



## **ERCOT Monthly Operational Overview** (June 2016)

ERCOT Public  
July 15, 2016

# **Grid Planning & Operations**

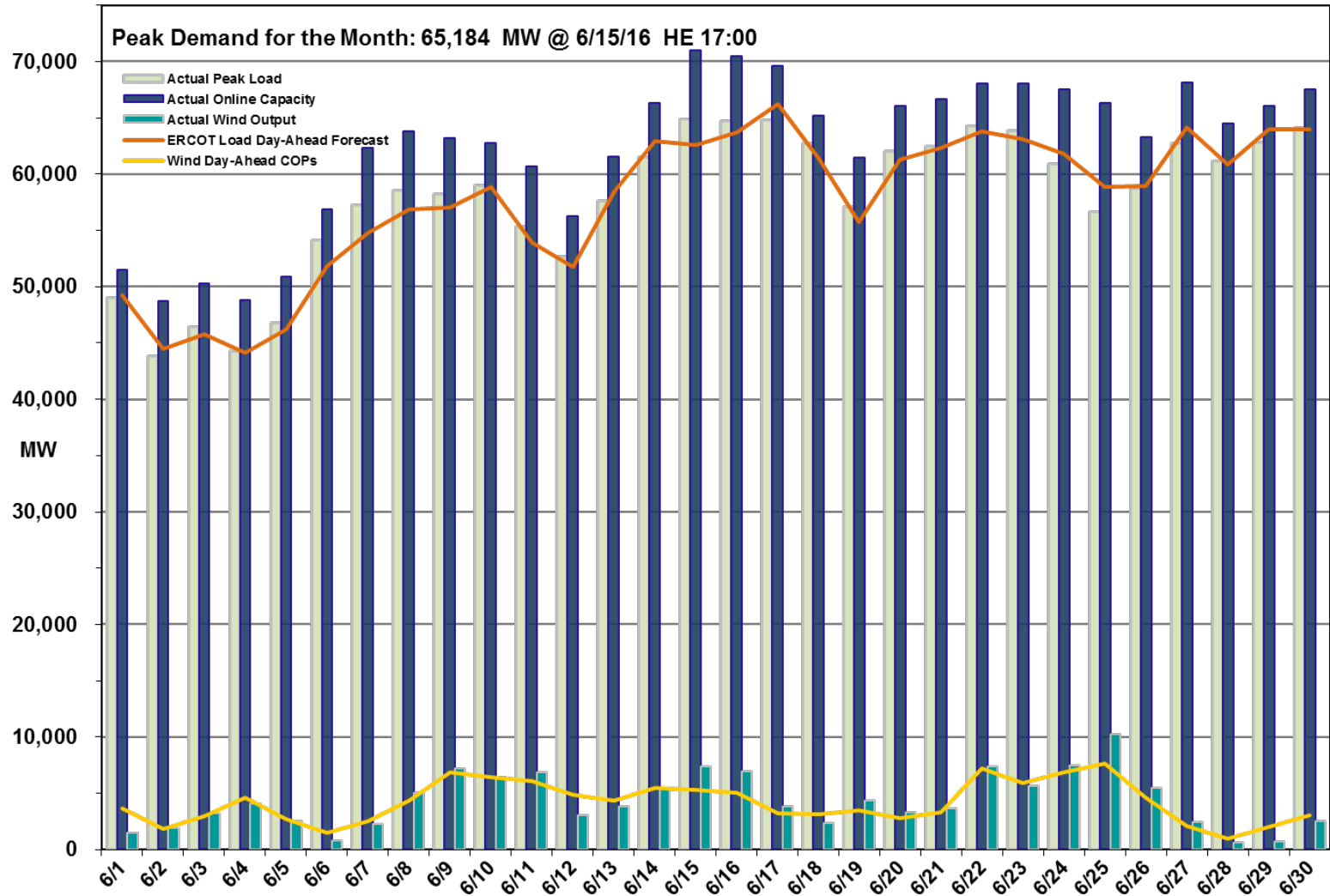
### Operations

- The peak demand of 65,184 MW on June 15<sup>th</sup> was greater than the day-ahead mid-term forecast peak of 62,607 MW for the same operating period. In addition, it was greater than the June 2015 actual peak demand of 61,741 MW. The instantaneous peak load on June 15<sup>th</sup>, 2016 was 65,030 MW.
- Day-ahead load forecast error for June was 2.80%
- ERCOT issued two notifications:
  - One Advisory issued due to Physically Responsive Capability being less than 3,000 MW.
  - One Transmission Emergency Notice issued for a post-contingency overload in the Laredo-Hamilton Road area.

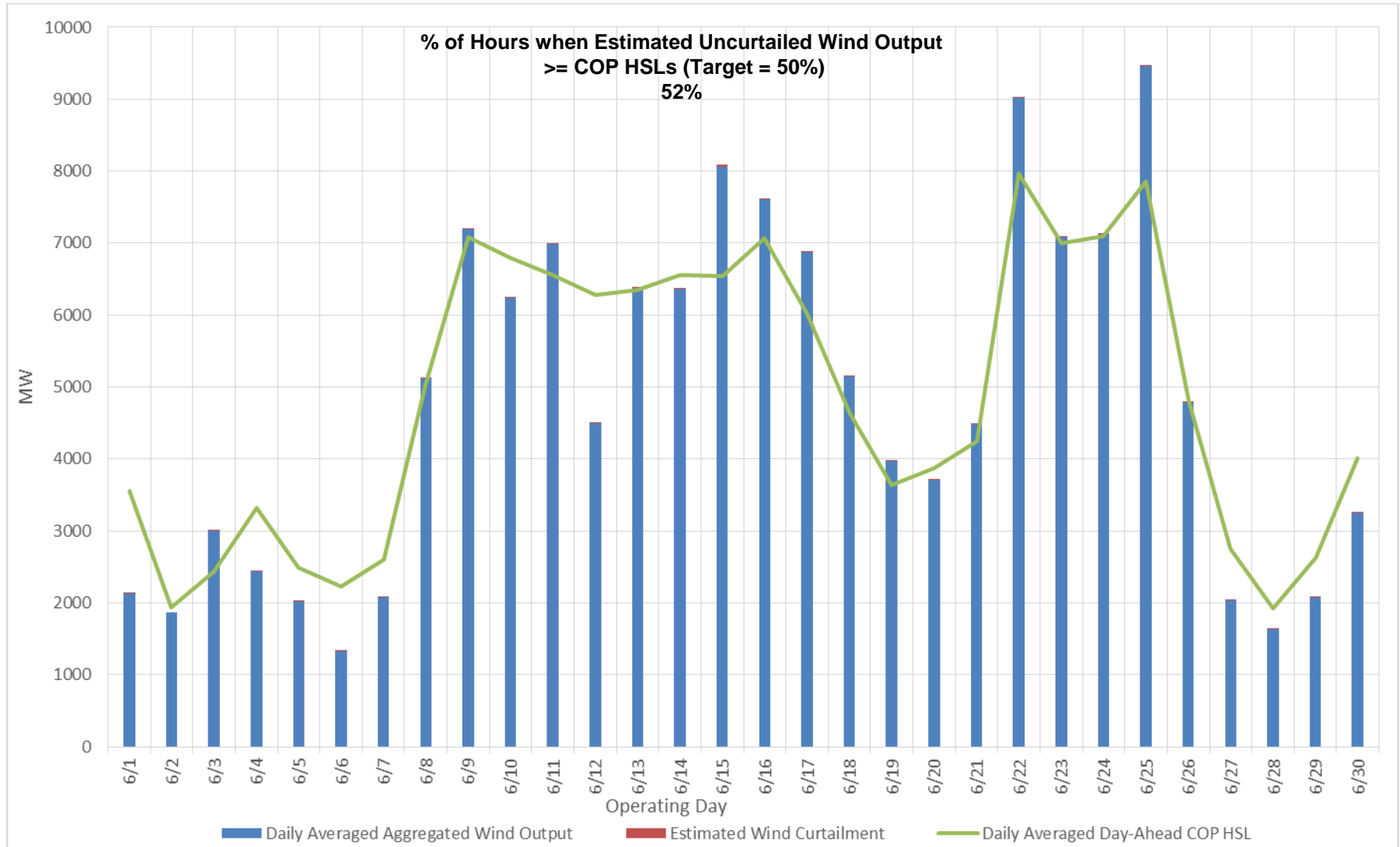
### Planning Activities

- 232 active generation interconnection requests totaling 56,891 MW, including 25,215 MW of wind generation, as of June 30, 2016. Four fewer requests and a decrease of 89 MW from May 31, 2016.
- 16,631 MW wind capacity in commercial operations on June 30, 2016.

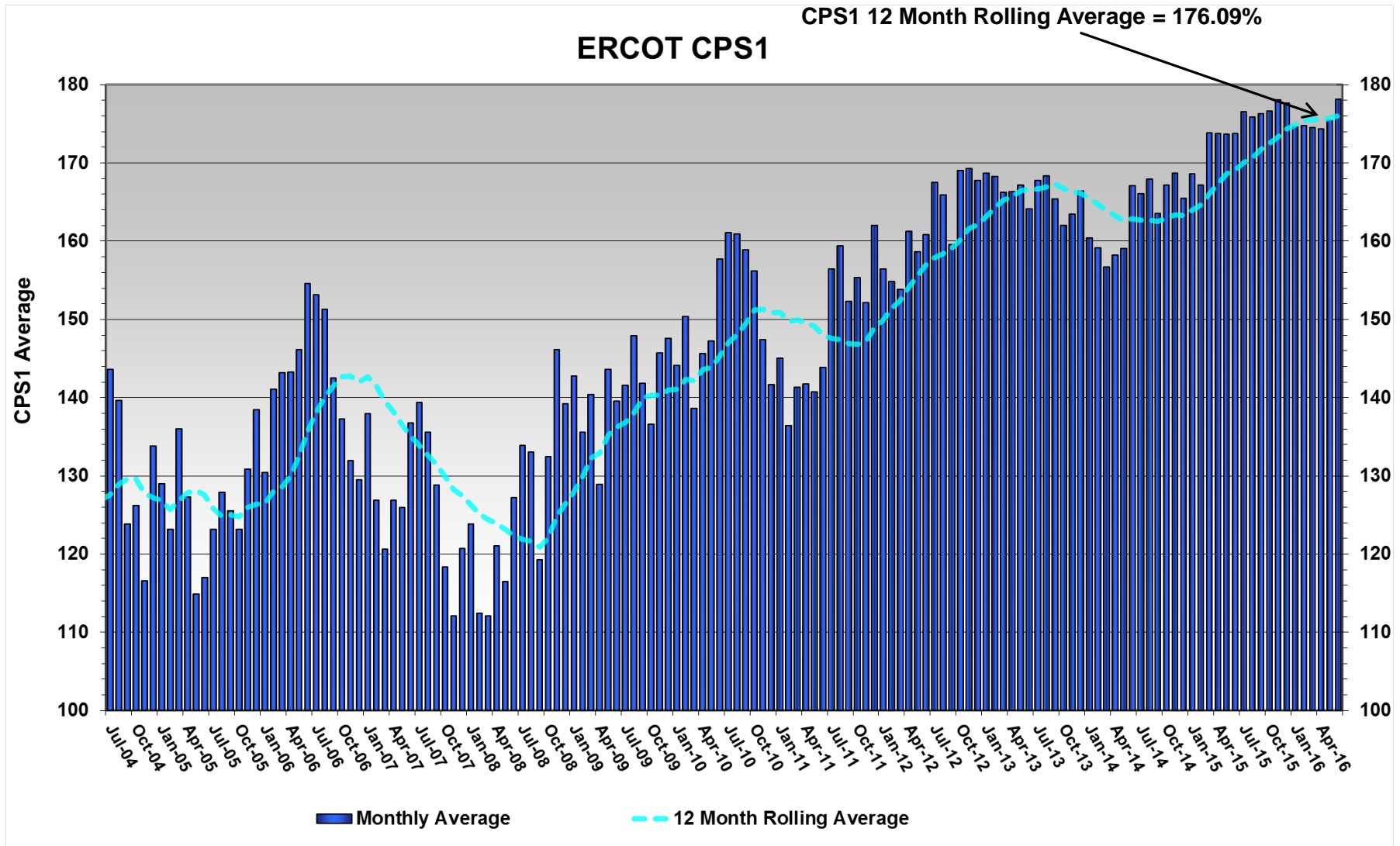
# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs, & On-Line Capacity at Peak – June 2016



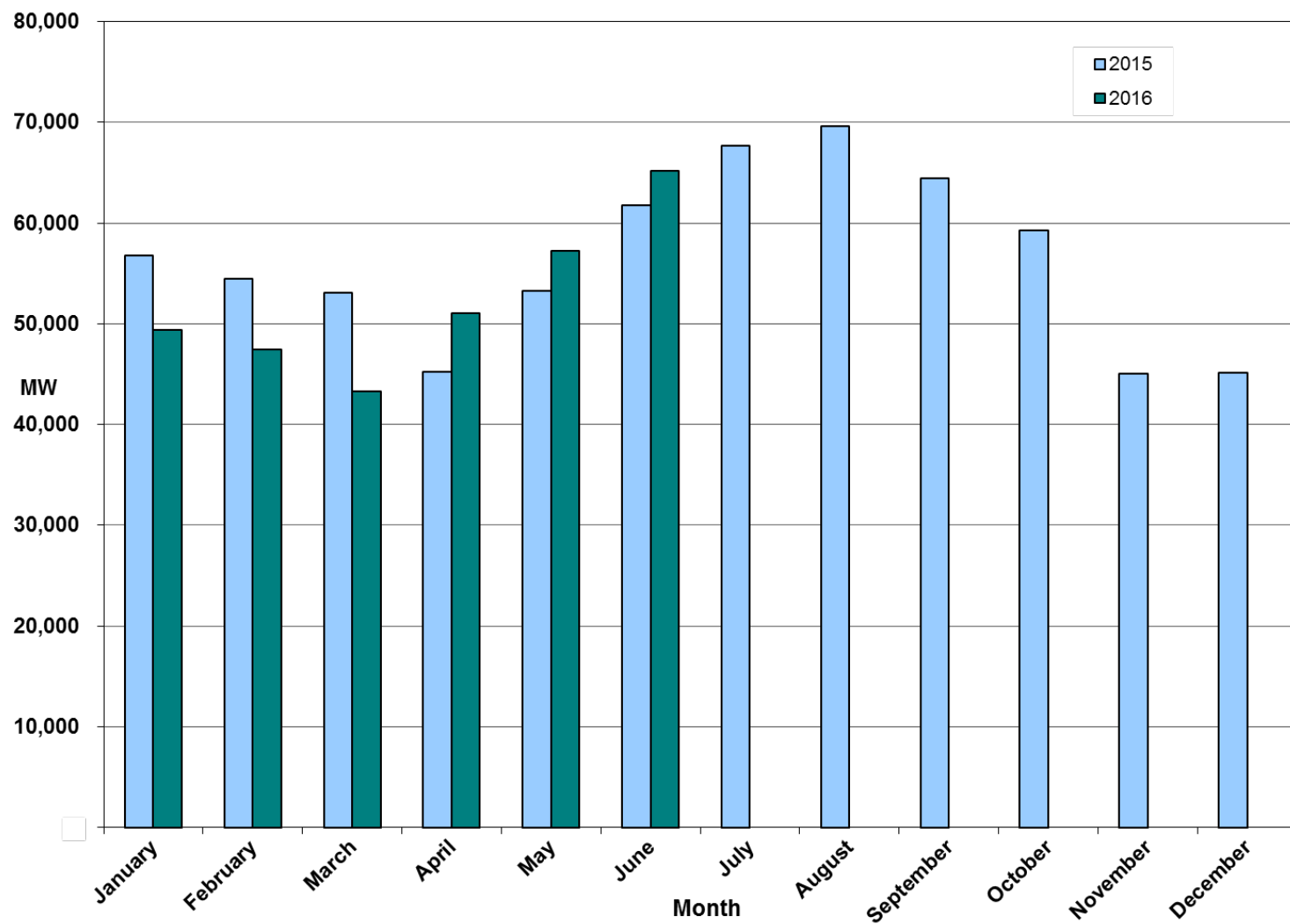
# Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – June 2016



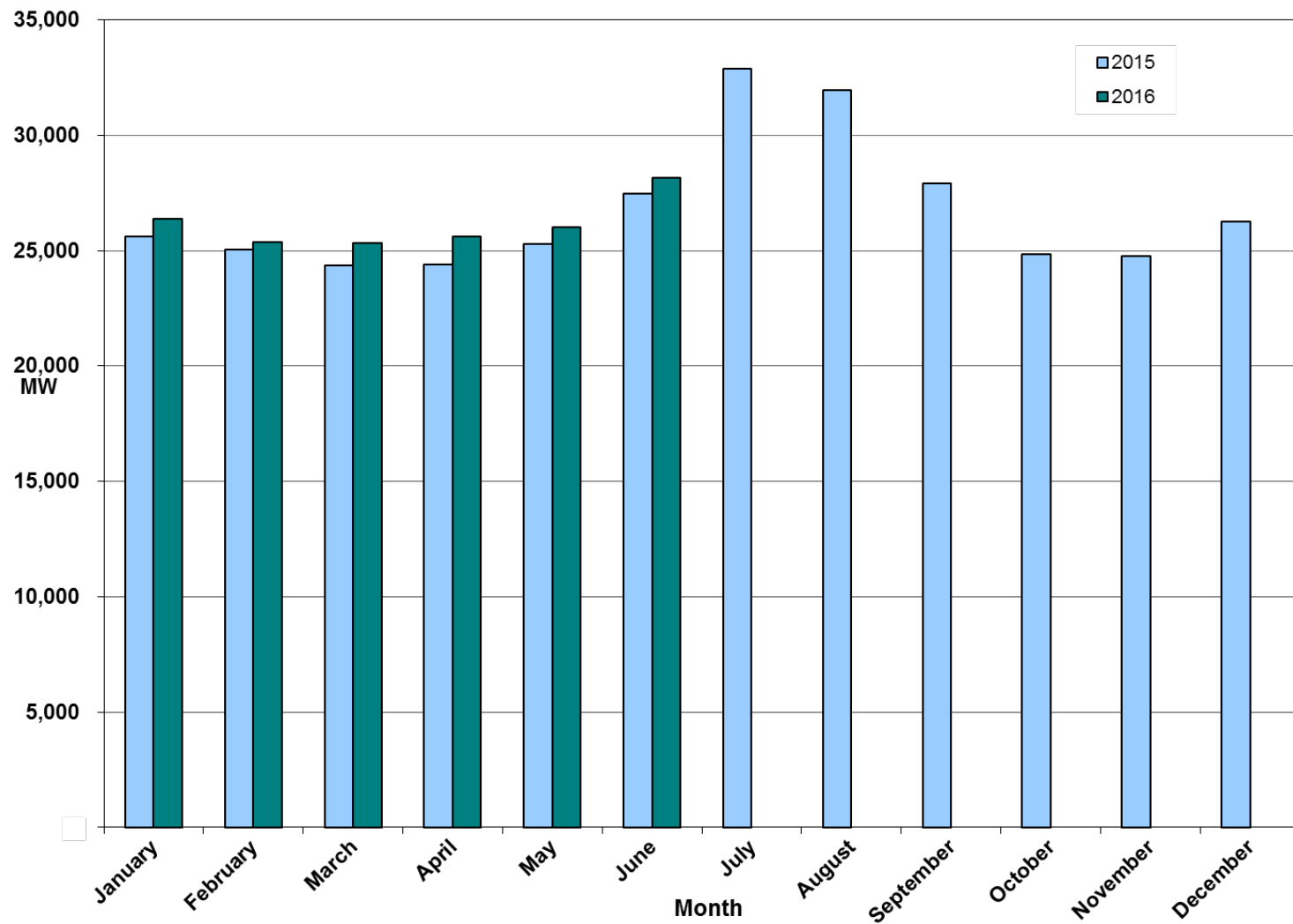
# ERCOT's CPS1 Monthly Performance – June 2016



## Monthly Peak Actual Demand – June 2016



## Monthly Minimum Actual Demand – June 2016





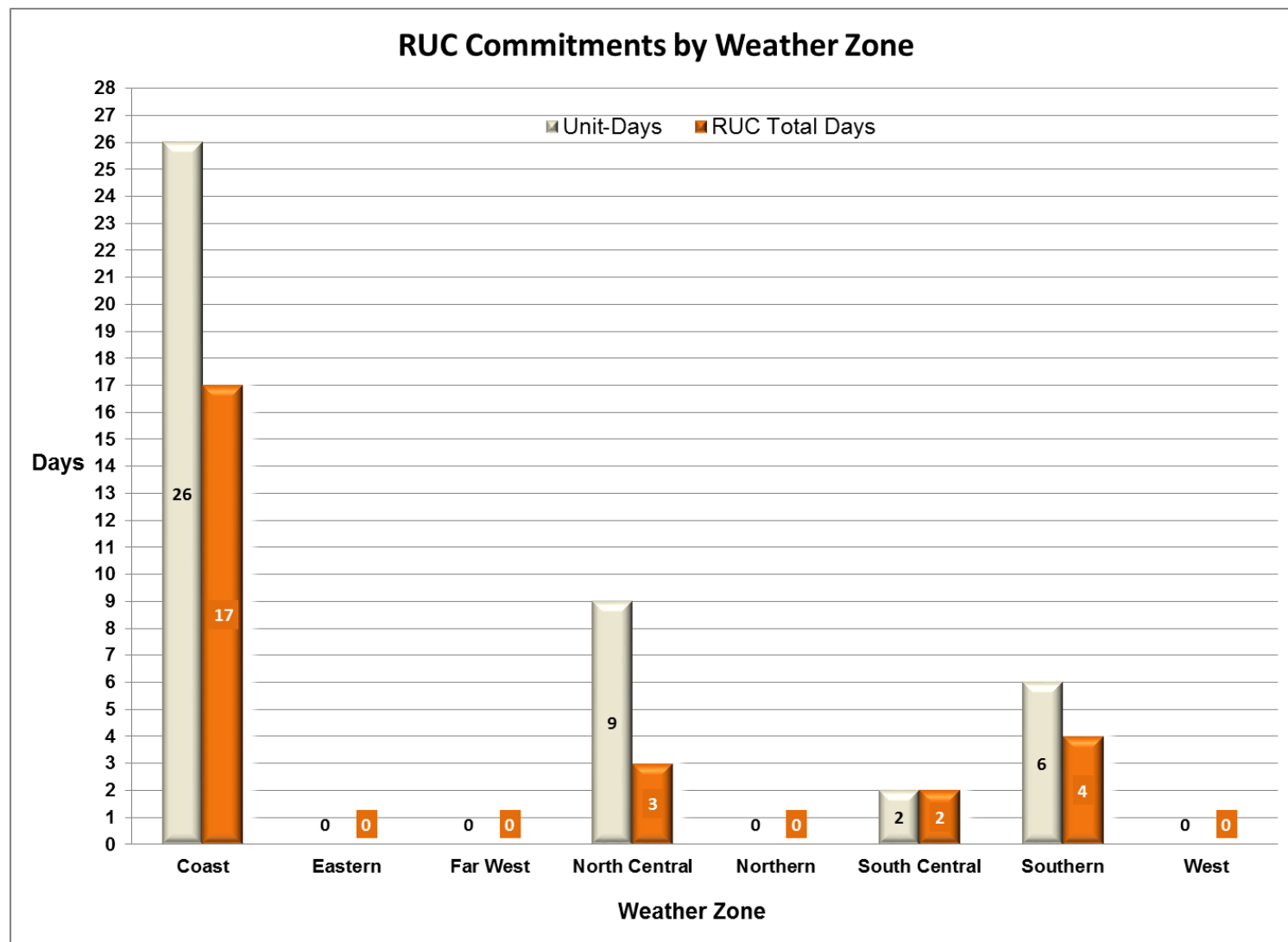
## Day-Ahead Load Forecast Performance – June 2016

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

	2013 MAPE	2014 MAPE	2015 MAPE	2016 MAPE	June 2016 MAPE	
<b>Average Annual MAPE</b>	2.86	2.83	2.86	2.90	2.80	
<b>Lowest Monthly MAPE</b>	2.07	2.15	1.89	2.39	<b>Lowest Daily MAPE</b>	0.83 June 26
<b>Highest Monthly MAPE</b>	3.50	3.70	3.81	3.86	<b>Highest Daily MAPE</b>	5.29 June 12

## Reliability Unit Commitment (RUC) Capacity by Weather Zone

### June 2016



## Generic Transmission Constraints (GTCs) – June 2016

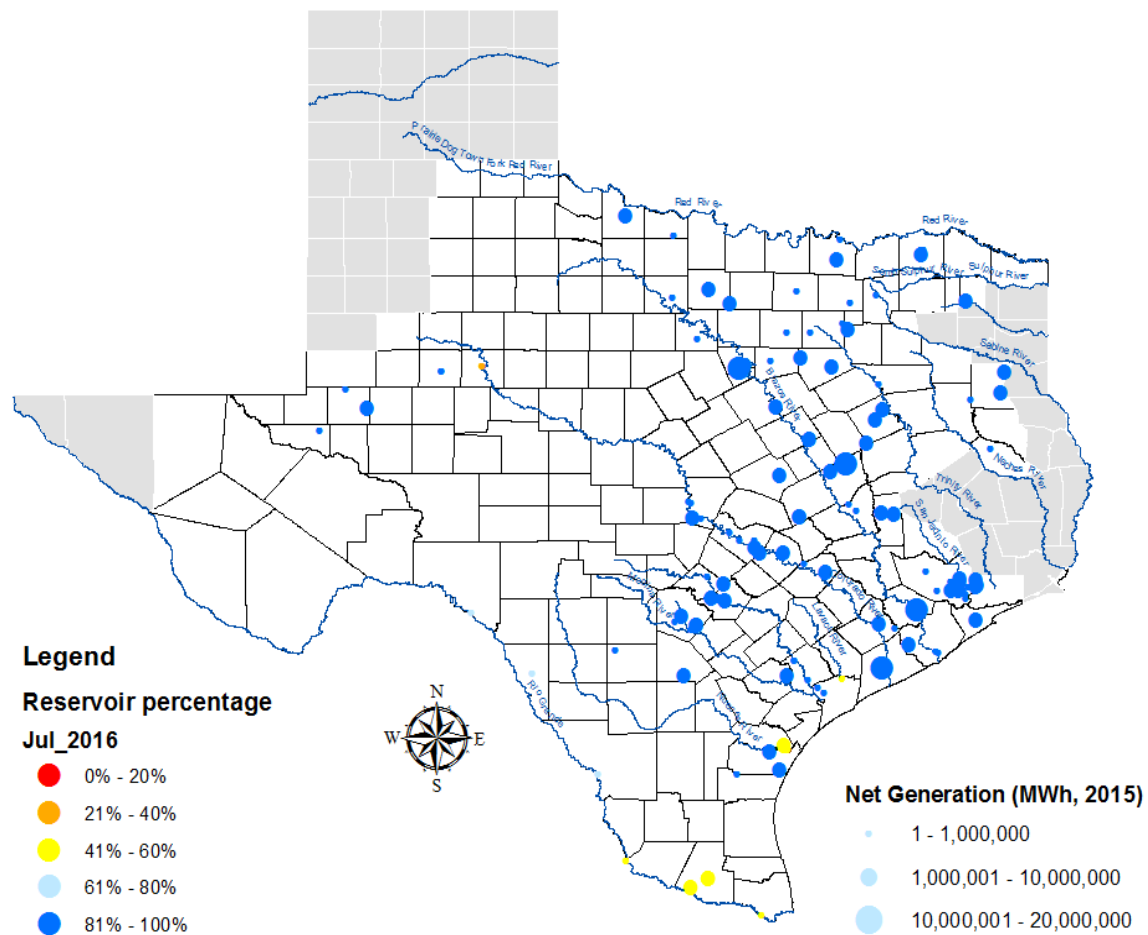
GTCs	Jun-15 Days GTCs	Apr-16 Days GTCs	May-16 Days GTCs	Jun-16 Days GTCs	Last 12 Months Total Days (Jul 15 – Jun 16)
North – Houston	0	0	0	0	3
Valley Import	0	0	3	0	7
Zorillo - Ajo	7	13	12	5	95
Panhandle	-	9	20	8	56
Laredo	-	0	1	0	5
Liston	-	25	24	21	144
Molina	-	0	0	0	20

**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.

- One Advisory issued due to Physically Responsive Capability being less than 3,000MW.
  - Issued on 6/6
- One Transmission Emergency Notice issued for a post-contingency overload in the Laredo-Hamilton Road area.
  - Issued on 6/13

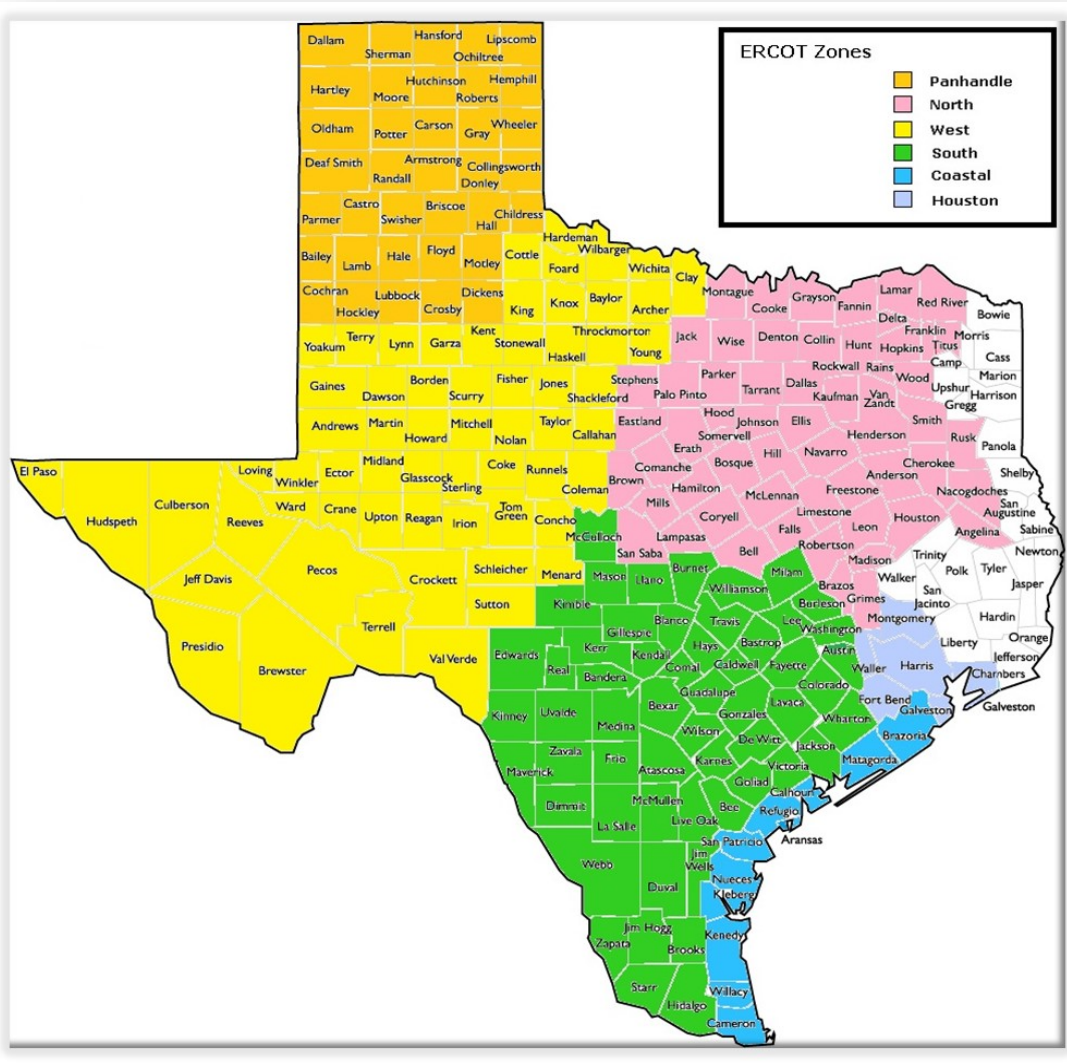
## Lake Levels Update – July 1, 2016



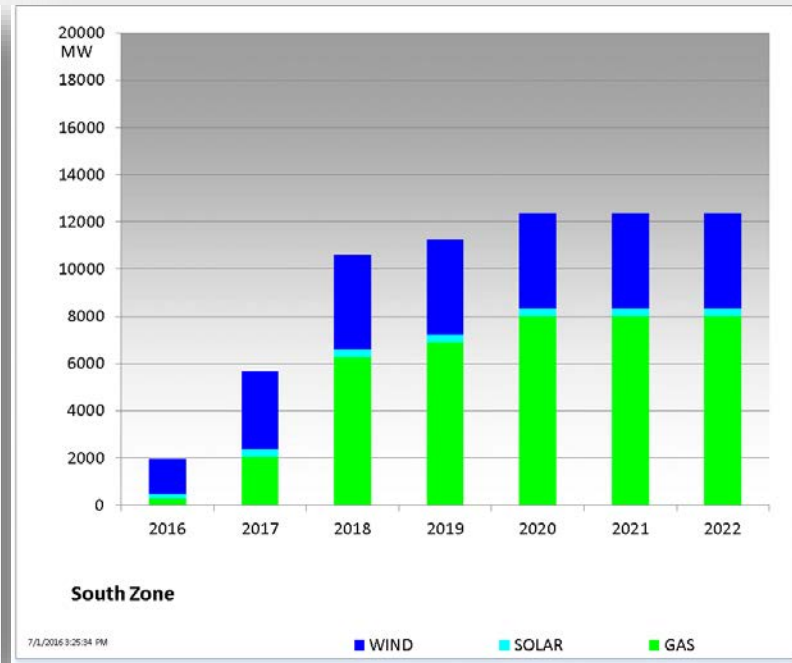
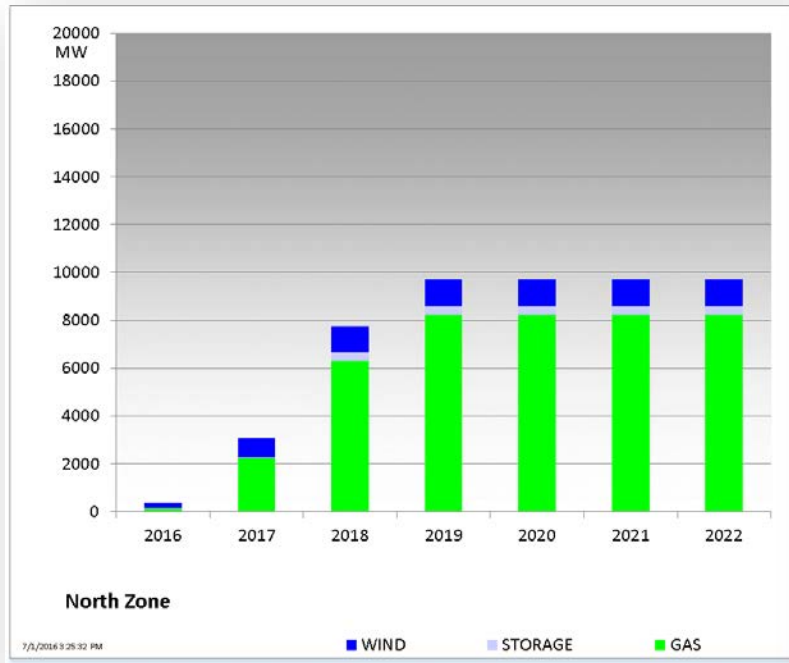
## Planning Summary – June 2016

- ERCOT is currently tracking 232 active generation interconnection requests totaling 56,891 MW. This includes 25,215 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$750 Million.
- Transmission Projects endorsed in 2016 total \$201 Million.
- All projects (in engineering, routing, licensing, and construction) total approximately \$6.61 Billion.
- Transmission Projects energized in 2016 total about \$1.26 Billion.

## Mapping of Counties to ERCOT Zones – June 2016

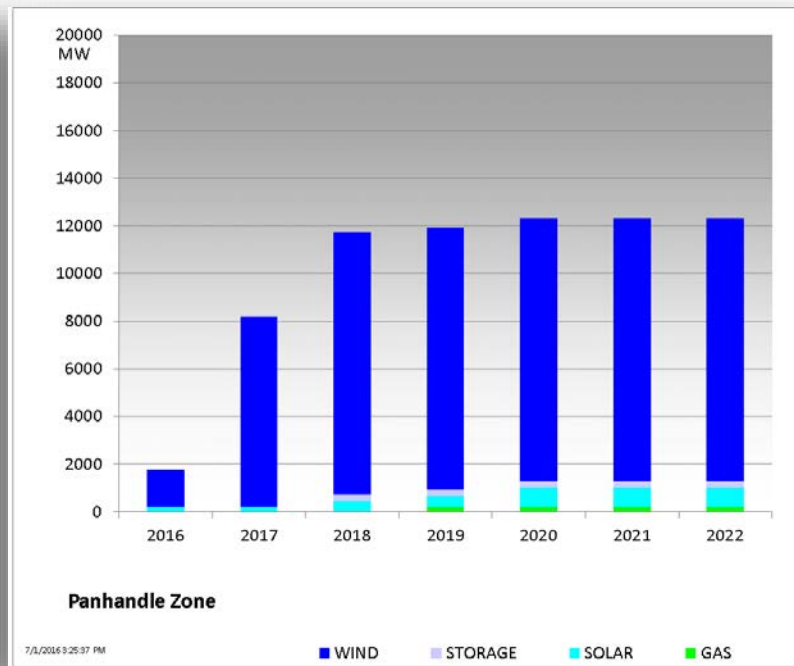
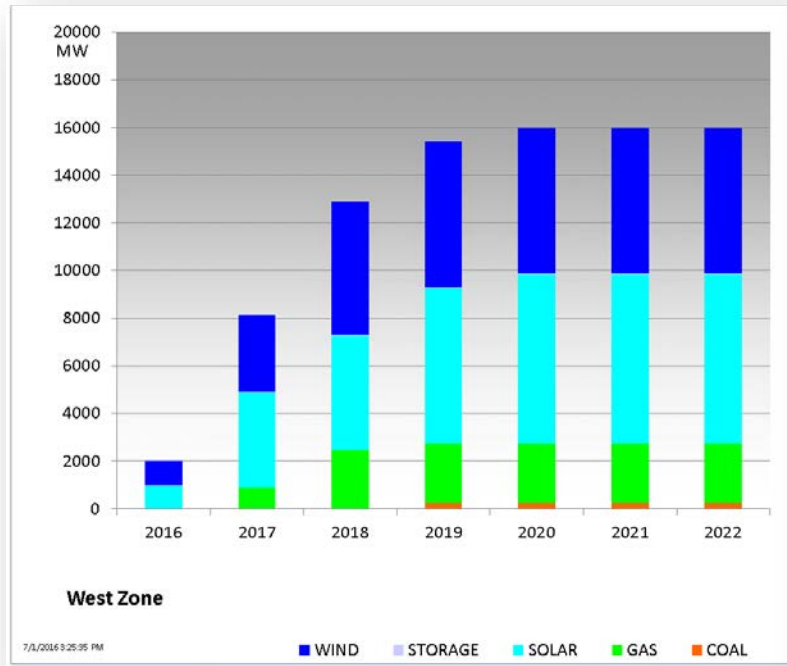


# Cumulative MW Capacity of Interconnection Requests by Zone June 2016

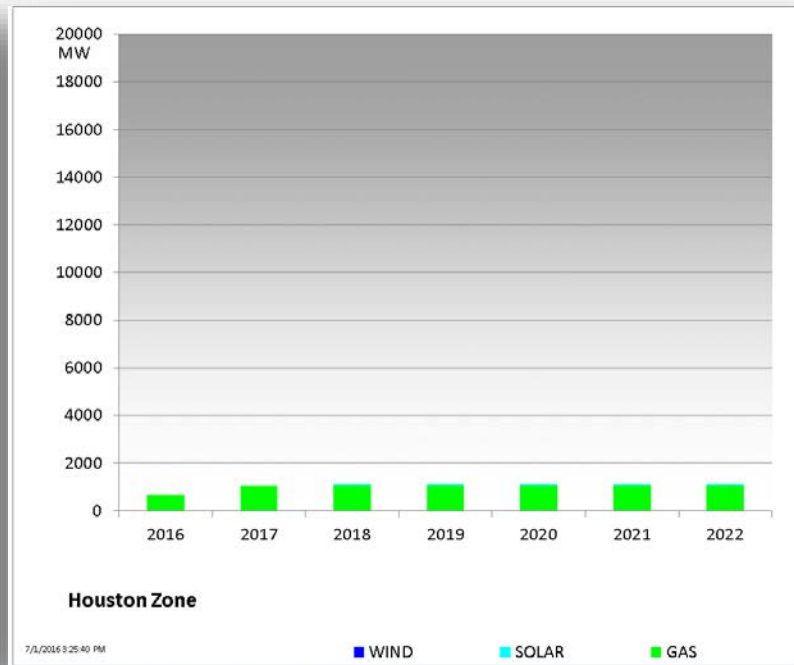
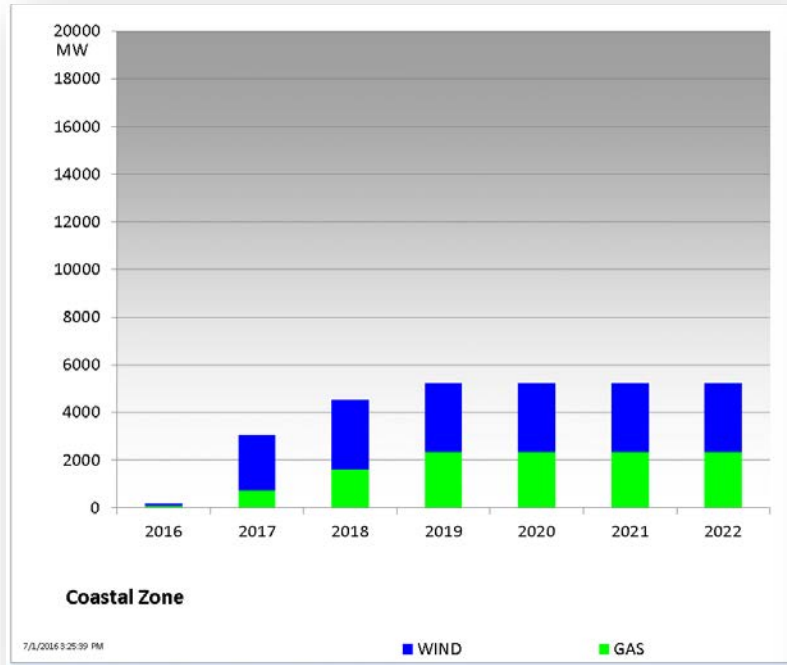




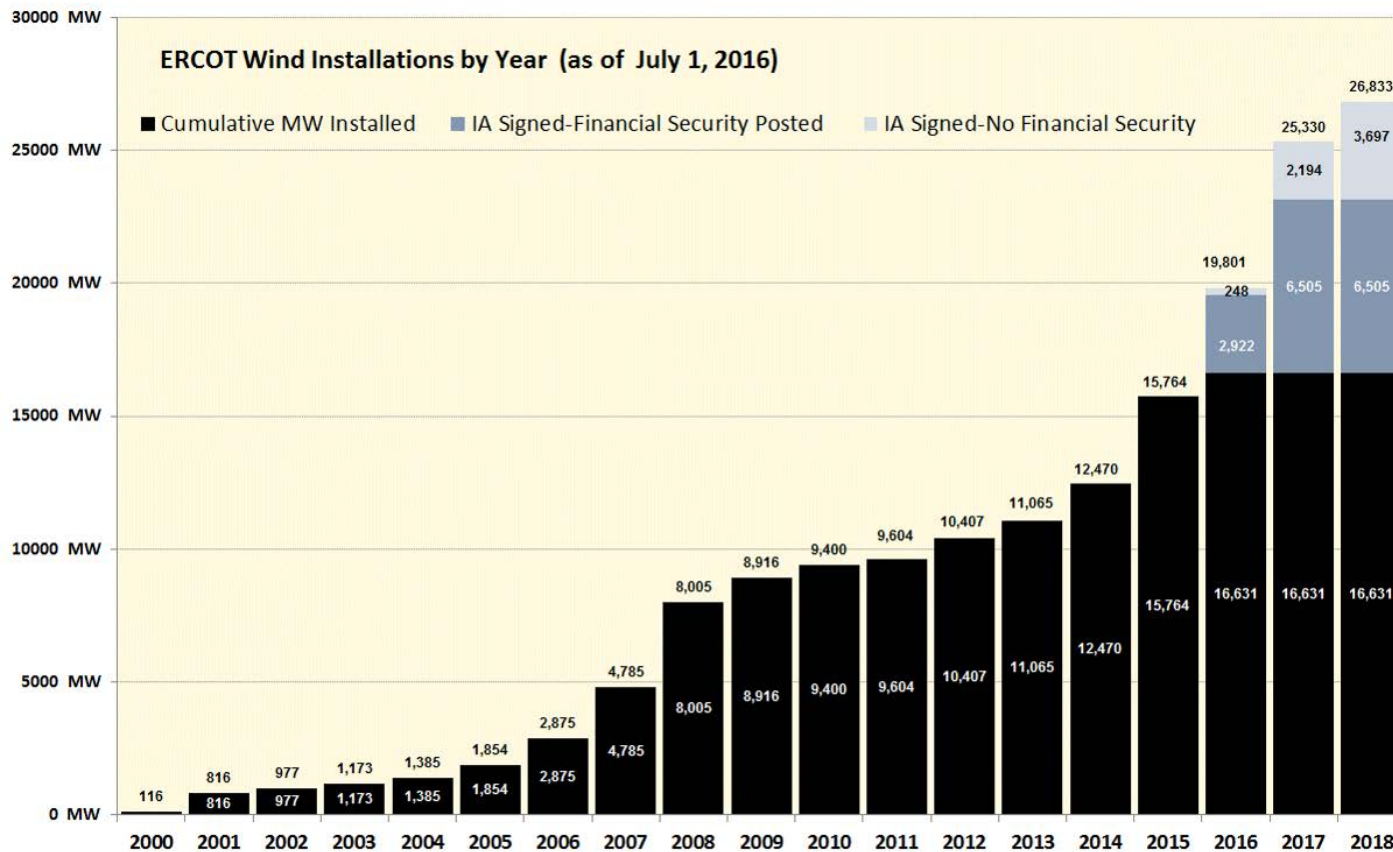
# Cumulative MW Capacity of Interconnection Requests by Zone June 2016



# Cumulative MW Capacity of Interconnection Requests by Zone June 2016



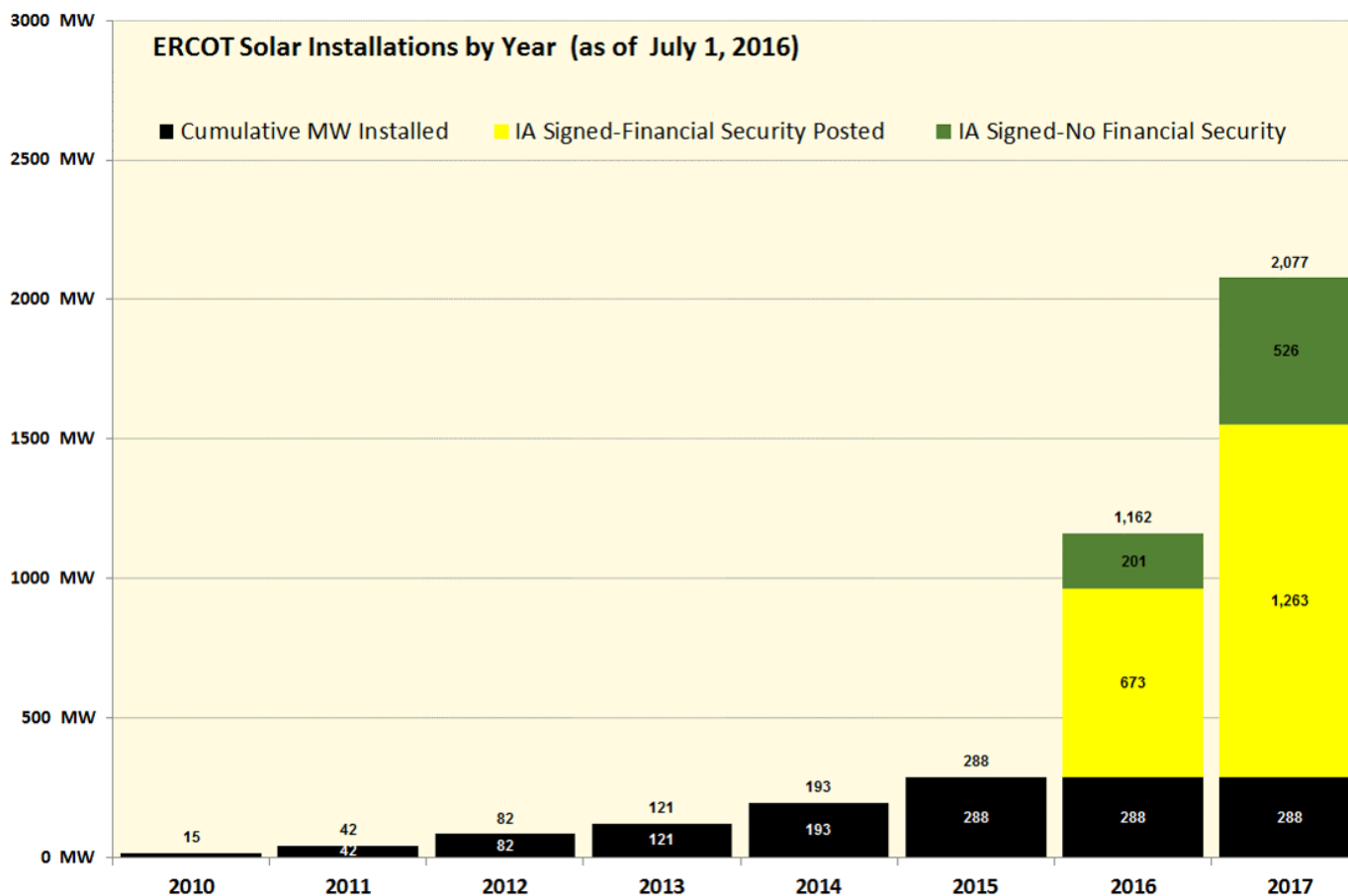
# Wind Generation – July 1, 2016



The data presented here is based upon the latest registration data provided to ERCOT by the resource owners and can change without notice. Any capacity changes will be reflected in current and subsequent years' totals. Scheduling delays will also be reflected in the planned projects as that information is received. This chart reflects planned units in the calendar year of submission rather than installations by peak of year shown.

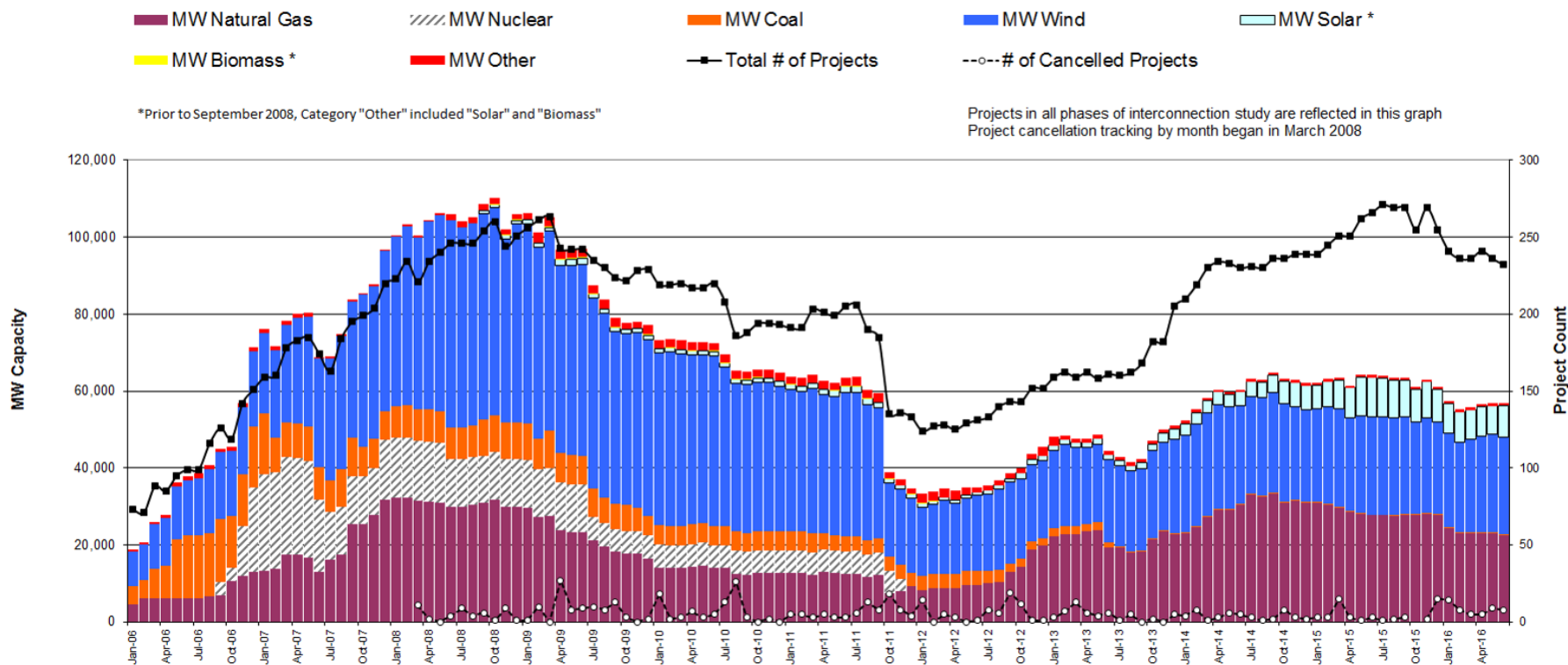
Financial security posted for funding interconnection facilities does not include CREZ security deposits, which are refunded to the Interconnecting Entity when an IA is signed.

## Solar Generation – July 1, 2016

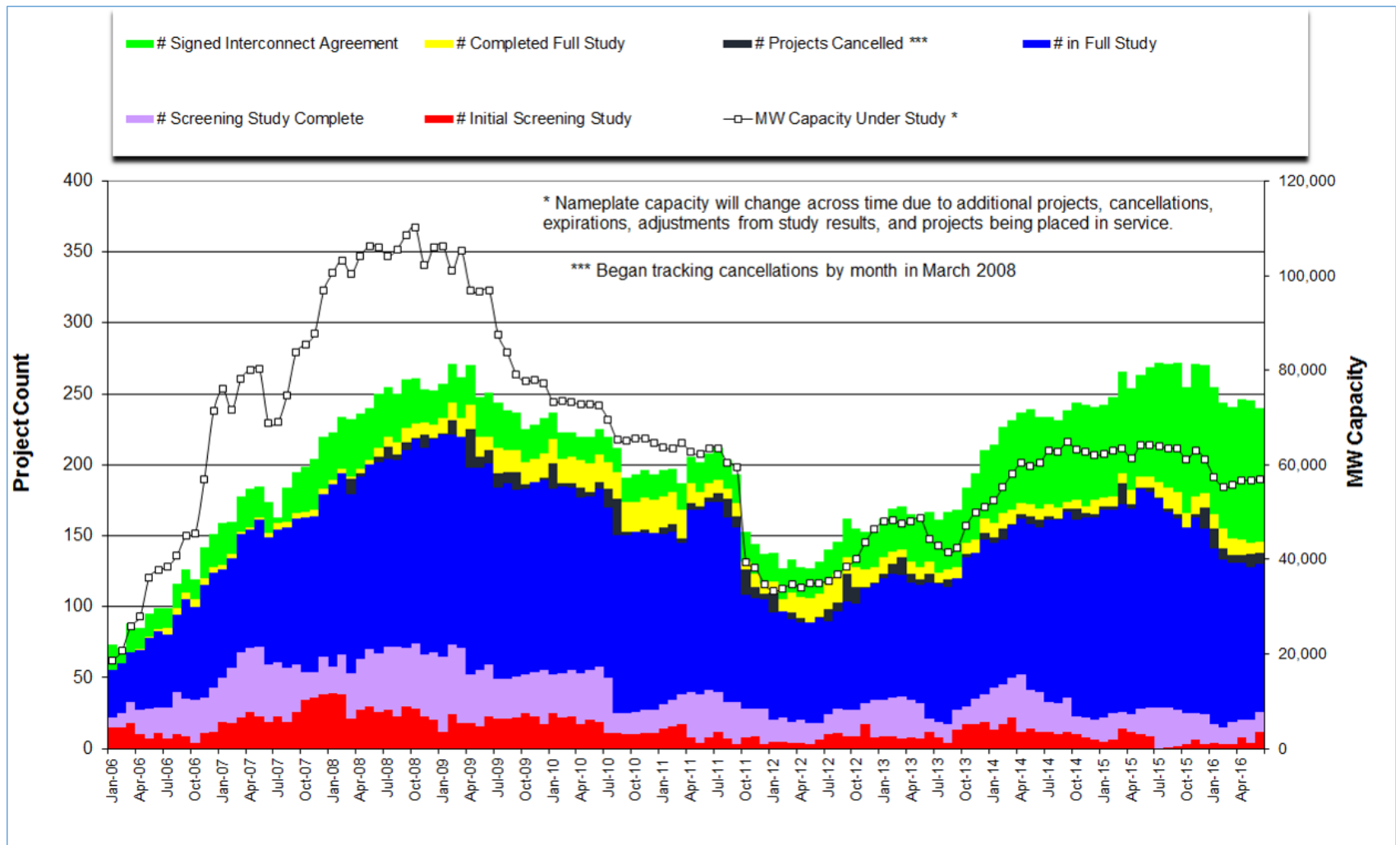


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# Generation Interconnection Activity by Fuel – June 2016

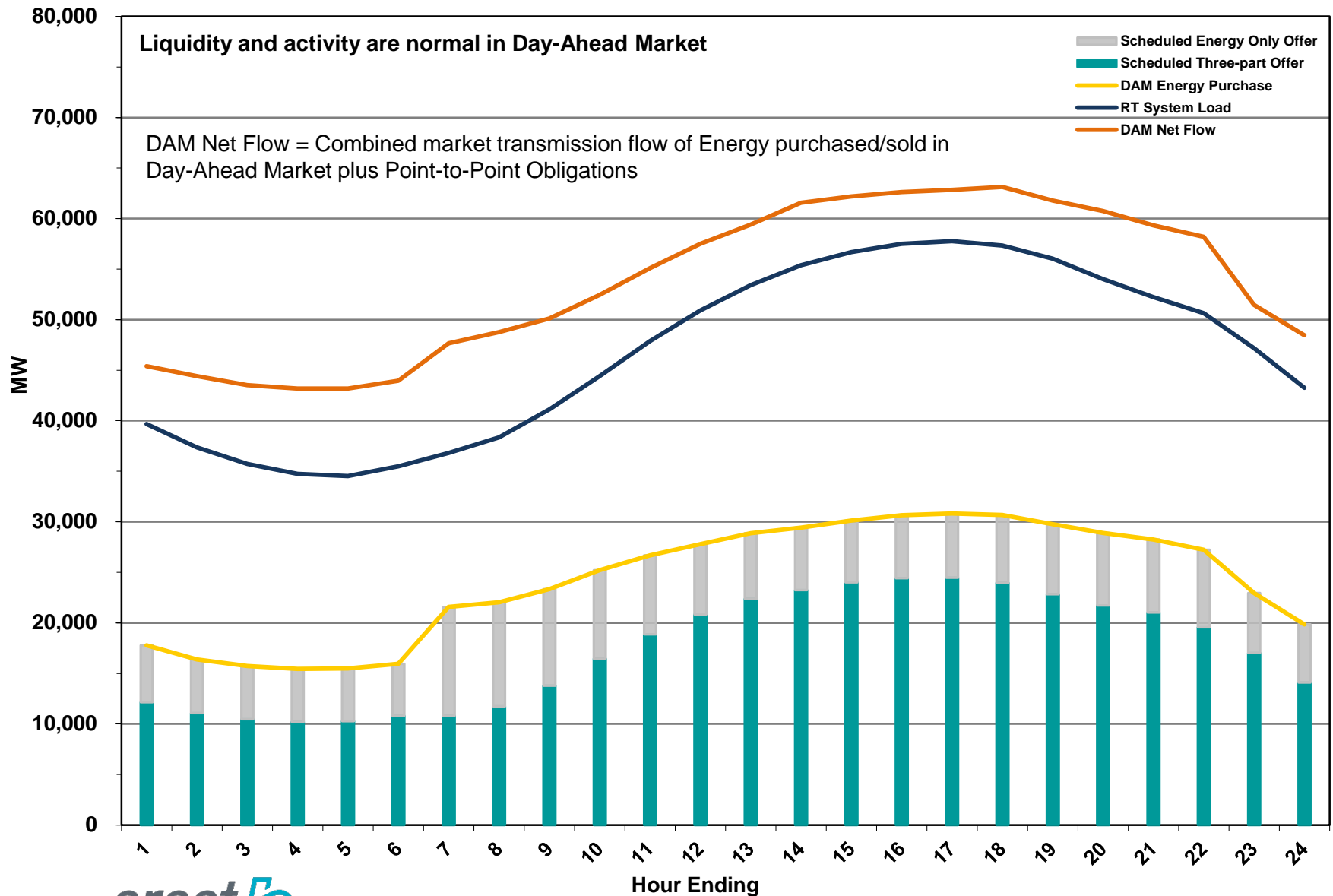


# Generation Interconnection Activity by Project Phase – June 2016



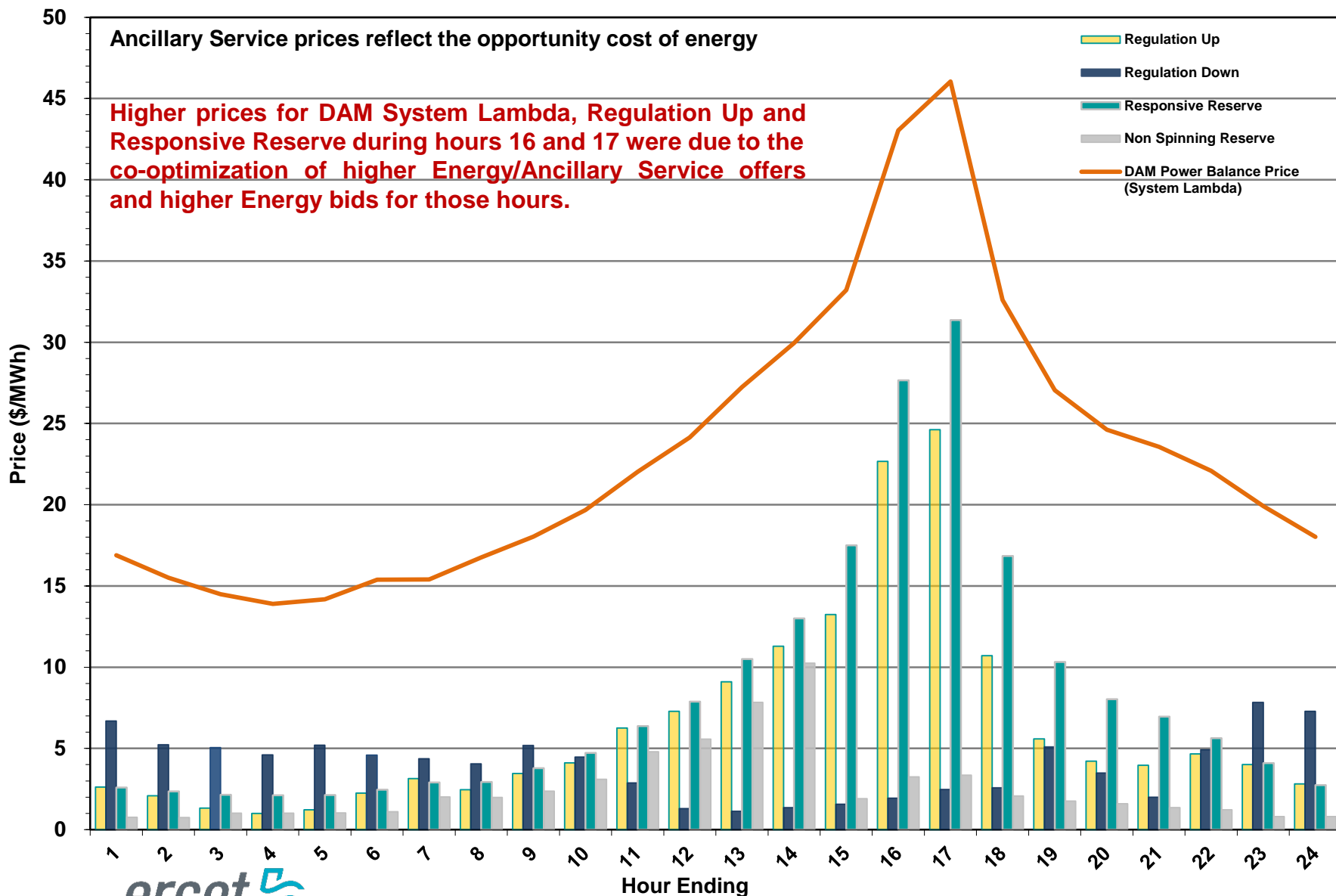
# Market Operations

## Day-Ahead Schedule (Hourly Average) – June 2016

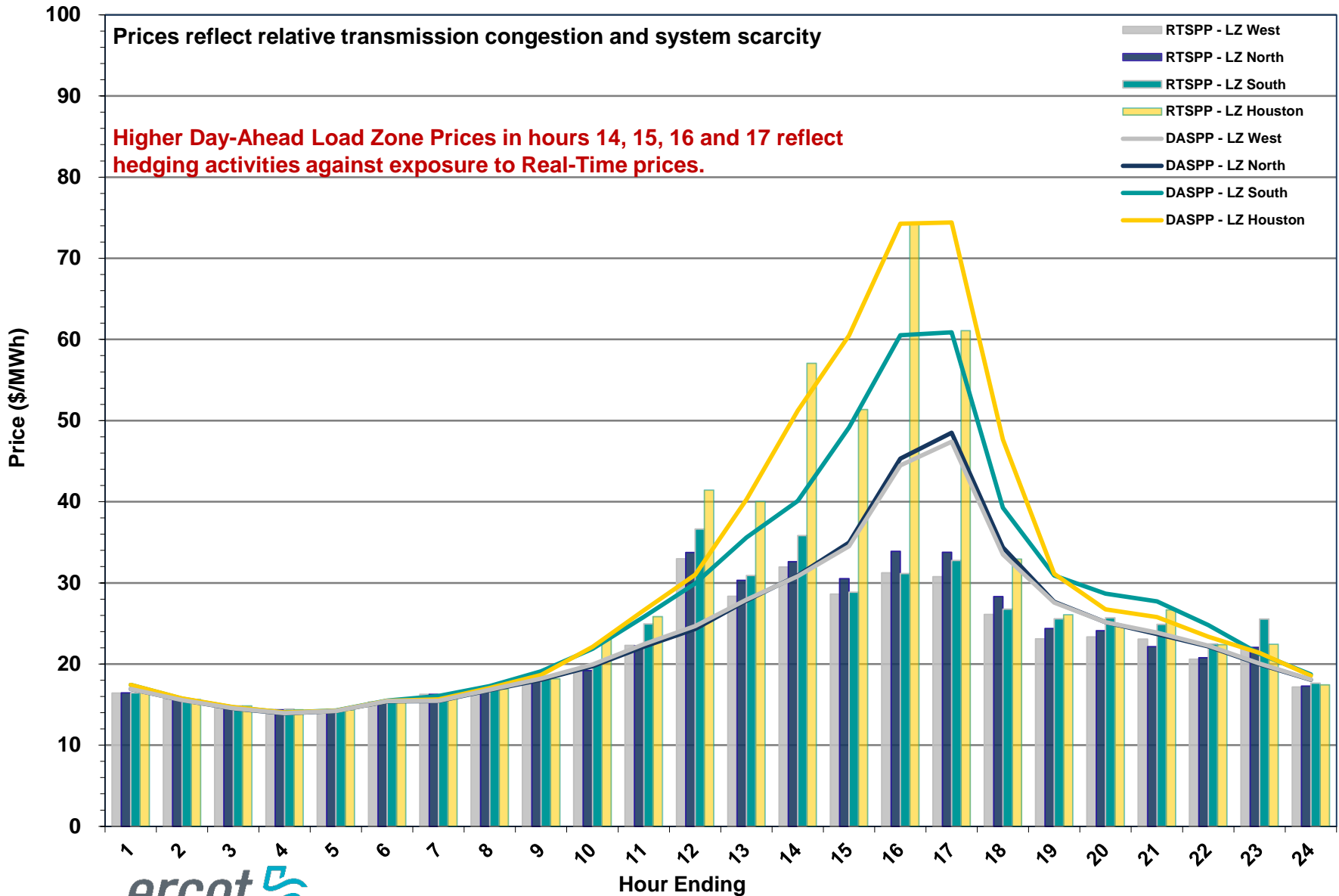




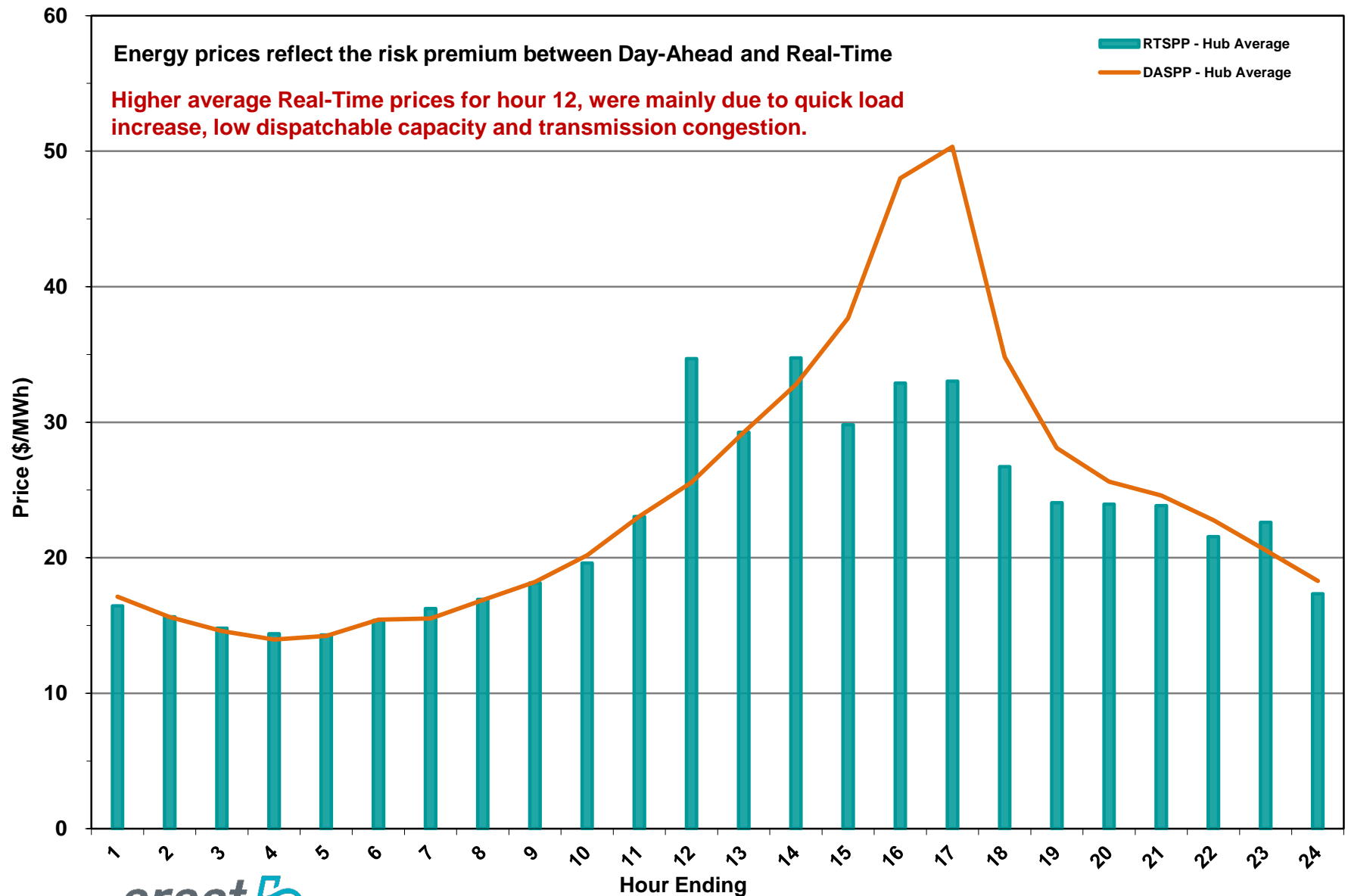
# Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – June 2016



# Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – June 2016

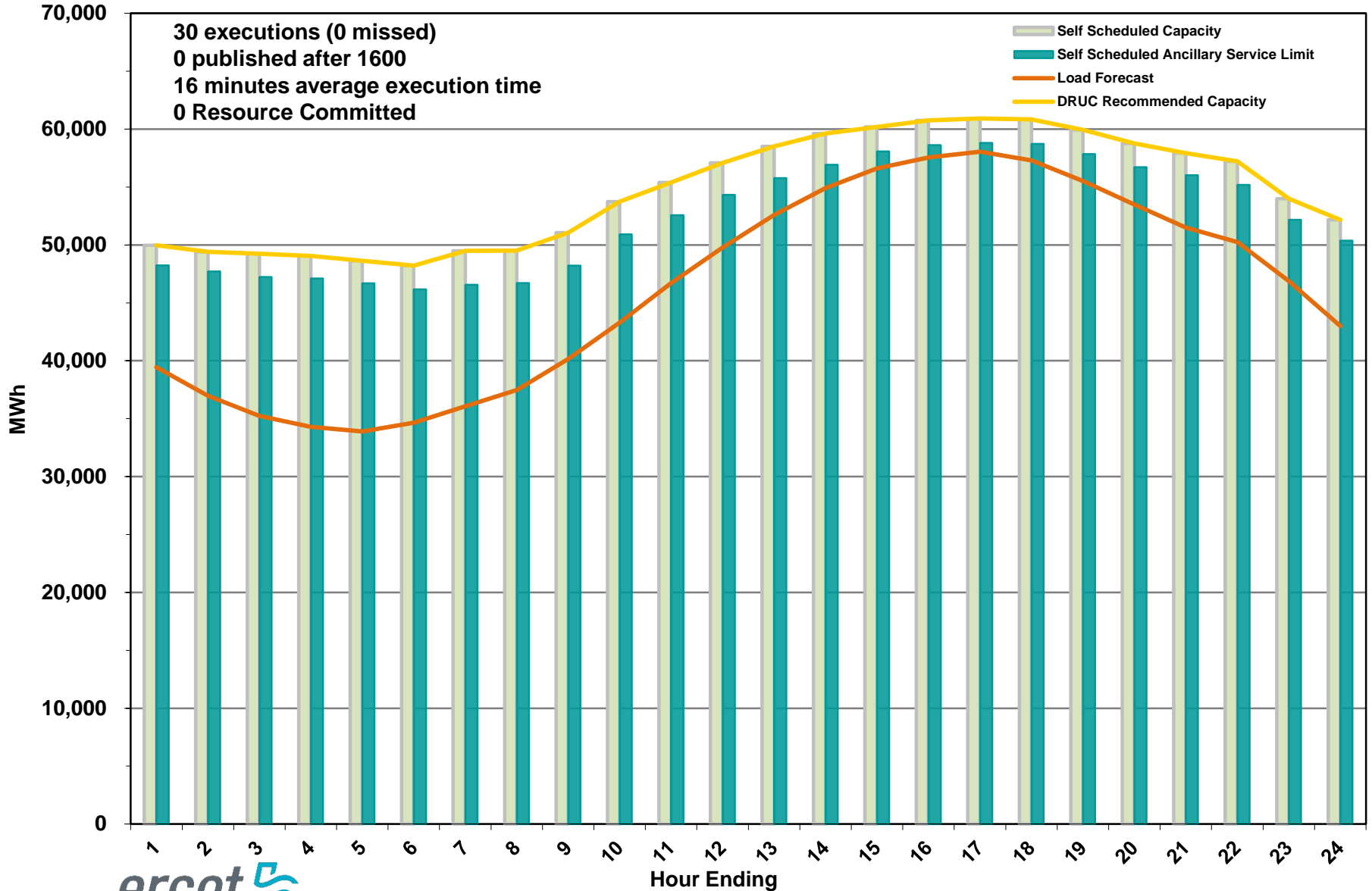


## Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – June 2016

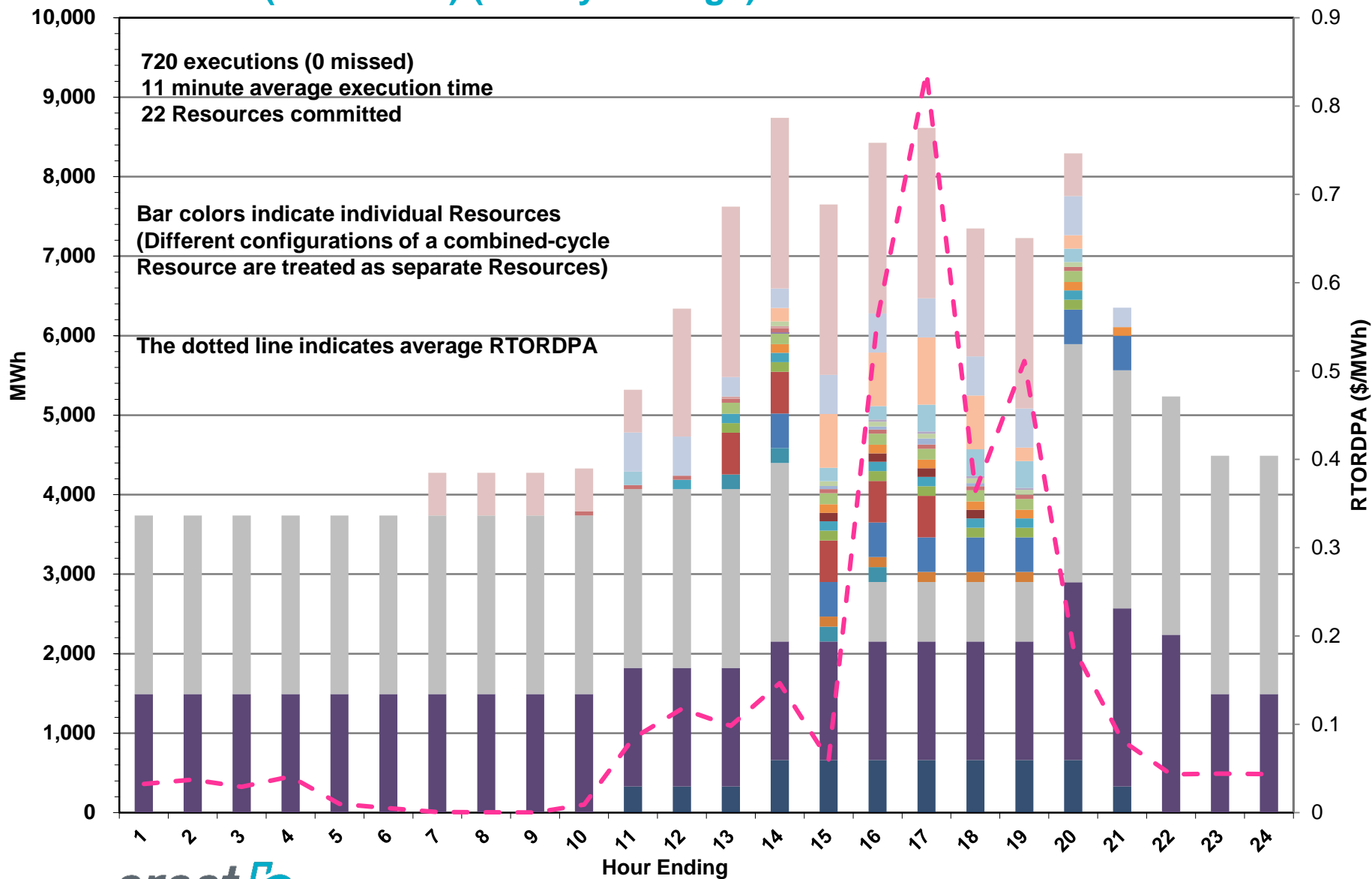


# DRUC Monthly Summary (Hourly Average) – June 2016

30 executions (0 missed)  
0 published after 1600  
16 minutes average execution time  
0 Resource Committed



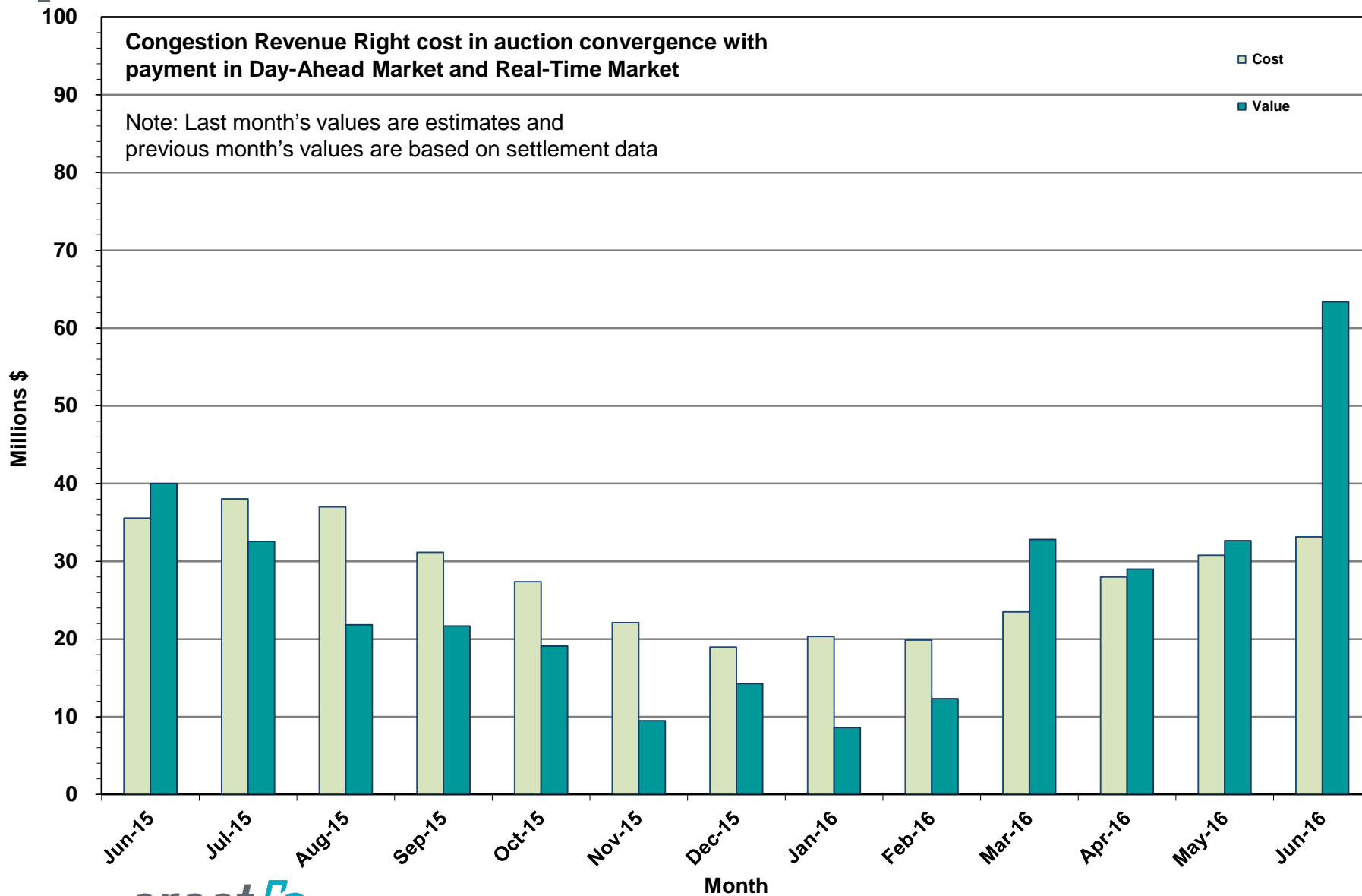
# HRUC Monthly Summary and Real-Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – June 2016



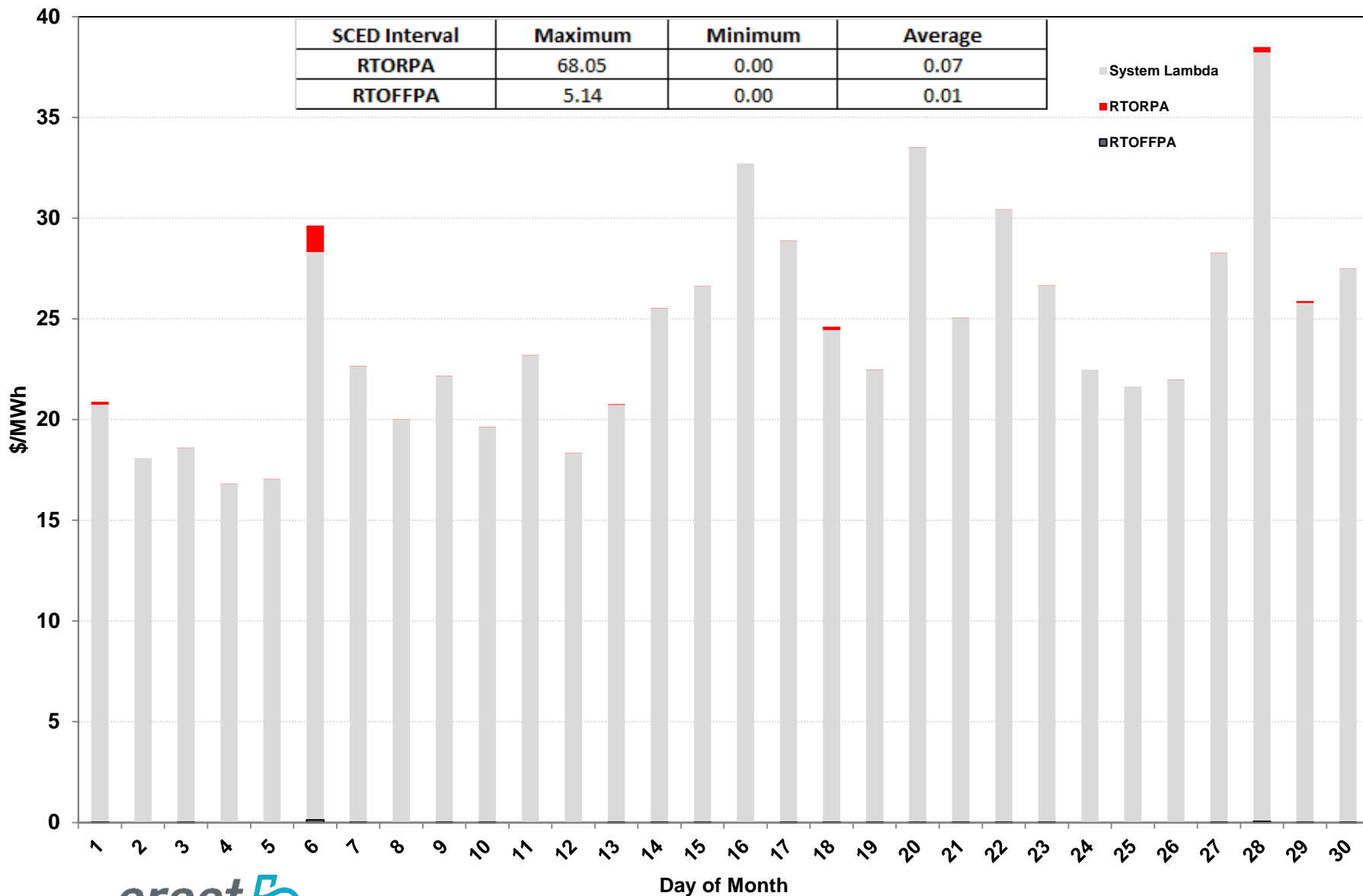
## Non-Spinning Reserve Service Deployment – June 2016

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

## CRR Price Convergence – June 2016



# Daily Average System Lambda and ORDC Price Adders – June 2016





## ERS Procurement for – June 2016 – September 2016

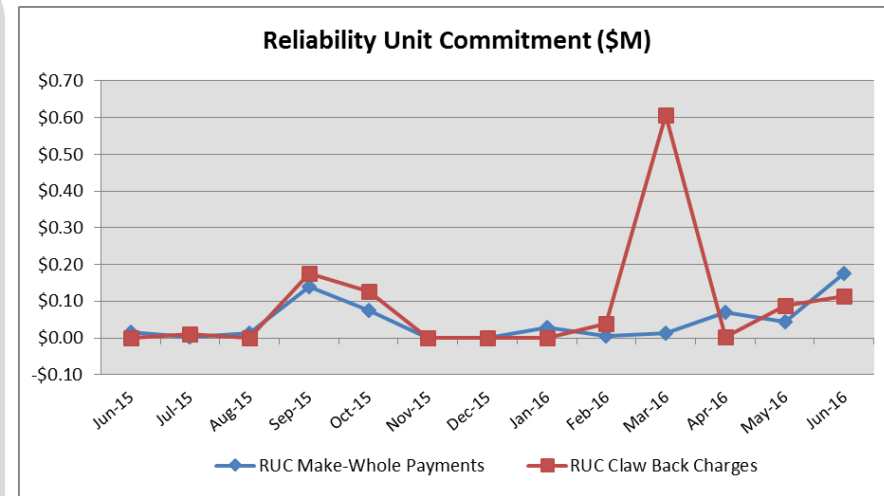
	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	312.034	319.429	284.399	276.074	310.019	296.224
Non Weather-Sensitive ERS-30 MW	525.101	584.825	551.572	524.872	541.422	474.169
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	0	0	22.533	22.533	0	0
Total MW Procured	837.135	904.254	858.504	823.479	851.441	770.393
Clearing Price	\$2.12	\$1.98	\$21.21	\$22.32	\$2.08	\$2.36

\*Weather-Sensitive Time Periods 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 – June 2016

Reliability Unit Commitment (RUC)	\$ in Millions
RUC Make-Whole Payments	(\$0.18)
RUC Clawback Charges	\$0.11
<b>RUC Commitment Settlement</b>	<b>(\$0.06)</b>
RUC Capacity Short Charges	\$0.18
RUC Make-Whole Uplift	\$0.00
<b>RUC Commitment Cost Allocation</b>	<b>\$0.18</b>
RUC Decommitment Payments	\$0.00



RUC Make-Whole Payments were \$0.18M in June 2016. RUC Clawback Charges were \$0.11M.

There was \$0.11M allocated directly to load in June 2016, compared to:

- \$0.09M in May 2016
- \$0.00M in June 2015

## Capacity Services – June 2016

Capacity Services	\$ in Millions
Regulation Up Service	\$1.47
Regulation Down Service	\$1.06
Responsive Reserve Service	\$13.67
Non-Spinning Reserve Service	\$3.35
Black Start Service	\$0.62
Voltage Services - Reactive Power	\$0.00
Voltage Services - Lost Opportunity	\$0.00
<b>Total Charges</b>	<b>\$20.17</b>

Capacity Services costs decreased from last month and decreased from June 2015.

June 2016 cost was \$20.17M, compared to:

- A charge of \$22.37M in May 2016
- A charge of \$25.63M in June 2015

## Energy Settlement – June 2016

Day-Ahead Market Energy Settlement	\$ in Millions
Energy Purchases	\$465.30
Point to Point Obligation Purchases	\$71.71
RMR Day-Ahead Revenue	\$0.00
Energy Sales	(\$466.25)
Day-Ahead Congestion Rent	\$70.76
Day-Ahead Market Make-Whole Payments	(\$0.43)

Day-Ahead Market and Real-Time Market energy settlement activity increased from last month and increased from June 2015.

Real-Time Market Energy Settlement	\$ in Millions
Energy Imbalance at a Resource Node	(\$457.04)
Energy Imbalance at a Load Zone	\$728.56
Energy Imbalance at a Hub	(\$196.90)
Real Time Congestion from Self Schedules	\$0.05
Block Load Transfers and DC Ties	(\$0.95)
Impact to Revenue Neutrality	\$73.72
Emergency Energy Payments	(\$0.03)
Base Point Deviation Charges	\$0.28
Real-Time Metered Generation (MWh in millions)	33.44

## Congestion Revenue Rights (CRR) – June 2016

	\$ in Millions
Annual Auction	(\$25.68)
Monthly Auction	(\$7.47)
<b>Total Auction Revenue</b>	<b>(\$33.15)</b>
Day-Ahead CRR Settlement	(\$63.39)
Day-Ahead CRR Short-Charges	\$0.78
Day-Ahead CRR Short-Charges Refunded	(\$0.78)
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>(\$63.39)</b>
Day-Ahead Point to Point Obligations Settlement	\$71.71
Real-Time Point to Point Obligation Settlement	(\$72.17)
<b>Net Point to Point Obligation Settlement</b>	<b>(\$0.46)</b>

Congestion Revenue Rights settlement payments were fully funded and excess funds were allocated to Load.

Point to Point Obligations settled with a net credit of \$0.46M compared to a net credit of \$14.70M last month.

## CRR Balancing Account Fund – June 2016

<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>	\$8.14
<b>CRR PTP Option Award Charges</b>	\$0.06
<b>Day-Ahead CRR Short-Charges Refunded</b>	(\$0.78)
<b>Load Allocated CRR Amount</b>	(\$7.42)
<b>Total Fund Amount</b>	\$10.00

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

In the month of June 2016, the fund cap remained at \$10M and excess funds of \$7.42M were allocated to Load.

## Revenue Neutrality – June 2016

### Revenue Neutrality Settlement

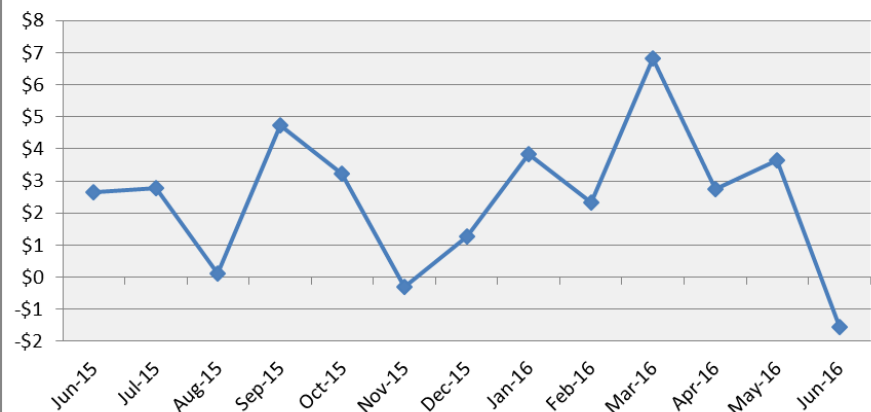
	\$ in Millions
Real-Time Point to Point Obligation Settlement	(\$72.17)
Real-Time Point to Point Options and Options with Refund Settlement	\$0.00
Real-Time Energy Imbalance Settlement	\$74.62
Real-Time Congestion from Self-Schedules Settlement	\$0.05
DC Tie & Block Load Transfer Settlement	(\$0.95)
<b>Charge to Load</b>	<b>(\$1.55)</b>

Revenue Neutrality charges to load decreased compared to last month and compared to June 2015.

June 2016 was a credit of \$1.55M, compared to:

- \$3.65M charge in May 2016
- \$2.64M charge in June 2015

Revenue Neutrality Uplift (\$M)



## Real-Time Ancillary Service Imbalance (ORDC) – June 2016

Real-Time Ancillary Service Imbalance	\$ in Thousands
Real-Time AS Imbalance Payment Amount	(\$55.33)
Load Allocated AS Imbalance Revenue Neutrality Amount	\$55.32
<b>Total Charges</b>	<b>\$55.32</b>

In June 2016, total credits to QSEs w/an Ancillary Service Imbalance were \$55,329, while total charges in May 2016 were \$44,627.

11 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 w/ an Ancillary Service Imbalance and as a charge to QSEs representing load.

The highest payment to QSEs w/an Ancillary Service Imbalance occurred on June 6<sup>th</sup> in the amount of \$30,195.



## Net Allocation to Load – June 2016

### Market-Based Allocation

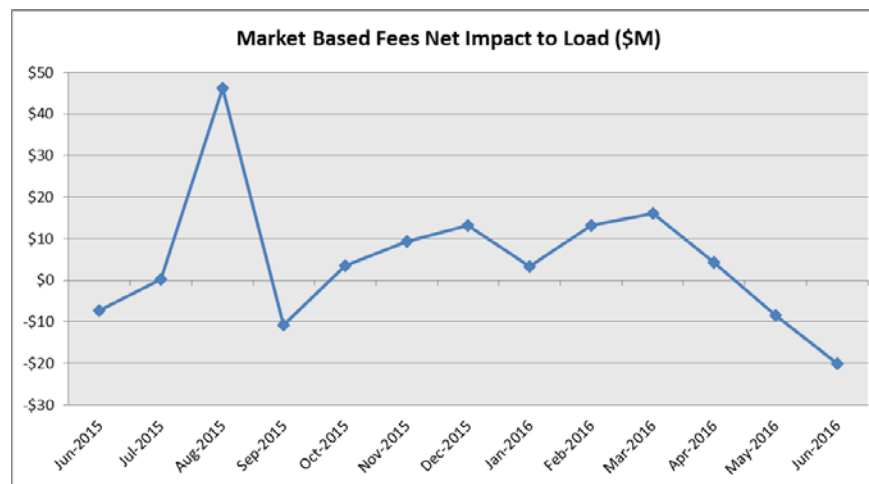
\$ in Millions

CRR Auction Revenue Disbursement Settlement	(\$33.15)
Balancing Account Proceeds Settlement	(\$7.42)
Net Reliability Unit Commitment Settlement	(\$0.11)
Ancillary Services Settlement	\$20.17
Reliability Must Run Settlement (incl. RMR for Capacity)	\$2.28
Real-Time Revenue Neutrality Settlement	(\$1.55)
Emergency Energy Settlement	\$0.03
Base Point Deviation Settlement	(\$0.28)
ORDC Settlement	\$0.06
<b>Total</b>	<b>(\$19.97)</b>
<b>Fee Allocation</b>	
ERCOT Administrative Fee Settlement	\$18.61
<b>Net Allocated to Load</b>	<b>(\$1.36)</b>

The charge for the net allocation to Load decreased from last month and decreased from June 2015.

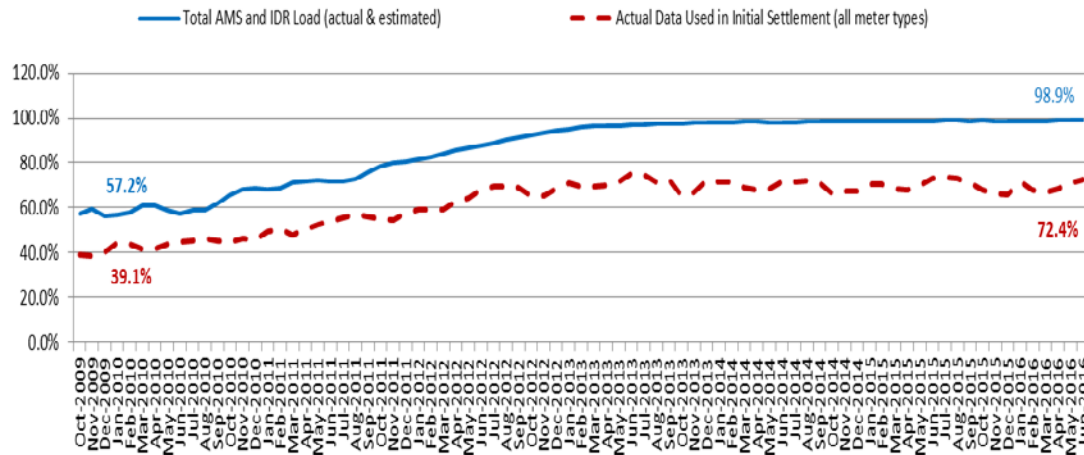
June 2016 was a credit of \$1.36M, compared to:

- A charge of \$7.37M in May 2016
- A charge of \$7.68M in June 2015



# Advanced Meter Settlement Impacts – June 2016

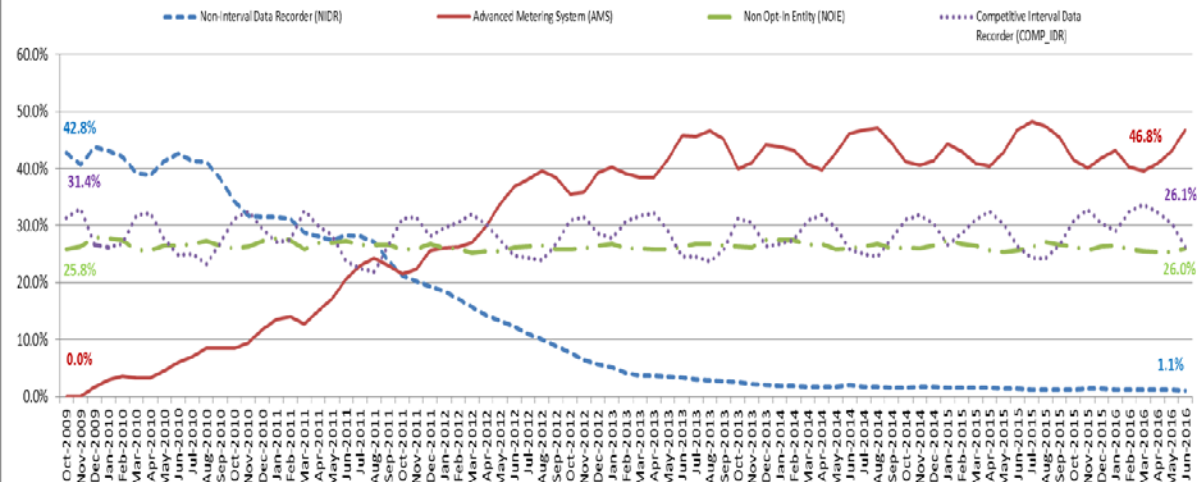
Percent Actual/Percent Interval Data Recorder (IDR)



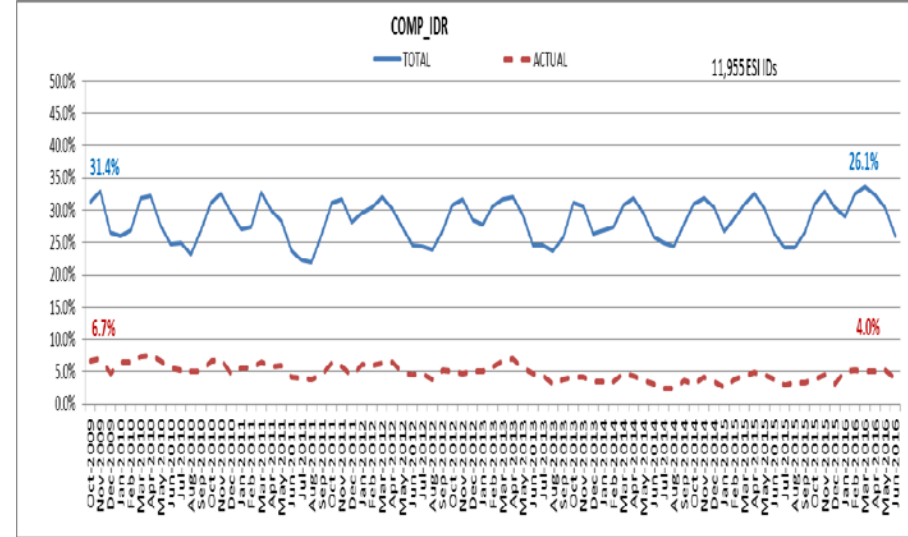
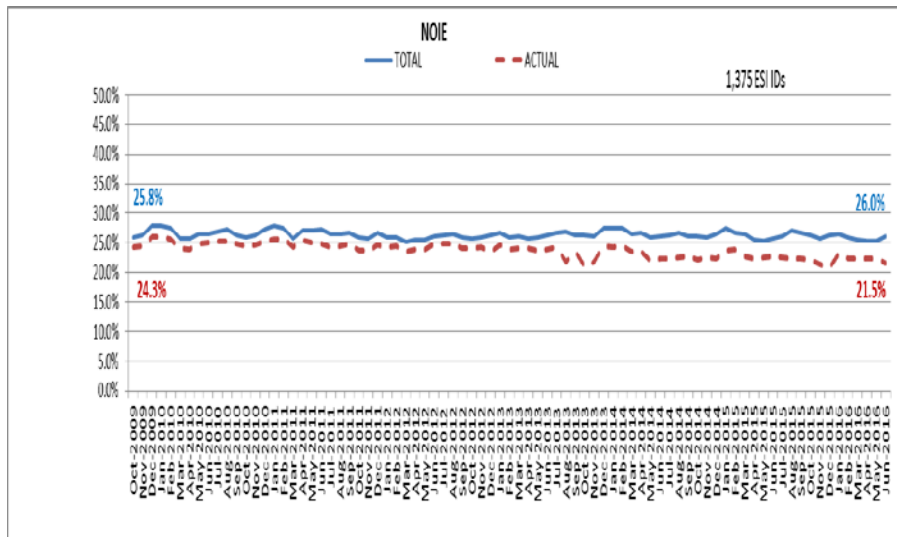
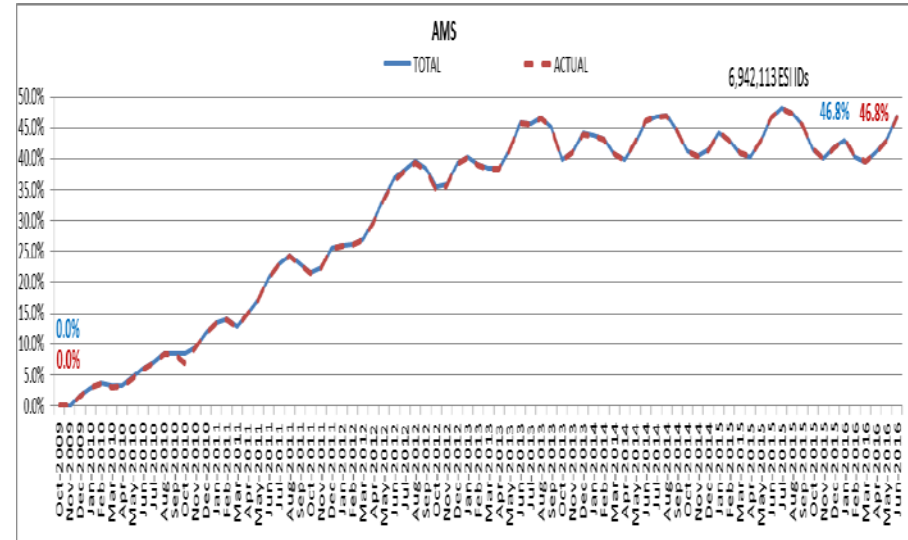
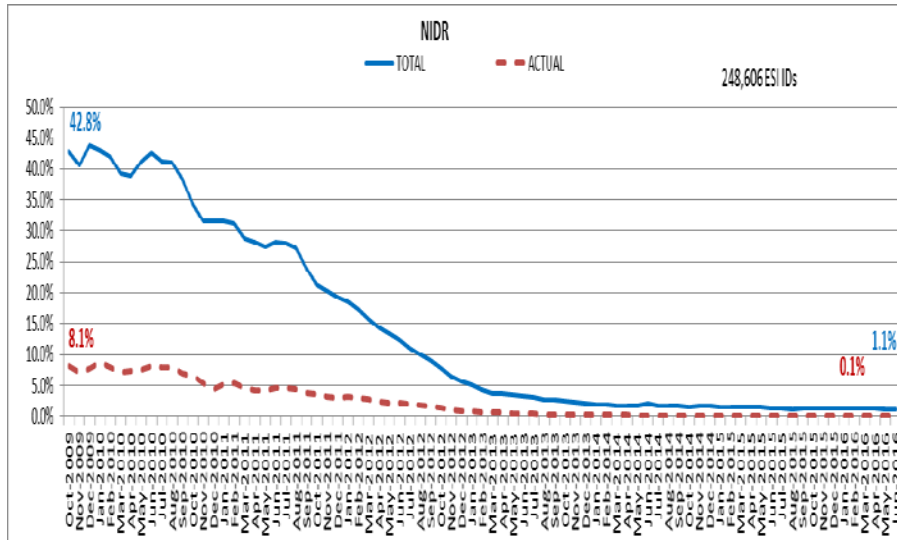
June 2016: At month end, settling 6.9M ESIIDs using Advanced Meter data.

June 2016: 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 – June 2016

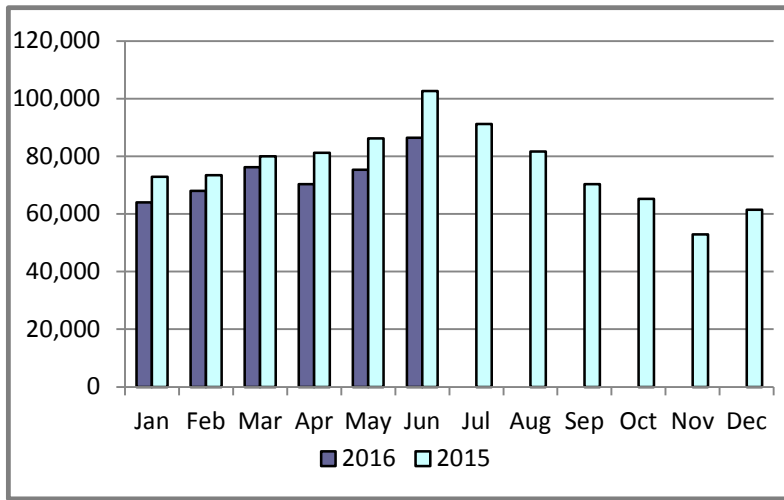


## Retail Transaction Volumes – Summary – June 2016

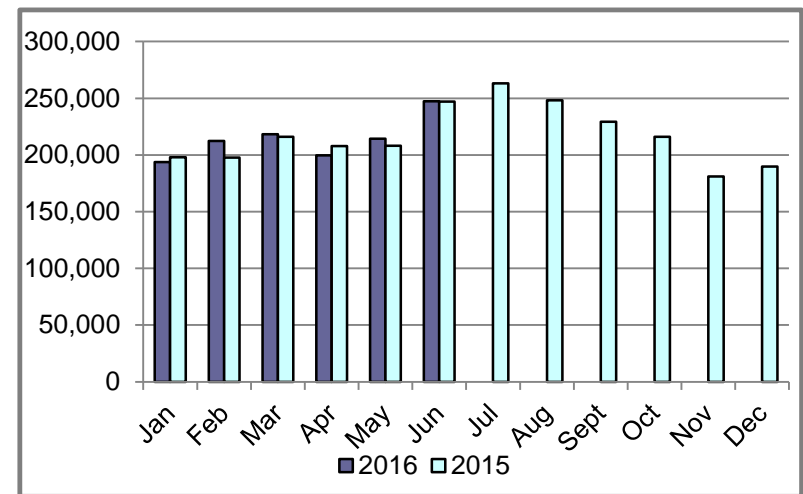
	Year-To-Date		Transactions Received	
Transaction Type	June 2016	June 2015	June 2016	June 2015
Switches	440,245	496,421	86,376	102,661
Acquisition	0	0	0	0
Move - Ins	1,286,103	1,274,927	247,481	247,089
Move - Outs	660,489	658,761	129,025	133,855
Continuous Service Agreements (CSA)	324,267	263,625	64,178	59,611
Mass Transitions	0	0	0	0
<b>Total</b>	<b>2,711,104</b>	<b>2,693,734</b>	<b>527,060</b>	<b>543,216</b>

# Retail Transaction Volumes – Summary – June 2016

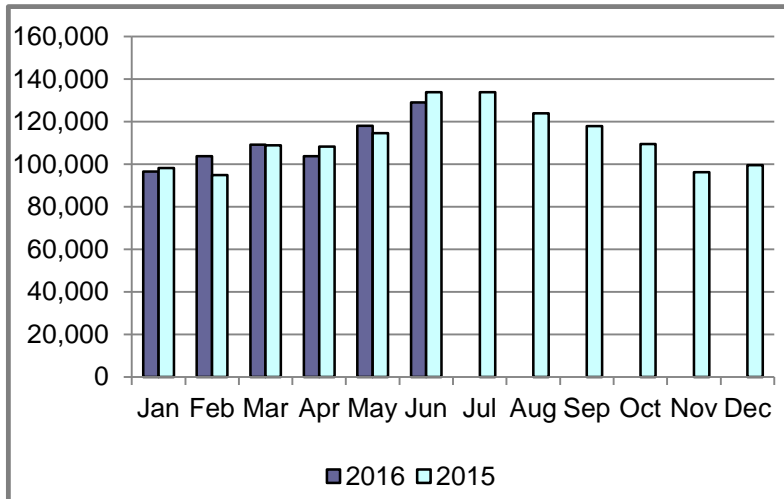
## Switches/Acquisitions



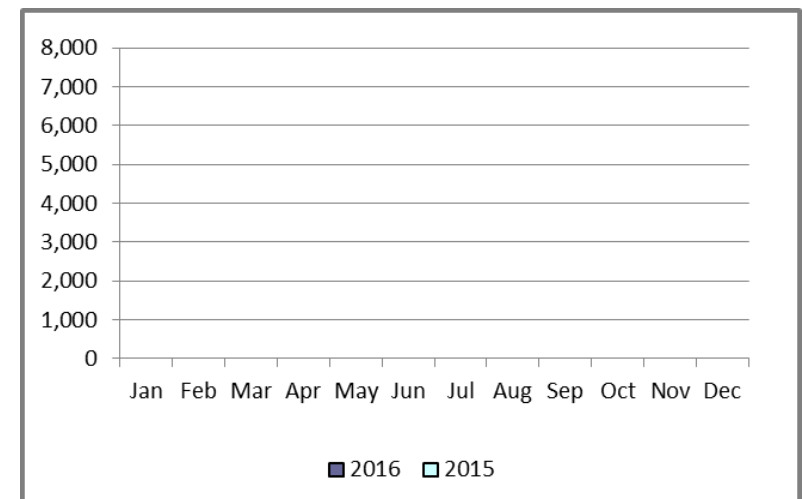
## Move-Ins



## Move-Outs

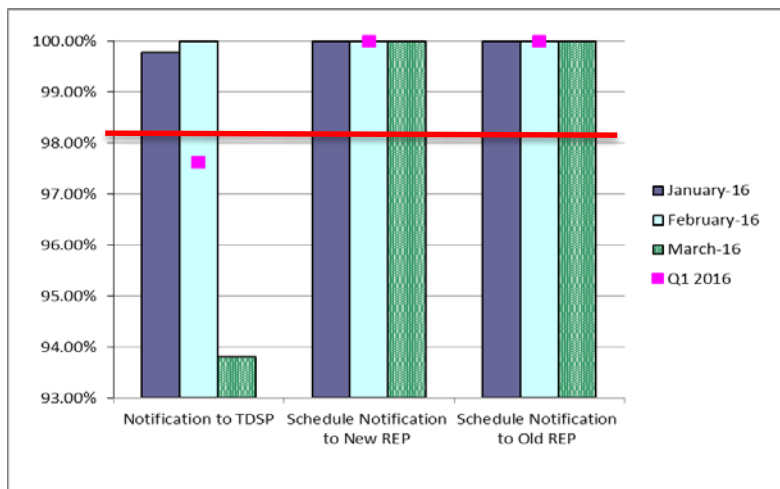


## Mass Transition

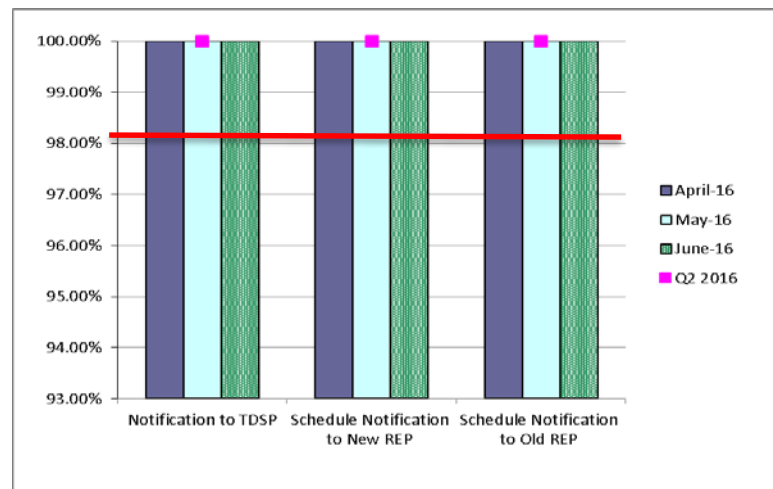


# Retail Performance Measures – Switch – June 2016

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



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



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

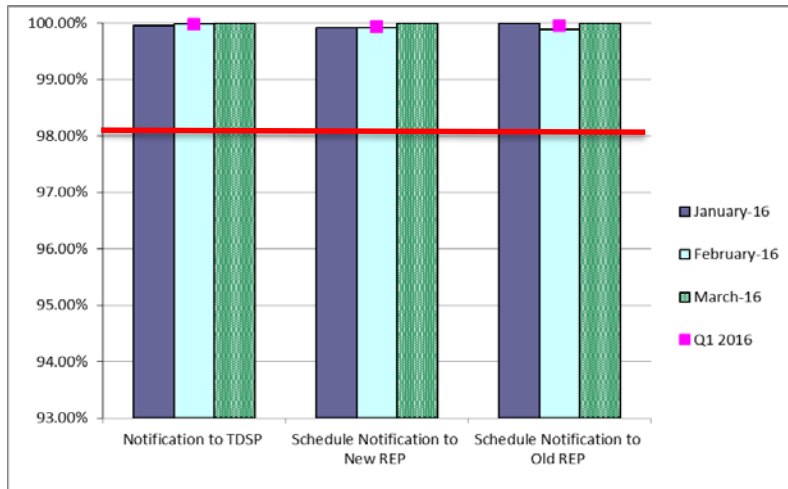


## 4<sup>th</sup> Quarter

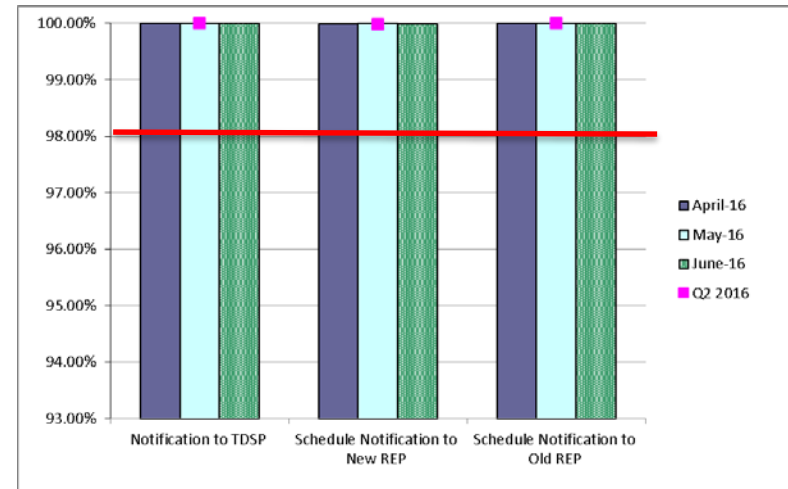


# Retail Performance Measures – Same Day Move-In – June 2016

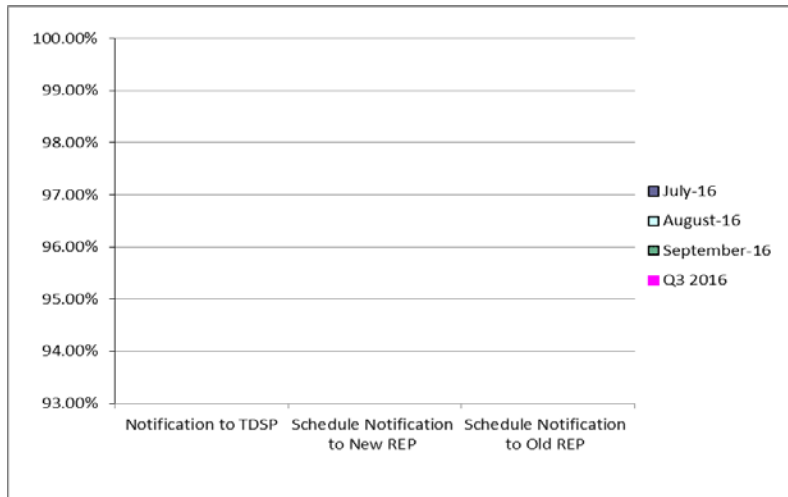
## 1<sup>st</sup> Quarter



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



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

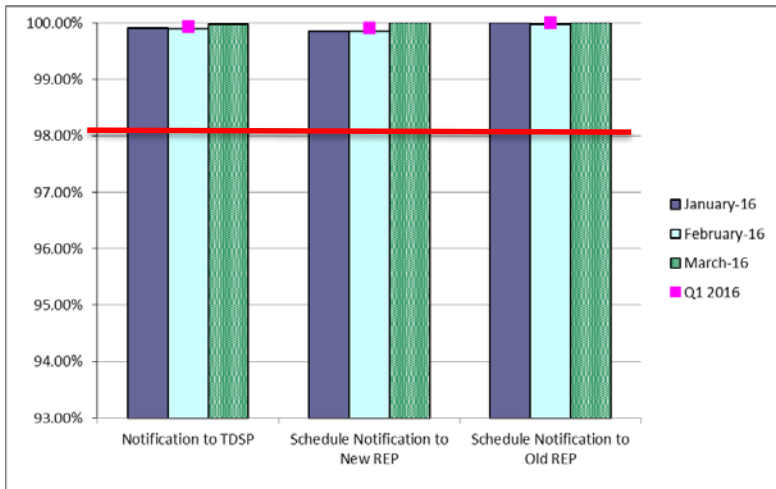


## 4<sup>th</sup> Quarter

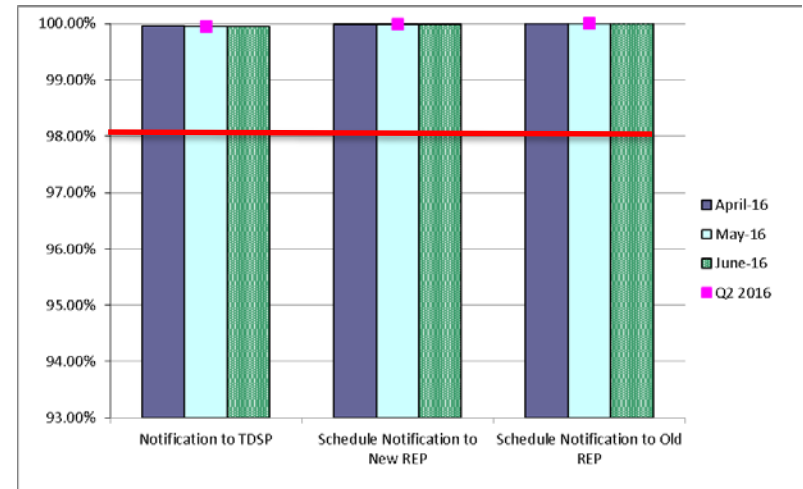


# Retail Performance Measures – Standard Move-In – June 2016

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



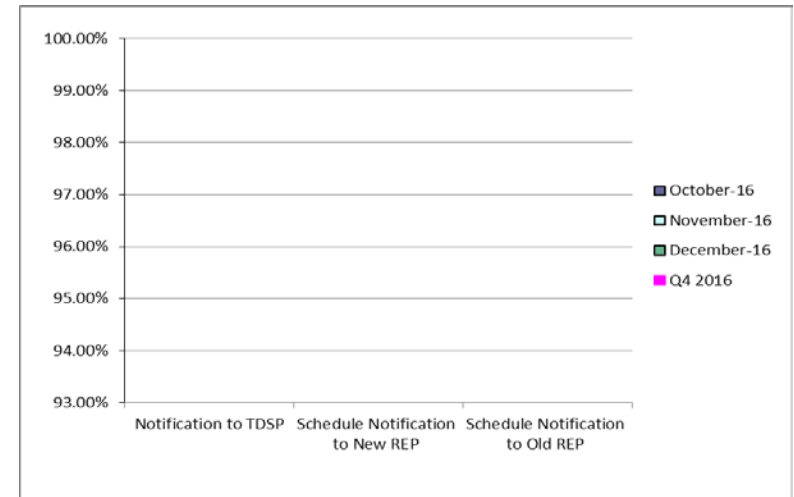
## 2<sup>nd</sup> Quarter



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



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





# Projects Report

# ERCOT Portfolio Stoplight Report – June 2016

Impact Metric Tolerances		2016 Project Funding	\$ 22,500,000	2016 Portfolio Spending Estimate					
<div>Unfavorable variances are represented as negative numbers within the report.</div> <div>- Green = No more than 4.9% unfavorable variance</div> <div>- Yellow = Unfavorable variance between 4.9% and 9.9%</div> <div>- Red = Unfavorable variance more than 9.9%</div>		Projects In Flight/On Hold (Count = 60)		\$ 15,190,441	<div>Note: Approximately \$1.75M in PPL spending was accelerated from 2016 to 2015</div>				
		Projects Not Yet Started (Count = 19)		\$ 1,496,949					
		Projects Completed (Count = 15)		\$ 274,838					
		Carryover of Excess 2015 Project Spending		\$ 1,743,545					
		Spending Reductions Required to Maintain Capital Budget		\$ -					
		TOTAL		\$ 18,705,773					
Project Number	Projects in Initiation Phase (Count = 5)		<div>Footnotes</div> <div>1 - One or more phases took longer than expected, resulting in additional time required</div> <div>2 - One or more phases required more labor than expected, resulting in additional funding and/or time require</div> <div>3 - Project placed on hold</div> <div>NA - Metric not calculated because:</div> <div>- it is reported at the parent project level, or</div> <div>- it is an administrative project</div>						
196-01	GINR Project Status Application Replacement								
198-01	Reactive Power Coordination								
Various	NOGRR147 and SCR787 NDCRC Enhancement								
NOGRR147	Reactive Power Testing Requirements								
SCR787	Maintain NDCRC Data For Generator Transfer Between Resource Entities								
Project Number	Projects in Planning Phase (Count = 23)		Baseline Phase Start	Baseline Phase Finish	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Impact	Budget Impact	
141-01	Production Virtualization		6/1/2016	7/27/2016	TBD	7/27/2016	0%		0%
158-01	Load Forecast Enhancements		1/14/2015	6/19/2015	TBD	7/27/2016	2 -258%	2	-114%
170-03	ECAP - Enterprise Content Management System (Proof of Concept)		1/13/2016	5/17/2016	TBD	8/3/2016	1 -62%		82%
170-04	ECAP - ERCOT Information Governance and Taxonomy		1/13/2016	6/6/2016	TBD	8/3/2016	1 -40%		68%
173-01	ERCOT Flight Certification Website		7/23/2015	11/2/2016	TBD	11/2/2016	0%		0%
181-01	CRR Framework Upgrade		12/16/2015	8/31/2016	TBD	8/31/2016	0%		0%
183-01	CMM Tech Refresh		12/16/2015	8/17/2016	TBD	8/17/2016	0%	NA	See 2015 CMM NPRRs
185-01	Records Management and eDiscovery		1/28/2016	8/31/2016	TBD	9/7/2016	-3%		0%
190-01	SharePoint Governance Project		4/27/2016	7/20/2016	TBD	8/3/2016	2 -16%	2	-5%
193-01	PMU Tool Evaluation and Implementation		5/4/2016	11/9/2016	TBD	11/9/2016	0%		0%
197-01	AREA - Demand and Energy Report		6/22/2016	7/20/2016	TBD	7/20/2016	0%		-1%
Various	2015 CMM NPRRs		12/16/2015	8/17/2016	TBD	8/17/2016	0%		14%
Various	NPRR495 and NPRR736 Changes to Ancillary Services Capacity Monitor		6/1/2016	7/20/2016	TBD	7/20/2016	0%		8%
SCR777	Bilateral CRR Interface Enhancement		12/16/2015	8/31/2016	TBD	8/31/2016	0%		See #181-01
NPRR272	Definition and Participation of Quick Start Generation Resources		5/11/2016	6/29/2016	TBD	7/20/2016	1 -42%		2%
NPRR439	Updating a Counter-Party's Available Credit Limit for Current Day DAM		12/16/2015	8/17/2016	TBD	8/17/2016	0%	NA	See 2015 CMM NPRRs
NPRR484	Revisions to Congestion Revenue Rights Credit Calculations and Payments - Phase 1b / 2		12/16/2015	8/17/2016	TBD	8/17/2016	0%	NA	See 2015 CMM NPRRs
NPRR495	Changes to Ancillary Services Capacity Monitor		6/1/2016	7/20/2016	TBD	7/20/2016	0%	NA	See NPRR495 and 736
NPRR519	Exemption of ERS-Only QSEs from Collateral and Capitalization Requirements		12/16/2015	8/17/2016	TBD	8/17/2016	0%	NA	See 2015 CMM NPRRs
NPRR620	Collateral Requirements for Counter-Parties with No Load or Generation		12/16/2015	8/17/2016	TBD	8/17/2016	0%	NA	See 2015 CMM NPRRs
NPRR683	Revision to Available Credit Limit Calculation		12/16/2015	8/17/2016	TBD	8/17/2016	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	8/17/2016	0%	NA	See 2015 CMM NPRRs
NPRR736	Updates to the Ancillary Service Capacity Monitor Display		6/1/2016	7/20/2016	TBD	7/20/2016	0%	NA	See NPRR495 and 736

# ERCOT Portfolio Stoplight Report – June 2016

Project Number	Projects in Execution Phase (Count = 20)	Baseline Phase Start	Baseline Go-Live Target	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Impact		Budget Impact	
065-01	NMMS Upgrade	12/17/2014	9/22/2016	9/22/2016	1/11/2017		0%		-2%
169-01	Short Circuit Ratio Functionality	1/20/2016	9/19/2016	9/19/2016	9/30/2016		0%		26%
170-01	Enterprise Content Alignment Program	8/26/2015	11/15/2017	9/25/2017	9/25/2017		6%	2	-25%
170-05	ECAP - ERCOT Identity Alignment	2/24/2016	7/30/2016	11/9/2016	11/9/2016	1	-64%		0%
172-01	Physical Security Project #2	6/30/2016	2/13/2017	2/13/2017	2/22/2017		0%		0%
174-01	2015 Outage Scheduler Enhancements	12/2/2015	9/14/2016	9/28/2016	10/21/2016		-4%		1%
177-01	Cyber Security Project #19	4/6/2016	7/13/2016	10/7/2016	11/11/2016	1	-87%		32%
179-01	Infoblox Hardware Refresh	2/4/2016	8/12/2016	8/17/2016	8/17/2016		-2%		7%
180-01	Upgrade of MDM - GEMS	3/30/2016	8/29/2016	8/29/2016	10/5/2016		0%		23%
187-00	Capital Efficiencies and Enhancements - 2016	1/1/2015	12/31/2016	12/31/2016	12/31/2016		0%		0%
188-01	Mass Transition/Acquisition Enhancements (MTAQ)	5/25/2016	4/2/2017	4/2/2017	5/17/2017		0%		-1%
189-01	Enterprise Resource Planning	4/13/2016	9/27/2016	9/27/2016	11/2/2016		0%		25%
191-01	CRR Auction Improvements	4/27/2016	8/18/2016	8/18/2016	10/26/2016		0%		0%
SCR786	Retail Market Test Environment	6/22/2016	12/12/2016	12/12/2016	2/1/2017		0%		0%
RMGRR126	Additional ERCOT Validations for Customer Billing Contact Information File	5/25/2016	7/24/2016	7/24/2016	5/17/2017		0%		See #188-01
RMGRR127	Efficiencies for Acquisition Transfer	5/25/2016	4/2/2017	4/2/2017	5/17/2017		0%		See #188-01
NPRR219	Resolution of Alignment Items A33, A92, A106, and A150 - TSPs Must Submit Outages for Resource Owned Equipment and Clarification of Changes in Status of Transmission Element Postings	12/2/2015	9/14/2016	9/22/2016	10/21/2016		-2%	NA	See #174-01
NPRR662	Proxy Energy Offer Curves	3/2/2016	9/1/2016	9/1/2016	10/1/2016		0%		5%
NOGRR050	Resolution of Reporting Issues Related to NPRR219	1/27/2016	6/23/2016	6/23/2016	8/10/2016		0%	NA	See #174-01
SCR783	Outage Scheduler Enhancements – Group 2, Usability and Filtering Enhancements	12/2/2015	9/14/2016	9/22/2016	10/21/2016		-2%	NA	See #174-01

# ERCOT Portfolio Stoplight Report – June 2016

Project Number	Projects in Stabilization (Count = 7)	Baseline Execution Phase Start	Baseline Go-Live Target	Actual Go-Live Date	Scheduled Execution Phase Finish	Schedule Impact		Budget Impact	
052-01	EMS Upgrade	9/24/2014	5/25/2016	6/16/2016	10/31/2016		-3%		8%
168-01	Configuration Management System Requirements for CIP v5 Readiness	7/6/2015	12/16/2015	12/16/2015	7/13/2016		0%	2	-24%
171-01	CIP v5 Readiness Project	7/22/2015	4/29/2016	4/29/2016	7/13/2016		0%		-2%
Various	NPRR617 and 700 Implementation	1/27/2016	6/23/2016	6/23/2016	8/10/2016		0%	2	-5%
NPRR515	Day-Ahead Market Self-Commitment of Generation Resources	10/5/2015	3/31/2016	6/23/2016	7/13/2016	2	-47%	2	-27%
NPRR617	Energy Offer Flexibility	1/27/2016	6/23/2016	6/22/2016	8/10/2016		0%	NA	See NPRR617 / NPRR700
NPRR700	Utilizing Actual Fuel Costs in Startup Offer Caps	1/27/2016	6/23/2016	6/22/2016	8/10/2016		0%	NA	See NPRR617 / NPRR700
Project Number	Projects On Hold (Count = 5)	Forecast Start Date	Baseline Phase Finish	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Impact		Budget Impact	
SCR781	MP Online Data Entry - Market Requirements	8/20/2014	11/28/2014	TBD	TBD	3		3	See #106-01
NPRR573	Alignment of PRC Calculation	TBD	TBD	TBD	TBD	3		3	
106-01	MP Online Data Entry - Ph 1	10/9/2013	3/5/2014	TBD	TBD	3		3	
129-01	Access and Roles Management	7/1/2014	10/1/2014	TBD	TBD	3		3	
166-01	Jboss Application Monitoring & Management (JAMM)	TBD	TBD	TBD	TBD	3		3	
Project Number	Projects Completed (Count =15)	Baseline Execution Phase Start	Baseline Go-Live Target	Actual Go-Live Date	Actual Execution Phase Finish	Schedule Status		Total Variance	
NPRR419	Revise Real Time Energy Imbalance and RMR Adjustment Charge	1/13/2016	4/12/2016	4/12/2016	6/6/2016		0%	2	-13%
TBD	Monthly BLT Payment and Charge for Presidio Exception	4/9/2015	6/23/2016	6/16/2016	6/23/2016		1%	NA	See #187-00
NPRR556	Resource Adequacy During Transmission Equipment Outage	9/21/2015	10/23/2015	10/23/2015	12/10/2015		0%		23%
NPRR588	Clarifications for PV Generation Resources	9/16/2015	2/19/2016	2/9/2016	3/30/2016		6%	NA	See #161-01
NPRR615	PVGR Forecasting	9/16/2015	2/19/2016	2/9/2016	3/30/2016		6%	NA	See #161-01
NPRR680	Allow QSEs to Self-Arrange AS Quantities Greater Than Their AS Obligation	10/28/2015	12/11/2015	12/11/2015	12/18/2015		0%		13%
NPRR686	Changing the IRR Forecast from Next 48 Hours to Next 168 Hours	9/16/2015	2/19/2016	2/10/2016	3/30/2016		5%	NA	0%
116-01	Collage Replacement	2/6/2014	9/22/2014	2/29/2016	4/7/2016	2	-230%	2	-120%
120-01	IT Production Hardening	5/21/2015	4/1/2016	4/14/2016	4/27/2016		-4%		33%
134-01	Privileged Account Management	4/1/2015	9/30/2015	9/30/2015	1/27/2016		0%		14%
143-01	OSI Pi Visualization Enhancements	1/16/2015	6/19/2015	1/22/2016	2/18/2016	1	-140%		-3%
144-01	OC-48 Replacement with DWDM	2/4/2015	12/22/2015	1/12/2016	3/2/2016	1	-6%		3%
161-01	NPRRs 588 and 615	9/16/2015	2/19/2016	2/9/2016	3/30/2016		6%		-1%
163-01	Cyber Security Project #10	7/1/2015	9/15/2015	9/22/2015	12/16/2015	1	-9%		9%
165-00	Capital Efficiencies and Enhancements - 2015	1/1/2015	12/31/2015	12/31/2015	12/31/2015		0%		42%

## ERCOT Portfolio Stoplight Report – June 2016

Project Number	2016 Projects Not Yet Started (Count = 19)	Forecast Start Date
NPRR741	Clarifications to TPE and EAL Credit Exposure Calculations	Jul-2016
NPRR743	Revision to MCE to Have a Floor For Load Exposure	Jul-2016
NPRR764	QSE Capacity Short Calculations Based on an 80% Probability of Exceedance (P80)	Jul-2016
RRGRR003	Modifications to Improve Wind Forecasting	Jul-2016
RRGRR006	Clarification of Descriptions and Alignment with Resource Asset Registration Forms	Jul-2016
RRGRR007	Adding Solar Resource Registration Inputs	Jul-2016
TBD	Appworx Application Manager Upgrade	Jul-2016
TBD	Appworx Replaces TIBCO Code in CSI Framework	Jul-2016
TBD	DW Replication Upgrade	Jul-2016
TBD	REC Rewrite & Refresh	Jul-2016
TBD	Replace Sun DSEE	Jul-2016
TBD	CMM-FT GUI Integration	Aug-2016
TBD	EIF Database Utilization	Aug-2016
NPRR746	Adjustments Due to Negative Load	Aug-2016
SCR788	Addition of Integral ACE Feedback to GTBD Calculation	Aug-2016
NPRR649	Addressing Issues Surrounding High Dispatch Limit (HDL) Overrides	Sep-2016
TBD	Replace Paperfree	Sep-2016
NPRR744	RUC Trigger for the Reliability Deployment Price Adder and Alignment with RUC Settlement	Oct-2016
NOGRR084	Daily Grid Operations Summary Report	Oct-2016