



## ERCOT Monthly Operational Overview (June 2018)

ERCOT Public  
July 15, 2018

# Grid Planning & Operations

## Summary – June 2018

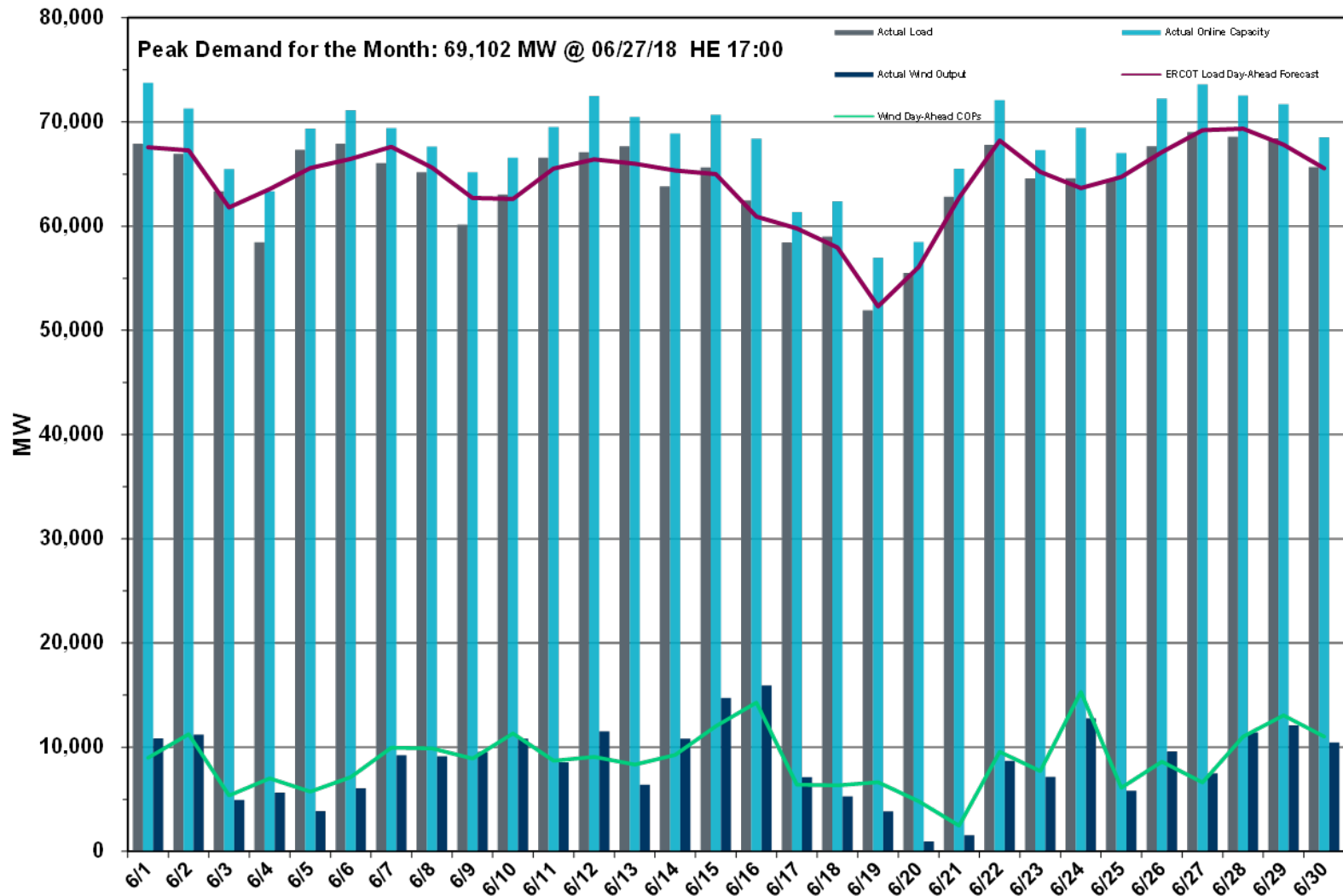
### Operations

- The preliminary Settlements hourly peak demand of 69,102\* MW on June 27 was lower than the day-ahead mid-term load forecast peak of 69,223 MW for the same operating hour.
  - The operational instantaneous peak demand was 69,226 MW (telemetry).
- Day-ahead load forecast error for June was 1.65%
- ERCOT issued 17 notifications:
  - Two Advisories issued due to Physical Responsive Capability being below 3000 MW
  - Three DAM-related Advisories
  - One Advisory issued due to ERCOT's Voltage Security Assessment Tool / RTCA unavailability.
  - Nine DC Tie-related Watches
  - Two Transmission-related Watches

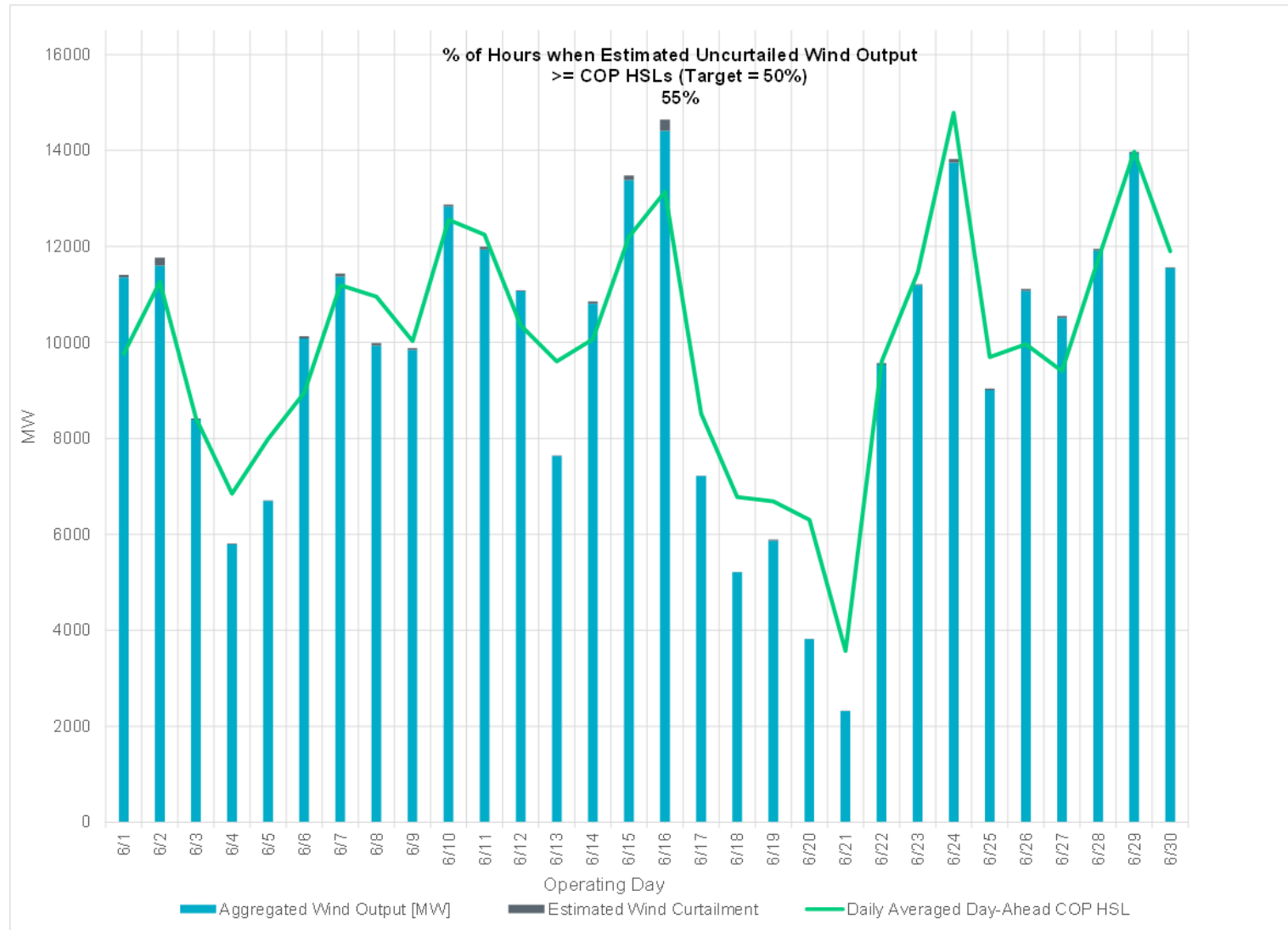
### Planning Activities

- 379 active generation interconnection requests totaling 77,020 MW, including 34,376 MW of wind generation, as of June 30, 2018. Ten additional requests and an increase of 1,813 MW from May 31, 2018.
- 21,190 MW wind capacity in commercial operations as of July 1, 2018.

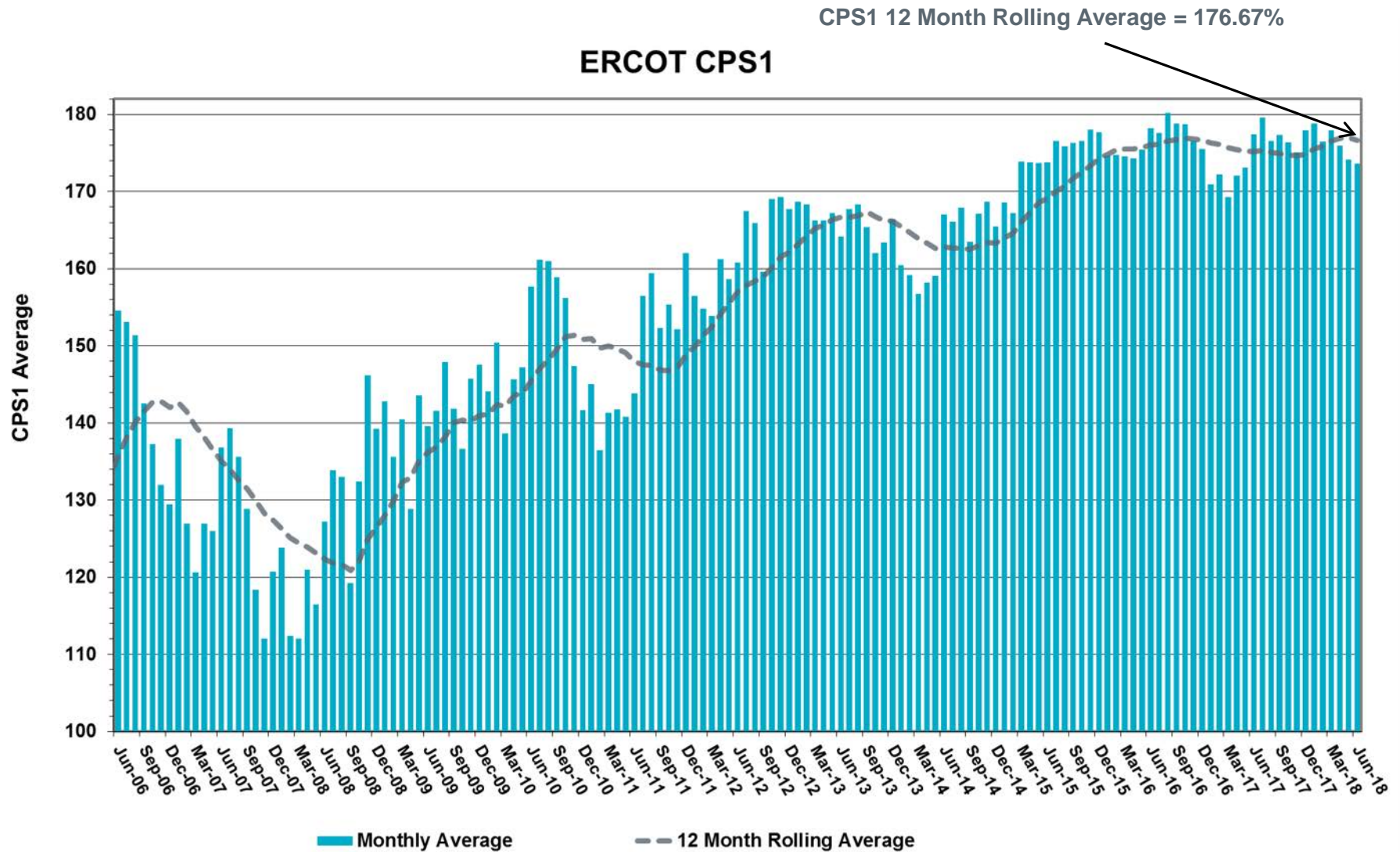
# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-Line Capacity at Peak – June 2018



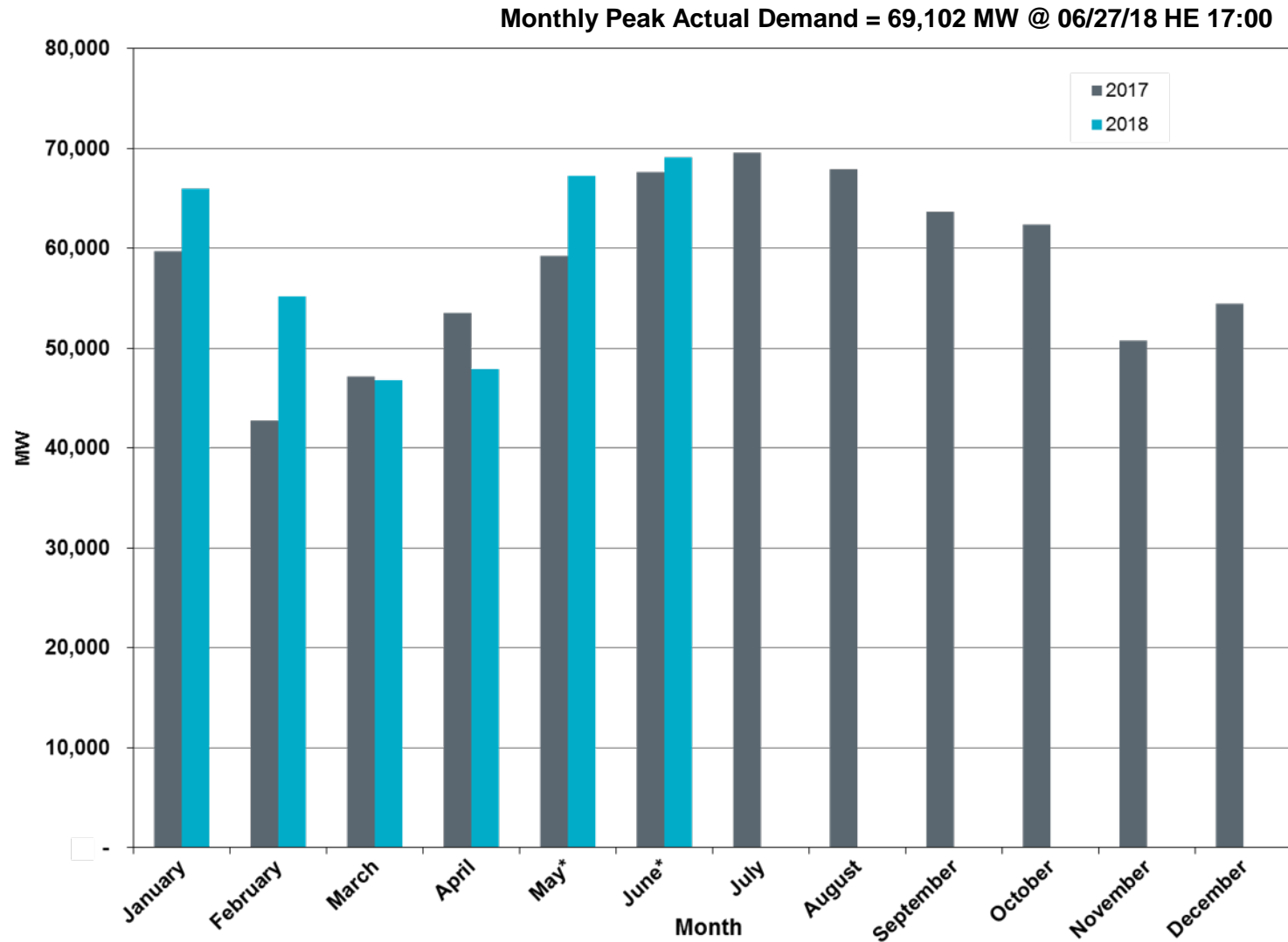
# Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – June 2018



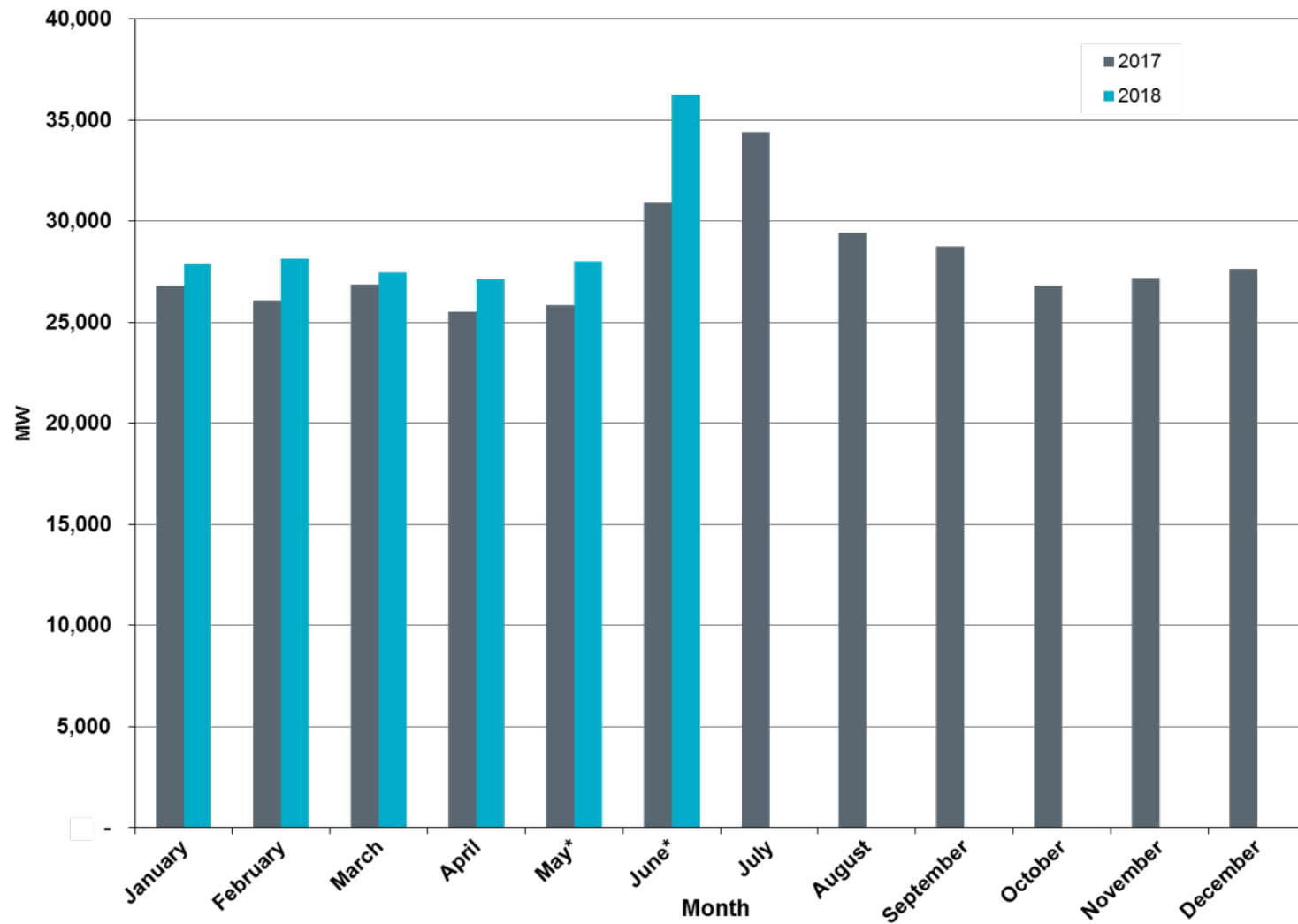
# ERCOT's CPS1 Monthly Performance – June 2018



## Monthly Peak Actual Demand – June 2018



## Monthly Minimum Actual 15-Minute Demand – June 2018



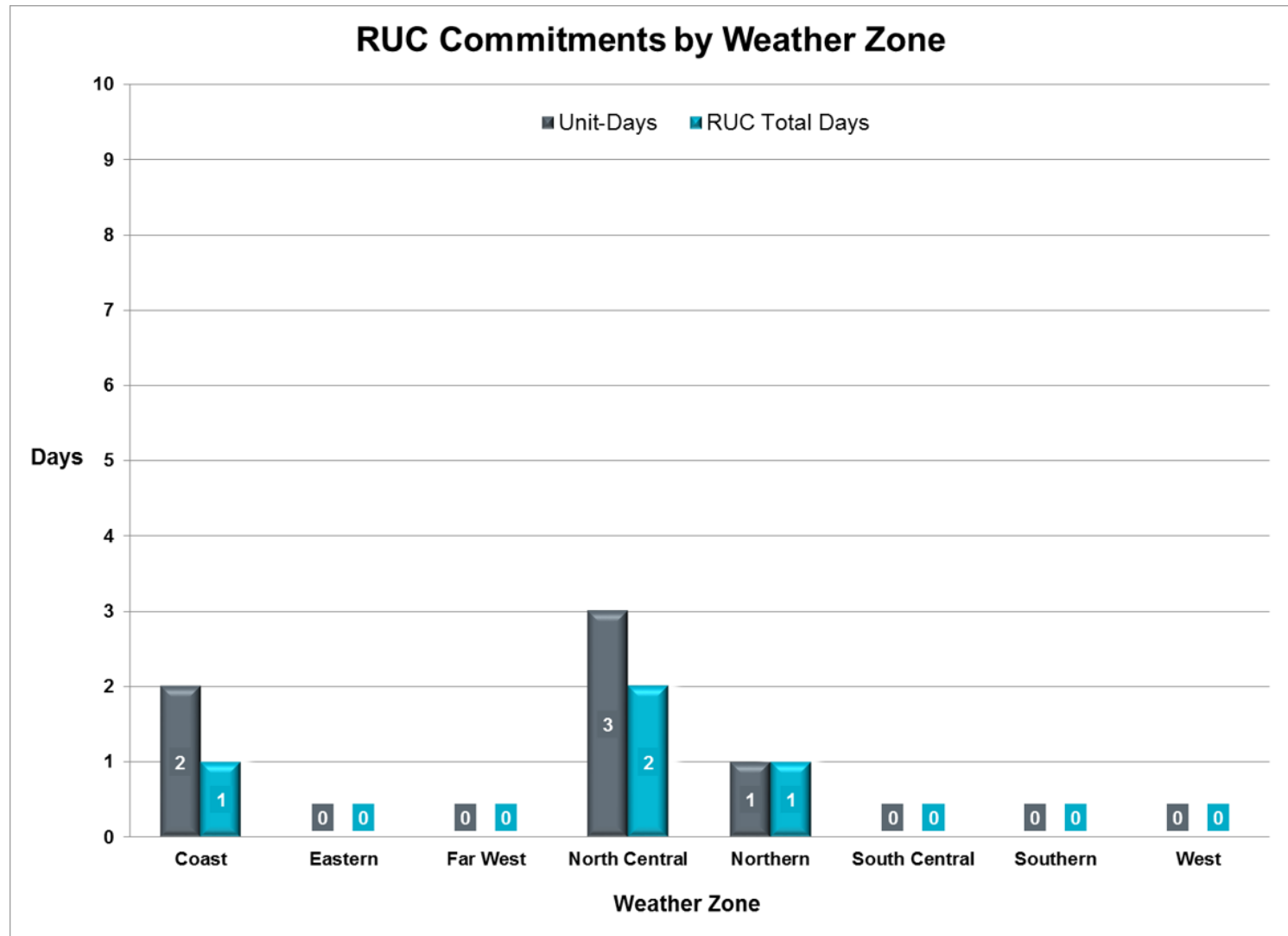


## Day-Ahead Load Forecast Performance – June 2018

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

	2015 MAPE	2016 MAPE	2017 MAPE	2018 MAPE	June 2018 MAPE	
<b>Average Annual MAPE</b>	2.86	2.62	2.55	2.45	1.65	
<b>Lowest Monthly MAPE</b>	1.89	1.94	1.69	1.65	<b>Lowest Daily MAPE</b>	0.54 Jun 1
<b>Highest Monthly MAPE</b>	3.81	3.86	4.07	3.66	<b>Highest Daily MAPE</b>	5.83 Jun 4

## Reliability Unit Commitment (RUC) Capacity by Weather Zone – June 2018



## Generic Transmission Constraints (GTCs) – June 2018

GTCs	Jun-17 Days GTCs	Apr-18 Days GTCs	May-18 Days GTCs	Jun-18 Days GTCs	Last 12 Months Total Days (Jul 17 – Jun 18)
North – Houston	0	1	0	1	9
Valley Import	4	0	4	0	14
Panhandle	21	25	27	23	273
Red Tap	0	0	0	0	0
North Edinburg – Lobo	0	0	0	0	1
Nelson Sharpe – Rio Hondo	-	12	0	2	65
East Texas	-	0	0	0	16

**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 2018

- One Watch issued for the forced outage of the Eagle Pass DC-Tie and curtailment of DC-Tie exports to CENACE.
  - Issued 6/3
- One Advisory issued due to Physical Responsive Capability being below 3000 MW.
  - Issued 6/5
- One Advisory issued for postponing the deadline for posting of the DAM Solution for Operating Day June 8th, 2018.
  - Issued 6/7
- One Advisory issued due to Physical Responsive Capability being below 3000 MW.
  - Issued 6/7
- One Watch for the de-rate of the Railroad DC-Tie and curtailment of the DC-Tie exports to CENACE.
  - Issued 6/12
- One Watch for the forced outage of the Railroad DC-Tie and curtailment of the DC-Tie exports to CENACE.
  - Issued 6/13
- One Watch for the forced outage of the Laredo DC-Tie and curtailment of DC-Tie exports to CENACE.
  - Issued 6/13

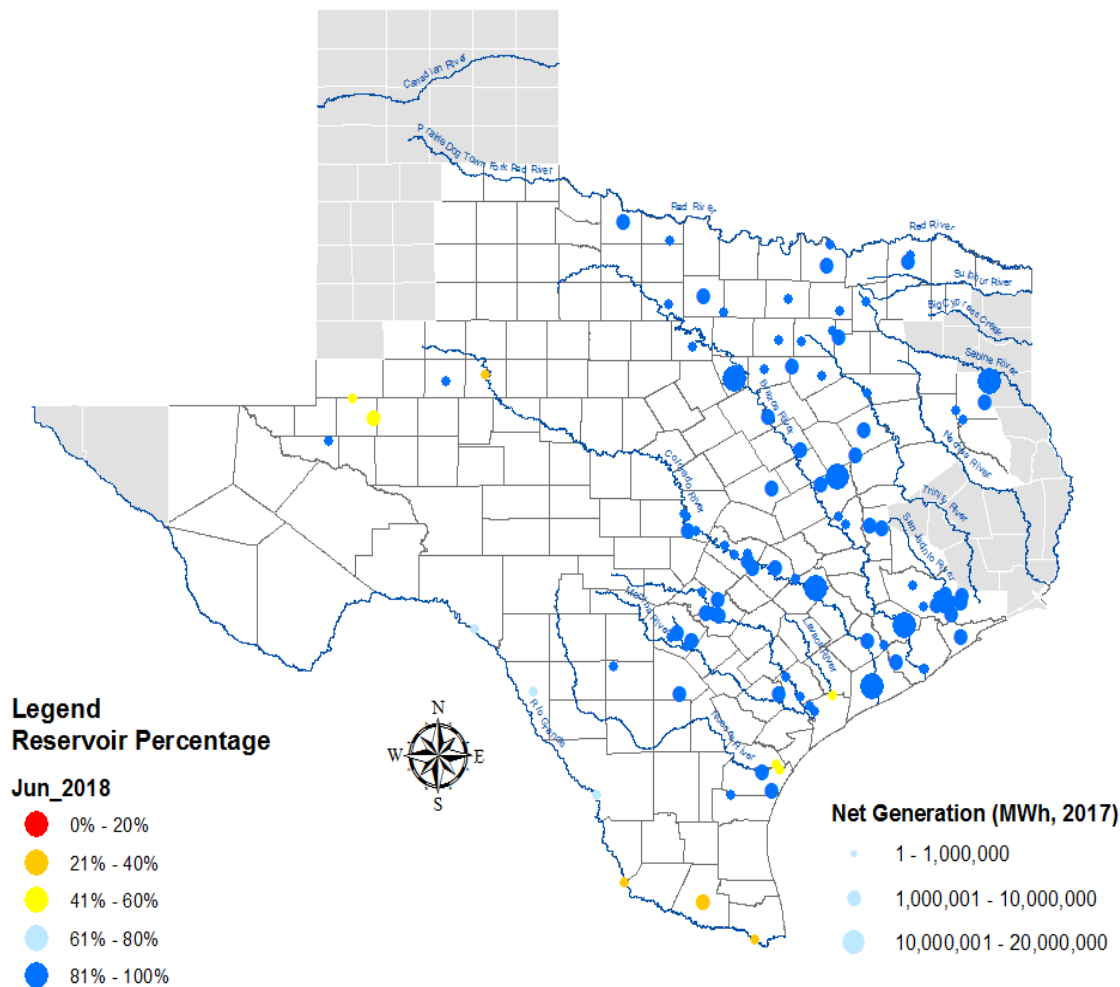
## Advisories and Watches – June 2018

- One Watch for the forced outage of the Laredo DC-Tie and curtailment of DC-Tie exports to CENACE.
  - Issued 6/15
- One Watch issued due to the post-contingency overload of SCHYWIN8, loss of No Trees Switch to Wink Sub 138 kV lines overloads Wink Sub 138/69 kV Auto 2, due to multiple outages in Far West Texas.
  - Issued 6/17
- One Watch issued due to the post-contingency overload of SHSAPB38, loss of Ward Gulf Tap to Wink Sub 138 kV lines overloads Dollar Hide to No Trees Switch 138 kV line.
  - Issued 6/19
- One Watch issued due to an erroneous tag on the Eagle Pass DC-Tie and curtailment of DC-Tie exports to CENACE.
  - Issued 6/25
- One Watch issued due to the post-contingency overload of SPOLPHA8, loss of Polk Avenue – North Pharr 138 kV overloads North McAllen – West McAllen 138 kV and curtailment of DC-Tie exports to CENACE.
  - Issued 6/26
- One Advisory issued for postponing the deadline for the posting of the DAM solution for operating day June 28, 2018.
  - Issued 6/27

## Advisories and Watches – June 2018

- One Advisory issued for timeline deviation of the Day Ahead Market, delaying the start of DRUC.
  - Issued 6/27
- One Watch issued due to the post-contingency overload of SPOLPHA8, loss of Polk Avenue – North Pharr 138 kV overloads North McAllen – West McAllen 138 kV and curtailment of DC-Tie exports to CENACE.
  - Issued 6/27
- One Watch issued due to the post-contingency overload of SPOLPHA8, loss of Polk Avenue – North Pharr 138 kV overloads North McAllen – West McAllen 138 kV and curtailment of DC-Tie exports to CENACE.
  - Issued 6/28
- One Advisory issued due to ERCOT's Voltage Security Assessment Tool / RTCA unavailability.
  - Issued 6/29

# Lake Levels Update – July 1, 2018

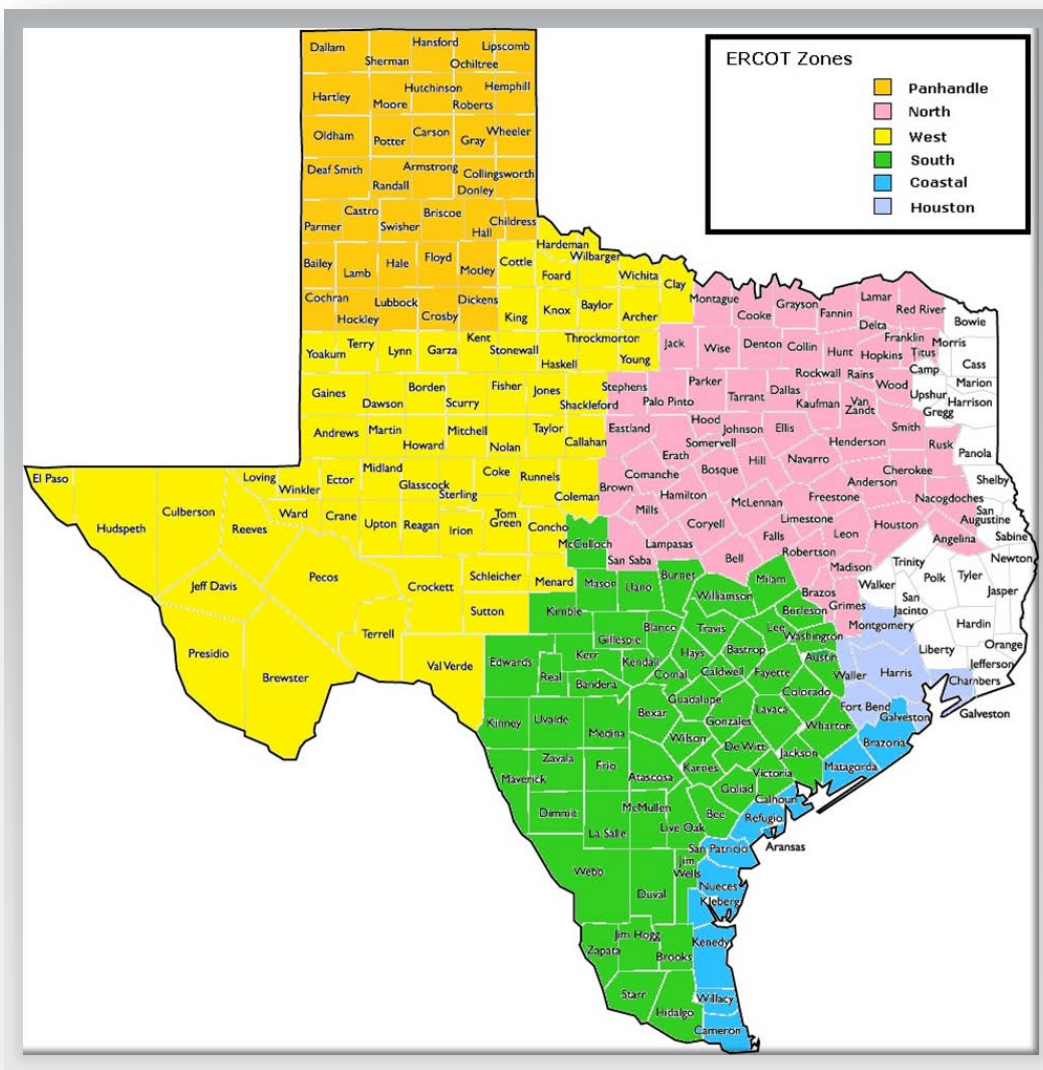


## Planning Summary – June 2018

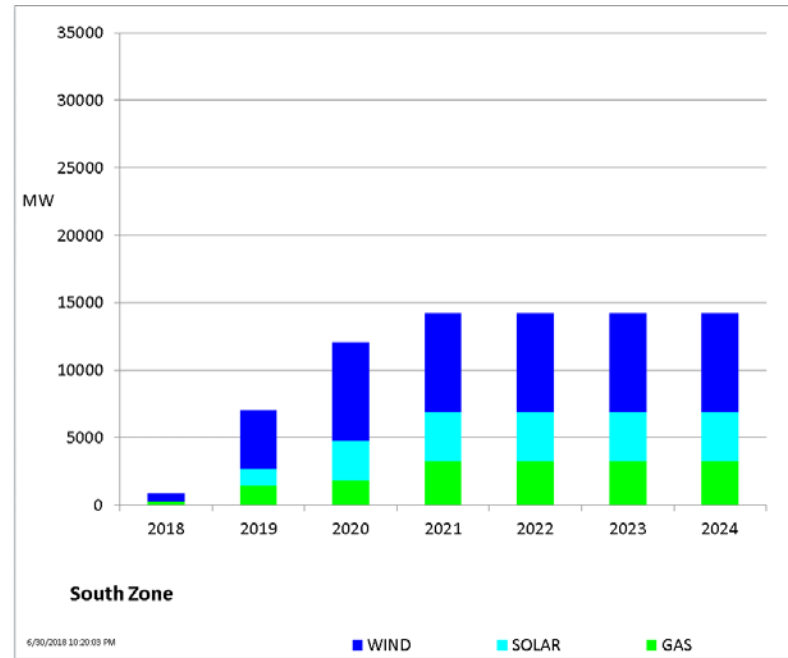
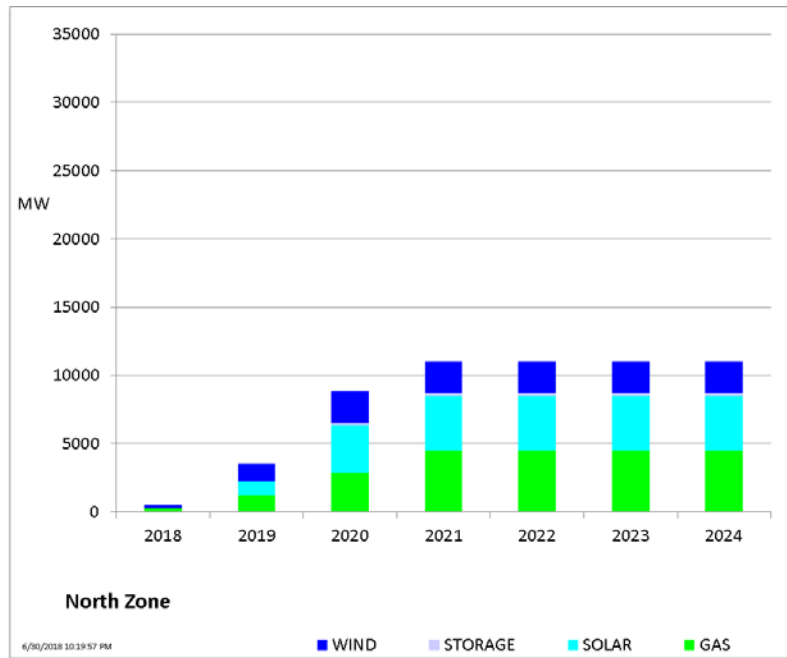
- ERCOT is currently tracking 379 active generation interconnection requests totaling 77,020 MW. This includes 34,376 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$603.5 million.
- Transmission Projects endorsed in 2018 total \$393.5 million.
- All projects (in engineering, routing, licensing, and construction) total approximately \$7.61 billion (as of June 1, 2018).
- Transmission Projects energized in 2018 total about \$1.22 billion (as of June 1, 2018).



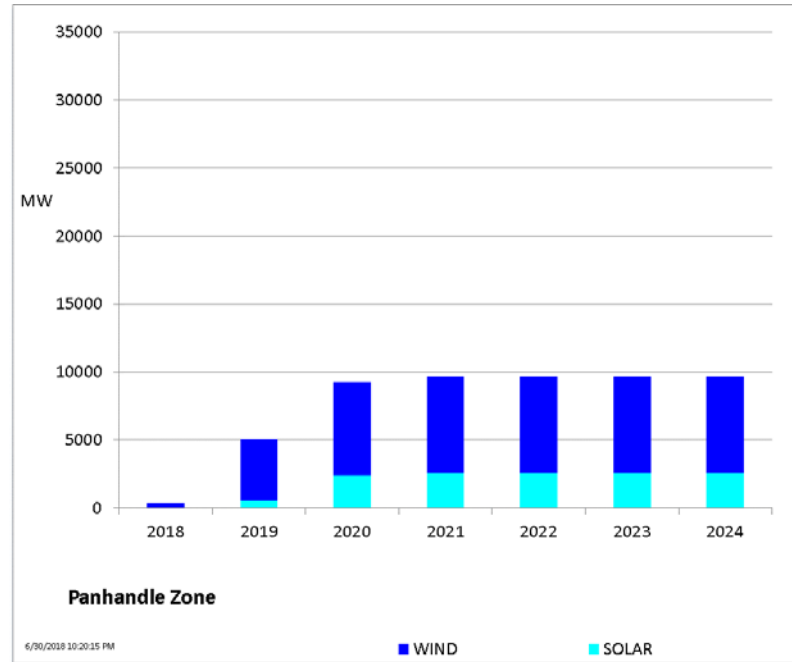
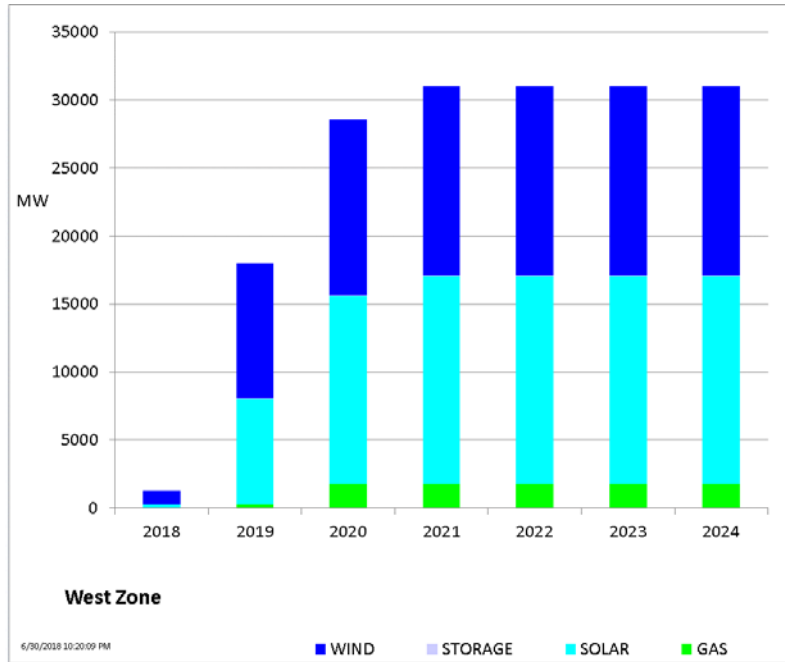
## Mapping of Counties to ERCOT Zones – June 2018



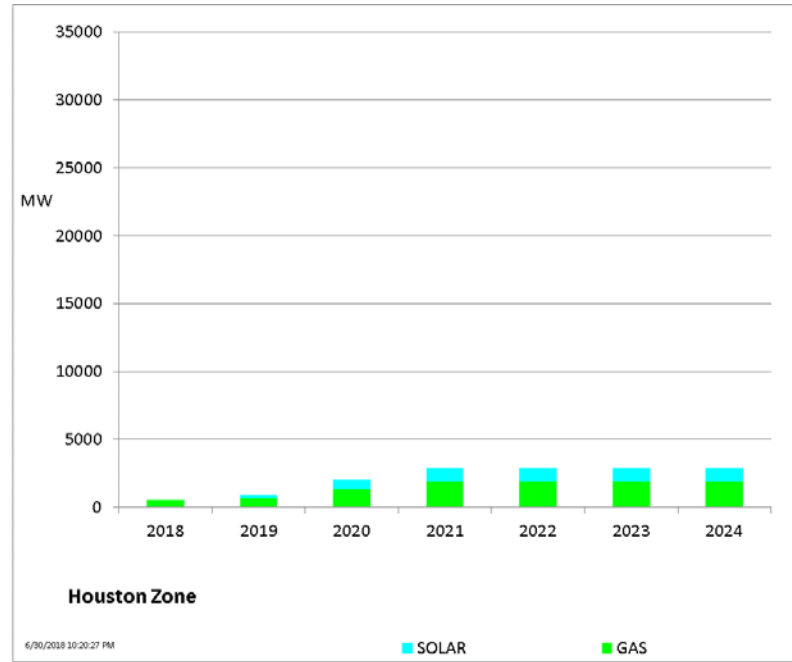
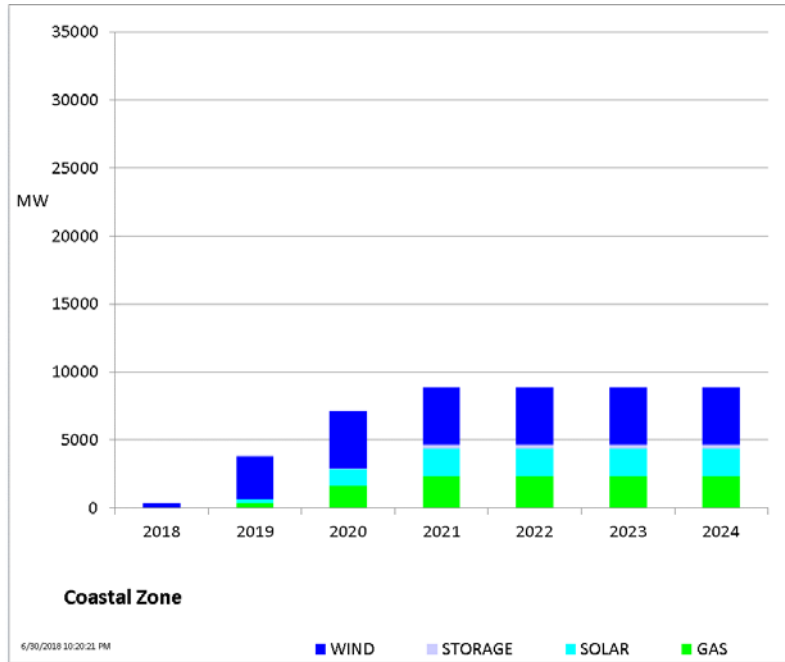
# Cumulative MW Capacity of Interconnection Requests by Zone – June 2018



# Cumulative MW Capacity of Interconnection Requests by Zone – June 2018

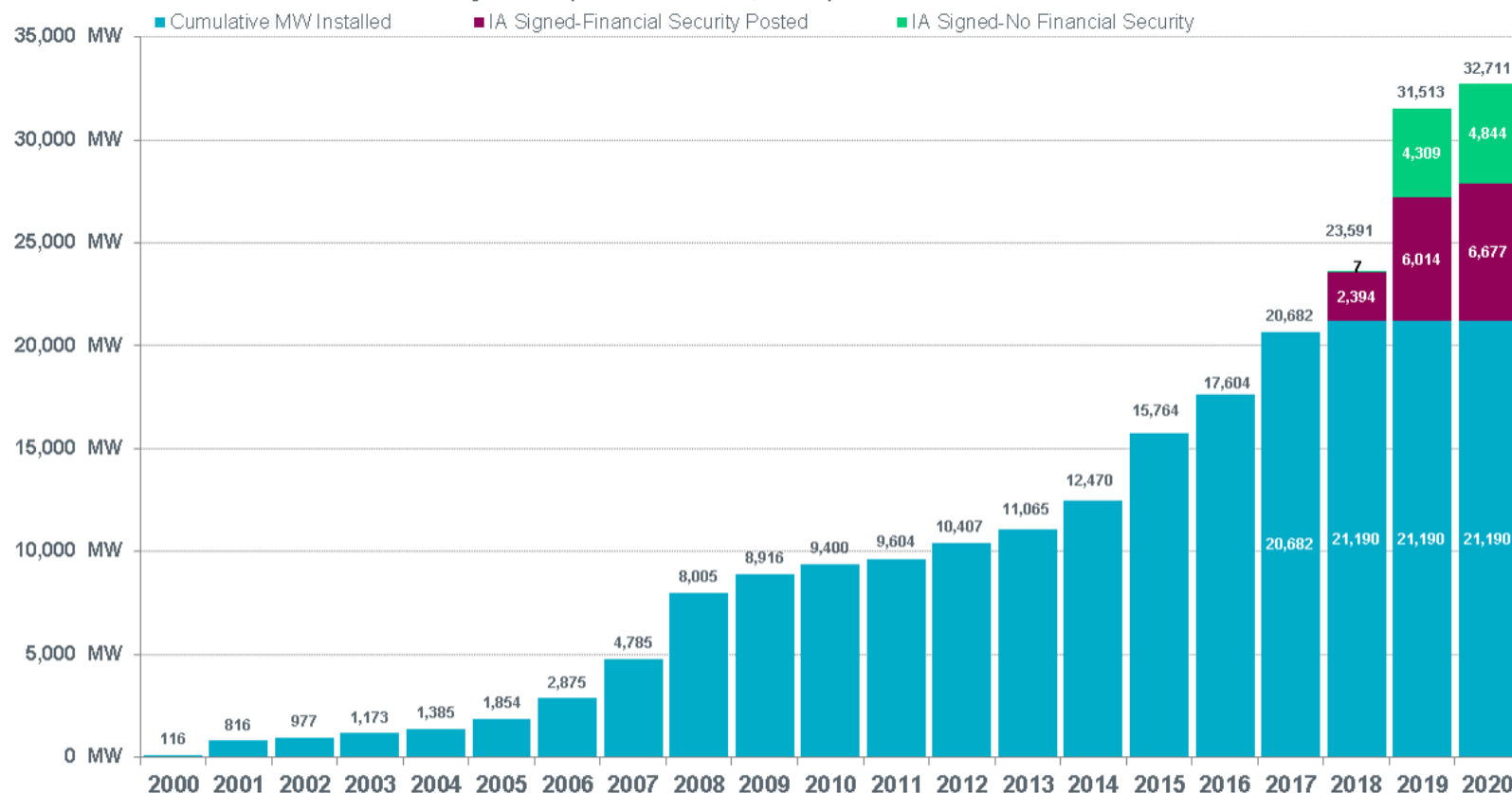


# Cumulative MW Capacity of Interconnection Requests by Zone – June 2018



# Wind Generation – June 2018

ERCOT Wind Additions by Year (as of June 30, 2018)

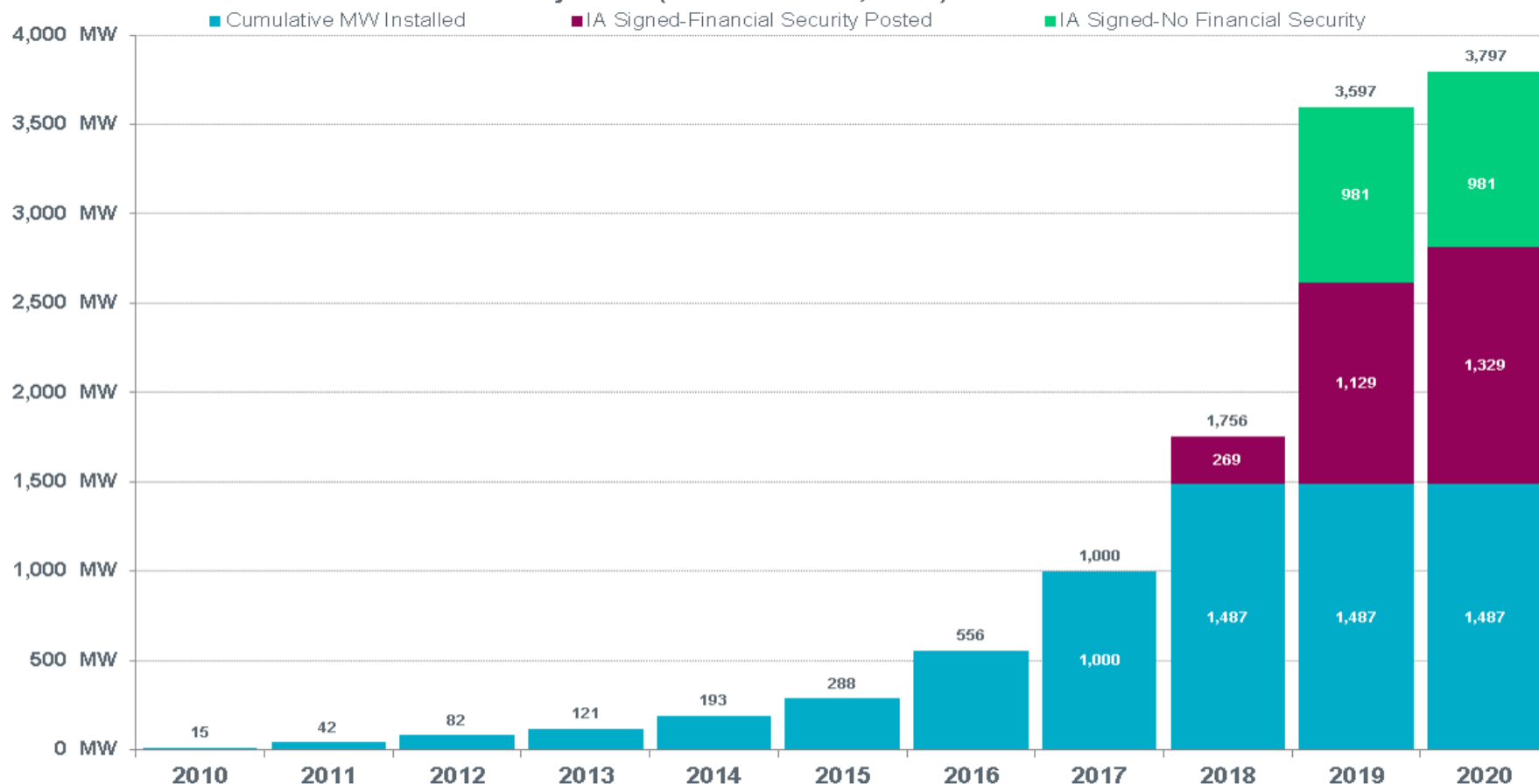


Notes:

- 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 2018

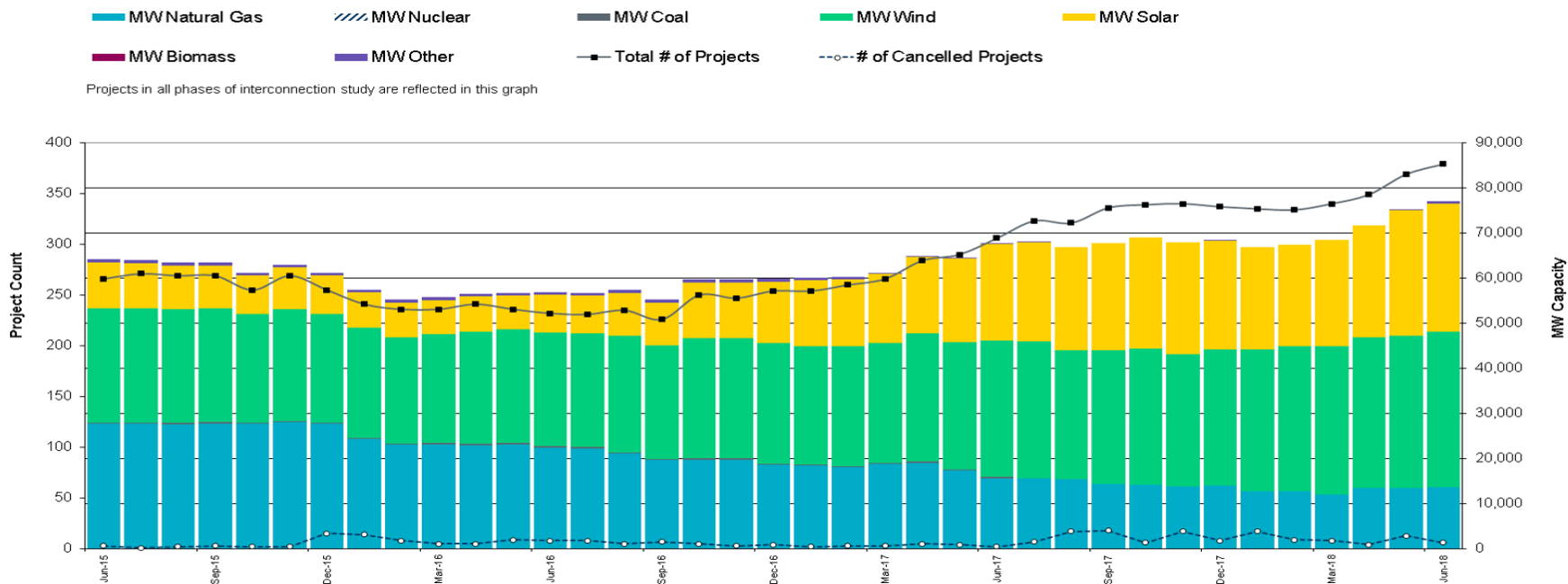
ERCOT Solar Additions by Year (as of June 30, 2018)



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.
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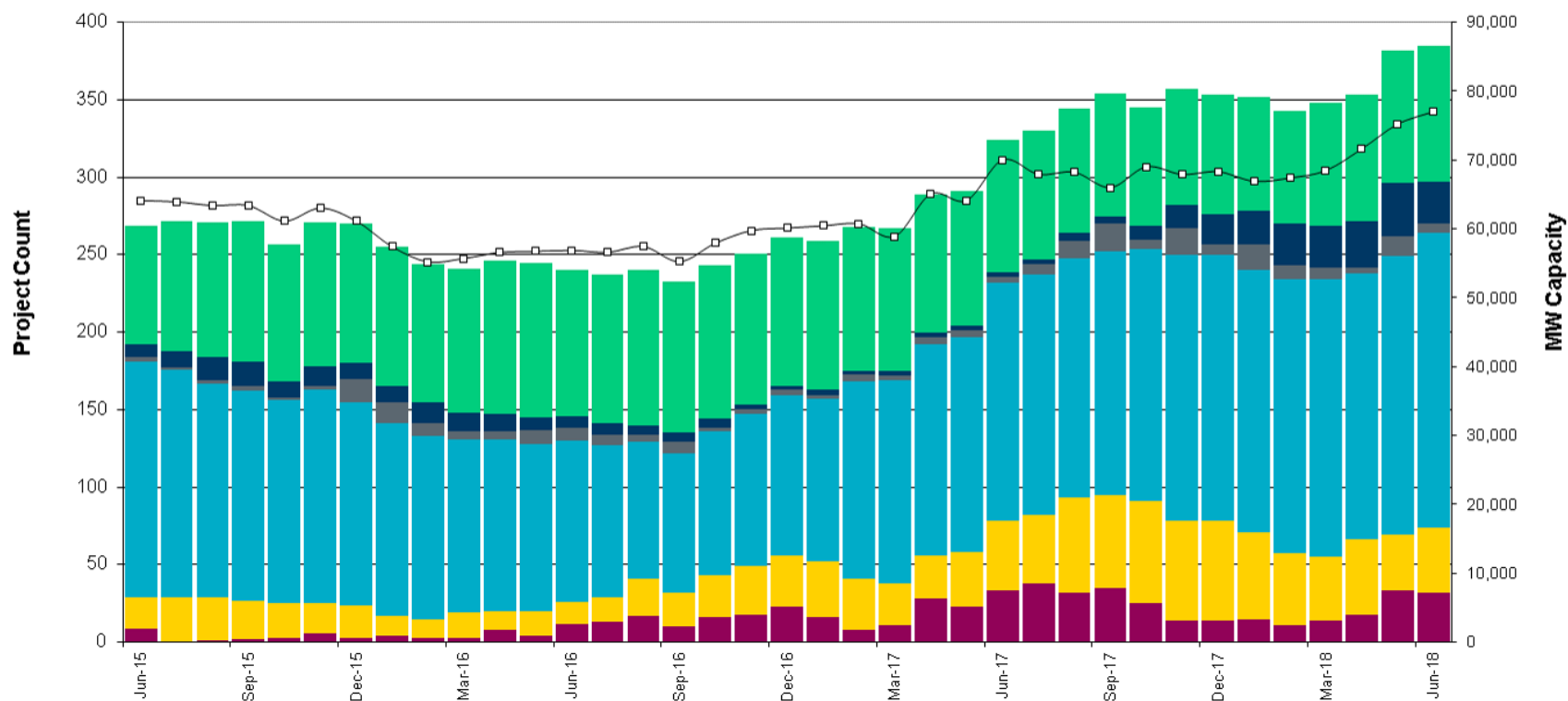
# Generation Interconnection Activity by Fuel – June 2018



# Generation Interconnection Activity by Project Phase – June 2018

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

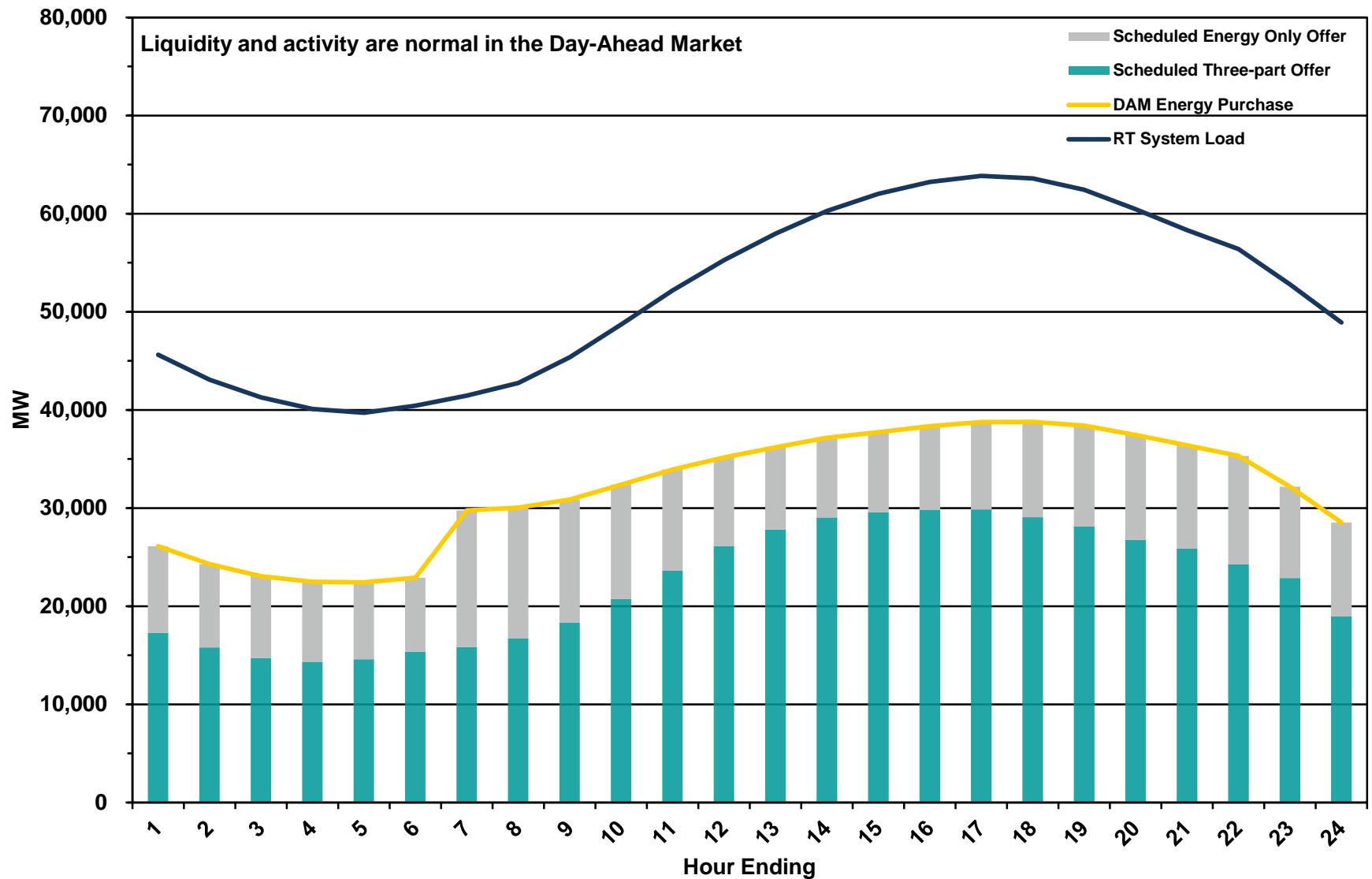
\* Nameplate capacity will change across time due to additional projects, cancellations, expirations, adjustments from study results, and projects being placed in service.



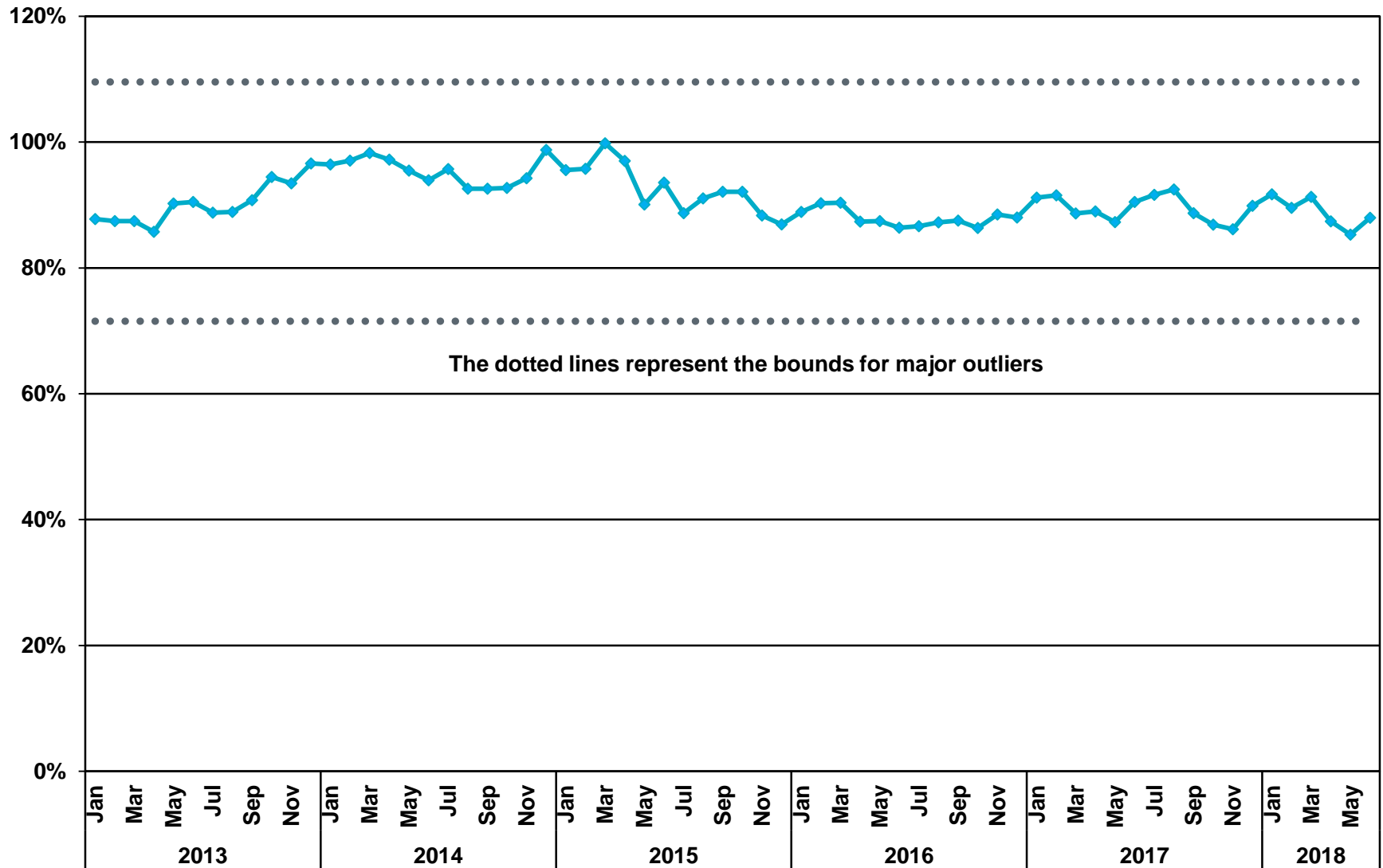


# Market Operations

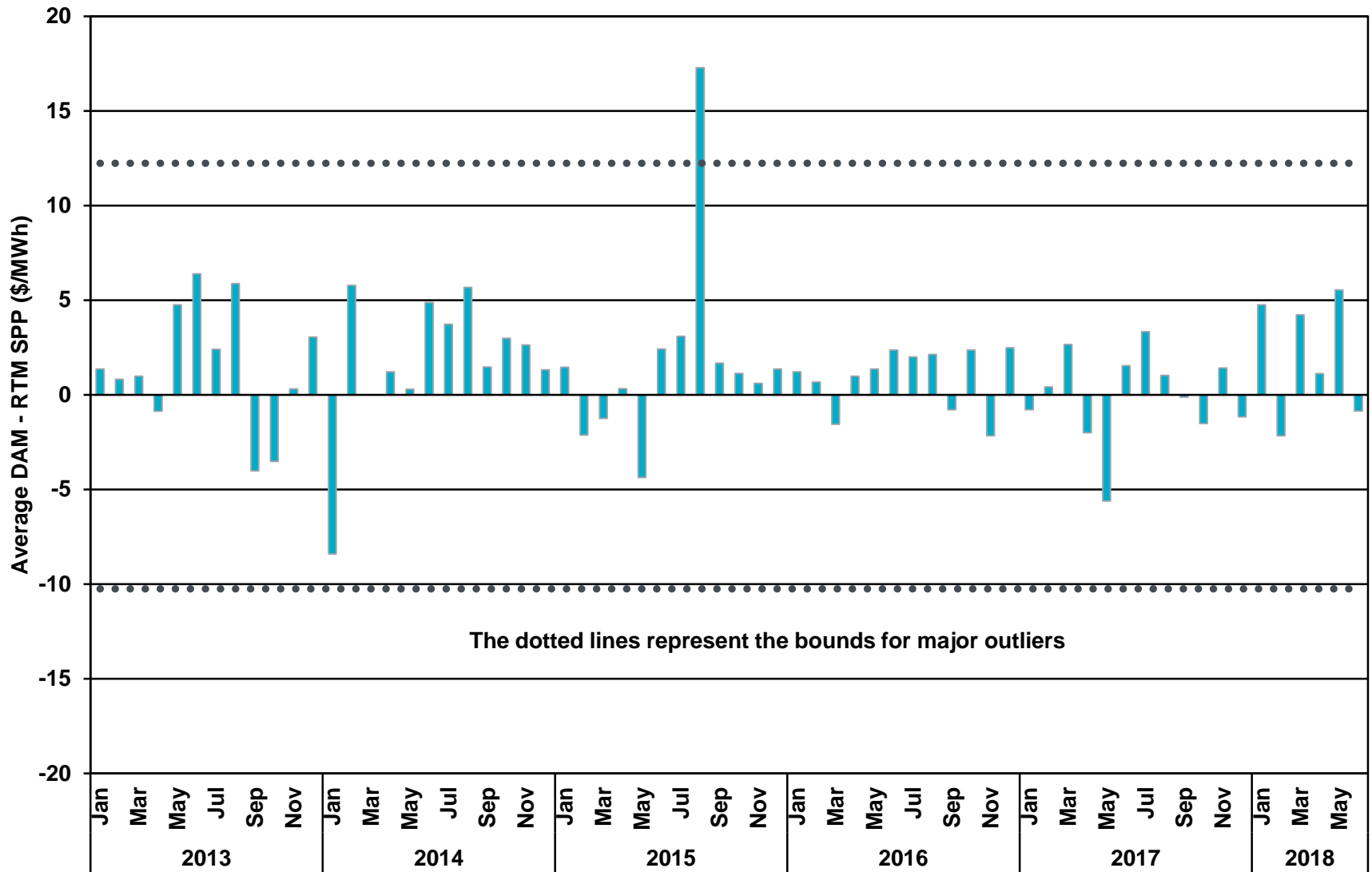
## Day-Ahead Schedule (Hourly Average) – June 2018



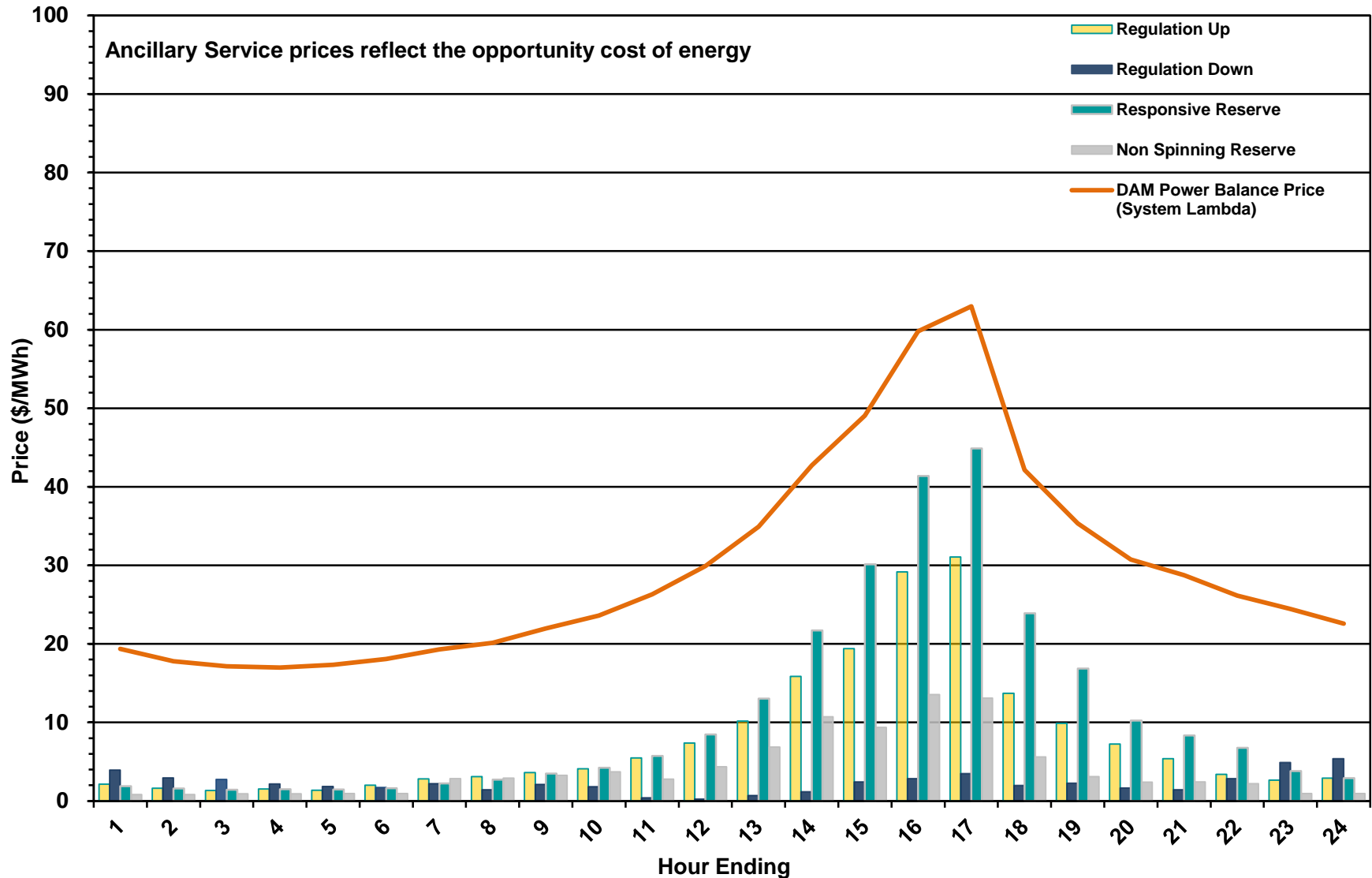
## Percentage of Real-Time Load Hedged in the DAM (Counter-Party Level) - June 2018



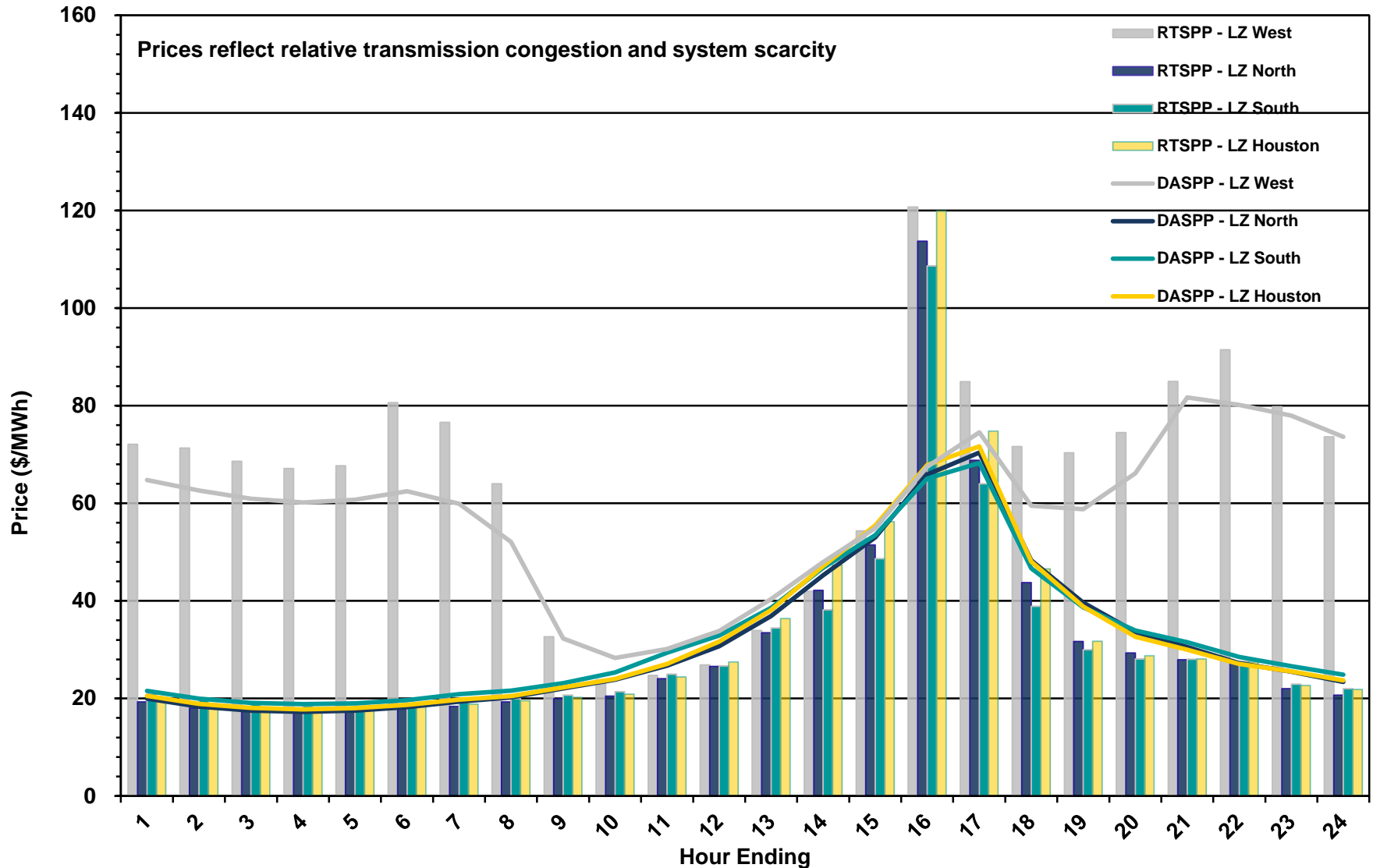
## DAM and RTM Price Convergence – June 2018



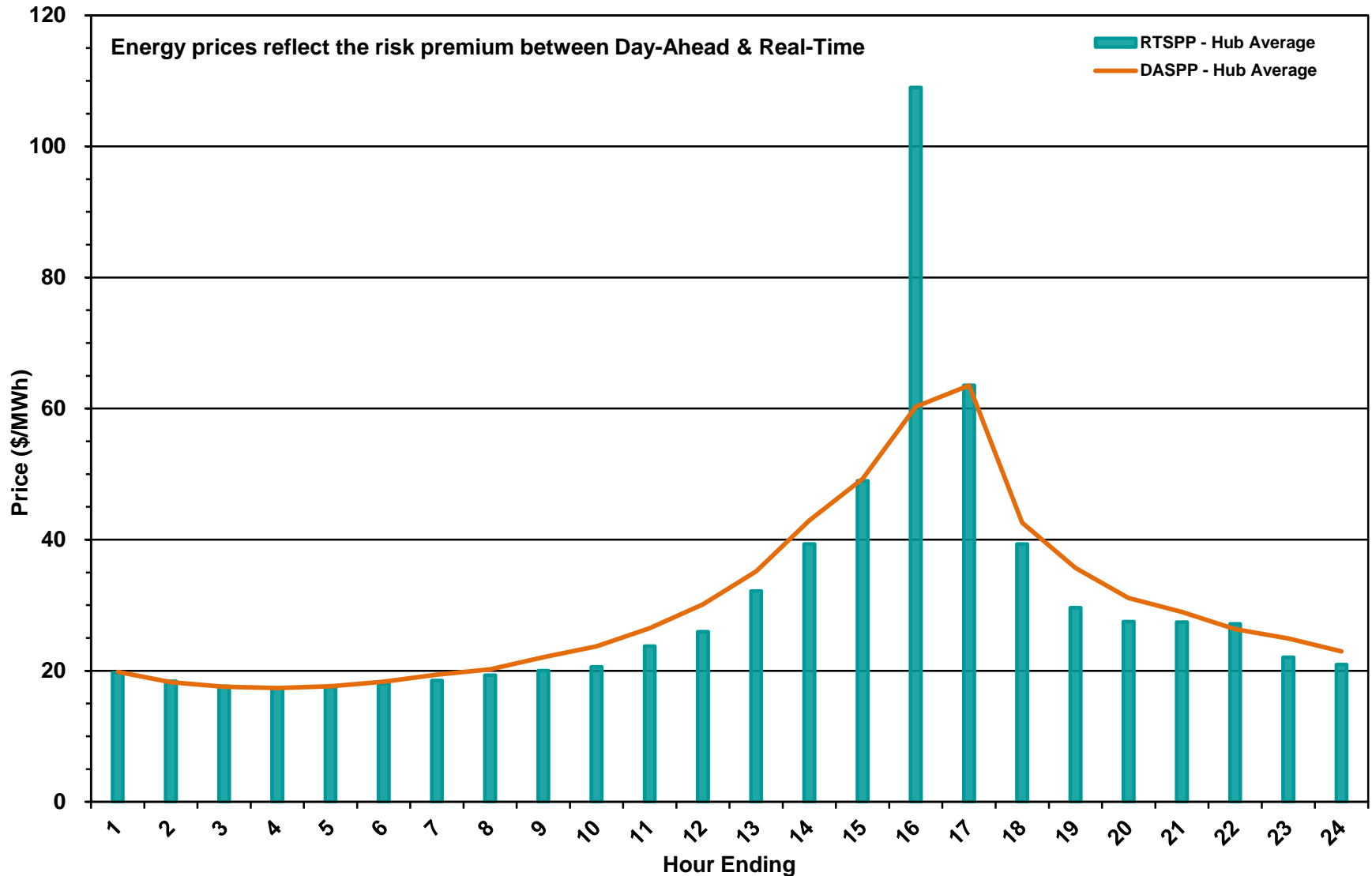
## Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – June 2018



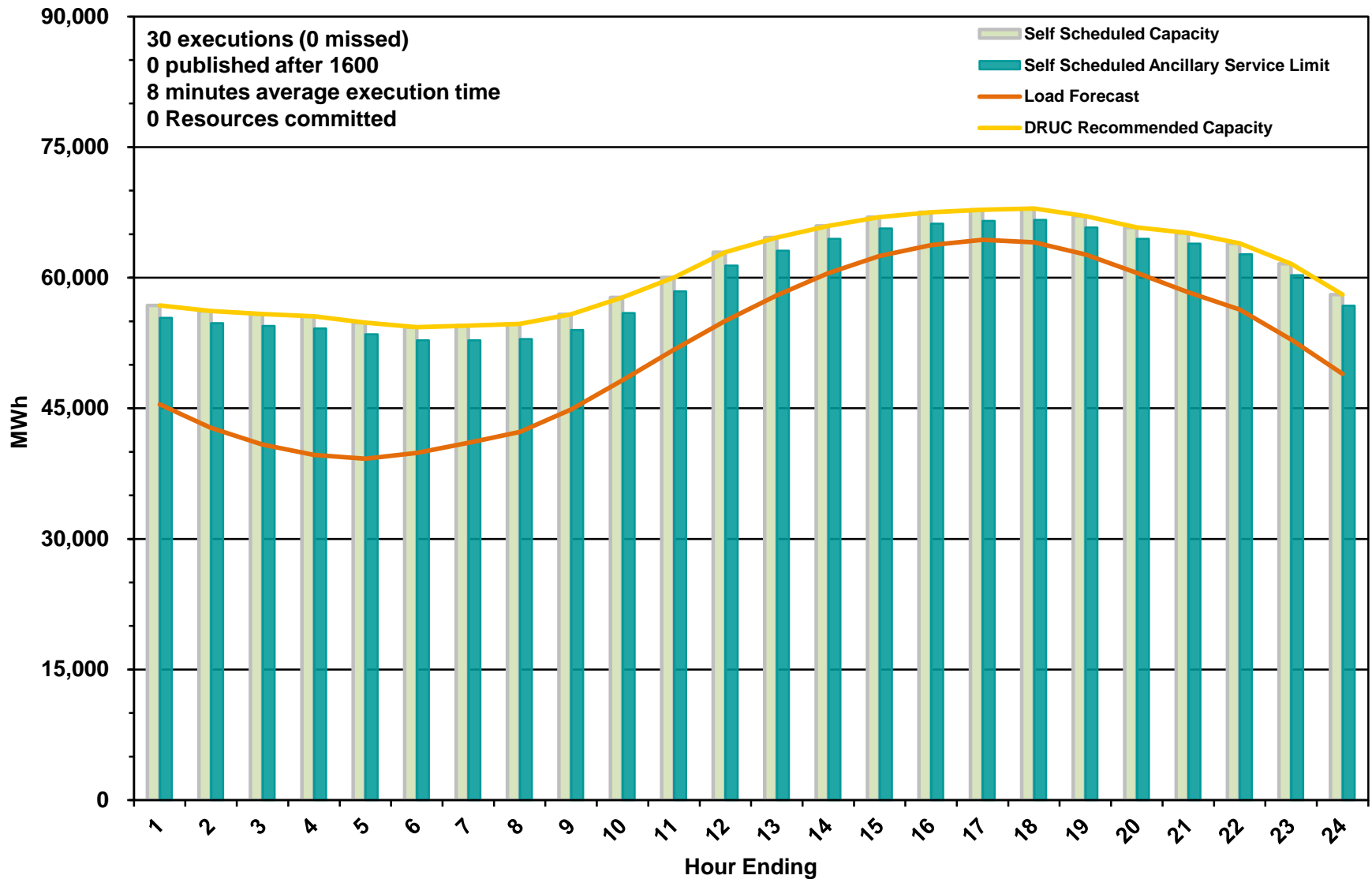
## Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – June 2018



## Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – June 2018

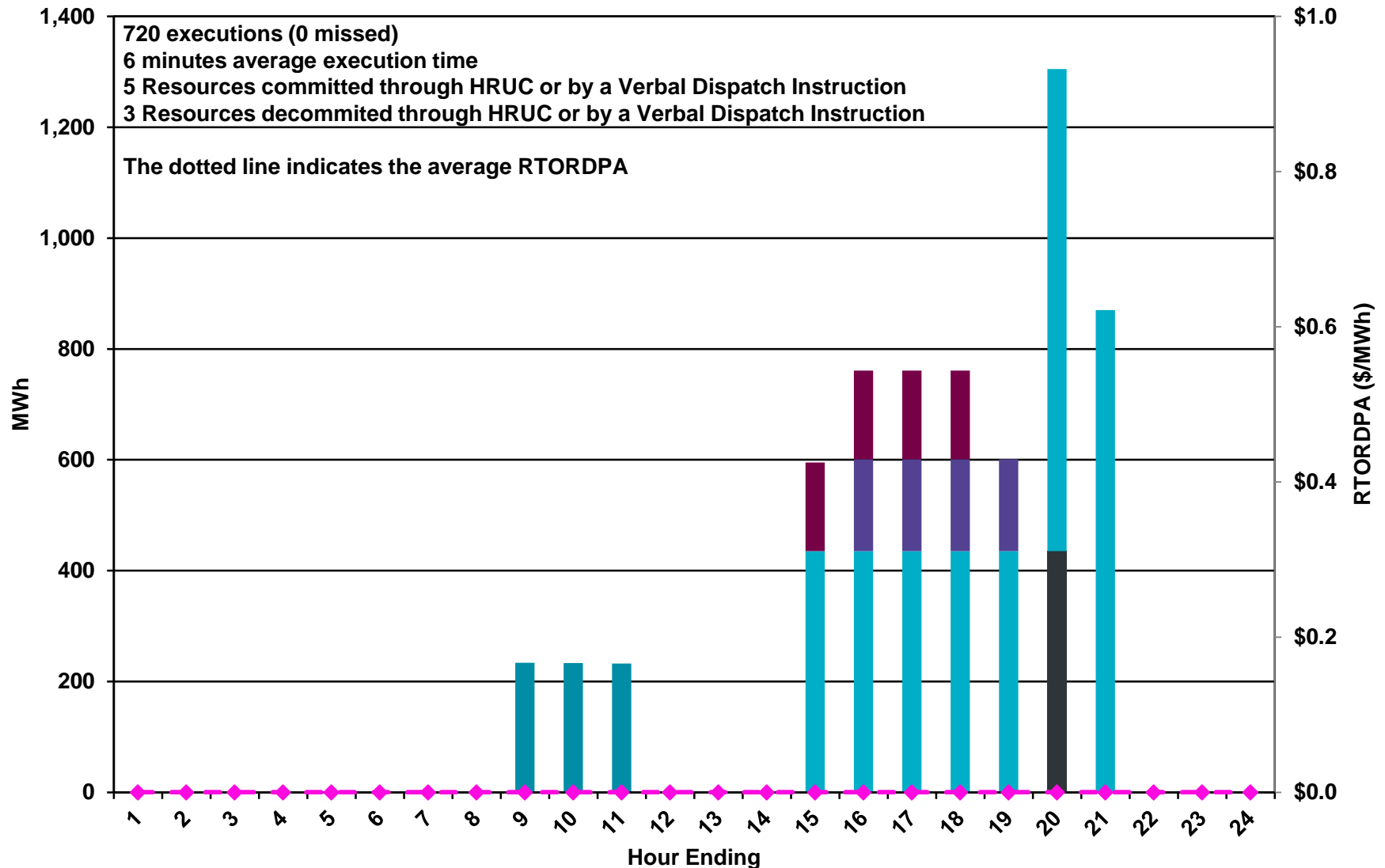


## DRUC Monthly Summary (Hourly Average) – June 2018





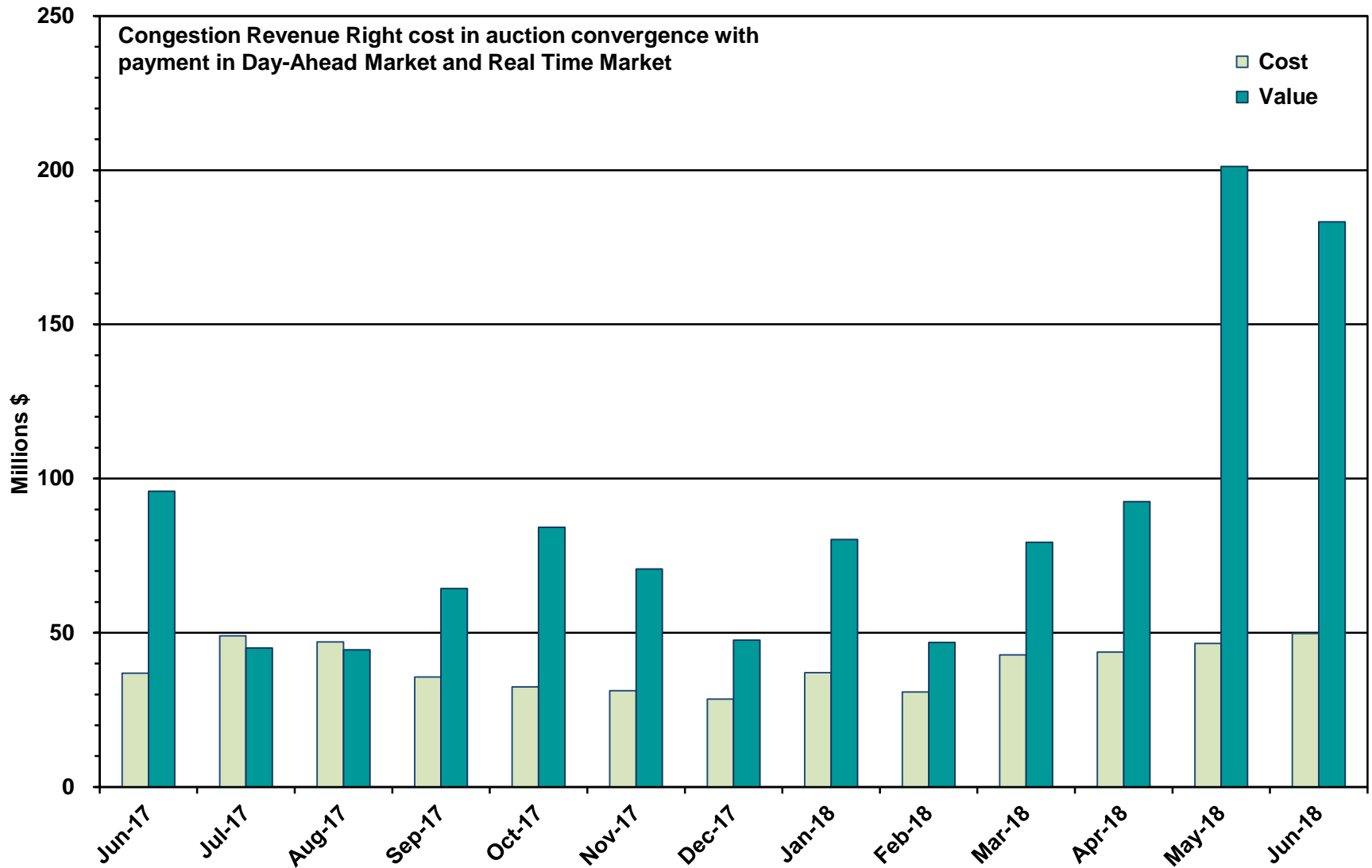
# HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – June 2018



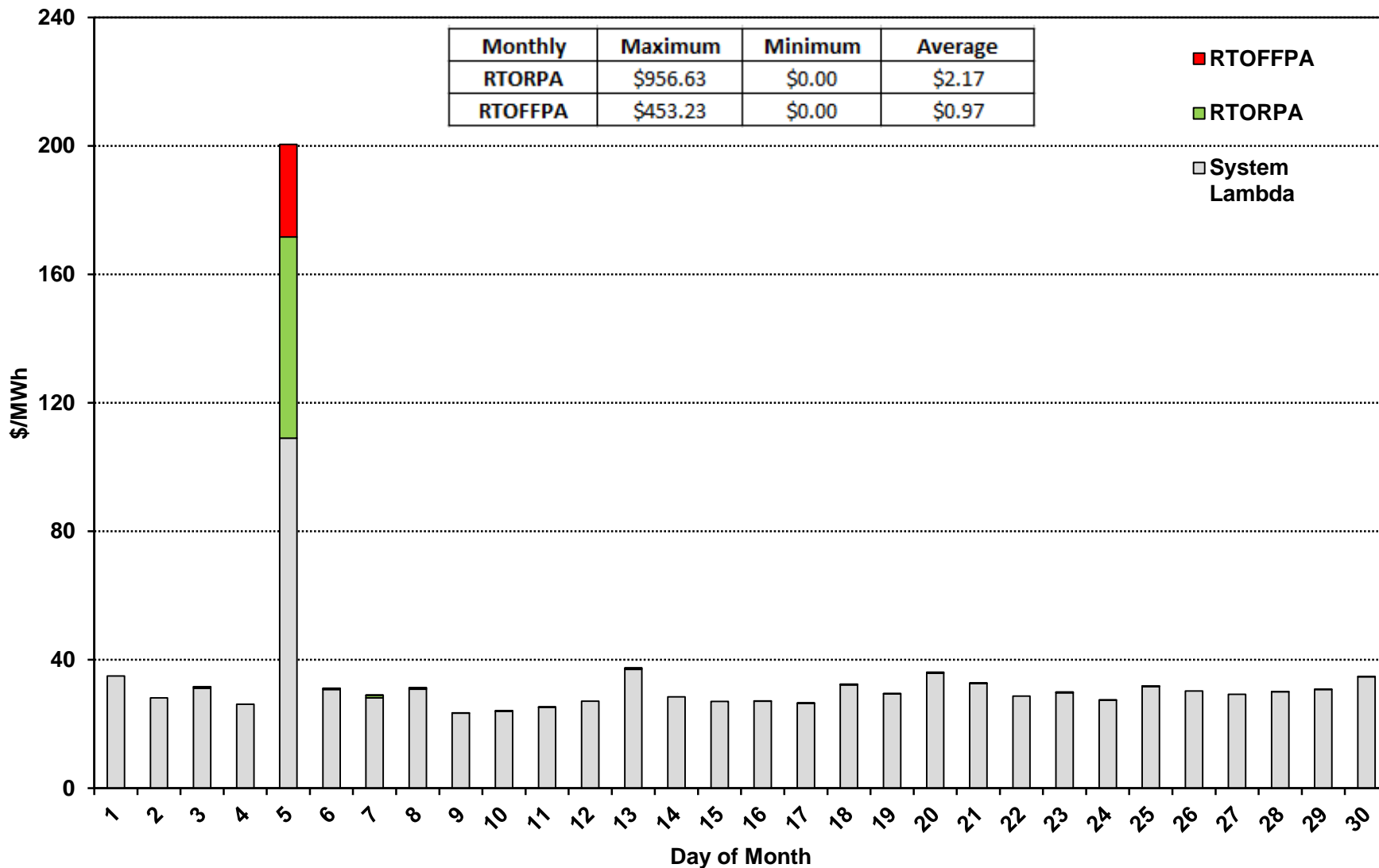
## Non-Spinning Reserve Service Deployment – June 2018

Deployment Start Time	Deployment End Time	Deployment Duration (Hours)	Max Deployment (MW)	Reason
N/A				

## CRR Price Convergence – June 2018



# Daily Average System Lambda and ORDC Price Adders – June 2018



## ERS Procurement for June 2018 – September 2018

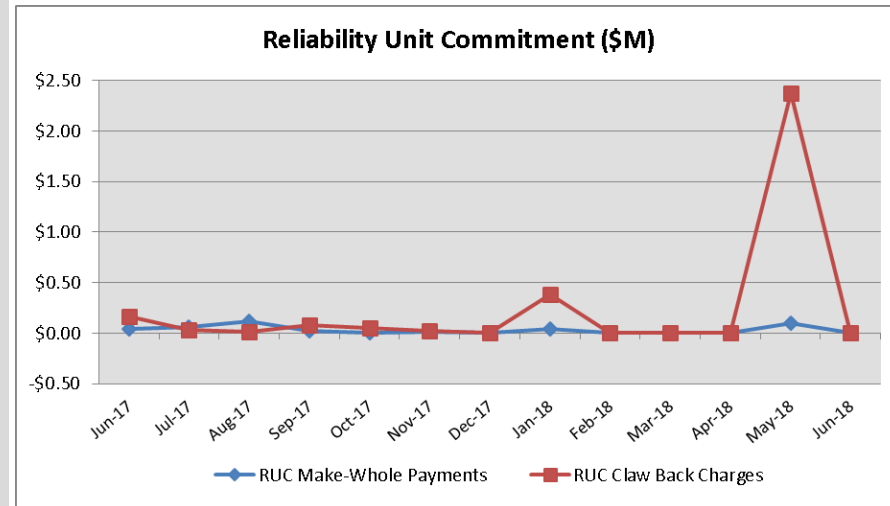
	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	160.562	165.996	143.324	140.708	156.699	151.138
Non Weather-Sensitive ERS-30 MW	736.864	781.559	702.529	625.067	755.153	657.394
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	0	0	11.850	11.850	0	0
Total MW Procured	897.426	947.555	857.703	777.625	911.852	808.532
Clearing Price	\$2.01	\$1.85	\$21.08	\$21.77	\$1.99	\$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 – June 2018

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



In June 2018, there was a credit of \$0.00M allocated to load for RUC compared to:

- A credit of \$2.36M in May 2018
- A credit of \$0.16M in June 2017

## Ancillary and Other Services – June 2018

<b>Ancillary and Other Services</b>	<b>\$ in Millions</b>
<b>Regulation Up Service</b>	\$1.60
<b>Regulation Down Service</b>	\$0.55
<b>Responsive Reserve Service</b>	\$12.87
<b>Non-Spinning Reserve Service</b>	\$4.40
<b>Black Start Service</b>	\$0.60
<b>Voltage Services - Reactive Power</b>	\$0.00
<b>Voltage Services - Lost Opportunity</b>	\$0.00
<b>Total Charges Allocated to Load</b>	<b>\$20.01</b>

In June 2018, Ancillary and Other Services was a charge of \$20.01M, compared to:

- A charge of \$48.08M in May 2018
- A charge of \$18.40M in June 2017

## Real-Time Ancillary Service Imbalance (ORDC) – June 2018

Real-Time Ancillary Service Imbalance	\$ in Thousands
Real-Time AS Imbalance	(\$147)
Real-Time Reliability Deployment AS Imbalance	\$0.00
<b>Total RTASI Amount Allocated to Load</b>	<b>\$147</b>

In June 2018, Real-Time Ancillary Service Imbalance was a charge to load of \$147K, compared to:

- A charge of \$3,734K in May 2018
- A charge of \$592K in June 2017



## Energy Settlement – June 2018

<b>Day-Ahead Market Energy Settlement</b>	<b>\$ in Millions</b>
<b>Energy Purchases</b>	\$764.00
<b>Point to Point Obligation Purchases</b>	\$155.13
<b>Energy Sales</b>	(\$735.92)
<b>Day-Ahead Congestion Rent</b>	<b>\$183.22</b>
<b>Day-Ahead Market Make-Whole Payments</b>	(\$0.01)

Day-Ahead Market energy settlement activity decreased from last month and increased from June 2017.

Real-Time Market energy settlement activity increased from last month and increased from June 2017.

<b>Real-Time Market Energy Settlement</b>	<b>\$ in Millions</b>
<b>Energy Imbalance at a Resource Node</b>	(\$581.56)
<b>Energy Imbalance at a Load Zone</b>	\$1,133.93
<b>Energy Imbalance at a Hub</b>	(\$400.06)
<b>Net Real-Time Energy Imbalance</b>	<b>\$152.31</b>
<b>Real Time Congestion from Self Schedules</b>	\$0.14
<b>Block Load Transfers and DC Ties</b>	(\$10.21)
<b>Total Impact to Revenue Neutrality</b>	<b>\$142.25</b>
<b>Load-Allocated Emergency Energy Payments</b>	(\$0.12)
<b>Load-Allocated Base Point Deviation Charges</b>	\$0.31

## Congestion Revenue Rights (CRR) – June 2018

	\$ in Millions
<b>Annual Auction</b>	(\$36.03)
<b>Monthly Auction</b>	(\$13.74)
<b>Total Auction Revenue</b>	<b>(\$49.77)</b>
<b>Day-Ahead CRR Settlements</b>	(\$190.51)
<b>Day-Ahead CRR Short-Charges</b>	\$16.52
<b>Day-Ahead CRR Short-Charges Refunded</b>	(\$16.52)
<b>Day-Ahead CRR Short-Charges Net</b>	<b>\$0.00</b>
<b>Total CRR Funding</b>	<b>(\$190.51)</b>
<b>Day-Ahead Point-to-Point Obligations</b>	\$155.13
<b>Real-Time Point-to-Point Obligations</b>	(\$172.71)
<b>Net Point-to-Point Obligations</b>	<b>(\$17.58)</b>

Congestion Revenue Rights settlement payments were fully funded. The additional funding to settle the CRR Short Charges was provided from the CRR Balancing Account Fund.

Point to Point Obligations settled with a net credit of \$17.58M compared to a net credit of \$33.22M last month.

## CRR Balancing Account Fund – June 2018

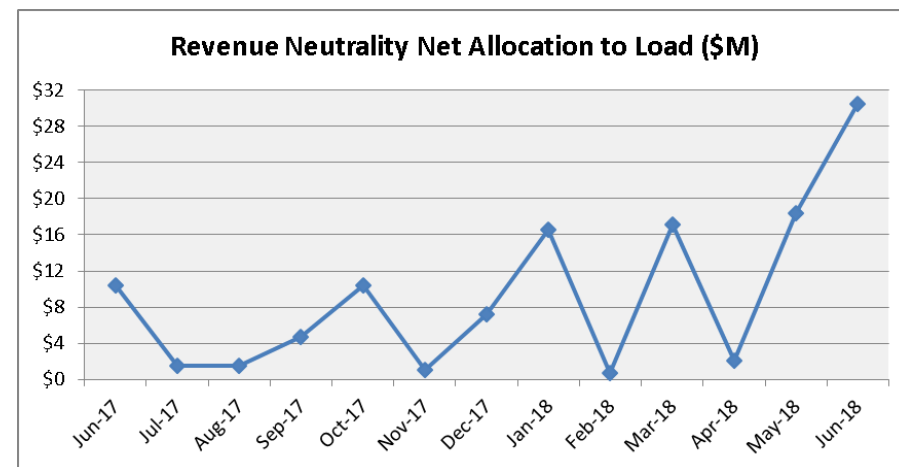
<b>CRR Balancing Account</b>	<b>\$ in Millions</b>
<b>Monthly Day-Ahead Congestion Rent</b>	<b>\$183.22</b>
<b>Monthly Day-Ahead CRR Settlements</b>	<b>(\$190.51)</b>
<b>Monthly Day-Ahead CRR Short -Charges</b>	<b>\$16.52</b>
<b>CRR Balancing Account Credit Total</b>	<b>\$9.23</b>
<b>Beginning Fund Balance for the Month</b>	<b>\$10.00</b>
<b>CRR Balancing Account Credit Total</b>	<b>\$9.23</b>
<b>Day-Ahead CRR Short-Charges Refunded</b>	<b>(\$16.52)</b>
<b>CRR PTP Option Award Charges</b>	<b>\$0.04</b>
<b>Load-Allocated CRR Amount</b>	<b>\$0.00</b>
<b>Total Fund Amount</b>	<b>\$2.75</b>

## Revenue Neutrality – June 2018

Revenue Neutrality	\$ in Millions
Real-Time Energy Imbalance	\$152.31
Real-Time Point to Point Obligation	(\$172.71)
Real-Time Congestion from Self-Schedules	\$0.14
DC Tie & Block Load Transfer	(\$10.21)
<b>Allocation to Load</b>	<b>\$30.46</b>

In June 2018, the Revenue Neutrality charge to load was \$30.46M compared to:

- A charge of \$18.40M in May 2018
- A charge of \$10.36M in June 2017

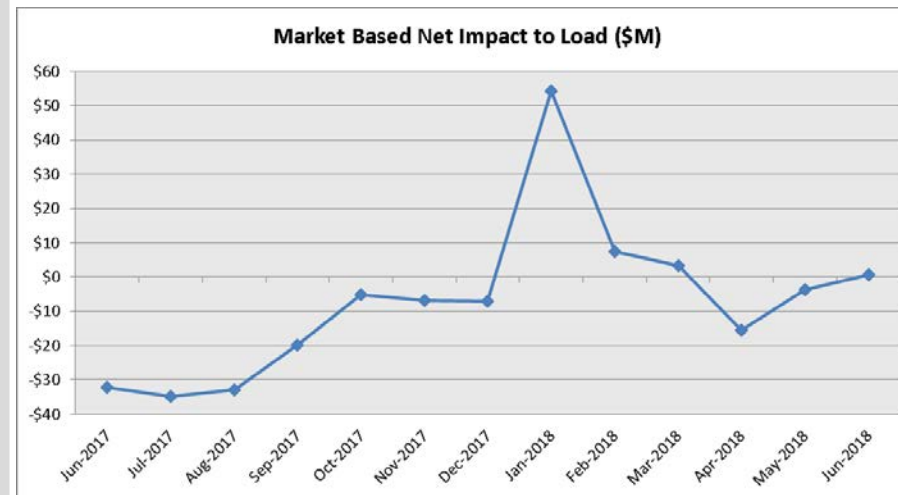


## Net Allocation to Load – June 2018

Market-Based Allocation	\$ in Millions
Reliability Unit Commitment	\$0.00
Ancillary and Other Services	\$20.01
Real-Time Ancillary Service Imbalance	\$0.15
Emergency Energy	\$0.12
Base Point Deviation	(\$0.31)
CRR Auction Revenue	(\$49.77)
CRR Balancing Account	\$0.00
Real-Time Revenue Neutrality	\$30.46
Reliability Must Run	\$0.00
Monthly Block Load Transfer	\$0.00
<b>Total</b>	<b>\$0.67</b>
<b>Fee Allocation</b>	
ERCOT Administrative Fee	\$20.85
<b>Net Allocated to Load</b>	<b>\$21.52</b>

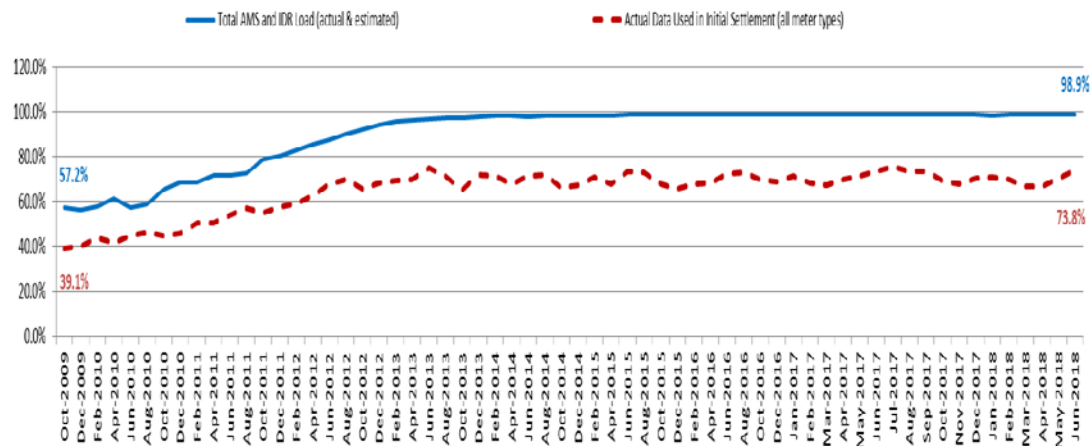
In June 2018, the Net Allocation to load was a charge of \$21.52M compared to:

- A charge of \$15.07M in May 2018
- A credit of \$13.22M in June 2017



# Advanced Meter Settlement Impacts – June 2018

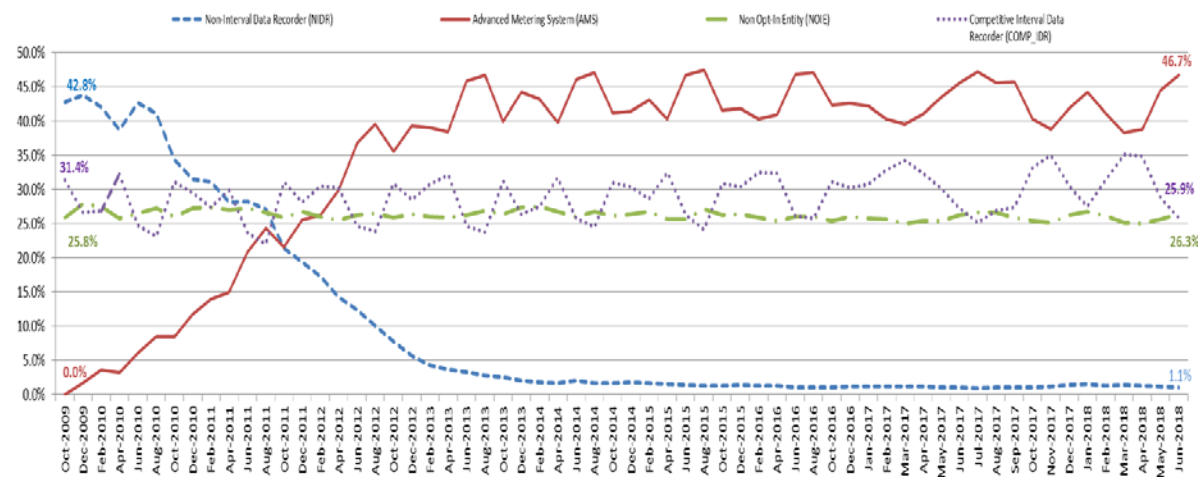
Percent Actual/Percent Interval Data Recorder (IDR)



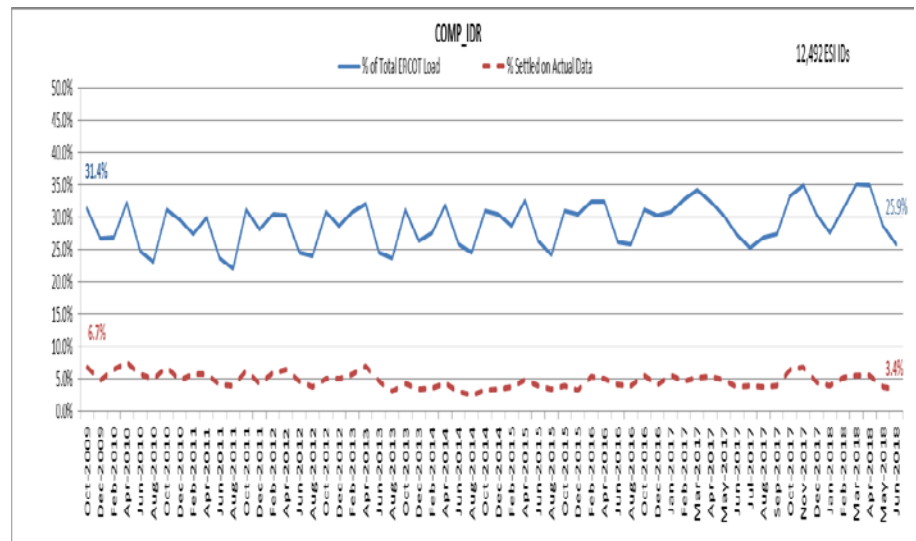
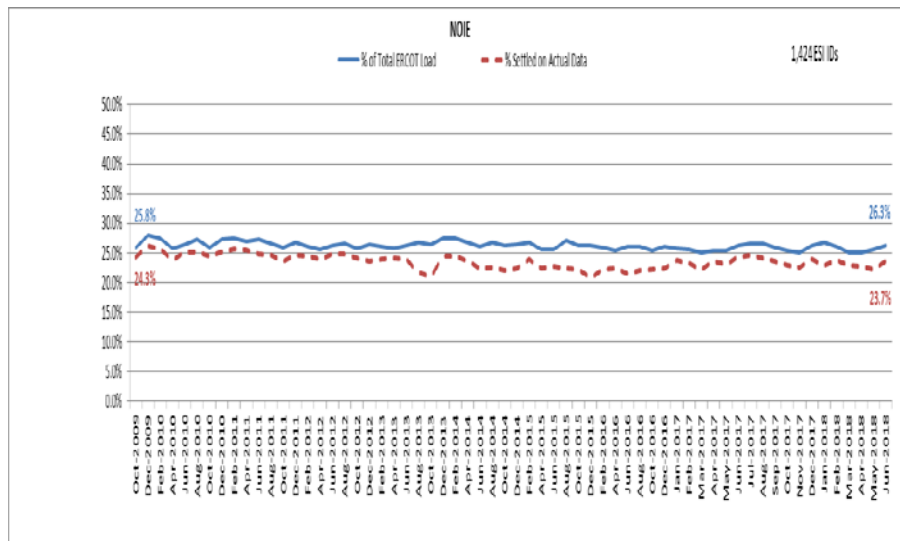
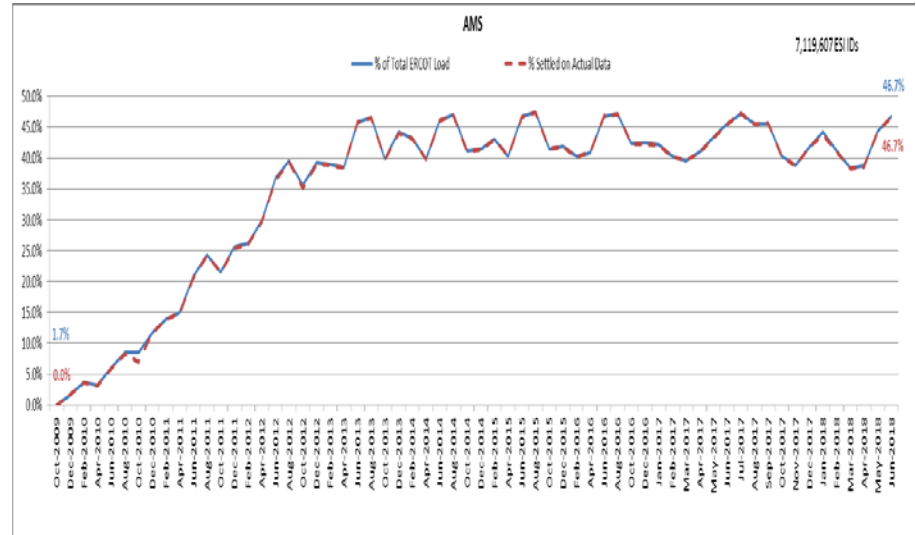
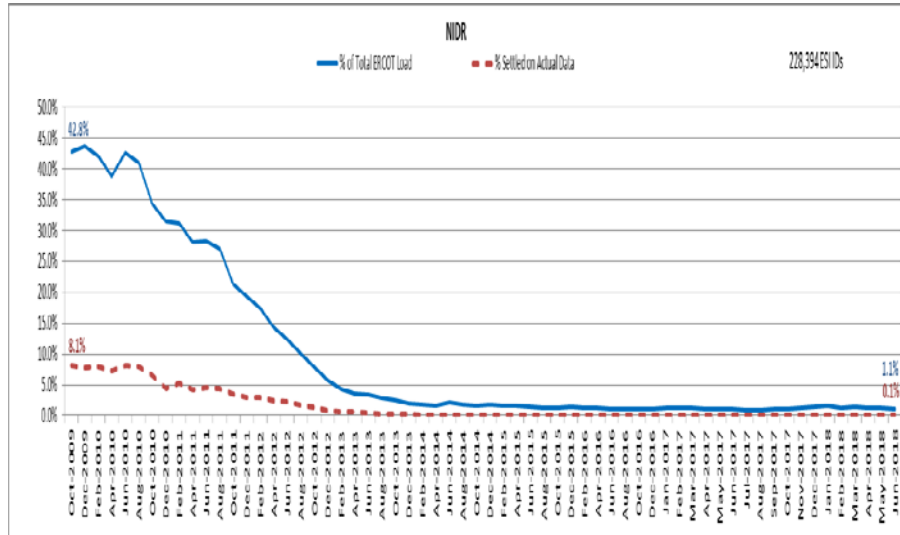
June 2018: At month end, settling 7.1M ESIIDs using Advanced Meter data.

June 2018: 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 2018



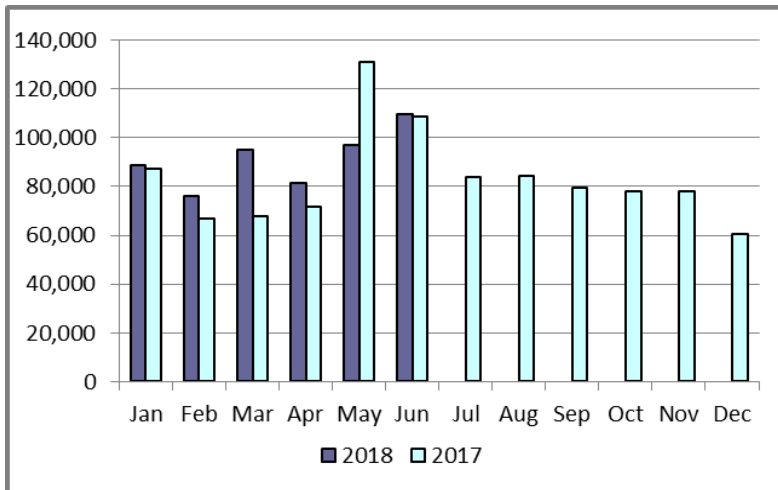
## Retail Transaction Volumes – Summary – June 2018

	Year-To-Date		Transactions Received	
Transaction Type	June 2018	June 2017	June 2018	June 2017
Switches	547,983	533,241	109,653	108,784
Acquisition	0	0	0	0
Move - Ins	1,396,915	1,315,793	257,125	257,759
Move - Outs	684,760	675,706	125,861	133,582
Continuous Service Agreements (CSA)	355,727	227,489	62,083	43,745
Mass Transitions	9,033	0	0	0
<b>Total</b>	<b>2,994,418</b>	<b>2,752,229</b>	<b>554,722</b>	<b>543,870</b>

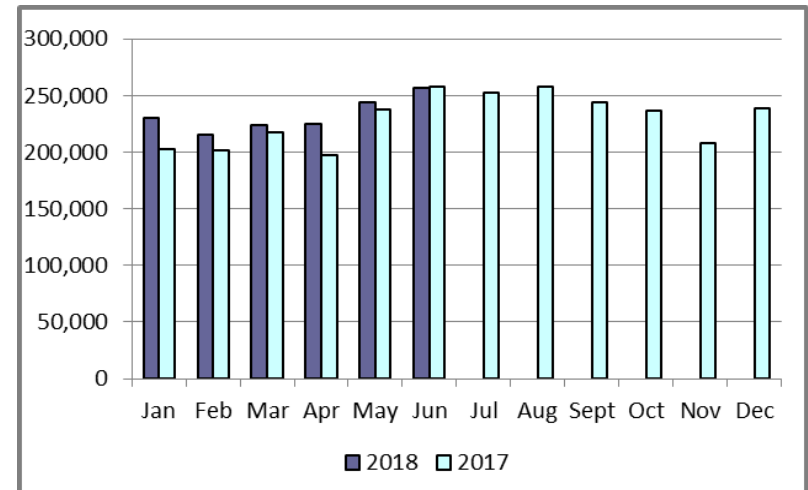


# Retail Transaction Volumes – Summary – June 2018

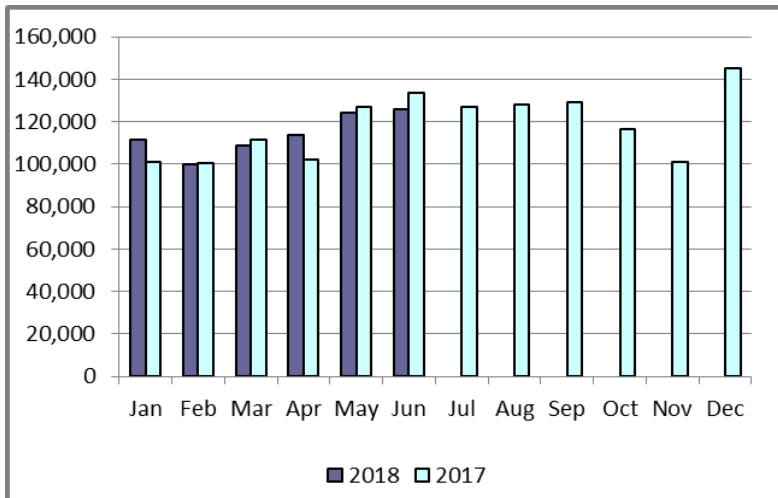
## Switches/Acquisitions



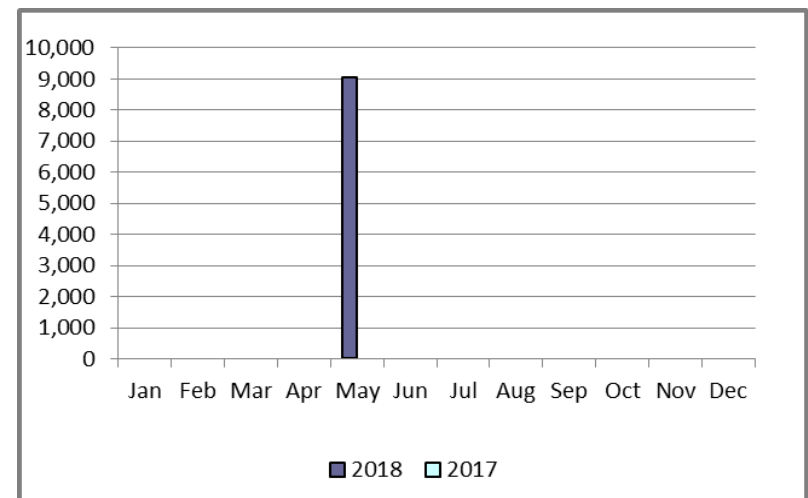
## Move-Ins



## Move-Outs



## Mass Transition



# Projects Report

# ERCOT Portfolio Stoplight Report – June 2018

Impact Metric Tolerances	2018 Project Funding	\$20,000,000	2018 Portfolio Spending Estimate
Unfavorable variances are represented as negative numbers within the report. - Green = No more than 4.9% unfavorable variance - Yellow = Unfavorable variance between 4.9% and 9.9% - Red = Unfavorable variance more than 9.9%	Projects In Flight/On Hold (Count = 96)		\$ 23,455,478
	Projects Not Yet Started (Count = 14)		\$ 1,033,777
	Projects Completed (Count = 35)		\$ 684,997
	Spending Reductions Required to Maintain Capital Budget		\$ (5,174,252)
	<b>TOTAL</b>		<b>\$ 20,000,000</b>

Project Number	Projects in Initiation Phase (Count = 3)
288-01	EDI Map and Translator Replacement
287-01	Security Constrained Unit Commitment (SCUC)
134-02	Privileged Account Management (PAM) Phase 2

## 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

Project Number	Projects in Planning Phase (Count = 8)	Phase Start	Baseline Phase Finish	Approved Phase Finish	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
183-01	CMM-FT GUI Integration	12/16/2015	8/17/2016	TBD	TBD	TBD		0%	NA	See 2015 CMM NPRRs
228-01	Enterprise Database Upgrade	4/25/2018	8/8/2018	8/8/2018	TBD	8/8/2018		0%		27%
242-01	Portfolio Reporting Assessment	11/8/2017	12/19/2018	12/19/2018	TBD	12/19/2018		0%		-3%
260-01	Information Governance Assessment	10/18/2017	5/30/2018	9/19/2018	TBD	9/19/2018		0%		23%
286-01	Java Platform Assessment	6/20/2018	11/21/2018	11/21/2018	TBD	11/21/2018		0%		4%
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
NPRR843	Short-Term System Adequacy and AS Offer Disclosure Reports Additions	6/6/2018	6/27/2018	6/27/2018	TBD	6/27/2018		0%		0%

# ERCOT Portfolio Stoplight Report – June 2018

Project Number	Projects in Execution Phase (Count = 38)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
170-01	Enterprise Content Alignment Program	8/26/2015	11/15/2017	8/31/2018	8/31/2018	8/31/2018		0%		0%
170-06	ECAP - ECMS Implementation Phase 1	4/25/2018	11/30/2018	11/30/2018	11/30/2018	11/30/2018		0%		3%
173-02	ERCOT Flight Certification Website	11/15/2017	2/28/2019	2/28/2019	2/28/2019	5/31/2019		0%		1%
181-01	CRR Framework Upgrade	10/26/2016	10/2/2017	1/22/2018	TBD	TBD		0%		0%
183-01	CMM Tech Refresh	3/15/2017	5/19/2018	12/11/2018	12/11/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
193-01	PMU Tool Evaluation and Implementation	12/13/2017	8/9/2018	8/9/2018	4/5/2019	5/1/2019	2	-100%		-4%
196-01	GINR Project Status Application Replacement	12/21/2016	9/14/2017	8/30/2018	8/30/2018	9/5/2018		0%	2	-10%
198-02	Reactive Power Coordination PoC	9/6/2017	6/16/2018	8/15/2018	8/15/2018	8/15/2018		0%		54%
209-02	Weather Imaging and Line Observation (WILO)	5/30/2018	2/1/2019	2/1/2019	2/1/2019	2/27/2019		0%		8%
210-01	REC Technology Refresh	8/30/2017	3/18/2018	8/9/2018	8/9/2018	9/12/2018		0%		3%
229-01	IT Change and Configuration Management Phase 2	8/2/2017	6/19/2018	12/11/2018	12/11/2018	3/25/2019		0%		1%
239-01	Identity and Access Management	5/9/2018	3/13/2019	3/13/2019	3/13/2019	3/13/2019		0%		0%
241-01	AREA - Generation	10/11/2017	3/30/2018	8/9/2018	8/9/2018	9/5/2018		0%		-4%
244-01	Corporate Wireless	11/29/2017	3/28/2018	12/5/2018	12/5/2018	1/9/2019		0%		4%
245-01	2017 EPS Metering Enhancements	6/27/2018	8/9/2019	8/9/2019	8/9/2019	9/25/2019		0%		62%
246-01	iTest Data Refresh	12/13/2017	11/9/2018	11/9/2018	11/9/2018	1/2/2019		0%		3%
249-01	Secondary Wind Forecasting Service	8/30/2017	2/28/2018	8/9/2018	8/9/2018	9/5/2018		0%		-3%
253-01	CIP Recovery Plan Project - Planning Phase 1	1/31/2018	8/29/2018	8/29/2018	8/29/2018	8/29/2018		0%		-2%
257-01	Security Constrained Optimal Powerflow in Study Network Analysis	12/6/2017	10/25/2018	10/25/2018	10/25/2018	12/8/2018		0%		12%
259-01	DC SCADA and Metering Upgrade	10/25/2017	1/17/2018	7/25/2018	7/25/2018	8/29/2018		0%		10%
261-01	Generic Transmission Constraint Calculation	3/7/2018	12/13/2018	12/13/2018	12/13/2018	1/23/2019		0%		4%
263-01	Market Simulator	4/11/2018	12/13/2018	12/13/2018	12/13/2018	1/30/2019		0%		3%
265-01	Real-Time Assessment Continuity	1/31/2018	12/13/2018	12/13/2018	12/13/2018	1/30/2019		0%		13%
279-01	Cyber Security Project #24	6/27/2018	10/26/2018	10/26/2018	10/26/2018	11/28/2018		0%		-3%
280-01	Quest Software Portfolio Transition	4/4/2018	6/27/2018	7/25/2018	7/25/2018	7/25/2018		0%		-1%
282-01	Synchronous Condenser Outage Modeling	6/6/2018	10/25/2018	10/25/2018	10/25/2018	12/5/2018		0%		-3%
Various	2015 CMM NPRRs									2%
NPRR519	Exemption of ERS-Only QSEs from Collateral and Capitalization Requirements	3/15/2017	5/19/2018	12/11/2018	12/11/2018	12/31/2018		0%		See 2015 CMM NPRRs
NPRR562	Subsynchronous Resonance	3/15/2017	5/19/2018	12/11/2018	12/11/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR620	Collateral Requirements for Counter-Parties with No Load or Generation	3/15/2017	5/19/2018	12/11/2018	12/11/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs

# ERCOT Portfolio Stoplight Report – June 2018

Project Number	Projects in Execution Phase (Count = 38)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
NPRR660	Remove CRR State Change Adder	3/15/2017	5/19/2018	12/11/2018	12/11/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR741	Clarifications to TPE and EAL Credit Exposure Calculations	3/15/2017	5/19/2018	12/11/2018	12/11/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR755	Data Agent-Only QSE Registration	3/15/2017	5/19/2018	12/11/2018	12/11/2018	12/31/2018		0%	NA	See 2015 CMM NPRRs
NPRR819	Modification of Non-Price Error Resettlement Thresholds and Resettlement Clean-Ups	5/9/2018	8/9/2018	8/9/2018	8/9/2018	9/5/2018		0%		17%
NPRR864	RUC Modifications to Consider Market-Based Solutions	6/20/2018	10/25/2018	10/25/2018	10/25/2018	11/28/2018		0%		-1%
SCR777	Bilateral CRR Interface Enhancement	10/26/2016	10/2/2017	1/22/2018	TBD	TBD		0%	NA	See #181-01
SCR781	RARF Replacement	12/20/2017	4/25/2018	12/19/2018	12/19/2018	12/19/2018		0%		0%
SCR791	Correction of 60-day SCED GRD Disclosure Report	5/2/2018	8/9/2018	8/9/2018	8/9/2018	9/5/2018		0%		14%
Project Number	Expedited Projects in Execution (Count = 32)									
Project Number	Projects in Stabilization (Count = 11)	Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Scheduled Execution Phase Finish	Schedule Health		Budget Health	
NPRR648	Remove References to Flowgate Rights	3/15/2017	5/19/2018	5/19/2018	2/6/2018	12/31/2018		23%	NA	See 2015 CMM NPRRs
NPRR683	Revision to Available Credit Limit Calculation	3/15/2017	5/19/2018	5/19/2018	2/6/2018	12/31/2018		23%	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	2/6/2018	12/31/2018		23%	NA	See 2015 CMM NPRRs
NPRR760	Calculation of Exposure Variables For Days With No Activity	3/15/2017	5/19/2018	5/19/2018	2/6/2018	12/31/2018		23%	NA	See 2015 CMM NPRRs
NPRR776	Voltage Set Point Communication	9/20/2017	3/19/2018	4/5/2018	4/5/2018	9/5/2018		0%		0%
NPRR800	Revisions to Credit Exposure Calculations to Use Electricity Futures Market Prices	3/15/2017	5/19/2018	5/19/2018	2/6/2018	12/31/2018		23%	NA	See 2015 CMM NPRRs
NPRR815	Revise the Limitation of Load Resources Providing Responsive Reserve (RRS) Service	3/21/2018	5/31/2018	5/31/2018	5/31/2018	8/29/2018		0%		0%
209-01	Multi Station Breaker to Breaker One Lines	2/8/2017	3/9/2018	5/3/2018	5/3/2018	8/22/2018		0%		0%
238-01	Application Authentication Tech Refresh	9/6/2017	3/19/2018	4/9/2018	4/9/2018	9/5/2018		0%		17%
258-01	WD Kainos SMART Automation Testing Tool	4/11/2018	6/4/2018	6/4/2018	6/6/2018	7/11/2018		-3%		37%
266-01	Remote Email Access Enhancement	12/13/2017	3/7/2018	6/6/2018	6/19/2018	7/11/2018	2	-7%	2	-16%

# ERCOT Portfolio Stoplight Report – June 2018

Project Number	Projects On Hold (Count = 4)	Forecast Start Date	Baseline Phase Finish	Approved Go-Live Target	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
NPRR749	Option Cost for Outstanding CRRs									
NPRR833	Modify PTP Obligation Bid Clearing Change									
SCR789	Update NMMS Topology Processor to PSSE 34 Capability									
269-01	Document Repository Redesign and Governance Implementation - Phase 1									
Project Number	Projects Completed (Count = 19)	Baseline Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Actual Execution Phase Finish	Schedule Health		Budget Health	
185-01	Records Management and eDiscovery	12/15/2016	5/24/2017	8/29/2017	8/22/2017	12/13/2017		2%		0%
224-01	TelAlert Replacement	4/5/2017	6/27/2017	8/4/2017	8/4/2017	5/9/2018		0%		9%
230-01	SAS Technical Architecture Redesign	3/1/2017	12/13/2017	12/13/2017	12/13/2017	6/27/2018		0%		2%
234-01	Reporting Solution Resiliency (RSR)	4/5/2017	8/23/2017	11/27/2017	11/27/2017	1/10/2018		0%		8%
240-01	EDI Translator and Mapping Replacement Assessment	4/19/2017	9/27/2017	2/28/2018	TBD	3/7/2018		-2%		20%
254-01	Retail Windows Upgrade	10/11/2017	12/18/2017	12/18/2017	1/22/2018	2/7/2018	1	-51%		65%
255-01	Settlements Architecture Enhancements	10/25/2017	1/11/2018	1/11/2018	1/19/2018	2/14/2018	1	-10%		53%
271-01	Issue Tracking and Resolution Tool Assessment	12/13/2017	4/25/2018	4/25/2018	TBD	5/2/2018	1	-5%		0%
272-01	Operator Training Simulator Black Start GE Effort	12/6/2017	4/25/2018	4/25/2018	4/27/2018	5/16/2018		-1%		19%
274-01	Average Mid-Term Load Forecast	3/7/2018	5/31/2018	5/31/2018	5/31/2018	6/27/2018		0%		43%
NPRR768	Revisions to Real-Time On-Line Reliability Deployment Price Adder Categories	3/7/2018	5/31/2018	5/31/2018	5/31/2018	6/27/2018		0%		24%
NPRR778	Modifications to Date Change and Cancellation Evaluation Window	7/19/2017	10/29/2017	12/11/2017	12/11/2017	1/31/2018		0%		23%
NPRR782	Settlement of Infeasible Ancillary Services Due to Transmission Constraints	5/24/2017	8/31/2017	11/2/2017	11/2/2017	1/10/2018		0%		20%
NPRR808	Three Year CRR Auction	8/23/2017	9/18/2017	9/18/2017	9/1/2017	1/31/2018		65%		68%
NPRR810	Applicability of RMR Incentive Factor on Reservation and Transportation Costs Associated with Firm Fuel Supplies	7/17/2017	11/12/2017	3/31/2018	3/31/2018	3/31/2018		0%	NA	See #233-00
NPRR830	Revision of 4-Coincident Peak Methodology	12/13/2017	2/6/2018	2/6/2018	2/6/2018	3/7/2018		0%		85%
NPRR831	Inclusion of Private Use Networks in Load Zone Price Calculations	8/2/2017	11/2/2017	11/2/2017	11/2/2017	2/21/2018		0%		33%
OBDRR002	ORDC OBD Revisions for PUCT Project 47199	3/7/2018	5/31/2018	5/31/2018	5/31/2018	6/27/2018		0%		See NPRR768
SCR792	Enhance Communications of BAAL Exceedances	2/14/2018	4/5/2018	4/5/2018	4/5/2018	4/25/2018		0%		69%
Project Number	Expedited Projects Completed (Count = 16)									

## ERCOT Portfolio Stoplight Report – June 2018

Project Number	2018 Projects Not Yet Started (Count = 14)	Forecast Start Date
SCR795	Addition of Intra-Hour Wind Forecast to GTBD Calculation	Jun-2018
RRGRR015	Additional Guidance for Transformer and Station Data	Jul-2018
RRGRR016	Additional Guidance for Solar Data	Jul-2018
NPRR842	Study Area Load Information	Jul-2018
SCR794	Update SCED Limit Calculation	Aug-2018
TBD	Additional Branch Limit for Relays	Aug-2018
NPRR817	Create a Panhandle Hub	Oct-2018
NPRR821	Elimination of the CRR Deration Process	Oct-2018
NPRR858	Provide Complete Current Operating Plan (COP) Data	Oct-2018
NPRR865	Publish RTM Shift Factors for Hubs, Load Zones, and DC Ties	Oct-2018
SCR793	SSR Related Telemetry for Transmission Service Provider (TSP) Operators	Oct-2018
TBD	2018 OS Enhancements	Oct-2018
ECAP	ECAP - ECMS Implementation Phase 2	Oct-2018
TBD	Job Scheduler Update in CSI Framework	Oct-2018