



## ERCOT Monthly Operational Overview (February 2019)

ERCOT Public  
March 15, 2019

# Grid Planning & Operations

## Summary – February 2019

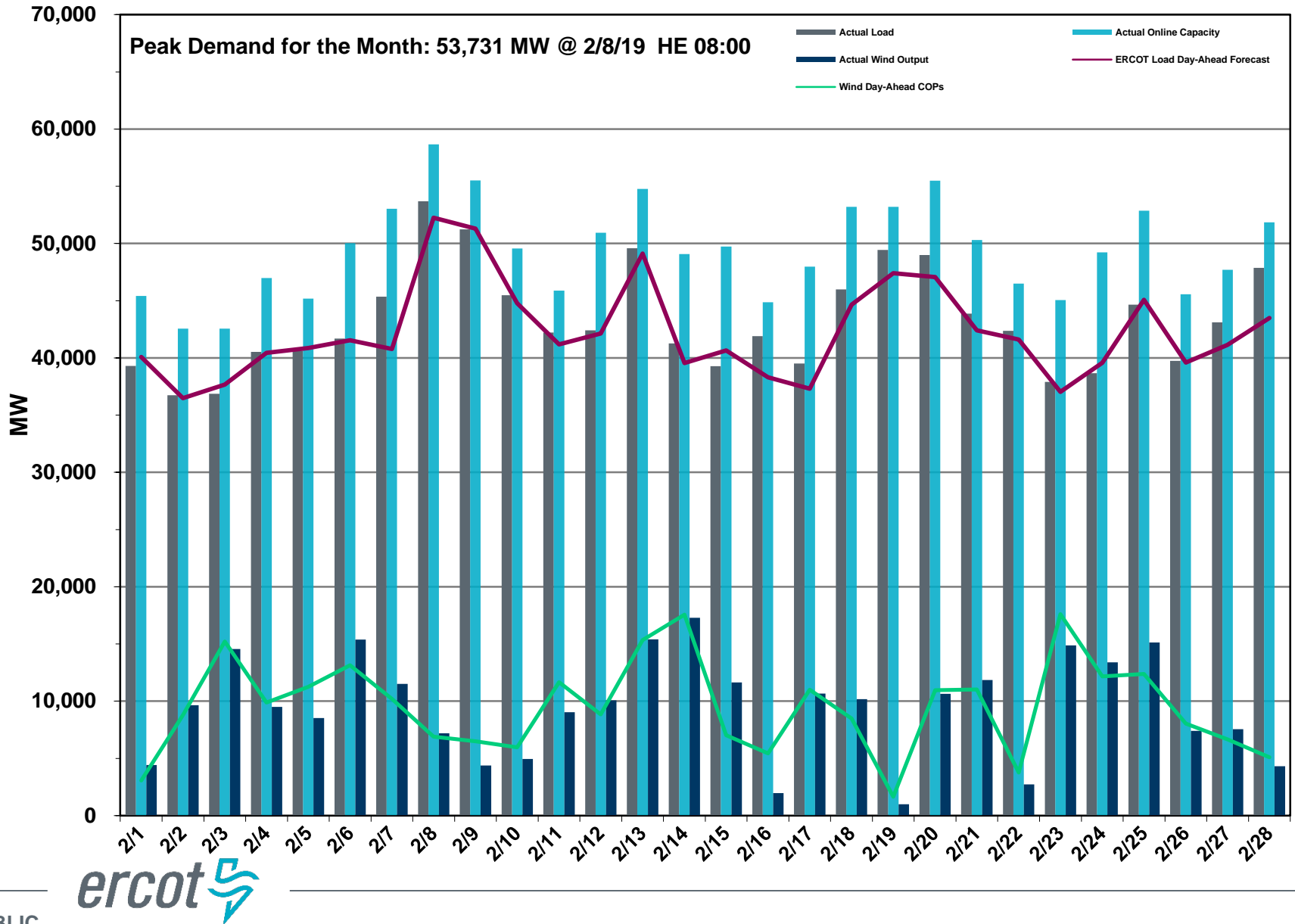
### Operations

- The preliminary Settlements hourly peak demand of 53,731\* MW on February 8 was higher than the day-ahead mid-term load forecast peak of 52,257 MW for the same operating hour.
  - The operational instantaneous peak demand was 54,004 MW (telemetry).
- Day-ahead load forecast error for February was 2.74%
- ERCOT issued two notifications:
  - One OCN issued for potential extreme cold weather
  - One Advisory issued for DRUC timeline deviation

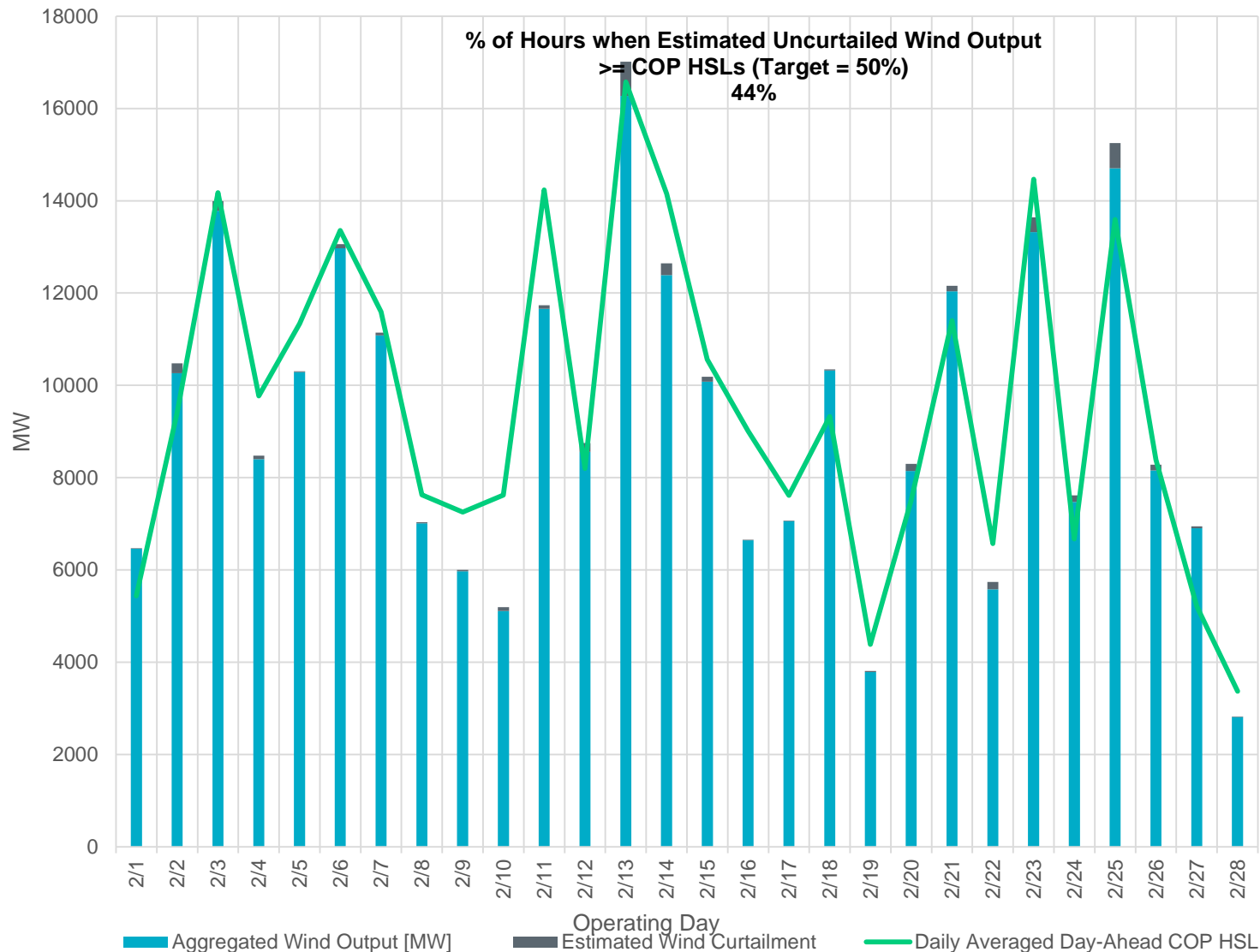
### Planning Activities

- 493 active generation interconnection requests totaling 98,446 MW, including 37,420 MW of wind generation, as of February 28, 2019. Four additional requests and an increase of 1,702 MW from January 31, 2019.
- 21,751 MW wind capacity in commercial operations as of March 1, 2019.

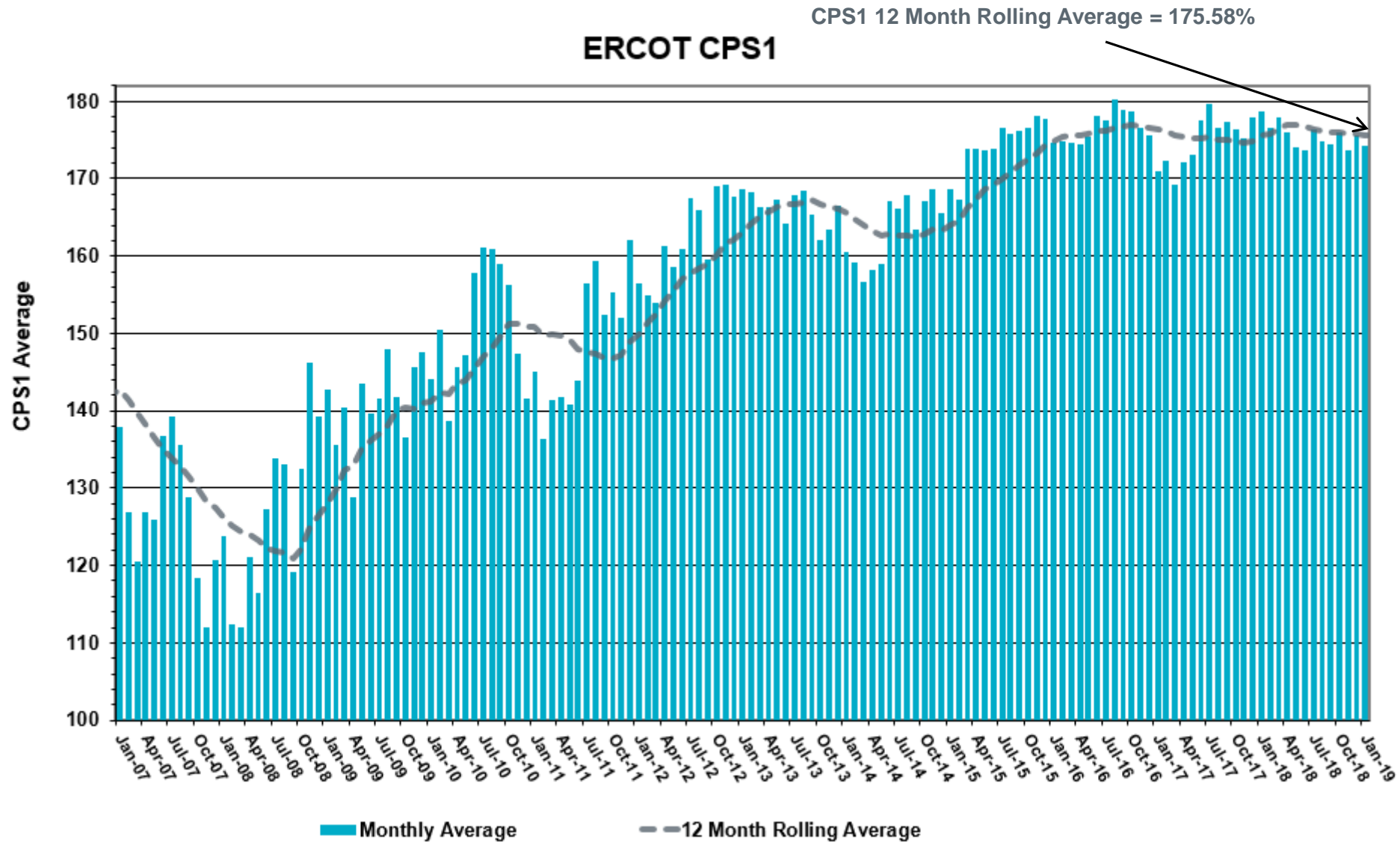
# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-Line Capacity at Peak – February 2019



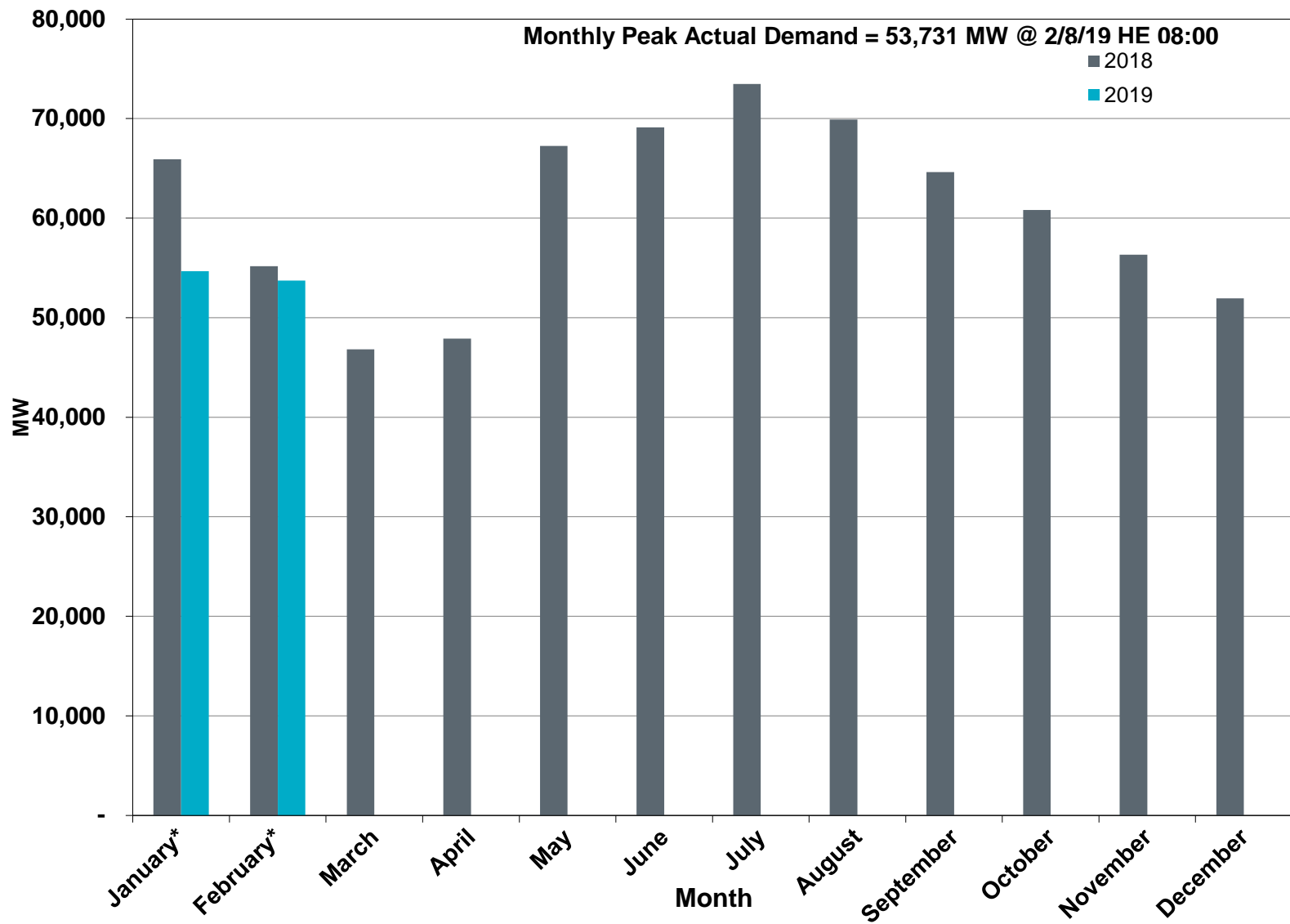
# Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – February 2019



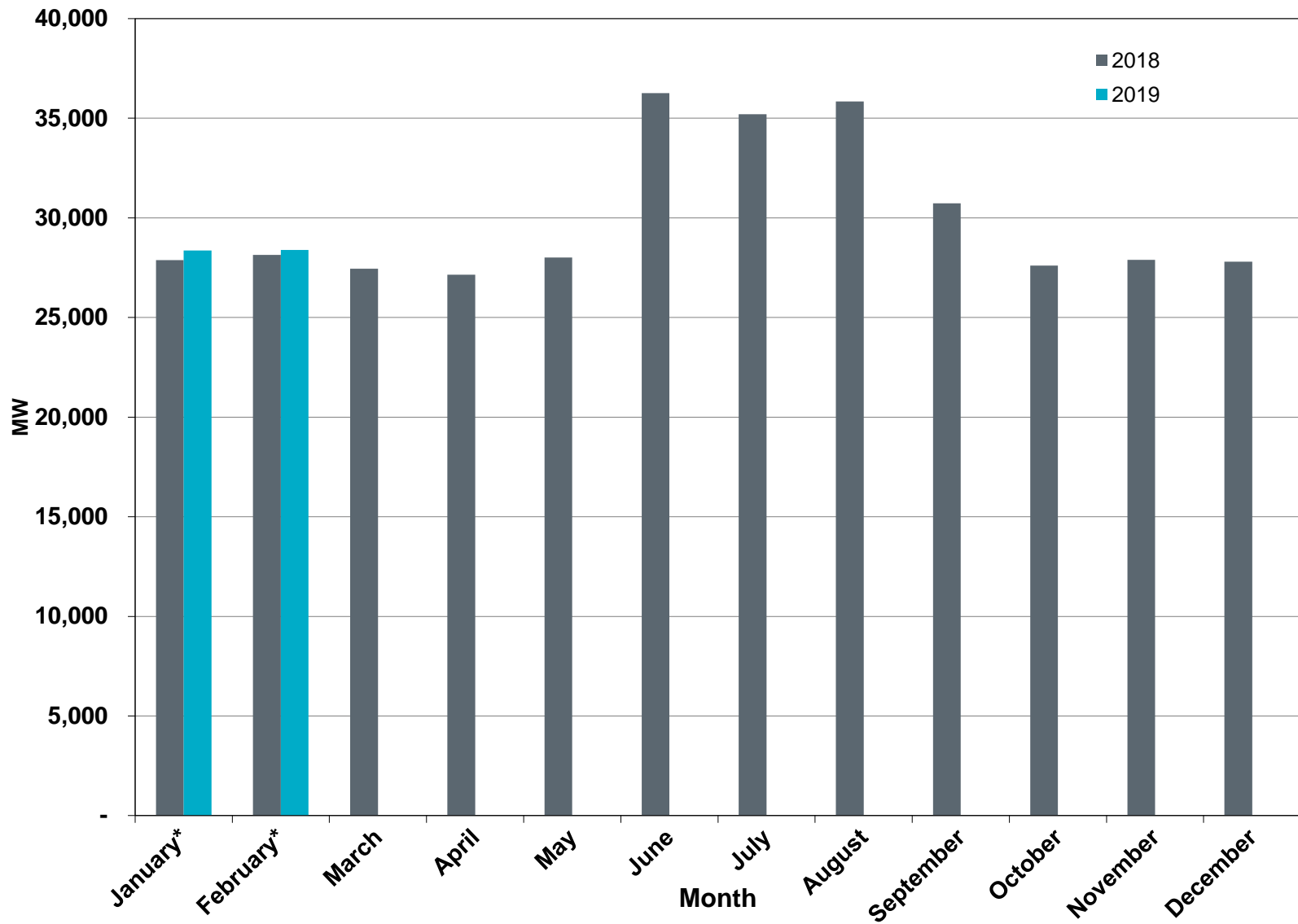
# ERCOT's CPS1 Monthly Performance – February 2019



## Monthly Peak Actual Demand – February 2019



## Monthly Minimum Actual 15-Minute Demand – February 2019





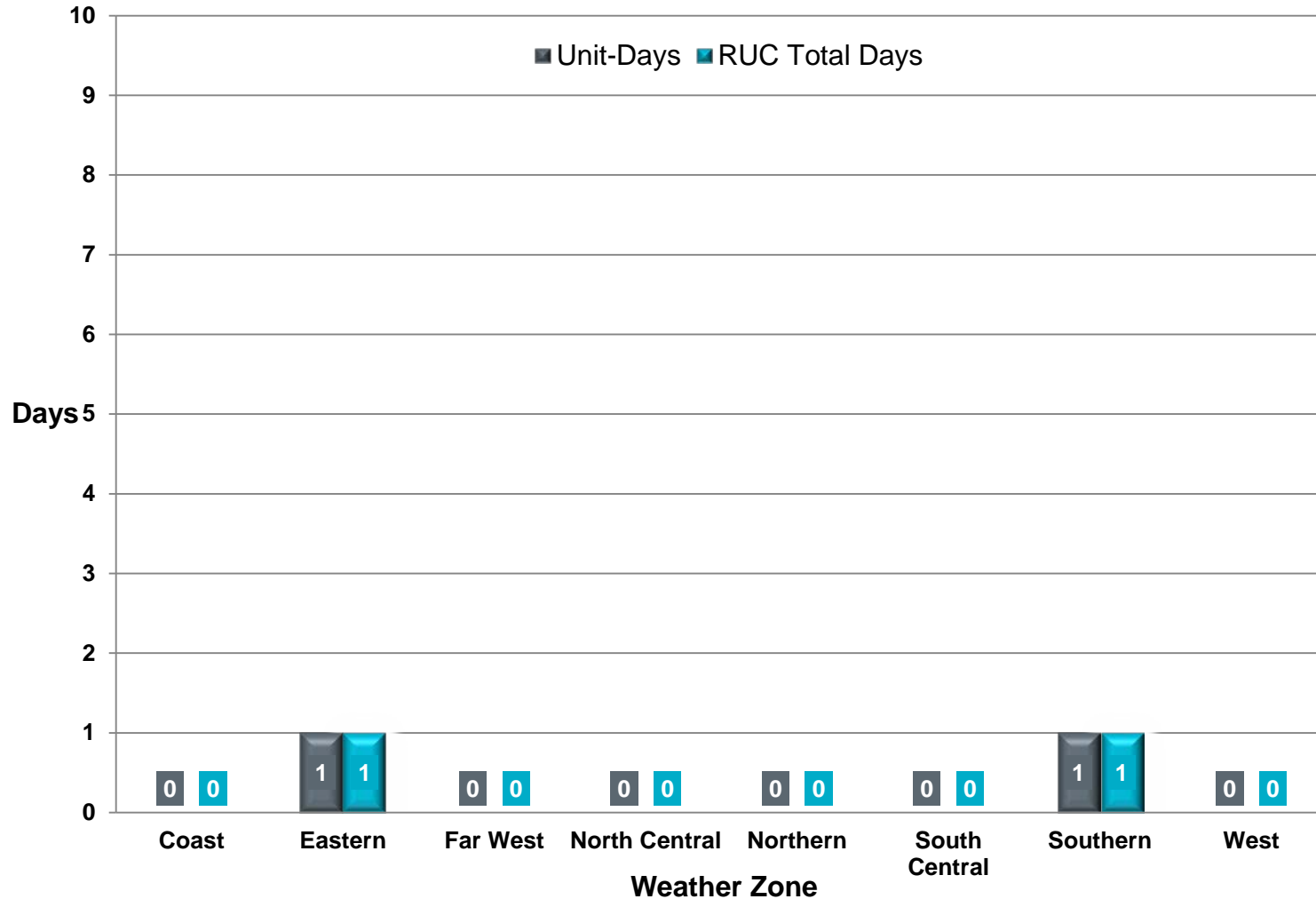
## Day-Ahead Load Forecast Performance – February 2019

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

	2016 MAPE	2017 MAPE	2018 MAPE	2019 MAPE	February 2019 MAPE	
<b>Average Annual MAPE</b>	2.62	2.55	2.34	2.70	2.74	
<b>Lowest Monthly MAPE</b>	1.94	1.69	1.64	2.65	<b>Lowest Daily MAPE</b>	0.31 Feb. 4
<b>Highest Monthly MAPE</b>	3.86	4.07	3.66	2.74	<b>Highest Daily MAPE</b>	7.45 Feb. 28

## Reliability Unit Commitment (RUC) Capacity by Weather Zone – February 2019

### RUC Commitments by Weather Zone



## Generic Transmission Constraints (GTCs) – February 2019

GTCs	Feb-18 Days GTCs	Dec-18 Days GTCs	Jan-19 Days GTCs	Feb-19 Days GTCs	Last 12 Months Total Days (Jan 18 – Dec 18)
North – Houston	0	0	0	0	7
Valley Import	5	0	0	0	6
Panhandle	27	17	21	22	228
Red Tap	0	5	0	0	8
North Edinburg – Lobo	0	0	0	0	0
Nelson Sharpe – Rio Hondo	13	0	0	0	30
East Texas	0	0	0	0	0
McCamey	-	0	0	0	0
Treadwell	-	0	0	0	0

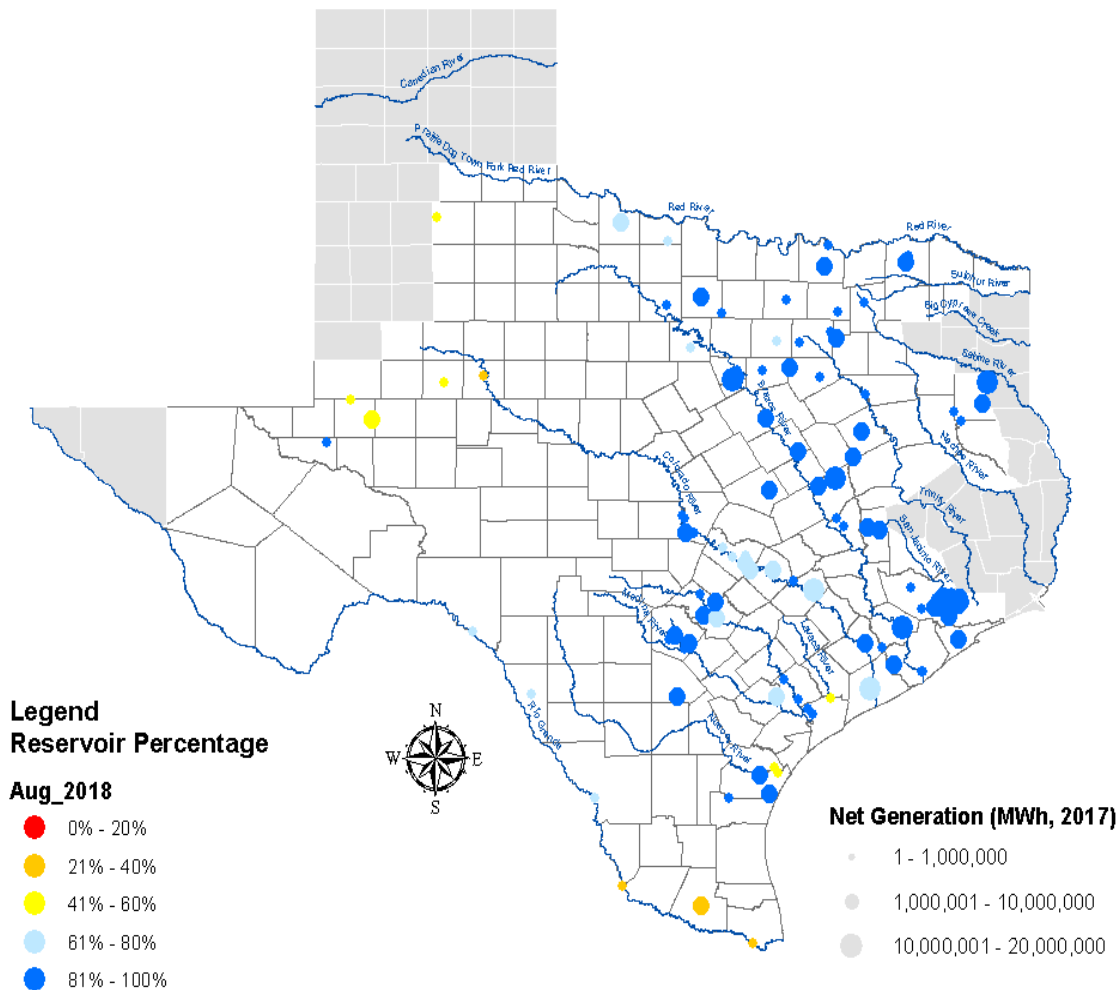
**GTC:** A transmission flow limit more constraining than a Transmission Element's normal limit established to constrain flow between geographic areas of the ERCOT Transmission System that is used to enforce stability and voltage constraints that cannot be modeled directly in ERCOT's transmission security 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 – February 2019

- One OCN issued for potential extreme cold weather for operating days 3/3/2019 – 3/7/2019
  - Issued 2/27/2019
- One Advisory for DRUC timeline deviation
  - Issued 2/3/2019

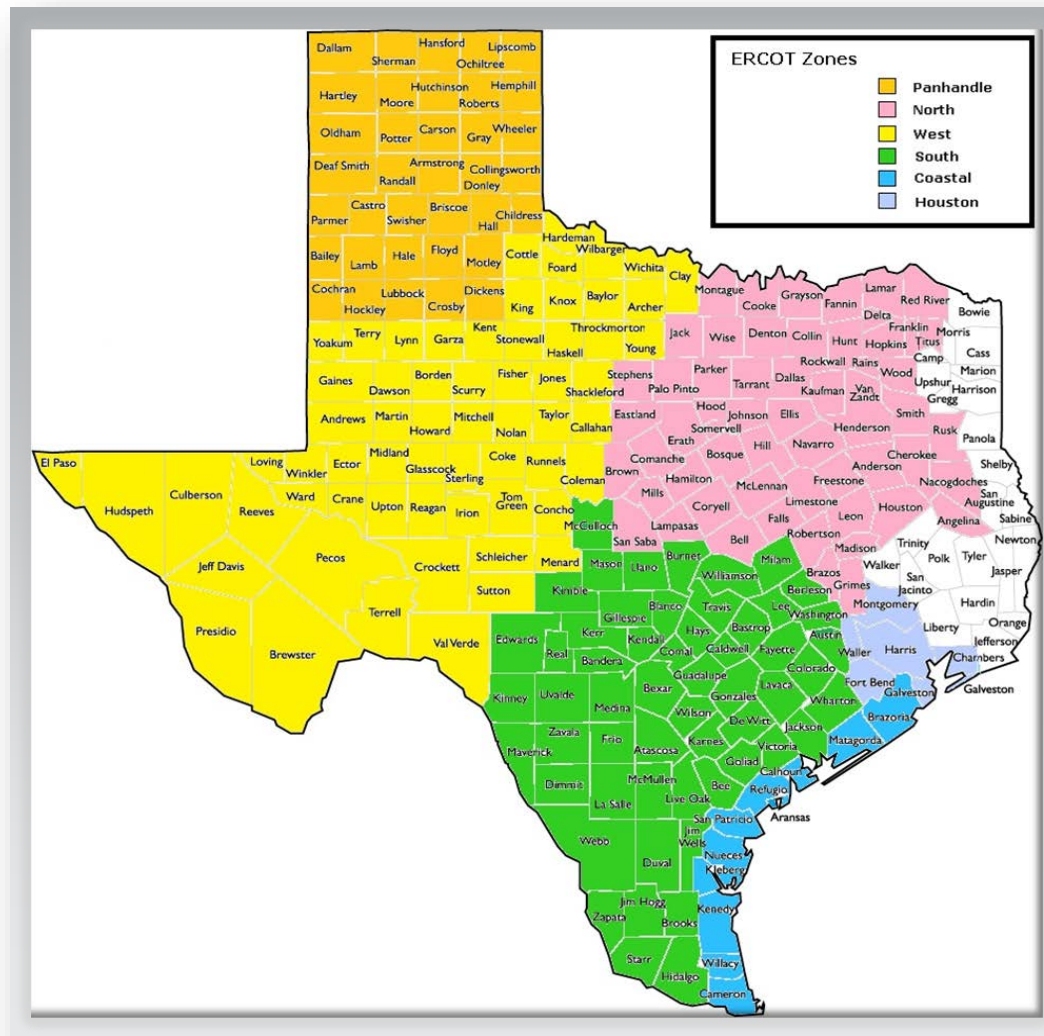
# Lake Levels Update – March 1, 2019



## Planning Summary – February 2019

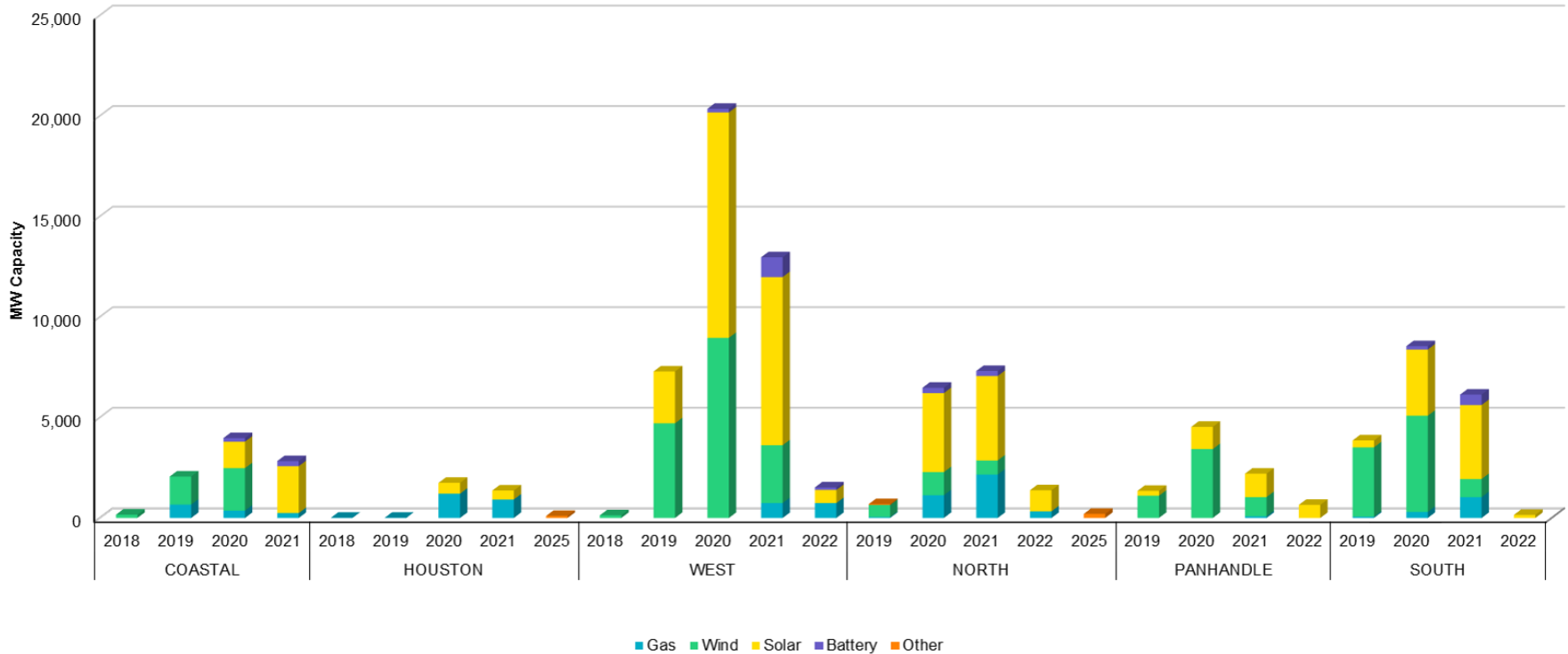
- ERCOT is currently tracking 493 active generation interconnection requests totaling 98,446 MW. This includes 37,420 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$547.81 million (as of February 28, 2019).
- Transmission Projects endorsed in 2019 total \$34 million (as of February 28, 2019).
- All projects (in engineering, routing, licensing, and construction) total approximately \$5.07 billion (as of March 1, 2019).
- Transmission Projects energized in 2019 total about \$89.98 million (as of March 1, 2019).

# Mapping of Counties to ERCOT Zones – February 2019



# Cumulative MW Capacity of Interconnection Requests by Zone – February 2019

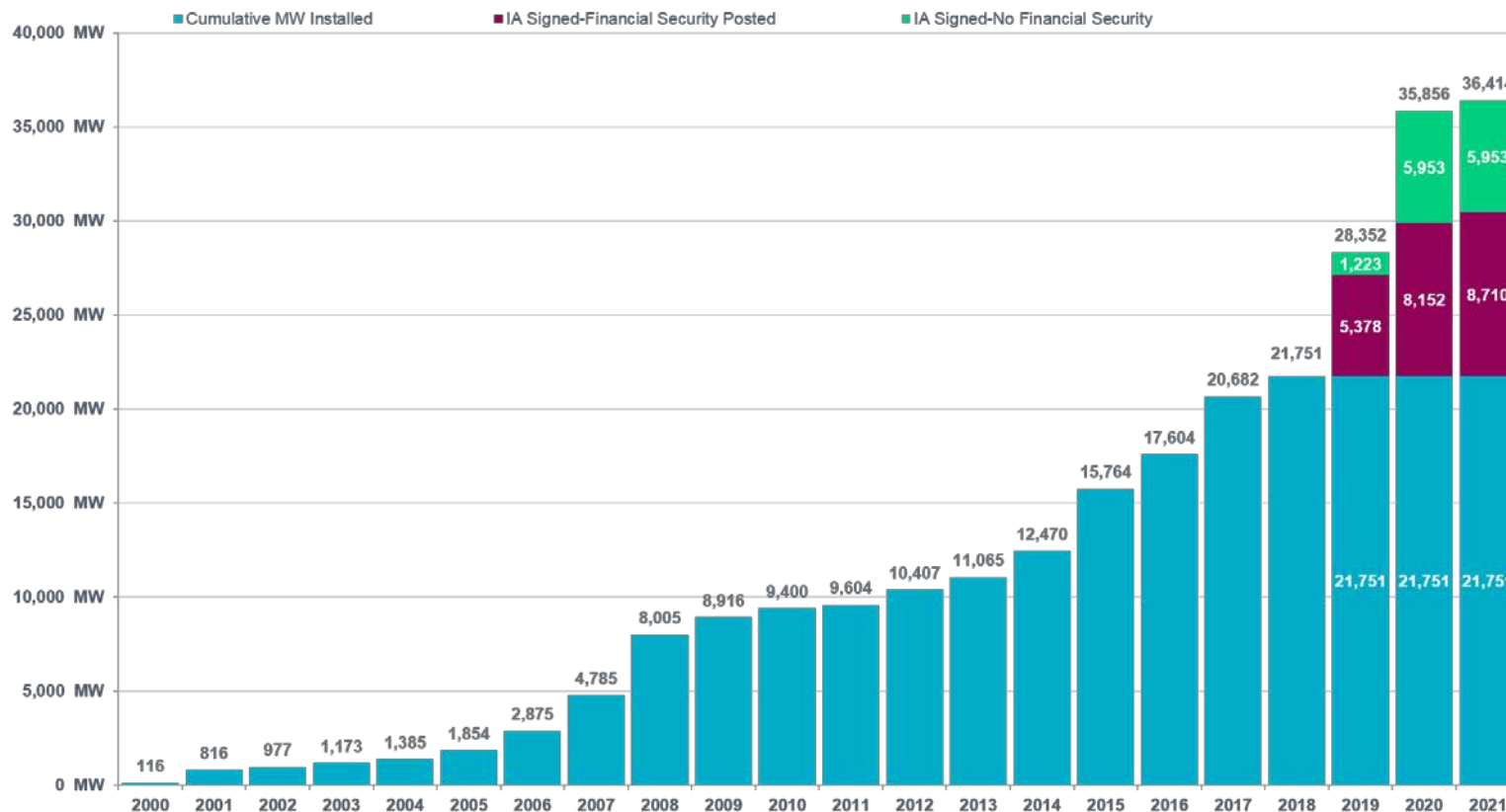
Capacity for Planned Projects by Projected In-service Year and CDR Forecast Zone





# Wind Generation – February 2019

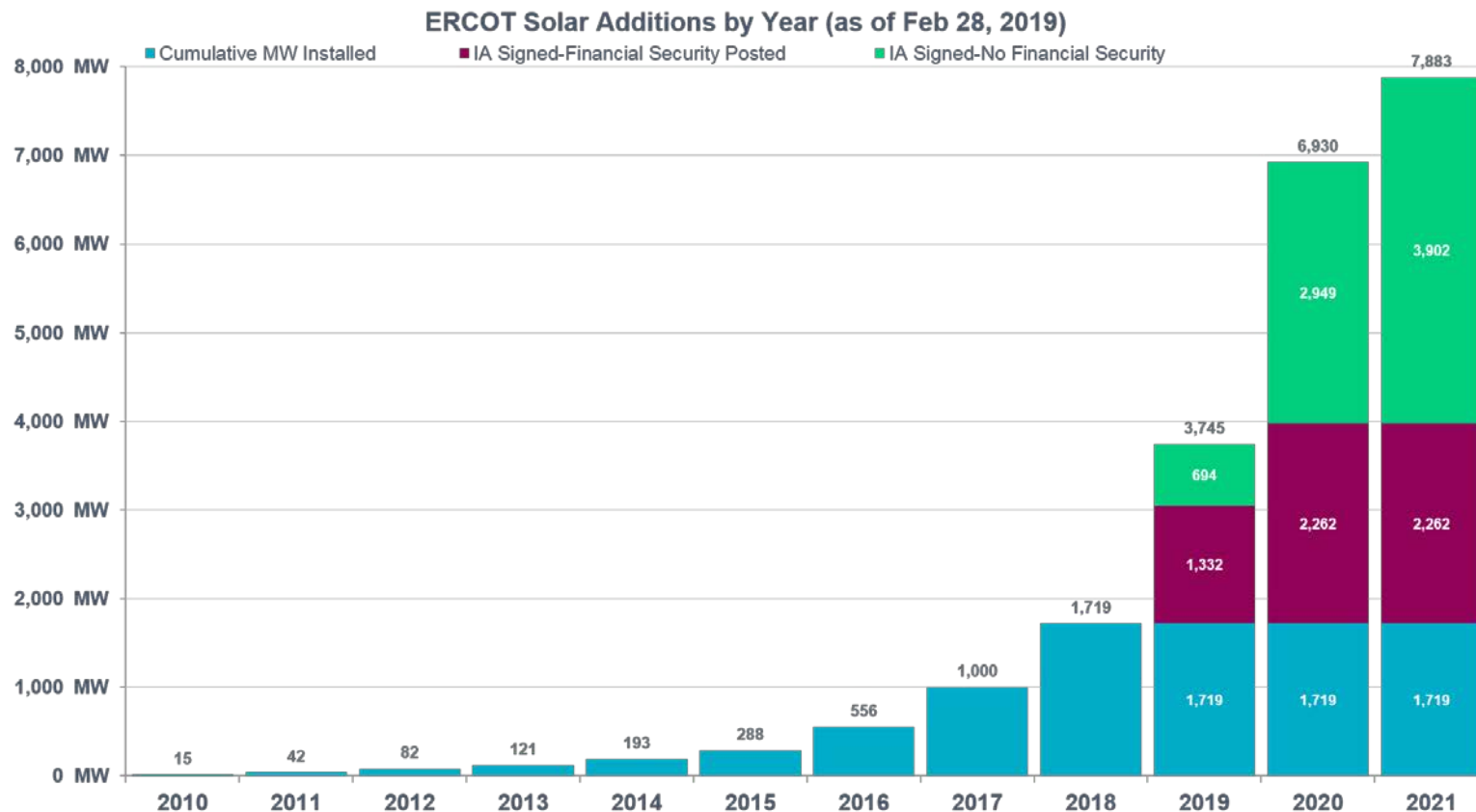
ERCOT Wind Additions by Year (as of Feb 28, 2019)



**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 – February 2019

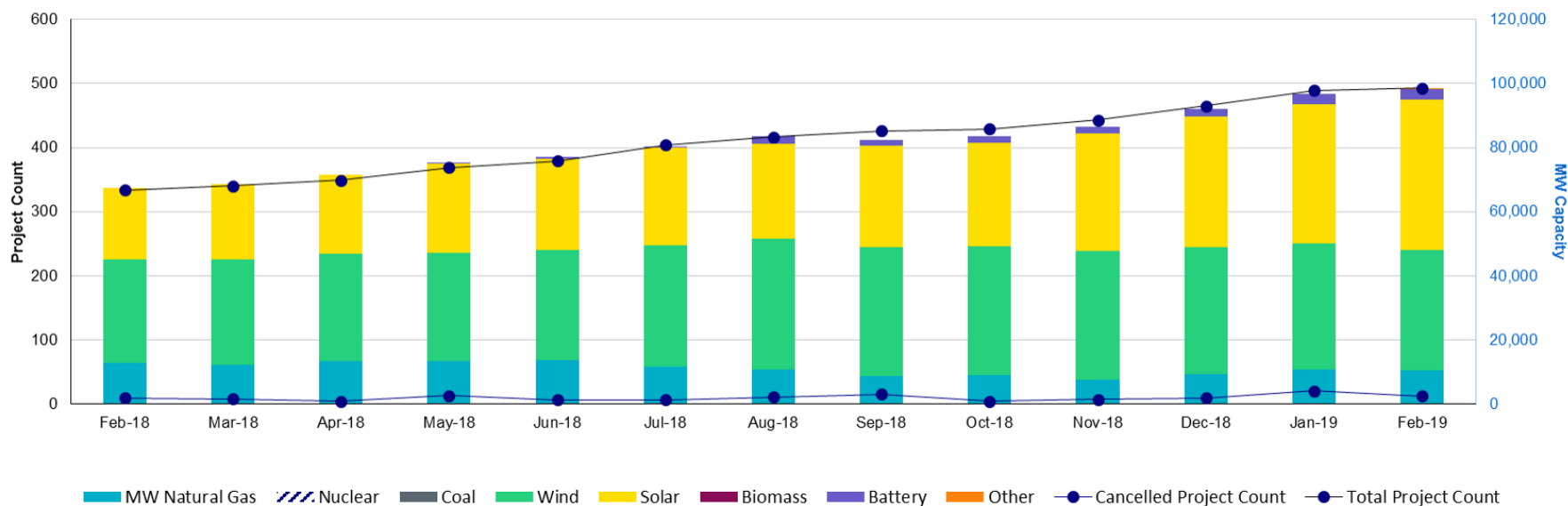


**Notes:**

- The data presented here is based upon the latest information provided to ERCOT by resource owners and developers and can change without notice.
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- Installed capacities include only solar 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.
- Projects that have prior-year Projected CODs that have not been met, and for which ERCOT has not received COD updates, appear as planned projects for the subsequent year.

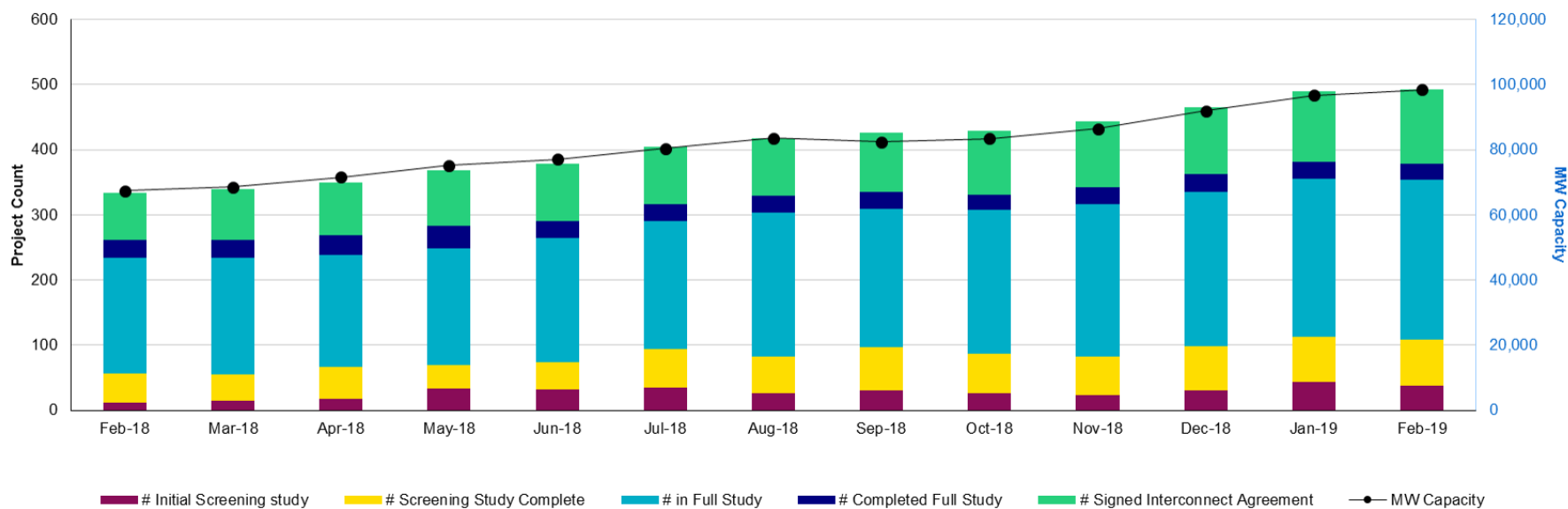
# Generation Interconnection Activity by Fuel – February 2019

Monthly Capacity by Fuel Type plus Project Count, 13-Month Rolling Basis



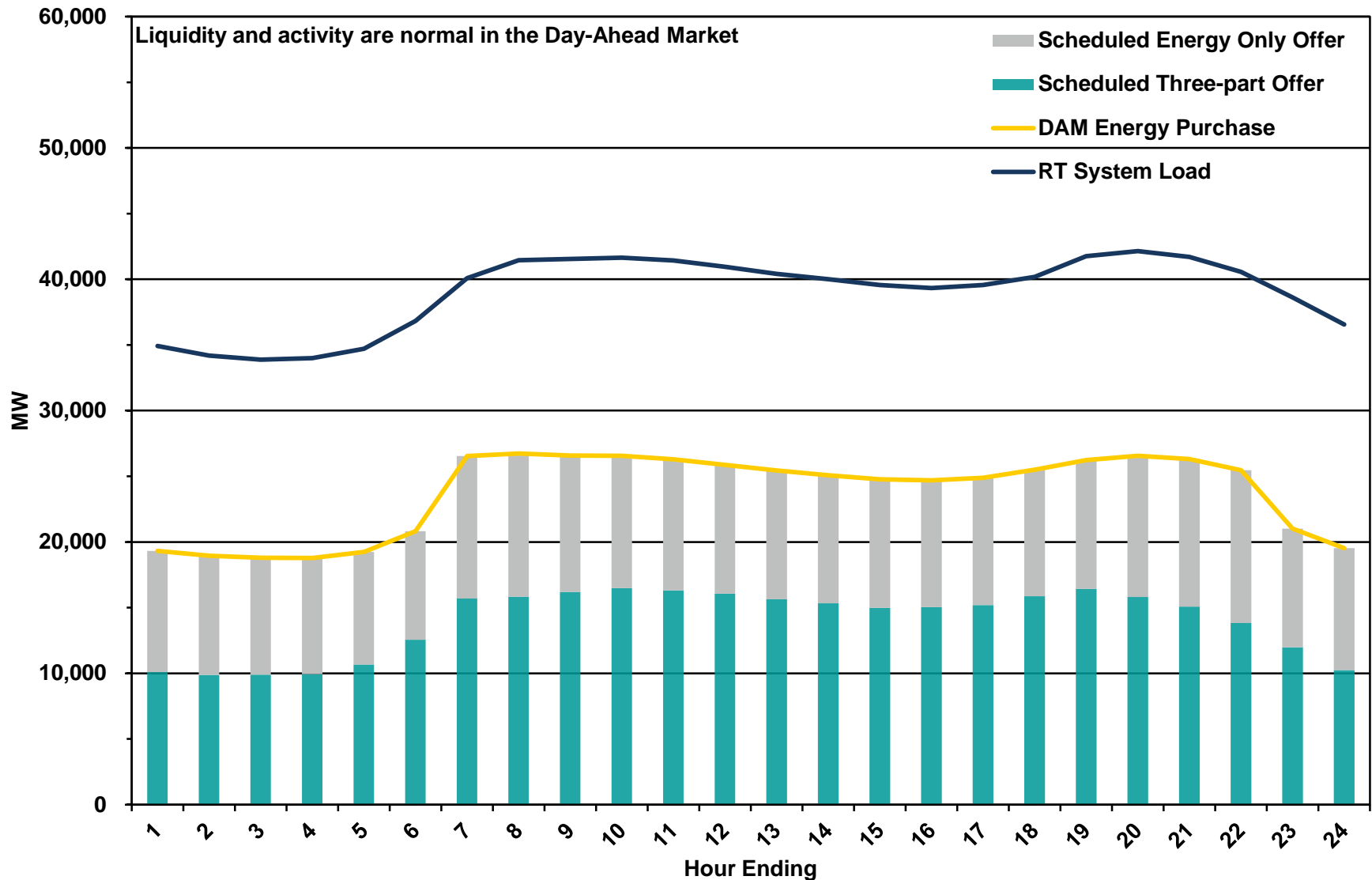
# Generation Interconnection Activity by Project Phase – February 2019

Monthly Capacity by GINR Milestone plus Project Count, 13-Month Rolling Basis

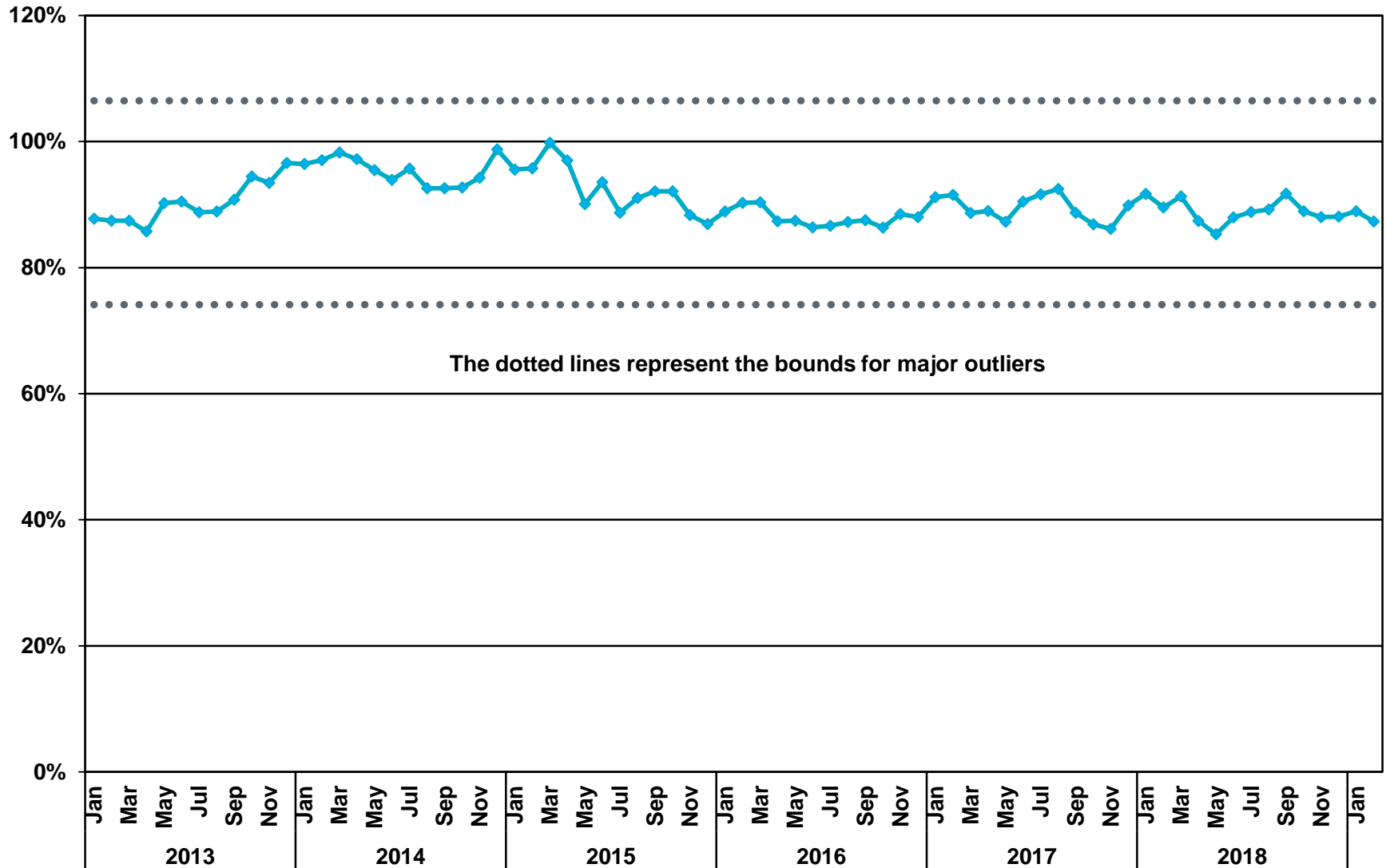


# Market Operations

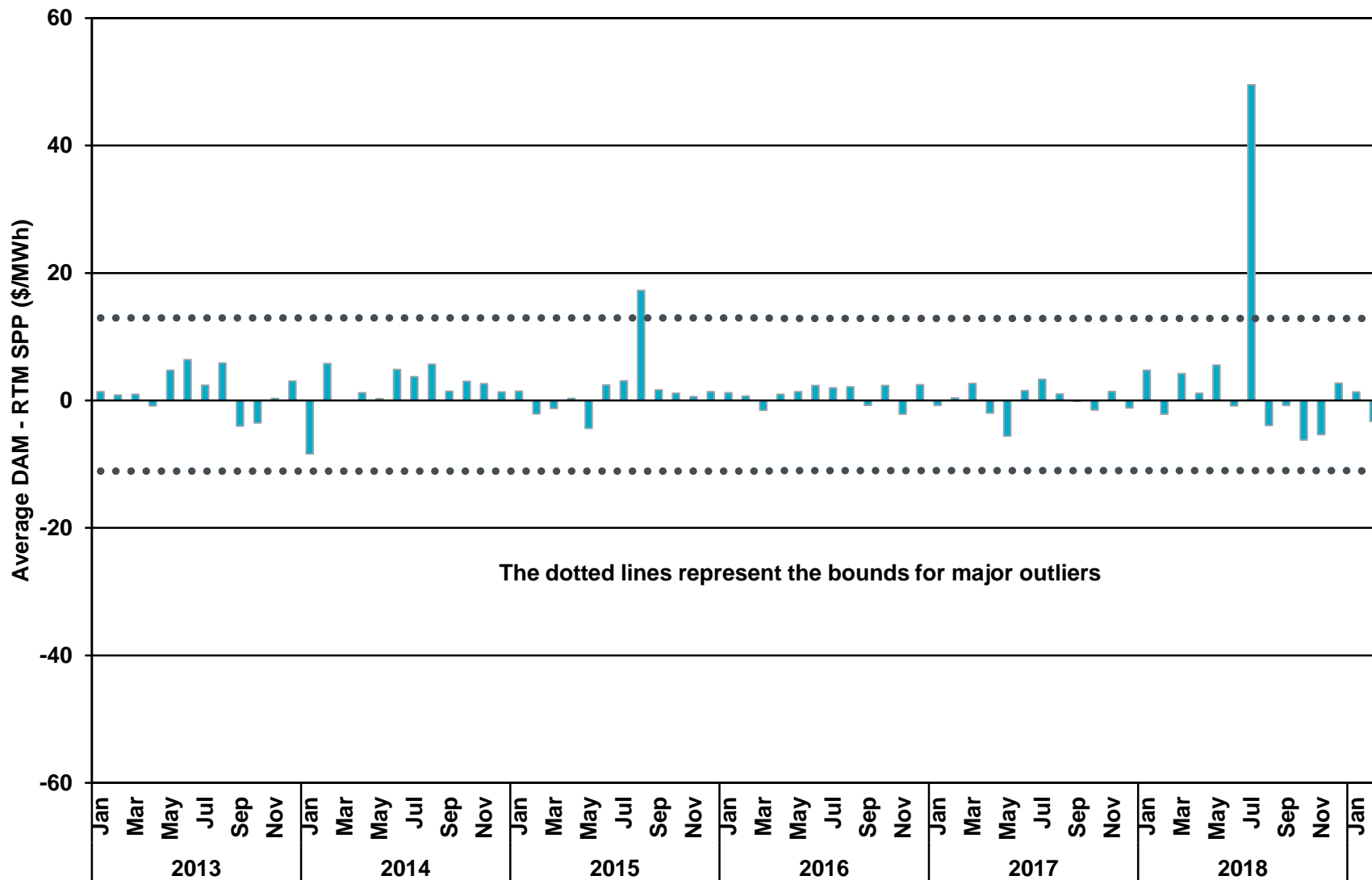
## Day-Ahead Schedule (Hourly Average) – February 2019



## Percentage of Real-Time Load Transacted in the DAM (Counter-Party Level) – February 2019

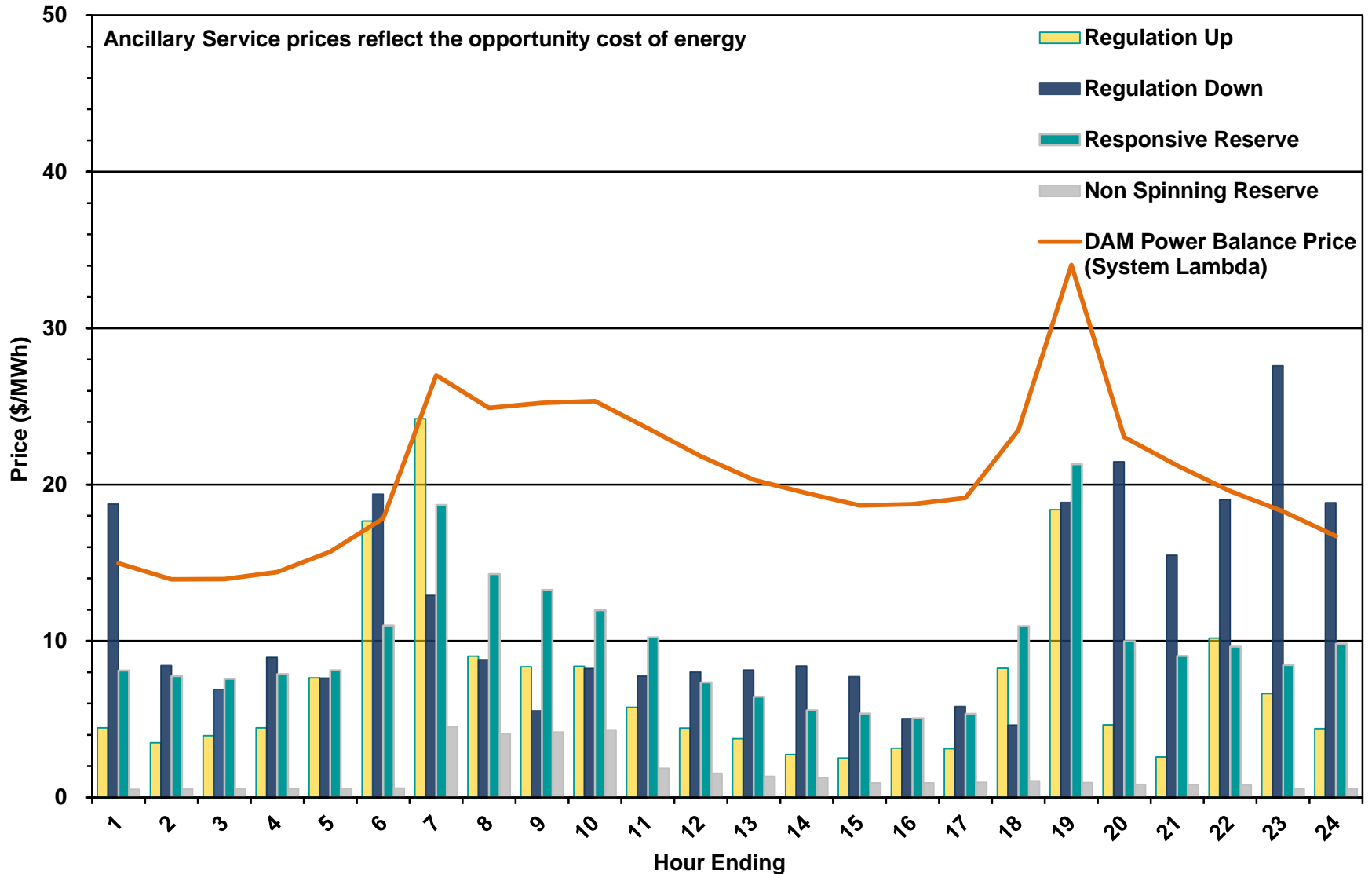


## DAM and RTM Price Convergence – February 2019

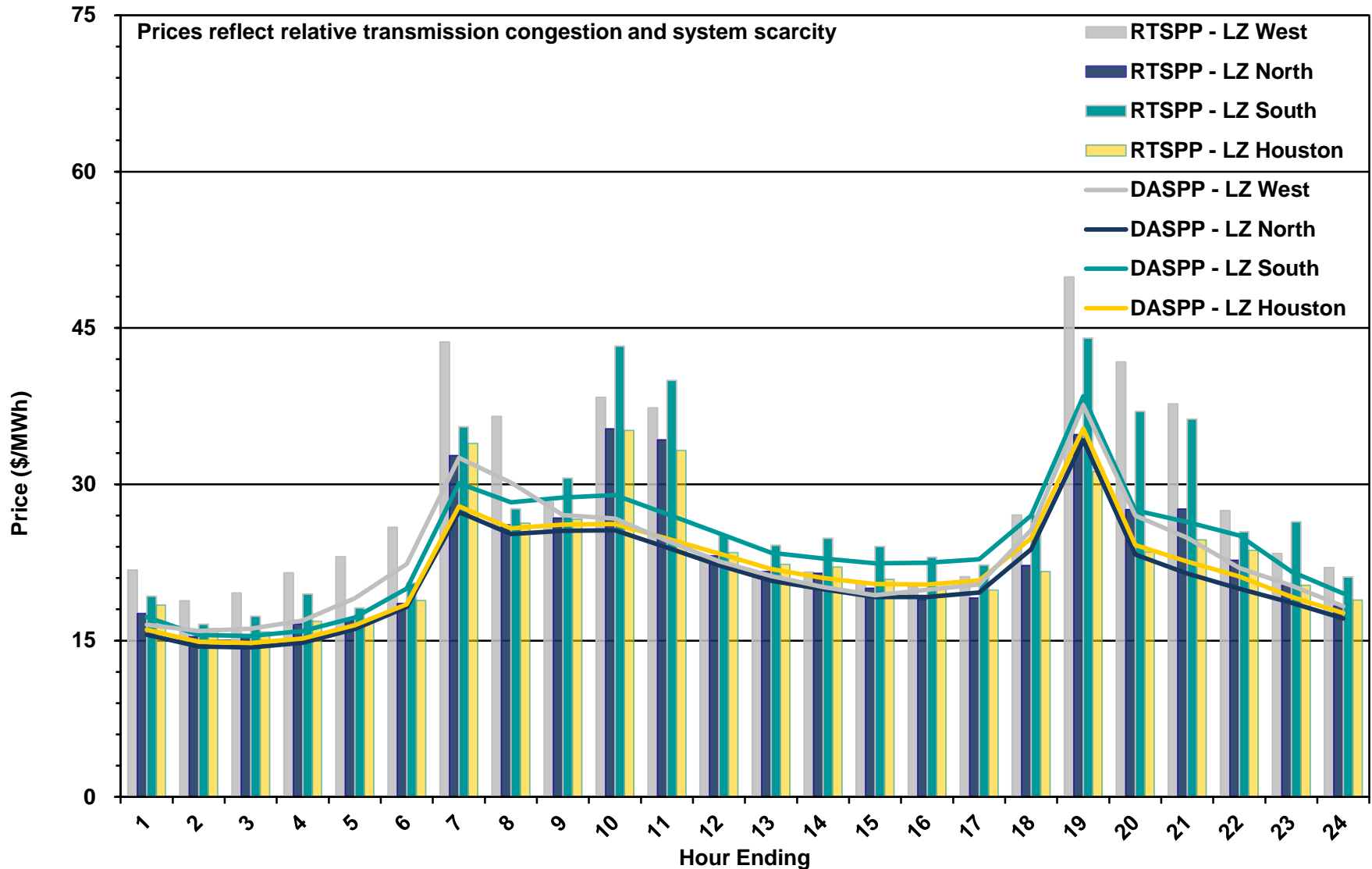




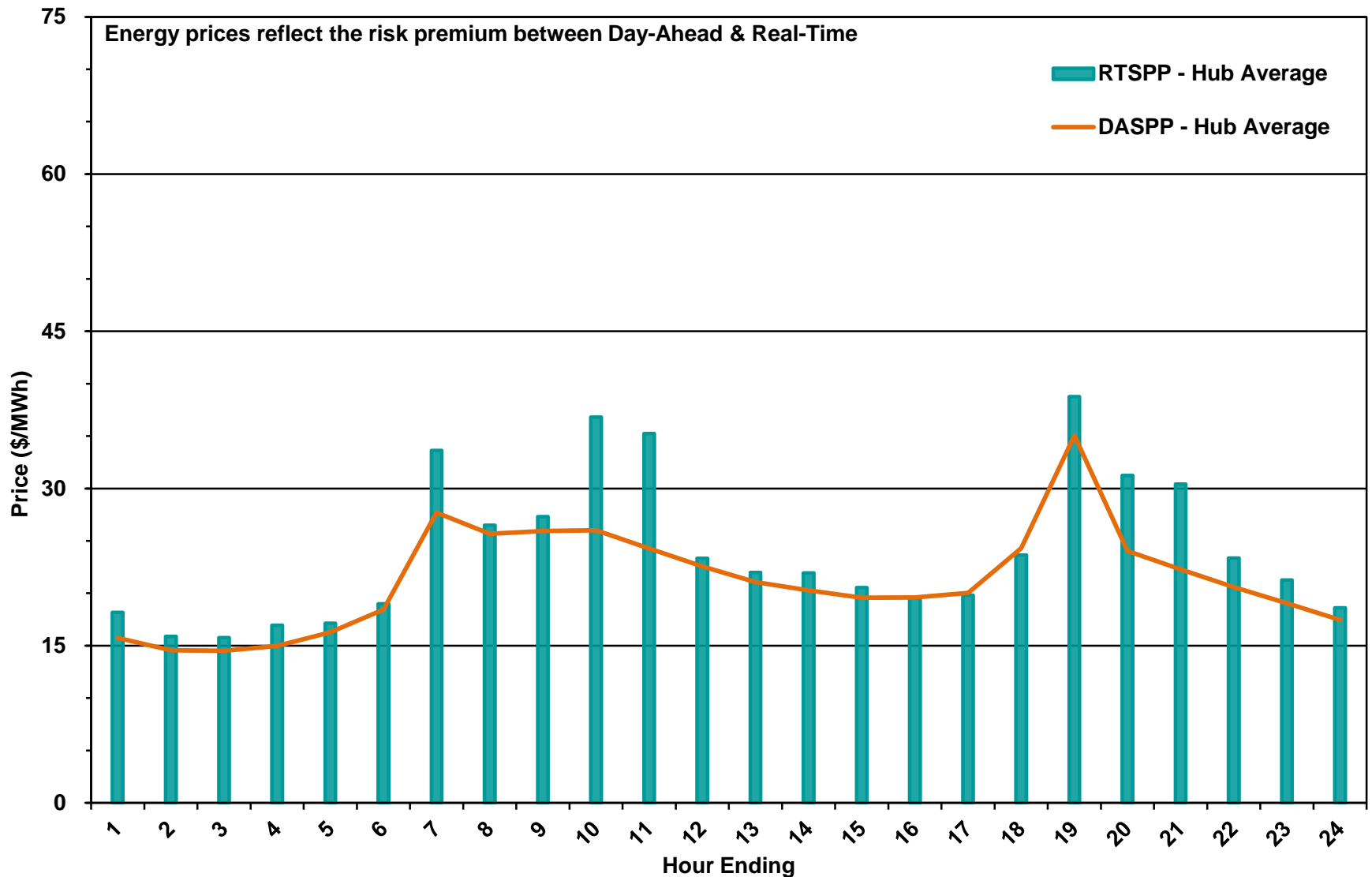
## Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – February 2019



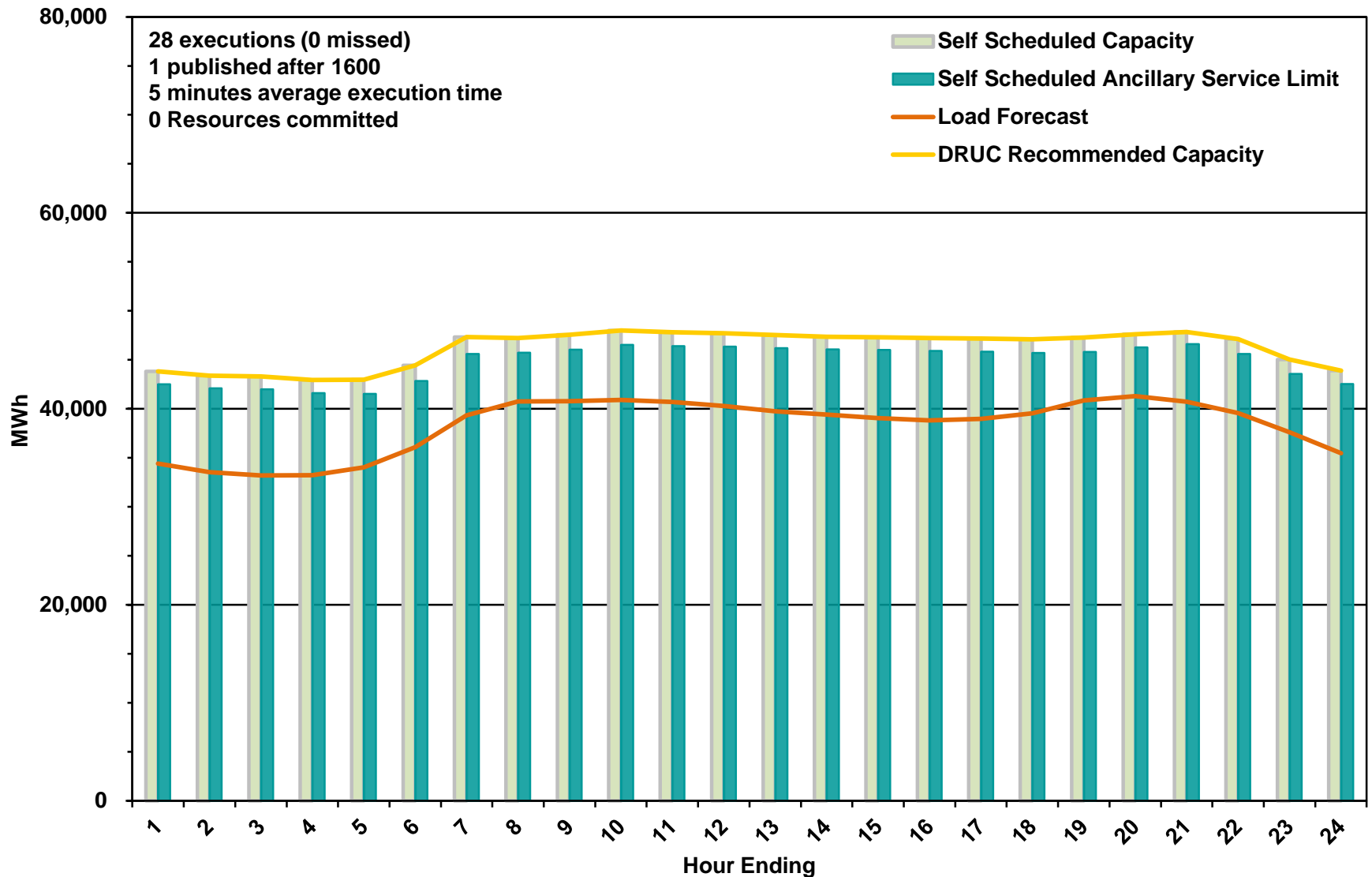
## Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – February 2019



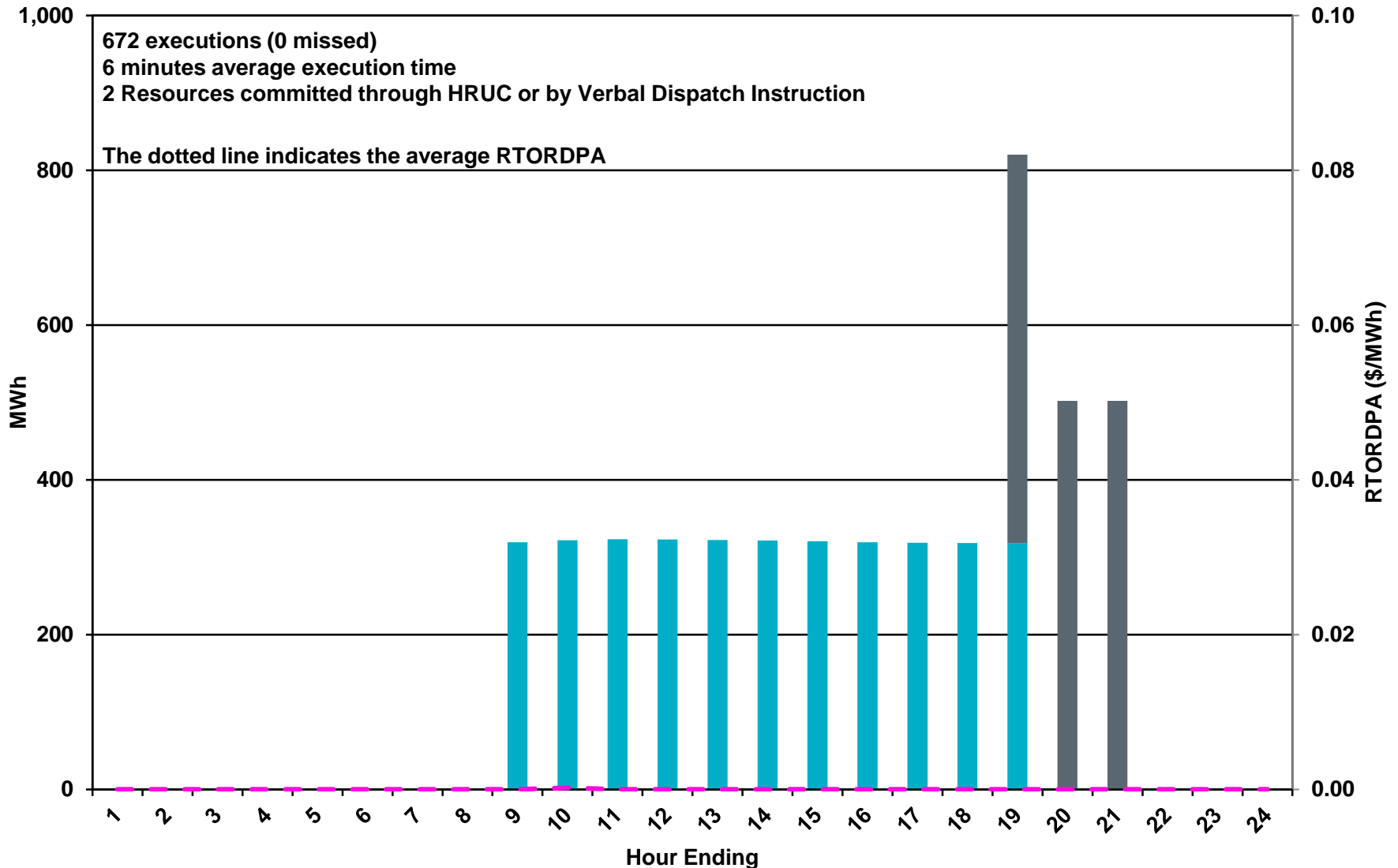
## Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – February 2019



## DRUC Monthly Summary (Hourly Average) – February 2019



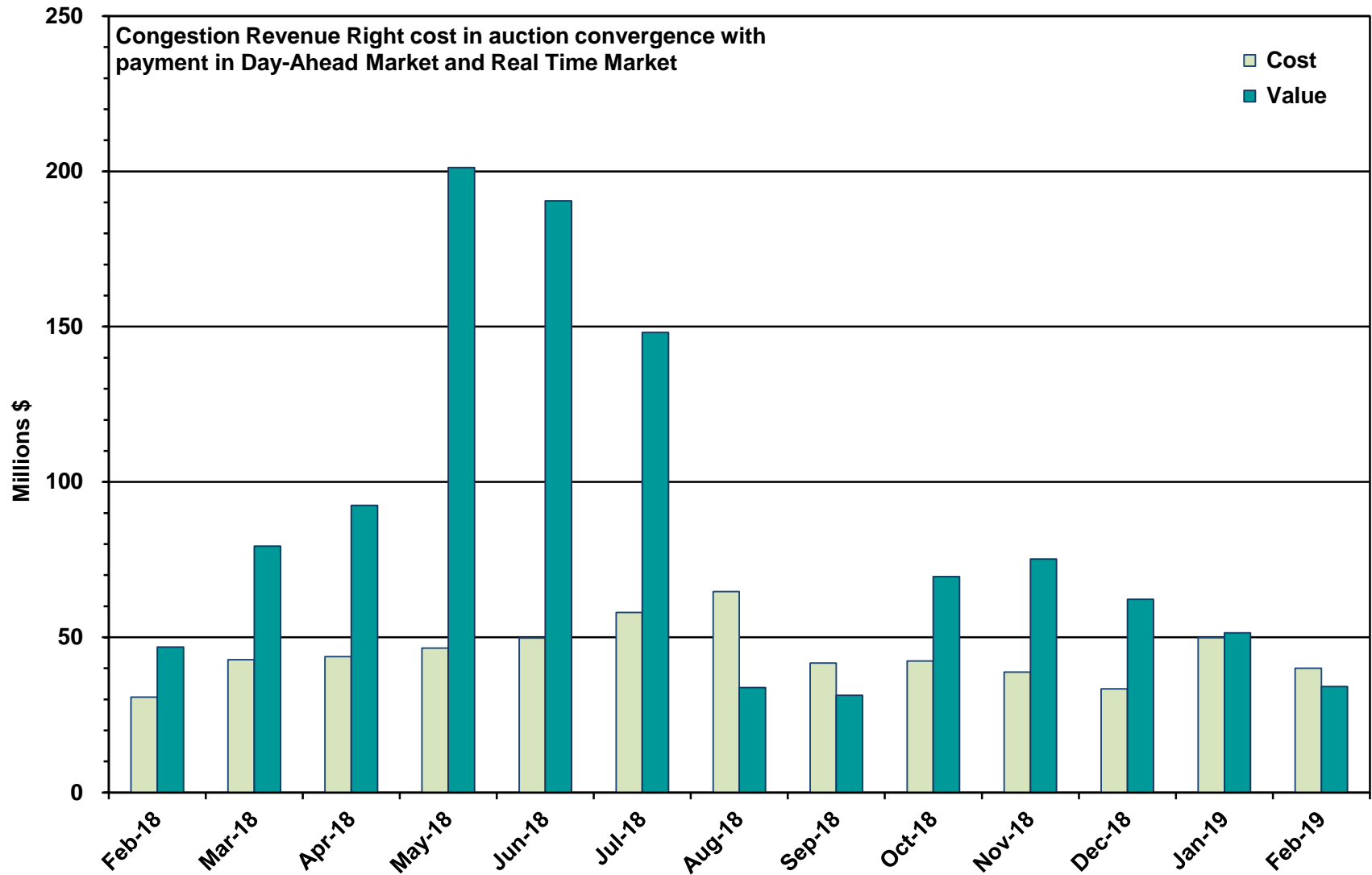
# HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – February 2019



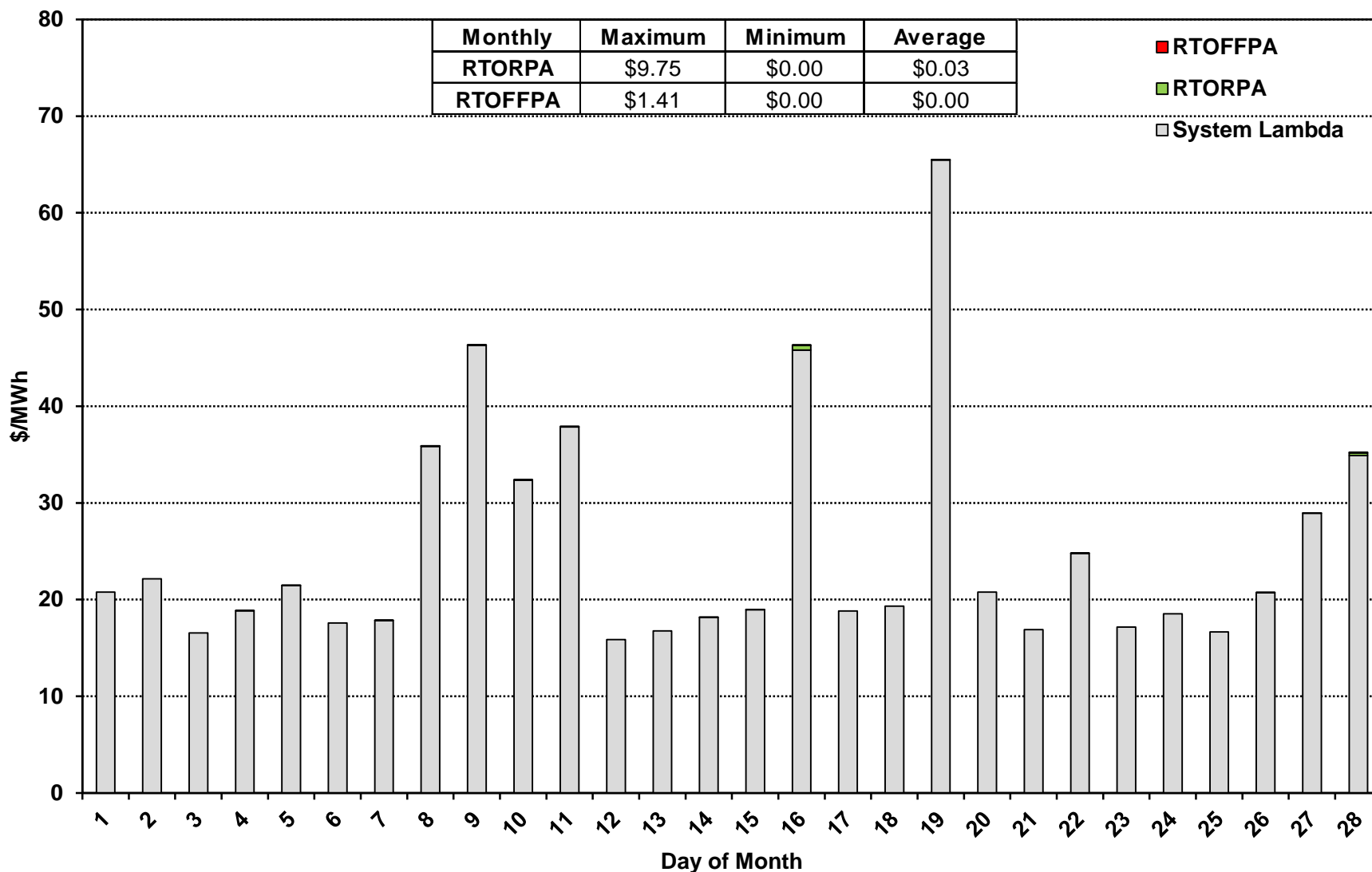
## Non-Spinning Reserve Service Deployment – February 2019

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

## CRR Price Convergence – February 2019



# Daily Average System Lambda and ORDC Price Adders – February 2019





## ERS Procurement for February 2019 – May 2019

	TP1	TP2	TP3	TP4	TP5	TP6
Non Weather-Sensitive ERS-10 MW	139.220	144.226	139.642	140.366	137.976	131.848
Non Weather-Sensitive ERS-30 MW	786.588	846.479	757.357	825.464	797.227	649.134
Weather-Sensitive ERS-10 MW	0	0	0	0	0	0
Weather-Sensitive ERS-30 MW	7.947	0	4.9	7.573	0	0
Total MW Procured	933.755	990.705	901.899	973.403	935.203	780.982
Clearing Price	\$21.80	\$12.25	\$1.10	\$19.98	\$13.03	\$0.25

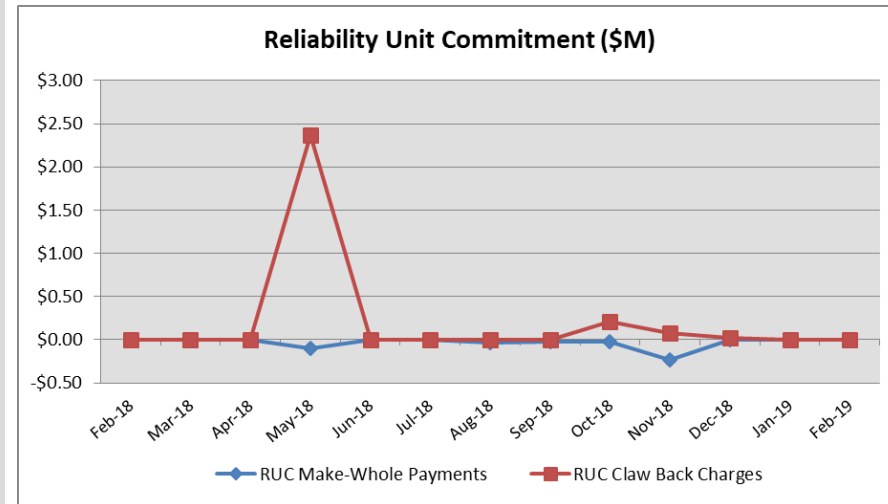
### Time Period

### 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 – February 2019

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 February 2019, \$0.00M was allocated to load for RUC compared to:

- A credit of \$0.00M in January 2019
- A credit of \$0.00M in February 2018

## Ancillary and Other Services – February 2019

<b>Ancillary and Other Services</b>	<b>\$ in Millions</b>
Regulation Up Service	\$1.80
Regulation Down Service	\$2.46
Responsive Reserve Service	\$12.69
Non-Spinning Reserve Service	\$1.73
Black Start Service	\$0.56
Voltage Services - Reactive Power	\$0.00
Voltage Services - Lost Opportunity	\$0.00
<b>Total Charges Allocated to Load</b>	<b>\$19.24</b>

In February 2019, Ancillary and Other Services was a charge of \$19.24M, compared to:

- A charge of \$22.10M in January 2019
- A charge of \$20.90M in February 2018

## Real-Time Ancillary Service Imbalance (ORDC) – February 2019

Real-Time Ancillary Service Imbalance	\$ in Thousands
Real-Time AS Imbalance	(\$26)
Real-Time Reliability Deployment AS Imbalance	\$0
<b>Total RTASI Amount Allocated to Load</b>	<b>\$26</b>

In February 2019, Real-Time Ancillary Service Imbalance was a charge to load of \$26K, compared to:

- A charge of \$4K in January 2019
- A charge of \$23K in February 2018

## Energy Settlement – February 2019

<b>Day-Ahead Market Energy Settlement</b>	<b>\$ in Millions</b>
<b>Energy Purchases</b>	\$358.90
<b>Point to Point Obligation Purchases</b>	\$27.94
<b>Energy Sales</b>	(\$347.19)
<b>Day-Ahead Congestion Rent</b>	<b>\$39.66</b>
<b>Day-Ahead Market Make-Whole Payments</b>	(\$0.27)

Day-Ahead Market energy settlement activity decreased from last month and increased from February 2018.

Real-Time Market energy settlement activity decreased from last month and decreased from February 2018.

<b>Real-Time Market Energy Settlement</b>	<b>\$ in Millions</b>
<b>Energy Imbalance at a Resource Node</b>	(\$322.69)
<b>Energy Imbalance at a Load Zone</b>	\$519.74
<b>Energy Imbalance at a Hub</b>	(\$162.81)
<b>Net Real-Time Energy Imbalance</b>	<b>\$34.24</b>
<b>Real Time Congestion from Self Schedules</b>	\$0.31
<b>Block Load Transfers and DC Ties</b>	(\$1.90)
<b>Total Impact to Revenue Neutrality</b>	<b>\$32.65</b>
<b>Load-Allocated Emergency Energy Payments</b>	(\$0.17)
<b>Load-Allocated Base Point Deviation Charges</b>	\$0.13

## Congestion Revenue Rights (CRR) – February 2019

	\$ in Millions
<b>Long-Term Auction</b>	(\$35.81)
<b>Monthly Auction</b>	(4.24)
<b>Total Auction Revenue</b>	<b>(\$40.05)</b>
<b>Day-Ahead CRR Settlements</b>	(\$34.15)
<b>Day-Ahead CRR Short-Charges</b>	\$0.24
<b>Day-Ahead CRR Short-Charges Refunded</b>	(\$0.24)
<b>Day-Ahead CRR Short-Charges Net</b>	<b>\$0.00</b>
<b>Total CRR Funding</b>	<b>(\$34.15)</b>
<b>Day-Ahead Point-to-Point Obligations</b>	\$27.94
<b>Real-Time Point-to-Point Obligations</b>	(\$36.36)
<b>Net Point-to-Point Obligations</b>	<b>(\$8.42)</b>

Congestion Revenue Rights settlement payments were fully funded and excess funds were paid to load.

Point to Point Obligations settled with a net credit of \$8.42M compared to a net charge of \$3.46M last month.

## CRR Balancing Account Fund – February 2019

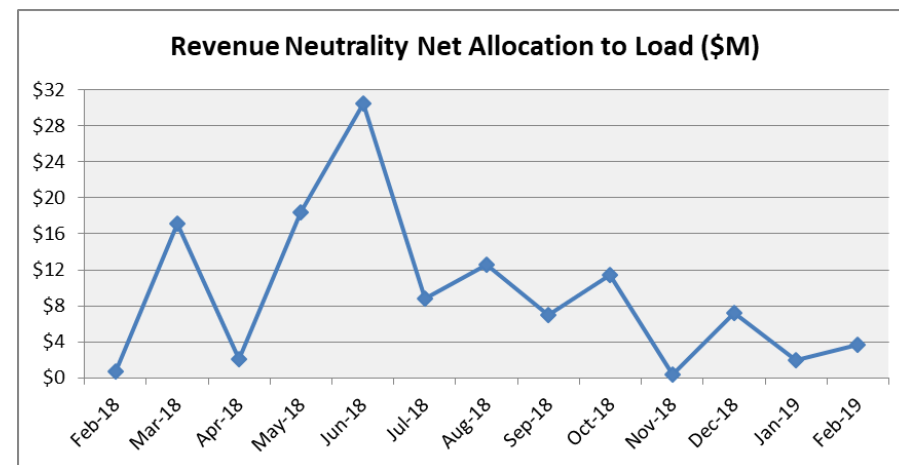
<b>CRR Balancing Account</b>	<b>\$ in Millions</b>
Monthly Day-Ahead Congestion Rent	\$39.66
Monthly Day-Ahead CRR Settlements	(\$34.15)
Monthly Day-Ahead CRR Short -Charges	\$0.24
<b>CRR Balancing Account Credit Total</b>	<b>\$5.74</b>
Beginning Fund Balance for the Month	\$7.44
CRR Balancing Account Credit Total	\$5.74
Day-Ahead CRR Short-Charges Refunded	(\$0.24)
CRR PTP Option Award Charges	\$0.05
Load-Allocated CRR Amount	(\$3.00)
<b>Total Fund Amount</b>	<b>\$10.00</b>

## Revenue Neutrality – February 2019

Revenue Neutrality	\$ in Millions
Real-Time Energy Imbalance	\$34.24
Real-Time Point to Point Obligation	(\$36.36)
Real-Time Congestion from Self-Schedules	\$0.31
DC Tie & Block Load Transfer	(\$1.90)
<b>Allocation to Load</b>	<b>\$3.71</b>

In February 2019, the Revenue Neutrality charge to load was \$3.71M compared to:

- A charge of \$1.99M in January 2019
- A charge of \$0.74M in February 2018



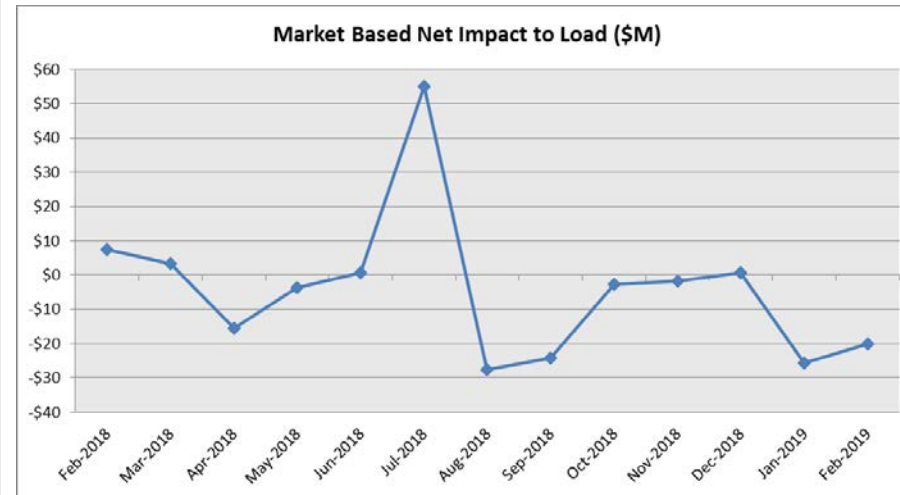


## Net Allocation to Load – February 2019

Market-Based Allocation	\$ in Millions
Reliability Unit Commitment	\$0.00
Ancillary and Other Services	\$19.24
Real-Time Ancillary Service Imbalance	\$0.03
Emergency Energy	\$0.17
Base Point Deviation	(\$0.13)
CRR Auction Revenue	(\$40.05)
CRR Balancing Account	(\$3.00)
Real-Time Revenue Neutrality	\$3.71
Reliability Must Run	\$0.00
Monthly Block Load Transfer	\$0.00
<b>Total</b>	<b>(\$20.03)</b>
<b>Fee Allocation</b>	
ERCOT Administrative Fee	\$14.57
<b>Net Allocated to Load</b>	<b>(\$5.46)</b>

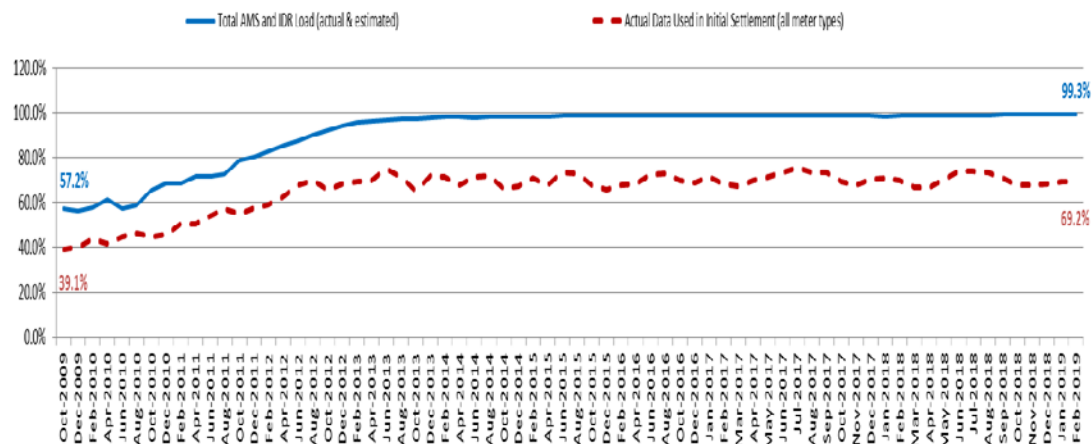
In February 2019, the Net Allocation to load was a credit of \$5.46M compared to:

- A credit of \$9.10M in January 2019
- A charge of \$0.25M in February 2018



# Advanced Meter Settlement Impacts – February 2019

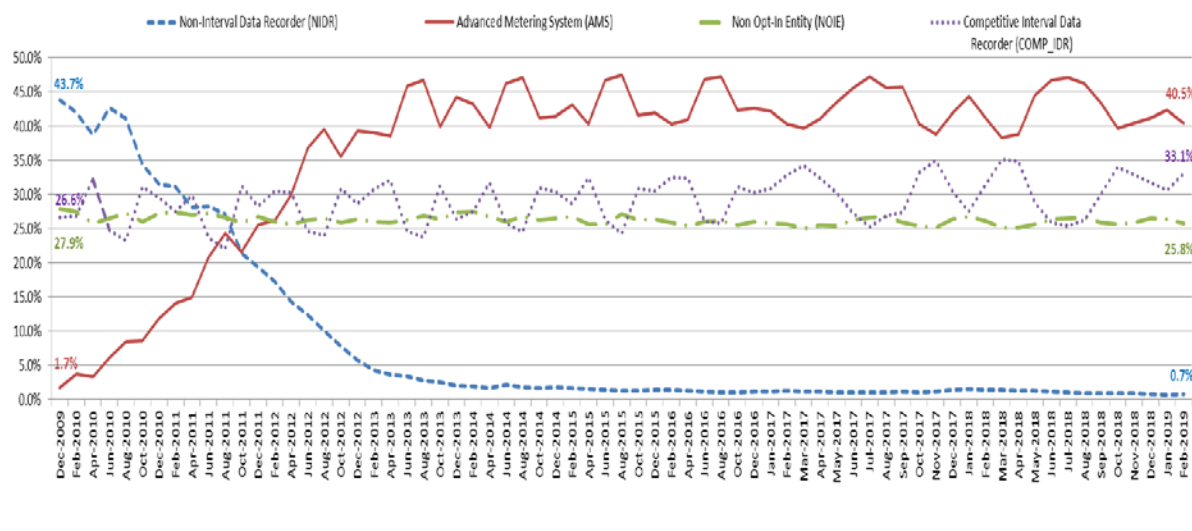
Percent Actual/Percent Interval Data Recorder (IDR)



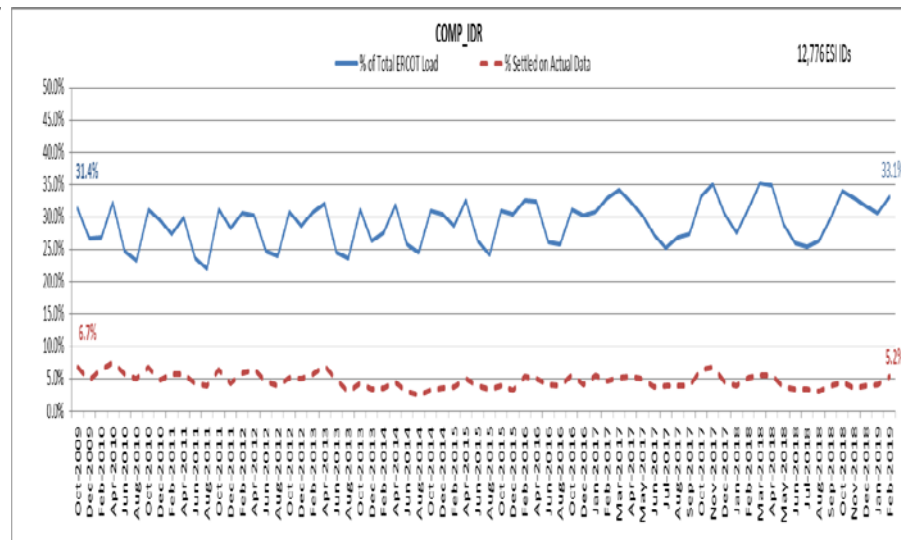
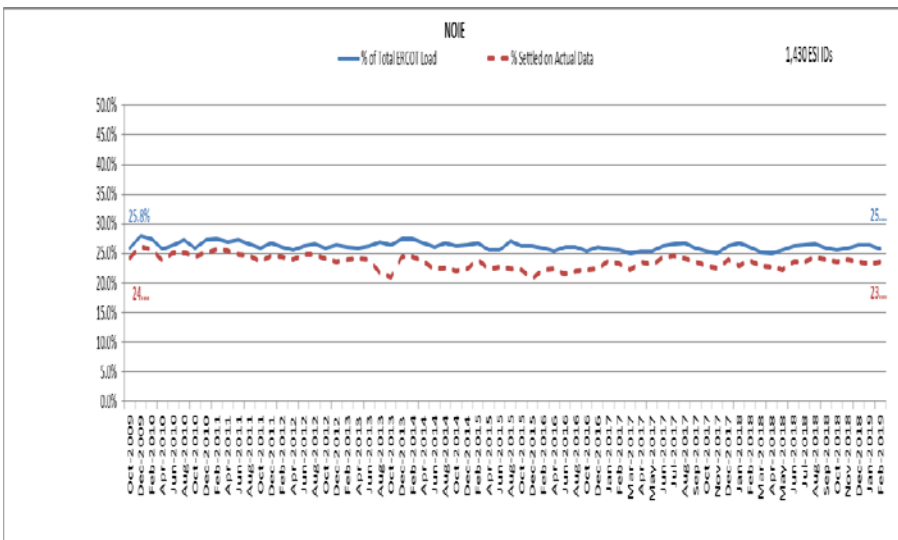
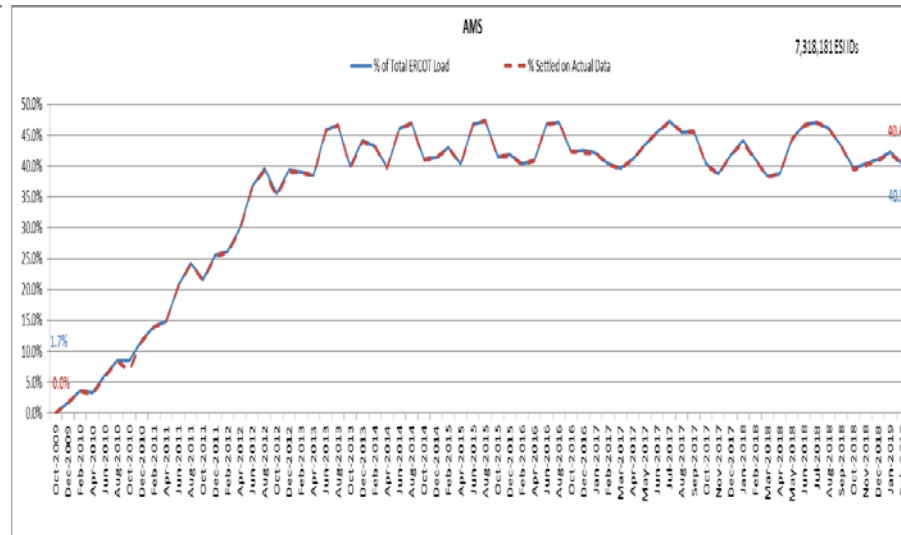
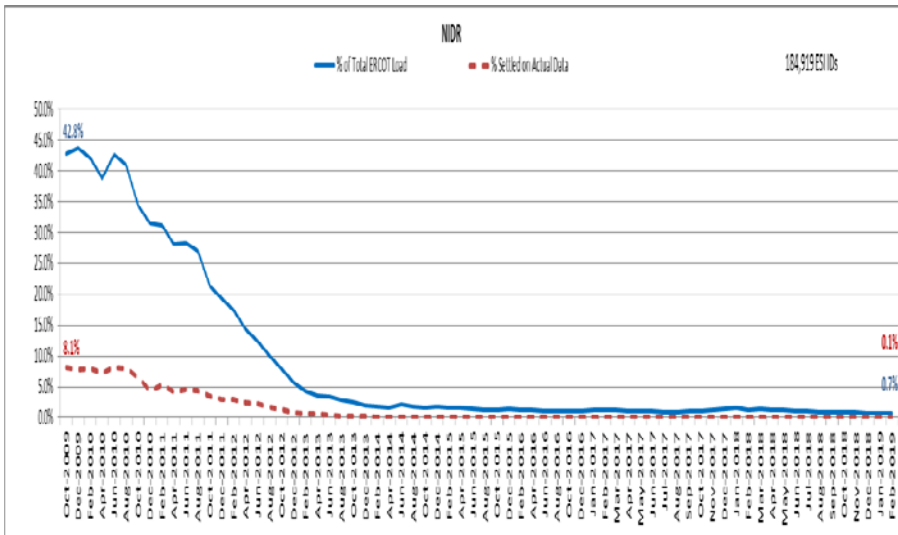
February 2019: At month end, settling 7.3M ESIIDs using Advanced Meter data.

February 2019: 99.3% 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 – February 2019

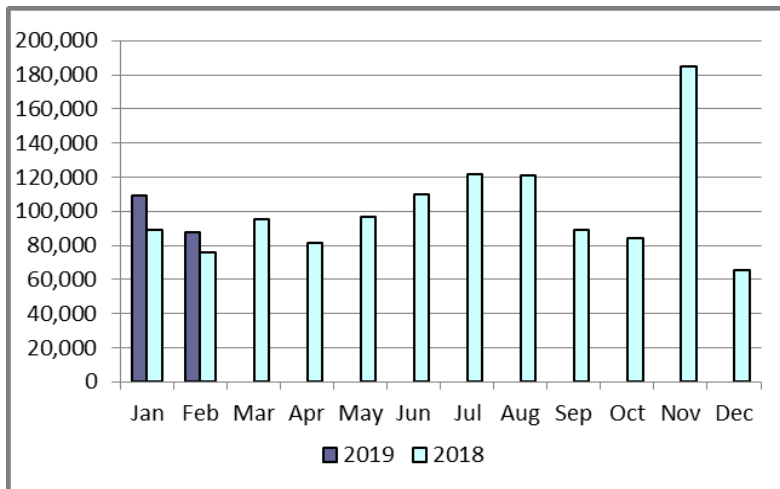


## Retail Transaction Volumes – Summary – February 2019

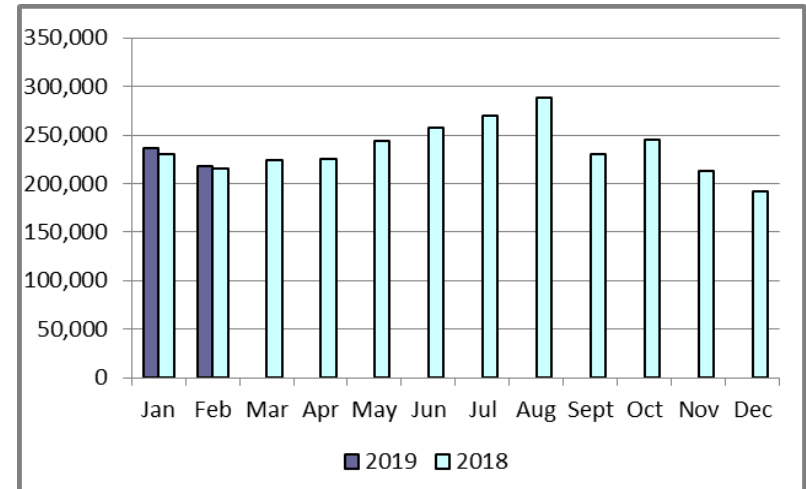
	Year-To-Date		Transactions Received	
Transaction Type	February 2019	February 2018	February 2019	February 2018
Switches	196,914	165,052	87,973	76,119
Acquisition	0	0	0	0
Move - Ins	454,596	445,690	218,467	215,281
Move - Outs	205,336	211,948	98,651	100,127
Continuous Service Agreements (CSA)	343,265	92,327	107,856	42,587
Mass Transitions	0	0	0	0
<b>Total</b>	<b>1,200,111</b>	<b>915,017</b>	<b>512,947</b>	<b>434,114</b>

# Retail Transaction Volumes – Summary – February 2019

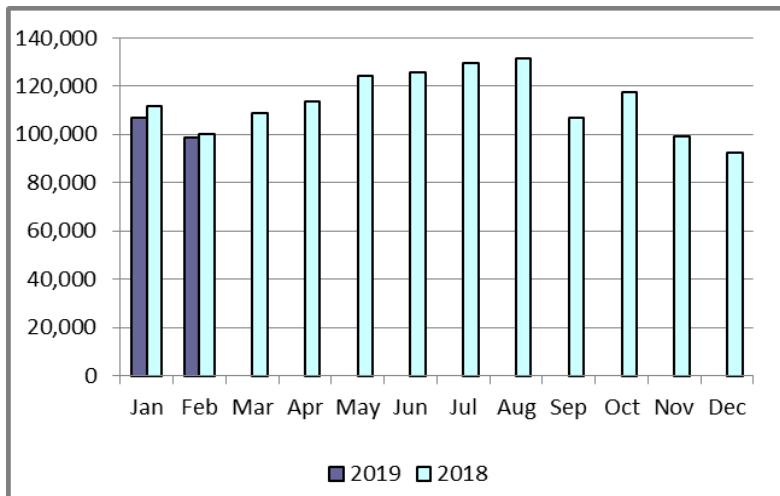
## Switches/Acquisitions



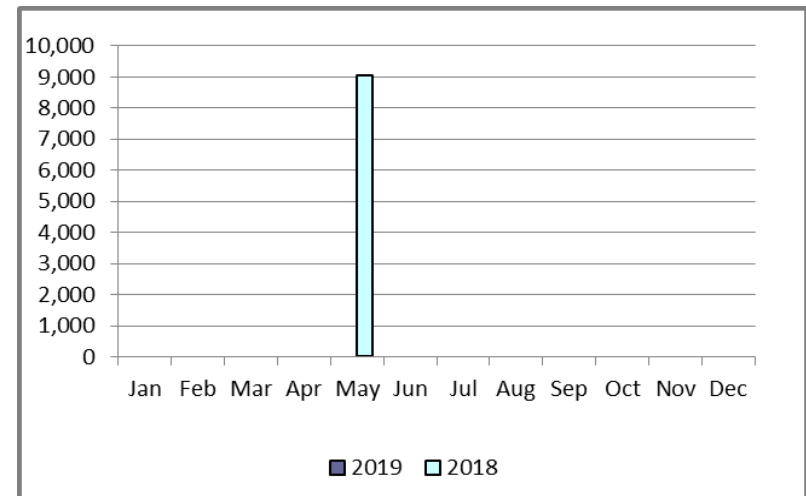
## Move-Ins



## Move-Outs



## Mass Transition



# Projects Report

# ERCOT Portfolio Stoplight Report – February 2019

Impact Metric Tolerances	2019 Project Funding	\$20,400,000	2019 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 = 78)		\$ 16,061,341
	Projects Not Yet Started (Count = 13)		\$ 1,880,004
	Projects Completed (Count = 19)		\$ 1,250,497
	Spending Reductions Required to Maintain Capital Budget		\$ -
	<b>TOTAL</b>		<b>\$ 19,191,842</b>

Project Number	Projects in Initiation Phase (Count = 4)
TBD	MIS Tech Refresh JBOSS and Linux
306-01	WAN Refresh
307-01	Tech Refresh - MMS/OS
170-07	ECAP - ECMS Implementation 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 = 11)	Phase Start	Baseline Phase Finish	Approved Phase Finish	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health	Budget Health
134-02	Privileged Account Management (PAM) Phase 2	8/8/2018	12/19/2018	8/20/2019	TBD	8/20/2019	0%	7%
DC4	DC4 Program Control	9/9/2015	6/23/2017	4/23/2019	TBD	4/23/2019	0%	-4%
DC4	DC4 Vendor HW Refresh	11/28/2018	4/23/2019	4/23/2019	TBD	4/23/2019	0%	42%
286-01	Java Platform Assessment	6/20/2018	11/21/2018	3/26/2019	TBD	3/26/2019	0%	1%
288-00	Retail Portfolio Refresh (RPR) Program Control	9/5/2018	3/27/2019	3/27/2019	TBD	3/27/2019	0%	38%
288-01	EDI Map and Translator Replacement	8/29/2018	2/27/2019	4/9/2019	TBD	4/9/2019	0%	0%
292-01	Additional Branch Limit for Relays	3/12/2019	4/23/2019	4/23/2019	TBD	4/23/2019	0%	0%
295-00	Forward Looking Operations Tools (FLOAT) Program Control	10/17/2018	4/17/2019	4/17/2019	TBD	4/17/2019	0%	73%
NPRR873	Posting of the ERCOT Wide Intra-Hour Wind Power and Load Forecast on the MIS Public	3/12/2019	4/16/2019	4/16/2019	TBD	4/16/2019	0%	5%
SCR781	RARF Replacement	12/20/2017	4/25/2018	3/26/2019	TBD	3/26/2019	0%	0%
SCR796	Change Validation Rules to Preclude Certain Transactions at Resource Nodes within Private Use Networks	3/5/2019	4/30/2019	4/30/2019	TBD	4/30/2019	0%	9%



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Project Number	Projects in Execution Phase (Count = 36)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
DC4	DC4 Network - Command and Control									2%
DC4	DC4 Network - Command and Control Stage 3	11/29/2017	11/28/2018	2/28/2019	2/28/2019	3/20/2019		0%		See DC4 Network Command and Control
DC4	DC4 Telecom - Corp Voice System									21%
DC4	DC4 Telecom - Corp Voice System Stage 2	11/14/2018	11/20/2019	11/20/2019	11/20/2019	11/20/2019		0%		See DC4 Telecom Corp Voice System
DC4	DC4 MV90 Communication Hardware Refresh	7/18/2018	5/22/2019	5/22/2019	5/22/2019	5/22/2019		0%		20%
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	3/28/2019	3/28/2019	4/30/2019		0%		-3%
173-02	ERCOT Flight Certification Website	11/15/2017	2/28/2019	6/4/2019	6/4/2019	7/31/2019		0%		0%
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
196-01	GINR Project Status Application Replacement	12/21/2016	9/14/2017	2/28/2019	3/31/2019	3/31/2019		-3%		0%
209-02	Weather Imaging and Line Observation (WILO)	5/30/2018	2/1/2019	4/5/2019	4/5/2019	5/28/2019		0%		-2%
209-03	Study Network (STNET) Integration	11/28/2018	8/28/2019	8/28/2019	8/28/2019	9/25/2019		0%		3%
228-01	Enterprise Database Upgrade	8/8/2018	1/29/2020	1/29/2020	1/29/2020	1/29/2020		0%		5%
238-01	Application Authentication Tech Refresh	9/6/2017	3/19/2018	5/31/2019	5/31/2019	7/30/2019		0%		7%
239-01	Identity and Access Management	5/9/2018	12/15/2018	6/19/2019	6/19/2019	7/30/2019		0%		1%
244-01	Corporate Wireless	11/29/2017	3/28/2018	4/2/2019	4/2/2019	4/30/2019		0%		7%
245-01	2017 EPS Metering Enhancements	6/27/2018	8/9/2019	12/12/2019	12/12/2019	1/14/2020		0%		0%
257-01	Security Constrained Optimal Powerflow in Study Network Analysis	12/6/2017	10/25/2018	2/7/2019	5/30/2019	6/12/2019	1	-26%		0%
263-01	Market Simulator	4/11/2018	12/13/2018	6/21/2019	6/21/2019	7/30/2019		0%		6%
293-01	Governance, Risk and Compliance (GRC) Replacement Tool	2/6/2019	6/4/2019	6/4/2019	6/4/2019	8/27/2019		0%		21%
Various	2015 CMM NPRRs									1%
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	2/7/2019	4/4/2019	4/23/2019	2	-30%	NA	See NPRR833



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Project Number	Projects in Execution Phase (Count = 36)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
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
NPRR821	Elimination of the CRR Derivation 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	2/7/2019	4/4/2019	5/21/2019	2	-30%	2	-5%
NPRR817	Create a Panhandle Hub	1/15/2019	4/4/2019	4/4/2019	4/4/2019	5/1/2019		0%		7%
NPRR845	RMR Process and Agreement Revisions	12/19/2018	4/4/2019	4/4/2019	4/4/2019	5/7/2019		0%		9%
NPRR847	Exceptional Fuel Cost Included in the Mitigated Offer Cap	1/15/2019	4/4/2019	4/4/2019	4/4/2019	5/1/2019		0%		See NPRR817
NPRR865	Publish RTM Shift Factors for Hubs, Load Zones, and DC Ties	2/6/2019	4/6/2019	4/6/2019	4/6/2019	4/23/2019		0%		54%
NPRR880	Publish Real-Time Market Shift Factors for Private Use Network Settlement Points	2/6/2019	4/6/2019	4/6/2019	4/6/2019	4/23/2019		0%		See NPRR865
NPRR901	Switchable Generation Resource Status Code	2/19/2019	5/30/2019	5/30/2019	5/30/2019	6/25/2019		0%		-4%
NPRR910	Clarify Treatment of RUC Resource that has a Day-Ahead Market Three-Part Supply Award	2/19/2019	5/30/2019	5/30/2019	5/30/2019	6/25/2019		0%		See NPRR901
Project Number	Expedited Projects in Execution (Count = 13)									
Project Number	Projects in Stabilization (Count = 9)	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	9/30/2019		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	9/30/2019		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	9/30/2019		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	9/30/2019		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	9/30/2019		23%	NA	See 2015 CMM NPRRs
193-01	PMU Tool Evaluation and Implementation	12/13/2017	8/9/2018	8/5/2018	8/5/2018	9/3/2019		0%		3%
229-01	IT Change and Configuration Management Phase 2	8/2/2017	6/19/2018	2/8/2019	12/16/2018	3/25/2019		9%		0%
265-01	Real-Time Assessment Continuity	1/31/2018	12/13/2018	2/8/2019	2/8/2019	3/19/2019		0%	2	-7%
266-01	Remote Email Access Enhancement	12/13/2017	3/7/2018	6/6/2018	6/19/2018	4/2/2019	2	-7%		36%

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Project Number	Projects On Hold (Count = 5)	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									0%
246-01	ITest Data Refresh									0%
269-01	Document Repository Redesign and Governance Implementation - Phase 1									0%
287-01	Security Constrained Unit Commitment (SCUC)									0%
291-01	IT Asset Recovery									0%
Project Number	Projects Completed (Count = 15)	Baseline Execution Phase Start	Baseline Go-Live Target	Approved Go-Live Target	Actual Go-Live Date	Actual Execution Phase Finish	Schedule Health		Budget Health	
DC4	DC4 Telecom - Control Room and Grid Ops	8/30/2017	3/18/2018	12/13/2018	12/13/2018	1/15/2019		0%		18%
DC4	DC4 Network - Command and Control Stage 1	8/30/2017	3/18/2018	12/13/2018	12/13/2018	1/15/2019		0%		
DC4	DC4 Telecom - Data Center Connectivity	2/7/2018	8/15/2018	11/16/2018	10/30/2018	2/5/2019		6%		0%
181-01	CRR Framework Upgrade	10/26/2016	10/2/2017	11/19/2018	11/19/2018	2/26/2019		0%		3%
209-04	GridGeo MMAP Assessment	10/17/2018	2/27/2019	2/27/2019	TBD	3/5/2019		0%		0%
210-01	REC Technology Refresh	8/30/2017	3/18/2018	12/13/2018	12/13/2018	1/15/2019		0%		2%
243-01	Training Facility	12/6/2017	12/12/2018	12/12/2018	11/6/2018	2/26/2019		9%		0%
261-01	Generic Transmission Constraint Calculation	3/7/2018	12/13/2018	12/13/2018	12/13/2018	1/23/2019		0%		20%
279-01	Cyber Security Project #24	6/27/2018	10/26/2018	11/30/2018	11/30/2018	3/5/2019		0%		6%
280-01	Quest Software Portfolio Transition	4/4/2018	6/27/2018	11/7/2018	11/14/2018	11/14/2018		-3%		0%
282-01	Synchronous Condenser Outage Modeling	6/6/2018	10/25/2018	10/25/2018	10/25/2018	3/5/2019		0%		3%
NPRR842	Study Area Load Information	10/17/2018	2/8/2019	2/8/2019	2/8/2019	3/12/2019		0%	2	-7%
NPRR843	Short-Term System Adequacy and AS Offer Disclosure Reports Additions	7/18/2018	10/25/2018	12/13/2018	12/13/2018	1/15/2019		0%		0%
SCR777	Bilateral CRR Interface Enhancement	10/26/2016	10/2/2017	11/19/2018	11/19/2018	2/26/2019		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	-26%
Project Number	Expedited Projects Completed (Count = 4)									

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Project Number	2019 Projects Not Yet Started (Count = 13)	Forecast Start Date
NPRR899	Digital Certificate and User Security Administrator Clarifications and Opt Out Procedure	Mar-2019
SCR797	Provide IRR Current Operating Plan (COP) to TSPs	Mar-2019
TBD	Tech Refresh - REC Rewrite	Apr-2019
NPRR887	Monthly Posting of Default Uplift Exposure Information	Apr-2019
NPRR841	Real-Time Adjustments to Day-Ahead Make Whole Payments due to Ancillary Services Infeasibility Charges	Jun-2019
NPRR856	Treatment of OFFQS Status in Day-Ahead Make Whole and RUC Settlements	Jun-2019
TBD	Tech Refresh - Business Intelligence	Jul-2019
NPRR877	Use of Actual Interval Data for IDR ESI IDs for Initial Settlement - Phase 2	Jul-2019
TBD	Automation of MP Partnership Deletions, Mothballed Status & Seasonal Operation Period, and other Siebel fields	Jul-2019
TBD	Implement ILM in ISM for Nodal TIBCO Instance	Jul-2019
TBD	Objectives and Key Results (OKR) Tool Implementation	Jul-2019
TBD	Parameter Estimation	Jul-2019
TBD	Standard Report for Events and Near-Miss Analysis	Jul-2019