



## **ERCOT Monthly Operational Overview** ([March 2016](#))

ERCOT Public  
April 15, 2016

# Grid Planning & Operations

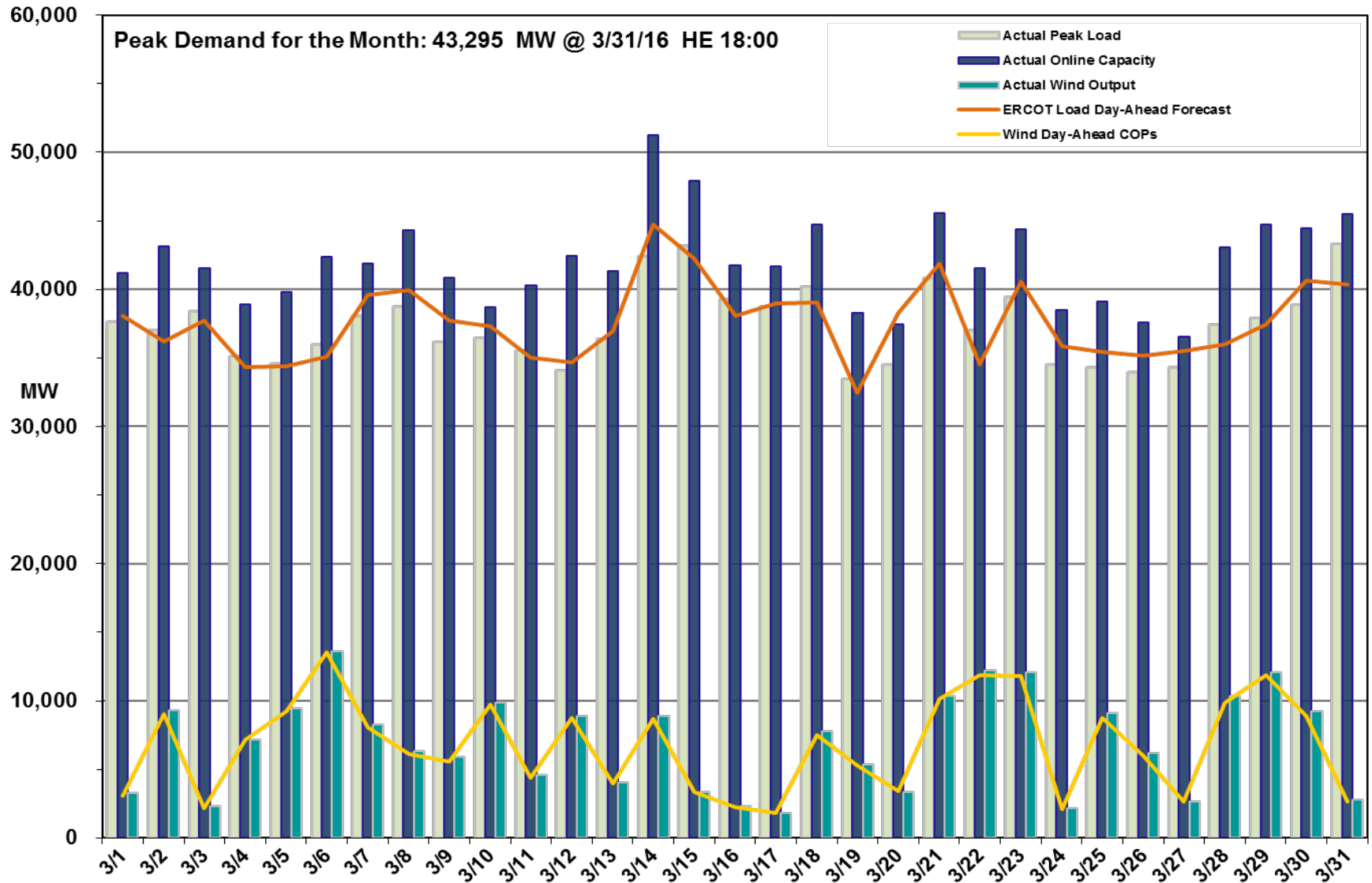
### Operations

- The peak demand of 43,295 MW on March 31st was more than the day-ahead mid-term forecast peak of 40,360 MW of the same operating period. In addition, it was less than the March 2015 actual peak demand of 53,084 MW. The instantaneous peak load on March 31st was 43,456 MW.
- Day-ahead load forecast error for March was 2.55%
- ERCOT issued four notifications
  - Two advisories due to postponement of the deadline for posting the DAM solution, delayed due to long solution run time and processing issues.
  - One advisory due to Physically Responsive Capability being less than 3,000 MW.
  - One advisory due to a GMD alert of K-7.

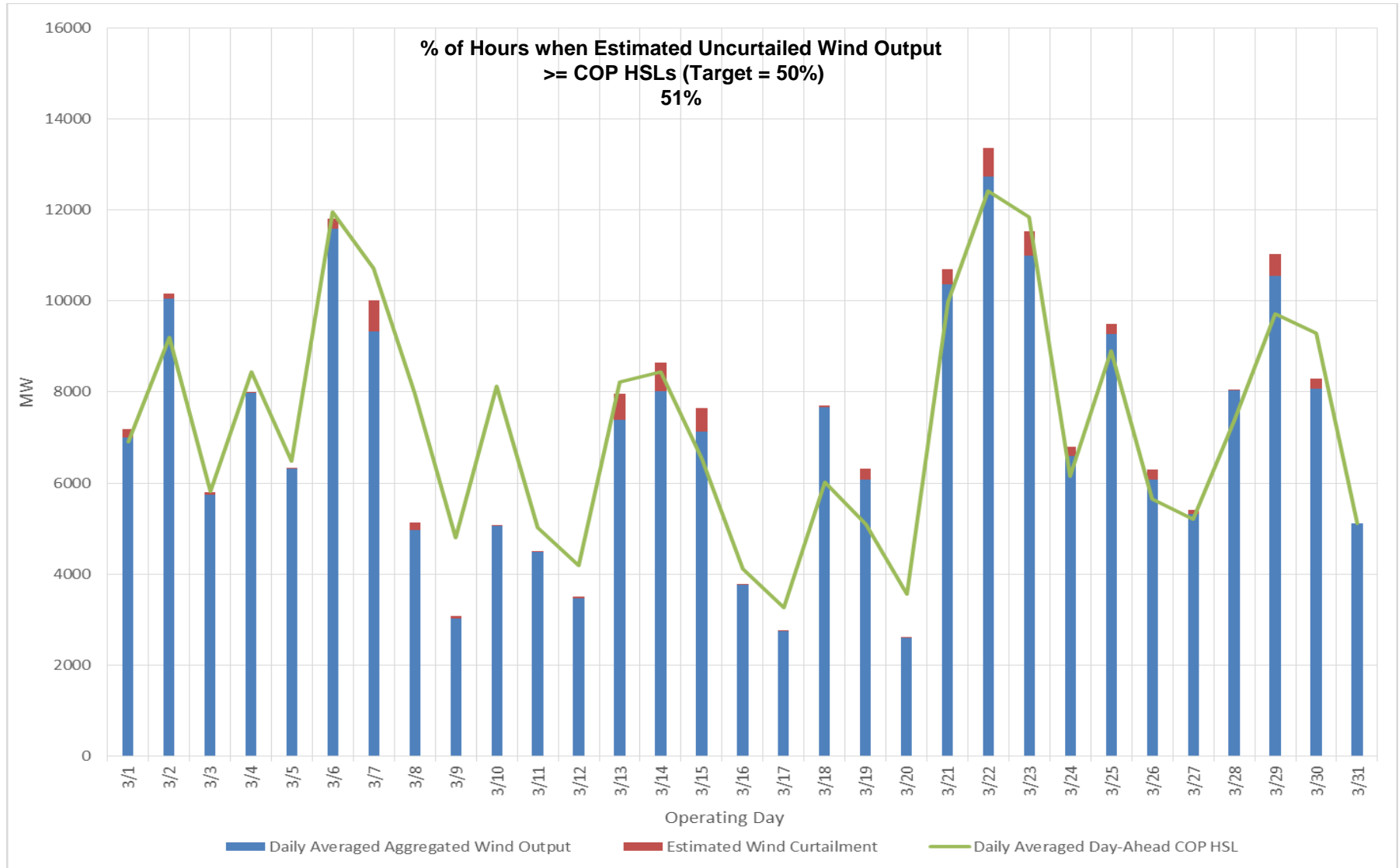
### Planning Activities

- 236 active generation interconnection requests totaling 55,721 MW, including 24,197 MW of wind generation, as of March 31, 2016. The same number of requests, yet an increase of 514 MW from February 29, 2016.
- 15,929 MW wind capacity in commercial operations on March 31, 2016.

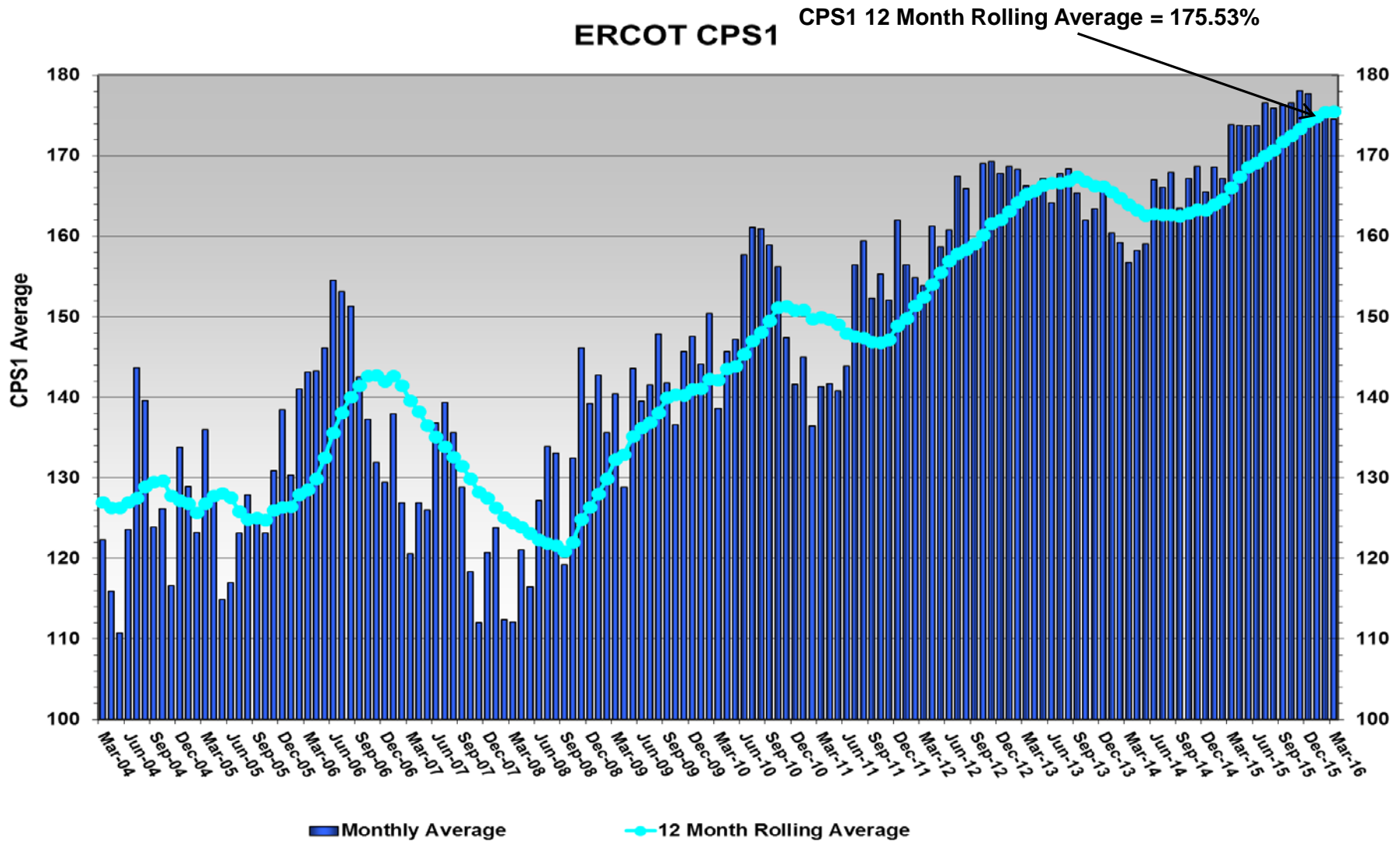
# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs, & On-Line Capacity at Peak – March 2016



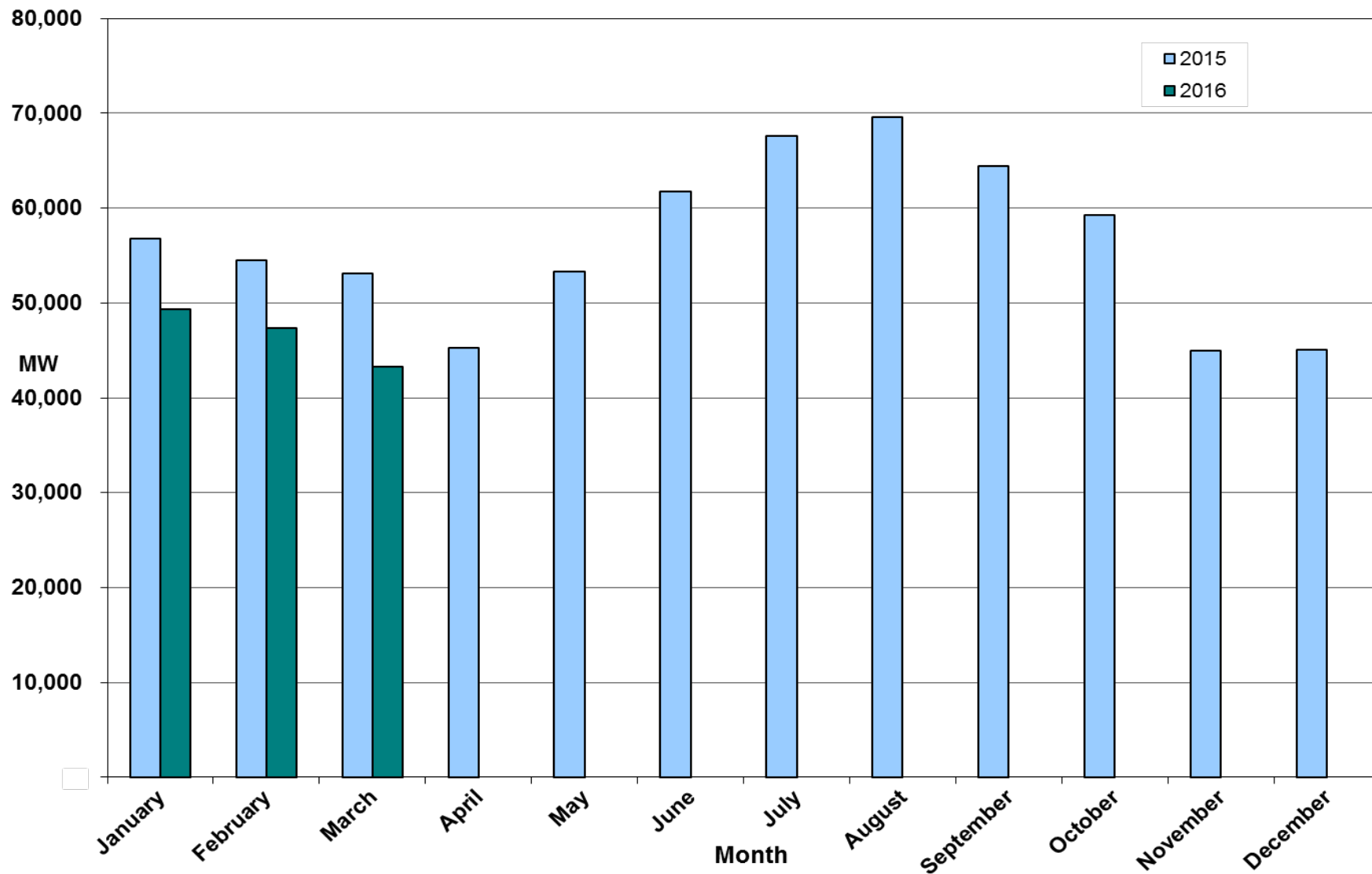
# Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – March 2016



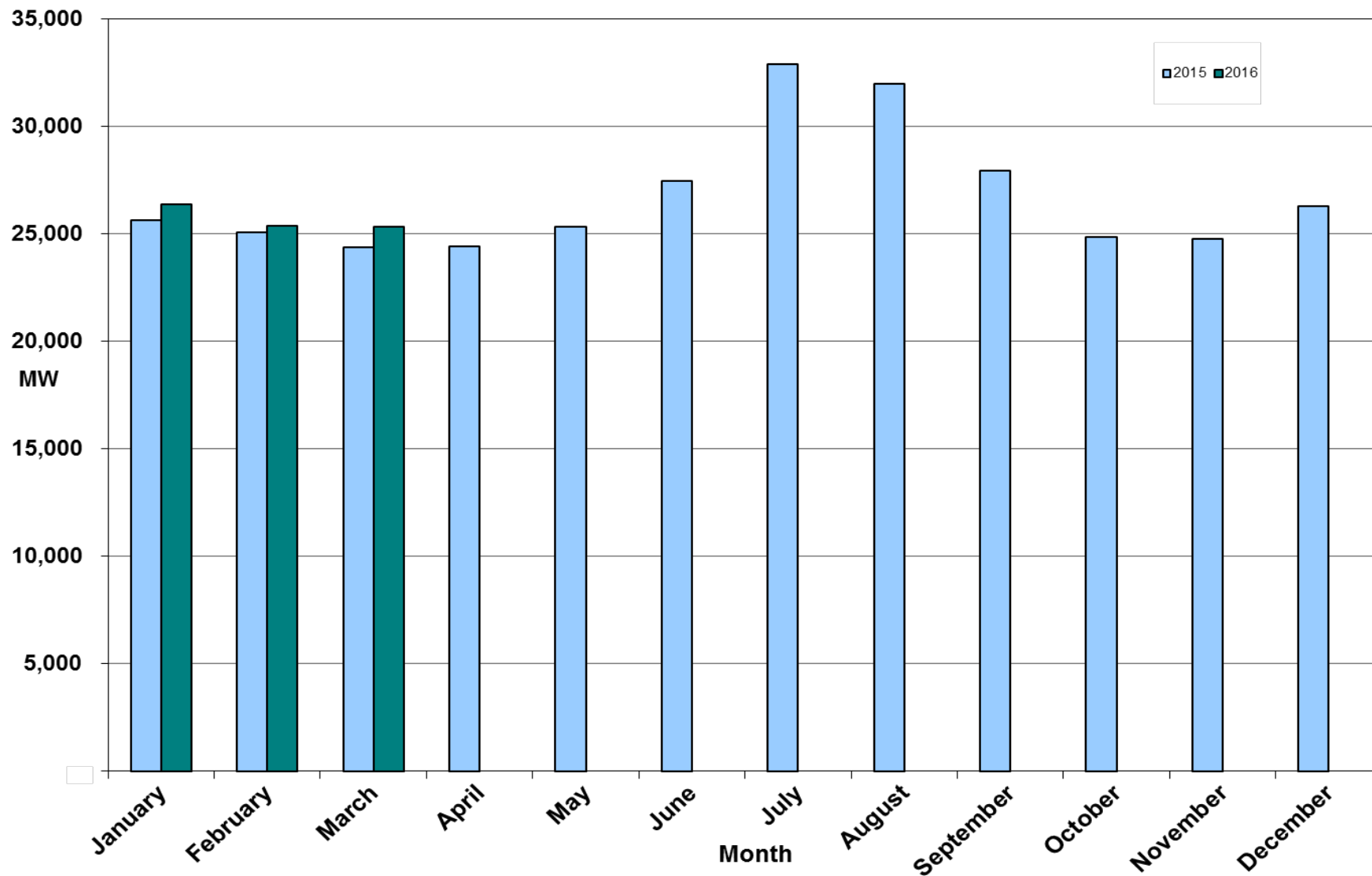
# ERCOT's CPS1 Monthly Performance – March 2016



## Monthly Peak Actual Demand – March 2016



## Monthly Minimum Actual Demand – March 2016



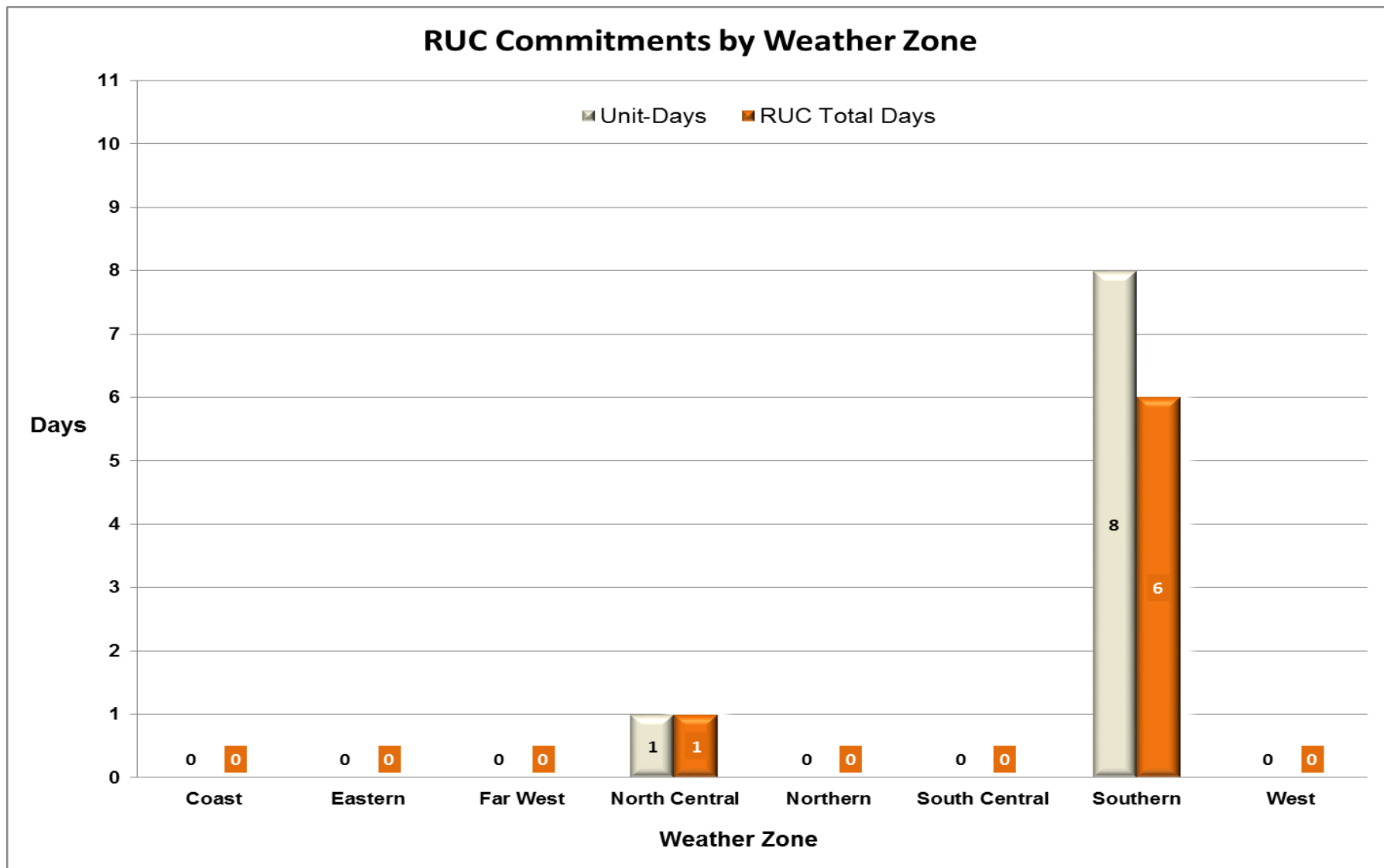


## Day-Ahead Load Forecast Performance – March 2016

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

	<b>2013 MAPE</b>	<b>2014 MAPE</b>	<b>2015 MAPE</b>	<b>2016 MAPE</b>	<b>March 2016 MAPE</b>	
<b>Average Annual MAPE</b>	2.86	2.83	2.86	2.72	2.55	
<b>Lowest Monthly MAPE</b>	2.07	2.15	1.89	2.39	<b>Lowest Daily MAPE</b>	0.88 Mar – 15
<b>Highest Monthly MAPE</b>	3.50	3.70	3.81	3.22	<b>Highest Daily MAPE</b>	7.26 Mar – 20

## Reliability Unit Commitment (RUC) by Weather Zone in March 2016



## Generic Transmission Constraints (GTCs) – March 2016

GTCs	Mar-15 Days GTCs	Jan-16 Days GTCs	Feb-16 Days GTCs	Mar-16 Days GTCs	Last 12 Months Total Days (Apr 15 – Mar 16)
North – Houston	0	0	0	2	5
Valley Import	0	0	0	1	4
Zorillo - Ajo	9	3	4	6	104
Panhandle	-	1	5	5	19
Laredo	-	0	0	0	4
Liston	-	15	24	26	74
Molina	-	1	0	0	20

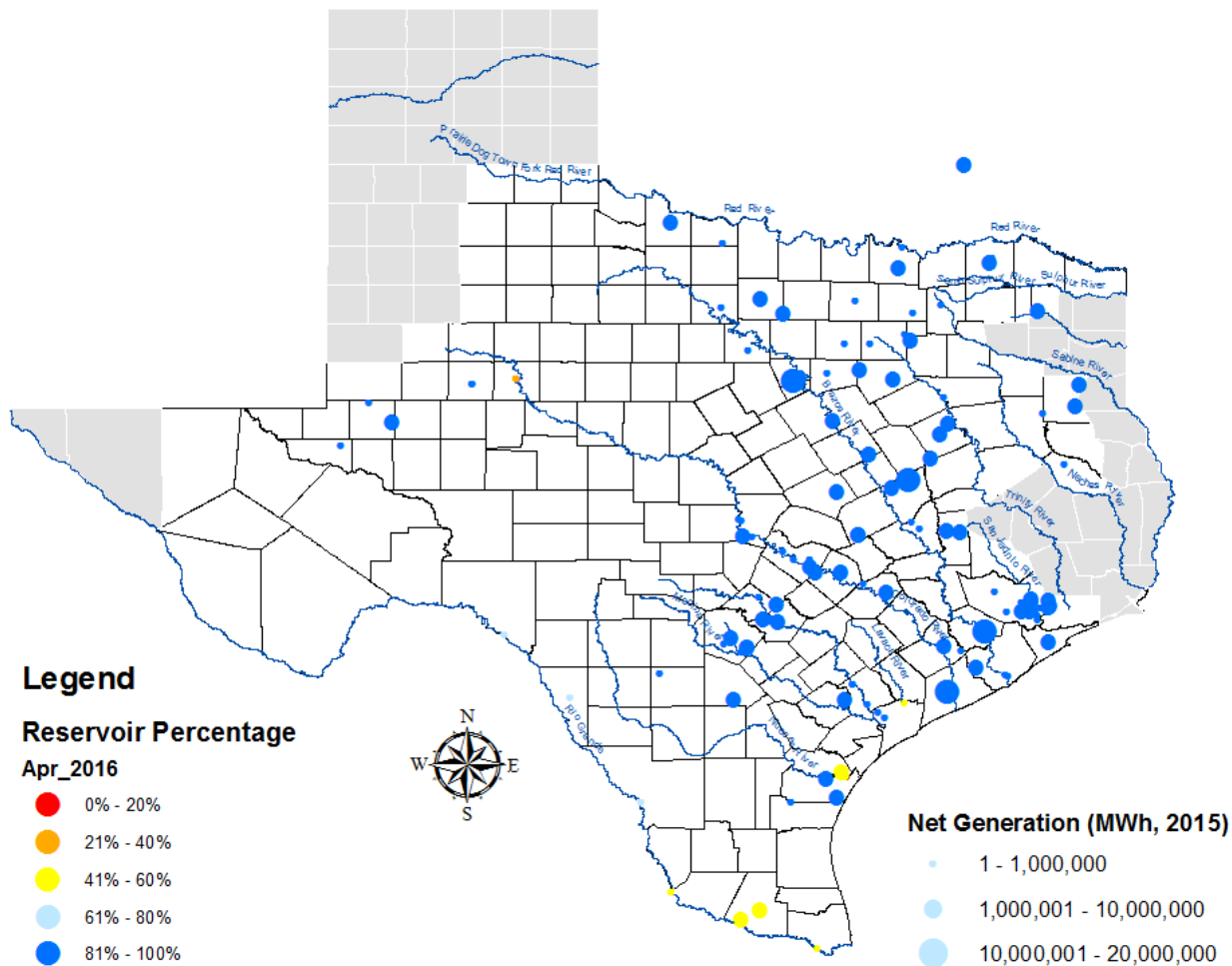
**GTC:** A transmission flow limit more constraining than a Transmission Element's normal limit established to constrain flow between geographic areas of the ERCOT Transmission System that is used to enforce stability and voltage constraints that cannot be modeled directly in ERCOT's transmission security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

## Advisories and Watches – March 2016

- Two advisories issued due to postponement of the deadline for posting the DAM solution, delayed due to long solution run time and processing issues.
  - Issued on 3/13/16 and 3/21/16
- One advisory due to Physically Responsive Capability being less than 3,000 MW.
  - Issued on 3/27/16
- One advisory due to a GMD alert of K-7
  - Issued on 3/6/16

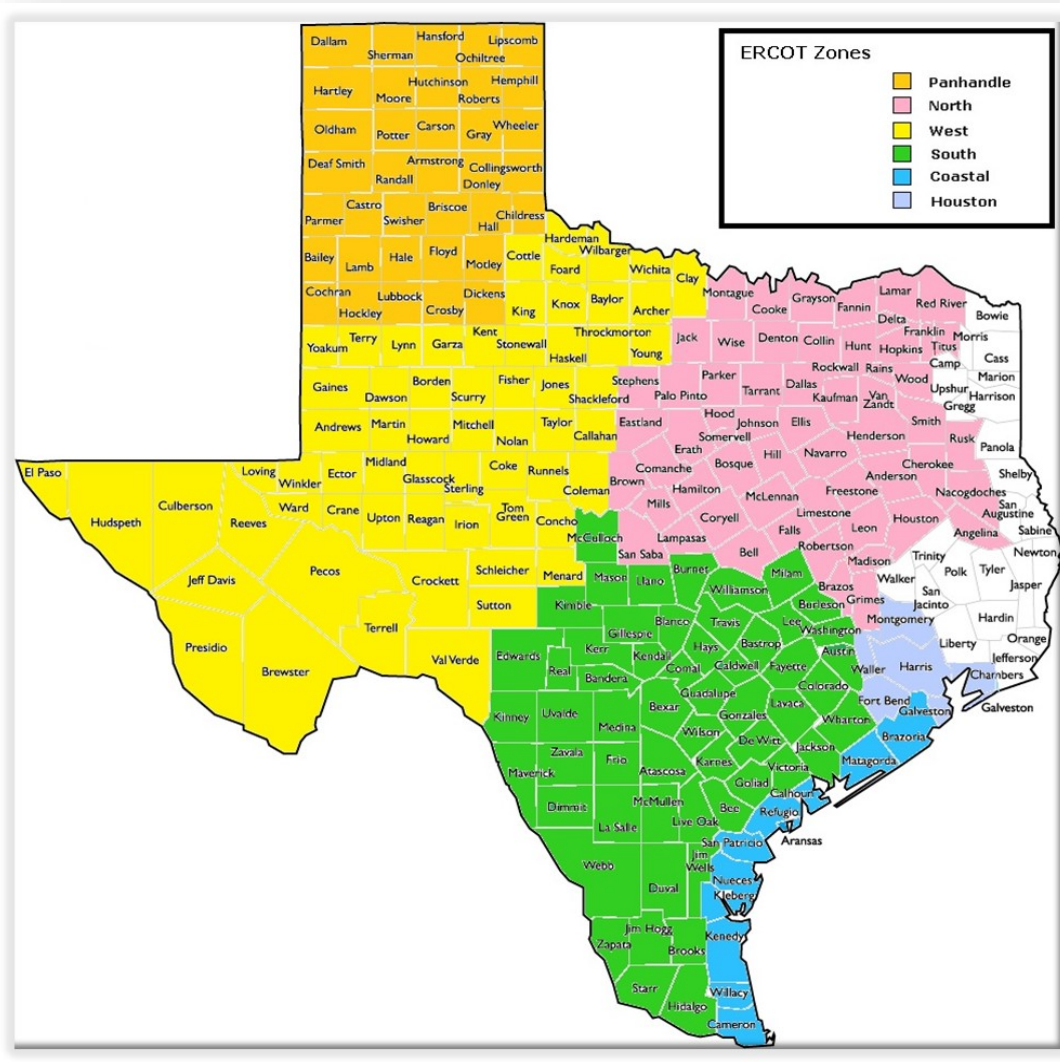
# Lake Levels Update – April 1, 2016



## Planning Summary – March 2016

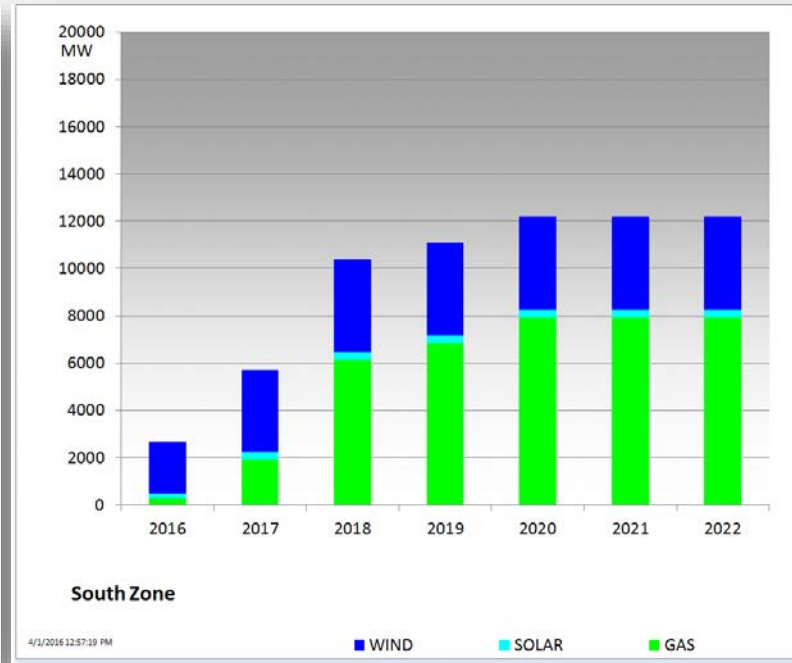
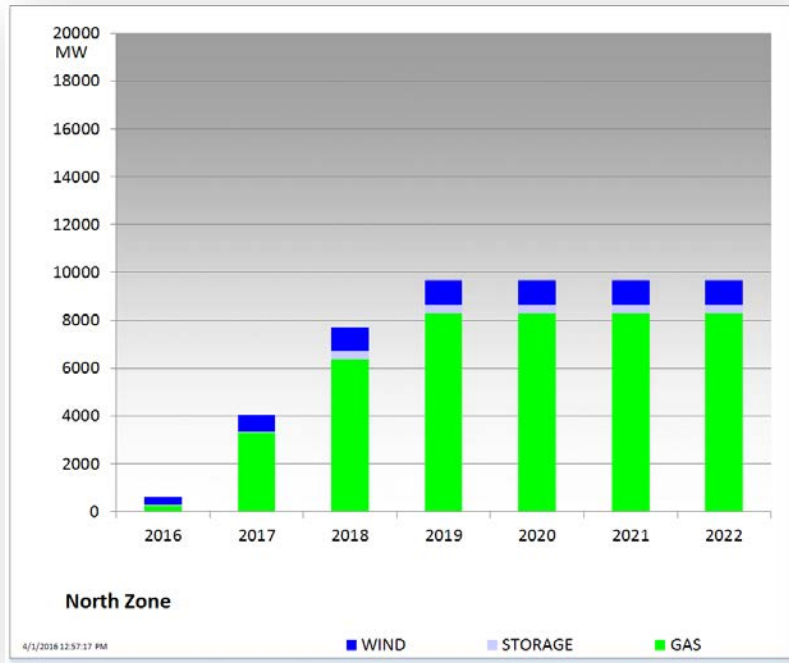
- ERCOT is currently tracking 236 active generation interconnection requests totaling 55,721 MW. This includes 24,197 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of more than \$1.2 Billion.
- Transmission Projects endorsed in 2016 total \$18 Million.
- All projects (in engineering, routing, licensing, and construction) total approximately \$6.81 Billion.
- Transmission Projects energized in 2016 total about \$149 Million.

100



# Cumulative MW Capacity of Interconnection Requests by Zone

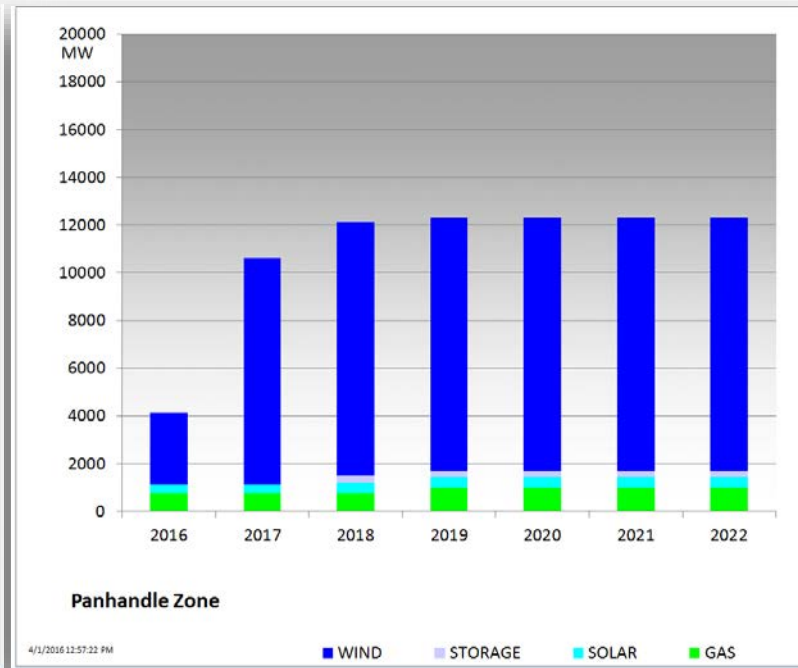
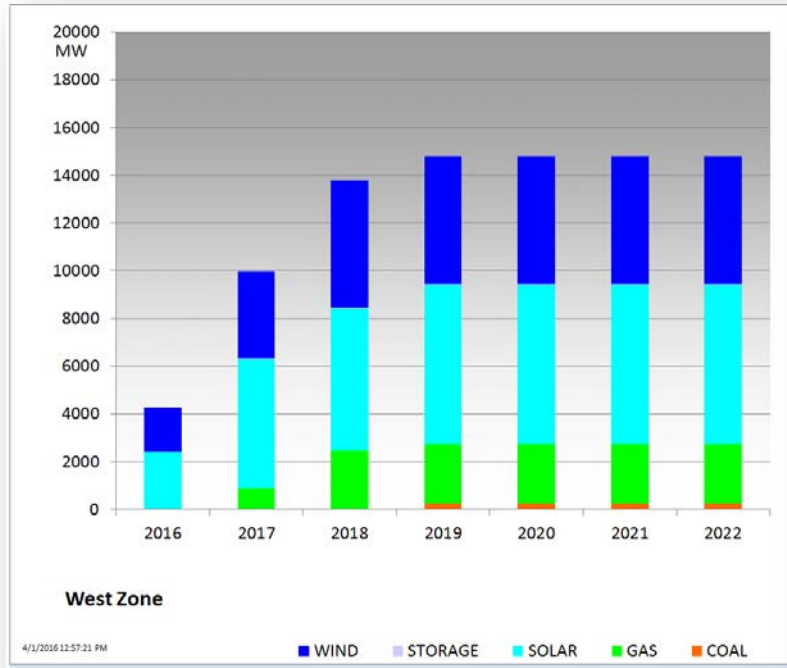
## March 2016





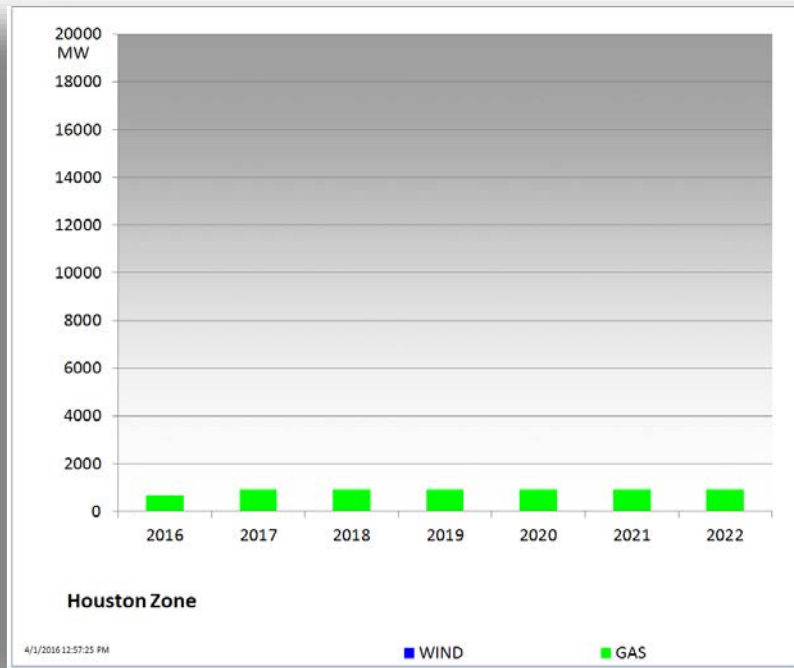
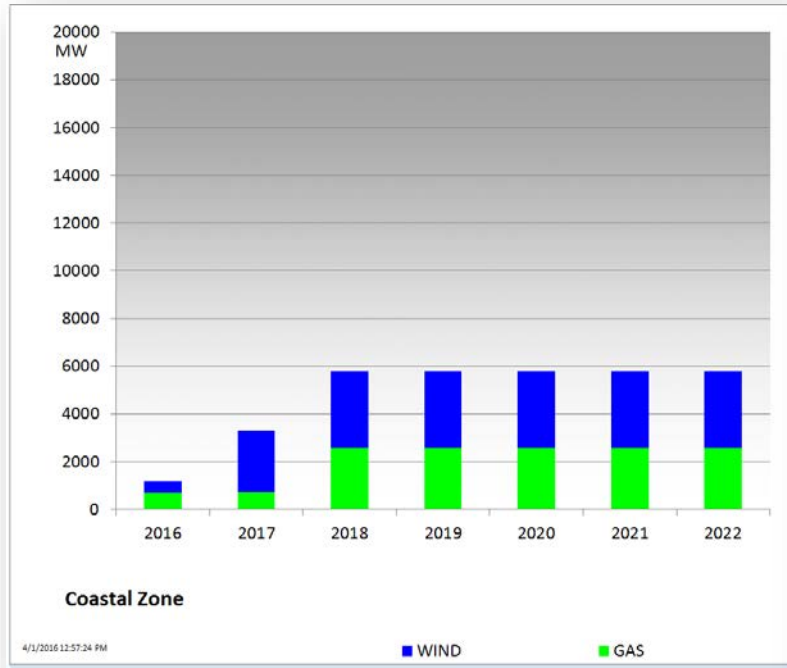
# Cumulative MW Capacity of Interconnection Requests by Zone

## March 2016

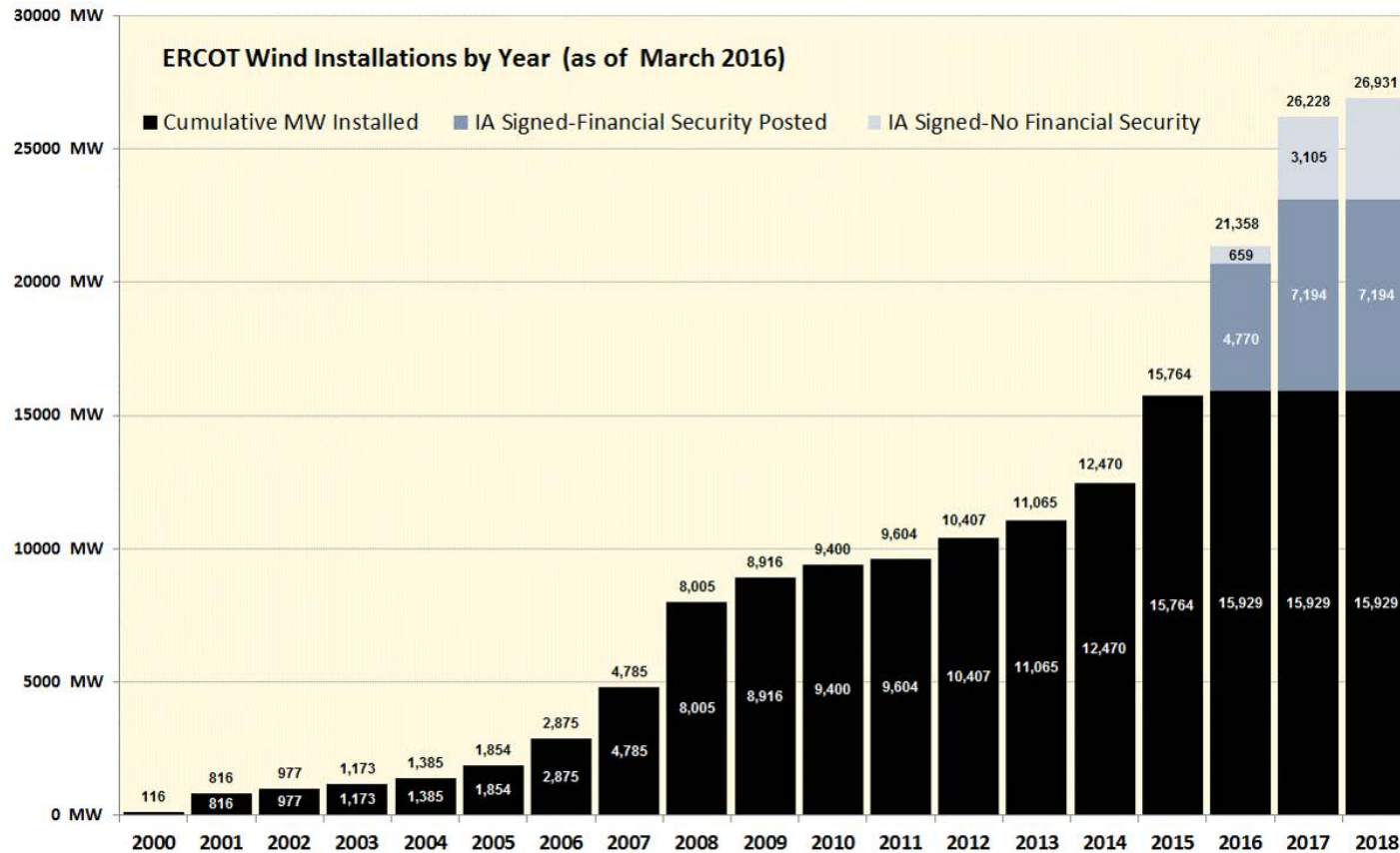


# Cumulative MW Capacity of Interconnection Requests by Zone

## March 2016



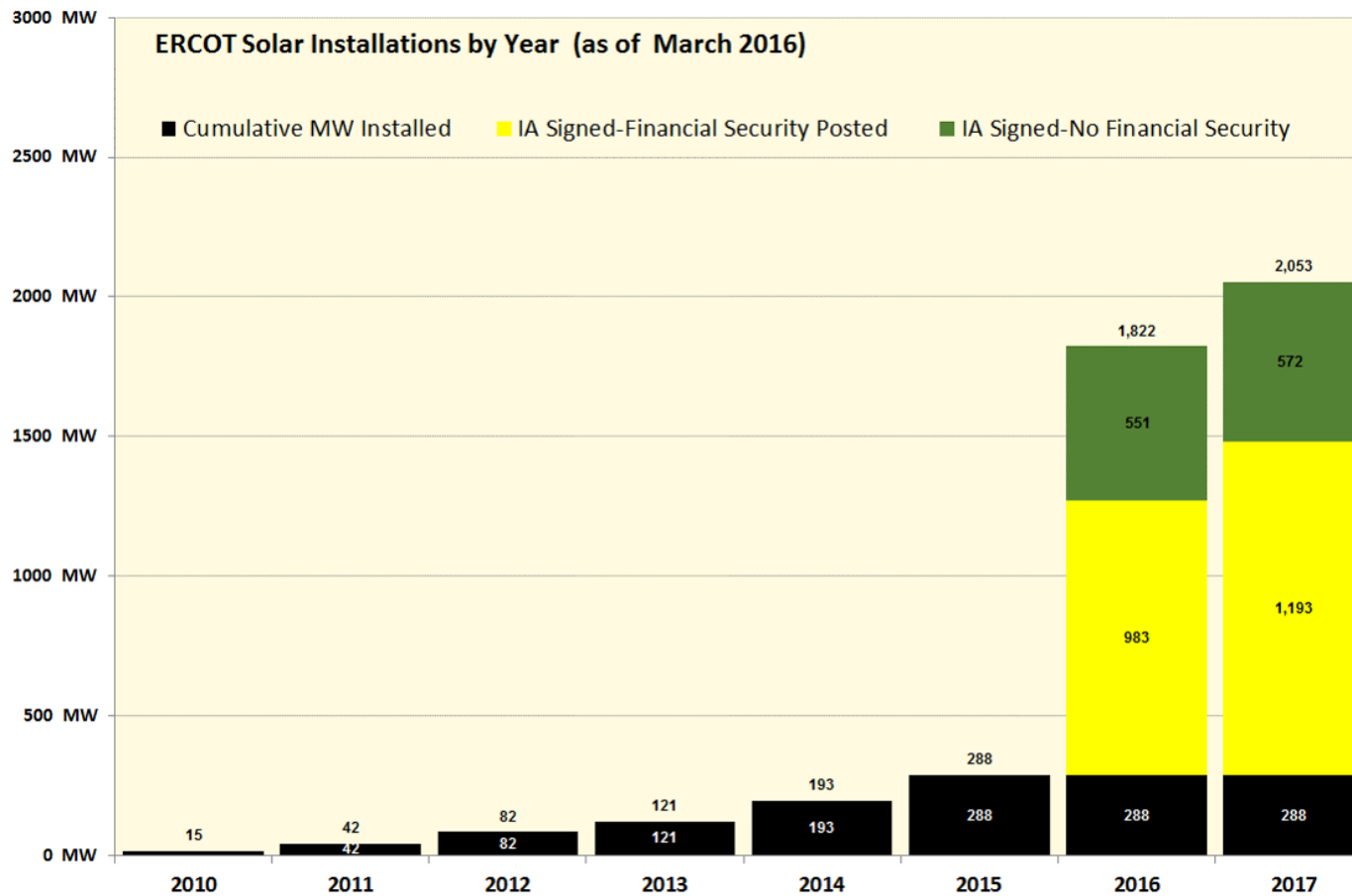
# Wind Generation – March 2016



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.

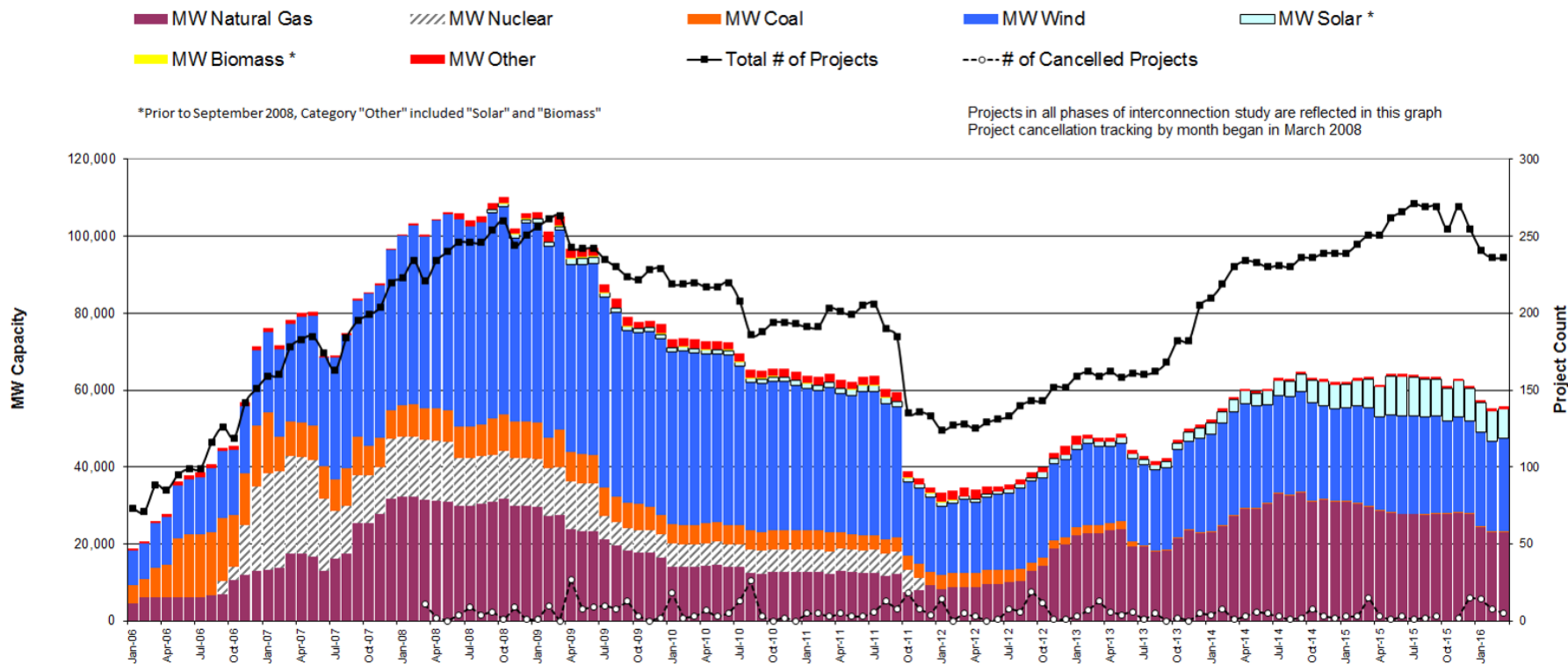
Financial security posted for funding interconnection facilities does not include CREZ security deposits, which are refunded to the Interconnecting Entity when an IA is signed.

## Solar Generation – March 2016

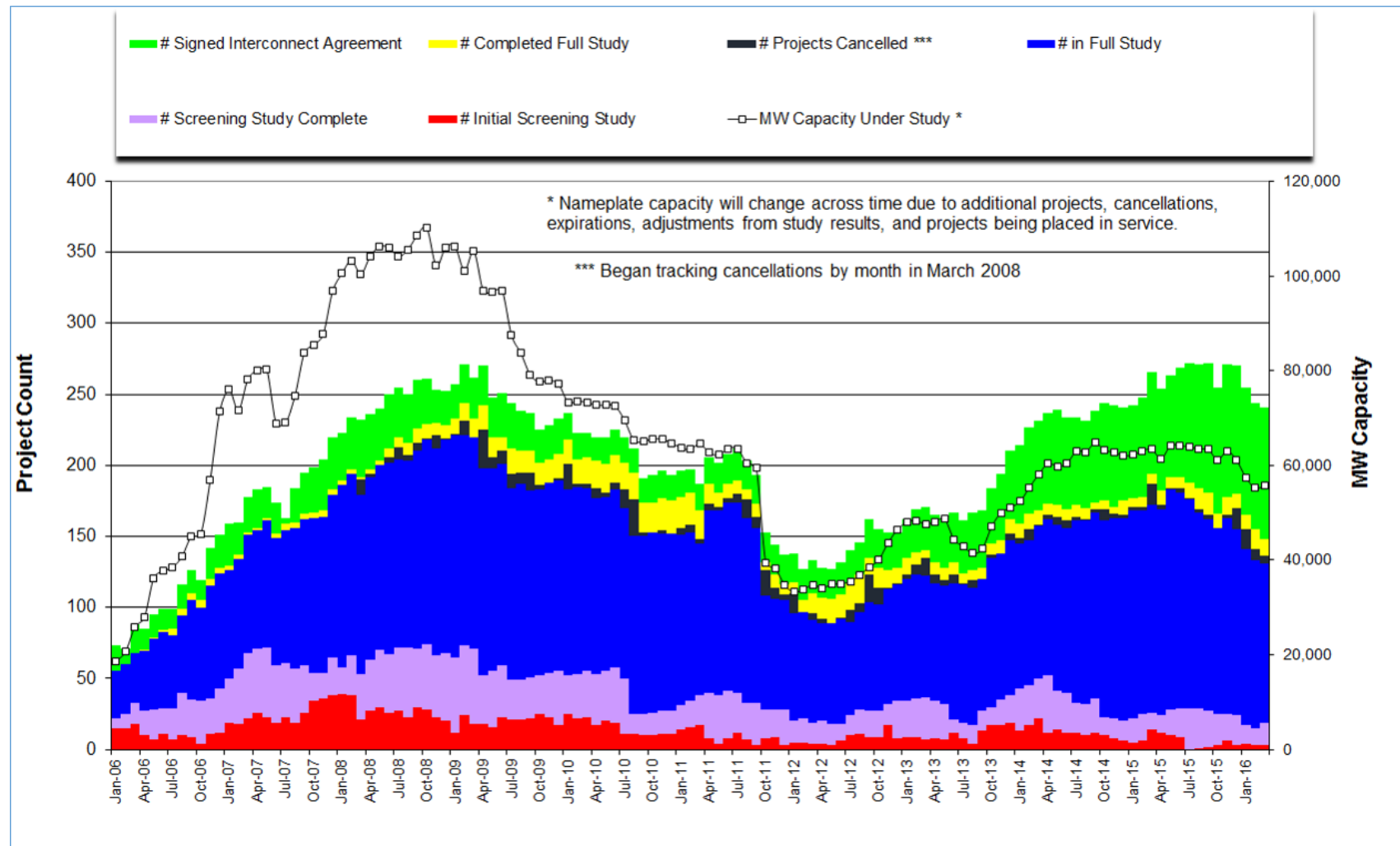


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# Generation Interconnection Activity by Fuel – March 2016

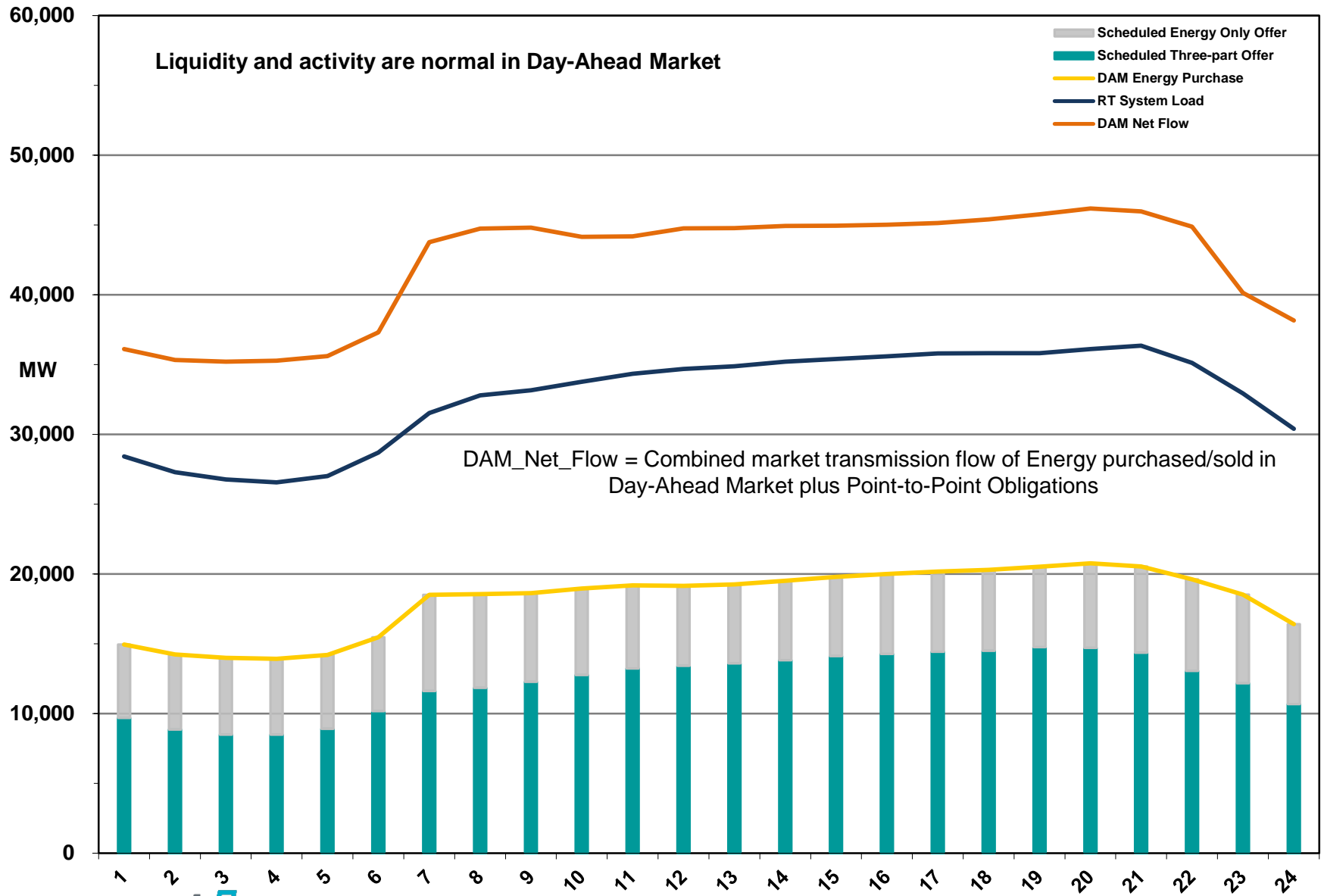


# Generation Interconnection Activity by Project Phase – March 2016



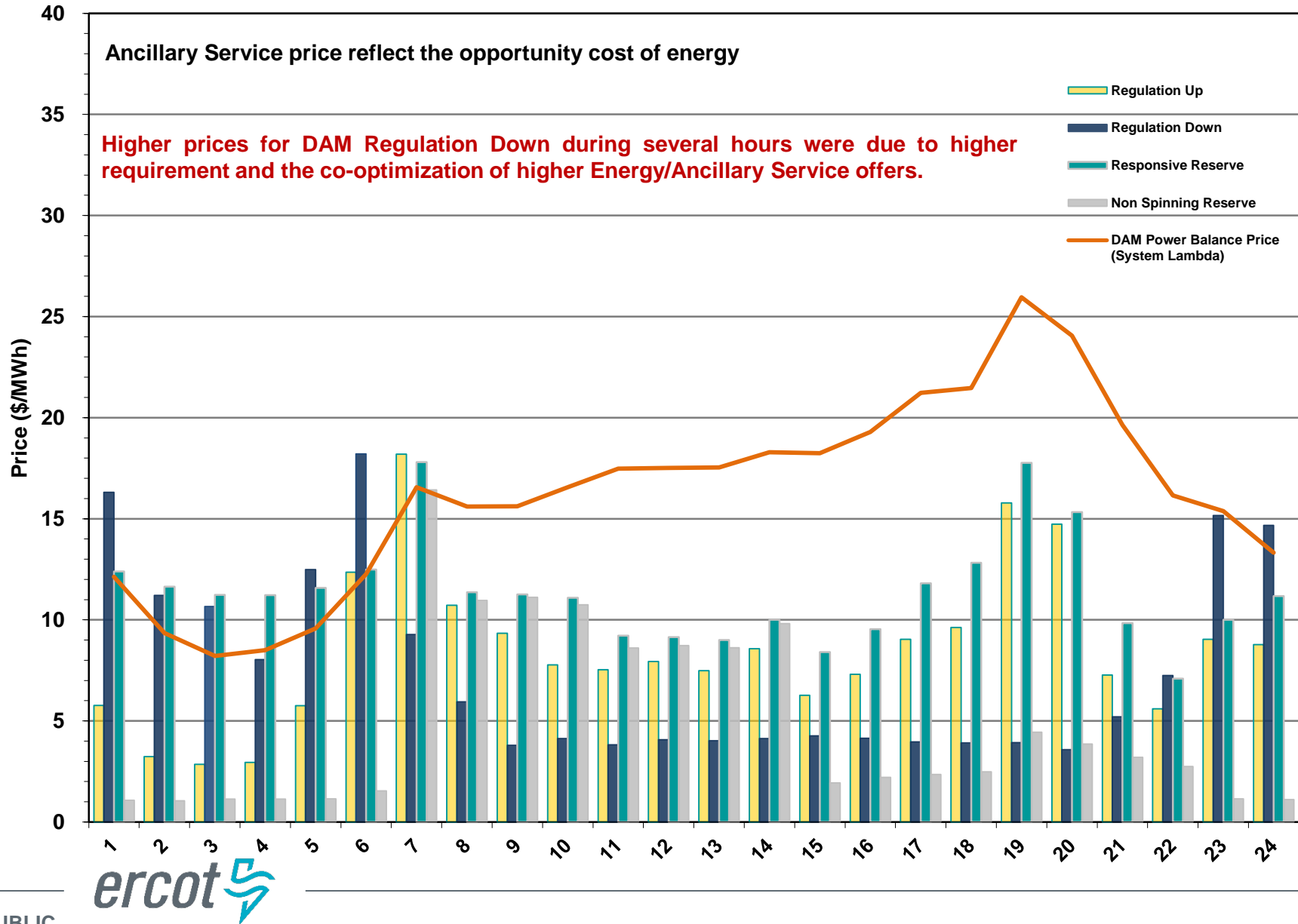
# Market Operations

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

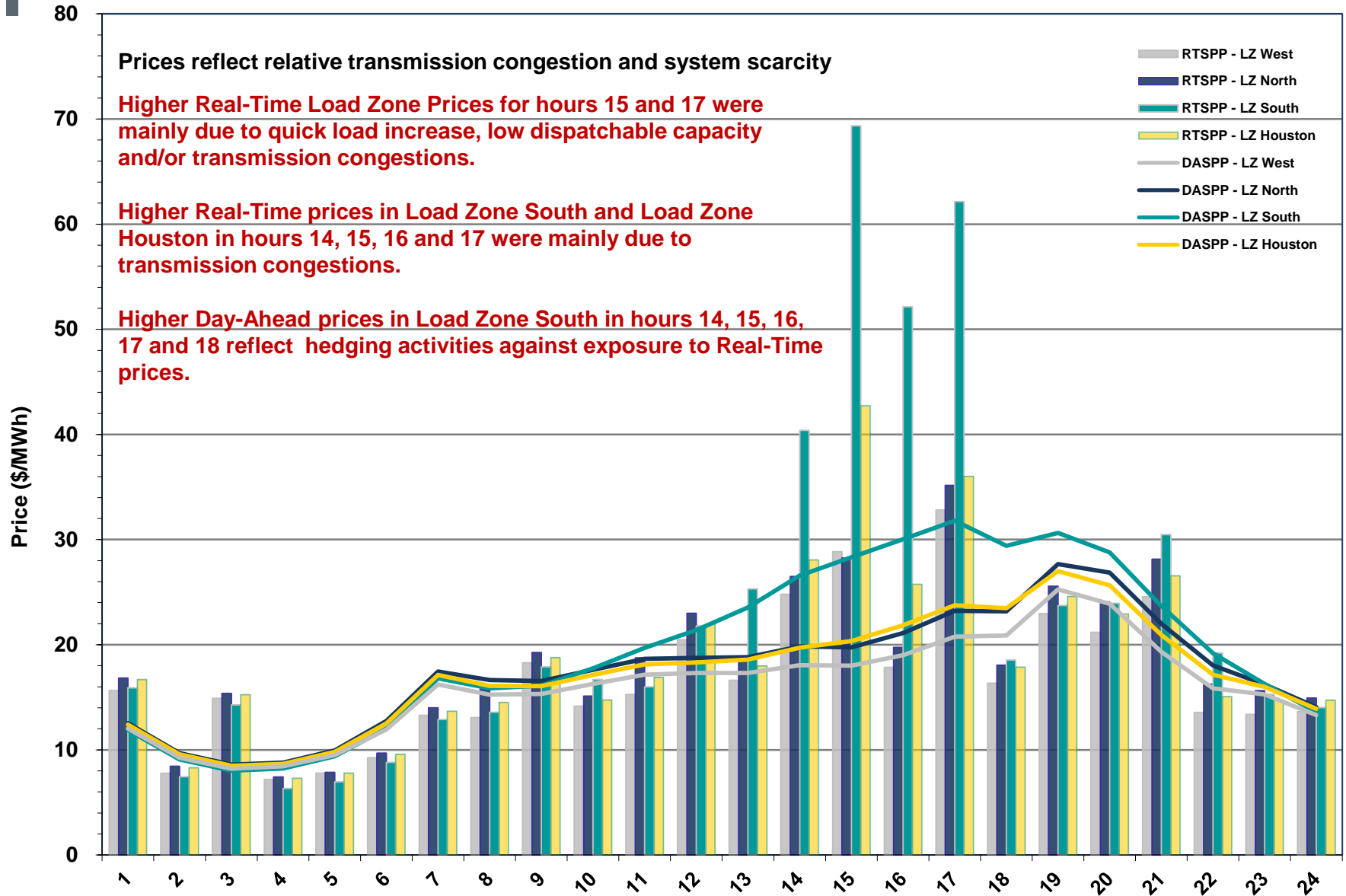




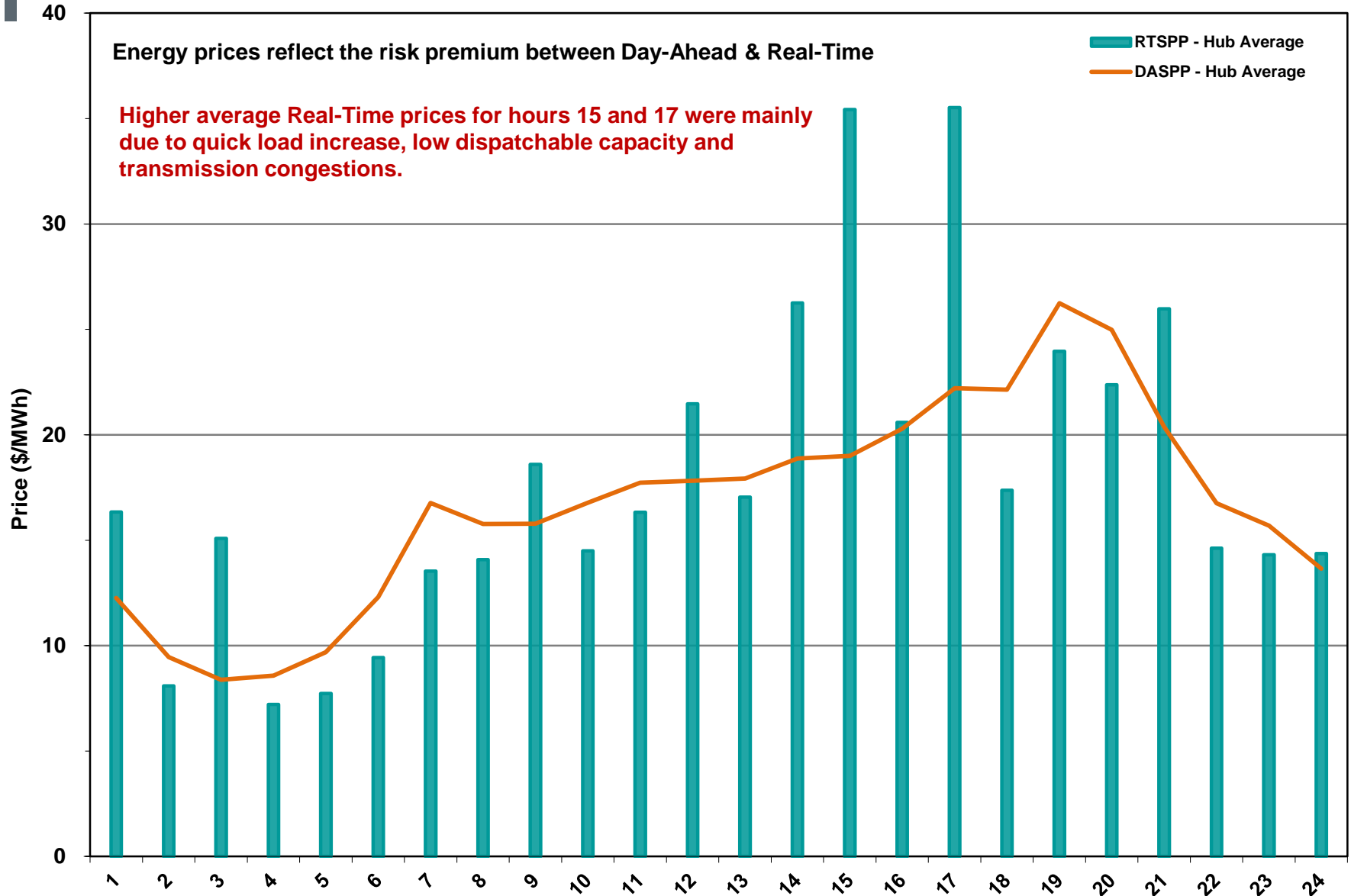
# Day-Ahead Electricity And Ancillary Service Hourly Average Prices – March 2016



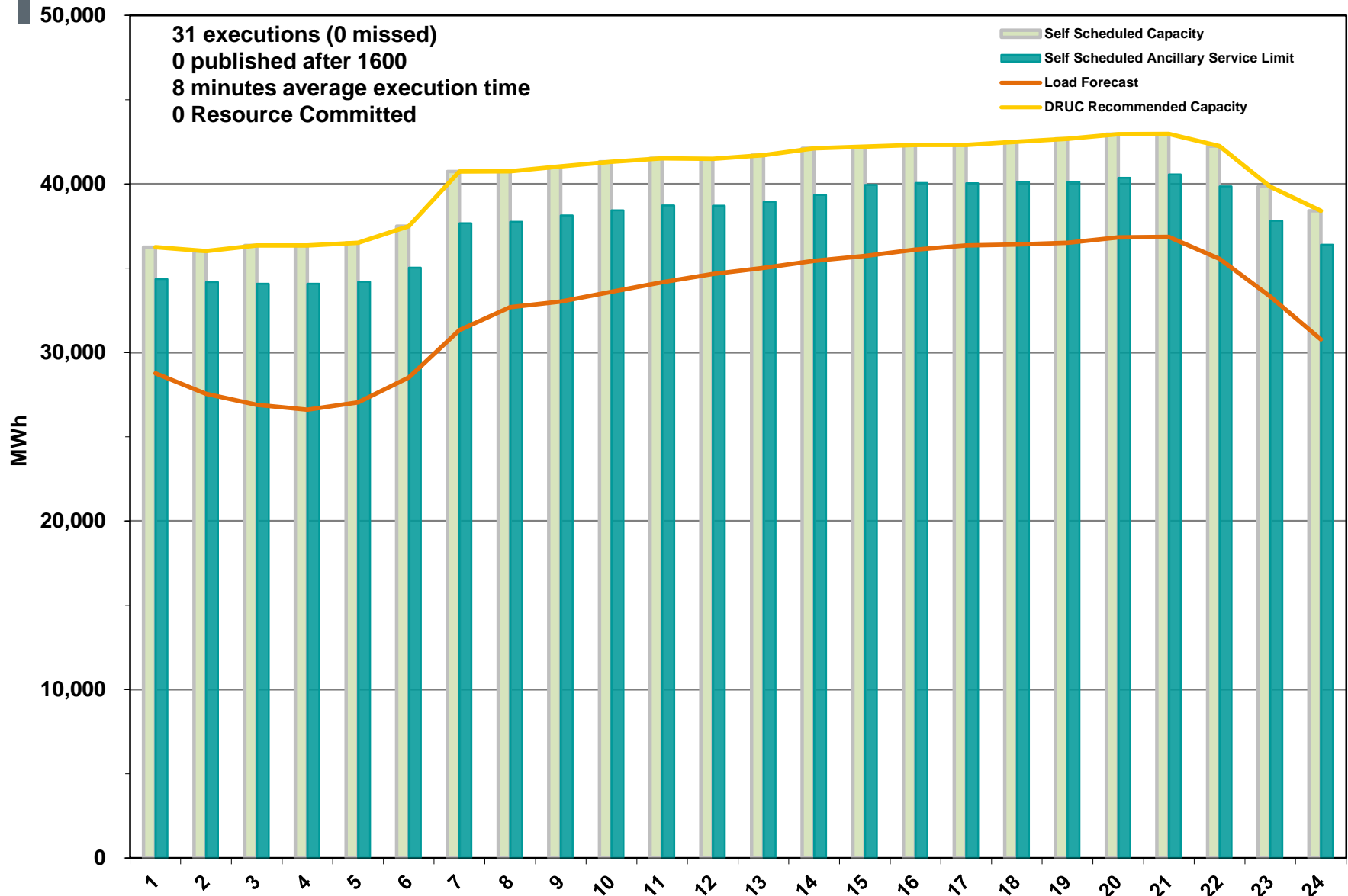
# Day-Ahead Vs Real-Time Load Zone SPP (Hourly Average) – March 2016



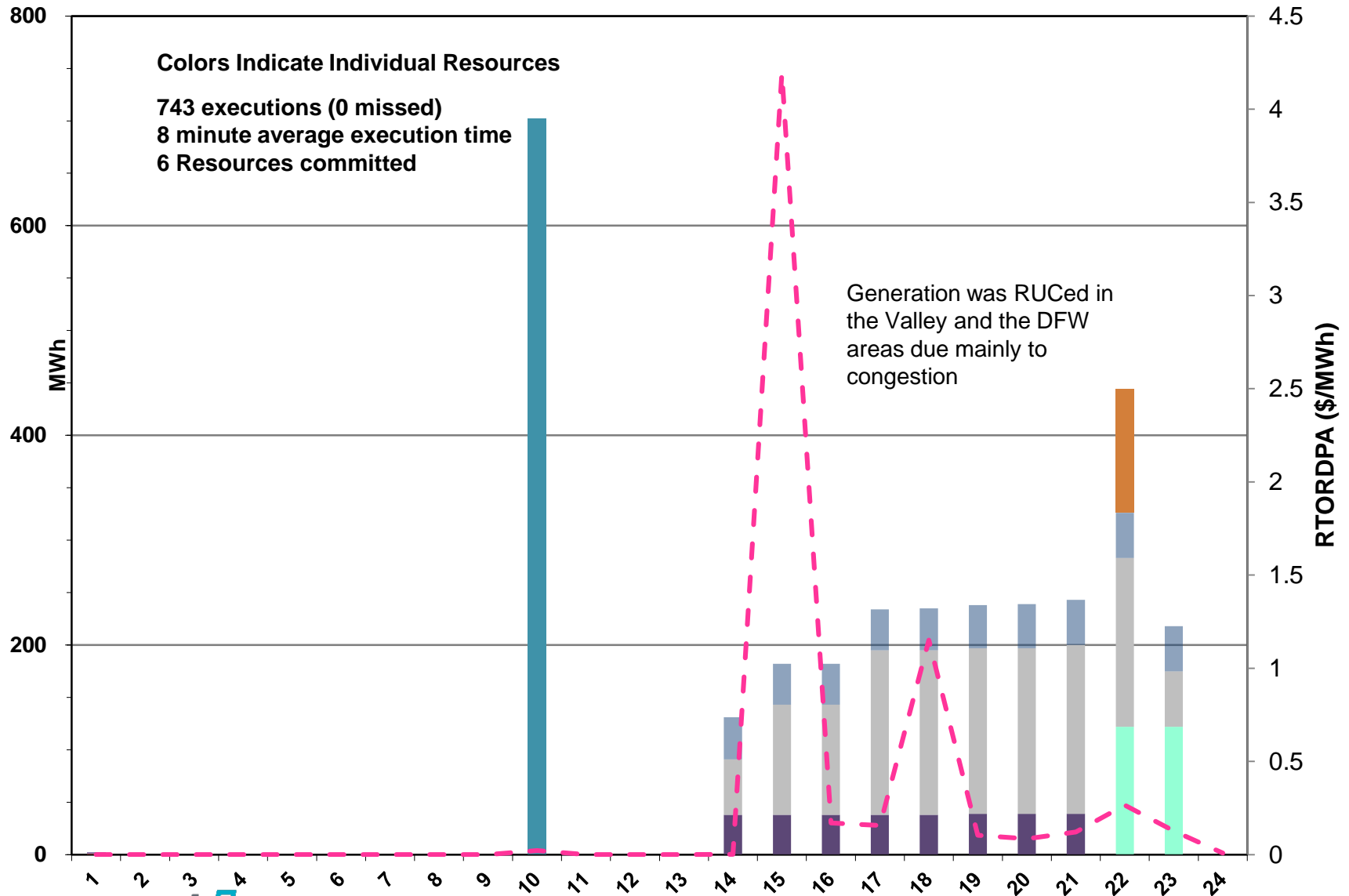
# Day-Ahead Vs Real-Time Hub Average SPP (Hourly Average) – March 2016



# DRUC Monthly Summary (Hourly Average) – March 2016



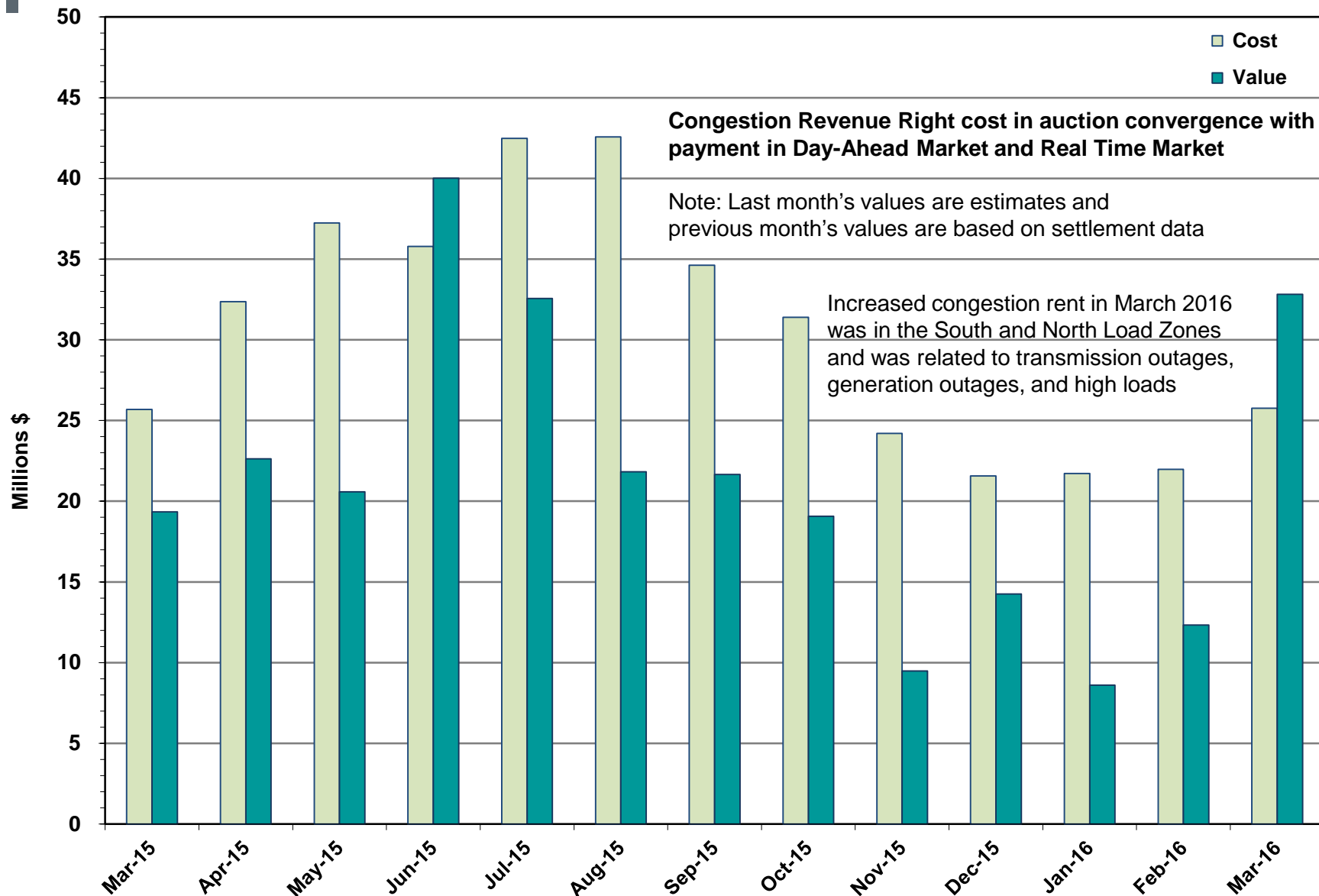
# HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – March 2016



## Non-Spinning Reserve Service Deployment – March 2016

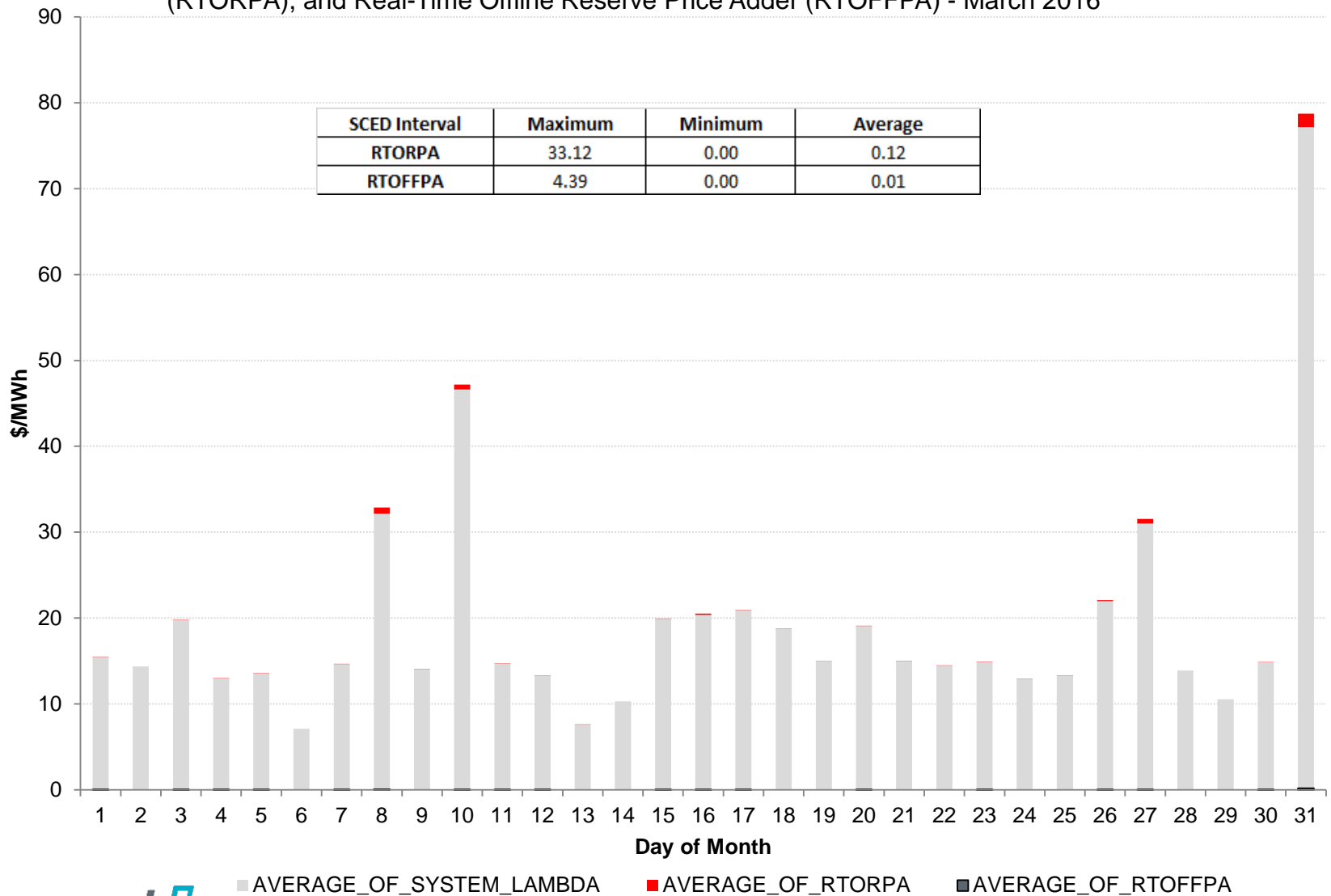
Deployment Start Time	Deployment End Time	Deployment Duration (Hours)	Max Deployment (MW)	Reason
None				

## CRR Price Convergence – March 2016



# ORDC Price Adder (Daily Average) – March 2016

Average Daily Real-Time System Lambda, Real-Time On-Line Reserve Price Adder (RTORPA), and Real-Time Offline Reserve Price Adder (RTOFFPA) - March 2016





## ERS Procurement for – February 2016 – May 2016

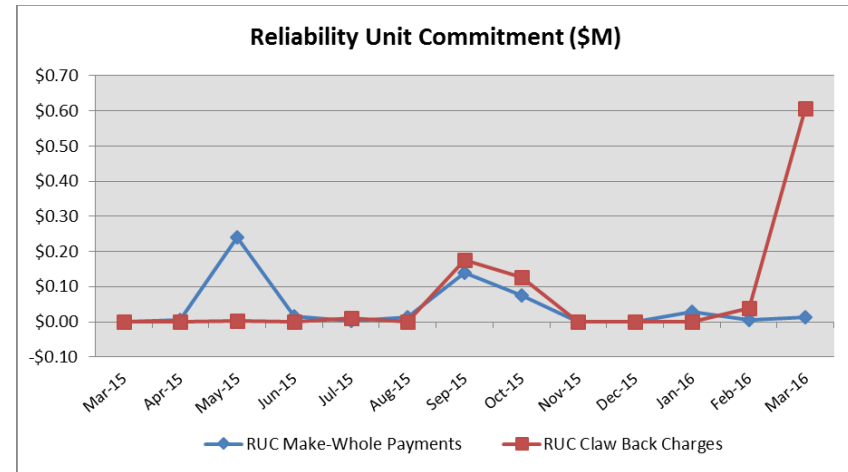
	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	366.951	399.284	401.933	392.785	376.621	344.994
Non Weather-Sensitive ERS-30 MW	507.802	587.778	571.071	556.473	512.965	443.774
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	0	0	0	0	0	0
Total MW Procured	874.753	987.062	973.004	949.258	889.586	788.768
Clearing Price	\$19.87	\$10.75	\$1.86	\$18.84	\$11.67	\$2.25

### 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 – March 2016

Reliability Unit Commitment (RUC)	\$ in Millions
RUC Make-Whole Payments	(\$0.01)
RUC Clawback Charges	\$0.61
<b>RUC Commitment Settlement</b>	<b>\$0.60</b>
RUC Capacity Short Charges	\$0.01
RUC Make-Whole Uplift	\$0.00
<b>RUC Commitment Cost Allocation</b>	<b>\$0.01</b>
RUC Decommitment Payments	\$0.00



RUC Make-Whole Payments were \$0.01M in March 2016.  
RUC Clawback Charges were \$0.61M.

There was \$0.61M allocated directly to load in March 2016, compared to:

- \$0.04M in February 2016
- \$0.00M in March 2015

## Capacity Services – March 2016

Capacity Services	\$ in Millions
Regulation Up Service	\$2.15
Regulation Down Service	\$1.80
Responsive Reserve Service	\$21.51
Non-Spinning Reserve Service	\$7.81
Black Start Service	\$0.64
Voltage Services - Reactive Power	\$0.00
Voltage Services - Lost Opportunity	\$0.00
<b>Total Charges</b>	<b>\$33.91</b>

Capacity Services costs increased from last month and decreased from March 2015.

March 2016 cost was \$33.91M, compared to:

- A charge of \$32.83M in February 2016
- A charge of \$34.23M in March 2015

## Energy Settlement – March 2016

Day-Ahead Market Energy Settlement	\$ in Millions
Energy Purchases	\$243.59
Point to Point Obligation Purchases	\$27.35
RMR Day-Ahead Revenue	\$0.00
Energy Sales	(\$237.53)
Day-Ahead Congestion Rent	\$33.41
Day-Ahead Market Make-Whole Payments	(\$0.08)

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

Real-Time Market Energy Settlement	\$ in Millions
Energy Imbalance at a Resource Node	(\$215.56)
Energy Imbalance at a Load Zone	\$379.05
Energy Imbalance at a Hub	(\$130.77)
Real Time Congestion from Self Schedules	\$4.01
Block Load Transfers and DC Ties	(\$2.68)
Impact to Revenue Neutrality	\$34.05
Emergency Energy Payments	(\$0.10)
Base Point Deviation Charges	\$0.18
Real-Time Metered Generation (MWh in millions)	24.20

## Congestion Revenue Rights (CRR) – March 2016

	\$ in Millions
Annual Auction	(\$20.42)
Monthly Auction	(\$3.06)
<b>Total Auction Revenue</b>	<b>(\$23.48)</b>
Day-Ahead CRR Settlement	(\$32.82)
Day-Ahead CRR Short-Charges	\$1.63
Day-Ahead CRR Short-Charges Refunded	(\$1.63)
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>(\$32.82)</b>
Day-Ahead Point to Point Obligations Settlement	\$27.35
Real-Time Point to Point Obligation Settlement	(\$40.87)
<b>Net Point to Point Obligation Settlement</b>	<b>(\$13.52)</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 \$13.52M compared to a net credit of \$3.32M last month.

## CRR Balancing Account Fund – March 2016

CRR Balancing Account Fund	\$ in Millions
Beginning Balance for the Month	\$10.00
CRR Balancing Account Credit Total	\$2.22
CRR PTP Option Award Charges	\$0.05
Day-Ahead CRR Short-Charges Refunded	(\$1.63)
Load Allocated CRR Amount	(\$0.65)
<b>Total Fund Amount</b>	<b>\$10.00</b>

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

In the month of March 2016, the fund cap remained at \$10M and excess funds of \$0.65M were allocated to Load.

## Revenue Neutrality – March 2016

### Revenue Neutrality Settlement

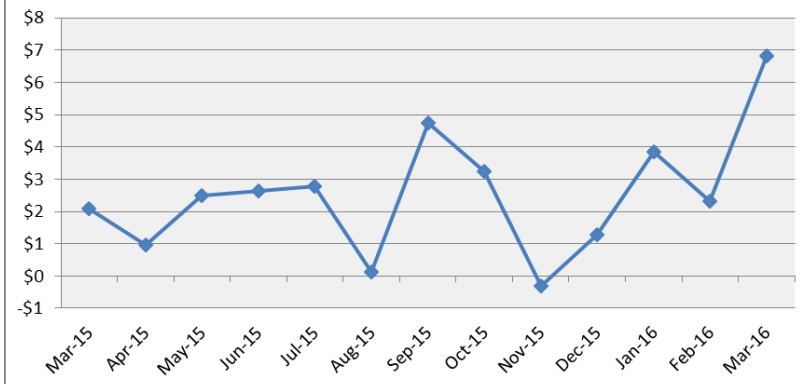
	\$ in Millions
Real-Time Point to Point Obligation Settlement	(\$40.87)
Real-Time Point to Point Options and Options with Refund Settlement	\$0.00
Real-Time Energy Imbalance Settlement	\$32.71
Real-Time Congestion from Self-Schedules Settlement	\$4.01
DC Tie & Block Load Transfer Settlement	(\$2.68)
<b>Charge to Load</b>	<b>\$6.83</b>

Revenue Neutrality charges to load increased compared to last month and increased compared to March 2015.

March 2016 was a charge of \$6.83M, compared to:

- \$2.32M charge in February 2016
- \$2.08M charge in March 2015

Revenue Neutrality Uplift (\$M)



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

Real-Time Ancillary Service Imbalance	\$ in Thousands
Real-Time AS Imbalance Payment Amount	(\$82.36)
Load Allocated AS Imbalance Revenue Neutrality Amount	\$82.36
<b>Total Charges</b>	<b>\$82.36</b>

In March 2016, total credits to QSEs w/an Ancillary Service Imbalance were \$82,365, while total credits in February 2016 were \$1,611.

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

All days in March 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 March 31<sup>st</sup> in the amount of \$34,888.



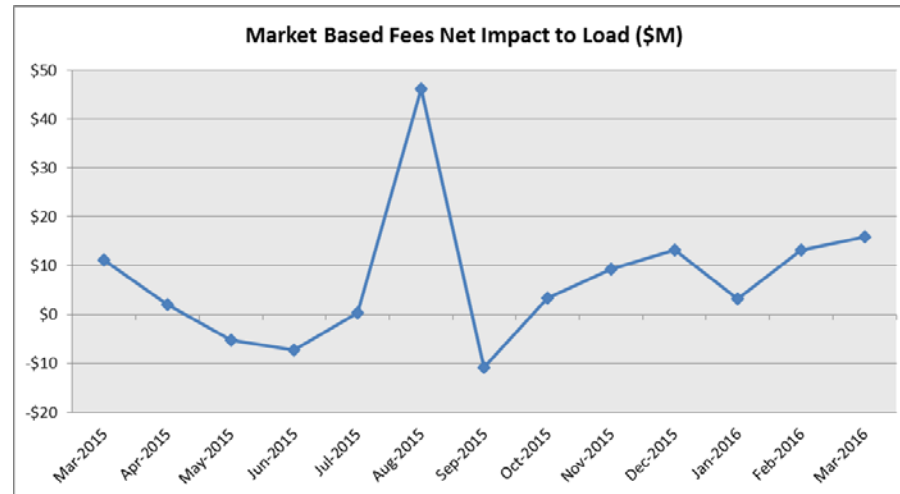
## Net Allocation to Load – March 2016

Market-Based Allocation	\$ in Millions
CRR Auction Revenue Disbursement Settlement	(\$23.48)
Balancing Account Proceeds Settlement	(\$0.65)
Net Reliability Unit Commitment Settlement	(\$0.61)
Ancillary Services Settlement	\$33.91
Reliability Must Run Settlement (incl. RMR for Capacity)	\$0.00
Real-Time Revenue Neutrality Settlement	\$6.83
Emergency Energy Settlement	\$0.10
Base Point Deviation Settlement	(\$0.18)
ORDC Settlement	\$0.08
<b>Total</b>	<b>\$16.00</b>
<b>Fee Allocation</b>	
ERCOT Administrative Fee Settlement	\$13.52
<b>Net Allocated to Load</b>	<b>\$29.52</b>

The charge for the net allocation to Load increased from last month and increased from March 2015.

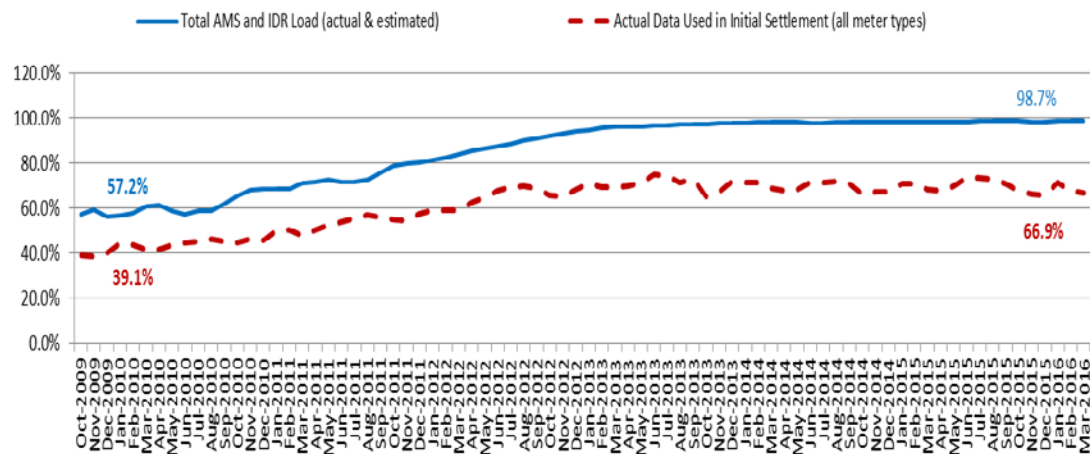
March 2016 was a charge of \$29.52M, compared to:

- A charge of \$26.25M in February 2016
- A charge of \$22.91M in March 2015



# Advanced Meter Settlement Impacts – March 2016

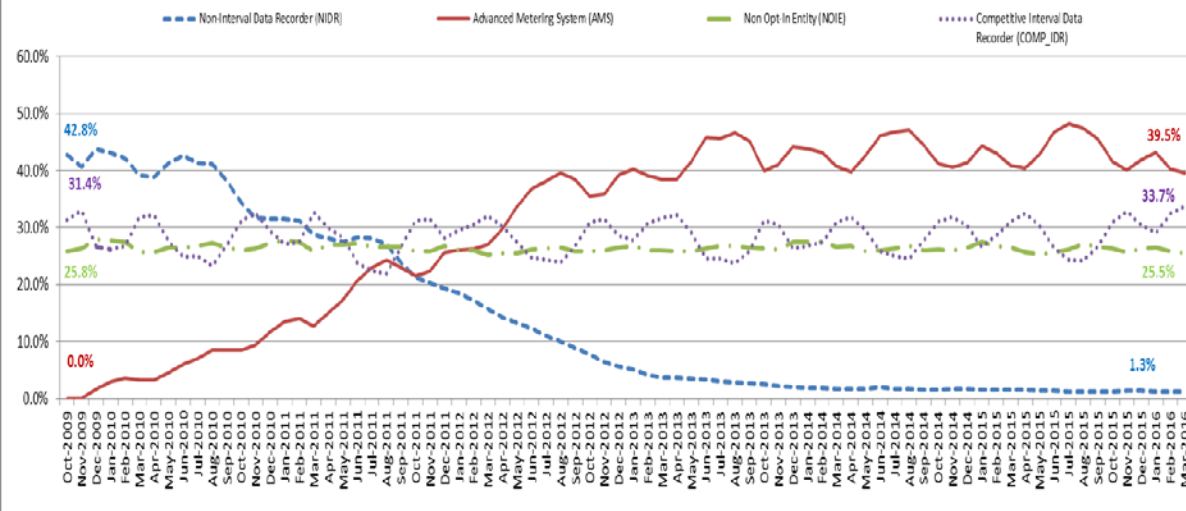
Percent Actual/Percent Interval Data Recorder (IDR)



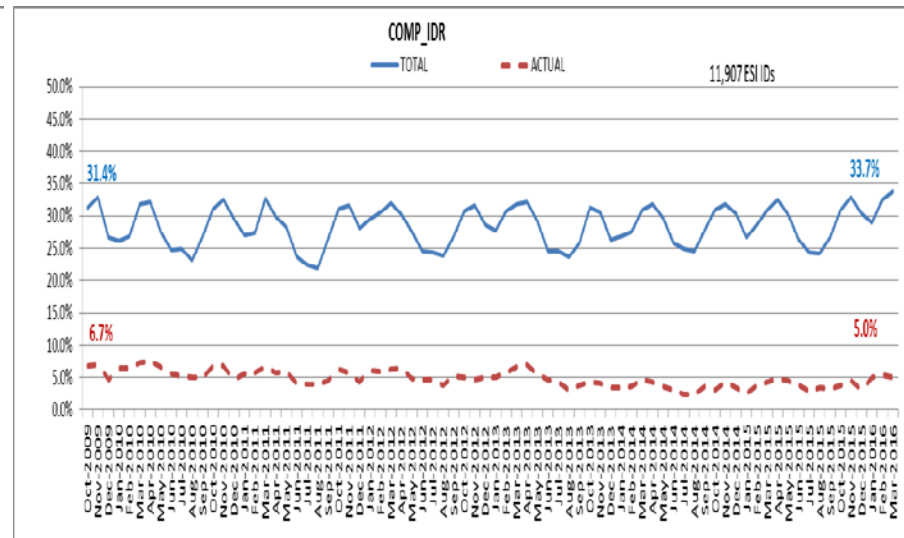
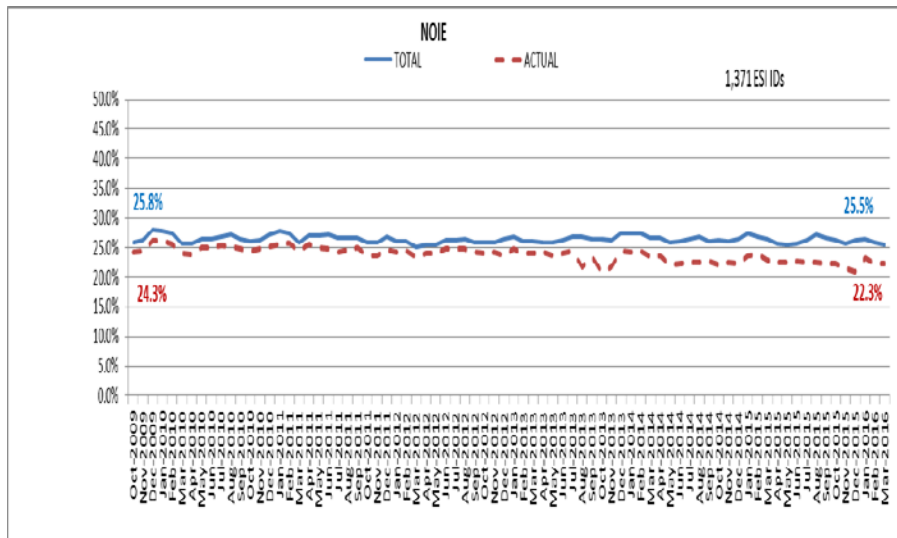
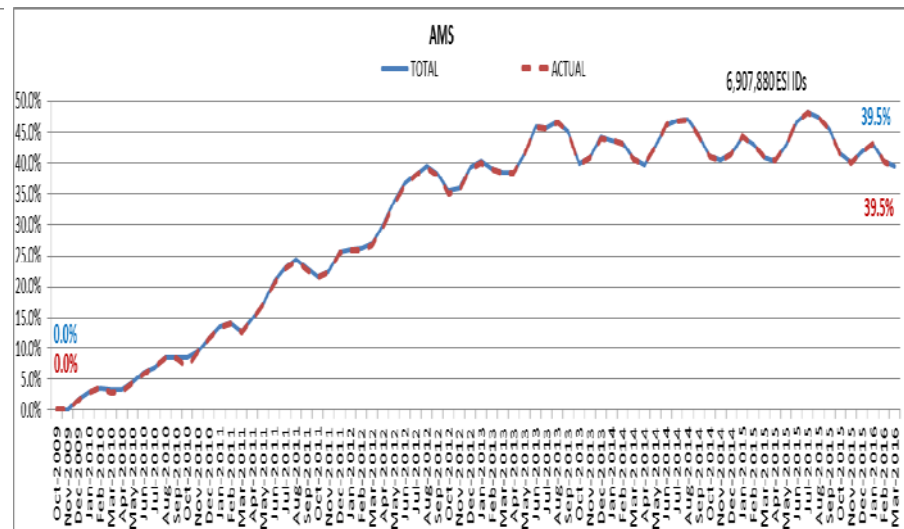
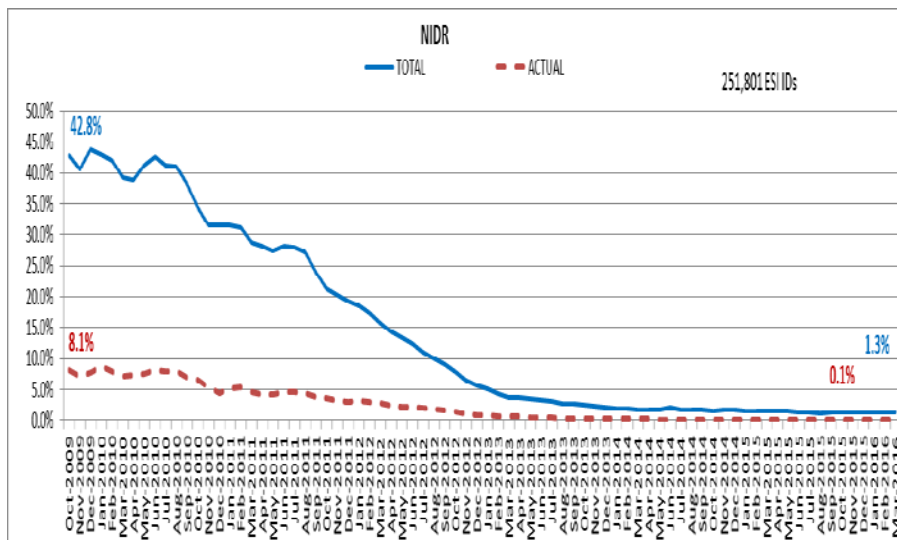
March 2016: At month end, settling 6.9M ESIIDs using Advanced Meter data.

March 2016: 98.7% 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 – March 2016

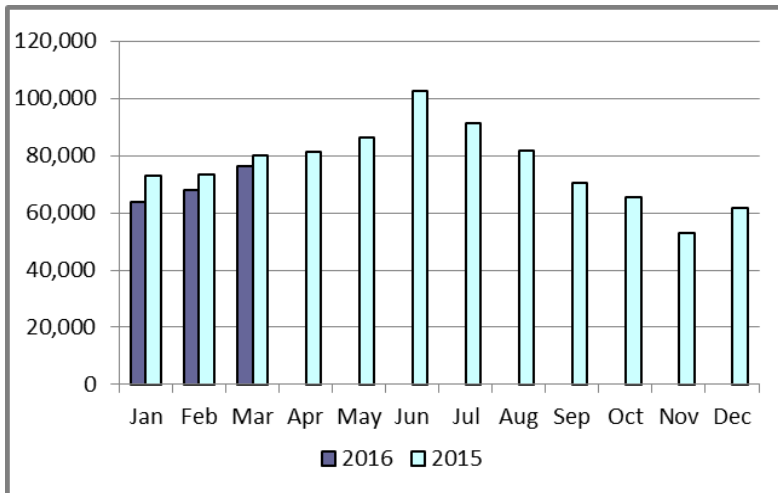


## Retail Transaction Volumes – Summary – March 2016

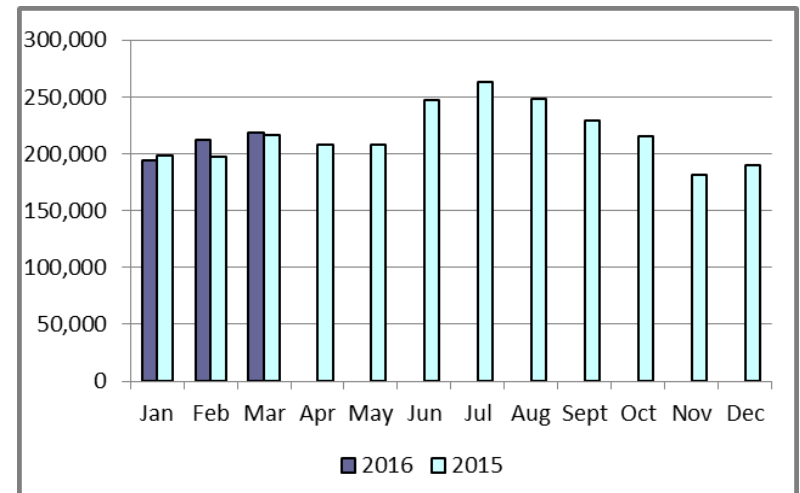
	Year-To-Date		Transactions Received	
Transaction Type	March 2016	March 2015	March 2016	March 2015
Switches	208,246	226,276	76,235	79,997
Acquisition	0	0	0	0
Move - Ins	624,435	611,740	218,245	215,950
Move - Outs	309,653	301,956	109,278	108,859
Continuous Service Agreements (CSA)	150,115	120,383	59,400	44,577
Mass Transitions	0	0	0	0
<b>Total</b>	<b>1,292,449</b>	<b>1,260,355</b>	<b>463,158</b>	<b>449,383</b>

# Retail Transaction Volumes – Summary – March 2016

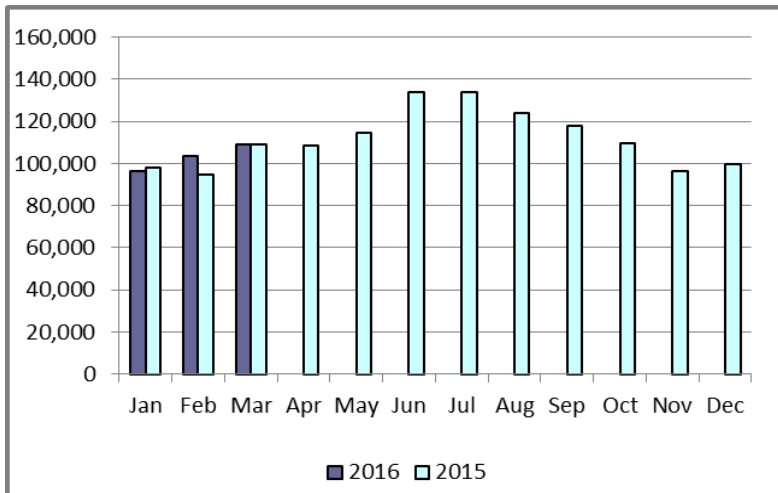
## Switches/Acquisitions



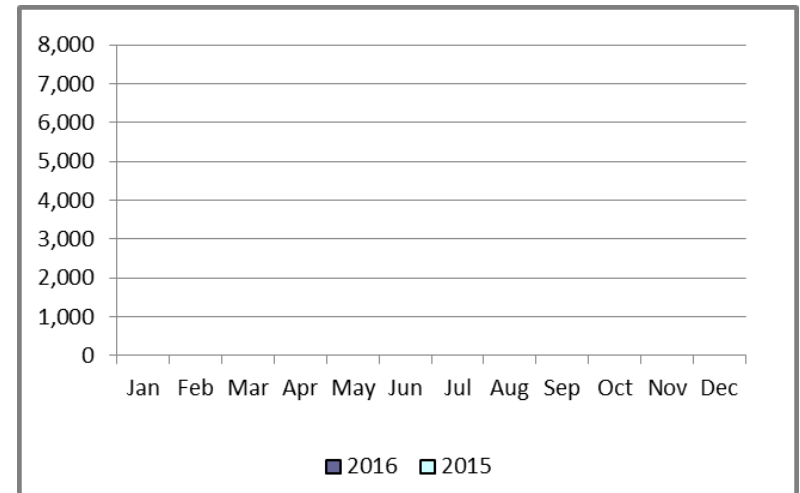
## Move-Ins



## Move-Outs

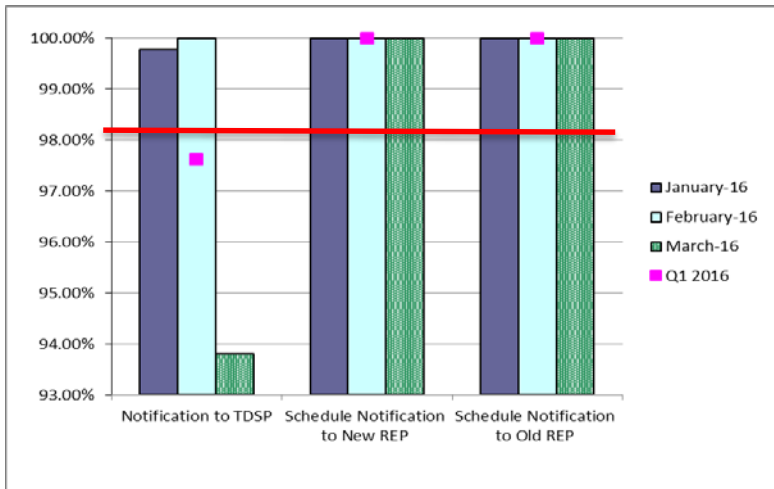


## Mass Transition



# Retail Performance Measures – Switch – March 2016

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



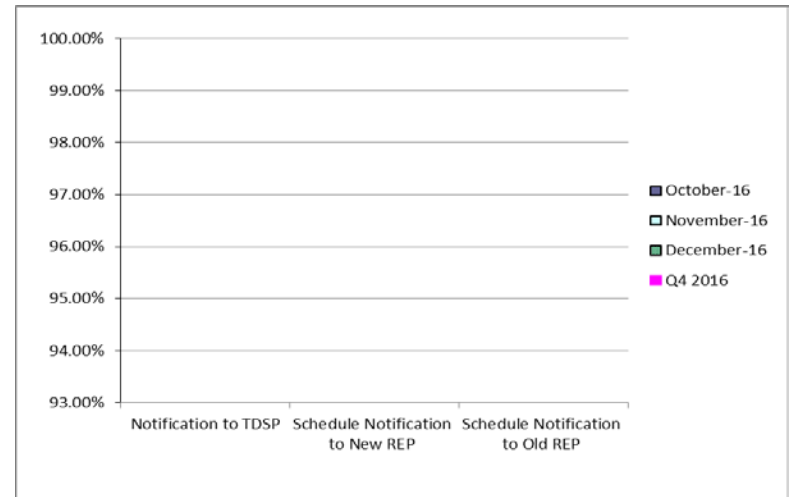
## 2<sup>nd</sup> Quarter



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

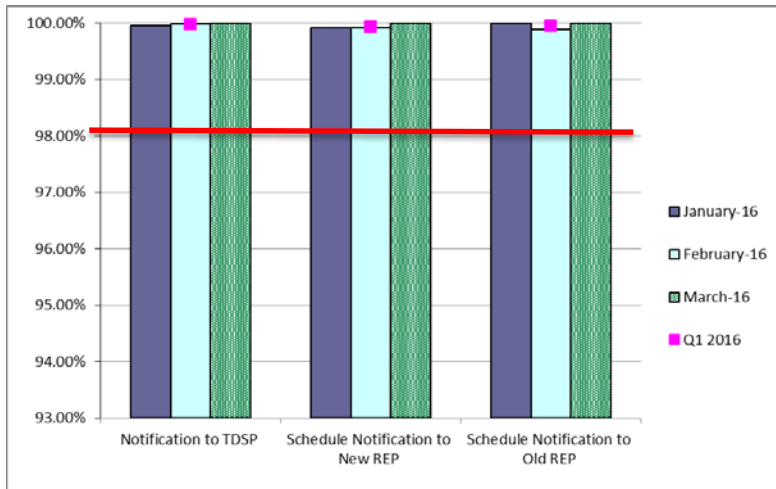


## 4<sup>th</sup> Quarter



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

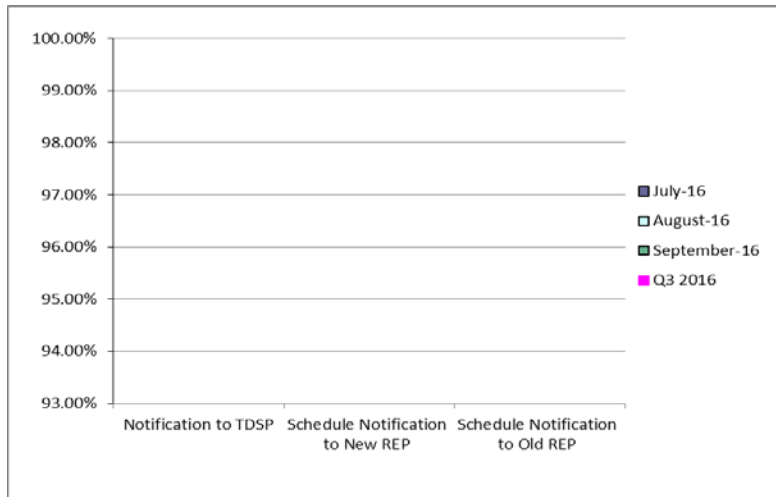
## 1<sup>st</sup> Quarter



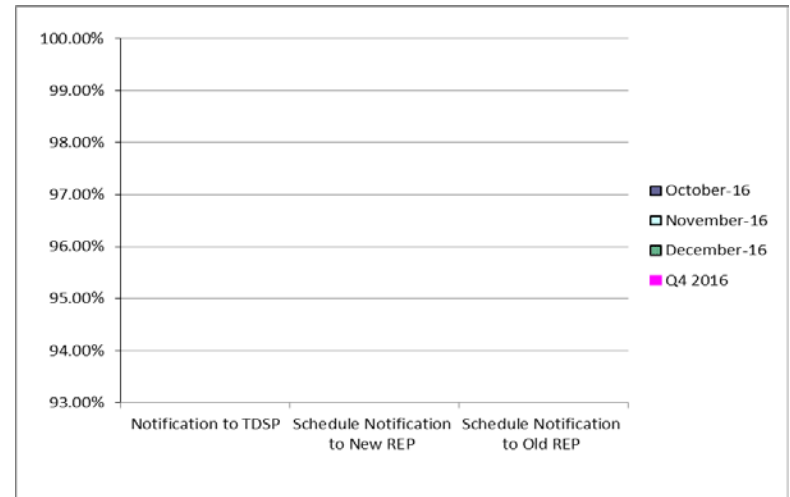
## 2<sup>nd</sup> Quarter



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

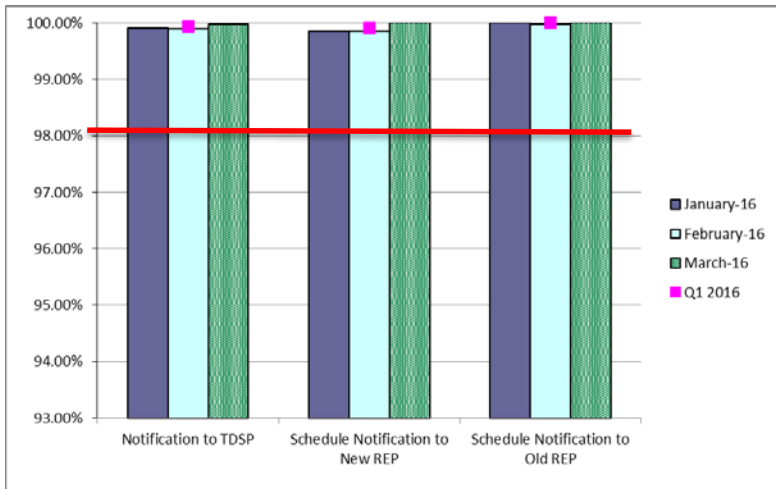


## 4<sup>th</sup> Quarter



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

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



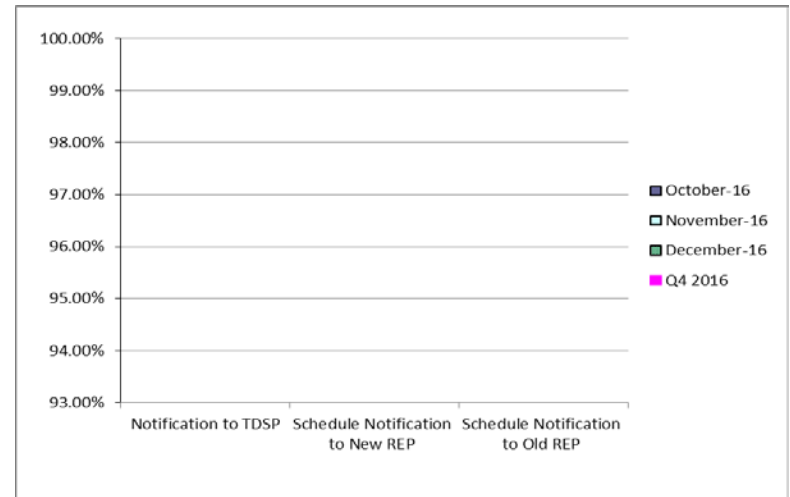
## 2<sup>nd</sup> Quarter



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



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





# Projects Report

# ERCOT Portfolio Stoplight Report – March 2016

Impact Metric Tolerances		2016 Project Funding		\$ 22,500,000	2016 Portfolio Spending Estimate		Note: Approximately \$1.75M in PPL spending was accelerated from 2016 to 2015			
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 = 54)			\$ 18,089,604					
		Projects Not Yet Started (Count = 18)			\$ 2,263,104					
		Projects Completed (Count = 12)			\$ 174,688					
		Carryover of Excess 2015 Project Spending			\$ 1,743,545					
		Spending Reductions Required to Maintain Capital Budget			\$ -					
		TOTAL			\$ 22,270,941					
Project Number	Projects in Initiation Phase (Count = 4)									
SCR786	Retail Market Test Environment									
TBD	GINR Project Status Application Replacement									
TBD	PMU Tool Evaluation and Implementation									
190-01	SharePoint Governance Project									
Project Number	Projects in Planning Phase (Count = 21)		Baseline Phase Start	Baseline Phase Finish	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Impact	Budget Impact		
158-01	Load Forecast Enhancements		1/14/2015	6/19/2015	TBD	6/10/2016	2	-228%	2	-109%
170-03	ECAP - Enterprise Content Management System (Proof of Concept)		1/13/2016	5/17/2016	TBD	5/17/2016		0%		57%
170-04	ECAP - ERCOT Information Governance and Taxonomy		1/13/2016	6/6/2016	TBD	6/6/2016		0%		37%
172-01	Physical Security Project #2		8/27/2015	6/8/2016	TBD	6/8/2016		0%		5%
173-01	ERCOT Flight Certification Website		7/23/2015	11/2/2016	TBD	11/2/2016		0%		5%
181-01	CRR Framework Upgrade		12/16/2015	5/4/2016	TBD	5/4/2016		0%		1%
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	7/20/2016		19%		0%
188-01	Mass Transition/Acquisition Enhancements (MTAQ)		2/24/2016	5/25/2016	TBD	5/25/2016		0%		0%
191-01	CRR Auction Improvements		4/6/2016	4/27/2016	TBD	4/27/2016		0%		6%
191-01	Improved CRR Credit Limit Display and Calculation Triggers		4/6/2016	4/27/2016	TBD	4/27/2016		0%		See #191-01
191-01	Improved Re-Calculation of CRR Baseloding for CRR Auctions		4/6/2016	4/27/2016	TBD	4/27/2016		0%		See #191-01
Various	2015 CMM NPRRs		12/16/2015	8/17/2016	TBD	8/17/2016		0%		4%
RMGRR126	Additional ERCOT Validations for Customer Billing Contact Information File		2/24/2016	5/25/2016	TBD	5/25/2016		0%		See #188-01
SCR777	Bilateral CRR Interface Enhancement		12/16/2015	5/4/2016	TBD	5/4/2016		0%		See #181-01
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
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

Note: Approximately \$1.75M in PPL spending was accelerated from 2016 to 2015

# ERCOT Portfolio Stoplight Report – March 2016

Project Number	Projects in Execution Phase (Count = 22)	Baseline Phase Start	Baseline Go-Live Target	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Impact		Budget Impact	
052-01	EMS Upgrade	9/24/2014	5/25/2016	5/26/2016	11/1/2016		0%		7%
065-01	NMMS Upgrade	12/17/2014	9/22/2016	9/22/2016	10/31/2016		0%		1%
120-01	IT Production Hardening	5/21/2015	4/1/2016	4/14/2016	4/27/2016		-4%		30%
169-01	Short Circuit Ratio Functionality	1/20/2016	9/19/2016	9/19/2016	9/30/2016		0%		15%
170-01	Enterprise Content Alignment Program	8/26/2015	11/15/2017	9/25/2017	9/25/2017		6%		0%
170-05	ECAP - ERCOT Identity Alignment	2/24/2016	7/30/2016	6/30/2016	6/30/2016		19%		25%
171-01	CIP v5 Readiness Project	7/22/2015	4/29/2016	4/29/2016	4/29/2016		0%	2	-6%
174-01	2015 Outage Scheduler Enhancements	12/2/2015	9/14/2016	9/22/2016	10/21/2016		-2%		0%
177-01	Cyber Security Project #19	4/6/2016	7/13/2016	7/13/2016	8/4/2016		0%		0%
179-01	Infoblox Hardware Refresh	2/4/2016	8/12/2016	8/12/2016	8/12/2016		0%		8%
180-01	Upgrade of MDM - GEMS	3/30/2016	6/17/2016	6/2/2016	7/13/2016		18%		0%
187-00	Capital Efficiencies and Enhancements - 2016	1/1/2015	12/31/2016	12/31/2016	12/31/2016		0%		1%
189-01	Enterprise Resource Planning	4/13/2016	9/27/2016	9/27/2016	11/2/2016		0%		0%
Various	NPRR617 and 700 Implementation	1/27/2016	6/23/2016	6/23/2016	8/10/2016		0%		0%
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
NPRR419	Revise Real Time Energy Imbalance and RMR Adjustment Charge	1/13/2016	4/12/2016	4/12/2016	6/6/2016		0%	2	-31%
NPRR515	Day-Ahead Market Self-Commitment of Generation Resources	10/5/2015	3/31/2016	6/14/2016	7/7/2016	2	-42%	2	-18%
NPRR553	Monthly BLT Payment and Charge for Presidio Exception	4/9/2015	5/19/2016	5/19/2016	5/19/2016		0%	NA	See #165-00
NPRR617	Energy Offer Flexibility	1/27/2016	6/23/2016	6/23/2016	8/10/2016		0%	NA	See NPRR617 / NPRR700
NPRR662	Proxy Energy Offer Curves	3/2/2016	8/11/2016	8/11/2016	9/8/2016		0%		-1%
NPRR700	Utilizing Actual Fuel Costs in Startup Offer Caps	1/27/2016	6/23/2016	6/23/2016	8/10/2016		0%	NA	See NPRR617 / NPRR700
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 – March 2016

Project Number	Projects in Stabilization (Count = 1)	Baseline Execution Phase Start	Baseline Go-Live Target	Actual Go-Live Date	Scheduled Execution Phase Finish	Schedule Impact		Budget Impact	
168-01	Configuration Management System Requirements for CIP v5 Readiness	7/6/2015	12/16/2015	12/16/2015	7/1/2016		0%	2	-13%
Project Number	Projects On Hold (Count = 6)	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	
141-01	Production Virtualization	11/6/2014	11/18/2015	TBD	TBD	3		3	
166-01	Jboss Application Monitoring & Management (JAMM)	TBD	TBD	TBD	TBD	3		3	
Project Number	Projects Completed (Count =12)	Baseline Execution Phase Start	Baseline Go-Live Target	Actual Go-Live Date	Actual Execution Phase Finish	Schedule Status		Total Variance	
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	-121%
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%		4%
161-01	NPRRs 588 and 615	9/16/2015	2/19/2016	2/9/2016	3/30/2016		6%		0%
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%
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 – March 2016

Project Number	2016 Projects Not Yet Started (Count = 18)	Forecast Start Date
NPRR272	Definition and Participation of Quick Start Generation Resources	Apr-2016
NPRR495	Changes to Ancillary Services Capacity Monitor	Apr-2016
NPRR736	Updates to the Ancillary Service Capacity Monitor Display	Apr-2016
RRGRR003	Modifications to Improve Wind Forecasting	Apr-2016
RRGRR006	Clarification of Descriptions and Alignment with Resource Asset Registration Forms	Apr-2016
RRGRR007	Adding Solar Resource Registration Inputs	Apr-2016
TBD	Appworx Application Manager Upgrade	Apr-2016
NOGRR147	Reactive Power Testing Requirements	May-2016
TBD	Reactive Power Coordination	May-2016
TBD	REC Rewrite & Refresh	May-2016
NOGRR084	Daily Grid Operations Summary Report	Jul-2016
TBD	Replace Sun DSEE	Jul-2016
TBD	Appworx Replaces TIBCO Code in CSI Framework	Jul-2016
NPRR714	Real-Time Make-Whole Payment for Exceptional Fuel Cost	Aug-2016
TBD	Automation of NPRR487 - QSGR Dispatch Adjustment	Aug-2016
TBD	EIF Database Utilization	Aug-2016
TBD	Emergency Energy Settlements Inputs Automation	Aug-2016
TBD	Replace Paperfree	Sep-2016