



ERCOT Monthly Operational Overview (April 2019)

ERCOT Public
May 15, 2019

Grid Planning & Operations

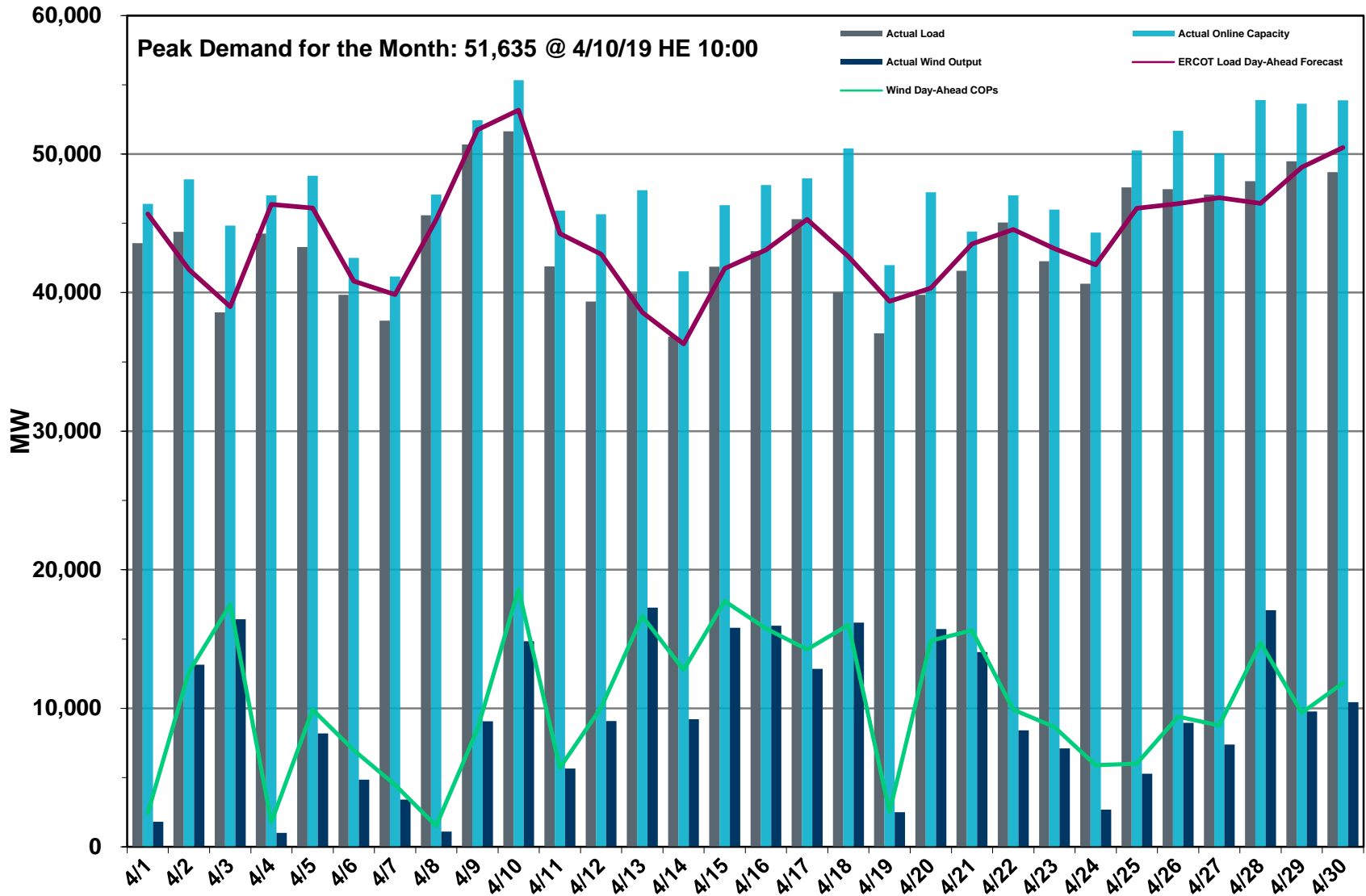
Operations

- The preliminary Settlements hourly peak demand of 51,635* MW on April 10 was lower than the day-ahead mid-term load forecast peak of 53,169 MW for the same operating hour.
 - The operational instantaneous peak demand was 51,937 MW (telemetry).
- Day-ahead load forecast error for April was 2.17%
- ERCOT issued one notification:
 - One Advisory issued for postponement of the deadline for the posting of the DAM Solution

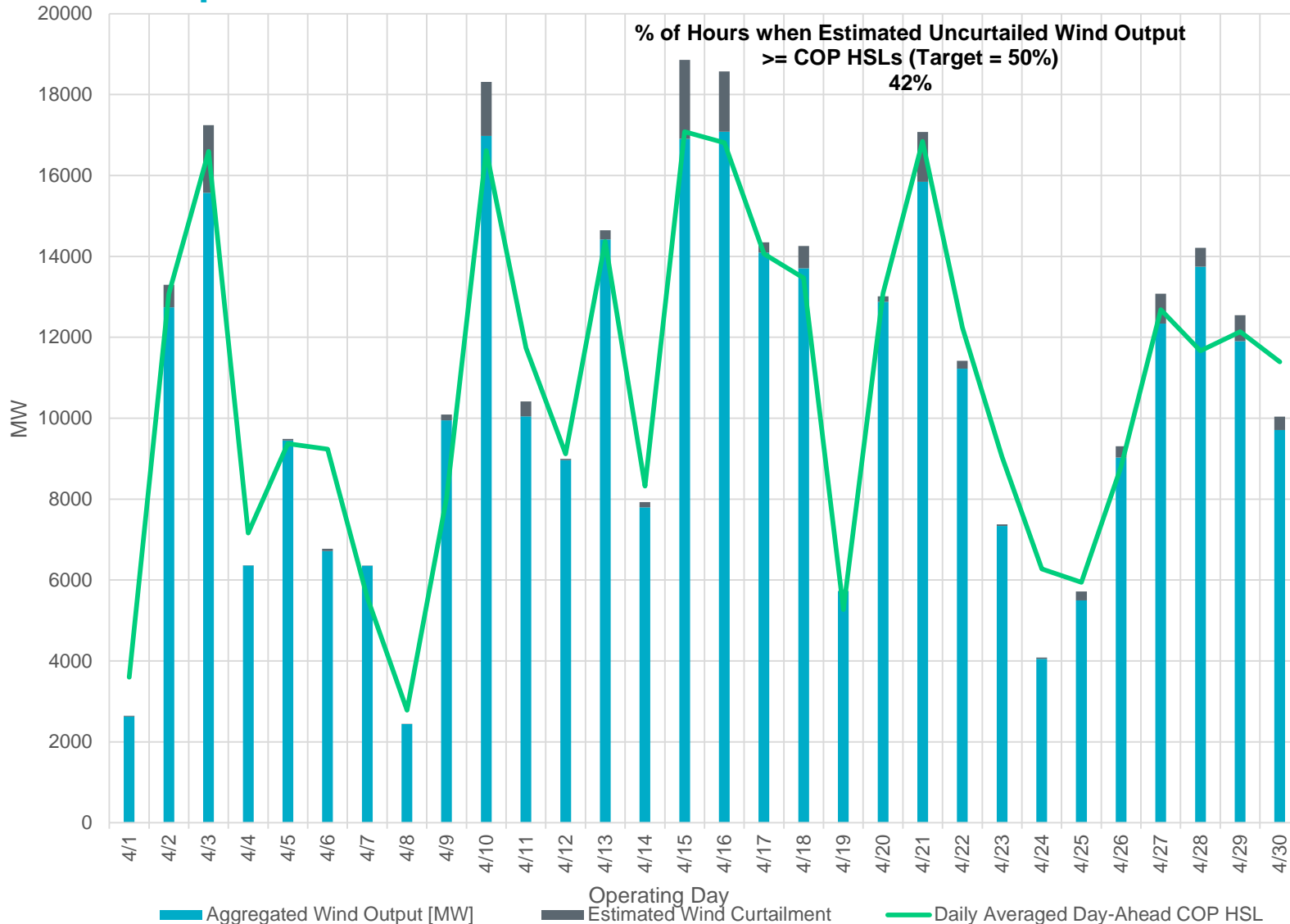
Planning Activities

- 527 active generation interconnection requests totaling 104,249 MW, including 35,644 MW of wind generation, as of April 30, 2019. Twenty two additional requests and an increase of 3,405 MW from March 31, 2019.
- 22,051 MW wind capacity in commercial operations as of May 1, 2019.

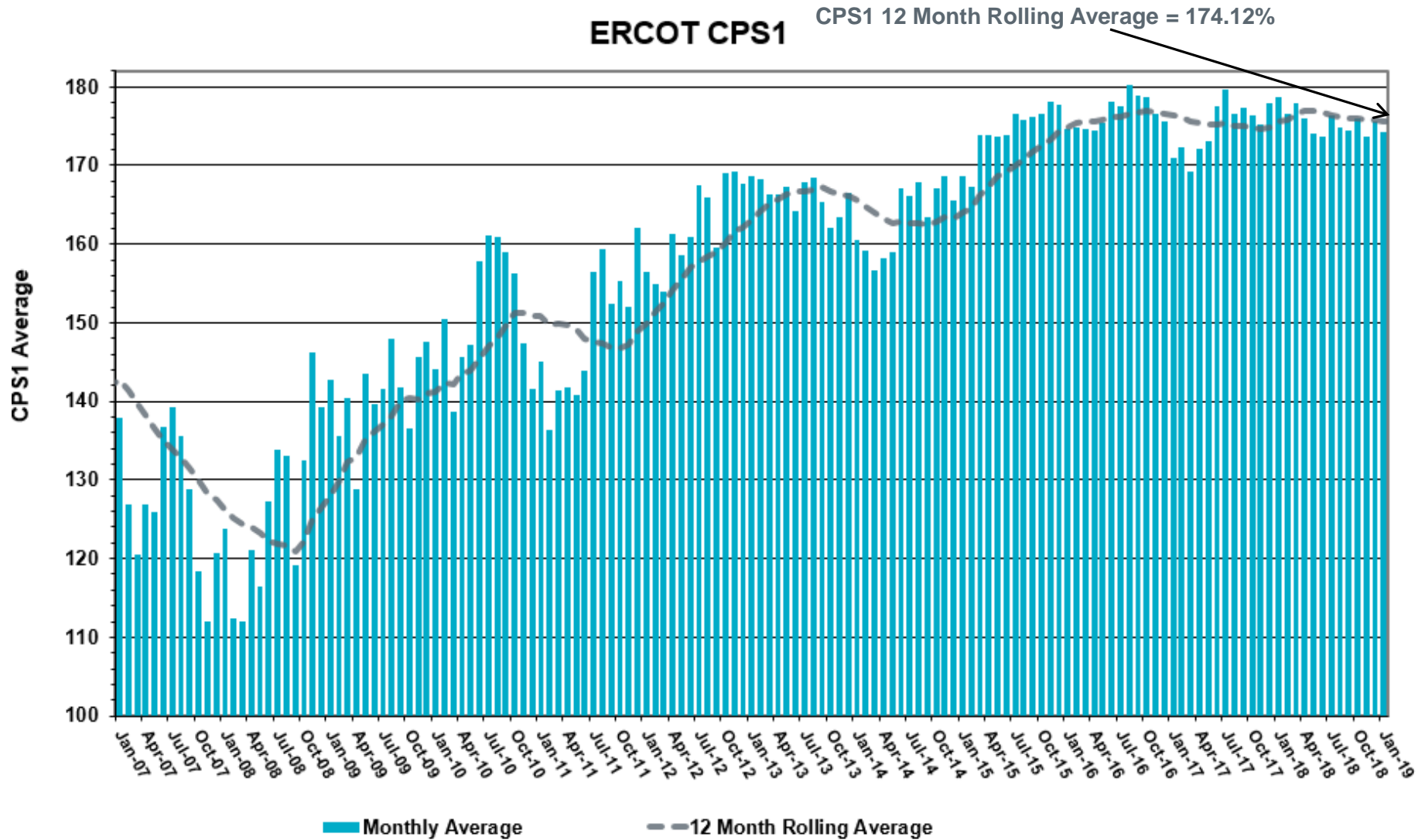
Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-Line Capacity at Peak – April 2019



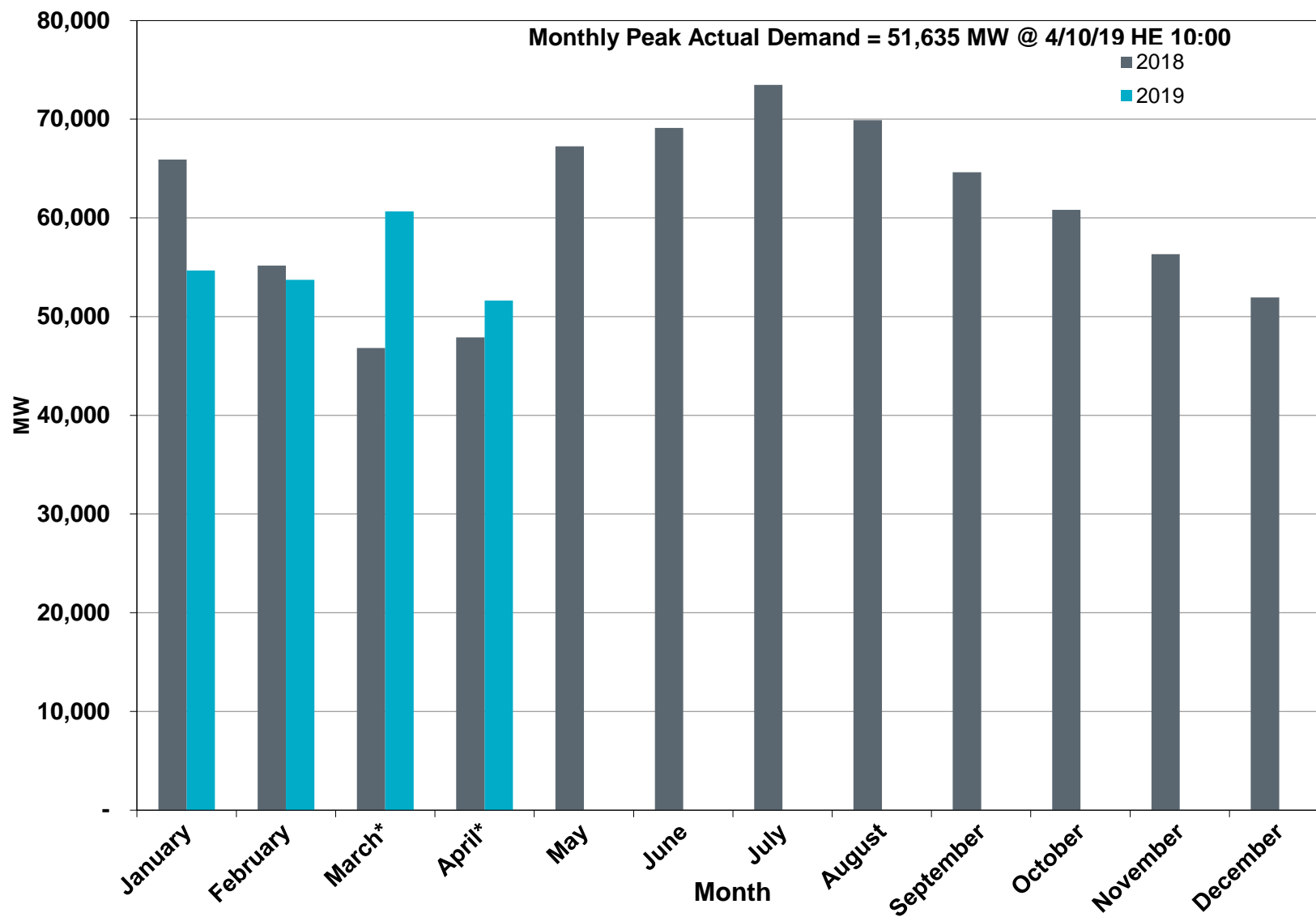
Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours – April 2019



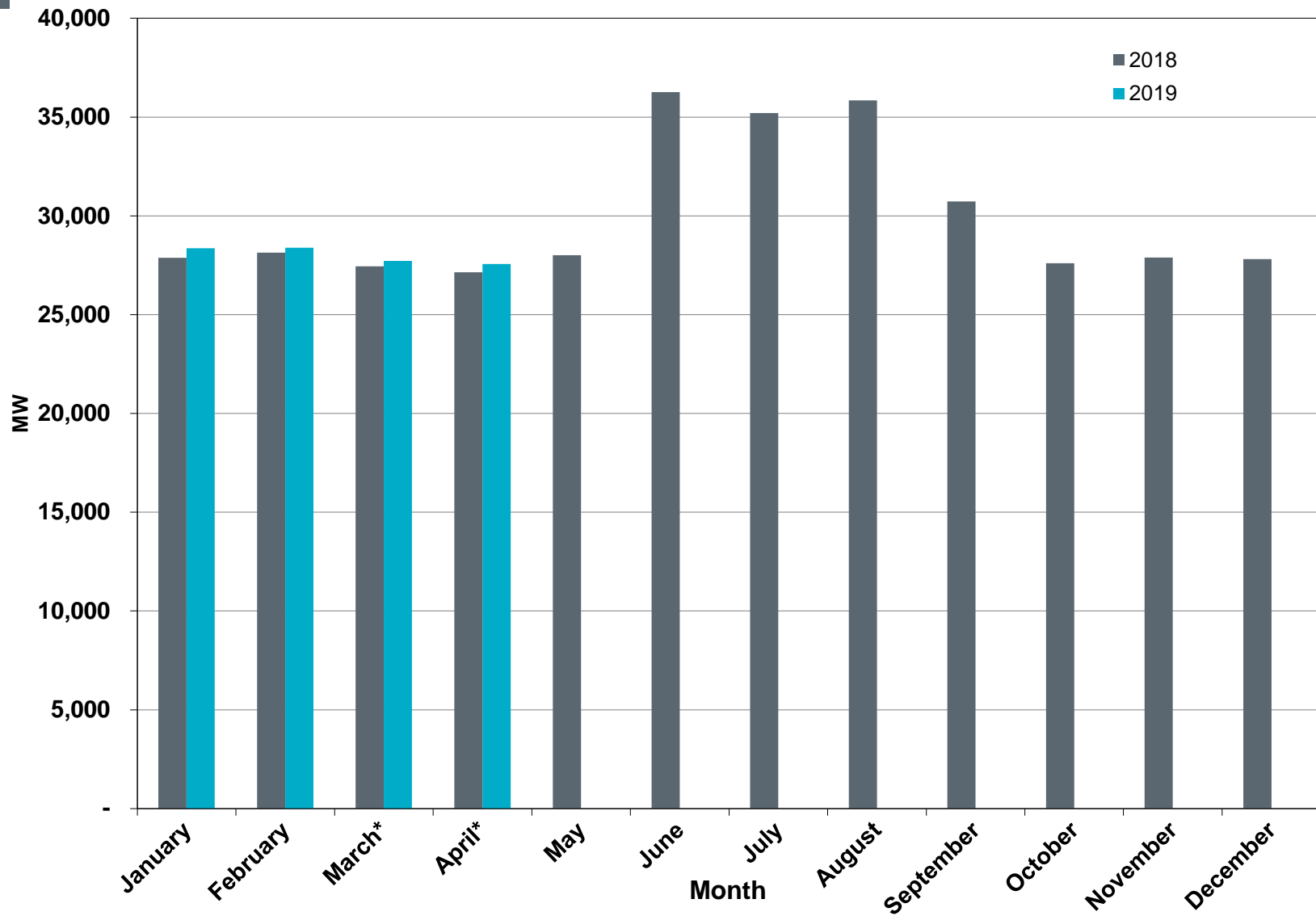
ERCOT's CPS1 Monthly Performance – April 2019



Monthly Actual Hourly Peak Demand – April 2019



Monthly Actual Minimum 15-minute Demand – April 2019

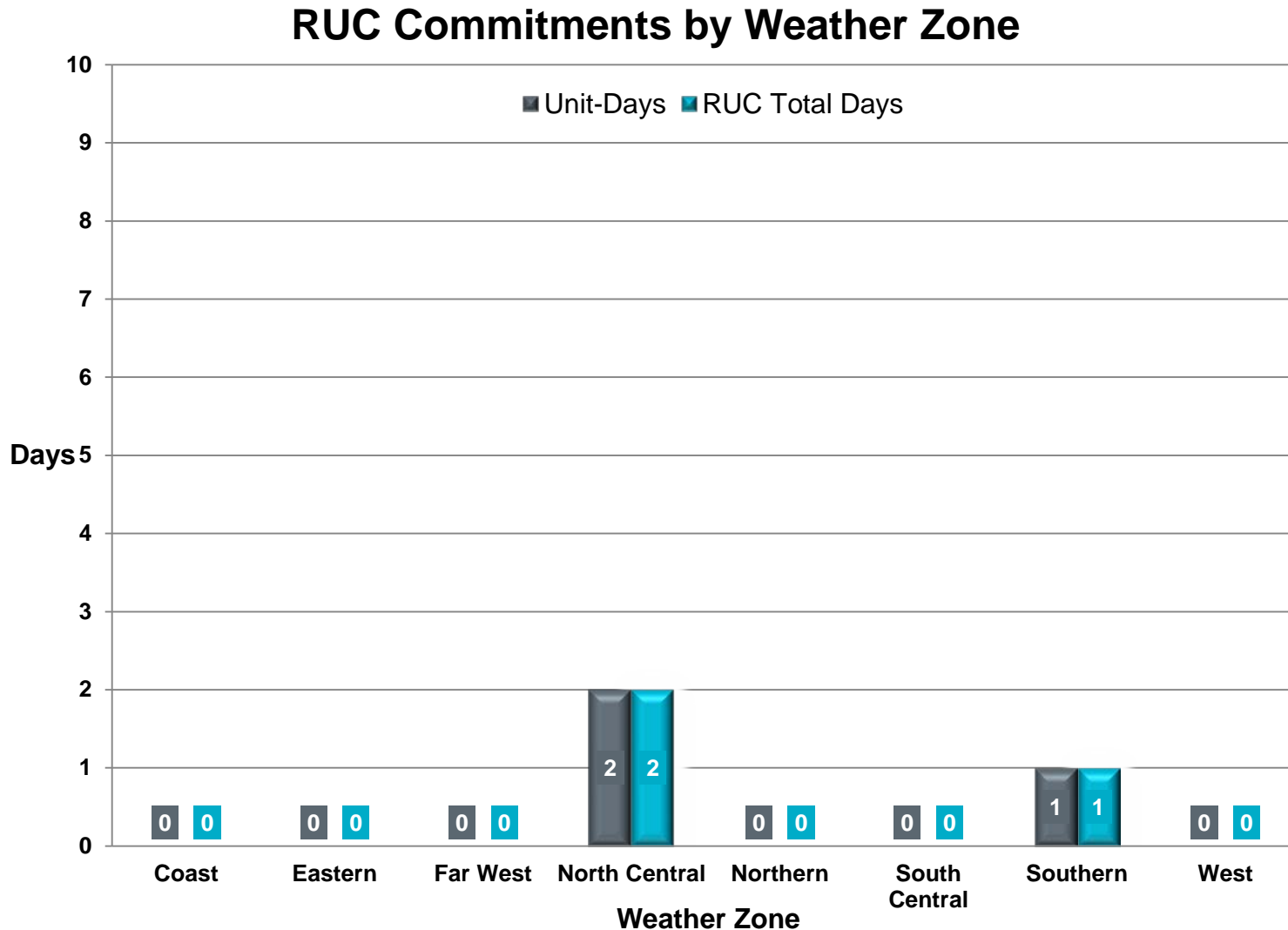


Day-Ahead Load Forecast Performance – April 2019

**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	April 2019 MAPE	
Average Annual MAPE	2.62	2.55	2.34	2.58	2.17	
Lowest Monthly MAPE	1.94	1.69	1.64	2.17	Lowest Daily MAPE	0.64 Apr. 27
Highest Monthly MAPE	3.86	4.07	3.66	2.74	Highest Daily MAPE	4.55 Apr. 5

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



Generic Transmission Constraints (GTCs) – April 2019

GTCs	Apr-18 Days GTCs	Feb-19 Days GTCs	Mar-19 Days GTCs	Apr-19 Days GTCs	Last 12 Months Total Days (May 18 – Apr 19)
North – Houston	1	0	0	0	4
Valley Import	0	0	0	0	5
Panhandle	25	22	16	26	216
Red Tap	0	0	0	0	8
North Edinburg – Lobo	0	0	0	3	3
Nelson Sharpe – Rio Hondo	12	0	0	0	2
East Texas	0	0	0	0	0
McCamey	0	0	1	0	1
Treadwell	-	0	0	0	0

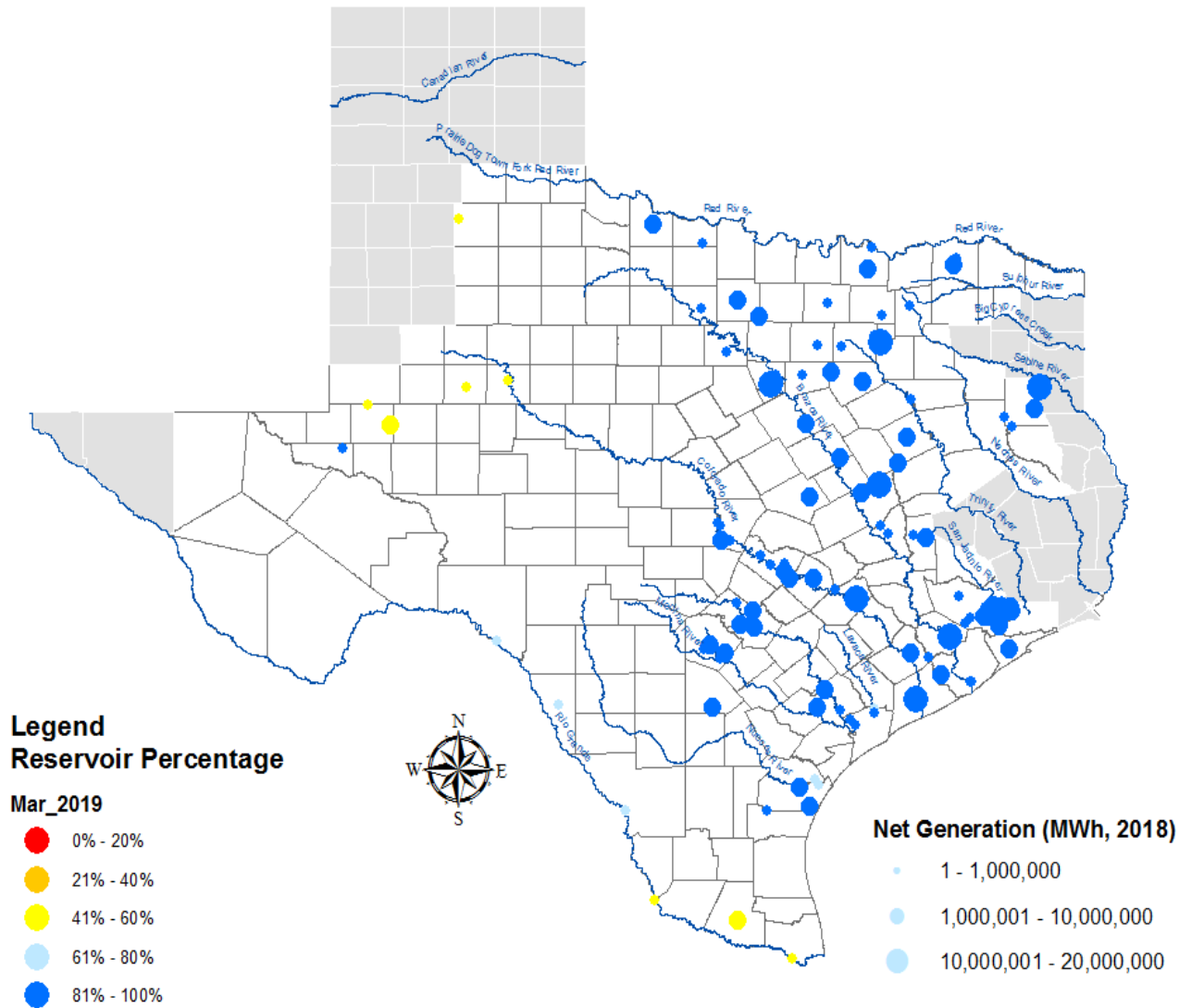
GTC: A transmission flow limit more constraining than a Transmission Element's normal limit established to constrain flow between geographic areas of the ERCOT Transmission System that is used to enforce stability and voltage constraints that cannot be modeled directly in ERCOT's transmission security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

- One Advisory issued for postponement of the deadline for the posting of the DAM Solution for OD 04/05/2019
 - Issued 4/4

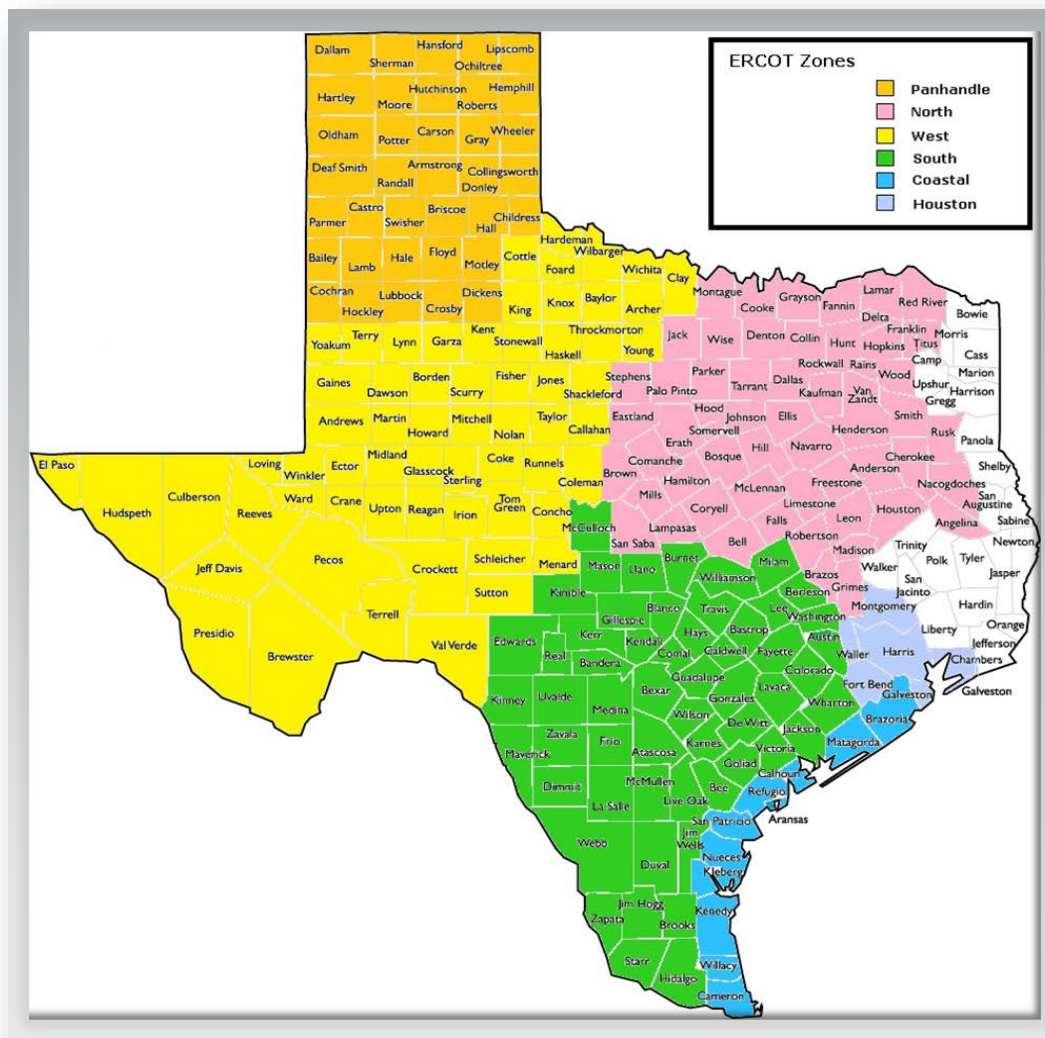
Lake Levels Update – May 1, 2019



Planning Summary – April 2019

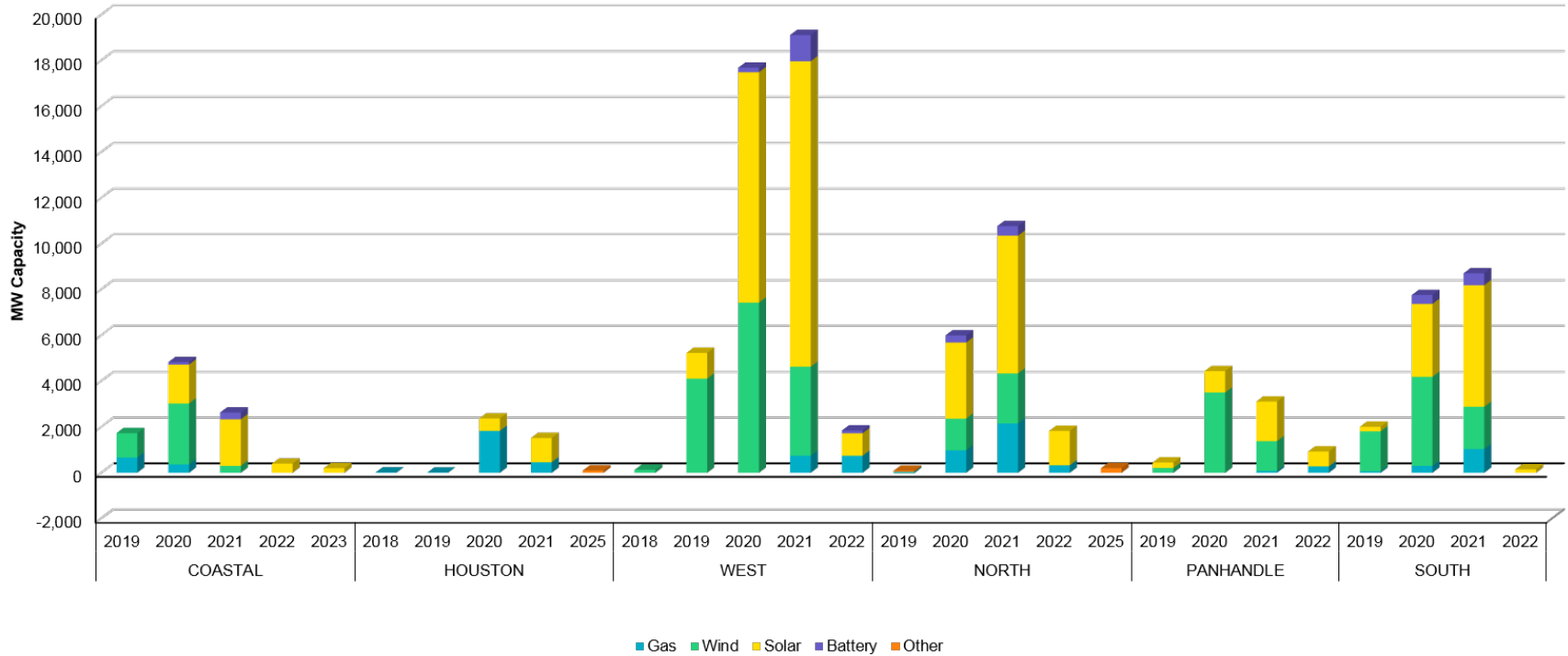
- ERCOT is currently tracking 527 active generation interconnection requests totaling 104,249 MW. This includes 35,644 MW of wind generation.
- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$602.5 million (as of April 30, 2019).
- Transmission Projects endorsed in 2019 total \$158.53 million (as of April 30, 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 – April 2019



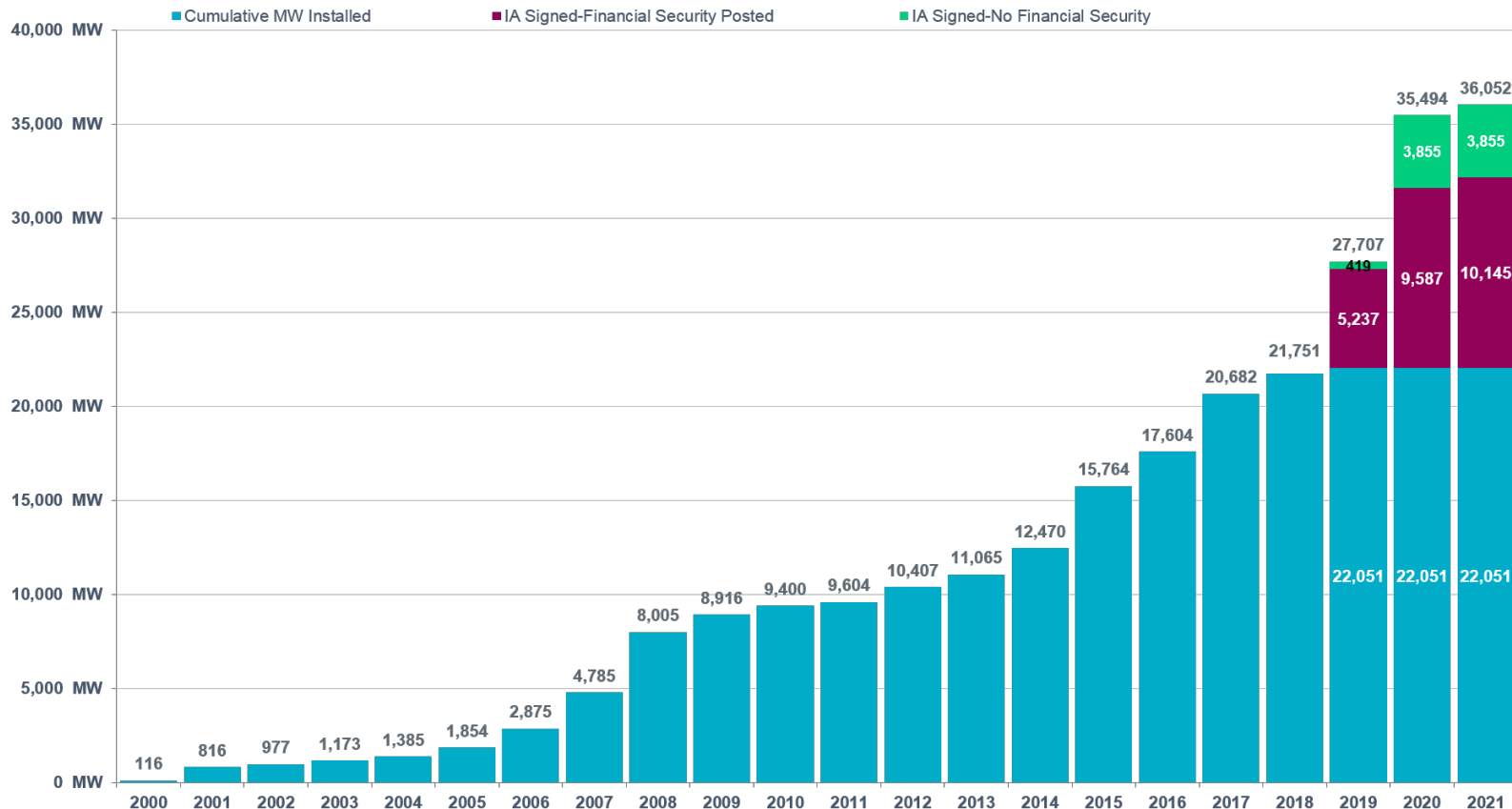
Cumulative MW Capacity of Interconnection Requests by Zone – April 2019

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



Wind Generation – April 2019

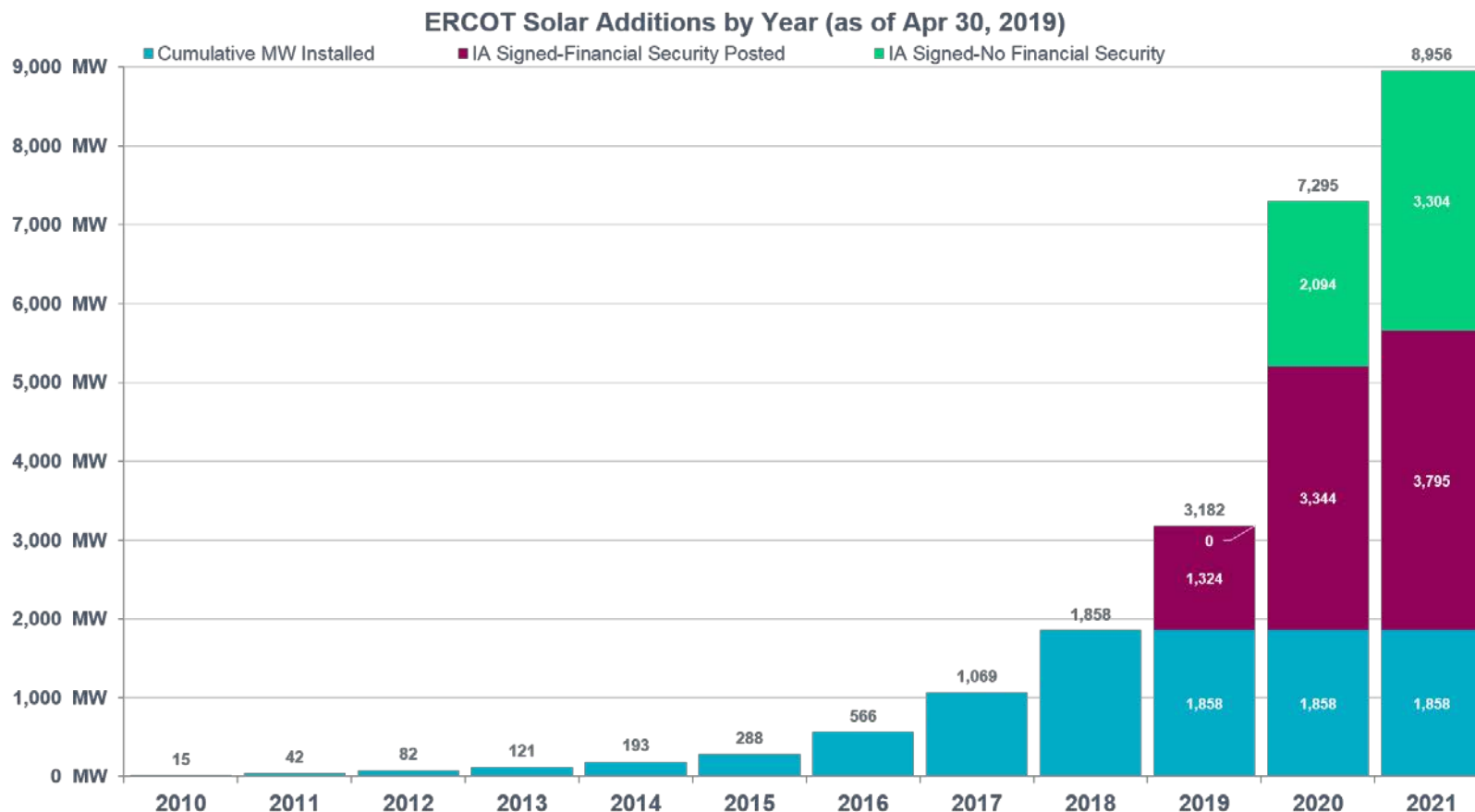
ERCOT Wind Additions by Year (as of Apr 30, 2019)



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 – April 2019

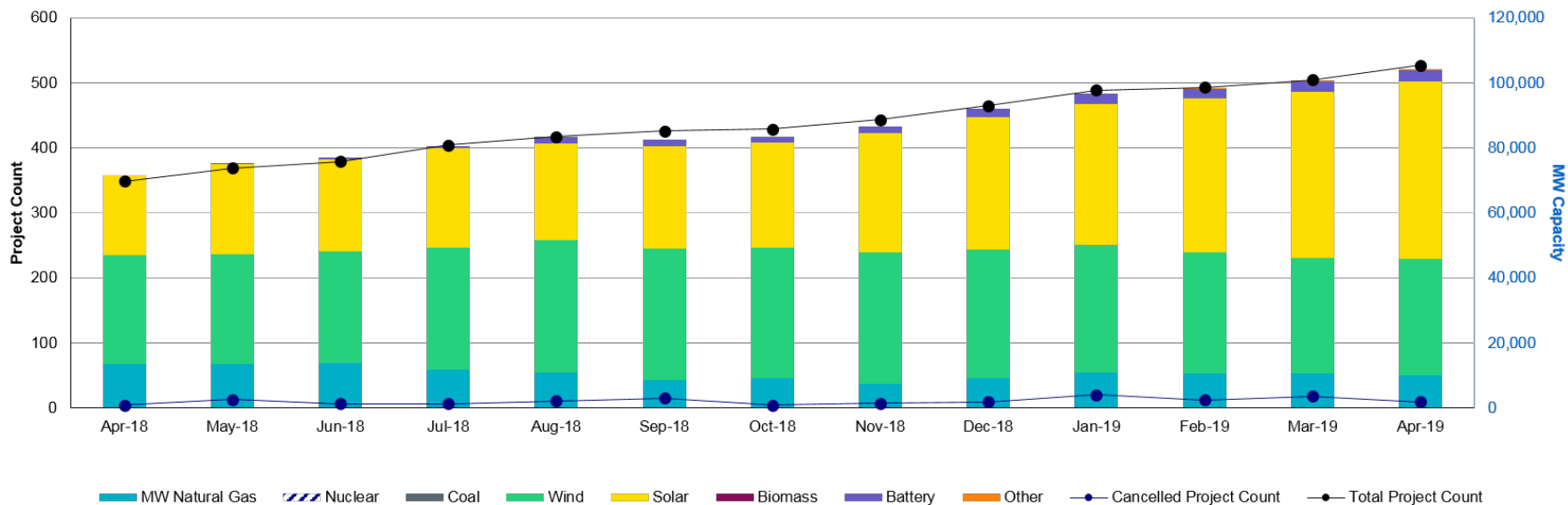


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- This chart reports annual planned units with projected Commercial Operations Dates throughout the calendar year. In contrast, ERCOT's Capacity, Demand and Reserves (CDR) report shows planned capacity projected to be commercially available on or before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

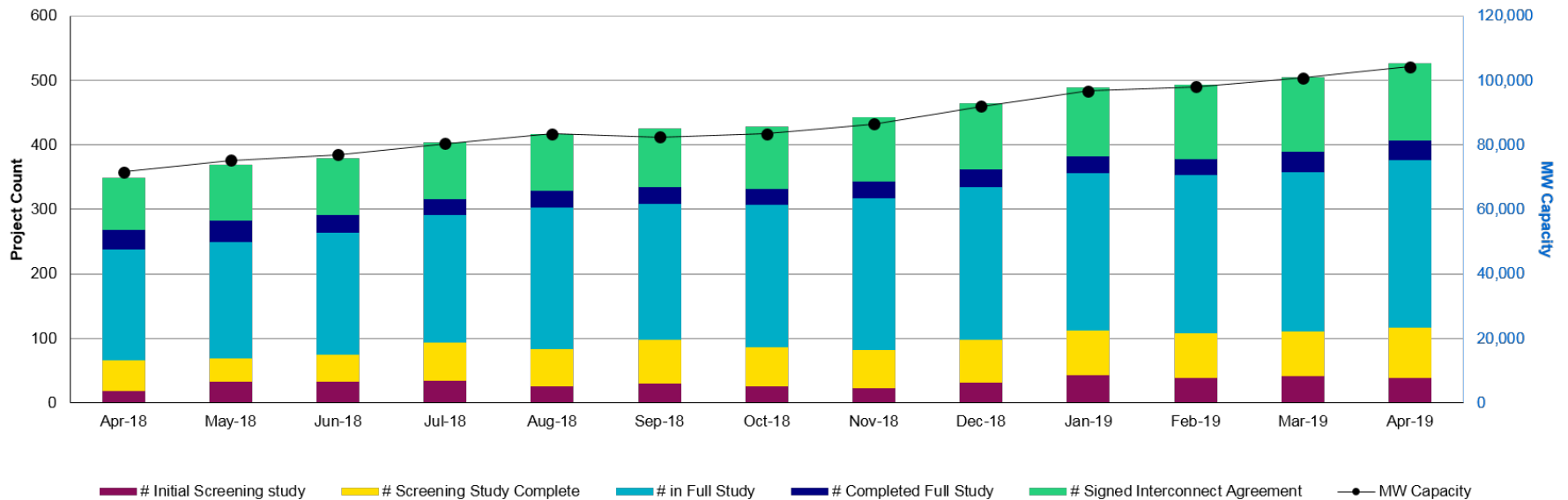
Generation Interconnection Activity by Fuel – April 2019

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



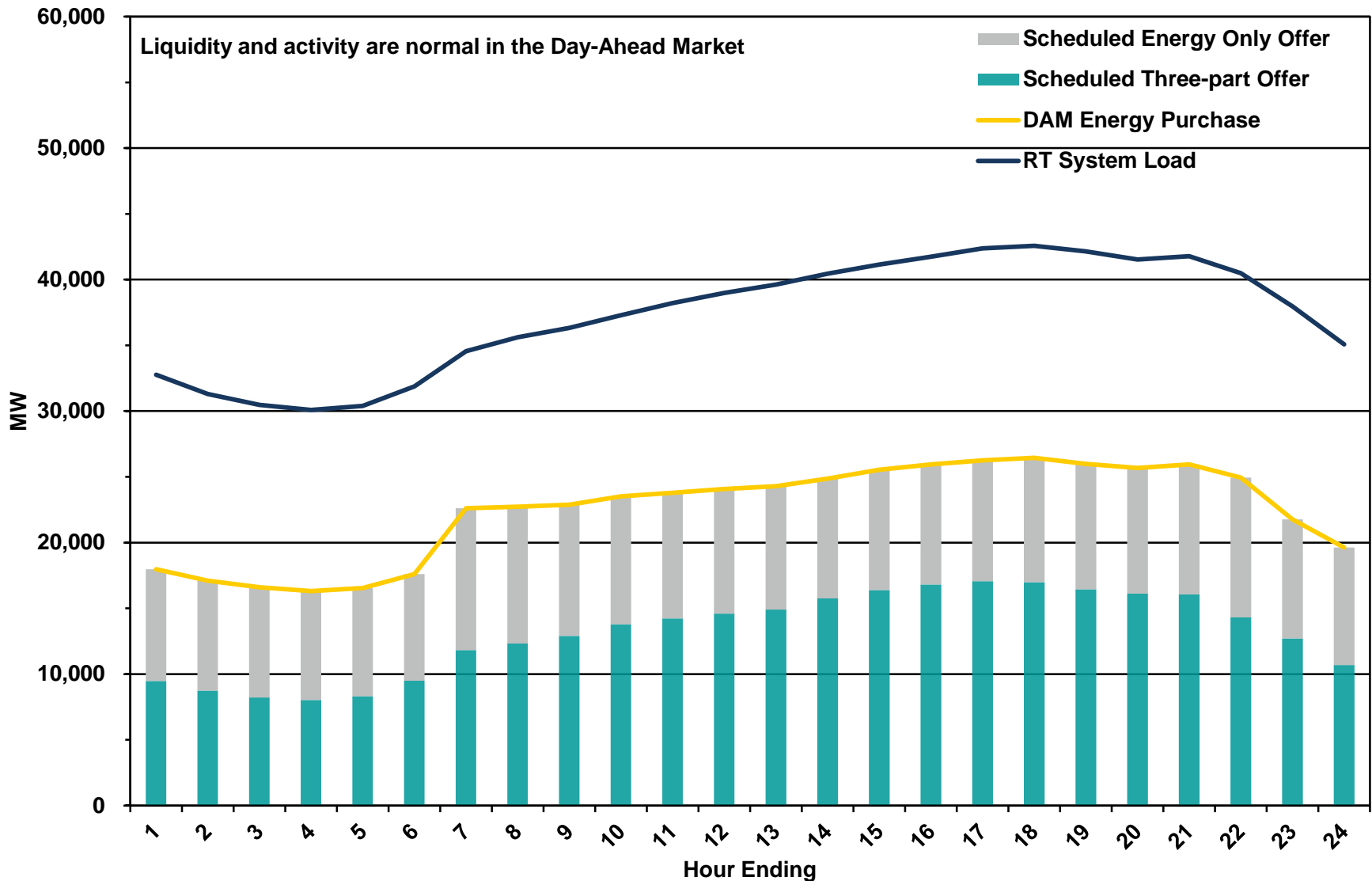
Generation Interconnection Activity by Project Phase – April 2019

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

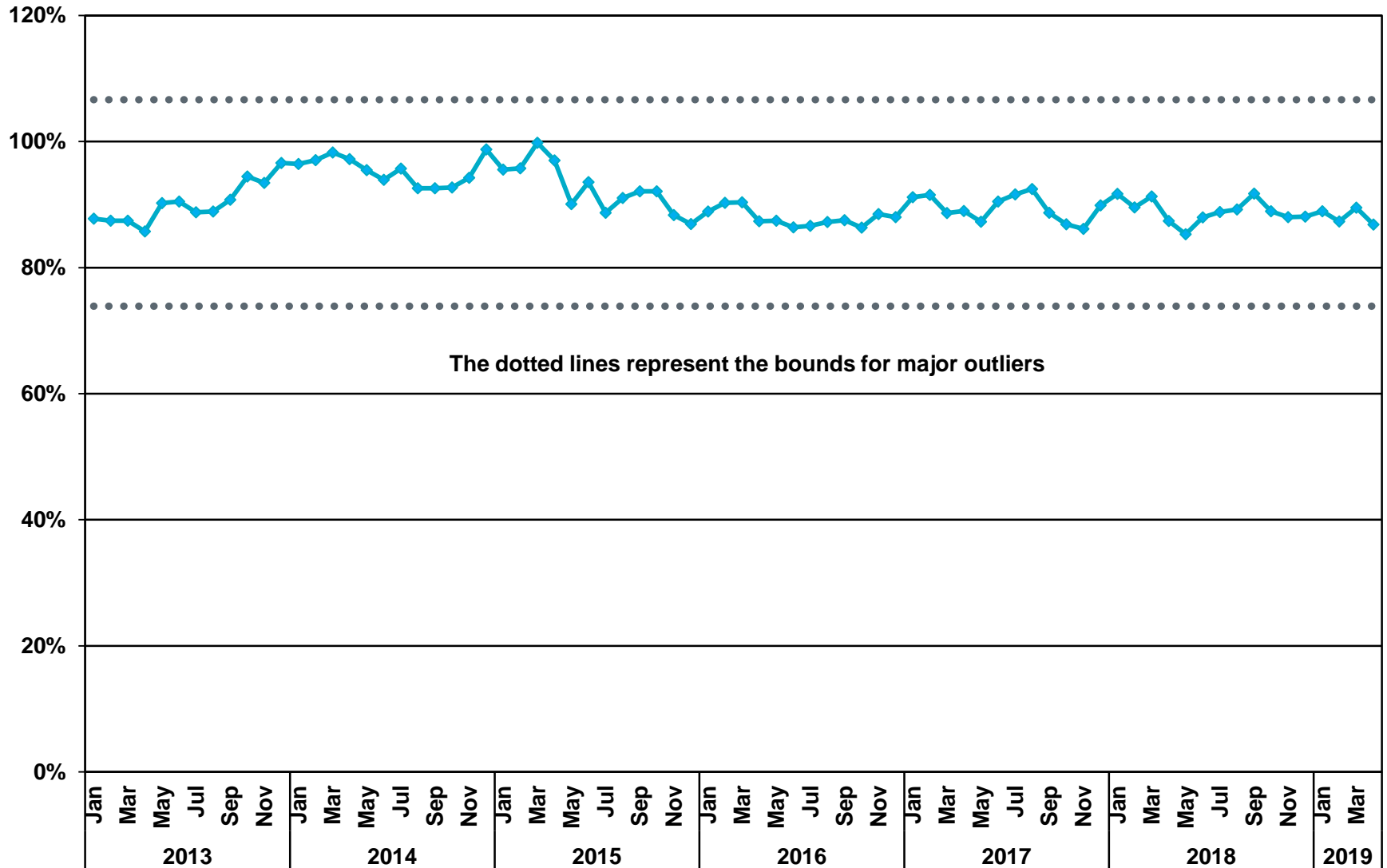


Market Operations

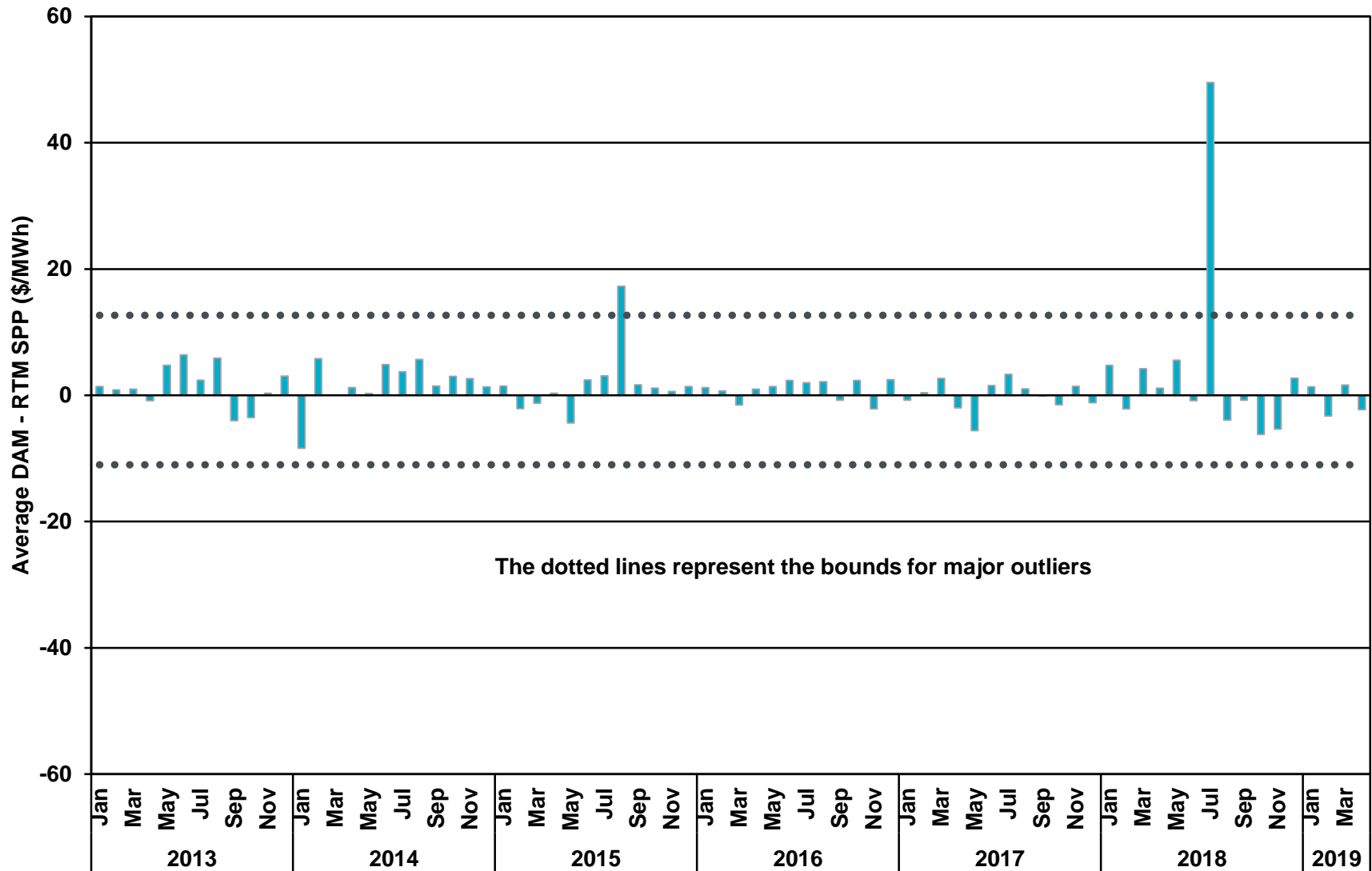
Day-Ahead Schedule (Hourly Average) – April 2019



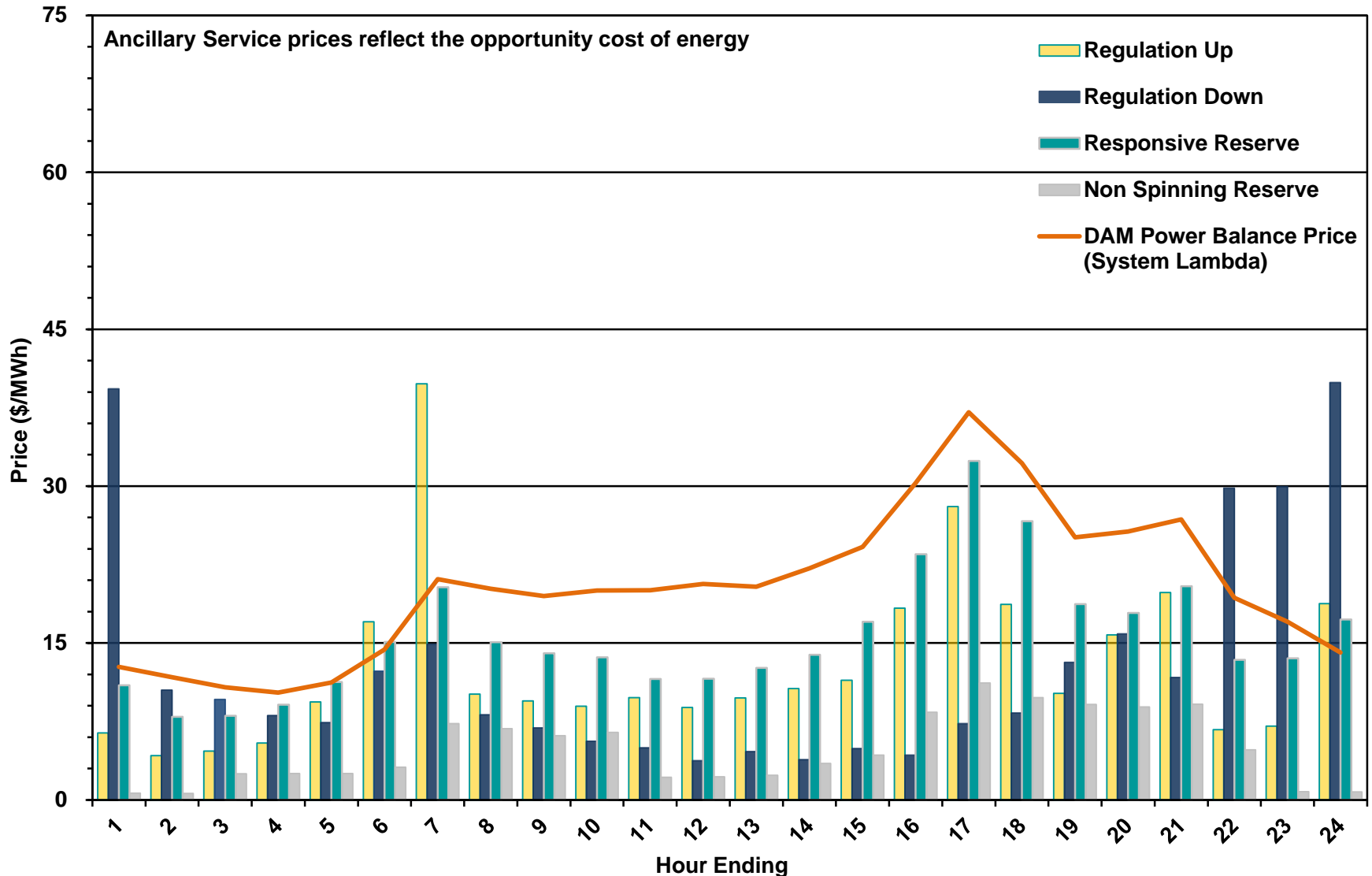
Percentage of Real-Time Load Transacted in the DAM (Counter-Party Level) – April 2019



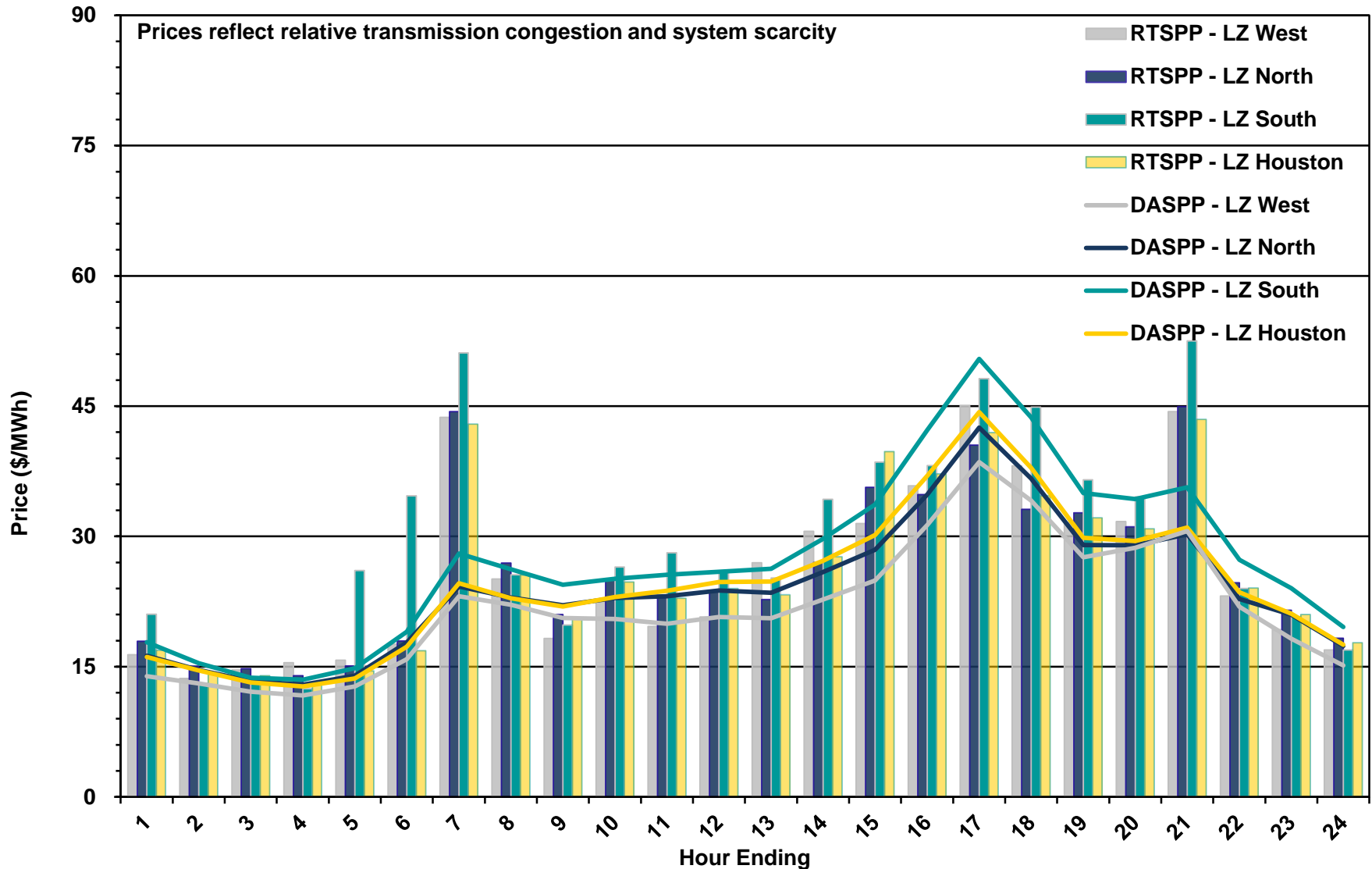
DAM and RTM Price Convergence – April 2019



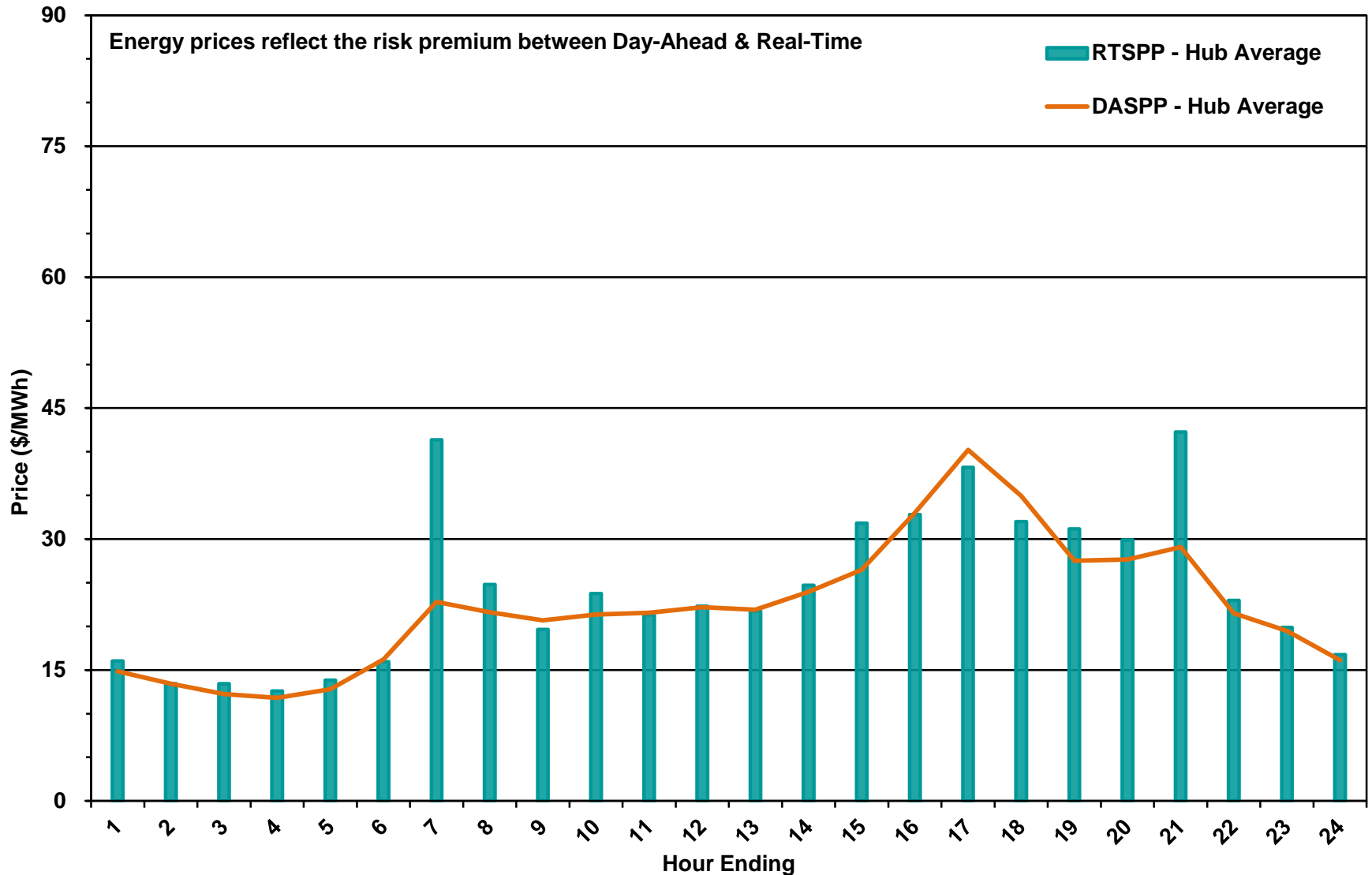
Day-Ahead Electricity and Ancillary Service Prices (Hourly Average) – April 2019



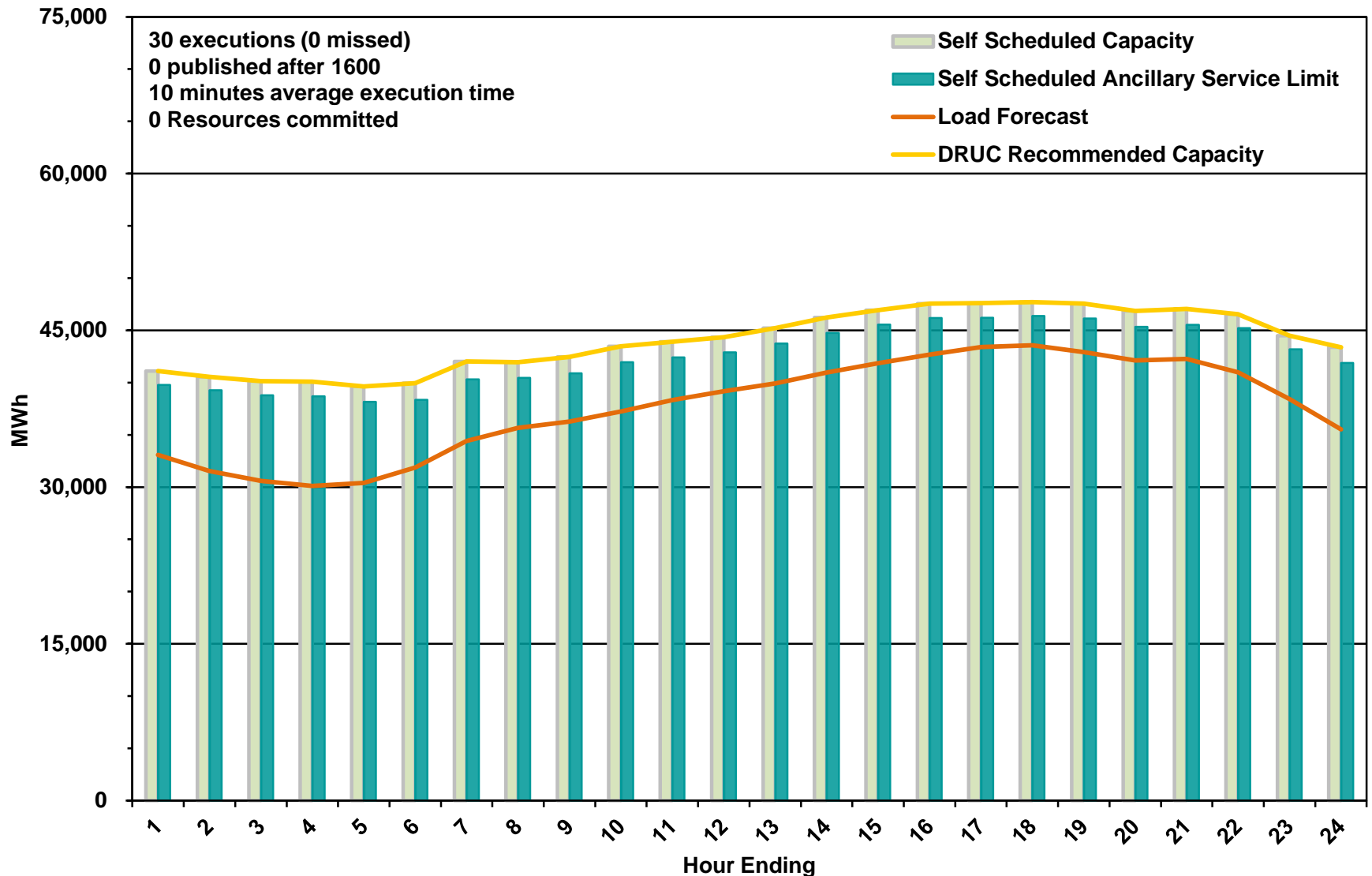
Day-Ahead vs Real-Time Load Zone SPP (Hourly Average) – April 2019



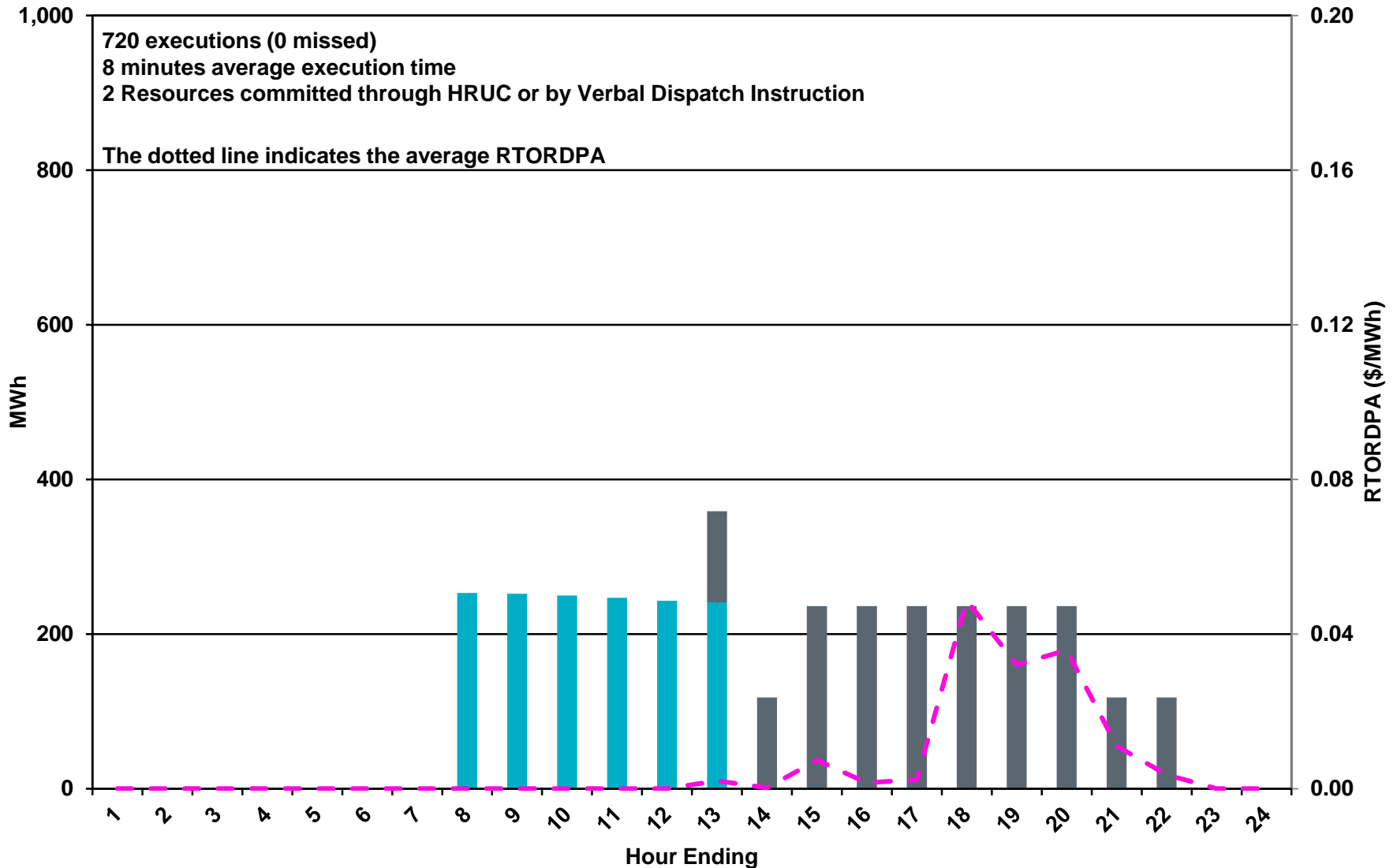
Day-Ahead vs Real-Time Hub Average SPP (Hourly Average) – April 2019



DRUC Monthly Summary (Hourly Average) – April 2019



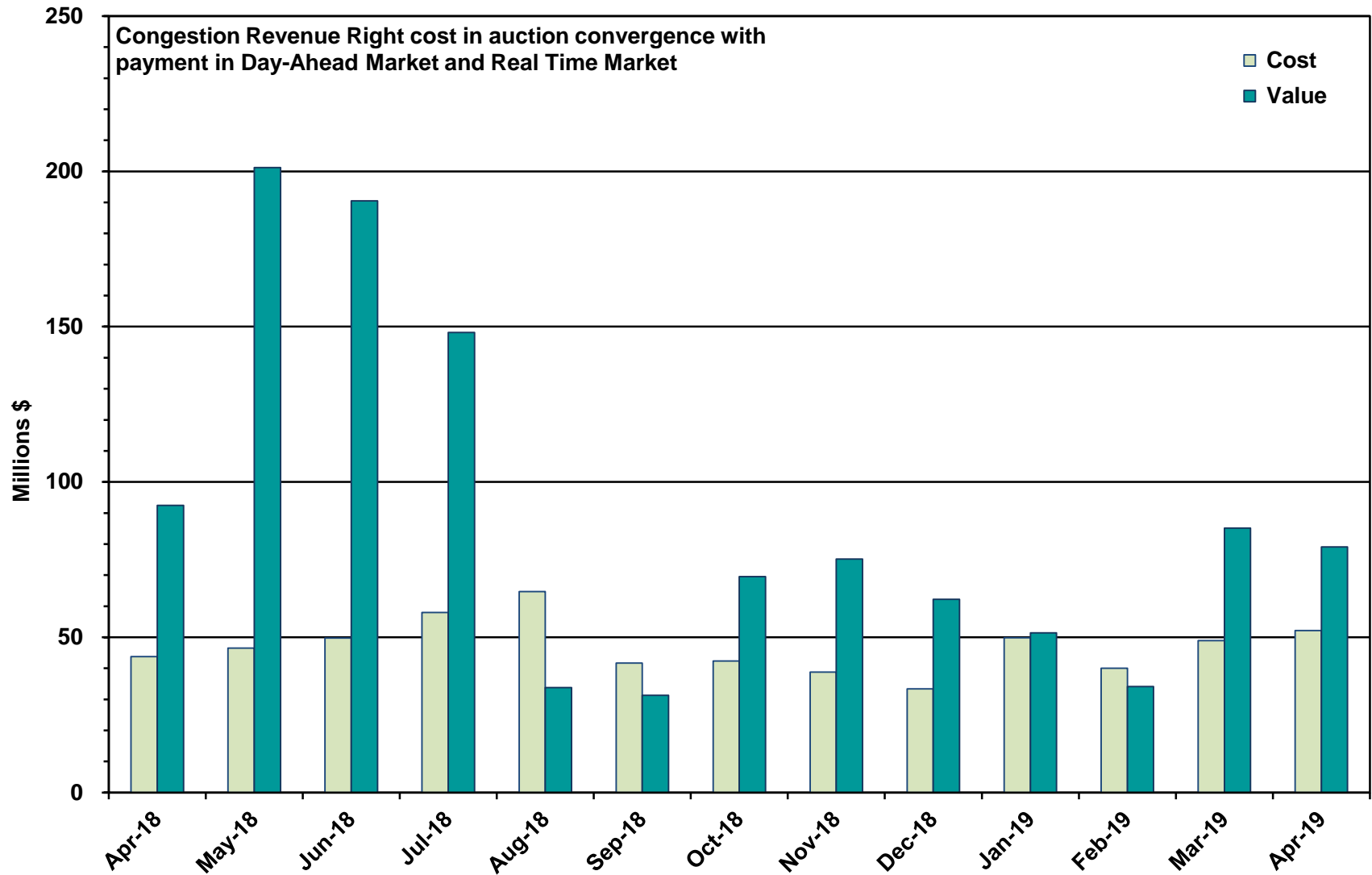
HRUC Monthly Summary and Real Time On-Line Reliability Deployment Price Adder (RTORDPA) (Hourly Average) – April 2019



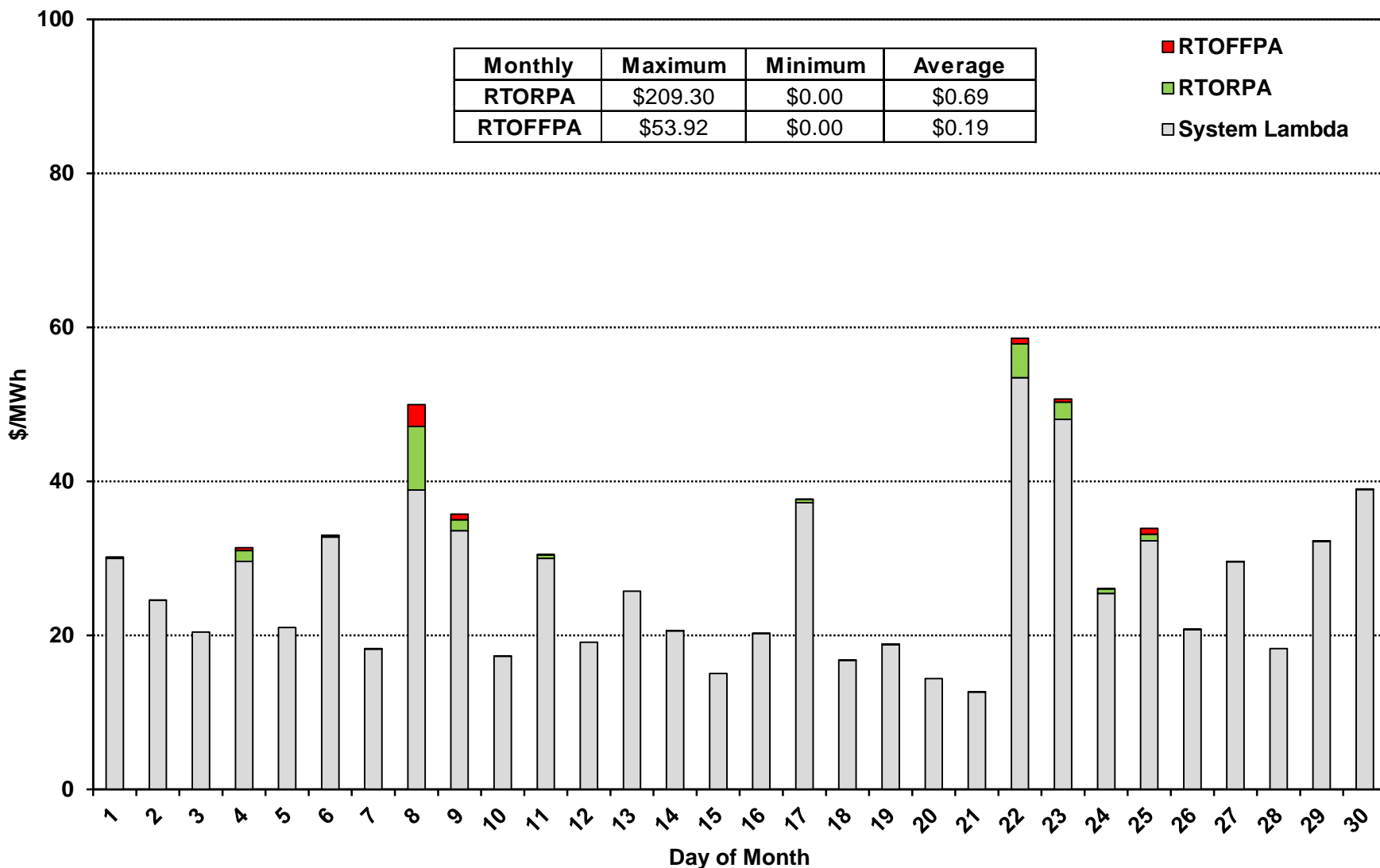
Non-Spinning Reserve Service Deployment – April 2019

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

CRR Price Convergence – April 2019



Daily Average System Lambda and ORDC Price Adders – April 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

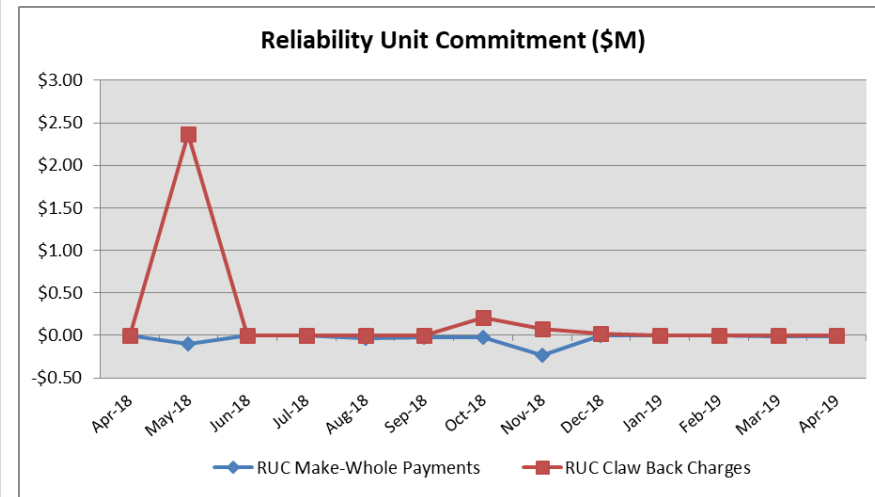
Time Period

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 – April 2019

Reliability Unit Commitment (RUC)	\$ in Millions
RUC Make-Whole Payments	(\$0.01)
RUC Clawback Charges	\$0.00
RUC Commitment Settlement	(\$0.01)
RUC Capacity Short Charges	\$0.01
RUC Make-Whole Uplift	\$0.00
RUC Commitment Cost Allocation	\$0.01
RUC Decommitment Payments	\$0.00
Total RUC Allocation to Load	\$0.00



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

- A credit of \$0.00M in March 2019
- A credit of \$0.00M in April 2018

Ancillary and Other Services – April 2019

Ancillary and Other Services	\$ in Millions
Regulation Up Service	\$3.26
Regulation Down Service	\$3.29
Responsive Reserve Service	\$22.85
Non-Spinning Reserve Service	\$5.27
Black Start Service	\$0.58
Voltage Services - Reactive Power	\$0.00
Voltage Services - Lost Opportunity	\$0.00
Total Charges Allocated to Load	\$35.26

In April 2019, Ancillary and Other Services was a charge of \$35.26M, compared to:

- A charge of \$35.34M in March 2019
- A charge of \$31.03M in April 2018

Real-Time Ancillary Service Imbalance (ORDC) – April 2019

Real-Time Ancillary Service Imbalance	\$ in Thousands
Real-Time AS Imbalance	(\$436)
Real-Time Reliability Deployment AS Imbalance	(\$18)
Total RTASI Amount Allocated to Load	\$454

In April 2019, Real-Time Ancillary Service Imbalance was a charge to load of \$454K, compared to:

- A charge of \$234K in March 2019
- A charge of \$79K in April 2018

Energy Settlement – April 2019

Day-Ahead Market Energy Settlement	\$ in Millions
Energy Purchases	\$402.51
Point to Point Obligation Purchases	\$61.00
Energy Sales	(\$380.58)
Day-Ahead Congestion Rent	\$82.93
Day-Ahead Market Make-Whole Payments	(\$0.30)

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

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

Real-Time Market Energy Settlement	\$ in Millions
Energy Imbalance at a Resource Node	(\$333.20)
Energy Imbalance at a Load Zone	\$598.38
Energy Imbalance at a Hub	(\$200.20)
Net Real-Time Energy Imbalance	\$64.98
Real Time Congestion from Self Schedules	\$0.22
Block Load Transfers and DC Ties	(\$3.78)
Total Impact to Revenue Neutrality	\$61.42
Load-Allocated Emergency Energy Payments	(\$0.16)
Load-Allocated Base Point Deviation Charges	\$0.19

Congestion Revenue Rights (CRR) – April 2019

	\$ in Millions
Long-Term Auction	(\$47.21)
Monthly Auction	(\$4.95)
Total Auction Revenue	(\$52.16)
Day-Ahead CRR Settlements	(\$79.05)
Day-Ahead CRR Short-Charges	\$2.75
Day-Ahead CRR Short-Charges Refunded	(\$2.75)
Day-Ahead CRR Short-Charges Net	\$0.00
Total CRR Funding	(\$79.05)
Day-Ahead Point-to-Point Obligations	\$61.00
Real-Time Point-to-Point Obligations	(\$69.83)
Net Point-to-Point Obligations	(\$8.82)

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 \$8.82M compared to a net credit of \$5.19M last month.

CRR Balancing Account Fund – April 2019

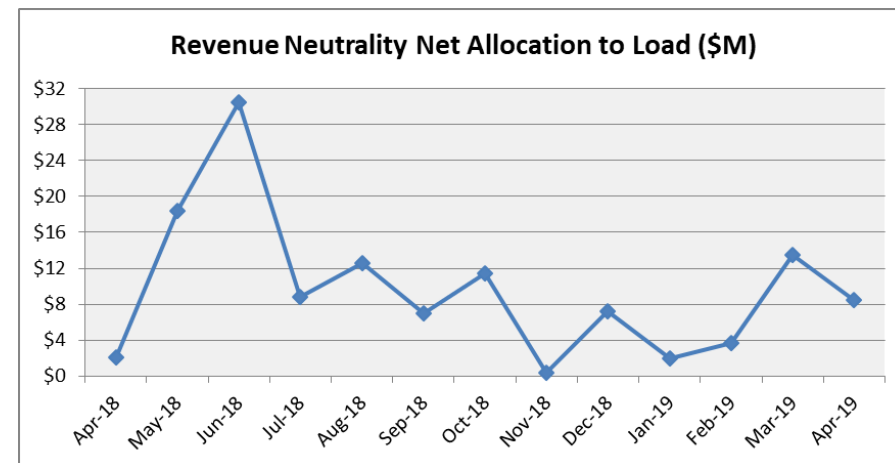
CRR Balancing Account	\$ in Millions
Monthly Day-Ahead Congestion Rent	\$82.93
Monthly Day-Ahead CRR Settlements	(\$79.05)
Monthly Day-Ahead CRR Short -Charges	\$2.75
CRR Balancing Account Credit Total	\$6.63
Beginning Fund Balance for the Month	\$9.92
CRR Balancing Account Credit Total	\$6.63
Day-Ahead CRR Short-Charges Refunded	(\$2.75)
CRR PTP Option Award Charges	\$0.05
Load-Allocated CRR Amount	(\$3.85)
Total Fund Amount	\$10.00

Revenue Neutrality – April 2019

Revenue Neutrality	\$ in Millions
Real-Time Energy Imbalance	\$64.98
Real-Time Point to Point Obligation	(\$69.83)
Real-Time Congestion from Self-Schedules	\$0.22
DC Tie & Block Load Transfer	(\$3.78)
Allocation to Load	\$8.41

In April 2019, the Revenue Neutrality charge to load was \$8.41M compared to:

- A charge of \$13.46M in March 2019
- A charge of \$2.10M in April 2018

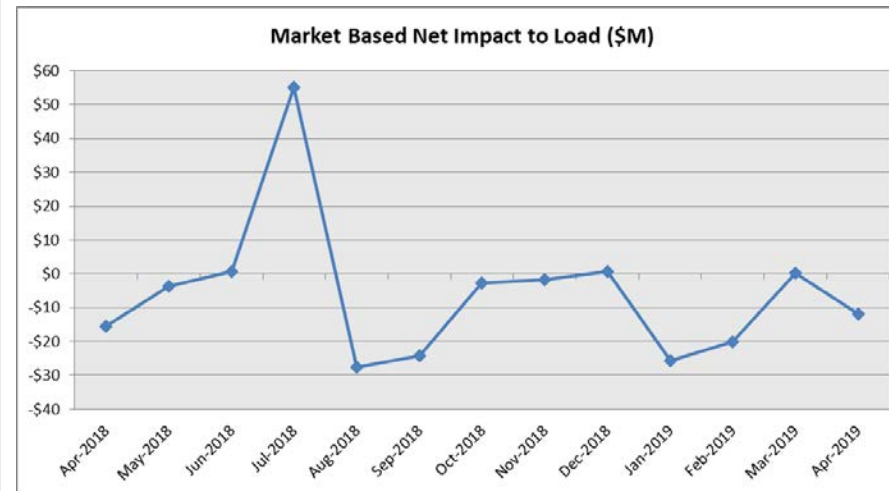


Net Allocation to Load – April 2019

Market-Based Allocation	\$ in Millions
Reliability Unit Commitment	\$0.00
Ancillary and Other Services	\$35.26
Real-Time Ancillary Service Imbalance	\$0.45
Emergency Energy	\$0.16
Base Point Deviation	(\$0.19)
CRR Auction Revenue	(\$52.16)
CRR Balancing Account	(\$3.85)
Real-Time Revenue Neutrality	\$8.41
Reliability Must Run	\$0.00
Monthly Block Load Transfer	\$0.00
Total	(\$11.93)
Fee Allocation	
ERCOT Administrative Fee	\$14.93
Net Allocated to Load	\$3.00

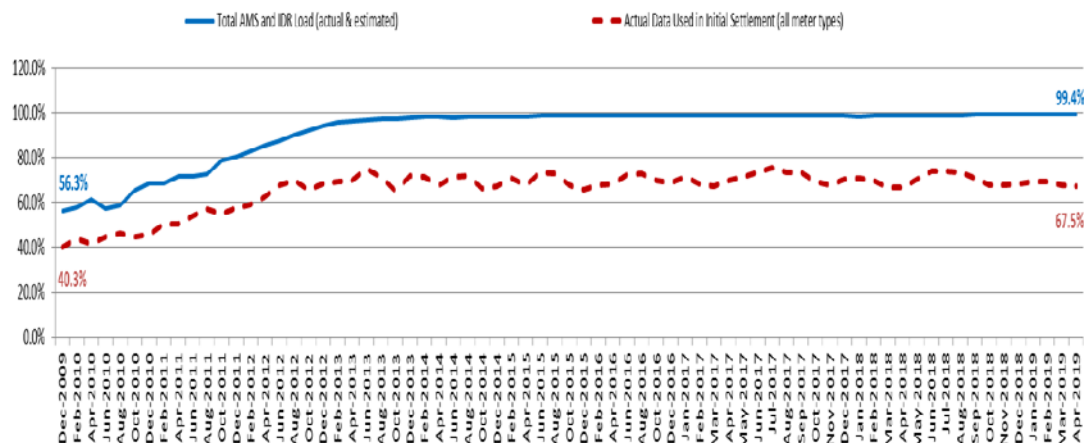
In April 2019, the Net Allocation to load was a charge of \$3.00M compared to:

- A charge of \$15.60M in March 2019
- A credit of \$1.07M in April 2018



Advanced Meter Settlement Impacts – April 2019

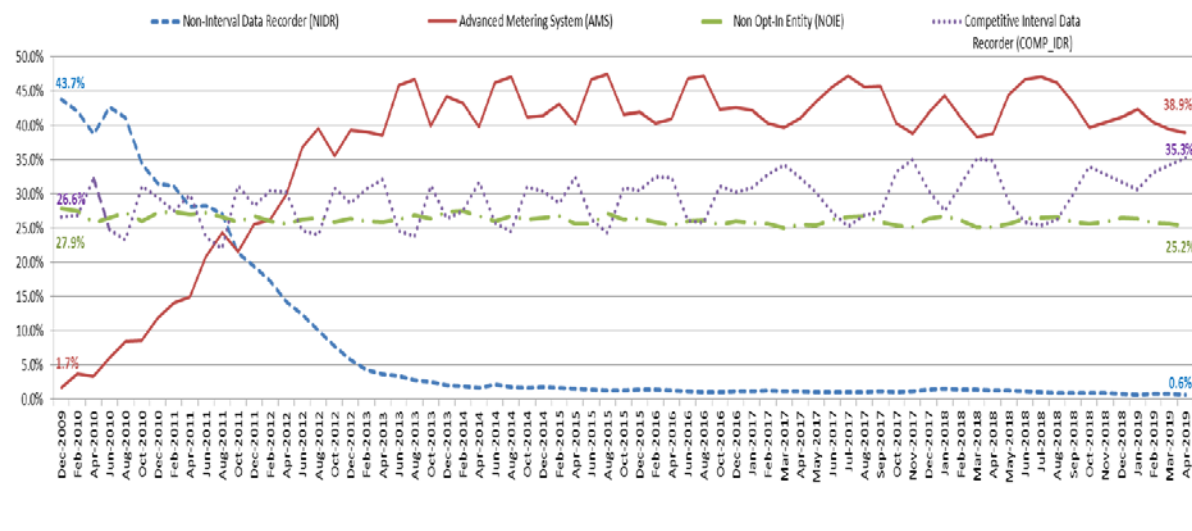
Percent Actual/Percent Interval Data Recorder (IDR)



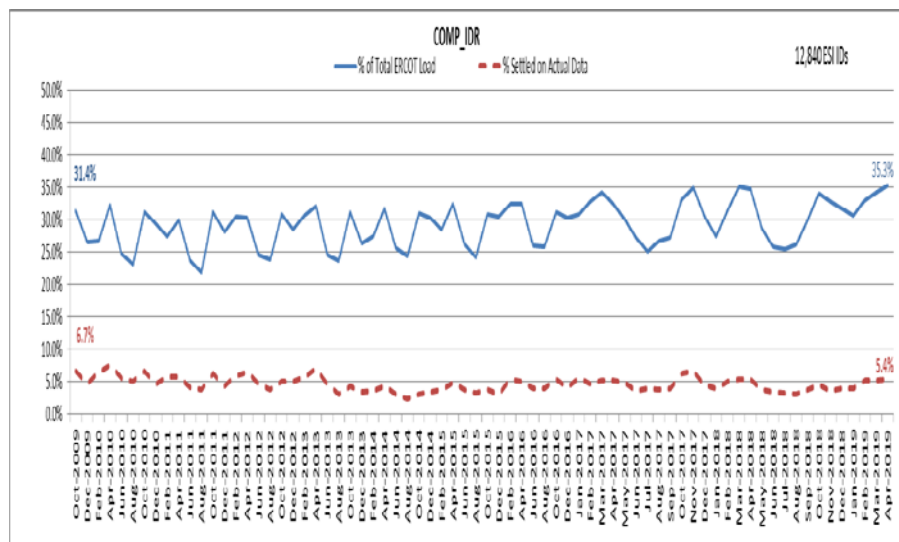
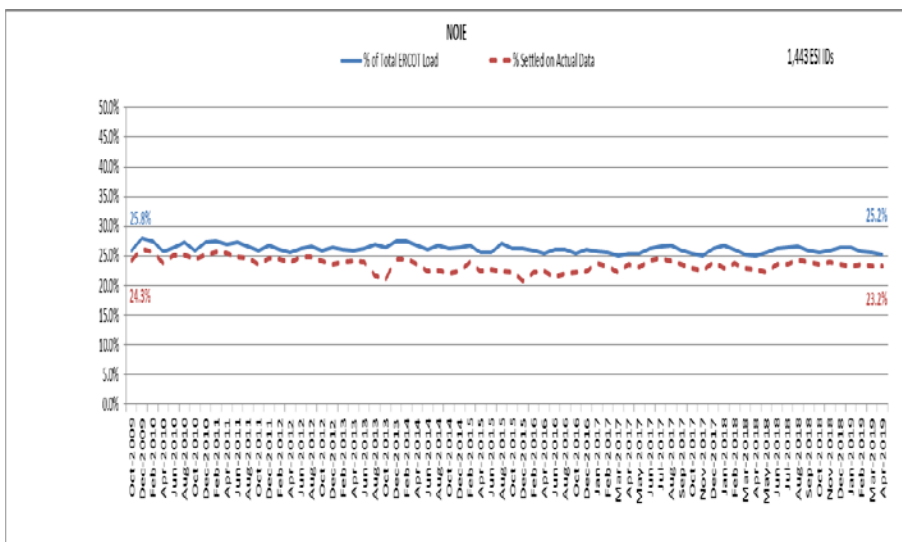
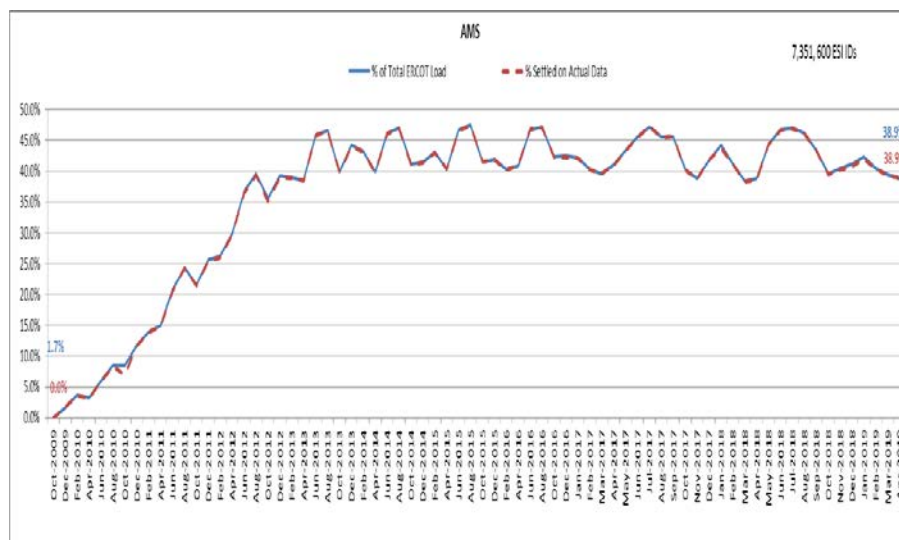
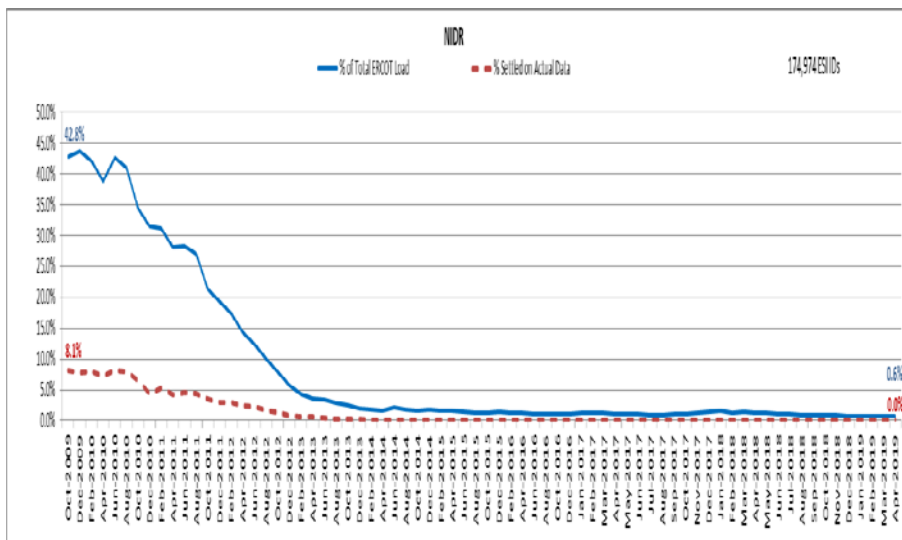
April 2019: At month end, settling 7.3M ESIIDs using Advanced Meter data.

April 2019: 99.4% 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 – April 2019

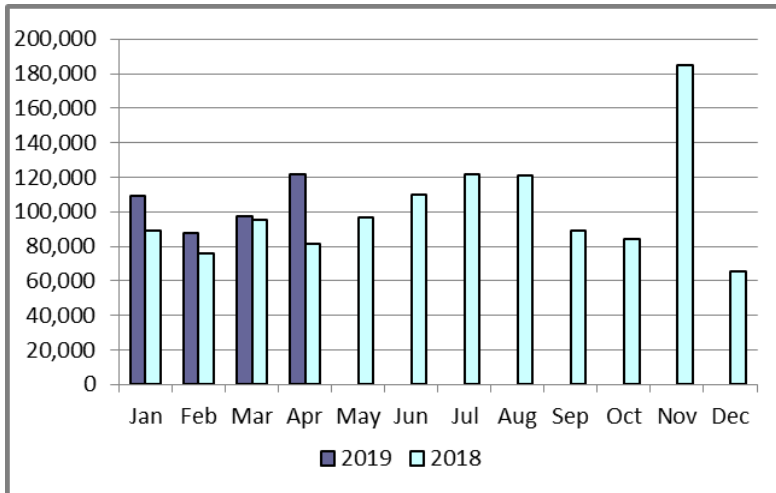


Retail Transaction Volumes – Summary – April 2019

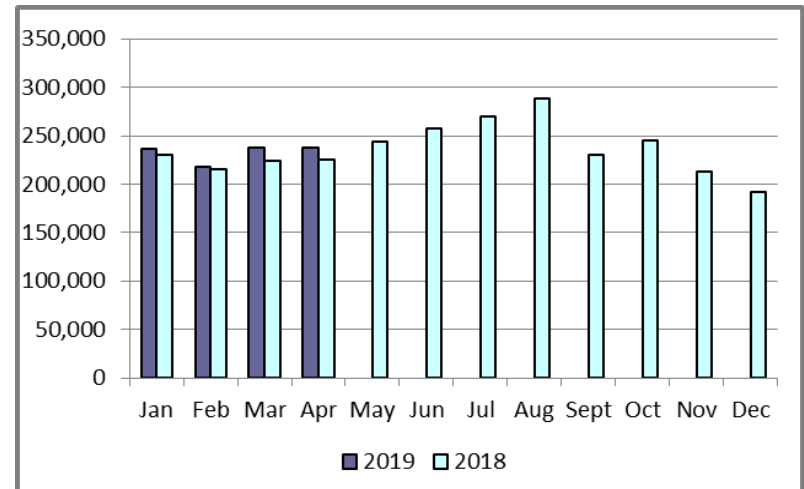
	Year-To-Date		Transactions Received	
Transaction Type	April 2019	April 2018	April 2019	April 2018
Switches	415,959	341,502	121,897	81,291
Acquisition	0	0	0	0
Move - Ins	929,853	895,359	237,124	225,380
Move - Outs	423,744	434,496	111,944	113,795
Continuous Service Agreements (CSA)	466,001	194,628	65,525	55,581
Mass Transitions	0	0	0	0
Total	2,235,557	1,865,985	536,490	476,047

Retail Transaction Volumes – Summary – April 2019

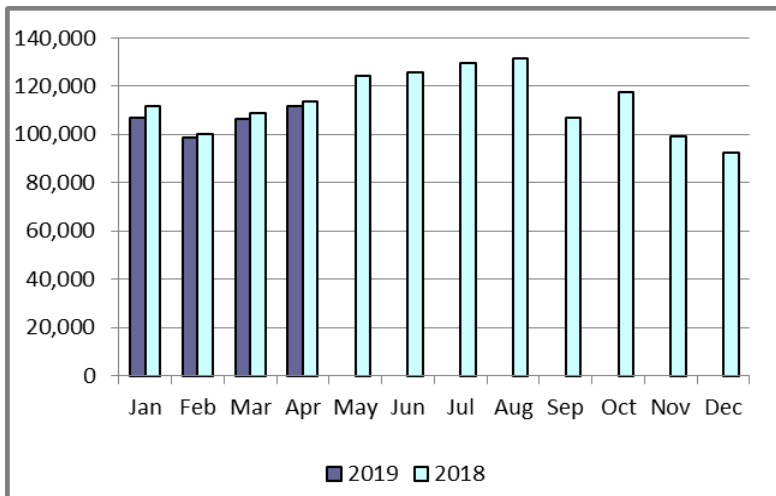
Switches/Acquisitions



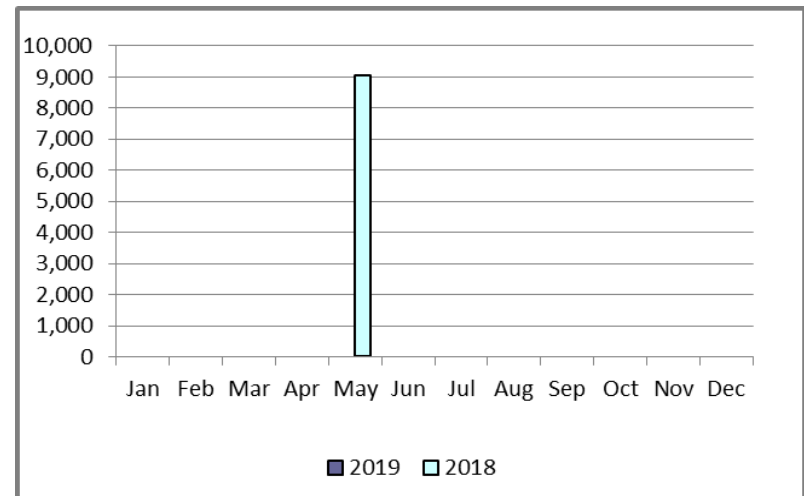
Move-Ins



Move-Outs



Mass Transition



Projects Report

ERCOT Portfolio Stoplight Report – April 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 = 73)		\$ 19,081,307
	Projects Not Yet Started (Count = 18)		\$ 3,500,822
	Projects Completed (Count = 30)		\$ 1,435,397
	Spending Reductions Required to Maintain Capital Budget		\$ (3,617,527)
	TOTAL		\$ 20,400,000

Project Number	Projects in Initiation Phase (Count = 2)	Footnotes
GridGeo	Macomber Map Replacement for Control Room/OTS Integration for GridGeo	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
NPRR887	Monthly Posting of Default Uplift Exposure Information	

Project Number	Projects in Planning Phase (Count = 12)	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%		2%
DC4	DC4 Program Control	9/9/2015	6/23/2017	6/4/2019	TBD	6/4/2019		0%	2	-5%
DC4	DC4 Vendor HW Refresh	11/28/2018	4/23/2019	5/28/2019	TBD	5/28/2019		0%		44%
170-07	ECAP - ECMS Implementation Phase 2	4/16/2019	9/10/2019	9/10/2019	TBD	9/10/2019		0%		0%
286-01	Java Platform Assessment	6/20/2018	11/21/2018	5/7/2019	TBD	5/7/2019		0%	2	-10%
288-00	Retail Portfolio Refresh (RPR) Program Control	9/5/2018	3/27/2019	9/24/2019	TBD	9/24/2019		0%		33%
288-01	EDI Map and Translator Replacement	8/29/2018	2/27/2019	4/9/2019	TBD	4/9/2019		0%		10%
295-00	Forward Looking Operations Tools (FLOAT) Program Control	10/17/2018	4/17/2019	4/17/2019	TBD	4/17/2019		0%		91%
306-01	WAN Refresh	4/30/2019	9/17/2019	9/17/2019	TBD	9/17/2019		0%		0%
307-01	Tech Refresh - MMS/OS	4/30/2019	7/30/2019	7/30/2019	TBD	7/30/2019		0%		0%
308-01	MIS Tech Refresh JBOSS and Linux	4/16/2019	7/2/2019	7/2/2019	TBD	7/2/2019		0%		65%
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	6/4/2019	1	-140%		4%

ERCOT Portfolio Stoplight Report – April 2019

Project Number	Projects in Execution Phase (Count = 30)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
DC4	DC4 Telecom - Corp Voice System									12%
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	8/23/2019	8/23/2019	9/10/2019		0%		1%
170-01	Enterprise Content Alignment Program	8/26/2015	11/15/2017	3/27/2019	4/30/2019	4/30/2019		-2%		0%
170-06	ECAP - ECMS Implementation Phase 1	4/25/2018	11/30/2018	3/28/2019	4/30/2019	4/30/2019	1	-9%		-2%
173-02	ERCOT Flight Certification Website	11/15/2017	2/28/2019	6/4/2019	6/4/2019	7/31/2019		0%		-2%
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
GridGeo	Weather Imaging and Line Observation (WILO)	5/30/2018	2/1/2019	4/5/2019	4/5/2019	5/28/2019		0%		-4%
GridGeo	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	5/26/2020	5/26/2020	5/26/2020		0%		0%
238-01	Application Authentication Tech Refresh	9/6/2017	3/19/2018	5/31/2019	5/31/2019	7/30/2019		0%		11%
244-01	Corporate Wireless	11/29/2017	3/28/2018	5/31/2019	5/31/2019	6/25/2019		0%		2%
245-01	2017 EPS Metering Enhancements	6/27/2018	8/9/2019	12/12/2019	12/12/2019	1/14/2020		0%		-3%
FLOAT	Security Constrained Optimal Powerflow in Study Network Analysis	12/6/2017	10/25/2018	10/17/2019	10/17/2019	10/29/2019		0%		0%
263-01	Market Simulator	4/11/2018	12/13/2018	6/21/2019	6/21/2019	7/30/2019		0%		3%
292-01	Additional Branch Limit for Relays	4/30/2019	2/7/2020	2/7/2020	2/7/2020	4/30/2020		0%		1%
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%		45%
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	2/7/2019	4/4/2019	4/23/2019	2	-30%	NA	See NPRR833
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
NPRR833	Modify PTP Obligation Bid Clearing Change	8/8/2018	12/13/2018	5/6/2019	5/6/2019	5/21/2019		0%		10%
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
NPRR901	Switchable Generation Resource Status Code	2/19/2019	5/30/2019	5/30/2019	5/30/2019	6/25/2019		0%		3%
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

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Project Number	Projects in Execution Phase (Count = 30)	Phase Start	Baseline Go-Live Date	Approved Go-Live Date	Scheduled Go-Live Date	Scheduled Phase Finish	Schedule Health		Budget Health	
SCR781	RARF Replacement	3/26/2019	11/22/2019	11/22/2019	11/22/2019	10/6/2020		0%		4%
SCR796	Change Validation Rules to Preclude Certain Transactions at Resource Nodes within Private Use Networks	4/30/2019	8/8/2019	8/8/2019	8/8/2019	9/10/2019		0%		47%
Project Number	Expedited Projects in Execution (Count = 12)									
Project Number	Projects in Stabilization (Count = 12)	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
NPRR817	Create a Panhandle Hub	1/15/2019	4/4/2019	4/4/2019	4/4/2019	5/1/2019		0%		2%
NPRR821	Elimination of the CRR Deration Process	12/5/2018	4/4/2019	4/4/2019	4/4/2019	5/7/2019		0%		12%
RRGRR017	RRGRR Related to NPRR866, Mapping Registered Distributed Generation and Load Resources to Transmission Loads in the Network Operations Model	12/19/2018	4/4/2019	4/4/2019	4/4/2019	5/7/2019		0%		17%
193-01	PMU Tool Evaluation and Implementation	12/13/2017	8/9/2018	8/5/2018	8/5/2018	9/3/2019		0%		4%
229-01	IT Change and Configuration Management Phase 2	8/2/2017	6/19/2018	2/8/2019	12/16/2018	6/4/2019		9%		0%
239-01	Identity and Access Management	5/9/2018	12/15/2018	6/19/2019	6/19/2019	7/30/2019		0%		-1%
266-01	Remote Email Access Enhancement	12/13/2017	3/7/2018	6/6/2018	6/19/2018	4/16/2019	2	-7%		32%
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	Test Data Refresh									0%
269-01	Document Repository Redesign and Governance Implementation - Phase 1									0%
FLOAT	Security Constrained Unit Commitment (SCUC)									0%
291-01	IT Asset Recovery									0%

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Project Number	Projects Completed (Count = 22)	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%		1%
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	3/19/2019		0%		See DC4 Network Command and Control
181-01	CRR Framework Upgrade	10/26/2016	10/2/2017	11/19/2018	11/19/2018	2/26/2019		0%		2%
196-01	GINR Project Status Application Replacement	12/21/2016	9/14/2017	2/28/2019	3/31/2019	4/2/2019		-3%		-2%
GridGeo	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%
265-01	Real-Time Assessment Continuity	1/31/2018	12/13/2018	2/8/2019	2/8/2019	3/19/2019		0%	2	-7%
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%		2%
NPRR842	Study Area Load Information	10/17/2018	2/11/2019	2/11/2019	2/11/2019	3/12/2019		0%	2	-9%
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%
NPRR845	RMR Process and Agreement Revisions	12/19/2018	4/4/2019	4/4/2019	4/4/2019	5/8/2019		0%		12%
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%		71%
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
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 = 8)									

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Project Number	2019 Projects Not Yet Started (Count = 18)	Forecast Start Date
NPRR863	Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve	May-2019
TBD	2019 NMMS Defects	May-2019
TBD	Office 365	May-2019
NPRR895	Inclusion of Photo-Voltaic Generation Resources (PVGRs) in Real-Time Ancillary Service Imbalance Payment or Charge	Jun-2019
OBDRR007	Revisions to the ORDC Methodology to Include Photo-Voltaic Generation Resources (PVGRs)	Jun-2019
NPRR911	Improved Calculation of Real-Time LMPs at Logical Resource Nodes for On-Line Combined Cycle Generation Resources	Jun-2019
NPRR920	Change to Ramp Rate Calculation in Resource Limit Calculator	Jun-2019
TBD	NAESB Application Tech Refresh	Jun-2019
NPRR829	Incorporate Real-Time Non-Modeled Telemetered Net Generation by Load Zone into the Estimate of RTL	Jul-2019
NPRR877	Use of Actual Interval Data for IDR ESI IDs for Initial Settlement - Phase 2	Jul-2019
TBD	Tech Refresh - Business Intelligence	Jul-2019
TBD	Integrate Enhanced Solar Forecasting into ERCOTs EMS	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
NPRR856	Treatment of OFFQS Status in Day-Ahead Make Whole and RUC Settlements	Aug-2019
NPRR884	Adjustments to Pricing and Settlement for Reliability Unit Commitments (RUCs) of On-Line Combined Cycle Generation Resources	Aug-2019