



ERCOT Monthly Operational Overview (June 2017)

ERCOT Public
July 15, 2017

Grid Planning & Operations

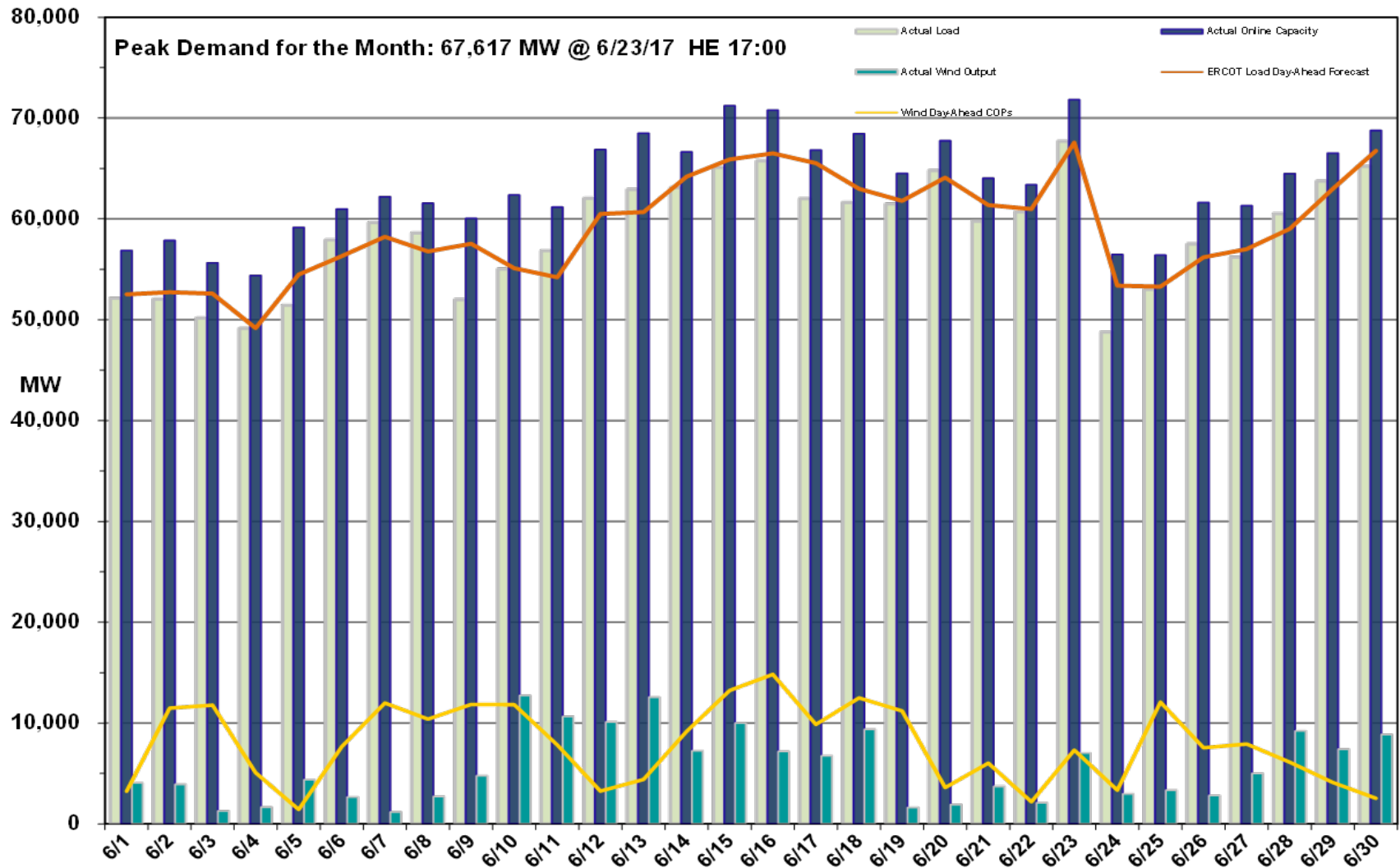
Operations

- The preliminary Settlements hourly peak demand of 67,617* MW on June 23 was higher than the day-ahead mid-term load forecast peak of 67,553 MW for the same operating hour.
 - The operational instantaneous peak demand was 67,813 MW (telemetry).
- Day-ahead load forecast error for June was 2.39%
- ERCOT issued 11 notifications:
 - Five Advisories issued due to Physical Responsive Capability being below 3000 MW
 - One Advisory issued due to DAM posting delay
 - Two Watches issued for the Railroad DC Tie due to no market solution for the post contingency loss of SPOLPHA8
 - One Watch issued for the Railroad DC tie due to no market solution for a base case overload on the North McAllen to West McAllen 138kv circuit
 - One Watch issued for the Railroad DC tie due to Rio Grande Valley Import after a forced outage
 - One OCN issued for Tropical Storm Cindy

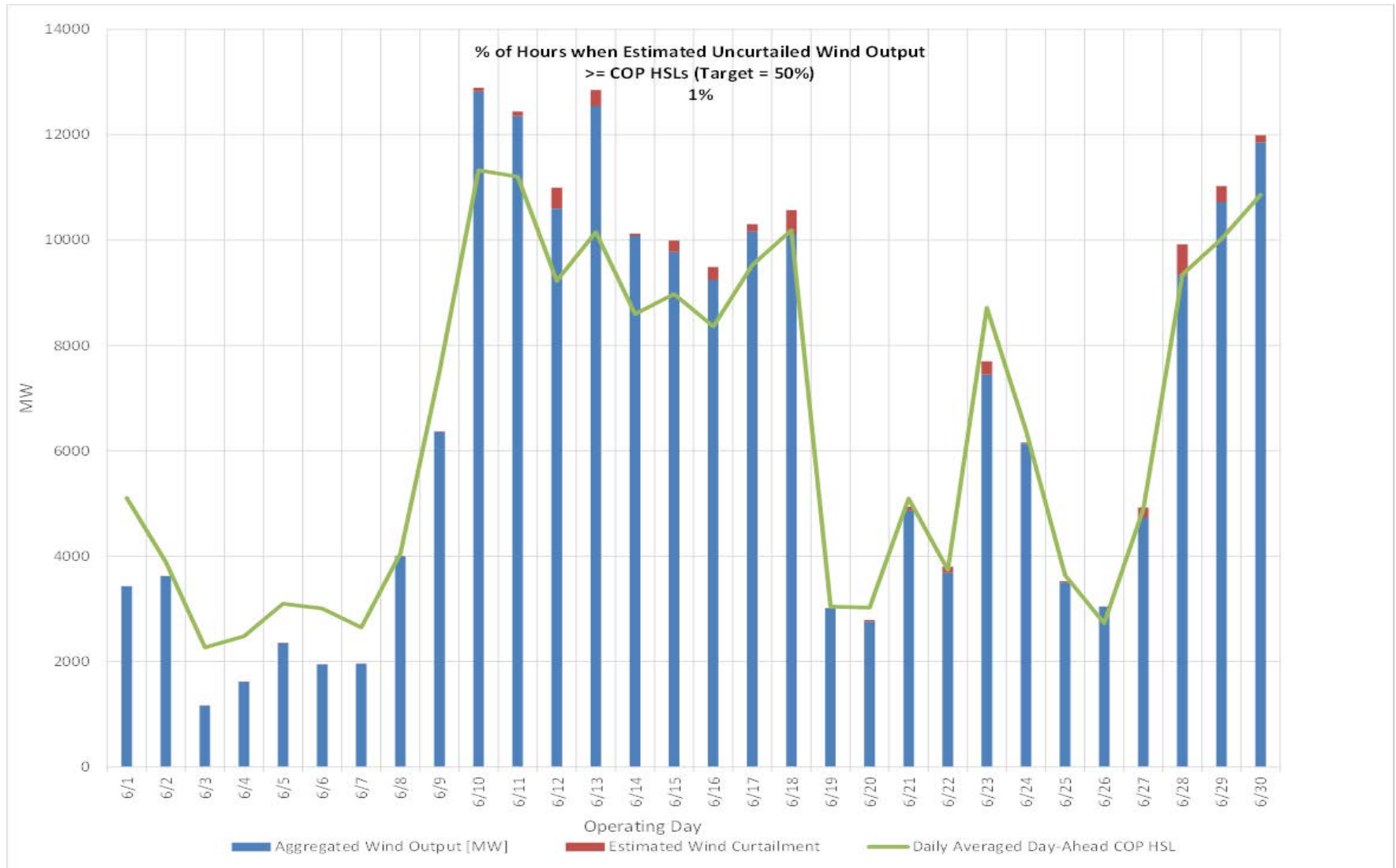
Planning Activities

- 306 active generation interconnection requests totaling 67,558 MW, including 30,219 MW of wind generation, as of June 30, 2017. Sixteen additional requests and an increase of 3,187 MW from May 31, 2017.
- 19,253 MW wind capacity in commercial operations as of July 1, 2017.

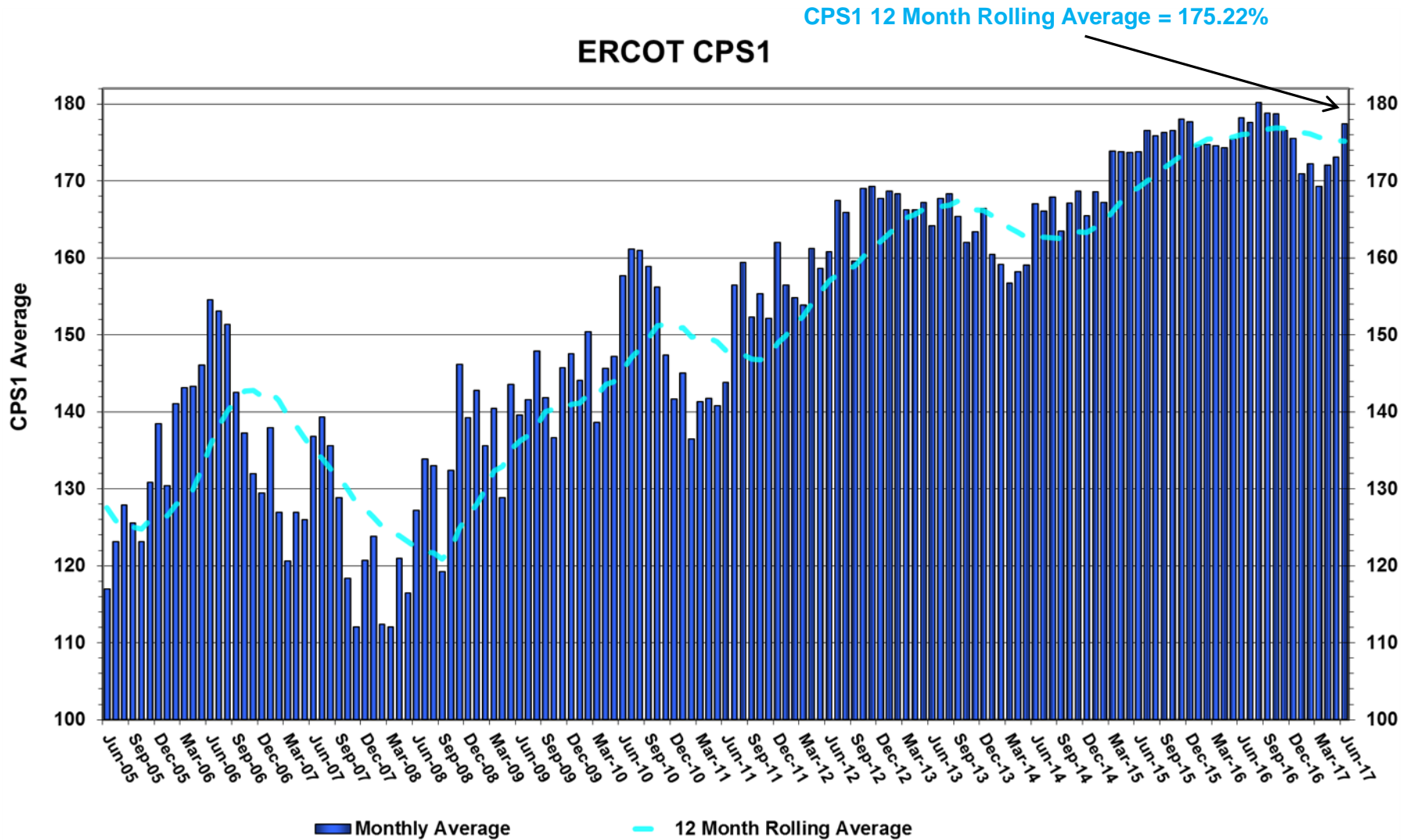
Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-Line Capacity at Peak – June 2017



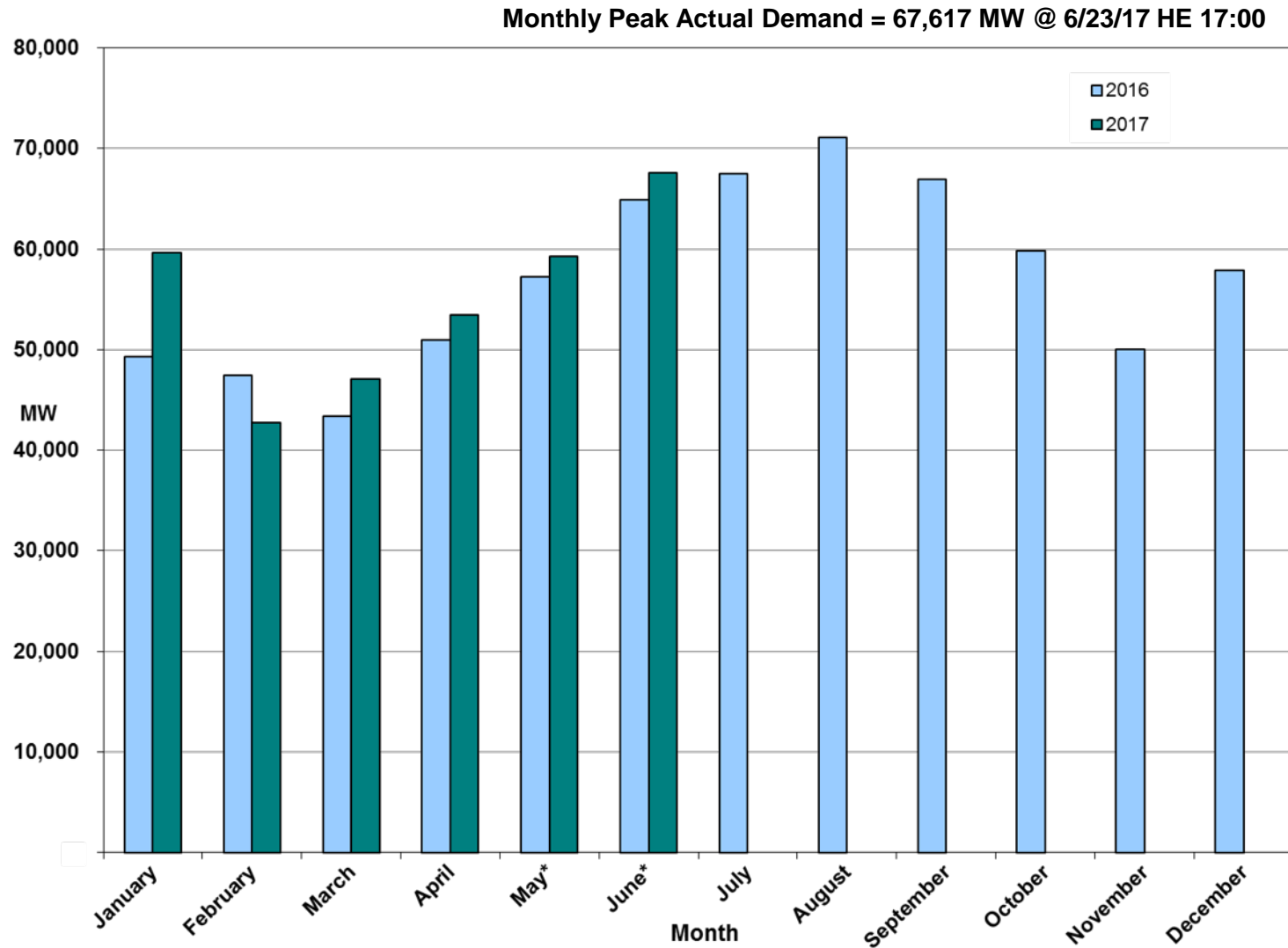
Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – June 2017



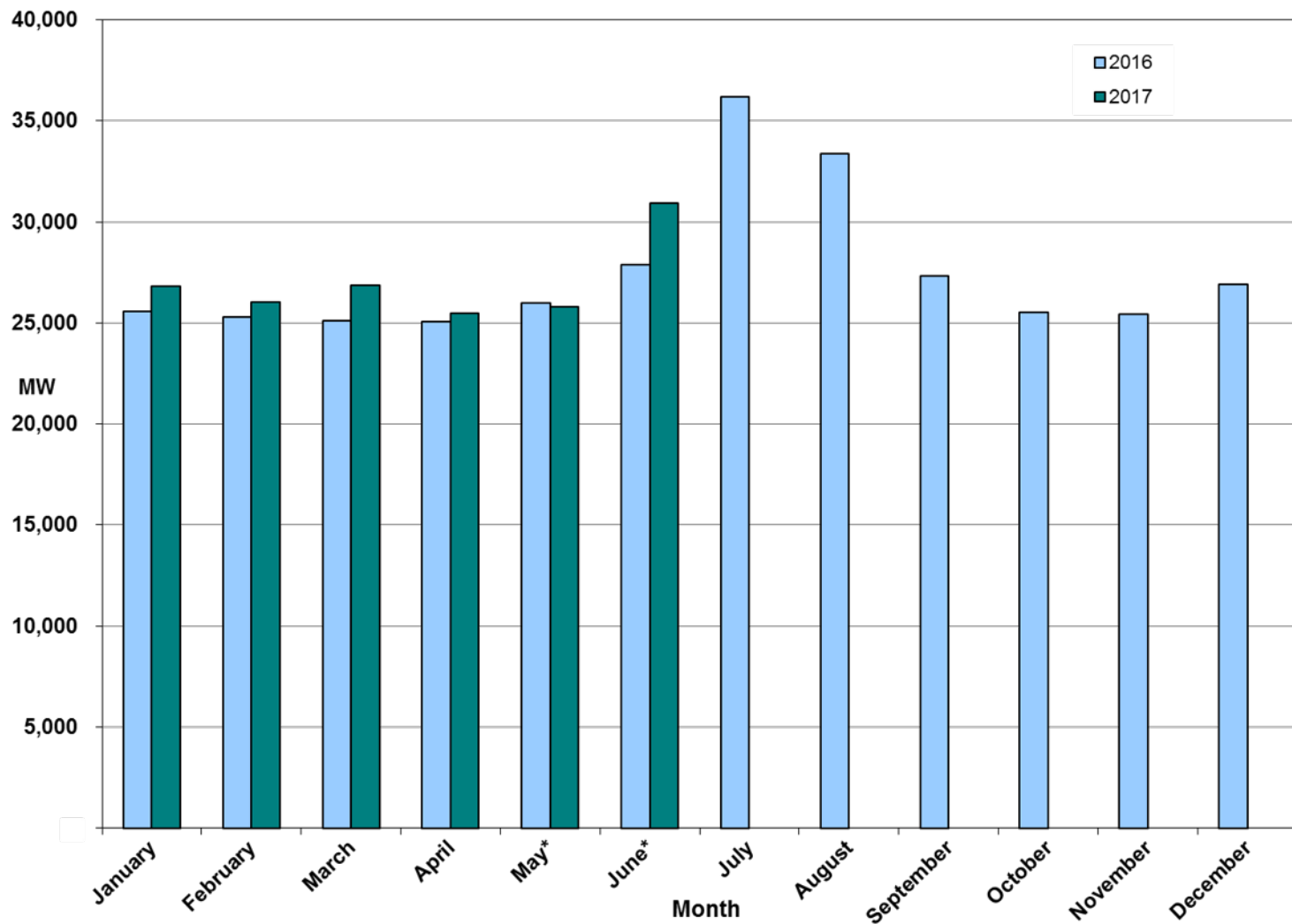
ERCOT's CPS1 Monthly Performance – June 2017



Monthly Peak Actual Demand – June 2017



Monthly Minimum Actual 15-Minute Demand – June 2017



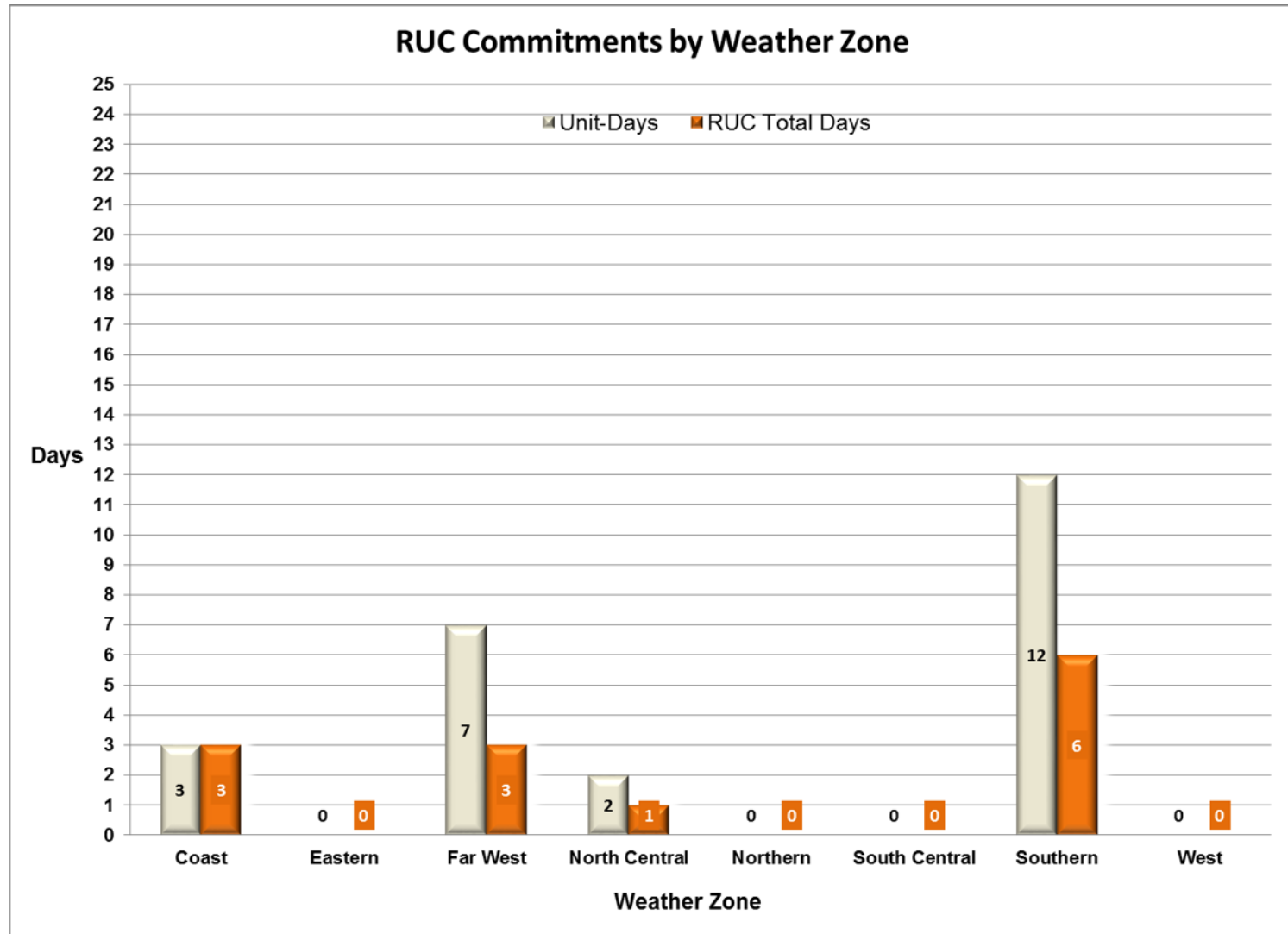
*Preliminary for latest two months of the current year

Day-Ahead Load Forecast Performance – June 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	May 2017 MAPE	
Average Annual MAPE	2.83	2.86	2.62	2.66	2.39	
Lowest Monthly MAPE	2.15	1.89	1.94	2.02	Lowest Daily MAPE	1.13 Jun 10
Highest Monthly MAPE	3.70	3.81	3.86	4.07	Highest Daily MAPE	6.42 Jun 24

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



Generic Transmission Constraints (GTCs) – June 2017

GTCs	Jun-16 Days GTCs	Apr-17 Days GTCs	May-17 Days GTCs	Jun-17 Days GTCs	Last 12 Months Total Days (July 16 – June 17)
North – Houston	0	1	1	0	3
Valley Import	0	0	0	4	8
Zorillo - Ajo	5	0	0	0	35
Panhandle	8	28	28	21	244
Laredo	0	0	0	1	12
Liston	21	0	0	0	153
Red Tap	-	0	0	0	0
Bakersfield	-	29	3	0	69

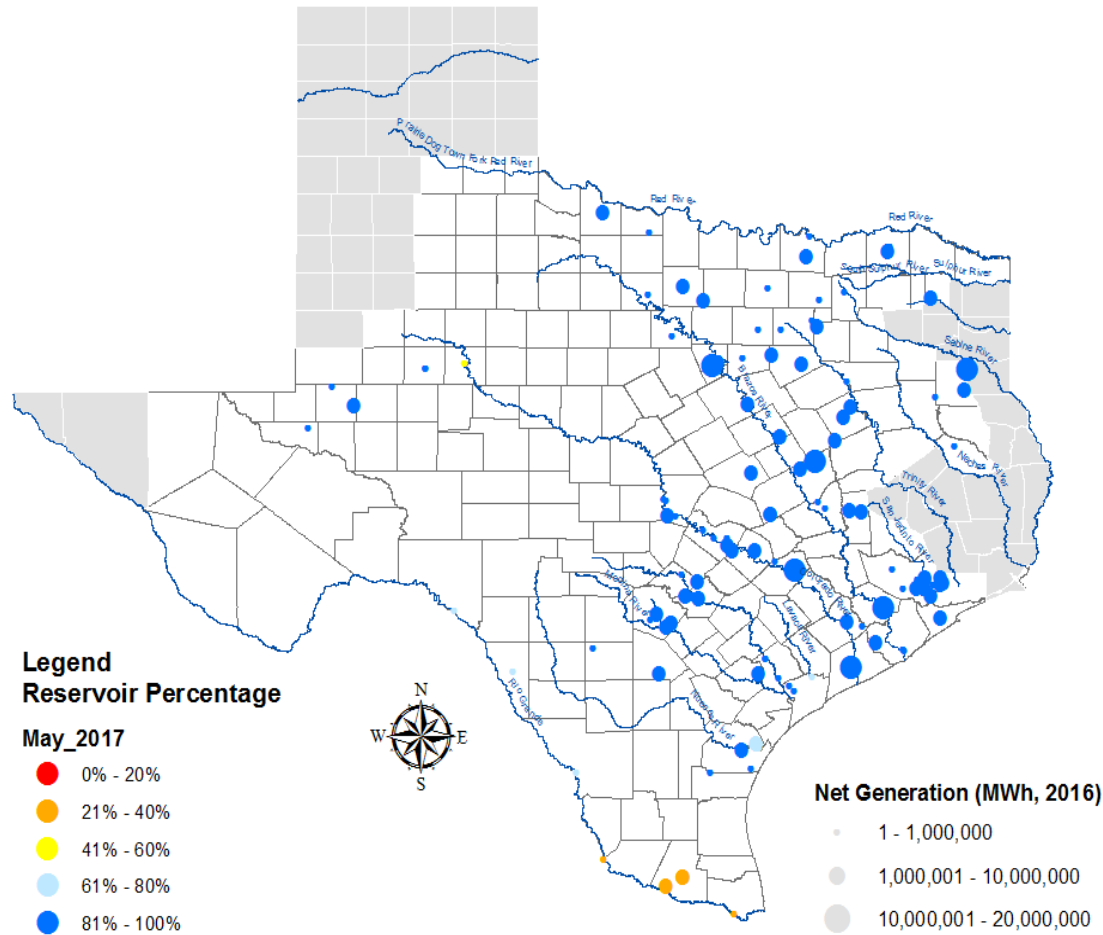
GTC: A transmission flow limit more constraining than a Transmission Element's normal limit established to constrain flow between geographic areas of the ERCOT Transmission System that is used to enforce stability and voltage constraints that cannot be modeled directly in ERCOT's transmission security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

- Five Advisories issued due to Physical Responsive Capability being below 3000 MW
 - Issued on 06/07, 6/22, 6/23, 6/26, 06/29
- One Advisory issued due to postponed deadline for the posting of the DAM Solution for Operating Day June 29, 2017 caused by long solution time
 - Issued on 6/28
- Two Watches issued for the Railroad DC Tie due to no market solution for the post contingency loss of SPOLPHA8
 - Issued on 6/9
- One Watch issued for the Railroad DC tie due to no market solution for a base case overload on the North McAllen to West McAllen 138kv circuit
 - Issued on 6/21
- One Watch issued for the Railroad DC tie due to Rio Grande Valley Import after a forced outage
 - Issued on 6/27
- One OCN issued for Tropical Storm Cindy
 - Issued on 6/20

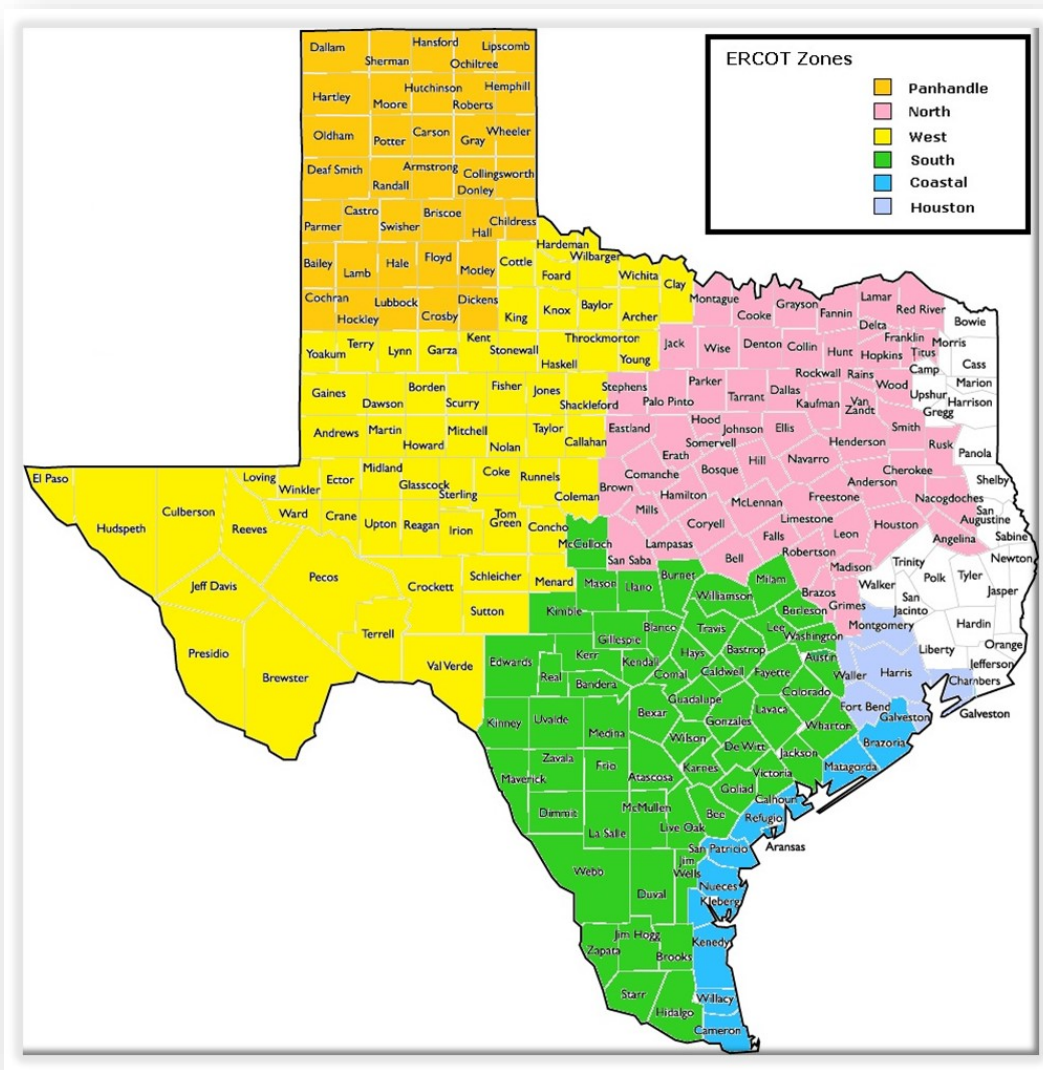
Lake Levels Update – July 1, 2017



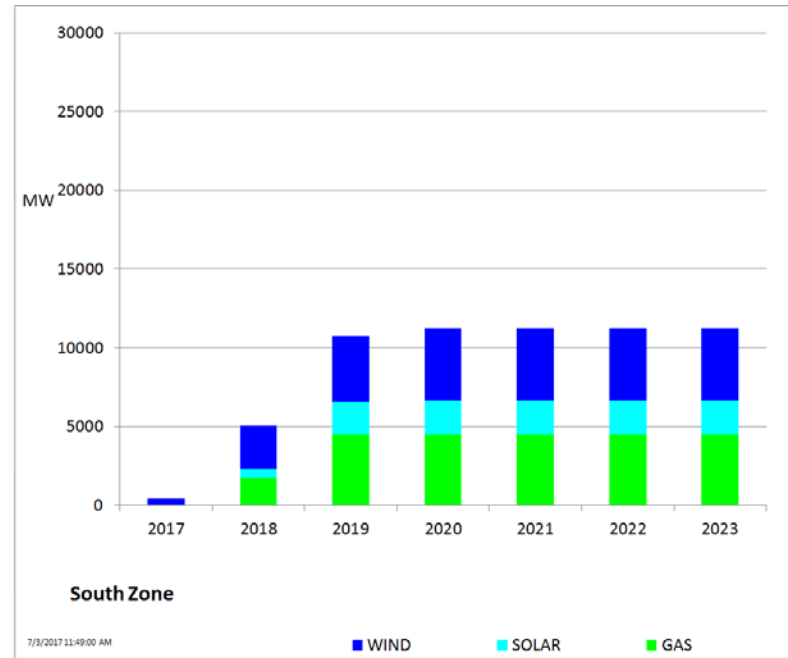
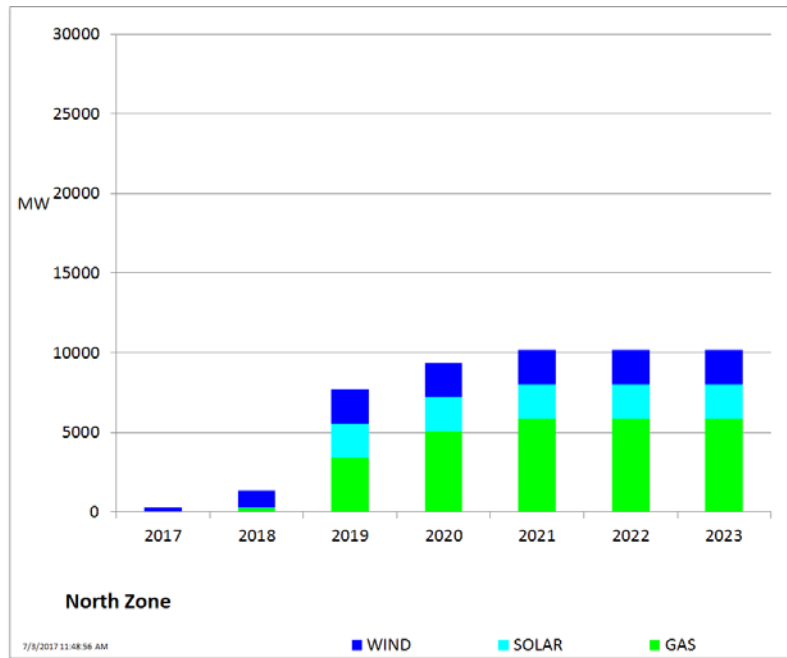
Planning Summary – June 2017

- ERCOT is currently tracking 306 active generation interconnection requests totaling 67,558 MW. This includes 30,219 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$844.3 Million.
- Transmission Projects endorsed in 2017 total \$511.8 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).

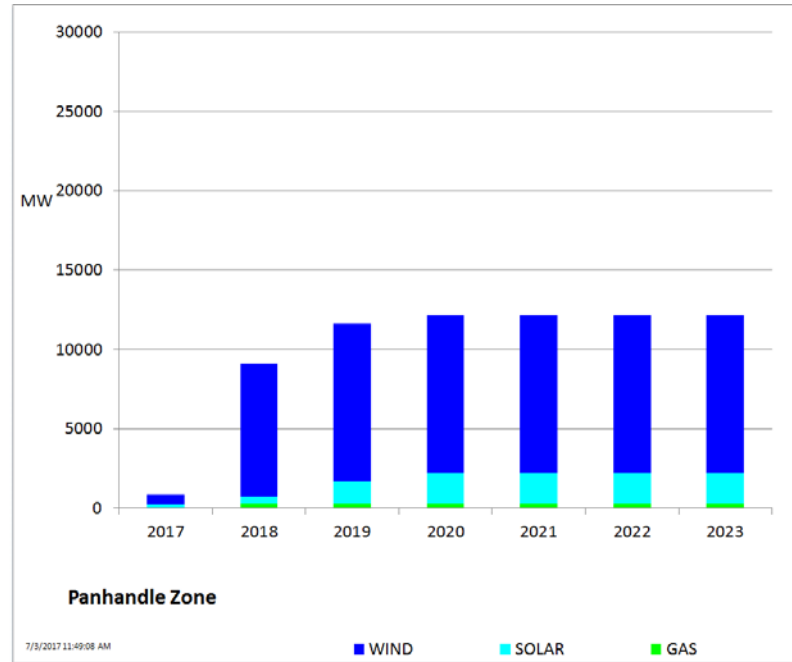
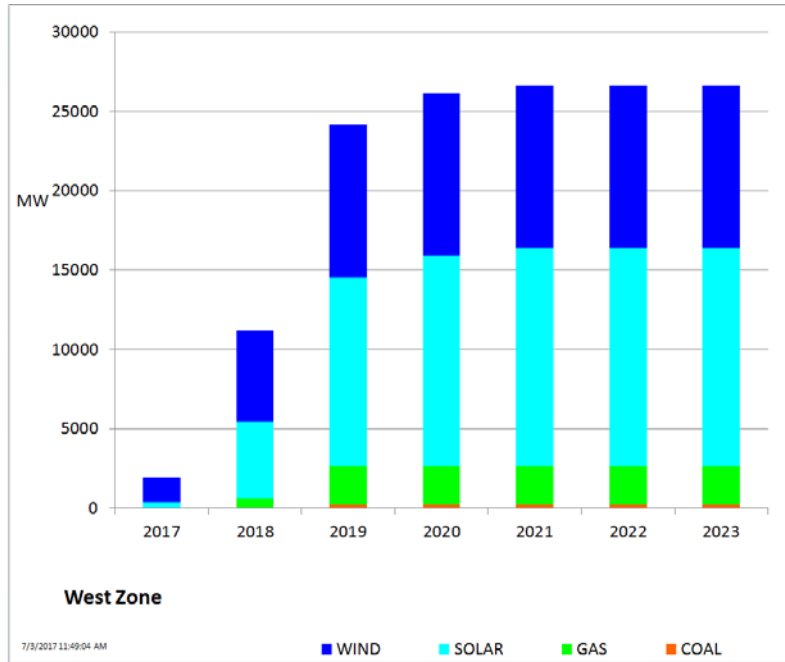
Mapping of Counties to ERCOT Zones – June 2017



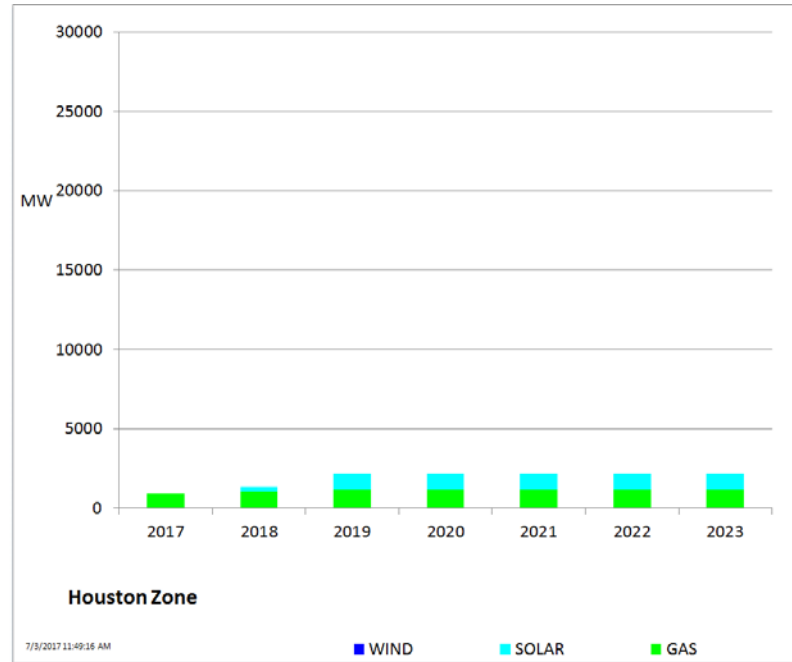
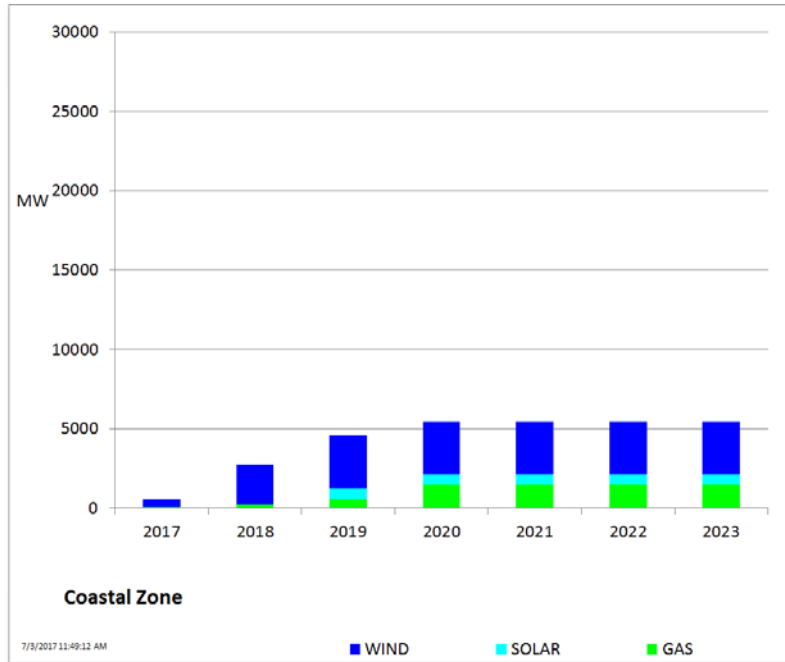
Cumulative MW Capacity of Interconnection Requests by Zone – June 2017



Cumulative MW Capacity of Interconnection Requests by Zone – June 2017

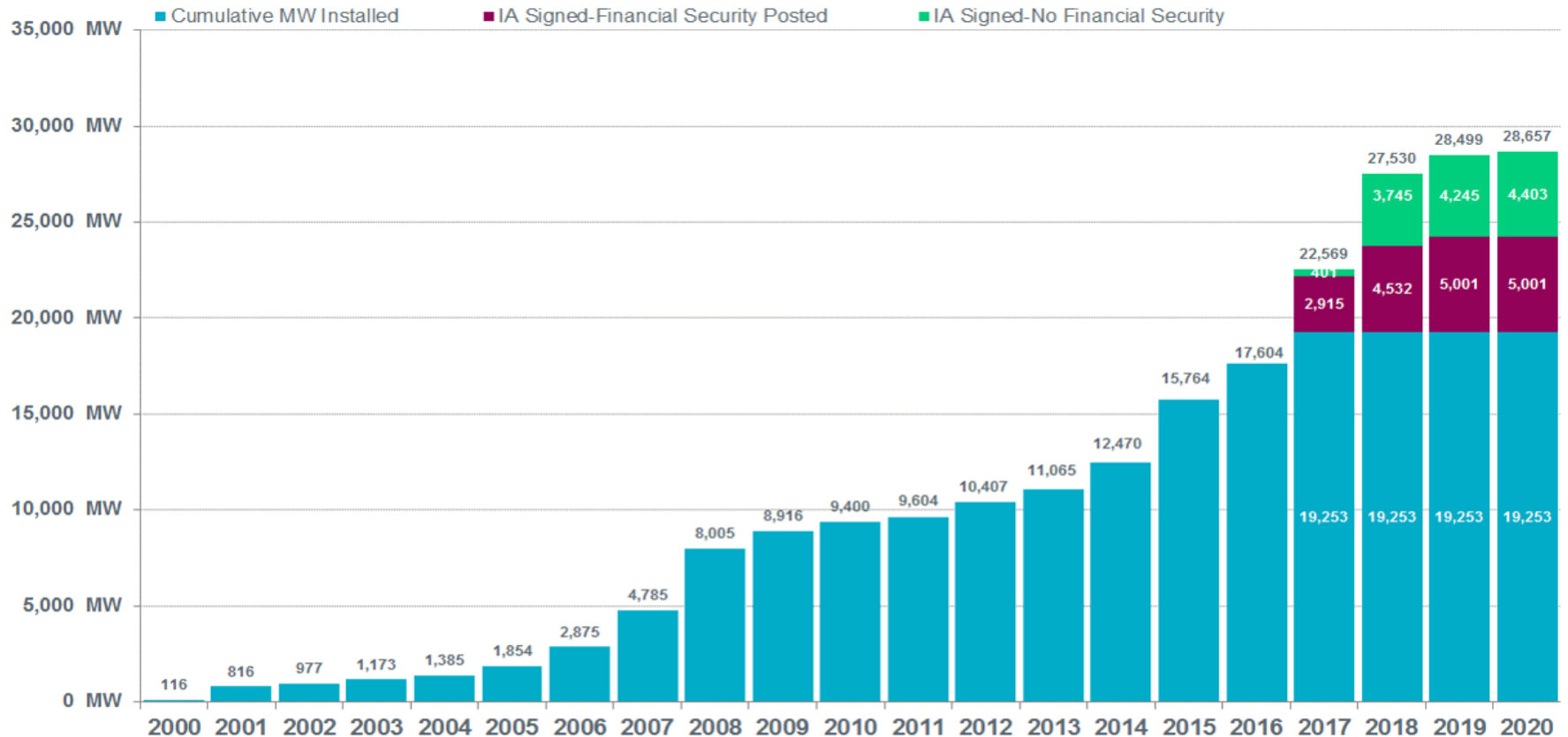


Cumulative MW Capacity of Interconnection Requests by Zone – June 2017



Wind Generation – June 2017

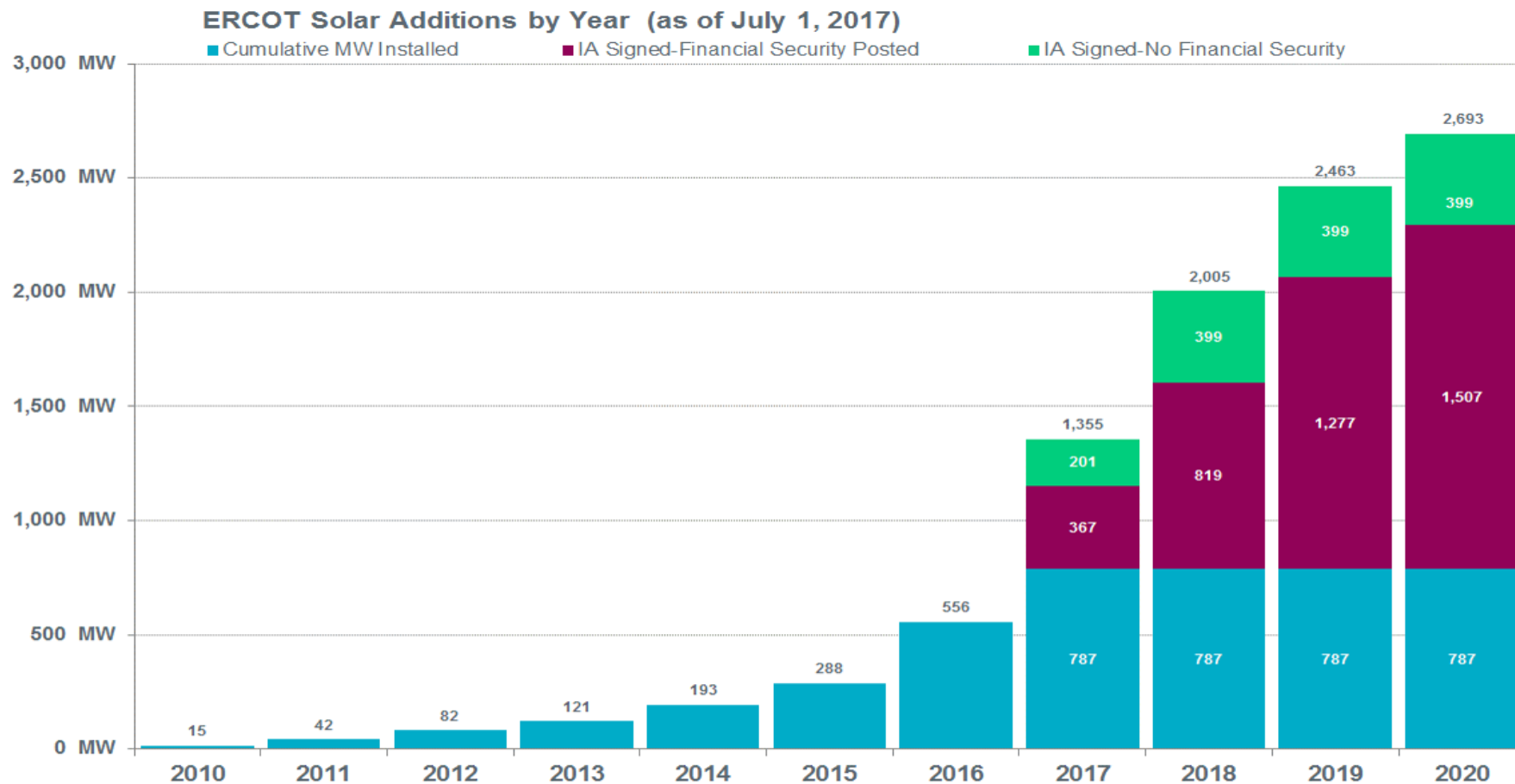
ERCOT Wind Additions by Year (as of July 1, 2017)



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.

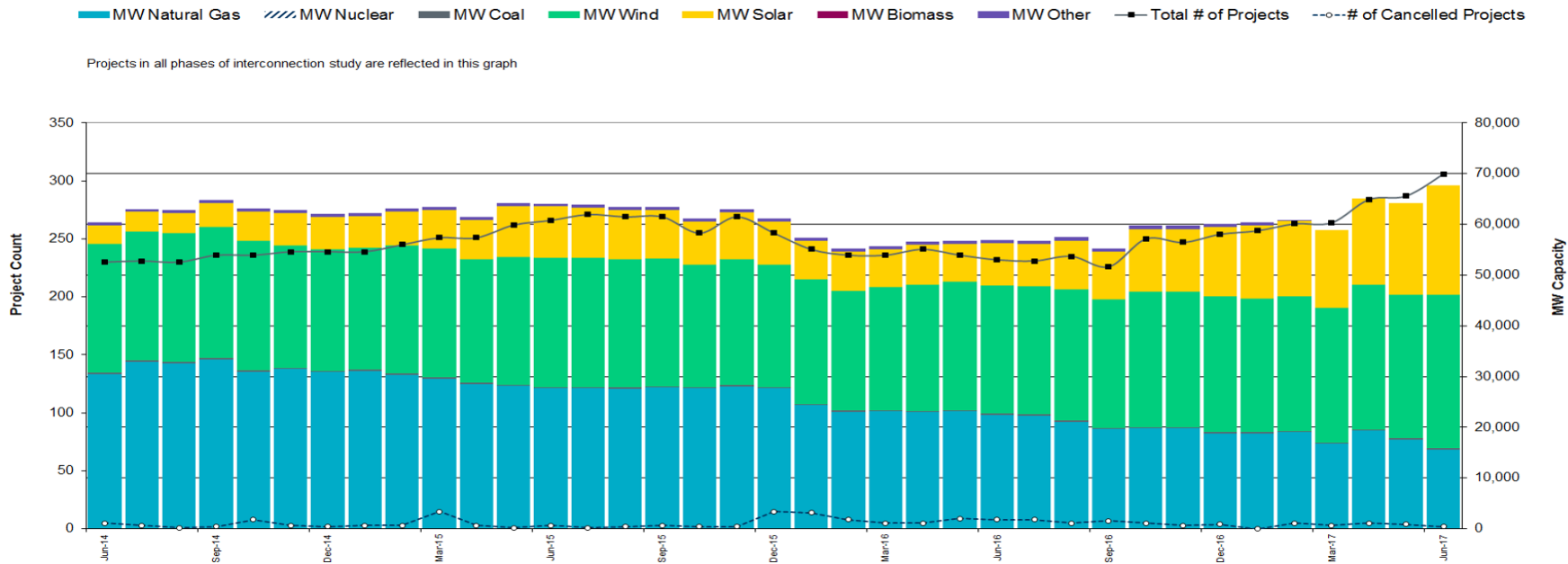
Solar Generation – June 2017



Notes:

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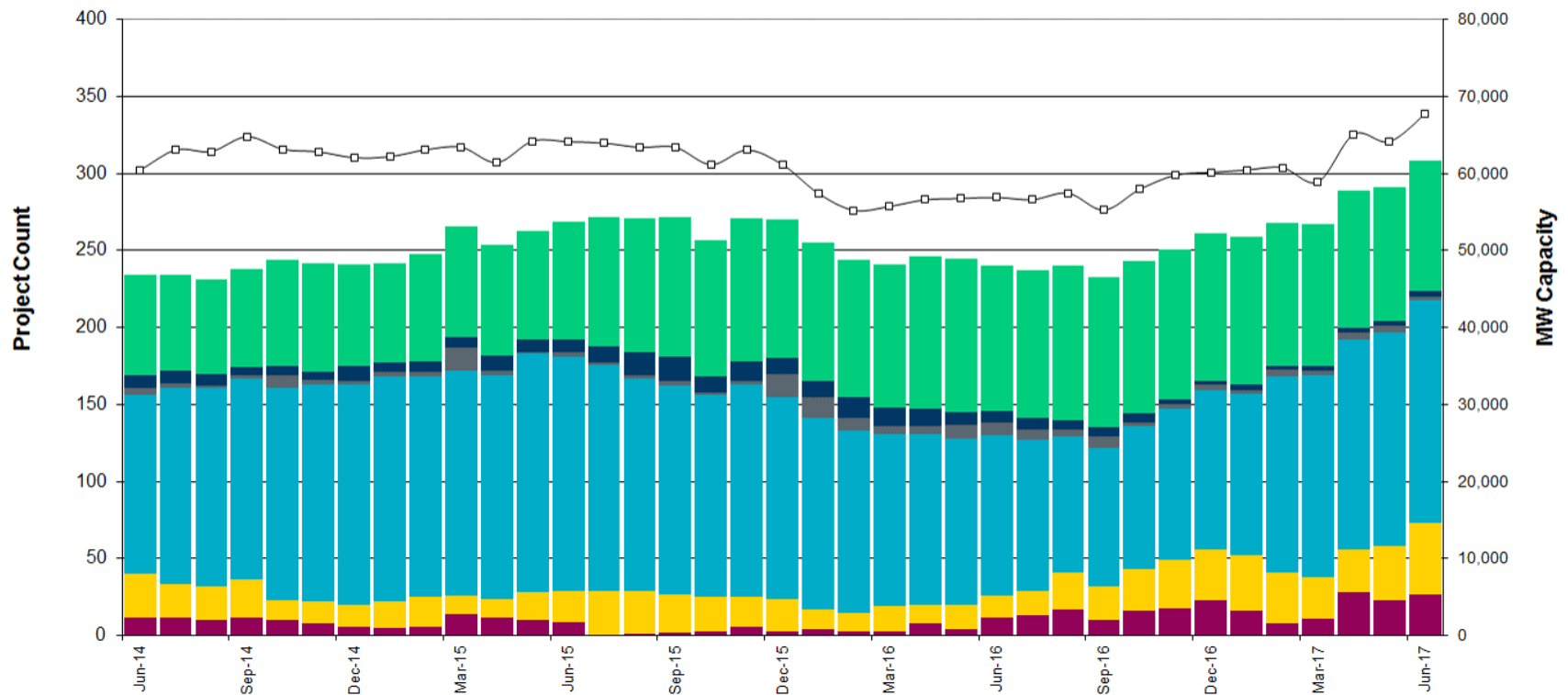
Generation Interconnection Activity by Fuel – June 2017



Generation Interconnection Activity by Project Phase – June 2017

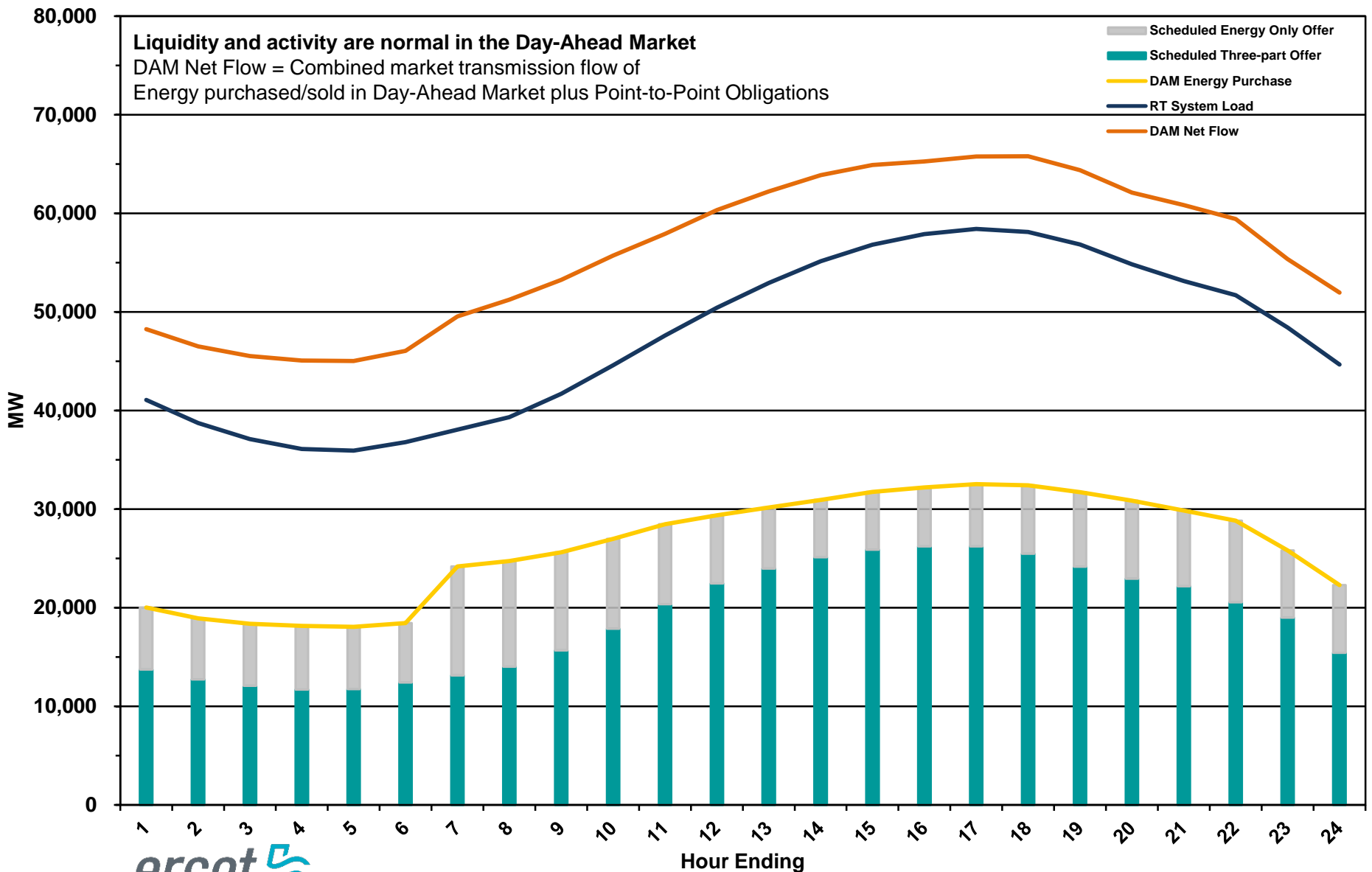
■ # Signed Interconnect Agreement
 ■ # Completed Full Study
 ■ # Projects Cancelled
 ■ # in Full Study
■ # Screening Study Complete
■ # Initial Screening Study
—□— MW Capacity Under Study *

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

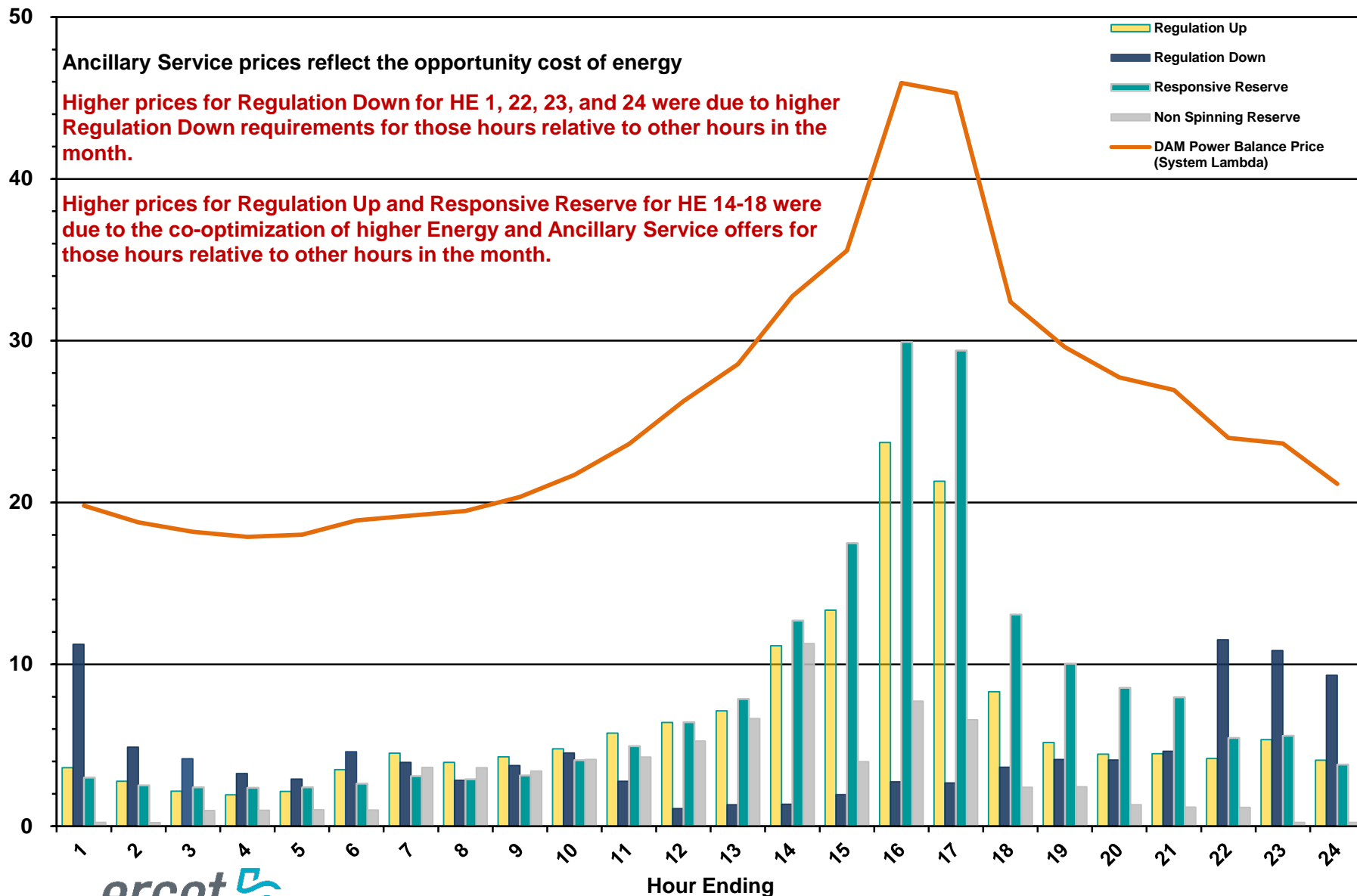


Market Operations

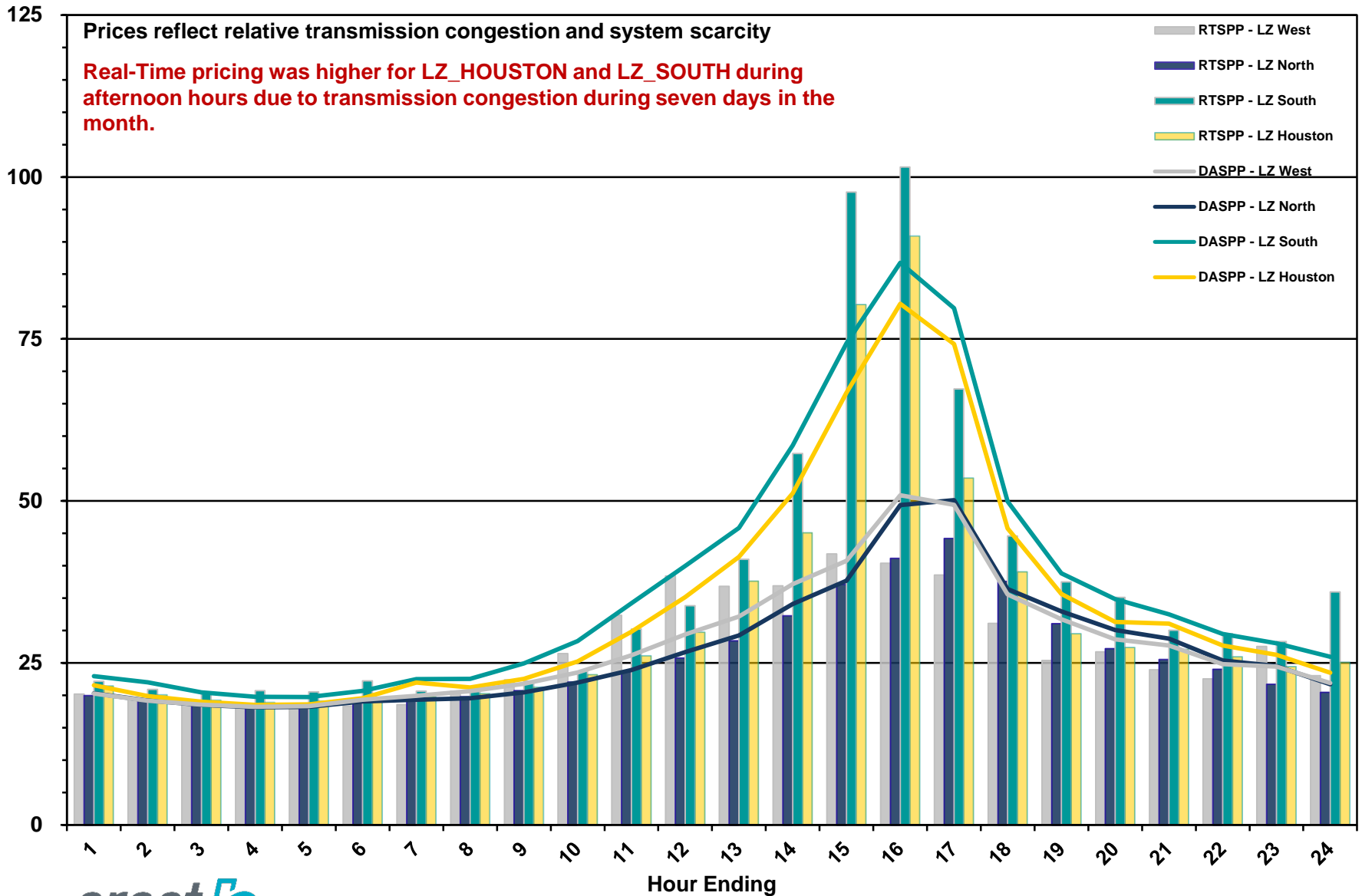
Day-Ahead Schedule (Hourly Average) – June 2017



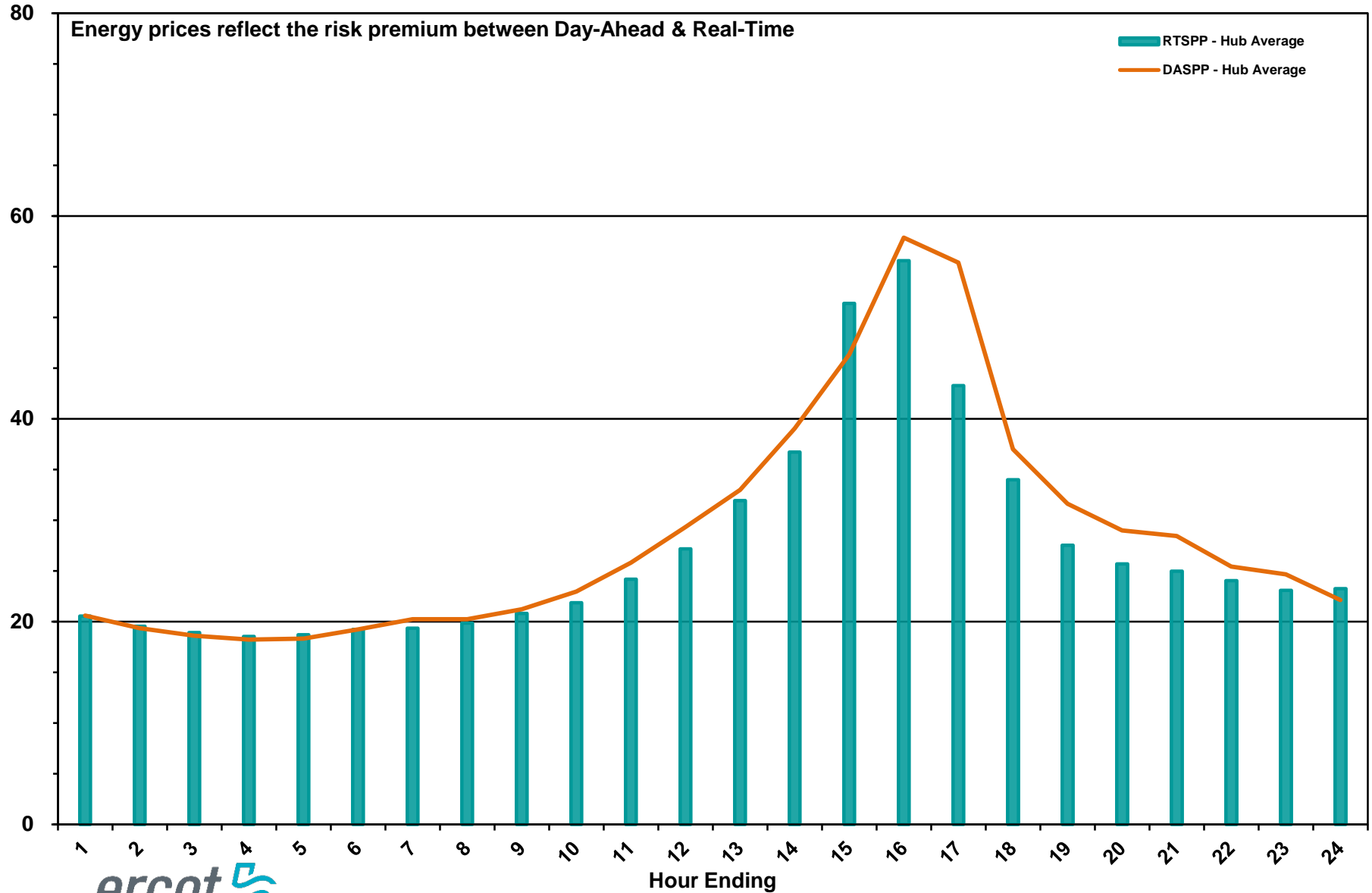
Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – June 2017



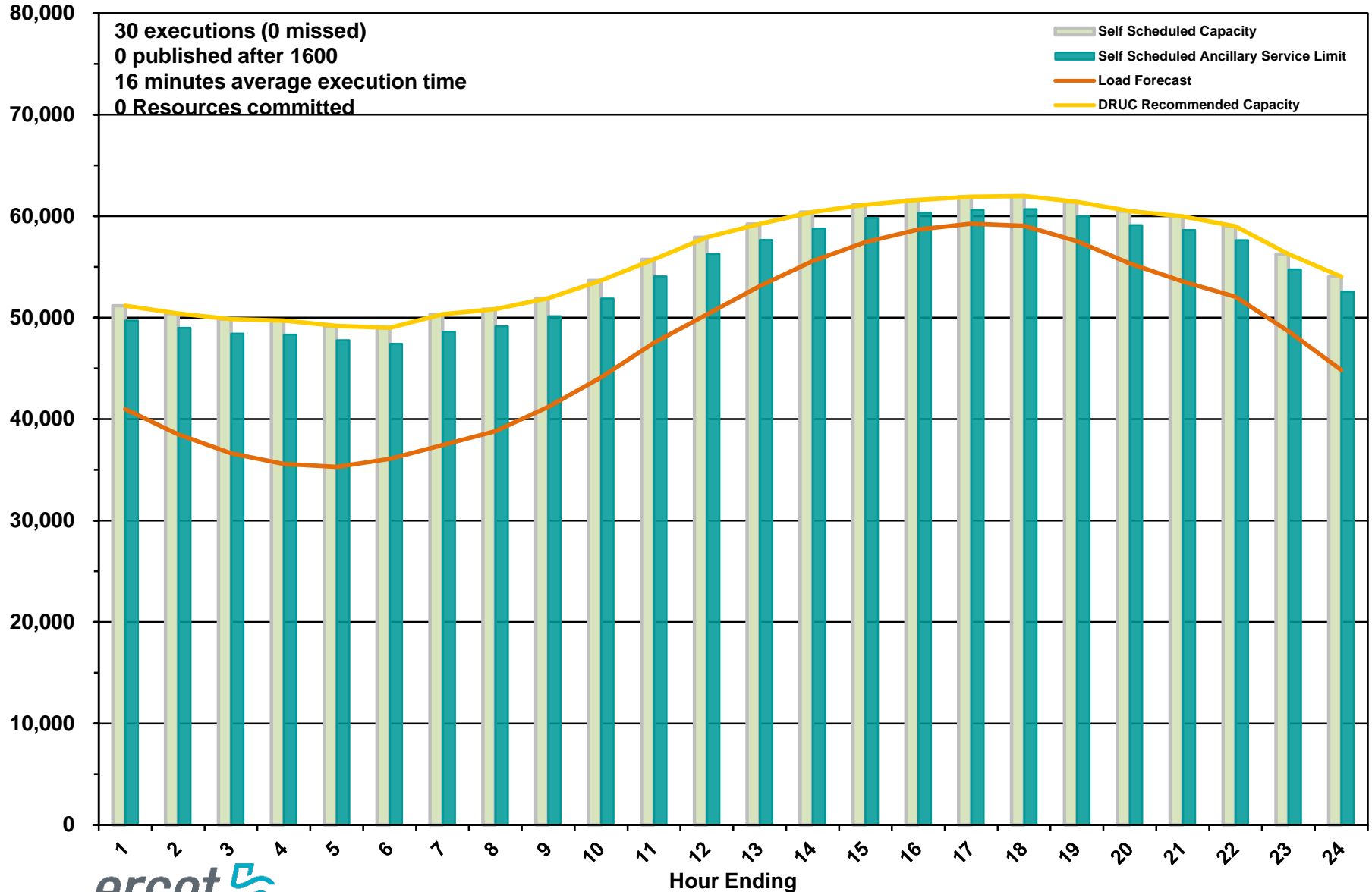
Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – June 2017



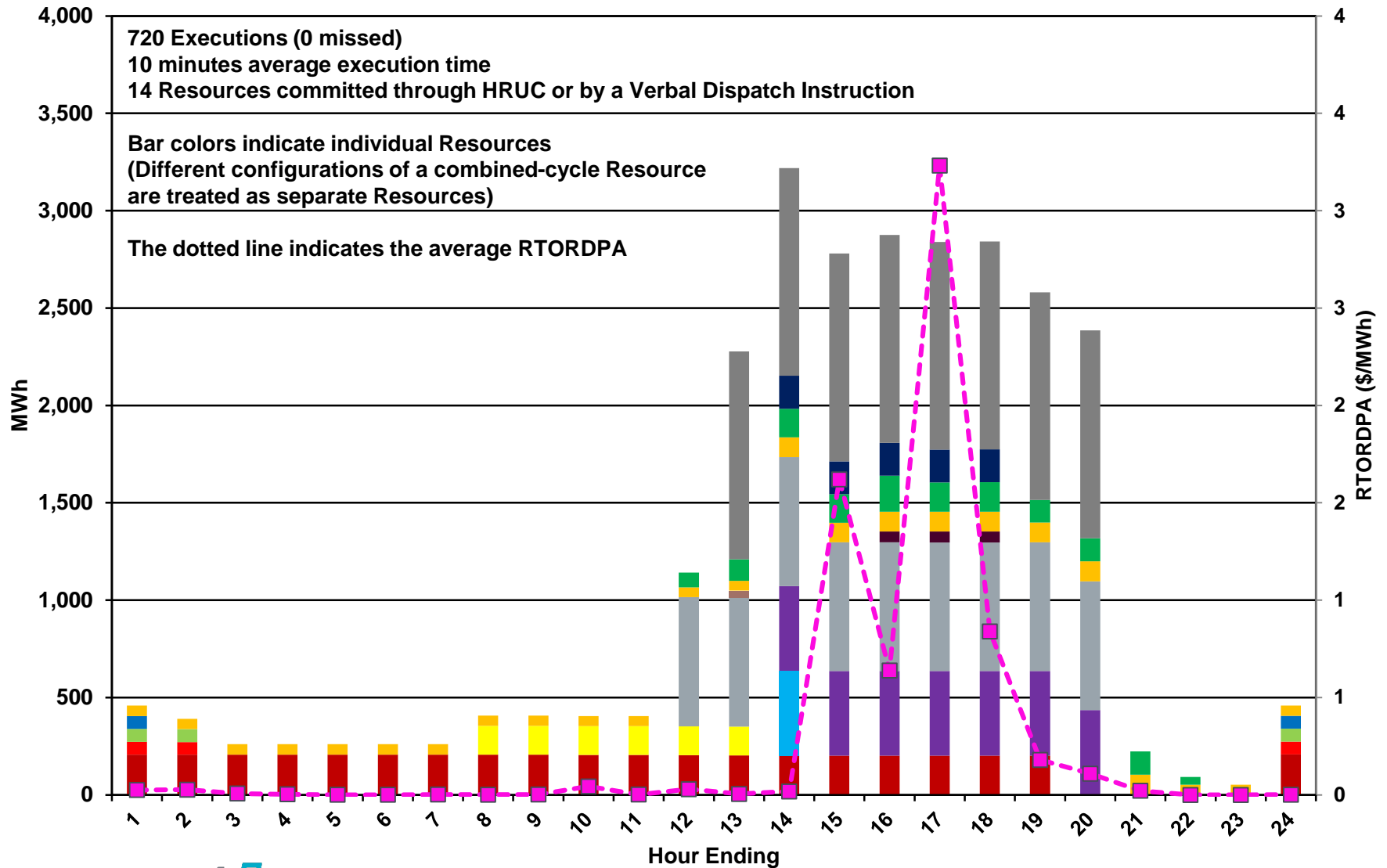
Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – June 2017



DRUC Monthly Summary (Hourly Average) – June 2017



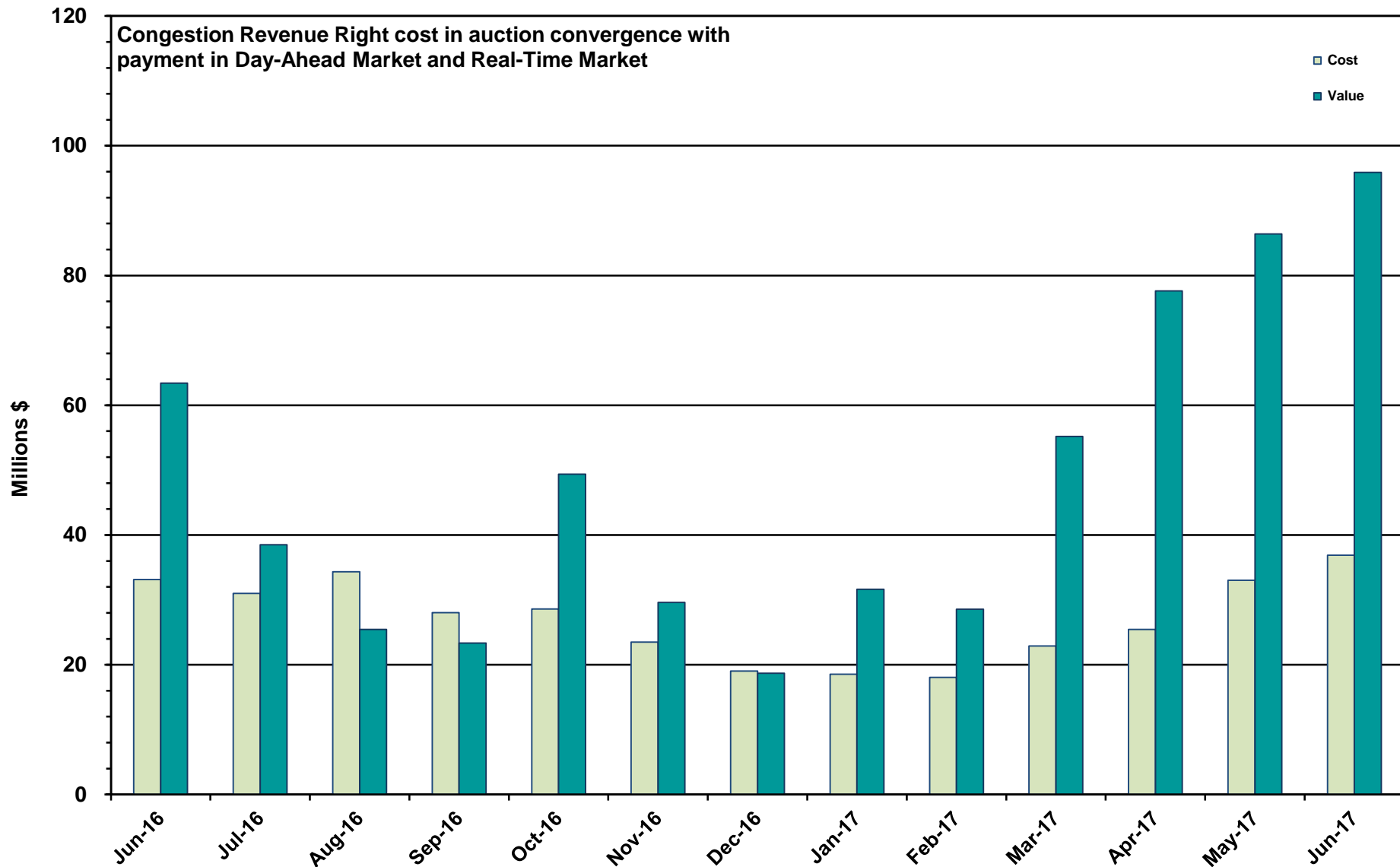
HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – June 2017



Non-Spinning Reserve Service Deployment – June 2017

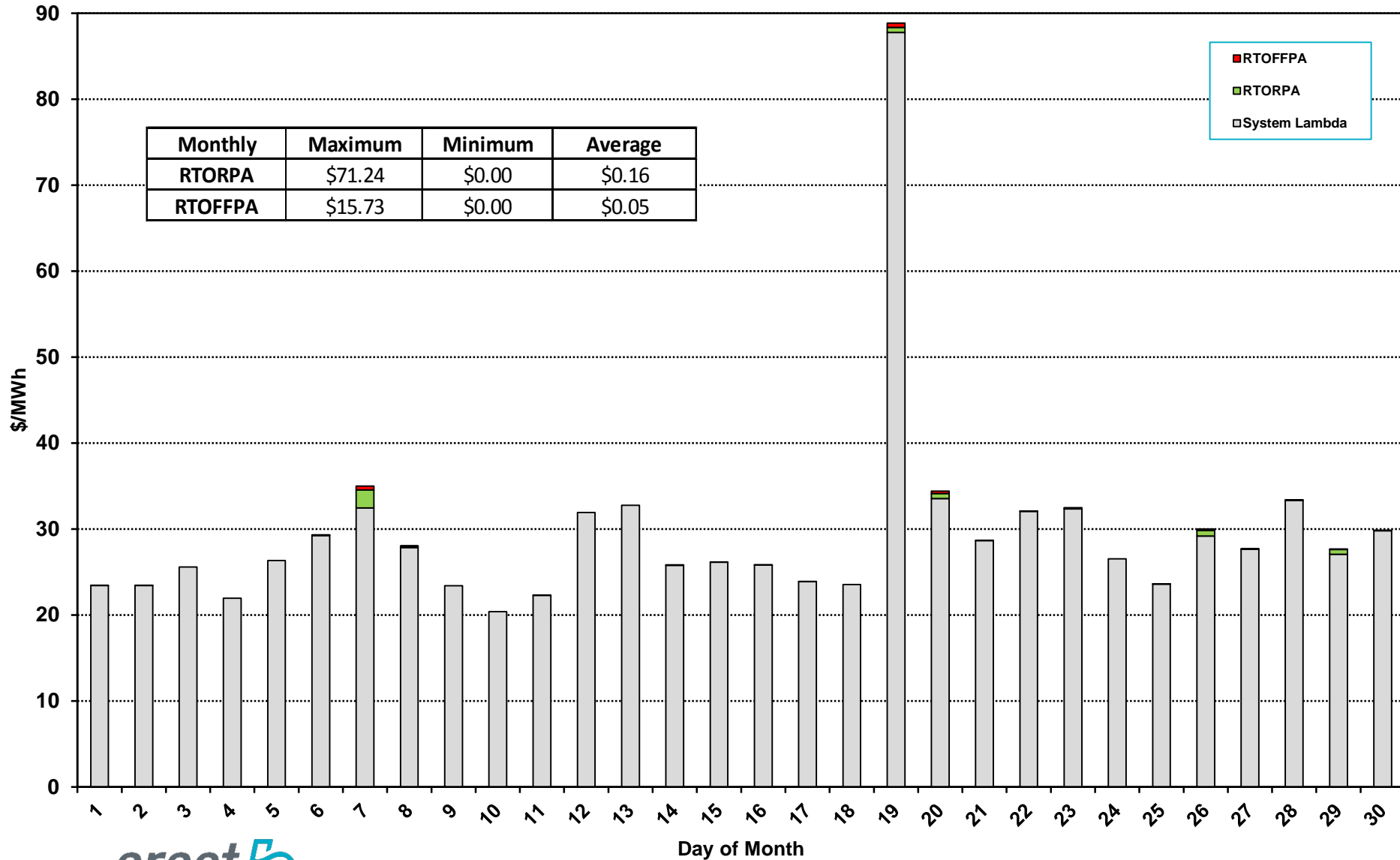
Deployment Start Time	Deployment End Time	Deployment Duration (Hours)	Max Deployment (MW)	Reason
6/2/2017 15:09	6/2/2017 16:53	1.7	140	Voltage Support
6/19/2017 15:34	6/19/2017 17:00	1.3	45	Local Congestion

CRR Price Convergence – June 2017



Daily Average System Lambda and ORDC Price Adders – June 2017

Monthly	Maximum	Minimum	Average
RTORPA	\$71.24	\$0.00	\$0.16
RTOFFPA	\$15.73	\$0.00	\$0.05



ERS Procurement for June – September 2017

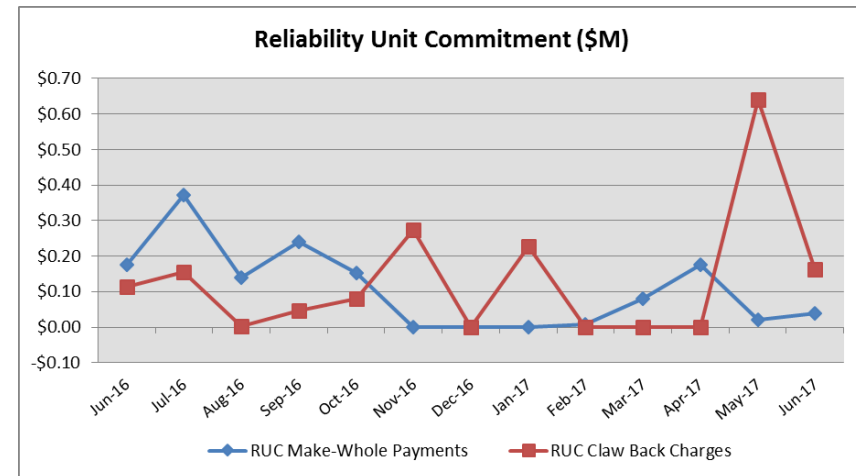
	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	238.153	238.502	226.089	220.575	234.775	229.501
Non Weather-Sensitive ERS-30 MW	644.329	701.368	631.588	606.867	659.287	567.486
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	0	0	9.172	9.172	0	0
Total MW Procured	882.482	939.870	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 – June 2017

Reliability Unit Commitment (RUC)	\$ in Millions
RUC Make-Whole Payments	(\$0.04)
RUC Clawback Charges	\$0.16
RUC Commitment Settlement	\$0.12
RUC Capacity Short Charges	\$0.04
RUC Make-Whole Uplift	\$0.00
RUC Commitment Cost Allocation	\$0.04
RUC Decommitment Payments	\$0.00



RUC Make-Whole Payments were \$0.04M in June 2017. RUC Clawback Charges were \$0.16M.

There was \$0.16M allocated directly to load in June 2017, compared to:

- \$0.64M in May 2017
- \$0.11M in June 2016

Capacity Services – June 2017

Capacity Services	\$ in Millions
Regulation Up Service	\$1.45
Regulation Down Service	\$1.19
Responsive Reserve Service	\$11.54
Non-Spinning Reserve Service	\$3.62
Black Start Service	\$0.60
Voltage Services - Reactive Power	\$0.00
Voltage Services - Lost Opportunity	\$0.00
Total Charges	\$18.40

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

June 2017 cost was \$18.40M, compared to:

- A charge of \$24.60M in May 2017
- A charge of \$20.17M in June 2016

Energy Settlement – June 2017

Day-Ahead Market Energy Settlement	\$ in Millions
Energy Purchases	\$585.54
Point to Point Obligation Purchases	\$105.98
RMR Day-Ahead Revenue	\$0.00
Energy Sales	(\$571.45)
Day-Ahead Congestion Rent	\$120.07
Day-Ahead Market Make-Whole Payments	(\$0.16)

Day-Ahead Market energy settlement activity increased from last month and increased from June 2016.

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

Real-Time Market Energy Settlement	\$ in Millions
Energy Imbalance at a Resource Node	(\$490.63)
Energy Imbalance at a Load Zone	\$838.77
Energy Imbalance at a Hub	(\$244.15)
Real Time Congestion from Self Schedules	\$1.45
Block Load Transfers and DC Ties	(\$1.33)
Impact to Revenue Neutrality	\$104.11
Emergency Energy Payments	(\$0.05)
Base Point Deviation Charges	\$0.25
Real-Time Metered Generation (MWh in millions)	33.91

Congestion Revenue Rights (CRR) – June 2017

	\$ in Millions
Annual Auction	(\$23.59)
Monthly Auction	(\$13.29)
Total Auction Revenue	(\$36.88)
Day-Ahead CRR Settlement	(\$95.89)
Day-Ahead CRR Short-Charges	\$0.05
Day-Ahead CRR Short-Charges Refunded	(\$0.05)
Real-Time CRR Settlement	\$0.00
Real-Time CRR Short-Charges	\$0.00
Real-Time CRR Short-Charges Refunded	\$0.00
Total CRR Funding	(\$95.89)
Day-Ahead Point to Point Obligations Settlement	\$105.98
Real-Time Point to Point Obligation Settlement	(\$114.46)
Net Point to Point Obligation Settlement	(\$8.48)

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 \$8.48M compared to a net credit of \$31.36M last month.

CRR Balancing Account Fund – June 2017

CRR Balancing Account Fund	\$ in Millions
Beginning Balance for the Month	\$10.00
CRR Balancing Account Credit Total	\$24.23
CRR PTP Option Award Charges	\$0.05
Day-Ahead CRR Short-Charges Refunded	(\$0.05)
Load Allocated CRR Amount	(\$24.22)
Total Fund Amount	\$10.00

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

As of June 2017, the CRR Balancing Account Fund was at \$10.00M and excess funds of \$24.22M were allocated to Load.

Revenue Neutrality – June 2017

Revenue Neutrality Settlement

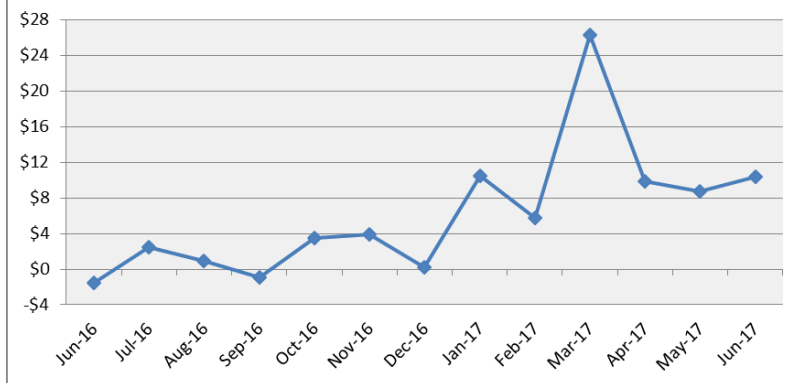
	\$ in Millions
Real-Time Point to Point Obligation Settlement	(\$114.46)
Real-Time Point to Point Options and Options with Refund Settlement	\$0.00
Real-Time Energy Imbalance Settlement	\$103.98
Real-Time Congestion from Self-Schedules Settlement	\$1.45
DC Tie & Block Load Transfer Settlement	(\$1.33)
Charge to Load	\$10.36

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

June 2017 was a charge of \$10.36M, compared to:

- \$8.76M charge in May 2017
- \$1.55M credit in June 2016

Revenue Neutrality Uplift (\$M)



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

Real-Time Ancillary Service Imbalance	\$ in Thousands
Real-Time AS Imbalance Payment Amount	(\$166.77)
Load Allocated AS Imbalance Revenue Neutrality Amount	\$166.76
Total Charges	\$166.76

In June 2017, total credits to QSEs with an Ancillary Service Imbalance were \$166,769 while total credits in May 2017 were \$ 105,338.

12 of the 30 days in June had settlement dollars equal to \$0 for the day.

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

The highest payment to QSEs with an Ancillary Service Imbalance occurred on June 7th in the amount of \$55,776.

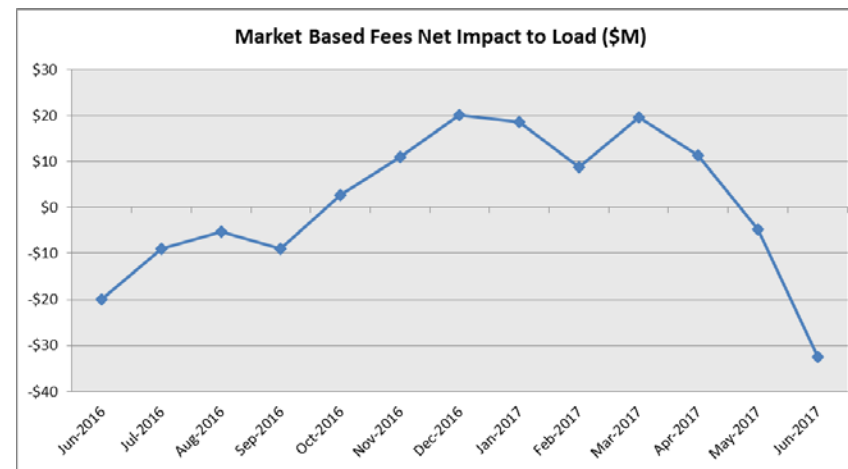
Net Allocation to Load – June 2017

Market-Based Allocation	\$ in Millions
CRR Auction Revenue Disbursement Settlement	(\$36.88)
Balancing Account Proceeds Settlement	(\$24.22)
Net Reliability Unit Commitment Settlement	(\$0.16)
Ancillary Services Settlement	\$18.40
Reliability Must Run Settlement (incl. RMR for Capacity)	\$0.00
Real-Time Revenue Neutrality Settlement	\$10.36
Emergency Energy Settlement	\$0.05
Base Point Deviation Settlement	(\$0.25)
ORDC Settlement	\$0.17
Total	(\$32.53)
Fee Allocation	
ERCOT Administrative Fee Settlement	\$18.89
Net Allocated to Load	(\$13.64)

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

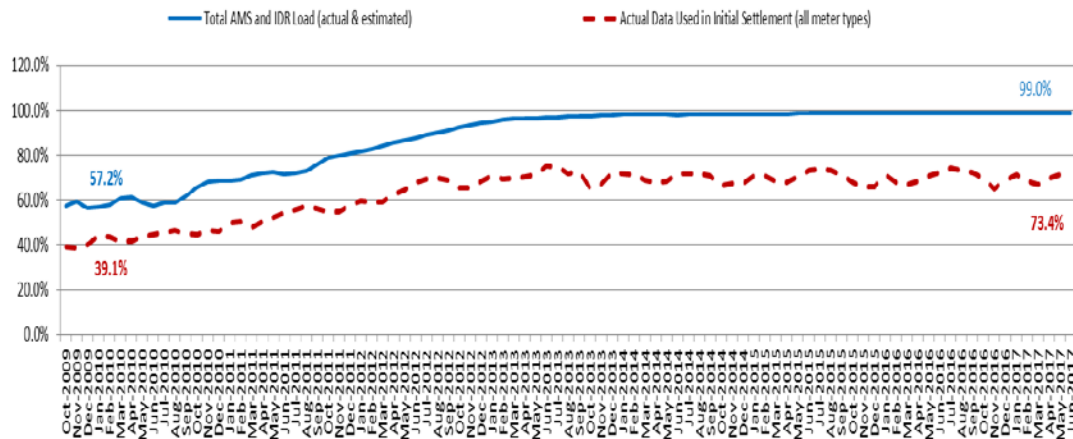
June 2017 was a credit of \$13.64M, compared to:

- A charge of \$12.09M in May 2017
- A credit of \$1.36M in June 2016



Advanced Meter Settlement Impacts – June 2017

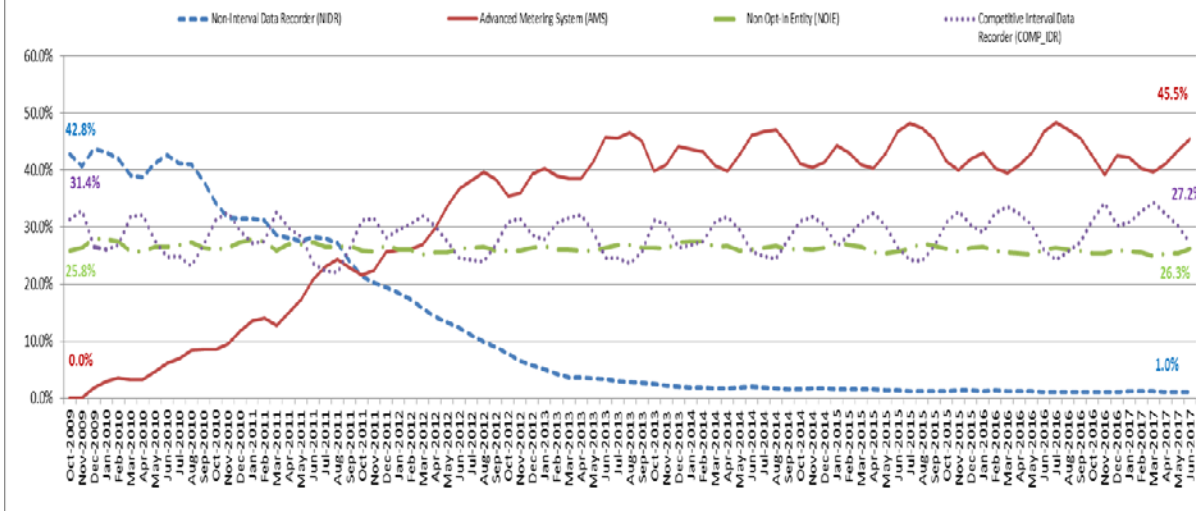
Percent Actual/Percent Interval Data Recorder (IDR)



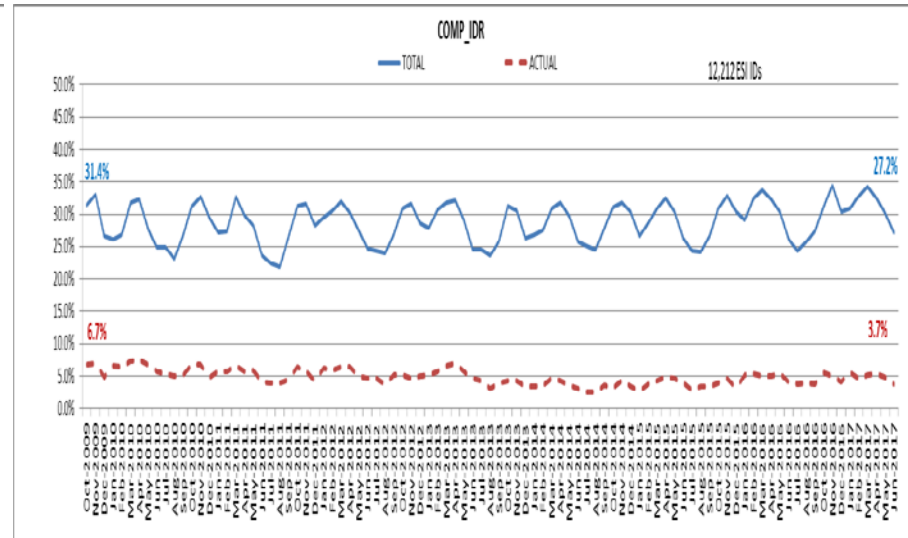
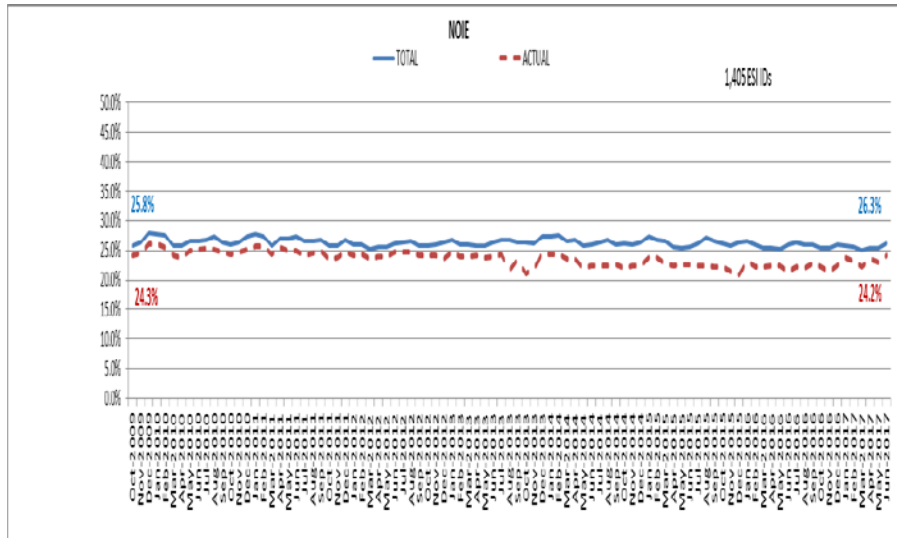
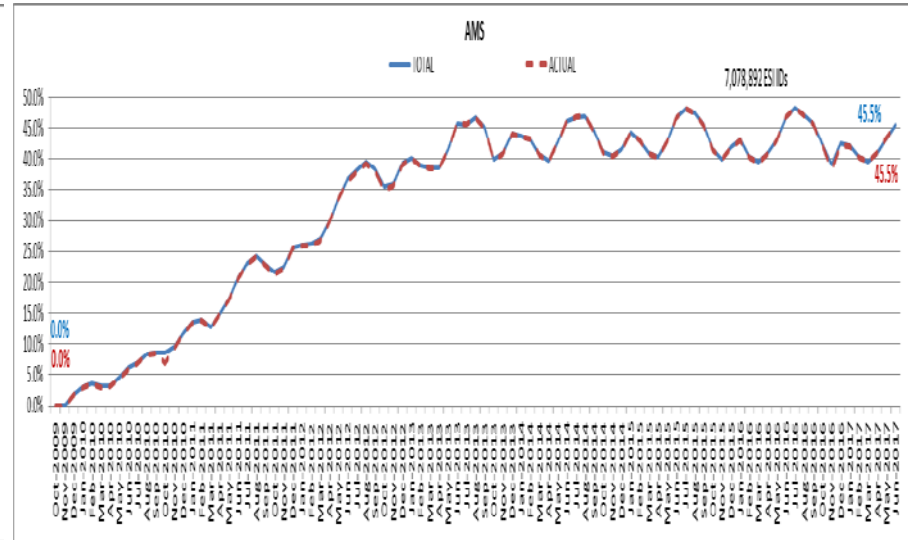
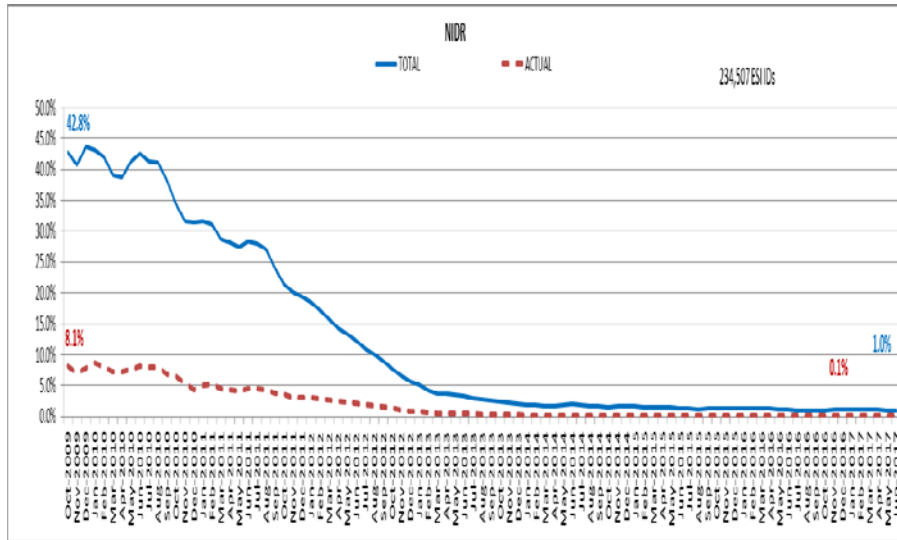
June 2017: At month end, settling 7.0M ESIIDs using Advanced Meter data.

June 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 – June 2017

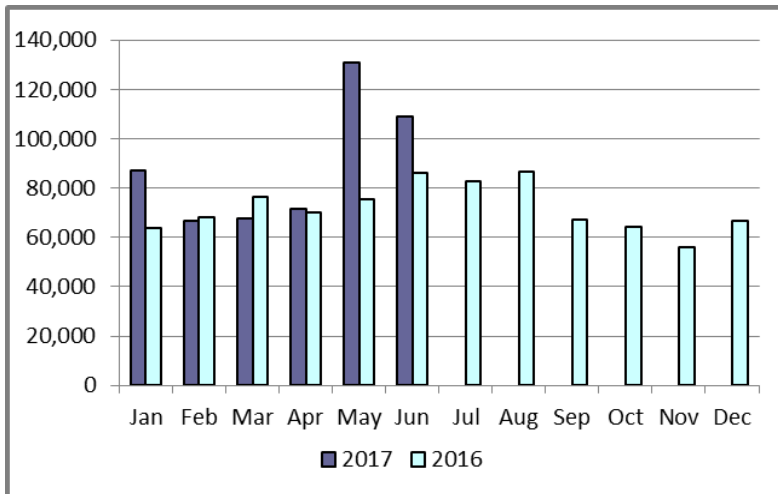


Retail Transaction Volumes – Summary – June 2017

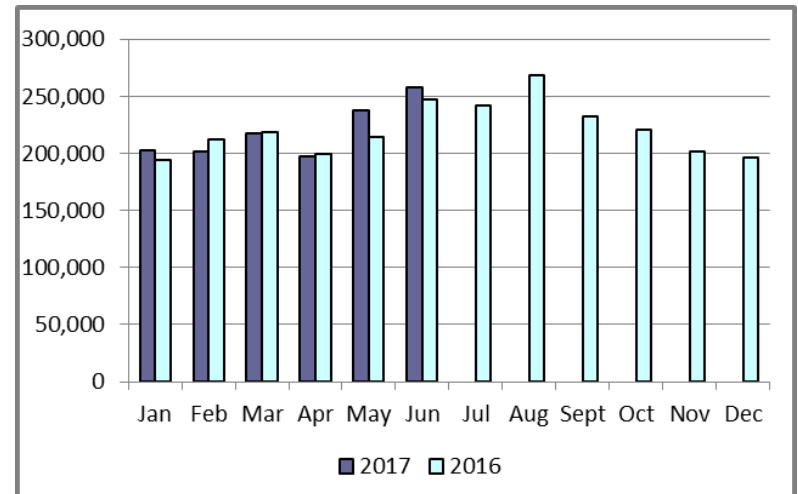
	Year-To-Date		Transactions Received	
Transaction Type	June 2017	June 2016	June 2017	June 2016
Switches	533,241	440,245	108,784	86,376
Acquisition	0	0	0	0
Move - Ins	1,315,793	1,286,103	257,759	247,481
Move - Outs	675,706	660,489	133,582	129,025
Continuous Service Agreements (CSA)	227,489	324,267	43,745	64,178
Mass Transitions	0	0	0	0
Total	2,752,229	2,711,104	543,870	527,060

Retail Transaction Volumes – Summary – June 2017

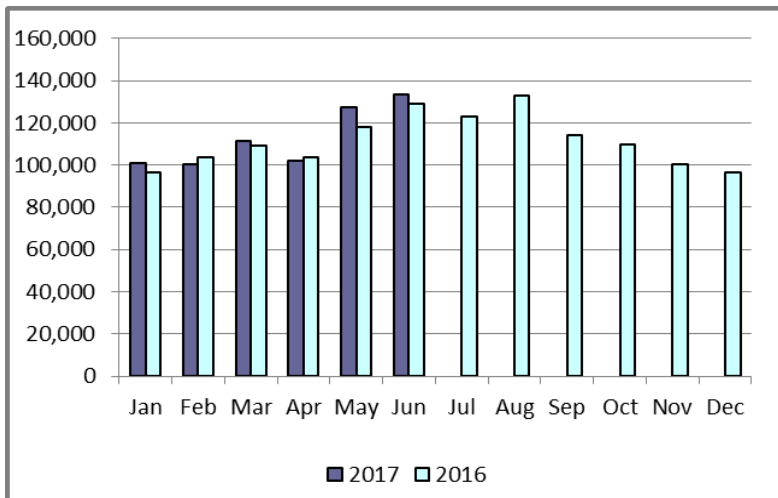
Switches/Acquisitions



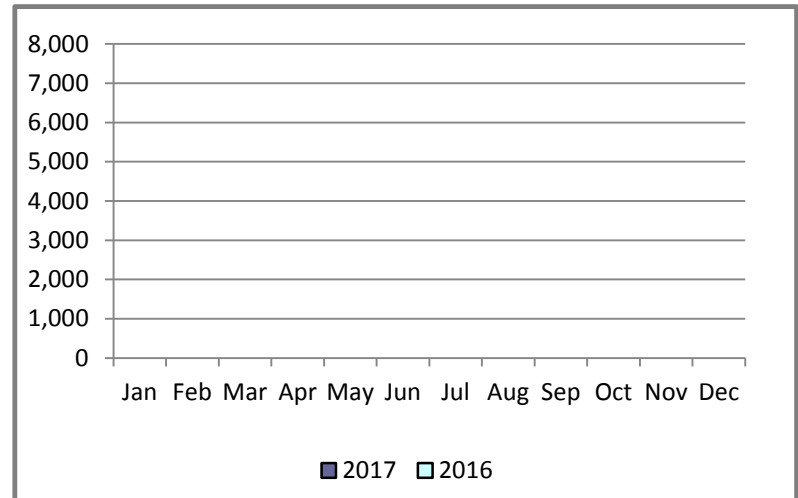
Move-Ins



Move-Outs

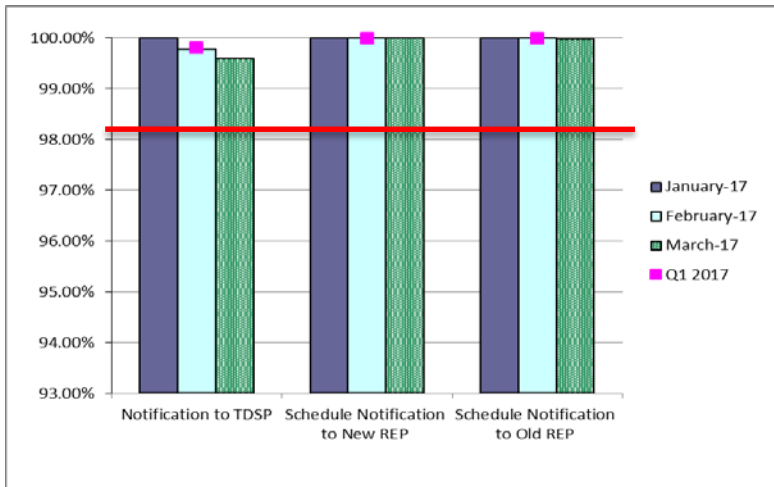


Mass Transition

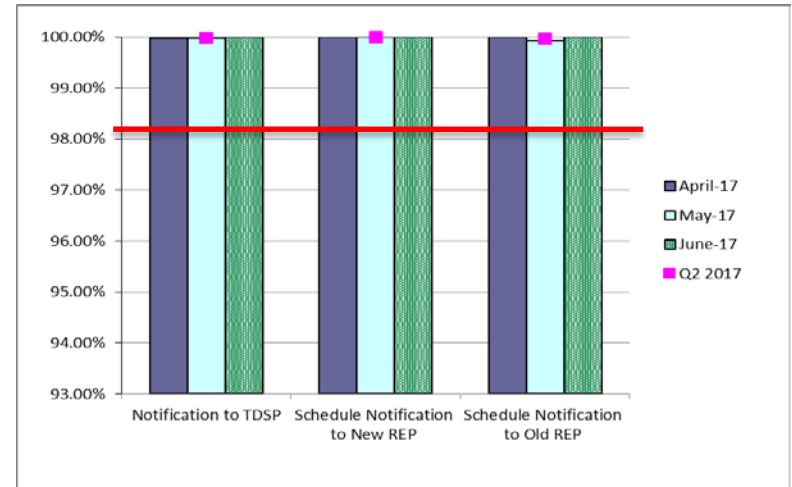


Retail Performance Measures – Switch – June 2017

1st Quarter



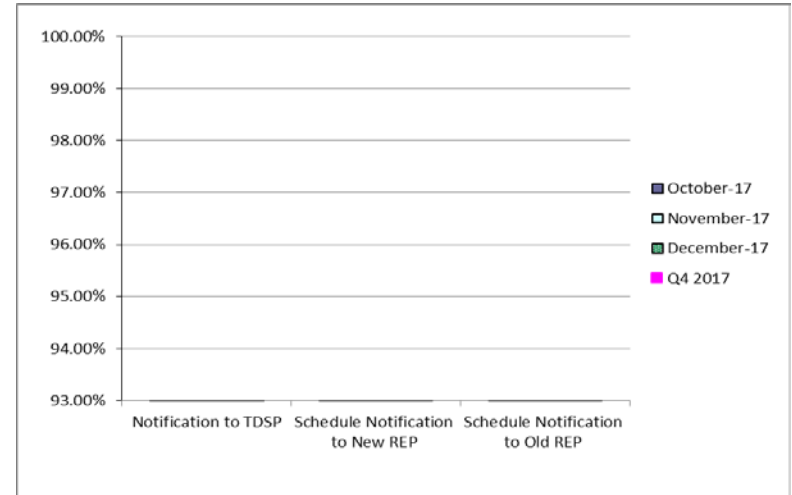
2nd Quarter



3rd Quarter

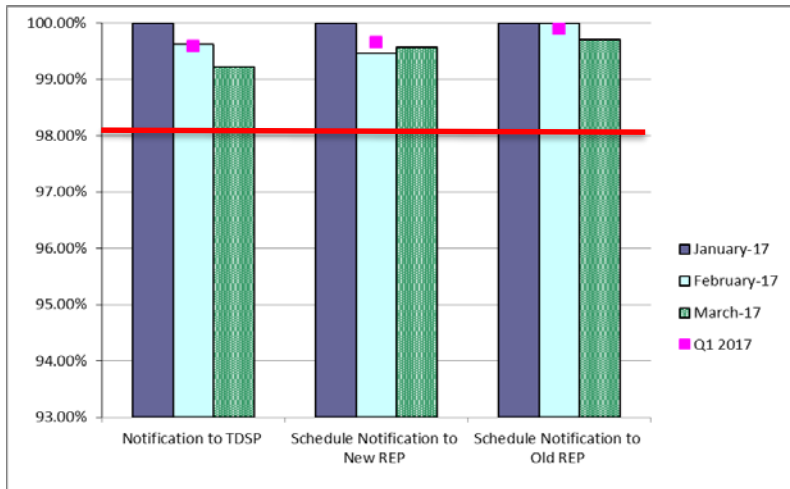


4th Quarter

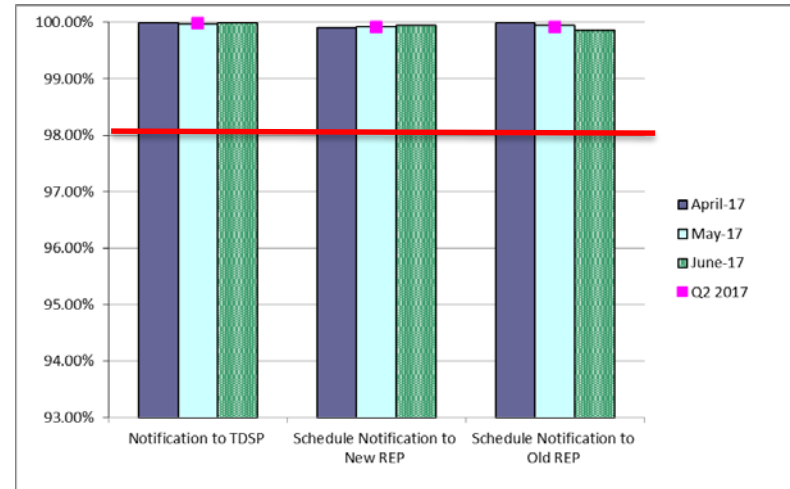


Retail Performance Measures – Same Day Move-In – June 2017

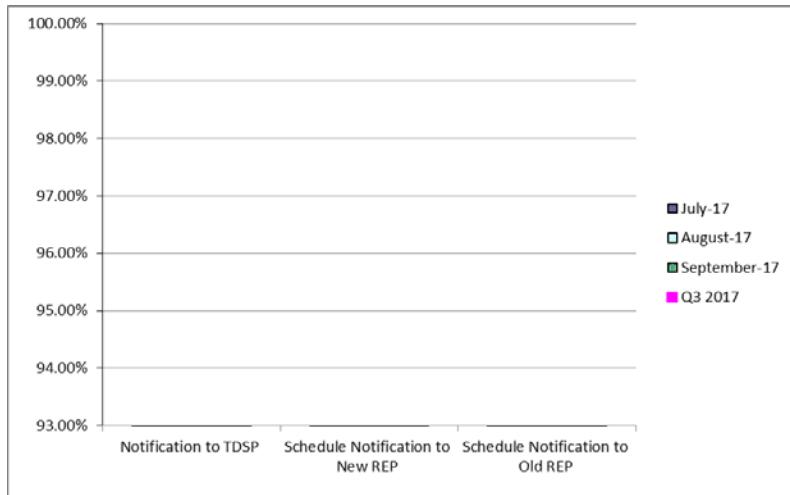
1st Quarter



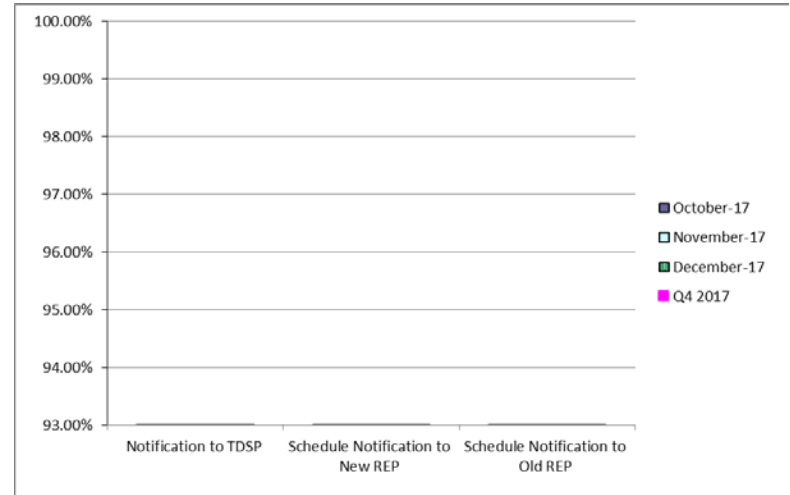
2nd Quarter



3rd Quarter

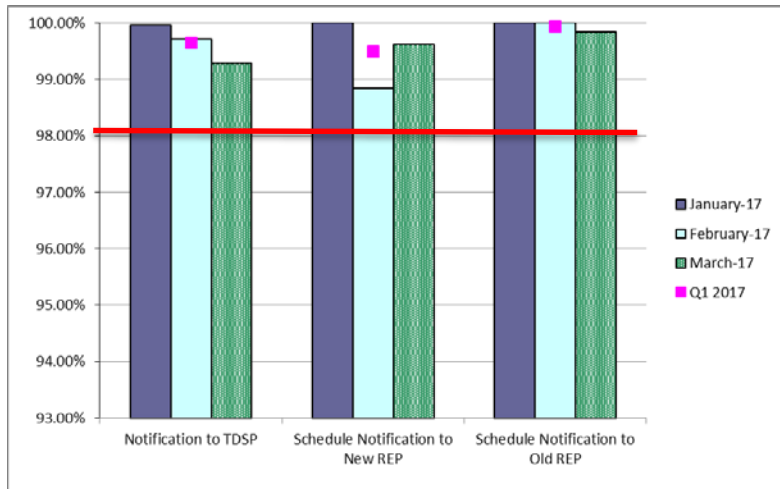


4th Quarter

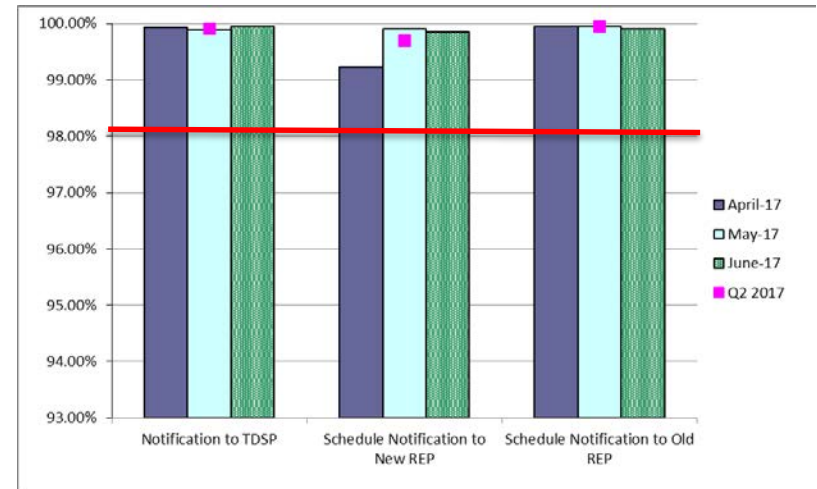


Retail Performance Measures – Standard Move-In – June 2017

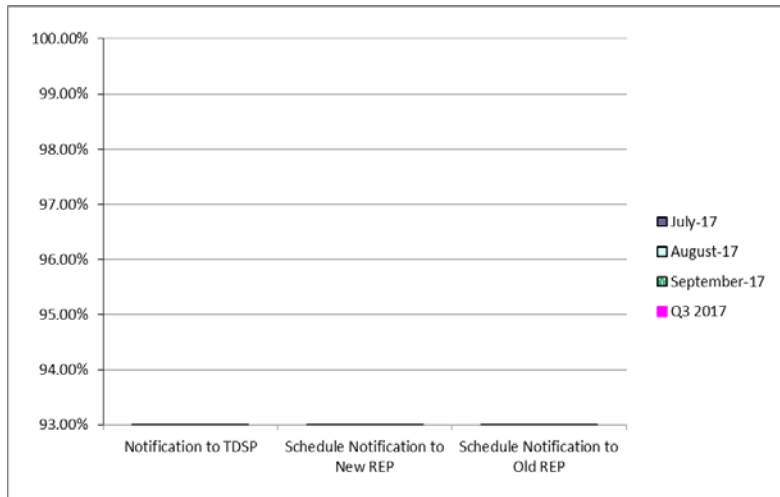
1st Quarter



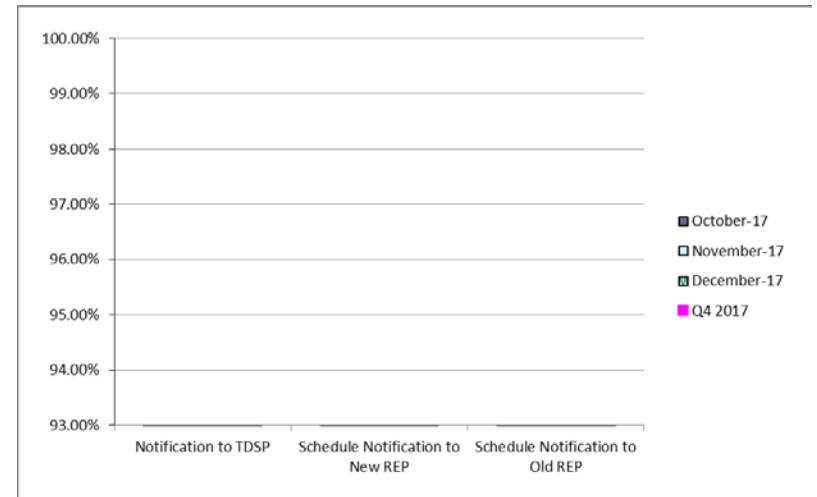
2nd Quarter



3rd Quarter



4th Quarter



Projects Report

ERCOT Portfolio Stoplight Report – June 2017

Project Number	Projects in Initiation Phase (Count = 6)
NPRR808	Three Year CRR Auction
NPRR831	Inclusion of Private Use Networks in Load Zone Price Calculations
SCR789	Update NMMS Topology Processor to PSSE 34 Capability
253-01	CIP Recovery Plan Project - Planning Phase 1
249-01	Secondary Wind Forecasting Service
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 – June 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	7/19/2017	TBD	7/19/2017		0%		4%
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	7/26/2017		0%		14%
198-02	Reactive Power Coordination PoC	4/19/2017	6/28/2017	6/28/2017	TBD	8/23/2017	1	-80%		0%
210-01	REC Technology Refresh	3/15/2017	7/19/2017	8/30/2017	TBD	8/30/2017		0%		6%
212-01	Test Data and Environment Enhancements Initiative (TDEE)	10/5/2016	11/2/2016	8/2/2017	TBD	8/2/2017		0%		3%
228-01	Enterprise Database Upgrade	2/1/2017	6/28/2017	6/28/2017	TBD	8/30/2017	1	-42%		1%
229-01	IT Change and Configuration Management Phase 2	1/25/2017	5/17/2017	7/5/2017	TBD	7/12/2017		-4%		0%
238-01	Application Authentication Tech Refresh	5/3/2017	8/30/2017	8/30/2017	TBD	8/30/2017		0%		34%
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%		37%
241-01	AREA - Generation	5/31/2017	8/2/2017	8/2/2017	TBD	8/2/2017		0%		8%
242-01	Portfolio Reporting Assessment	5/17/2017	11/1/2017	11/1/2017	TBD	11/1/2017		0%		20%
243-01	Training Facility - Scope and Design	6/21/2017	10/13/2017	10/13/2017	TBD	10/13/2017		0%		13%
244-01	Corporate Wireless	6/28/2017	10/4/2017	10/4/2017	TBD	10/4/2017		0%		0%
246-01	iTest Data Refresh	6/21/2017	10/25/2017	10/25/2017	TBD	10/25/2017		0%		5%
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
NPRR778	Modifications to Date Change and Cancellation Evaluation Window	5/24/2017	7/12/2017	7/12/2017	TBD	7/12/2017		0%		-1%
SCR781	RARF Replacement	3/29/2017	10/31/2017	10/31/2017	TBD	10/26/2017		2%		0%
Project Number	Projects in Execution Phase (Count = 36)	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%		15%
172-01	Physical Security Project #2	6/30/2016	2/13/2017	6/30/2017	7/12/2017	7/12/2017		-3%		11%
181-01	CRR Framework Upgrade	10/26/2016	10/2/2017	1/22/2018	1/22/2018	3/16/2018		0%		7%
183-01	CMM Tech Refresh	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		0%	NA	See 2015 CMM NPRRs
185-01	Records Management and eDiscovery	12/15/2016	5/24/2017	8/29/2017	8/29/2017	9/13/2017		0%		9%
196-01	GINR Project Status Application Replacement	12/21/2016	9/14/2017	9/14/2017	9/14/2017	10/4/2017		0%		10%

ERCOT Portfolio Stoplight Report – June 2017

Project Number	Projects in Execution Phase (Count = 36)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
205-01	TIBCO BusinessWorks Application Upgrade	1/11/2017	6/26/2017	8/1/2017	8/1/2017	9/1/2017		0%		5%
209-01	Multi Station Breaker to Breaker One Lines	2/8/2017	3/9/2018	3/9/2018	3/9/2018	5/2/2018		0%		3%
216-01	CAT & RRS Tools for Control Room Project	11/30/2016	9/15/2017	11/2/2017	11/3/2017	11/29/2017		0%		21%
216-01	Capacity Availability Tool (CAT)	11/30/2016	9/15/2017	11/2/2017	11/3/2017	11/29/2017		0%	NA	See CAT & RRS Tools for Cntl Rm
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
218-01	Cyber Security Project #21	5/24/2017	6/23/2017	6/23/2017	7/18/2017	9/7/2017	1	-83%		24%
222-01	Physical Security Project #3	2/8/2017	5/31/2017	7/28/2017	7/28/2017	8/16/2017		0%		4%
224-01	TelAlert Replacement	4/5/2017	6/27/2017	8/4/2017	8/4/2017	3/8/2018		0%	2	-44%
230-01	SAS Technical Architecture Redesign	3/1/2017	11/15/2017	11/15/2017	11/15/2017	2/28/2018		0%		1%
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	9/21/2017	10/3/2017		0%		8%
Various	2015 CMM NPRRs	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		0%		15%
NPRR519	Exemption of ERS-Only QSEs from Collateral and Capitalization Requirements	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		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	9/11/2018		0%	NA	See 2015 CMM NPRRs
NPRR648	Remove References to Flowgate Rights	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		0%	NA	See 2015 CMM NPRRs
NPRR660	Remove CRR State Change Adder	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		0%	NA	See 2015 CMM NPRRs
NPRR683	Revision to Available Credit Limit Calculation	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		0%	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	9/11/2018		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	5/19/2018	9/11/2018		0%	NA	See 2015 CMM NPRRs
NPRR755	Data Agent-Only QSE Registration	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		0%	NA	See 2015 CMM NPRRs
NPRR758	Improved Transparency for Outages Potentially Having a High Economic Impact	1/11/2017	7/13/2017	8/31/2017	8/30/2017	10/6/2017		0%		-3%
NPRR760	Calculation of Exposure Variables For Days With No Activity	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		0%	NA	See 2015 CMM NPRRs
NPRR782	Settlement of Infeasible Ancillary Services Due to Transmission Constraints	5/24/2017	8/31/2017	8/31/2017	8/31/2017	11/1/2017		0%		13%
NPRR800	Revisions to Credit Exposure Calculations to Use Electricity Futures Market Prices	3/15/2017	5/19/2018	5/19/2018	5/19/2018	9/11/2018		0%	NA	See 2015 CMM NPRRs
NPRR809	GTC or GTL for New Generation Interconnection	6/15/2017	TBD	TBD	TBD	TBD		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
PGRR052	Stability Assessment for Interconnecting Generation	6/15/2017	8/1/2017	8/1/2017	8/1/2017	8/1/2017		0%	NA	See #233-00
PGRR054	Stability Limits in the Full Interconnect Study	6/15/2017	8/1/2017	8/1/2017	8/1/2017	8/1/2017		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

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Project Number	Projects in Stabilization (Count = 18)	Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Scheduled Execution Phase Finish	Schedule Health		Budget Health	
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
NPRR744	RUC Trigger for the Reliability Deployment Price Adder and Alignment with RUC Settlement	2/8/2017	6/29/2017	6/29/2017	5/31/2017	7/19/2017		20%		33%
NPRR746	Adjustments Due to Negative Load	1/25/2017	5/11/2017	5/11/2017	5/11/2017	7/12/2017		0%		24%
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
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	8/16/2017		4%	NA	See #188-01
RMGRR140	Efficiencies for Acquisition Transfer Process	5/25/2016	4/2/2017	6/22/2017	6/4/2017	8/16/2017		4%	NA	See #188-01
Various	NPRR797 & NPRR789 Load Forecast Enhancements	3/8/2017	6/29/2017	6/29/2017	6/29/2017	7/19/2017		0%		46%
Various	Implementation of NPRR573 & NPRR801	3/29/2017	6/29/2017	6/29/2017	6/29/2017	7/26/2017		0%		31%
065-01	NMMS Upgrade	12/17/2014	9/22/2016	5/1/2017	5/8/2017	8/2/2017		0%		7%
158-01	Load Forecast Enhancements	9/28/2016	5/21/2017	5/21/2017	6/27/2017	8/2/2017	1	-15%		2%
177-01	Cyber Security Project #19	4/6/2016	7/13/2016	7/24/2017	4/28/2017	7/26/2017		18%		18%
188-01	Mass Transition/Acquisition Enhancements (MTAQ)	5/25/2016	4/2/2017	6/22/2017	6/4/2017	8/16/2017		4%		2%
197-01	AREA - Demand and Energy Report	9/14/2016	5/4/2017	6/29/2017	6/29/2017	7/12/2017		0%		-3%
217-01	Cyber Security Project #20	5/17/2017	6/22/2017	6/22/2017	6/22/2017	7/19/2017		0%		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%
235-01	Forecast Monitoring and HSL Tracking	2/8/2017	5/11/2017	6/29/2017	6/29/2017	7/26/2017		0%		20%
Project Number	Projects On Hold (Count = 0)	Forecast Start Date	Baseline Phase Finish	Approved Go-Live Target	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	

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Project Number	Projects Completed (Count = 28)	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%
173-01	Serena Software (MarkeTrak) Upgrade	10/5/2016	1/29/2017	3/26/2017	3/26/2017	6/7/2017		0%		0%
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%
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%
227-01	Engineer Workstations and Other Equipment	11/30/2016	3/1/2017	3/1/2017	2/28/2017	3/8/2017		1%		5%
Various	2016 RARF Enhancements	11/16/2016	2/17/2017	5/15/2017	5/15/2017	6/14/2017		0%		26%
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%
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%
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
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
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%
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%		7%
Various	NOGRR147 and SCR787 NDCRC Enhancement	9/14/2016	12/8/2016	12/8/2016	12/8/2016	1/11/2017		0%		5%

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Project Number	2017 Projects Not Yet Started (Count = 8)	Forecast Start Date
NPRR776	Voltage Set Point Communication	Jul-2017
TBD	Security Constrained Optimal Powerflow in Study Network Analysis	Jul-2017
NPRR812	Alignment of Currently-Published Reports	Jul-2017
TBD	Generic Transmission Constraint Calculation	Jul-2017
TBD	JBOSS Upgrade Assessment	Jul-2017
TBD	Real-Time Assessment Continuity	Aug-2017
TBD	Automation of NPRR487 - QSGR Dispatch Adjustment	Nov-2017
TBD	Emergency Energy Settlements Inputs Automation	Nov-2017