



## ERCOT Monthly Operational Overview (November 2018)

ERCOT Public  
December 15, 2018

# Grid Planning & Operations

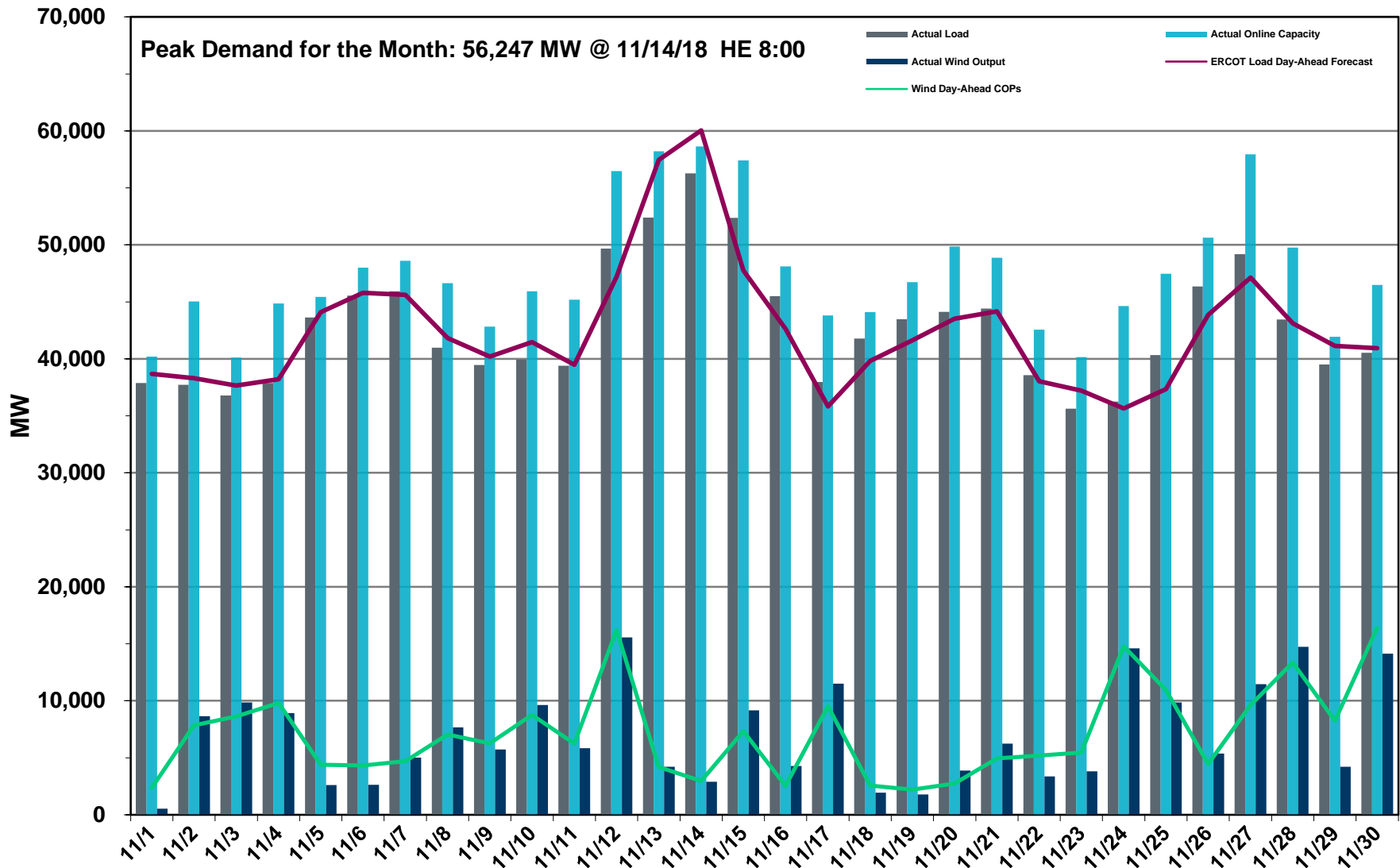
### Operations

- The preliminary Settlements hourly peak demand of 56,247\* MW on November 14 was lower than the day-ahead mid-term load forecast peak of 60,040 MW for the same operating hour.
  - The operational instantaneous peak demand was 56,900 MW (telemetry).
- Day-ahead load forecast error for November was 2.91%
- ERCOT issued two notifications:
  - Two OCN issued for projected reserve capacity shortage

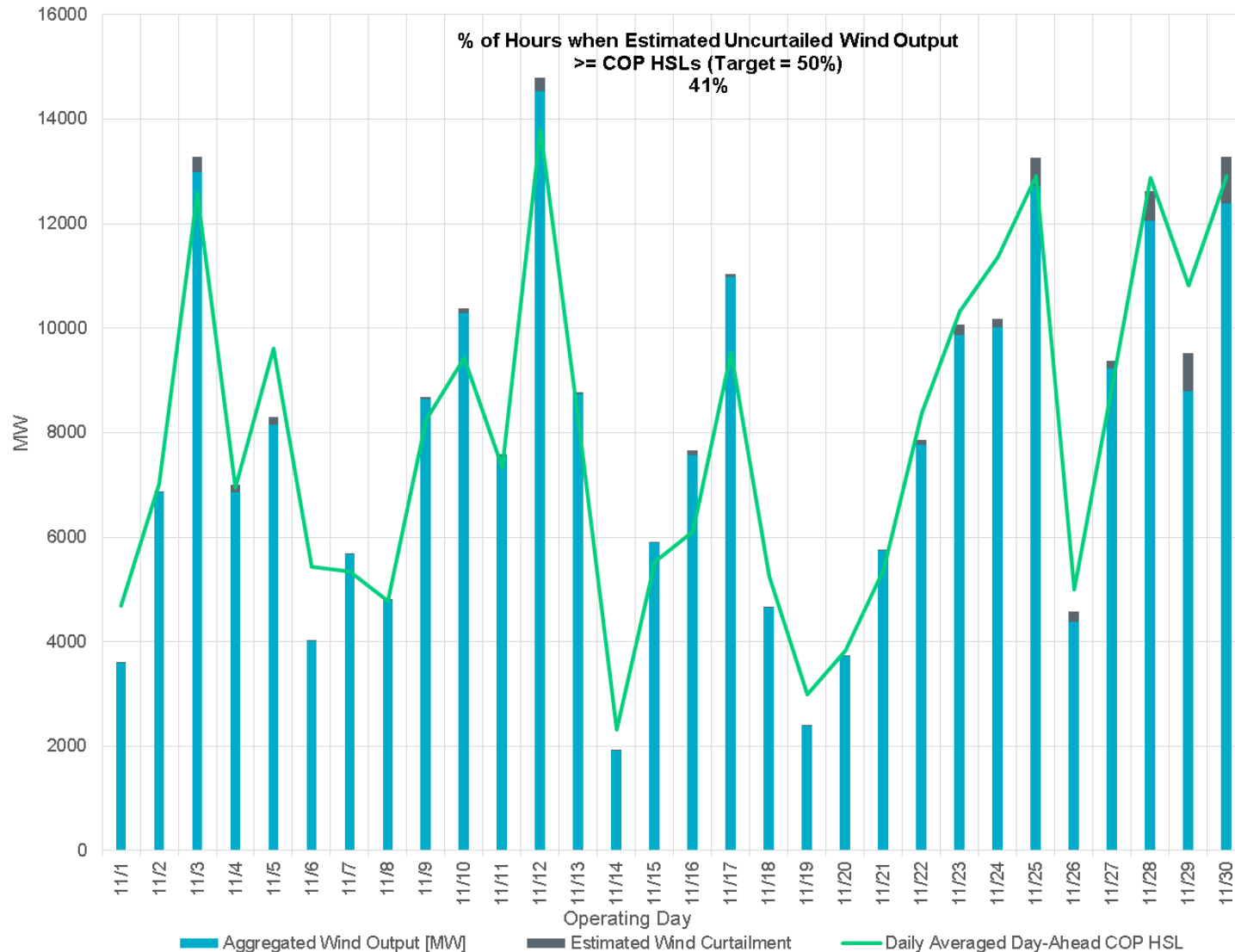
### Planning Activities

- 443 active generation interconnection requests totaling 86,517 MW, including 40,283 MW of wind generation, as of November 30, 2018. Fourteen additional requests and a increase of 3,068 MW from October 31, 2018.
- 21,550 MW wind capacity in commercial operations as of December 1, 2018.

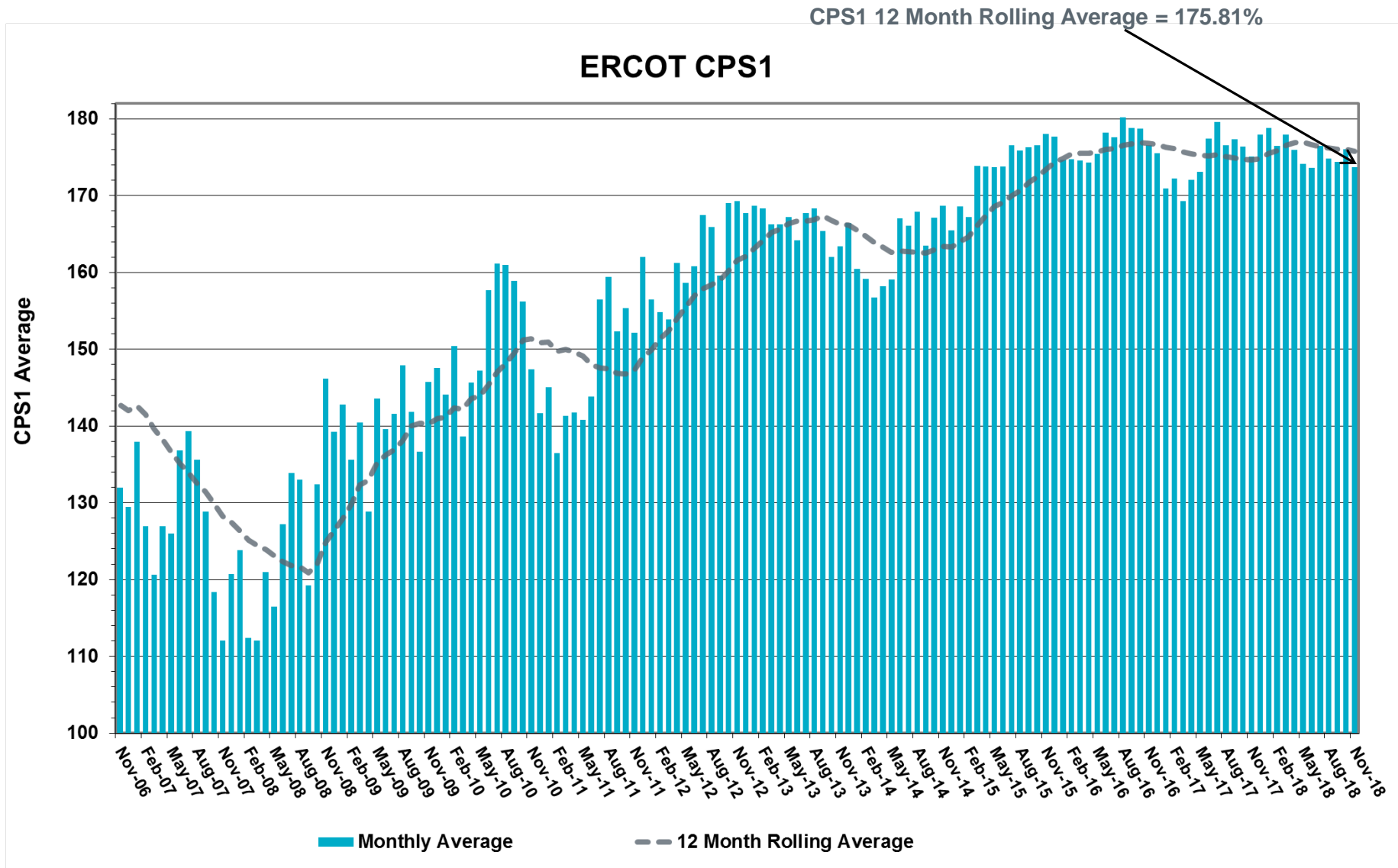
# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-Line Capacity at Peak – November 2018



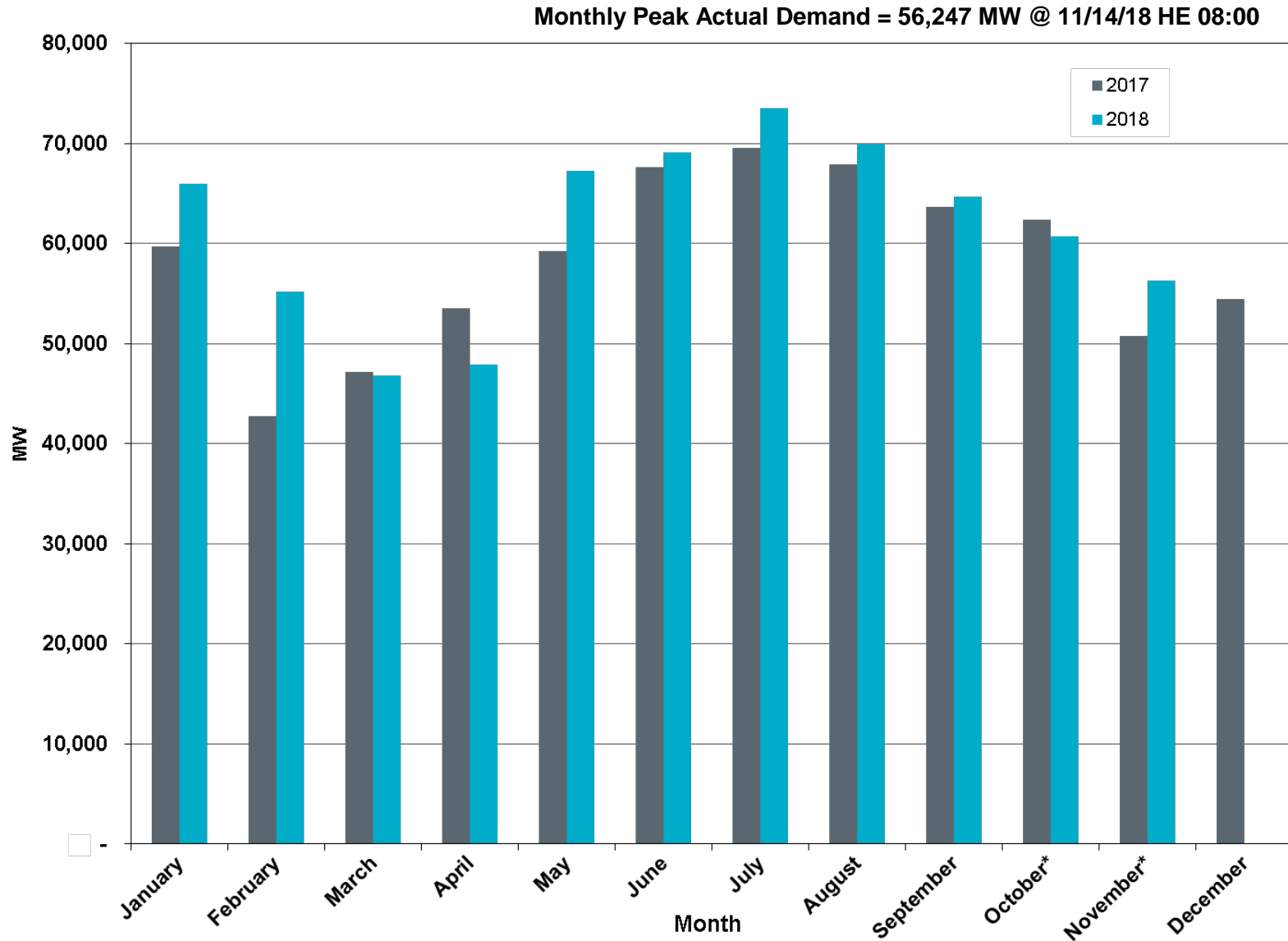
# Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – November 2018



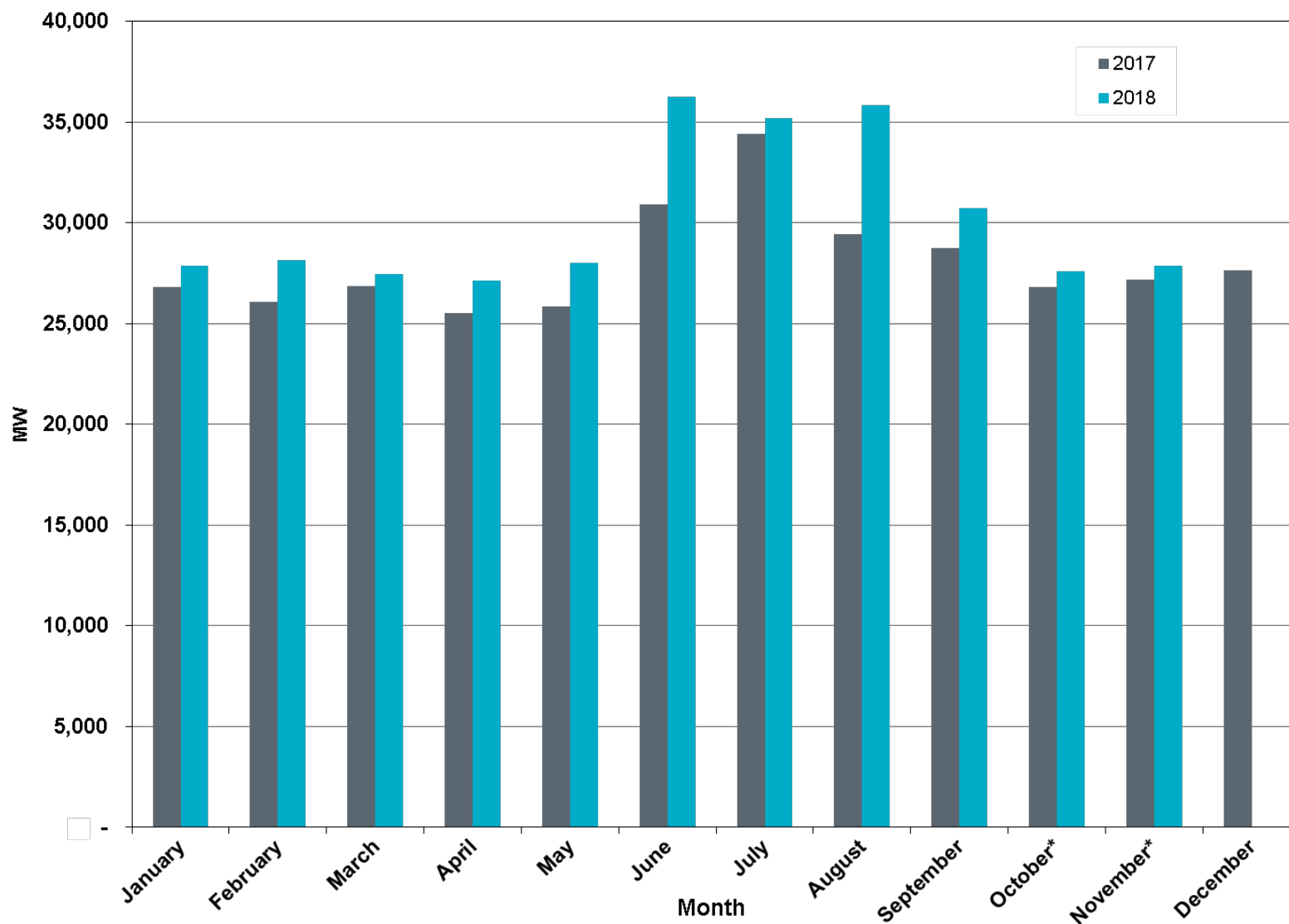
# ERCOT's CPS1 Monthly Performance – November 2018



## Monthly Peak Actual Demand – November 2018



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



\*Preliminary for latest two months of the current year

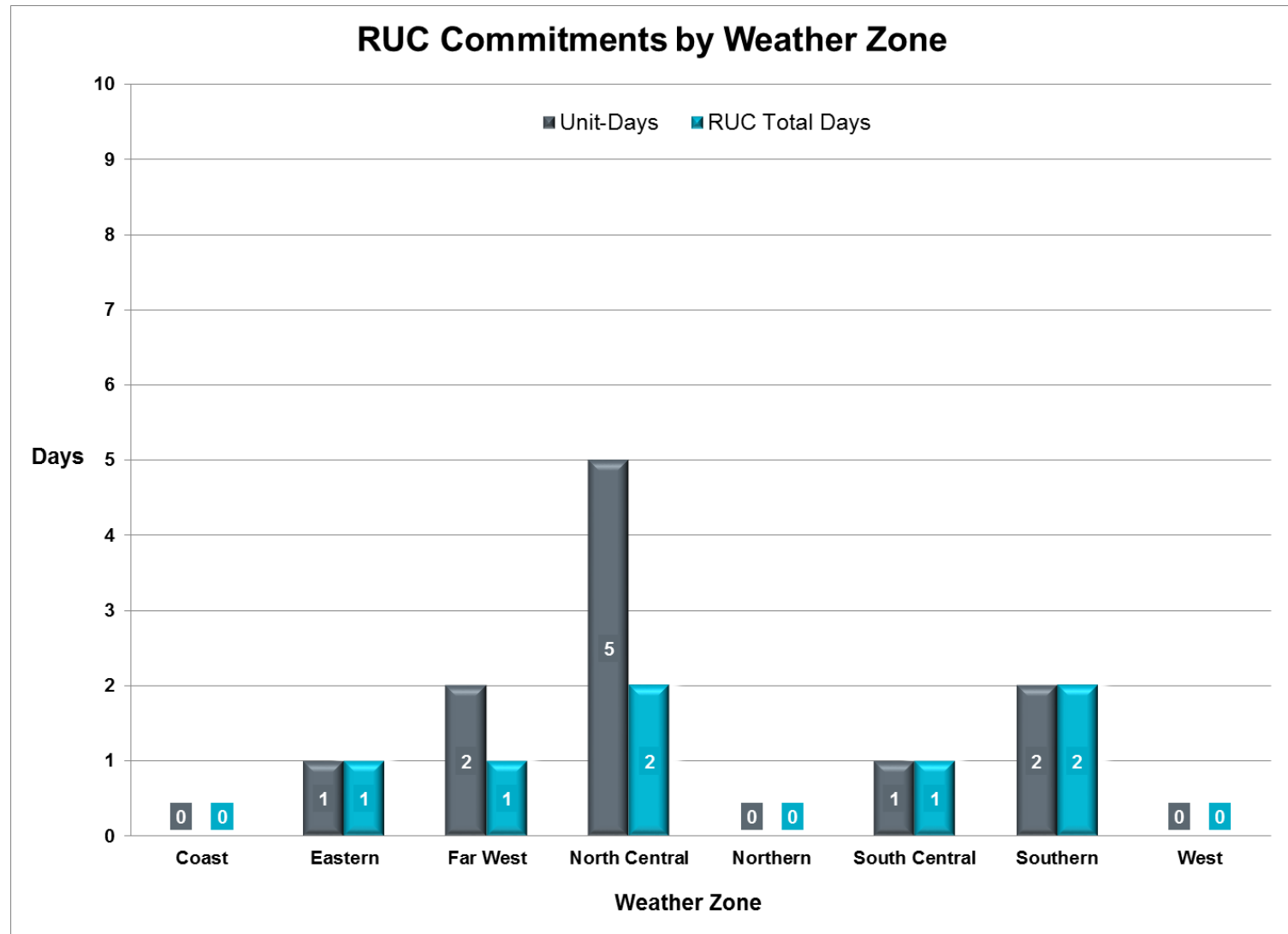


## Day-Ahead Load Forecast Performance – November 2018

**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	November 2018 MAPE	
<b>Average Annual MAPE</b>	2.86	2.62	2.55	2.36	2.91	
<b>Lowest Monthly MAPE</b>	1.89	1.94	1.69	1.64	<b>Lowest Daily MAPE</b>	0.83 Nov 6
<b>Highest Monthly MAPE</b>	3.81	3.86	4.07	3.66	<b>Highest Daily MAPE</b>	6.71 Nov 13

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



## Generic Transmission Constraints (GTCs) – November 2018

GTCs	Nov-17 Days GTCs	Sep-18 Days GTCs	Oct-18 Days GTCs	Nov-18 Days GTCs	Last 12 Months Total Days (Dec 17 – Nov 18)
North – Houston	2	1	2	0	7
Valley Import	0	0	0	0	12
Panhandle	25	12	16	19	241
Red Tap	0	0	0	3	3
North Edinburg – Lobo	0	0	0	0	0
Nelson Sharpe – Rio Hondo	0	0	0	0	65
East Texas	16	0	0	0	0
McCamey	-	0	0	0	0
Treadwell	-	0	0	0	0

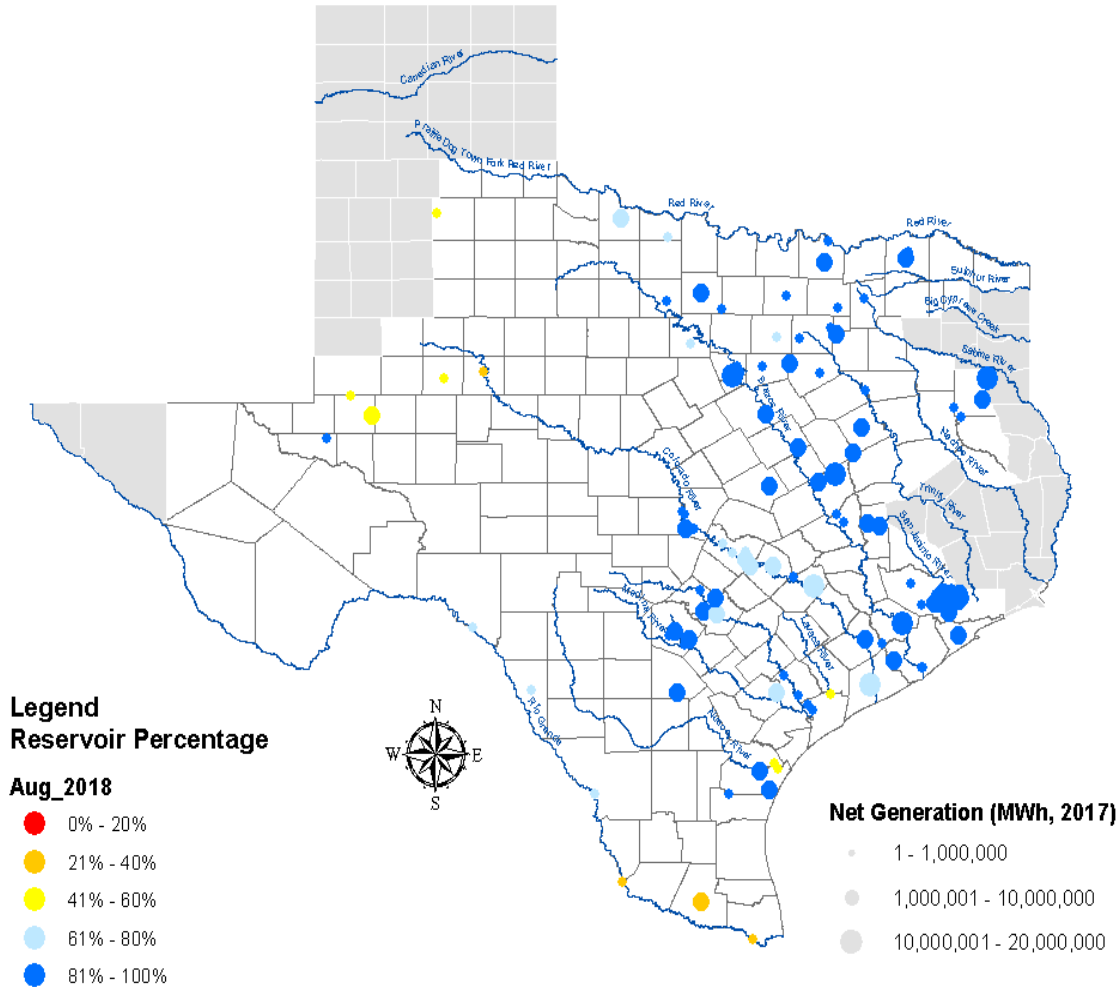
**GTC:** A transmission flow limit more constraining than a Transmission Element's normal limit established to constrain flow between geographic areas of the ERCOT Transmission System that is used to enforce stability and voltage constraints that cannot be modeled directly in ERCOT's transmission security 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 – November 2018

- One OCN issued due to projected reserve capacity shortage for hours ending 18:00 through 20:00.
  - Issued 11/05
- One OCN issued due to projected reserve capacity shortage for hours ending 19:00 through 23:00.
  - Issued 11/13

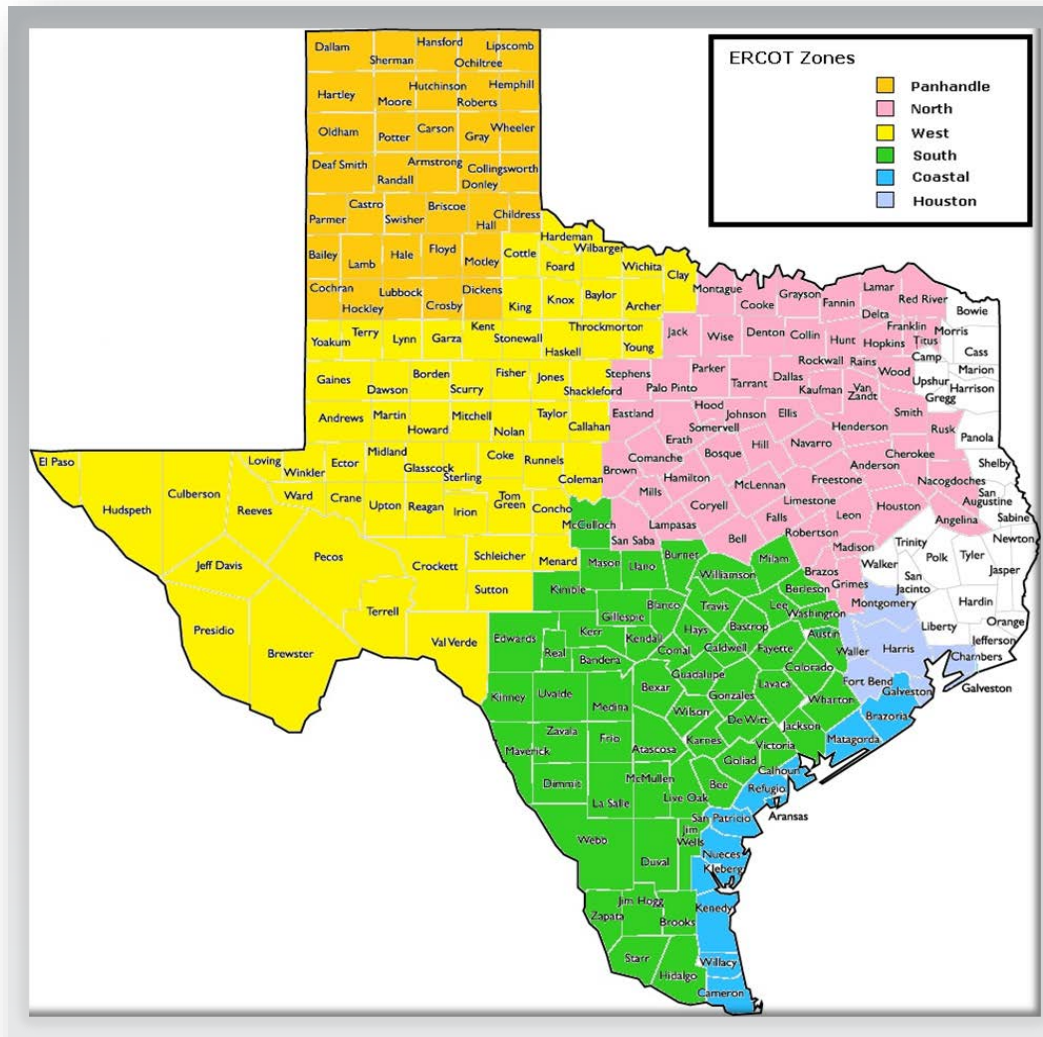
# Lake Levels Update – December 1, 2018



## Planning Summary – November 2018

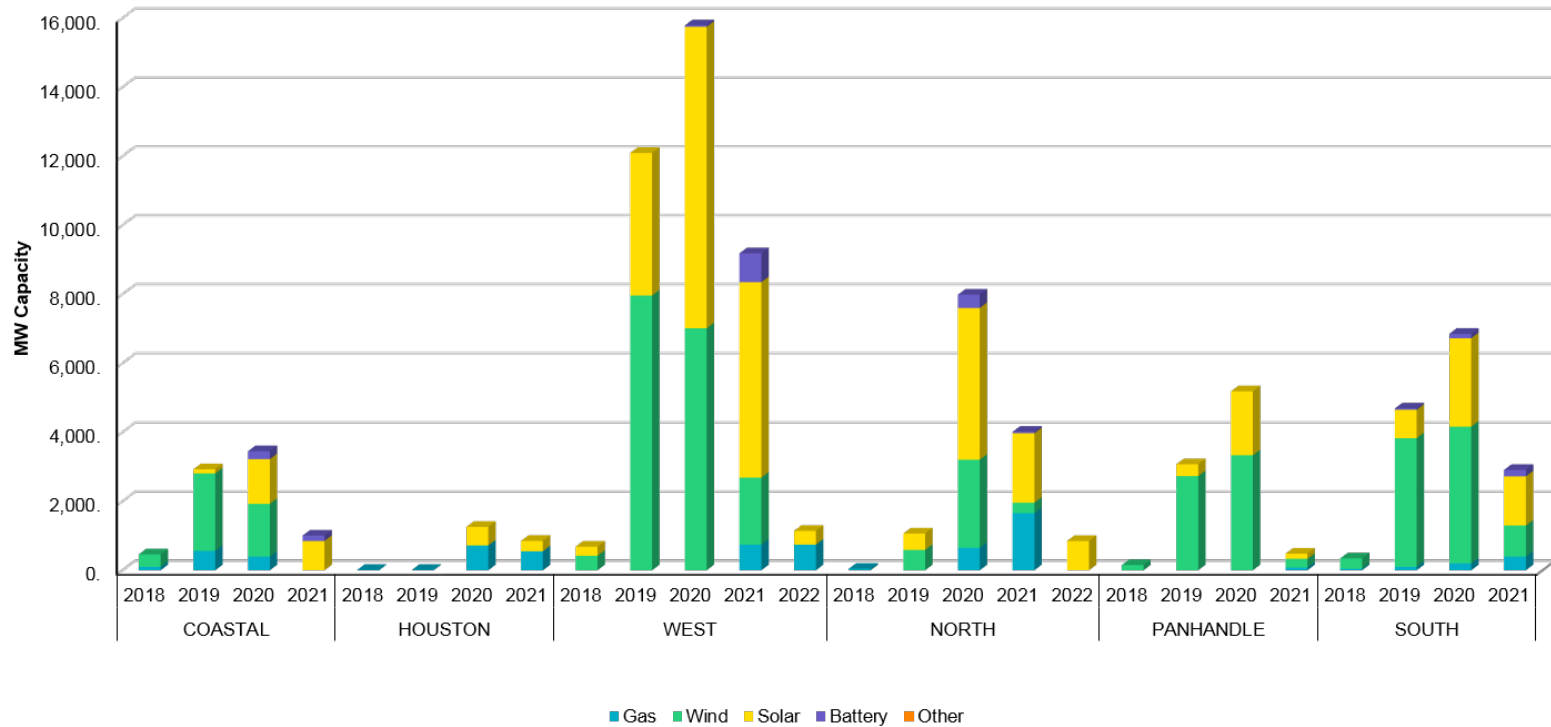
- ERCOT is currently tracking 443 active generation interconnection requests totaling 86,517 MW. This includes 40,283 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$527.7 million (as of November 30, 2018).
- Transmission Projects endorsed in 2018 total \$611.85 million (as of November 30, 2018).
- All projects (in engineering, routing, licensing, and construction) total approximately \$6.03 billion (as of October 15, 2018).
- Transmission Projects energized in 2018 total about \$1.44 billion (as of October 15, 2018).

## Mapping of Counties to ERCOT Zones – November 2018



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

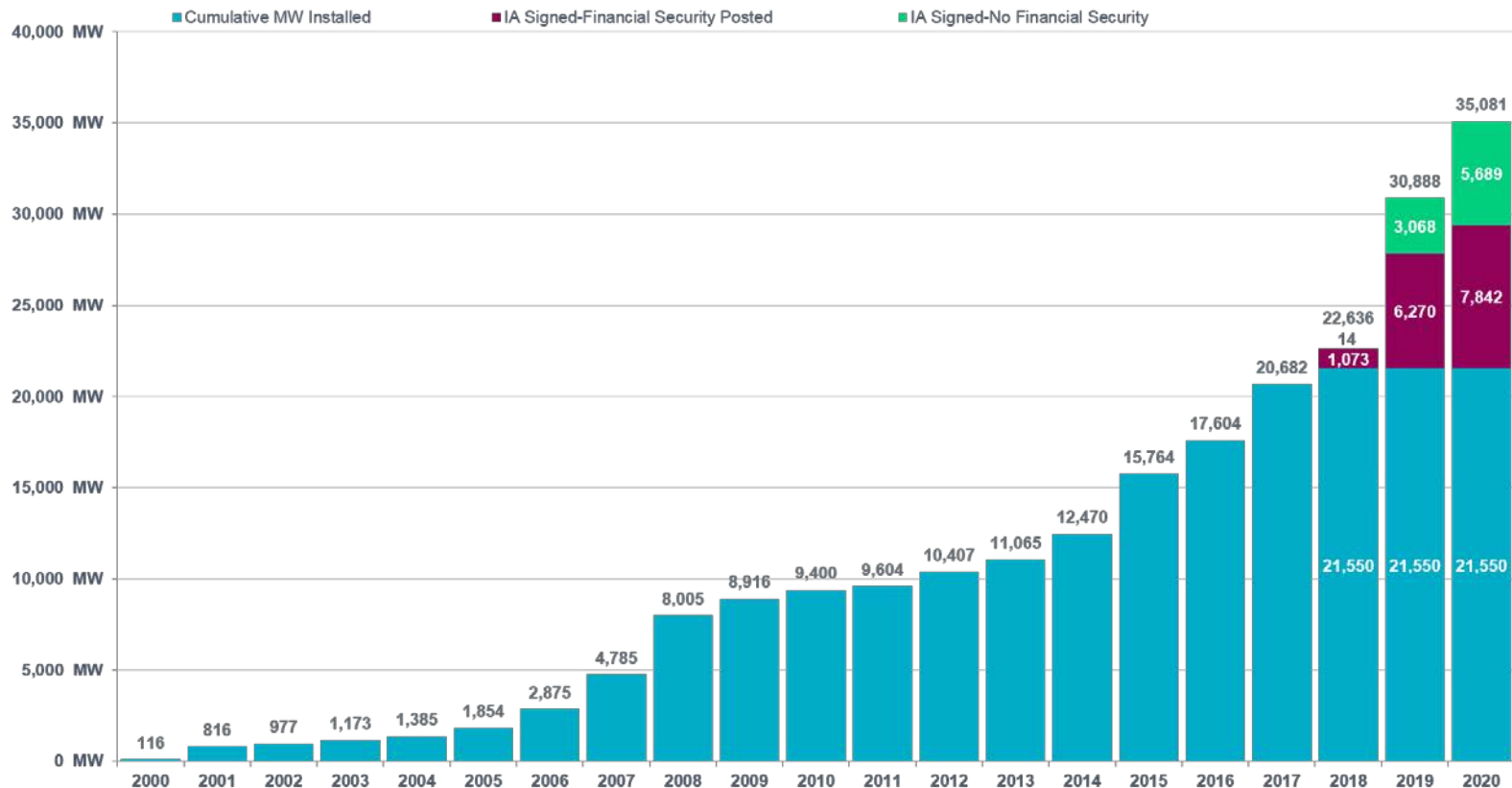
Capacity for Planned Projects by Projected In-service Year and CDR Forecast Zone





# Wind Generation – November 2018

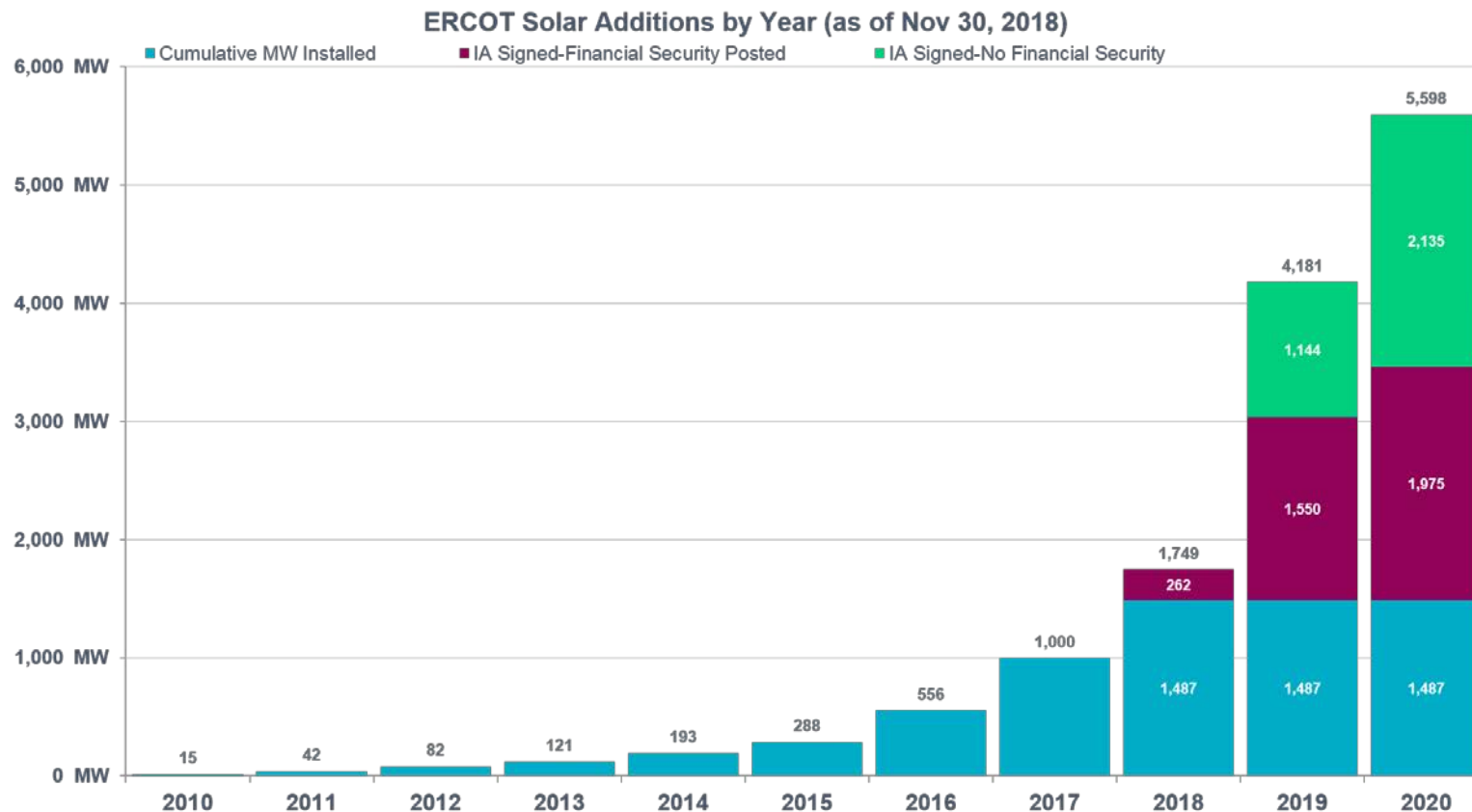
ERCOT Wind Additions by Year (as of Nov 30, 2018)



**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 are the original nameplate rating of the generation facilities, and do not reflect retirements or rating changes over time due to facility expansions or repowering.
- 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 – November 2018

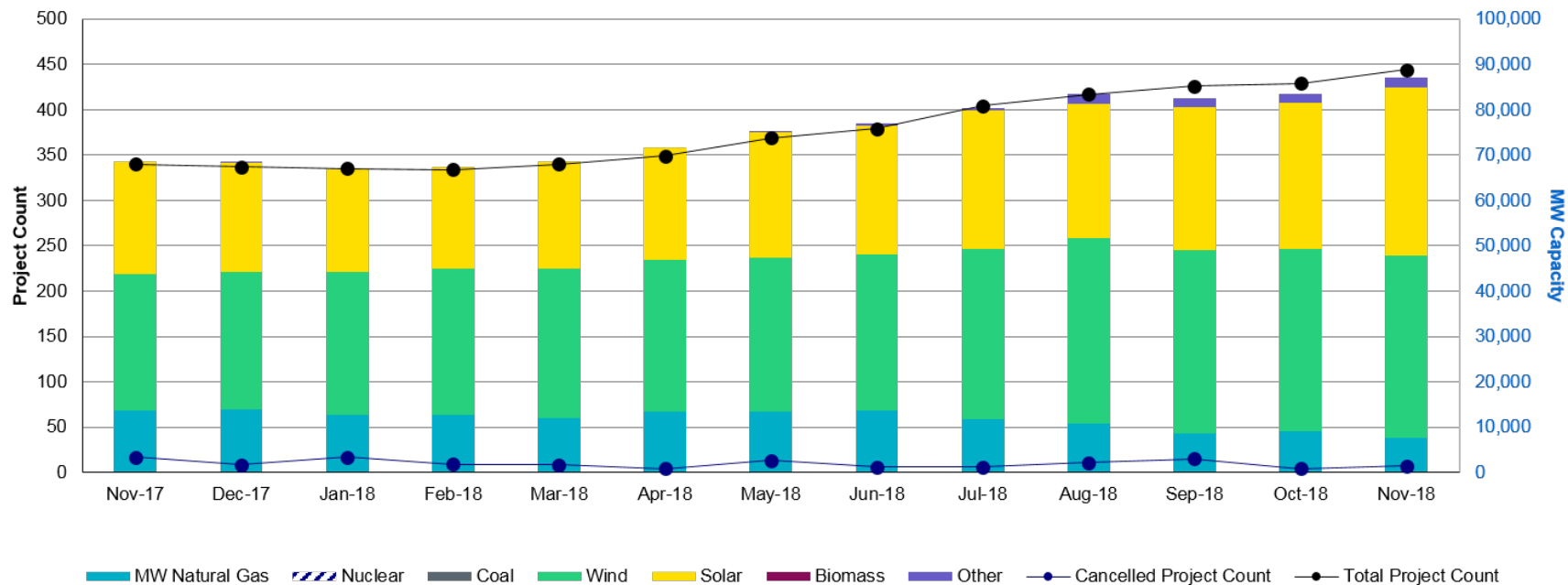


**Notes:**

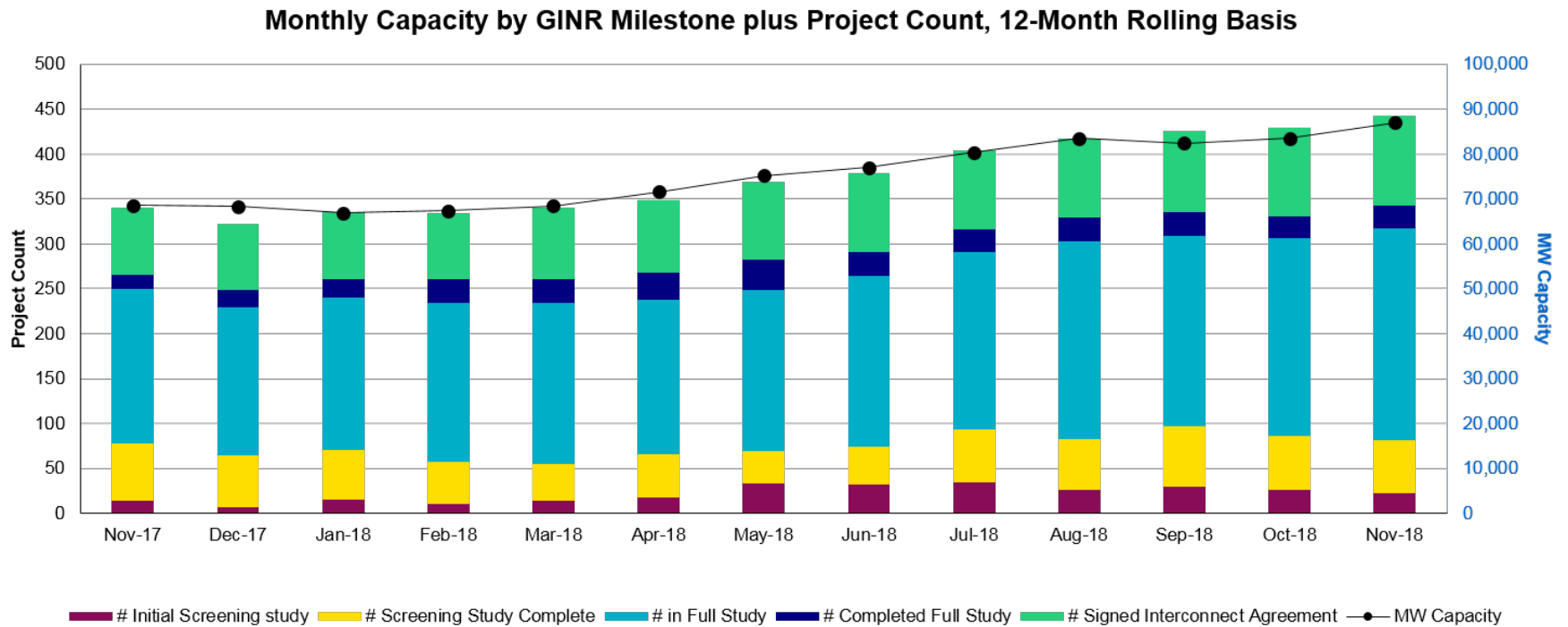
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- This chart reports annual planned units with projected Commercial Operations Dates throughout the calendar year. In contrast, ERCOT's Capacity, Demand and Reserves (CDR) report shows planned capacity projected to be commercially available on or before the start of the Summer and Winter Peak Load seasons.

# Generation Interconnection Activity by Fuel – November 2018

Monthly Capacity by Fuel Type plus Project Count, 12-Month Rolling Basis

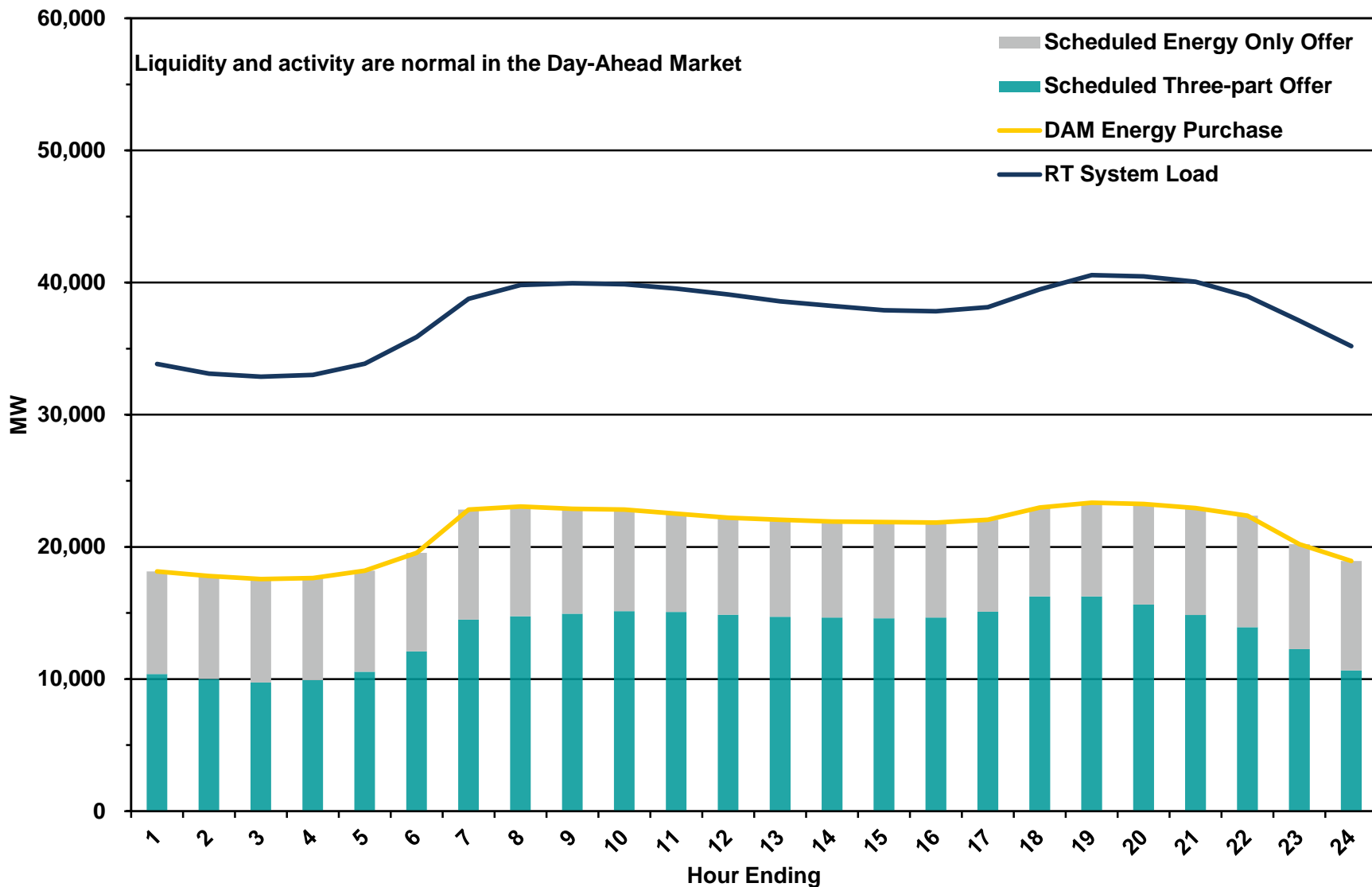


# Generation Interconnection Activity by Project Phase – November 2018

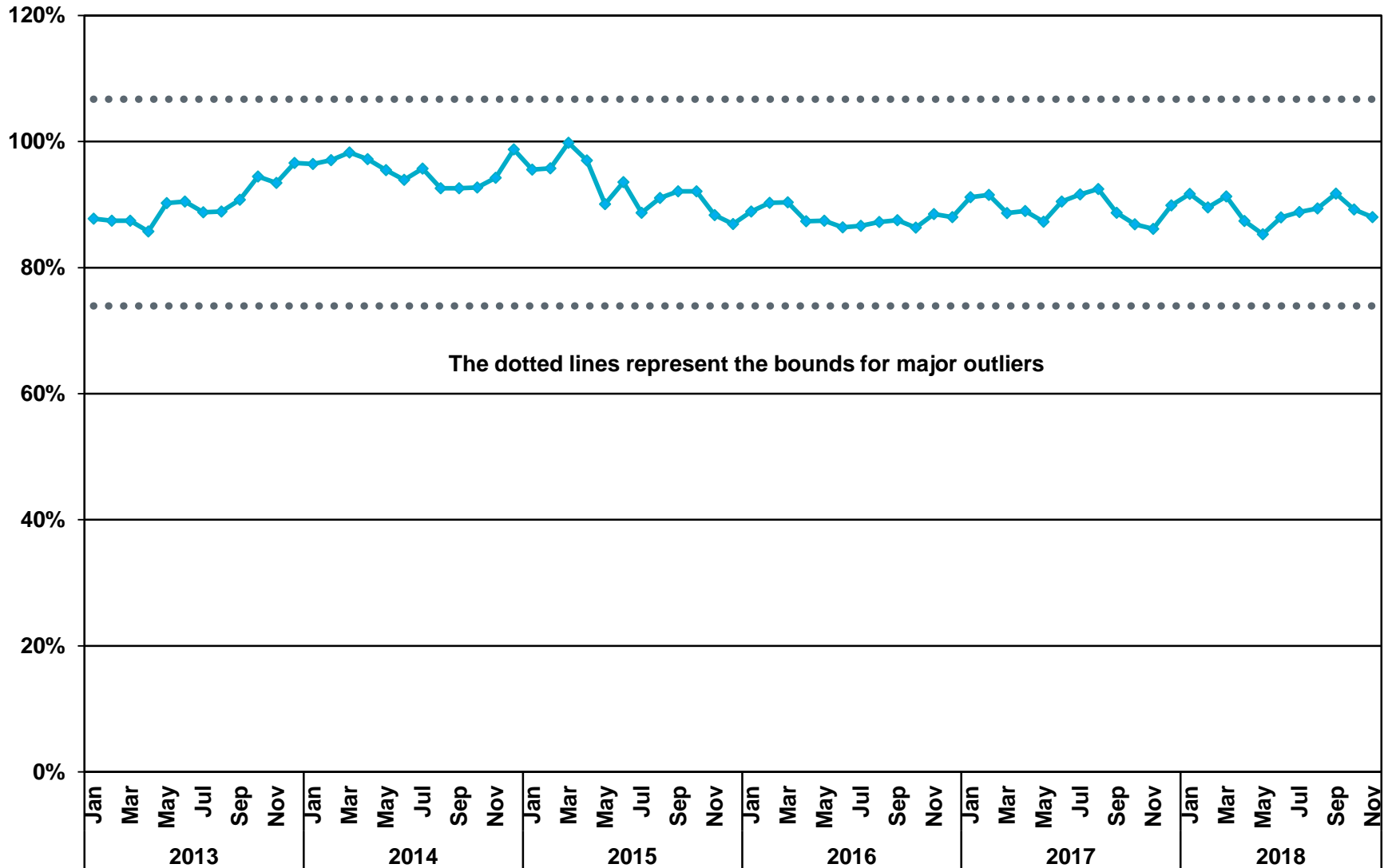


# Market Operations

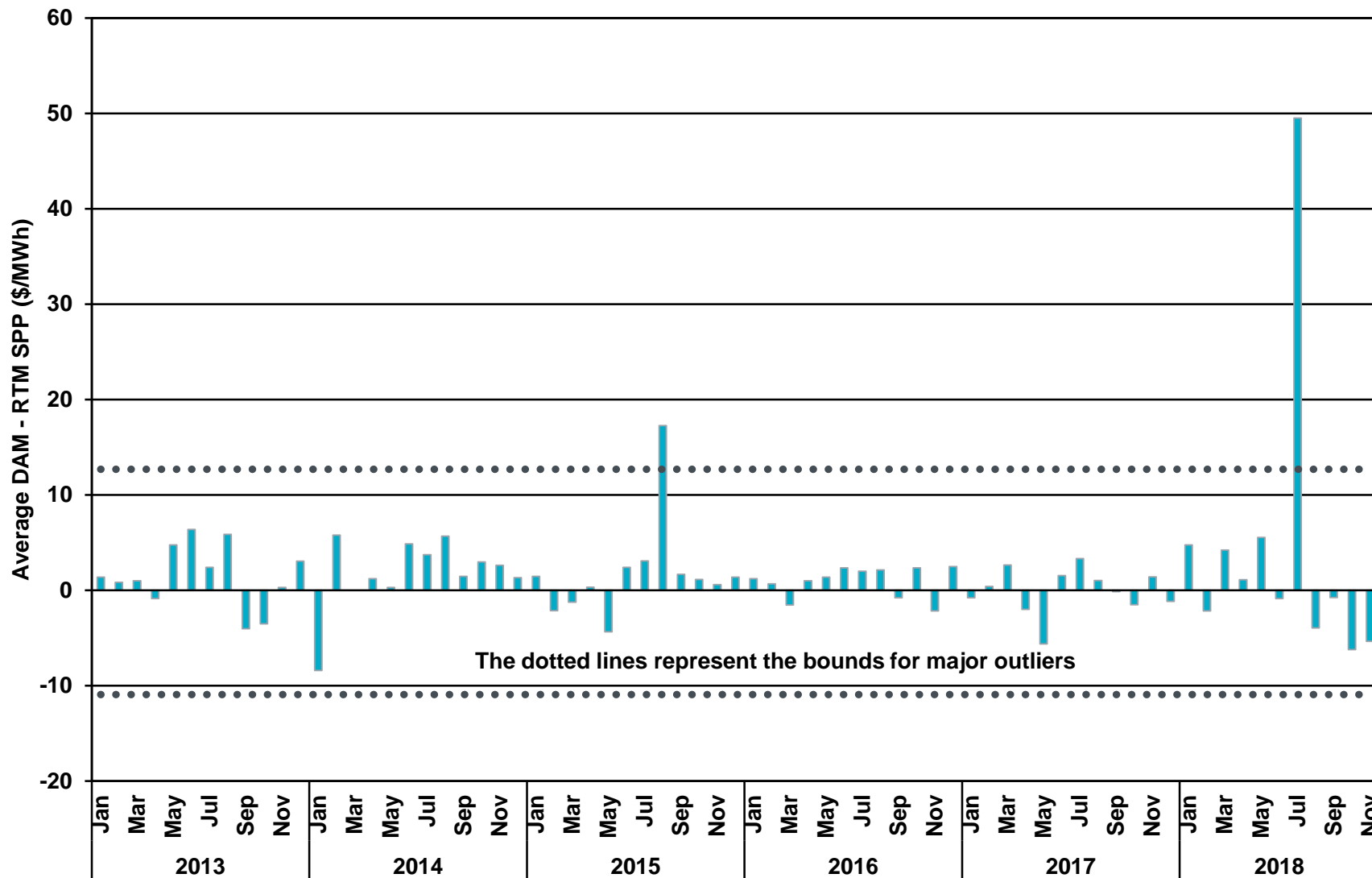
## Day-Ahead Schedule (Hourly Average) – November 2018



## Percentage of Real-Time Load Transacted in the DAM (Counter-Party Level) – November 2018

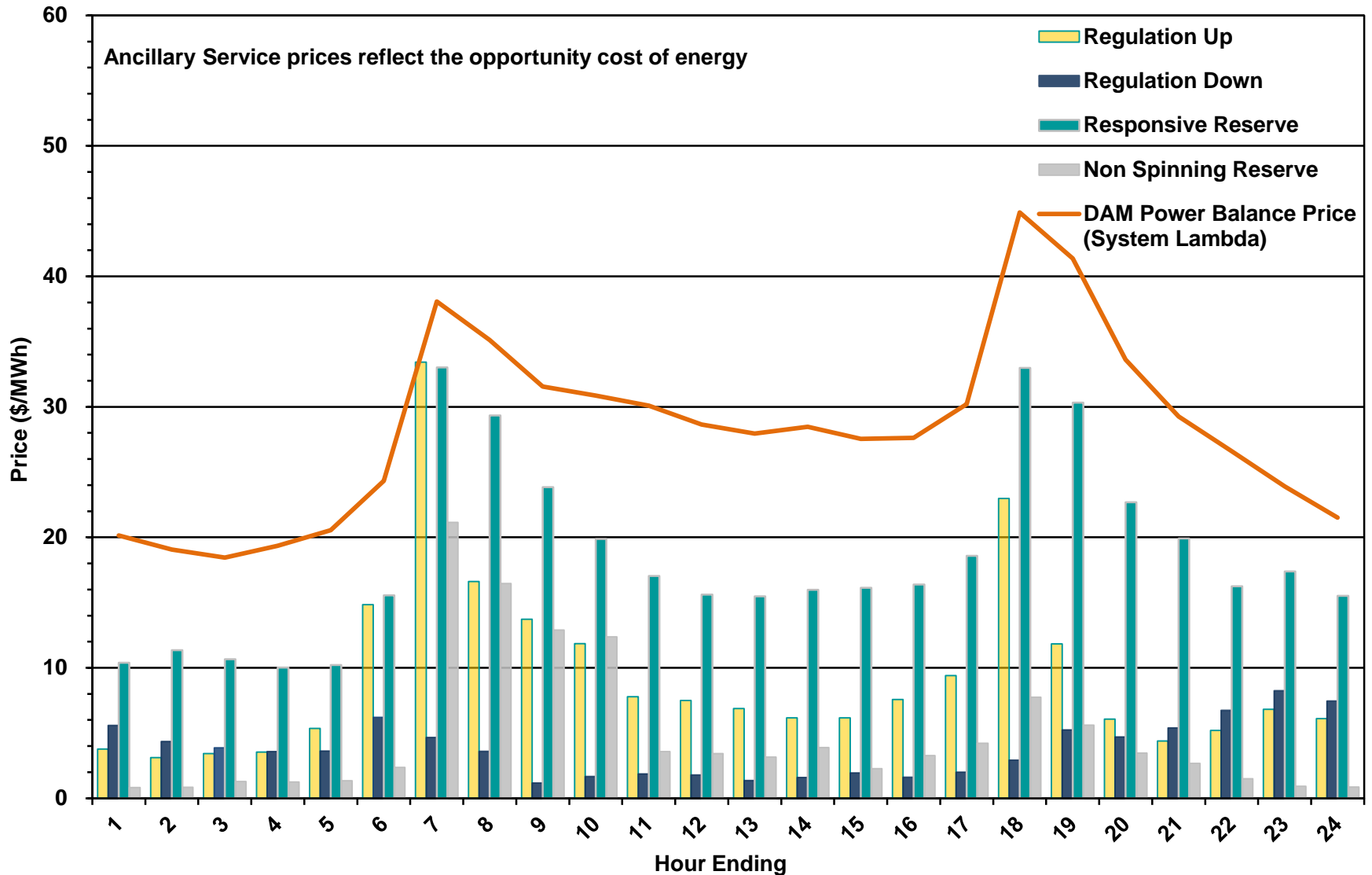


## DAM and RTM Price Convergence – November 2018

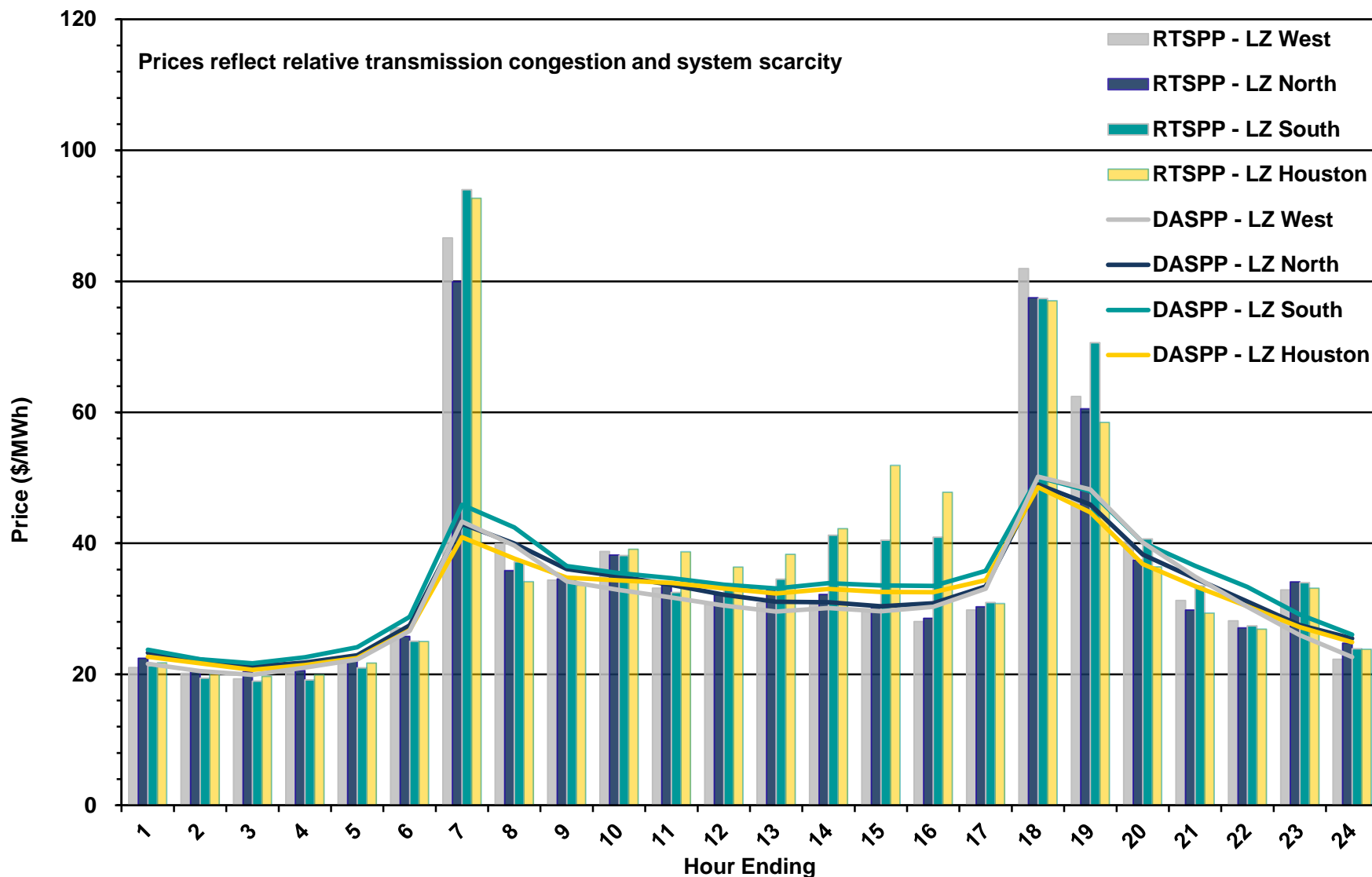




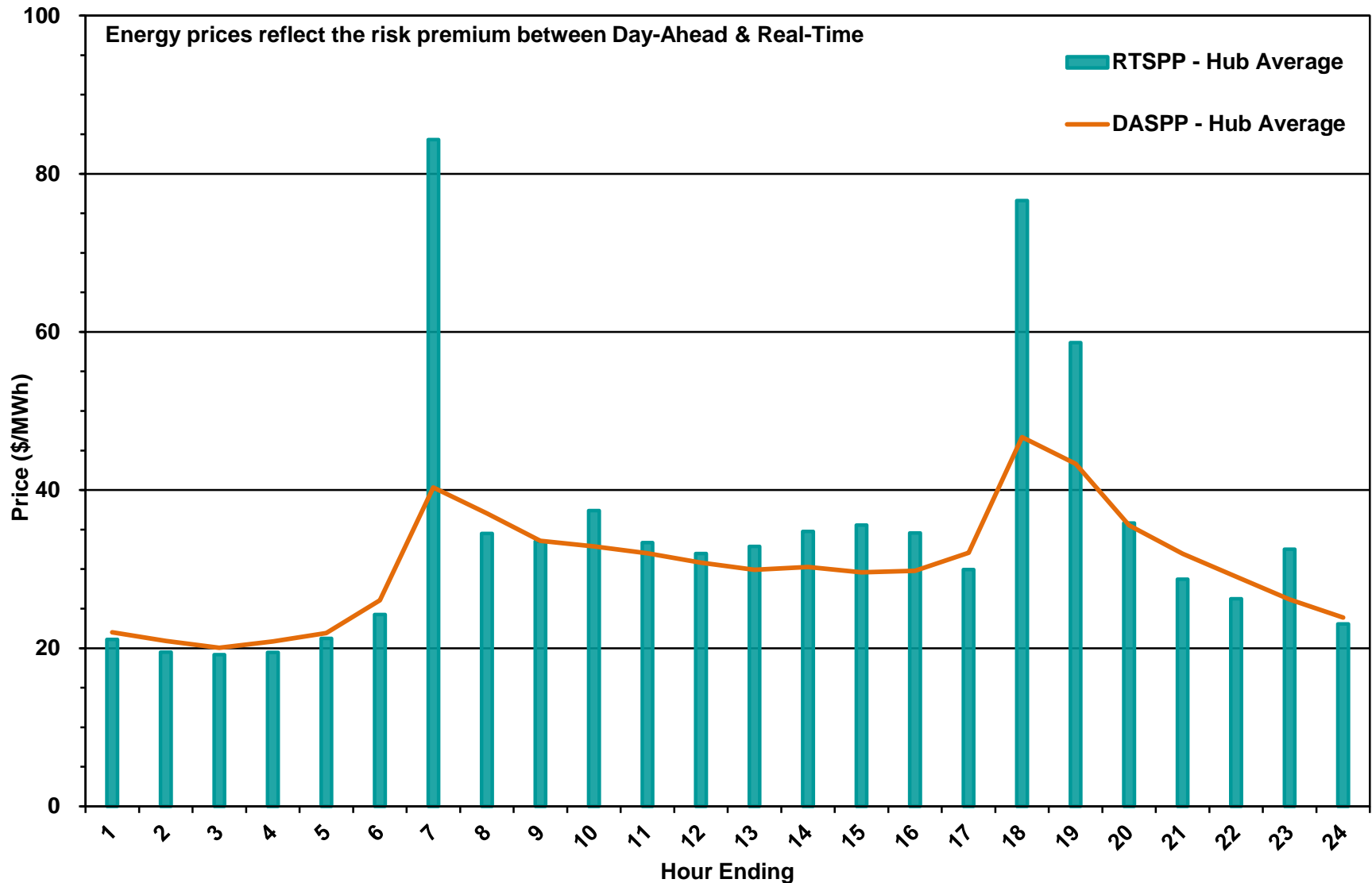
## Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – November 2018



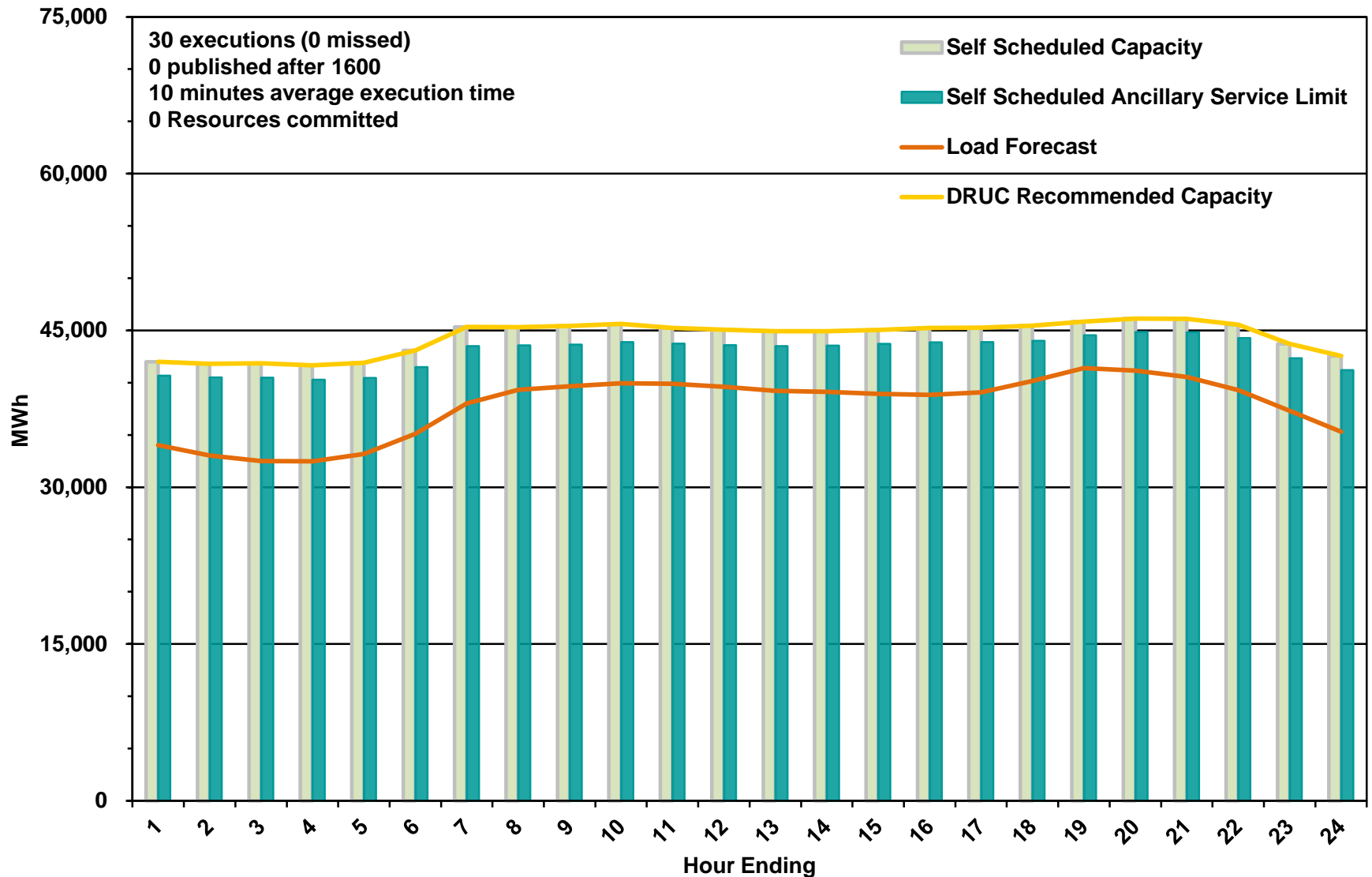
## Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – November 2018



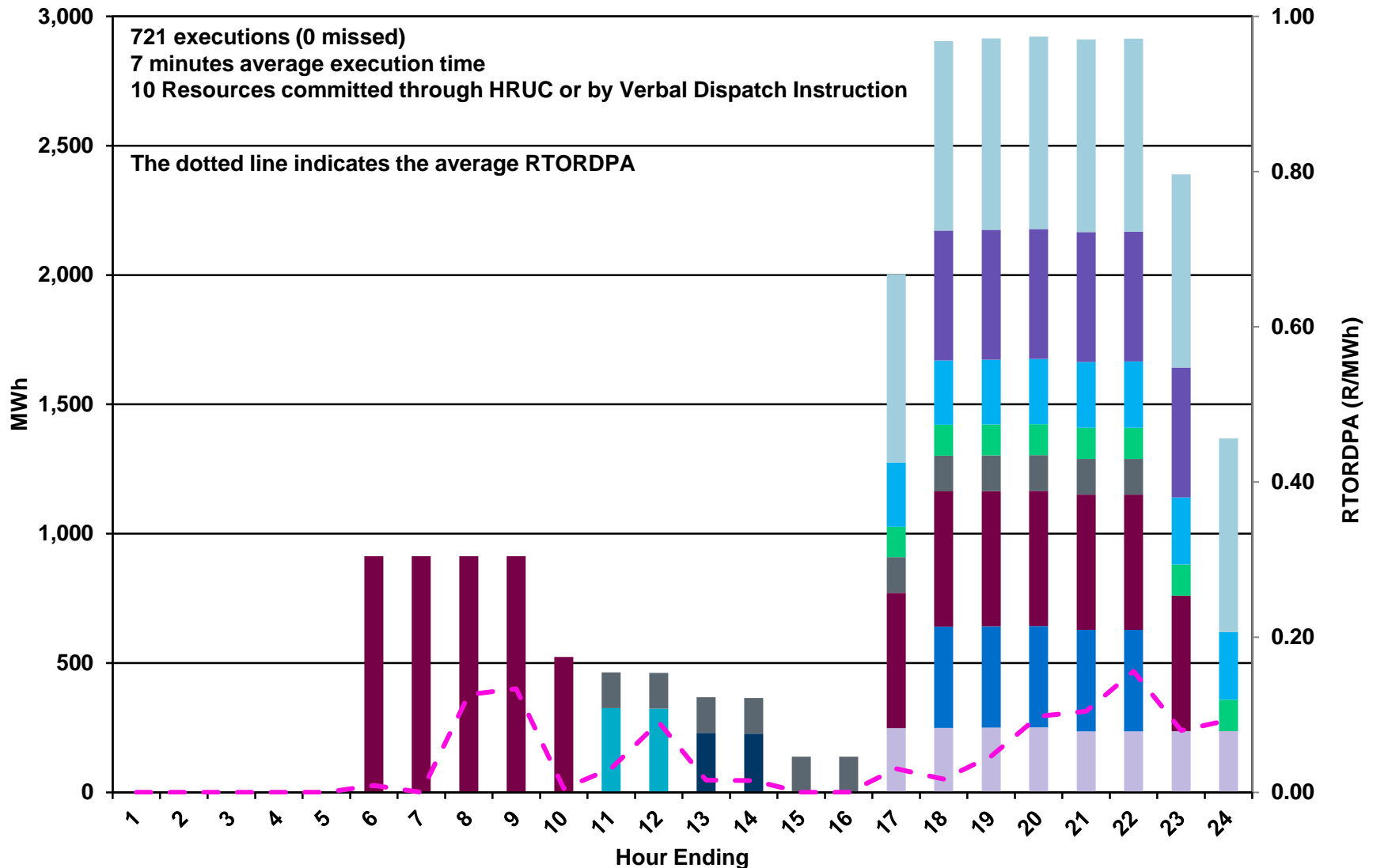
# Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – November 2018



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



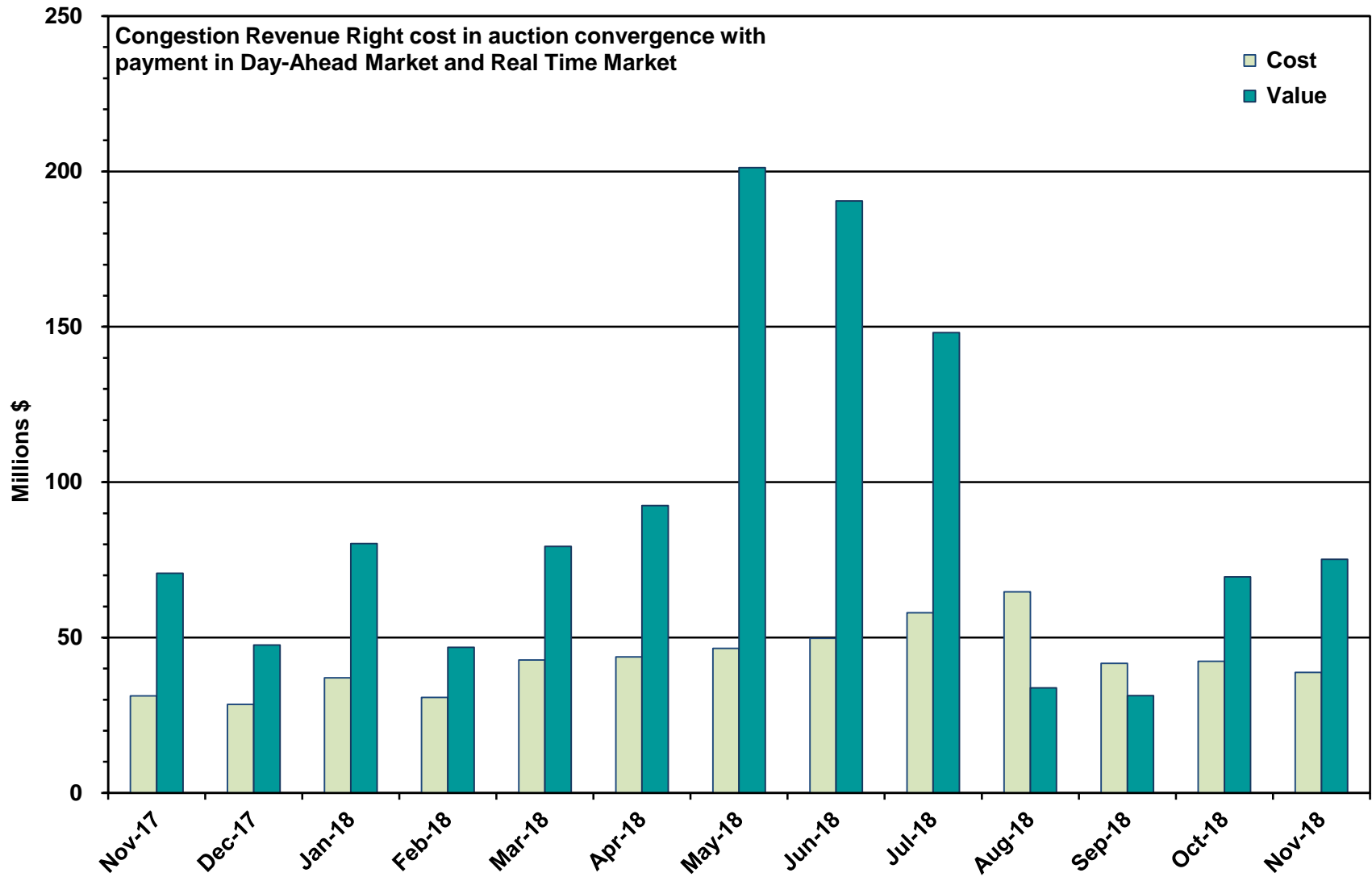
# HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – November 2018



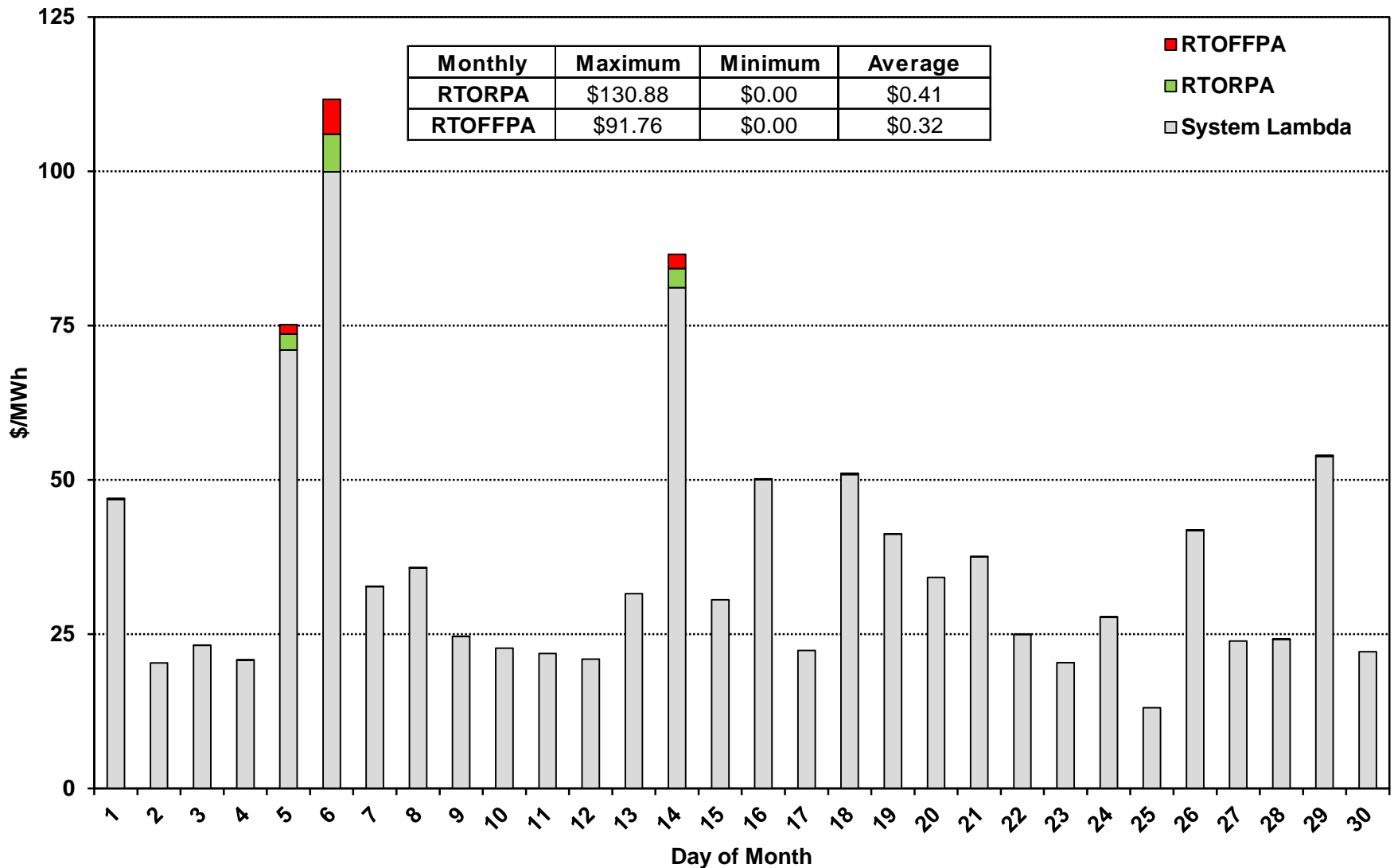
## Non-Spinning Reserve Service Deployment – November 2018

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

## CRR Price Convergence – November 2018



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





## ERS Procurement for October 2018 – January 2019

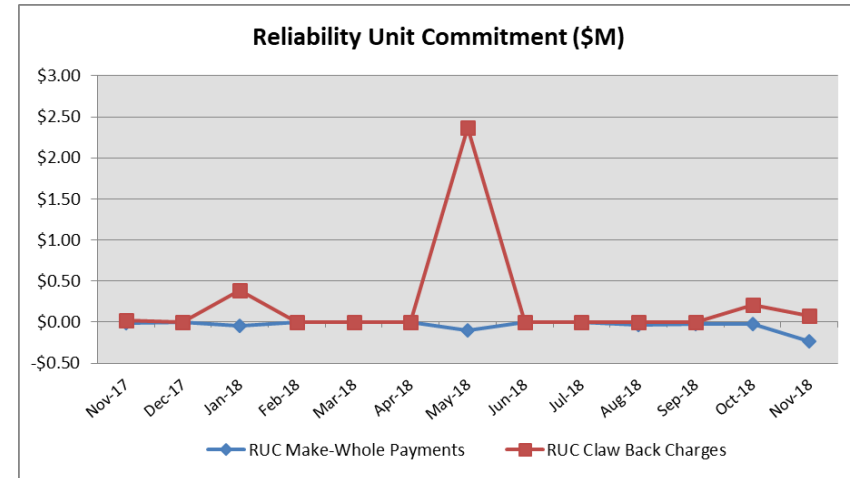
	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	162.740	168.420	116.642	161.688	160.131	144.273
Non Weather-Sensitive ERS-30 MW	755.973	809.020	459.787	791.528	761.368	661.249
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	7.6	0	0	7.6	0	0
Total MW Procured	926.313	977.440	576.429	960.816	921.499	805.522
Clearing Price	\$14.63	\$11.90	\$0.27	\$17.34	\$12.92	\$1.06

### 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 – November 2018

Reliability Unit Commitment (RUC)	\$ in Millions
RUC Make-Whole Payments	(\$0.23)
RUC Clawback Charges	\$0.08
<b>RUC Commitment Settlement</b>	<b>\$0.15</b>
RUC Capacity Short Charges	\$0.23
RUC Make-Whole Uplift	\$0.00
<b>RUC Commitment Cost Allocation</b>	<b>\$0.23</b>
RUC Decommitment Payments	\$0.00
<b>Total RUC Allocation to Load</b>	<b>(\$0.08)</b>



In November 2018, there was a credit of \$0.08M allocated to load for RUC compared to:

- A credit of \$0.21M in October 2018
- A credit of \$0.02M in November 2017

## Ancillary and Other Services – November 2018

<b>Ancillary and Other Services</b>	<b>\$ in Millions</b>
<b>Regulation Up Service</b>	\$2.16
<b>Regulation Down Service</b>	\$0.77
<b>Responsive Reserve Service</b>	\$26.42
<b>Non-Spinning Reserve Service</b>	\$6.52
<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>\$36.46</b>

In November 2018, Ancillary and Other Services was a charge of \$36.46M, compared to:

- A charge of \$35.69M in October 2018
- A charge of \$24.42M in November 2017

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

Real-Time Ancillary Service Imbalance	\$ in Thousands
Real-Time AS Imbalance	(\$169)
Real-Time Reliability Deployment AS Imbalance	(\$95)
<b>Total RTASI Amount Allocated to Load</b>	<b>\$265</b>

In November 2018, Real-Time Ancillary Service Imbalance was a charge to load of \$265K, compared to:

- A charge of \$218K in October 2018
- A charge of \$46K in November 2017

## Energy Settlement – November 2018

<b>Day-Ahead Market Energy Settlement</b>	<b>\$ in Millions</b>
<b>Energy Purchases</b>	\$497.15
<b>Point to Point Obligation Purchases</b>	\$58.48
<b>Energy Sales</b>	(\$483.78)
<b>Day-Ahead Congestion Rent</b>	<b>\$71.85</b>
<b>Day-Ahead Market Make-Whole Payments</b>	(\$0.11)

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

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

<b>Real-Time Market Energy Settlement</b>	<b>\$ in Millions</b>
<b>Energy Imbalance at a Resource Node</b>	(\$521.56)
<b>Energy Imbalance at a Load Zone</b>	\$827.13
<b>Energy Imbalance at a Hub</b>	(\$245.03)
<b>Net Real-Time Energy Imbalance</b>	<b>\$60.53</b>
<b>Real Time Congestion from Self Schedules</b>	\$0.46
<b>Block Load Transfers and DC Ties</b>	(\$4.85)
<b>Total Impact to Revenue Neutrality</b>	<b>\$56.14</b>
<b>Load-Allocated Emergency Energy Payments</b>	(\$0.27)
<b>Load-Allocated Base Point Deviation Charges</b>	\$0.24

## Congestion Revenue Rights (CRR) – November 2018

	\$ in Millions
<b>Long-Term Auction</b>	(\$30.29)
<b>Monthly Auction</b>	(\$8.48)
<b>Total Auction Revenue</b>	<b>(\$38.78)</b>
<b>Day-Ahead CRR Settlements</b>	(\$75.19)
<b>Day-Ahead CRR Short-Charges</b>	\$6.16
<b>Day-Ahead CRR Short-Charges Refunded</b>	(\$6.16)
<b>Day-Ahead CRR Short-Charges Net</b>	<b>\$0.00</b>
<b>Total CRR Funding</b>	<b>(\$75.19)</b>
<b>Day-Ahead Point-to-Point Obligations</b>	\$58.48
<b>Real-Time Point-to-Point Obligations</b>	(\$56.53)
<b>Net Point-to-Point Obligations</b>	<b>\$1.95</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 charge of \$1.95M compared to a net charge of \$0.55M last month.

## CRR Balancing Account Fund – November 2018

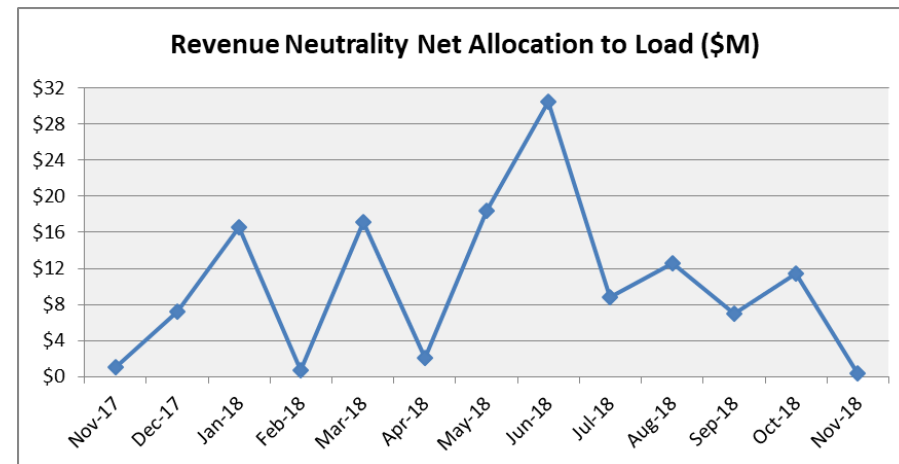
<b>CRR Balancing Account</b>	<b>\$ in Millions</b>
Monthly Day-Ahead Congestion Rent	\$71.85
Monthly Day-Ahead CRR Settlements	(\$75.19)
Monthly Day-Ahead CRR Short -Charges	\$6.16
<b>CRR Balancing Account Credit Total</b>	<b>\$2.82</b>
Beginning Fund Balance for the Month	\$10.00
CRR Balancing Account Credit Total	\$2.82
Day-Ahead CRR Short-Charges Refunded	(\$6.16)
CRR PTP Option Award Charges	\$0.04
Load-Allocated CRR Amount	\$0.00
<b>Total Fund Amount</b>	<b>\$6.70</b>

## Revenue Neutrality – November 2018

Revenue Neutrality	\$ in Millions
Real-Time Energy Imbalance	\$60.53
Real-Time Point to Point Obligation	(\$56.53)
Real-Time Congestion from Self-Schedules	\$0.46
DC Tie & Block Load Transfer	(\$4.85)
<b>Allocation to Load</b>	<b>\$0.39</b>

In November 2018, the Revenue Neutrality charge to load was \$0.39M compared to:

- A charge of \$11.42M in October 2018
- A charge of \$1.03M in November 2017



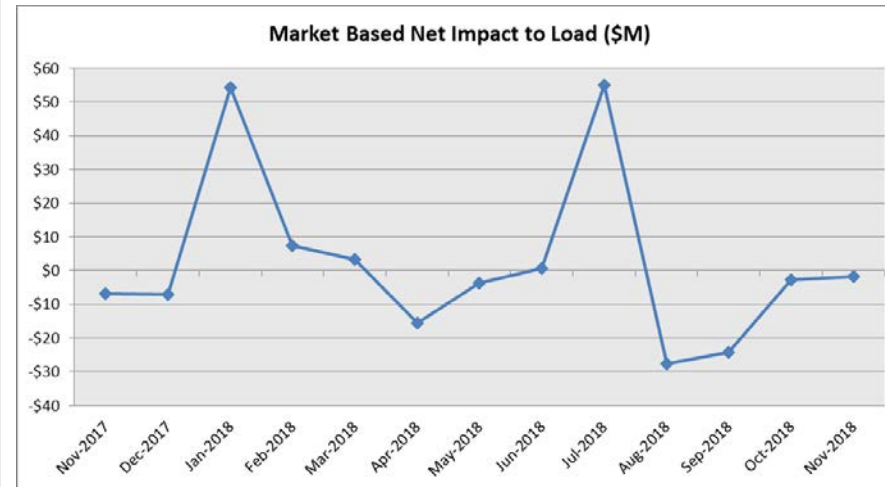


## Net Allocation to Load – November 2018

Market-Based Allocation	\$ in Millions
Reliability Unit Commitment	(\$0.08)
Ancillary and Other Services	\$36.46
Real-Time Ancillary Service Imbalance	\$0.26
Emergency Energy	\$0.27
Base Point Deviation	(\$0.24)
CRR Auction Revenue	(\$38.78)
CRR Balancing Account	\$0.00
Real-Time Revenue Neutrality	\$0.39
Reliability Must Run	\$0.00
Monthly Block Load Transfer	\$0.00
<b>Total</b>	<b>(\$1.70)</b>
<b>Fee Allocation</b>	
ERCOT Administrative Fee	\$15.08
<b>Net Allocated to Load</b>	<b>\$13.38</b>

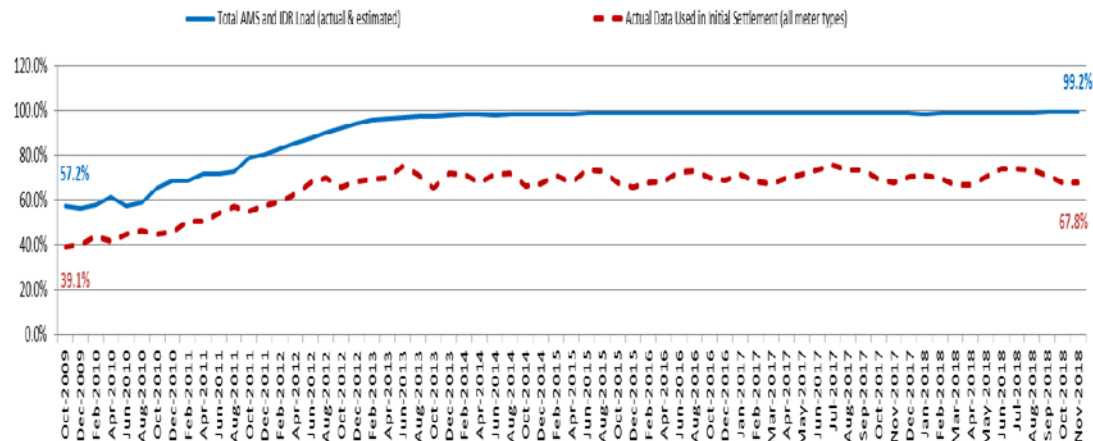
In November 2018, the Net Allocation to load was a charge of \$13.38M compared to:

- A charge of \$13.43M in October 2018
- A charge of \$7.84M in November 2017



# Advanced Meter Settlement Impacts – November 2018

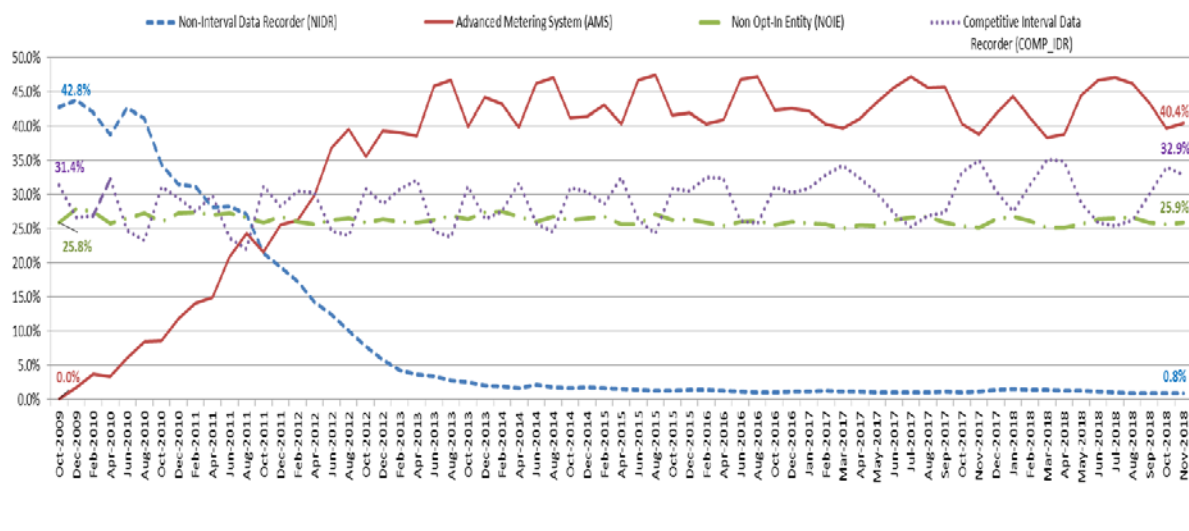
Percent Actual/Percent Interval Data Recorder (IDR)



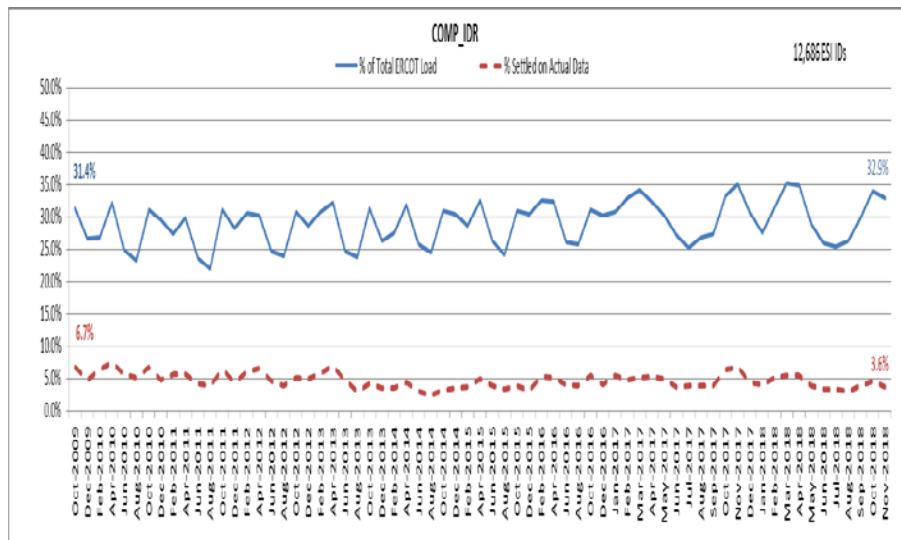
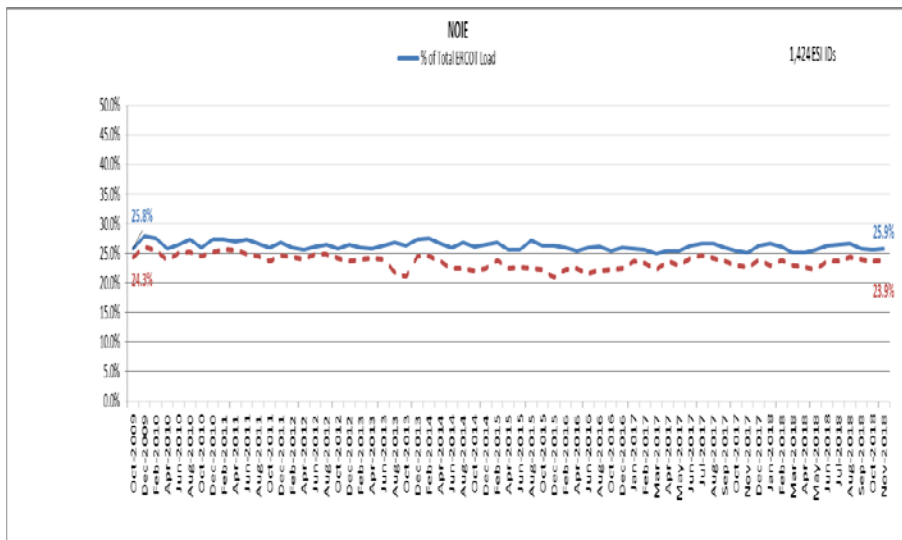
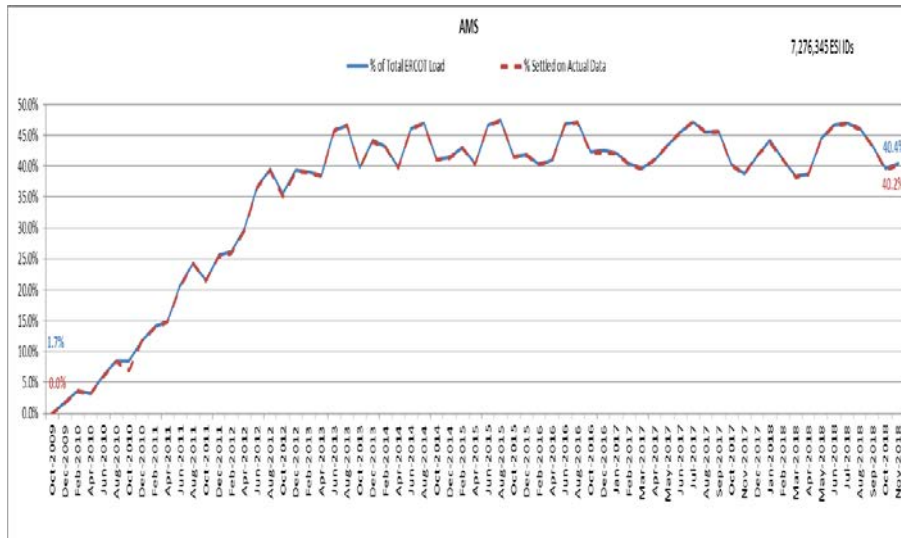
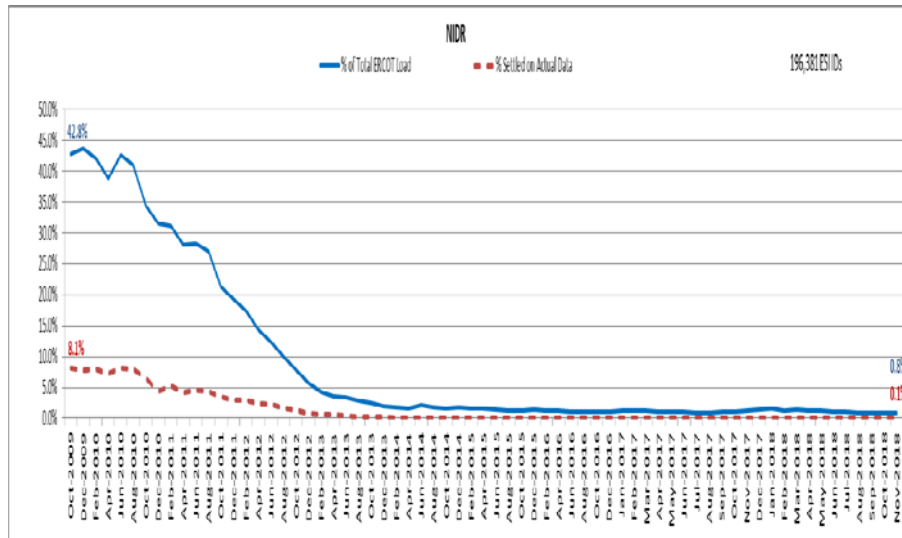
November 2018: At month end, settling 7.2M ESIIDs using Advanced Meter data.

November 2018: 99.2% 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 – November 2018

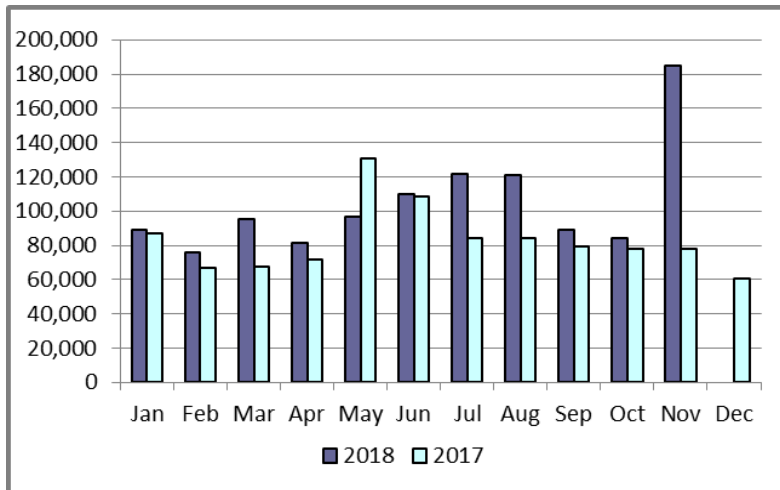


## Retail Transaction Volumes – Summary – November 2018

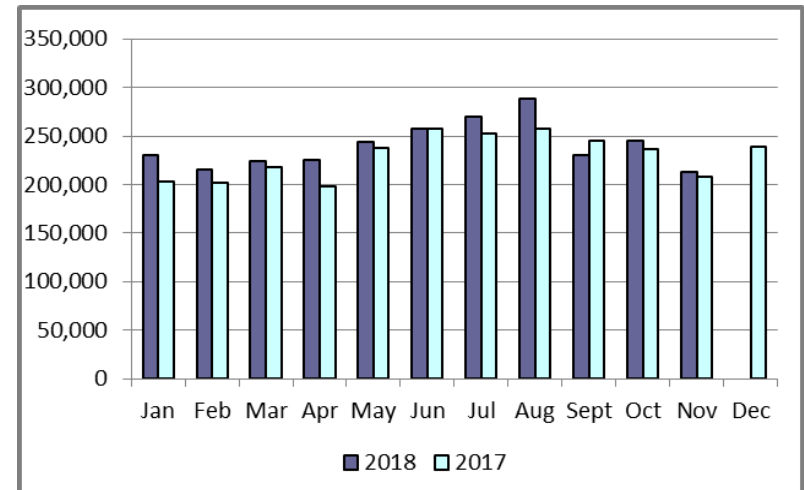
	Year-To-Date		Transactions Received	
Transaction Type	November 2018	November 2017	November 2018	November 2017
Switches	1,149,282	936,892	185,003	77,860
Acquisition	0	0	0	0
Move - Ins	2,644,489	2,515,028	213,210	207,921
Move - Outs	1,269,829	1,277,335	99,302	100,830
Continuous Service Agreements (CSA)	591,253	450,086	46,093	31,726
Mass Transitions	9,034	0	0	0
<b>Total</b>	<b>5,663,887</b>	<b>5,179,341</b>	<b>543,608</b>	<b>418,337</b>

# Retail Transaction Volumes – Summary – November 2018

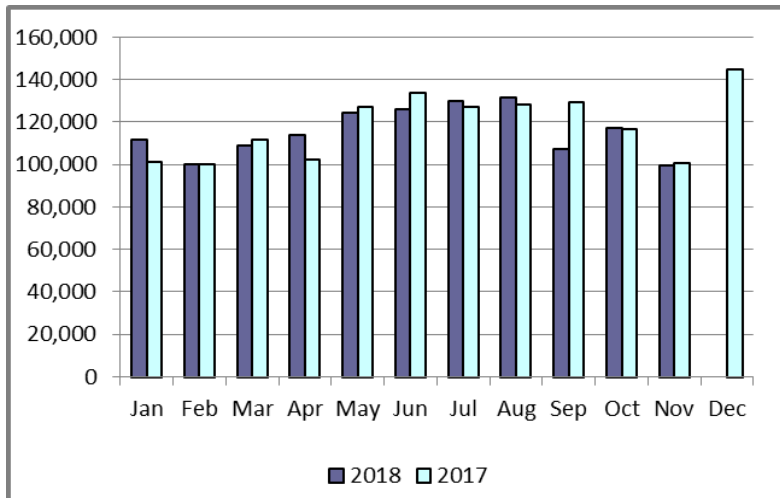
## Switches/Acquisitions



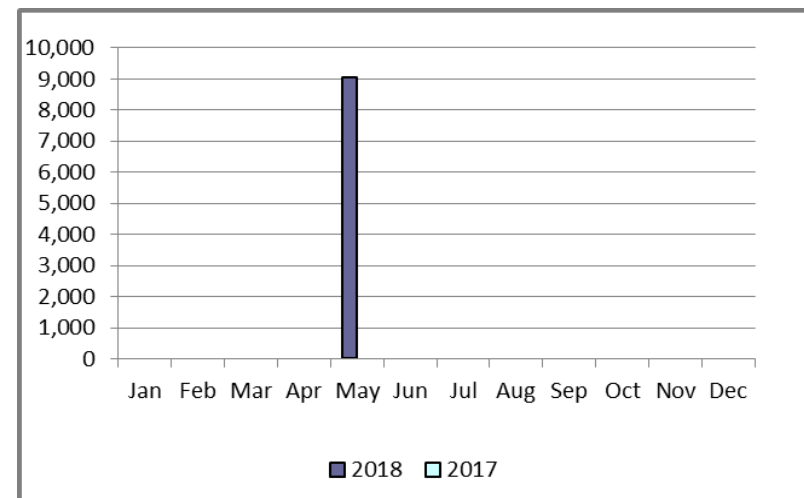
## Move-Ins



## Move-Outs



## Mass Transition



# Projects Report

# ERCOT Portfolio Stoplight Report – November 2018

Impact Metric Tolerances	2018 Project Funding	\$ 20,000,000	2018 Portfolio Spending Estimate
Unfavorable variances are represented as negative numbers within the report.	Projects In Flight/On Hold (Count = 84)		\$ 20,237,613
- Green = No more than 4.9% unfavorable variance	Projects Not Yet Started (Count = 5)		\$ 12,500
- Yellow = Unfavorable variance between 4.9% and 9.9%	Projects Completed (Count = 74)		\$ 3,046,341
- Red = Unfavorable variance more than 9.9%	Spending Reductions Required to Maintain Capital Budget		\$ (3,296,454)
	<b>TOTAL</b>		<b>\$ 20,000,000</b>

Project Number	Projects in Initiation Phase (Count = 2)	Footnotes
NPRR865	Publish RTM Shift Factors for Hubs, Load Zones, and DC Ties	1 - One or more phases took longer than expected, resulting in additional time required
NPRR880	Publish Real-Time Market Shift Factors for Private Use Network Settlement Points	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 = 11)	Phase Start	Baseline Phase Finish	Approved Phase Finish	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health	Budget Health
295-00	Forward Looking Operations Tools (FLOAT) Program Control	10/17/2018	4/17/2019	4/17/2019	TBD	4/17/2019	0%	22%
134-02	Privileged Account Management (PAM) Phase 2	8/8/2018	12/19/2018	12/19/2018	TBD	12/19/2018	0%	10%
209-04	GridGeo MMAP Assessment	10/17/2018	2/27/2019	2/27/2019	TBD	2/27/2019	0%	6%
242-01	Portfolio Reporting Assessment	11/8/2017	12/19/2018	12/19/2018	TBD	12/19/2018	0%	15%
286-01	Java Platform Assessment	6/20/2018	11/21/2018	11/21/2018	TBD	12/28/2018	1 -24%	34%
288-00	Retail Portfolio Refresh (RPR) Program Control	9/5/2018	3/27/2019	3/27/2019	TBD	3/27/2019	0%	18%
288-01	EDI Map and Translator Replacement	8/29/2018	2/27/2019	2/27/2019	TBD	2/27/2019	0%	12%
293-01	Governance, Risk and Compliance (GRC) Replacement Tool	11/14/2018	1/30/2019	1/30/2019	TBD	1/30/2019	0%	10%
NPRR817	Create a Panhandle Hub	11/14/2018	12/12/2018	12/12/2018	TBD	12/12/2018	0%	-2%
NPRR845	RMR Process and Agreement Revisions	12/5/2018	12/19/2018	12/19/2018	TBD	12/19/2018	0%	3%
NPRR847	Exceptional Fuel Cost Included in the Mitigated Offer Cap	11/14/2018	12/12/2018	12/12/2018	TBD	12/12/2018	0%	See NPRR817

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Project Number	Projects in Execution Phase (Count = 33)	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	3/27/2019	3/27/2019	3/27/2019		0%		0%
170-06	ECAP - ECMS Implementation Phase 1	4/25/2018	11/30/2018	1/14/2019	1/14/2019	3/31/2019		0%		-1%
173-02	ERCOT Flight Certification Website	11/15/2017	2/28/2019	6/4/2019	6/4/2019	7/31/2019		0%		1%
183-01	CMM Tech Refresh	3/15/2017	5/19/2018	6/15/2019	6/15/2019	9/30/2019		0%	NA	See 2015 CMM NPRRs
193-01	PMU Tool Evaluation and Implementation	12/13/2017	8/9/2018	2/15/2019	2/15/2019	3/20/2019		0%		19%
196-01	GINR Project Status Application Replacement	12/21/2016	9/14/2017	2/28/2019	2/28/2019	3/31/2019		0%	2	-10%
209-02	Weather Imaging and Line Observation (WILO)	5/30/2018	2/1/2019	4/5/2019	4/5/2019	5/28/2019		0%		0%
209-03	Study Network (STNET) Integration	11/28/2018	8/28/2019	8/28/2019	8/28/2019	9/25/2019		0%		0%
210-01	REC Technology Refresh	8/30/2017	3/18/2018	12/13/2018	12/13/2018	1/16/2019		0%		3%
228-01	Enterprise Database Upgrade	8/8/2018	1/29/2020	1/29/2020	1/29/2020	1/29/2020		0%		24%
229-01	IT Change and Configuration Management Phase 2	8/2/2017	6/19/2018	2/8/2019	2/8/2019	3/25/2019		0%		0%
238-01	Application Authentication Tech Refresh	9/6/2017	3/19/2018	12/13/2018	12/13/2018	1/30/2019		0%		22%
239-01	Identity and Access Management	5/9/2018	12/15/2018	6/19/2019	6/19/2019	7/30/2019		0%		1%
243-01	Training Facility	12/6/2017	12/12/2018	12/12/2018	12/28/2018	1/25/2019		-4%		0%
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%		6%
257-01	Security Constrained Optimal Powerflow in Study Network Analysis	12/6/2017	10/25/2018	11/15/2018	11/15/2018	3/28/2019		0%		5%
261-01	Generic Transmission Constraint Calculation	3/7/2018	12/13/2018	12/13/2018	12/13/2018	1/23/2019		0%		6%
263-01	Market Simulator	4/11/2018	12/13/2018	12/13/2018	12/13/2018	1/30/2019		0%		11%
265-01	Real-Time Assessment Continuity	1/31/2018	12/13/2018	2/8/2019	2/8/2019	2/28/2019		0%		3%
279-01	Cyber Security Project #24	6/27/2018	10/26/2018	11/30/2018	11/30/2018	2/27/2019		0%		46%
Various	2015 CMM NPRRs									0%
NPRR519	Exemption of ERS-Only QSEs from Collateral and Capitalization Requirements	3/15/2017	5/19/2018	6/15/2019	6/15/2019	9/30/2019		0%		See 2015 CMM NPRRs
NPRR620	Collateral Requirements for Counter-Parties with No Load or Generation	3/15/2017	5/19/2018	6/15/2019	6/15/2019	9/30/2019		0%	NA	See 2015 CMM NPRRs
NPRR660	Remove CRR State Change Adder	3/15/2017	5/19/2018	6/15/2019	6/15/2019	9/30/2019		0%	NA	See 2015 CMM NPRRs
NPRR741	Clarifications to TPE and EAL Credit Exposure Calculations	3/15/2017	5/19/2018	6/15/2019	6/15/2019	9/30/2019		0%	NA	See 2015 CMM NPRRs
NPRR749	Option Cost for Outstanding CRRs	8/8/2018	12/13/2018	6/15/2019	6/15/2019	9/30/2019		0%	NA	See 2015 CMM NPRRs
NPRR755	Data Agent-Only QSE Registration	3/15/2017	5/19/2018	6/15/2019	6/15/2019	9/30/2019		0%	NA	See 2015 CMM NPRRs



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Project Number	Projects in Execution Phase (Count = 33)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
NPRR821	Elimination of the CRR Deration Process	12/5/2018	4/4/2019	4/4/2019	4/4/2019	5/7/2019		0%		6%
NPRR833	Modify PTP Obligation Bid Clearing Change	8/8/2018	12/13/2018	12/13/2018	12/13/2018	TBD		0%		-2%
NPRR842	Study Area Load Information	10/17/2018	2/8/2019	2/8/2019	2/8/2019	3/27/2019		0%		2%
NPRR843	Short-Term System Adequacy and AS Offer Disclosure Reports Additions	7/18/2018	10/25/2018	12/13/2018	12/13/2018	1/16/2019		0%		4%
SCR781	RARF Replacement	12/20/2017	4/25/2018	10/31/2019	10/31/2019	10/31/2019		0%		3%
Project Number	Expedited Projects in Execution (Count = 22)									
Project Number	Projects in Stabilization (Count = 10)	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
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
SCR777	Bilateral CRR Interface Enhancement	10/26/2016	10/2/2017	11/19/2018	11/19/2018	2/27/2019		0%	NA	See #181-01
SCR795	Addition of Intra-Hour Wind Forecast to GTBD Calculation	8/8/2018	10/25/2018	10/25/2018	10/25/2018	12/19/2018		0%	2	-11%
181-01	CRR Framework Upgrade	10/26/2016	10/2/2017	11/19/2018	11/19/2018	2/27/2019		0%		2%
266-01	Remote Email Access Enhancement	12/13/2017	3/7/2018	6/6/2018	6/19/2018	12/19/2018	2	-7%	2	-28%
282-01	Synchronous Condenser Outage Modeling	6/6/2018	10/25/2018	10/25/2018	10/25/2018	12/5/2018		0%		19%

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Project Number	Projects On Hold (Count = 6)	Forecast Start Date	Baseline Phase Finish	Approved Go-Live Target	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
SCR789	Update NMMS Topology Processor to PSSE 34 Capability									
246-01	iTest Data Refresh									
269-01	Document Repository Redesign and Governance Implementation - Phase 1									
287-01	Security Constrained Unit Commitment (SCUC)									
291-01	IT Asset Recovery									
292-01	Additional Branch Limit for Relays									
Project Number	Projects Completed (Count = 33)	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%
198-02	Reactive Power Coordination PoC	9/6/2017	6/16/2018	8/15/2018	8/22/2018	8/22/2018		-2%		54%
209-01	Multi Station Breaker to Breaker One Lines	2/8/2017	3/9/2018	5/3/2018	5/3/2018	9/19/2018		0%	2	-12%
224-01	TelAlert Replacement	4/5/2017	6/27/2017	8/4/2017	8/4/2017	5/9/2018		0%		5%
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%		19%
241-01	AREA - Generation	10/11/2017	3/30/2018	8/9/2018	8/9/2018	9/5/2018		0%		-3%
249-01	Secondary Wind Forecasting Service	8/30/2017	2/28/2018	8/9/2018	8/9/2018	9/5/2018		0%		15%
253-01	CIP Recovery Plan Project - Planning Phase 1	1/31/2018	8/29/2018	8/29/2018	9/5/2018	9/5/2018		-3%		1%
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%
258-01	WD Kainos SMART Automation Testing Tool	4/11/2018	6/4/2018	6/4/2018	6/4/2018	7/18/2018		0%		27%
259-01	DC SCADA and Metering Upgrade	10/25/2017	1/17/2018	7/25/2018	7/25/2018	10/17/2018		0%	2	-5%
260-01	Information Governance Assessment	10/18/2017	5/30/2018	9/19/2018	TBD	9/4/2018		4%		8%
271-01	Issue Tracking and Resolution Tool Assessment	12/13/2017	4/25/2018	4/25/2018	TBD	5/2/2018	1	-5%		-1%
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%		49%
280-01	Quest Software Portfolio Transition	4/4/2018	6/27/2018	11/7/2018	11/14/2018	11/14/2018		-3%		3%
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%	2	-9%
NPRR776	Voltage Set Point Communication	9/20/2017	3/19/2018	4/5/2018	4/5/2018	9/5/2018		0%	2	-6%
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%

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Project Number	Projects Completed (Count = 33)	Baseline Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Actual Execution Phase Finish	Schedule Health		Budget Health	
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
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%
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%		36%
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%
NPRR864	RUC Modifications to Consider Market-Based Solutions	6/20/2018	10/25/2018	10/25/2018	10/25/2018	12/5/2018		0%		21%
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
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%		54%
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 = 41)									
Project Number	2018 Projects Not Yet Started (Count = 0)	Forecast Start Date								