Health	
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%		4%
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%		-4%
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%
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%		20%
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%		4%
Various	Implementation of NPRR573 & NPRR801	3/29/2017	6/29/2017	6/29/2017	6/29/2017	7/26/2017		0%		26%
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%		40%

ERCOT Portfolio Stoplight Report – August 2017

Project Number	Projects Completed (Count = 46)	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%		27%
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 – August 2017

Project Number	2017 Projects Not Yet Started (Count = 8)	Phase	Forecast Start Date
NPRR562	Subsynchronous Resonance	Not Started	Sep-2017
PGRR057	Responsibilities for Performing Geomagnetic Disturbance (GMD) Vulnerability	Not Started	Sep-2017
TBD	JBOSS Upgrade Assessment	Not Started	Sep-2017
NPRR830	Revision of 4-Coincident Peak Methodology	Not Started	Sep-2017
TBD	Issue Tracking and Resolution Tool Assessment	Not Started	Sep-2017
TBD	Automation of NPRR487 - QSGR Dispatch Adjustment	Not Started	Nov-2017
TBD	EDI Translator and Mapping Replacement	Not Started	Nov-2017
TBD	Emergency Energy Settlements Inputs Automation	Not Started	Nov-2017