



Item 11: Independent Market Monitor (IMM) Report

Beth Garza
IMM Report

Board of Directors Meeting

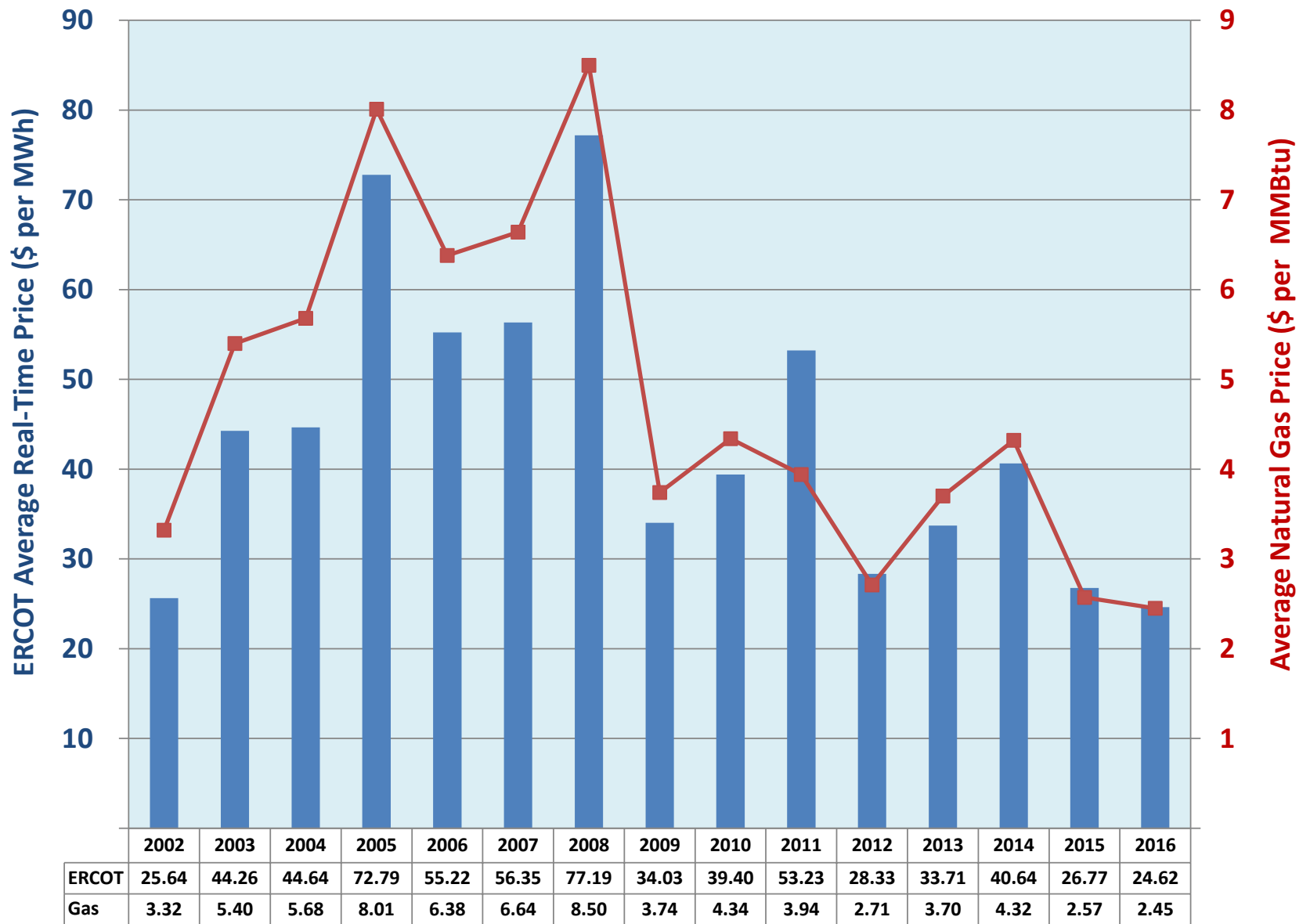
ERCOT Public
February 14, 2017

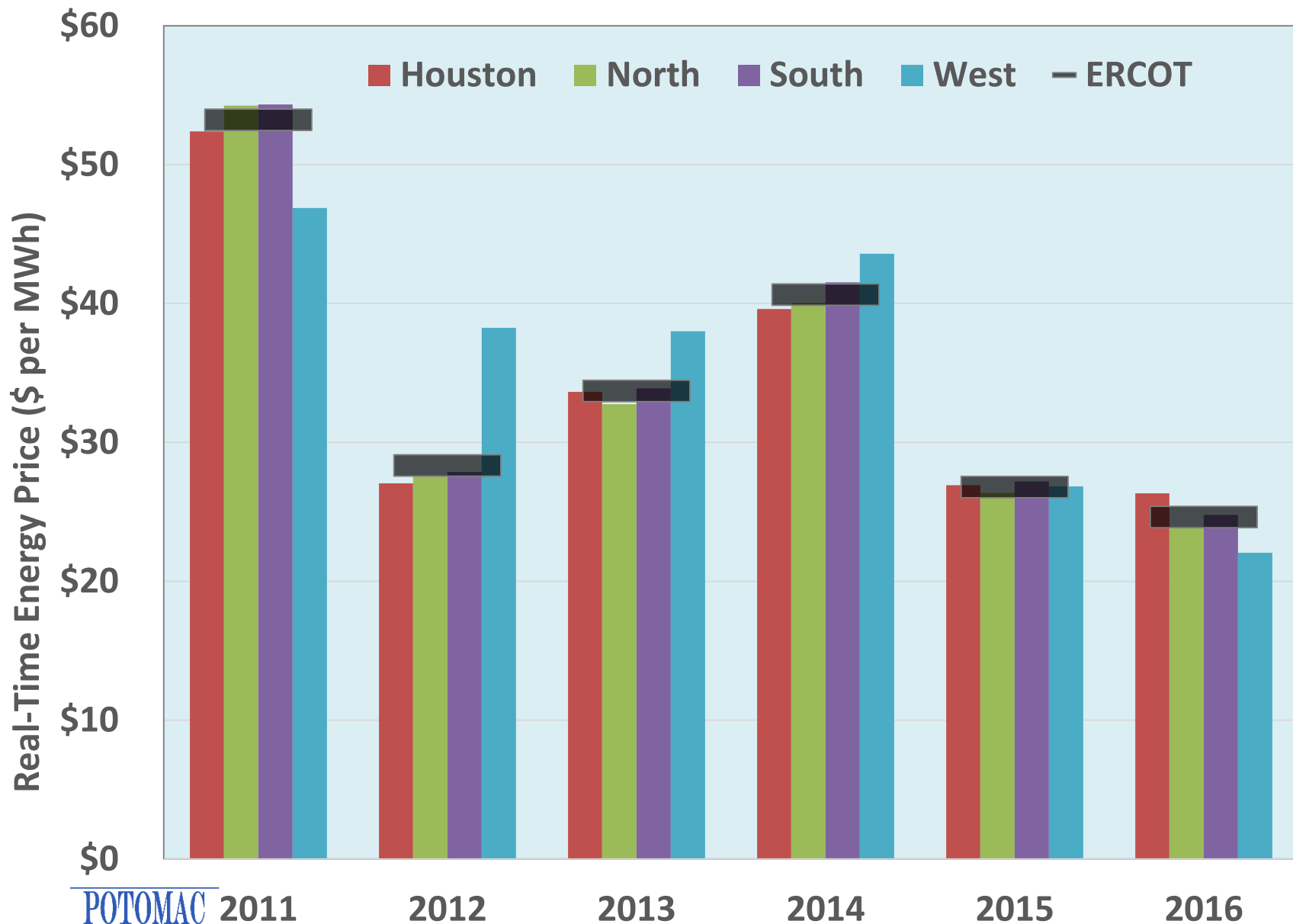
2016 Recap

- Low prices
- Lots of wind generation
- Increased RUC activity

Price comparisons

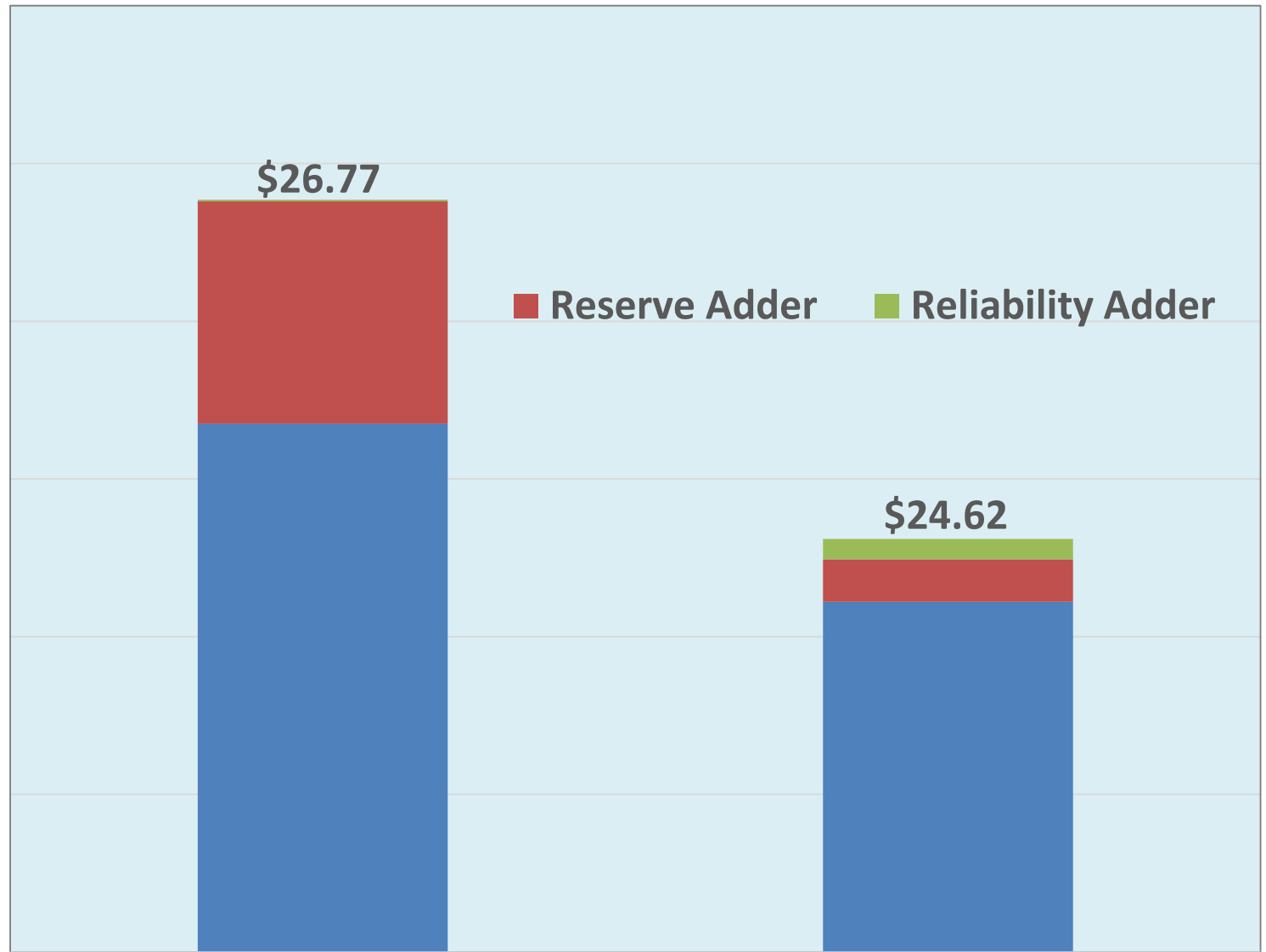
	2015	2016
Load Weighted Average Real-Time Energy price	\$26.77 /MWh	\$24.62 /MWh
Average Fuel Index Price Houston Ship Channel Natural Gas	\$2.57 /MBtu	\$2.45 /MBtu
Reserve Adder contribution	\$1.41 /MWh	\$0.27 /MWh
Reliability Adder contribution Effective June 2015	\$0.01 /MWh	\$0.13 /MWh
Load Weighted Ancillary Service Cost	\$1.23 /MWh	\$1.03 /MWh
Peaker Net Margin	\$31.6 /kWh	\$30.0 /kWh





Real-Time Energy Price (\$ per MWh)

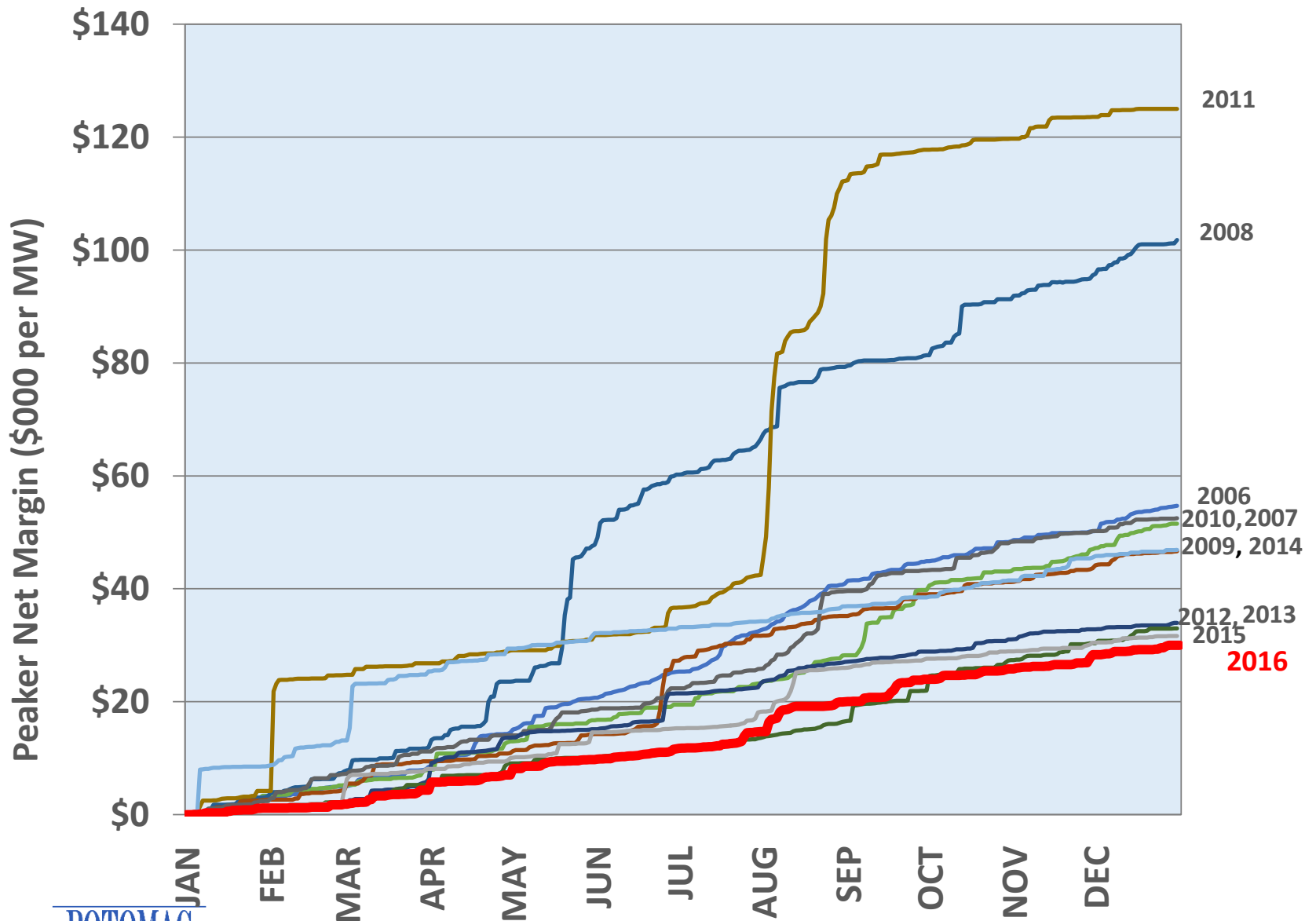
\$28
\$27
\$26
\$25
\$24
\$23
\$22

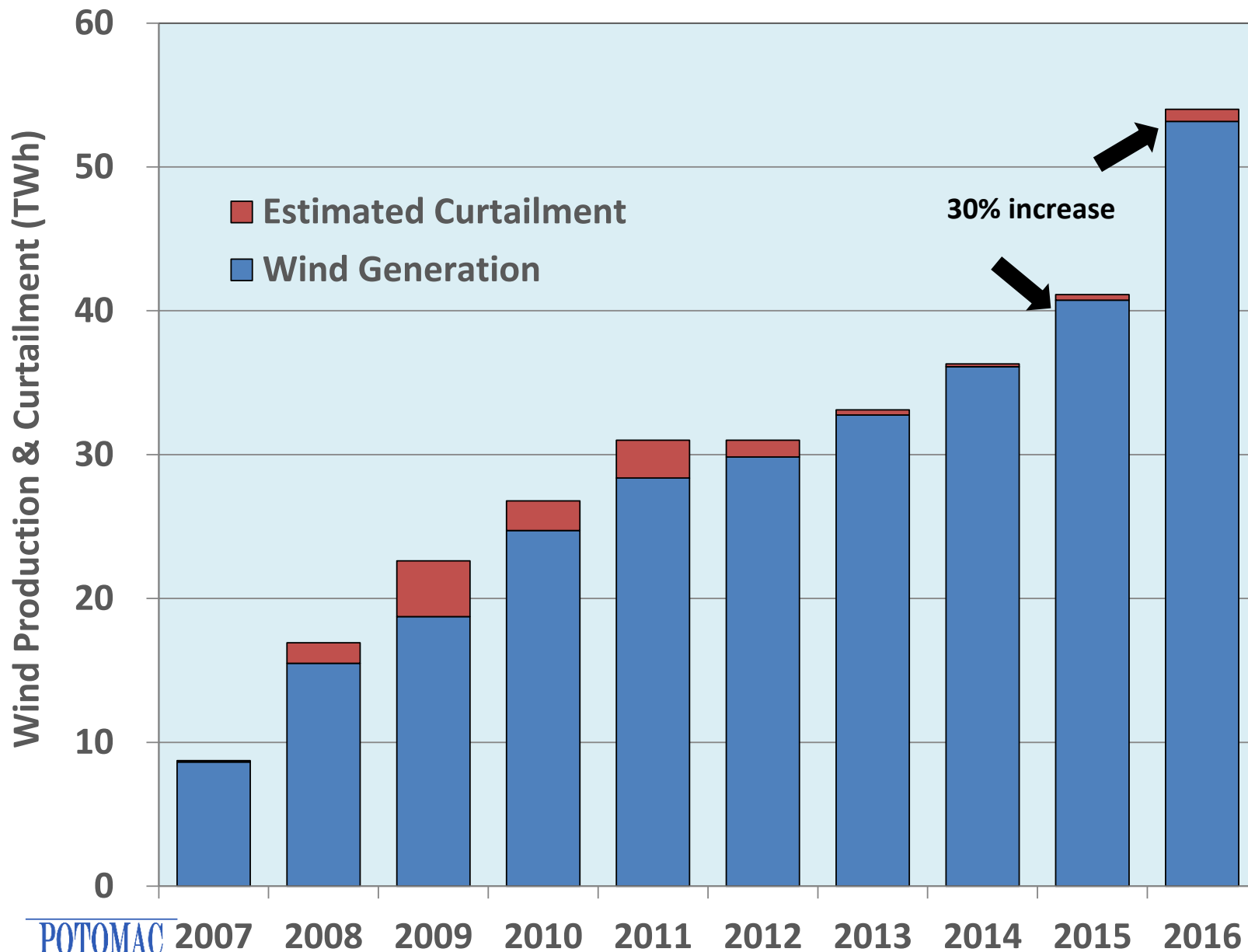


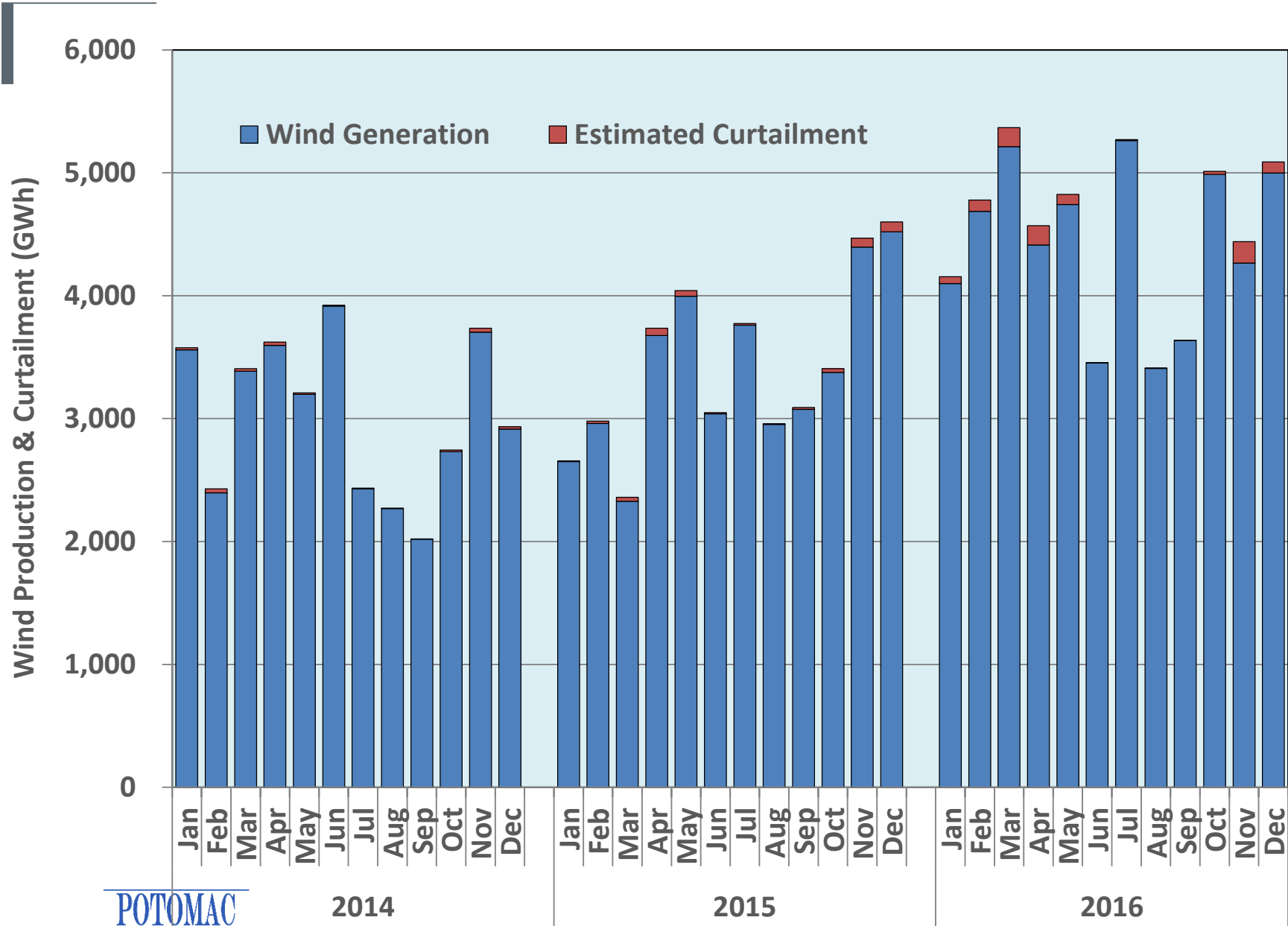
Reserve Adder Reliability Adder

2015

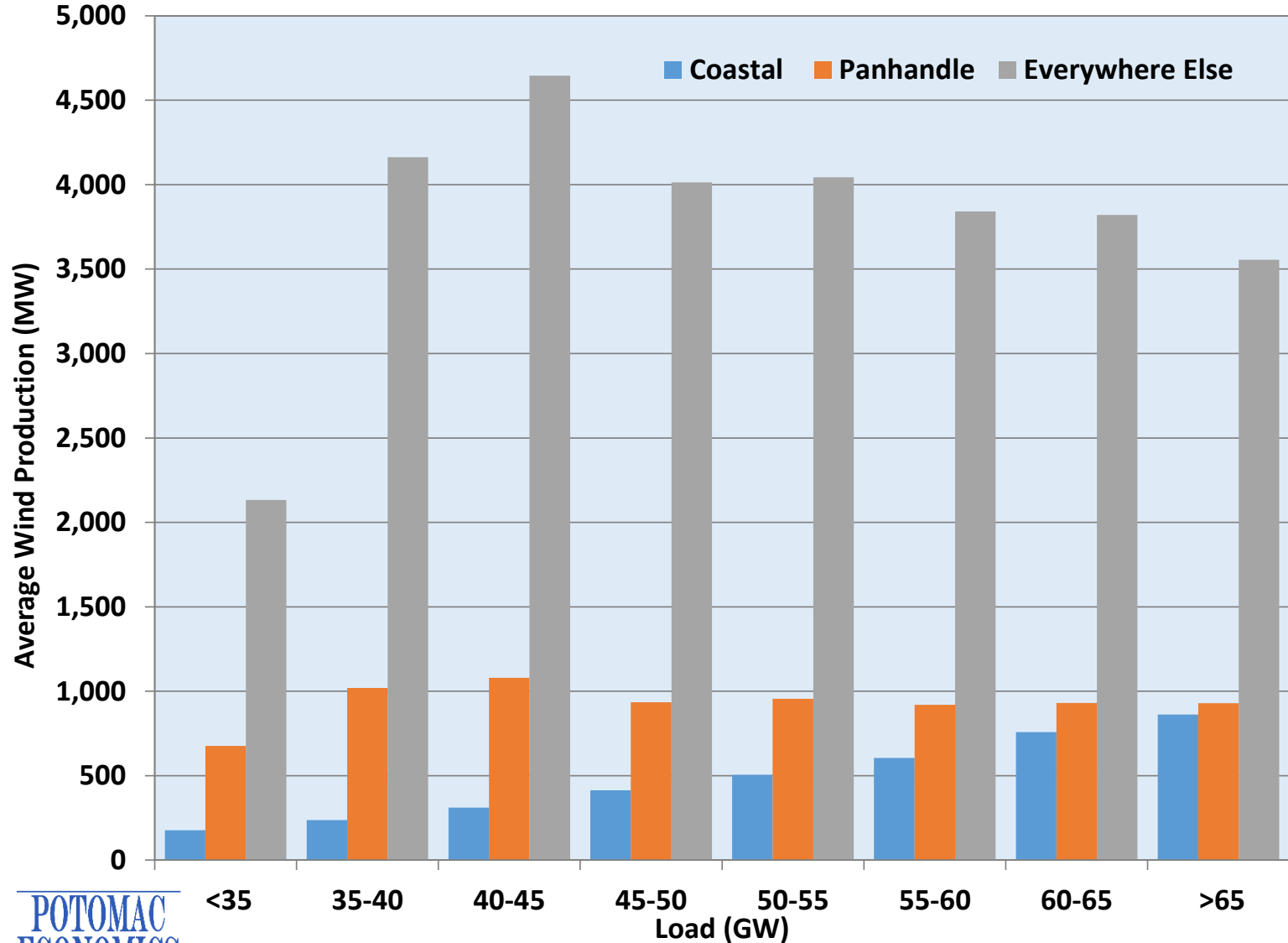
2016



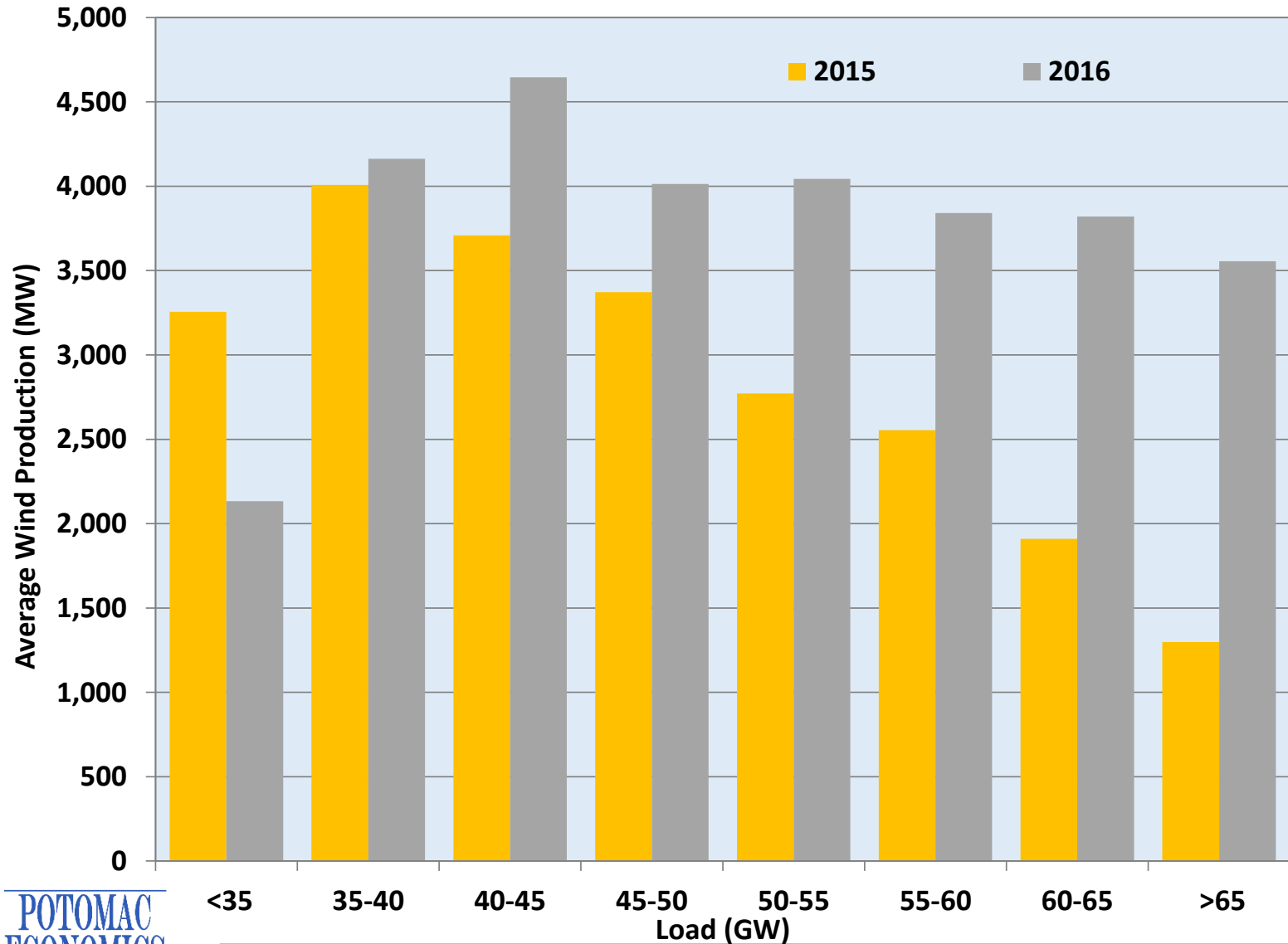




Average wind generation – Summer 2016



Non-Coastal, Non-Panhandle Comparison



RUC activity increased in 2016

	2015	2016
Frequency (unit-days)	70	269
Make whole payments (paid entirely by 'short' entities)	\$ 0.5M	\$ 1.2M
Claw back revenue (provided to load)	\$ 0.3M	\$ 1.4M
Reliability Adder Effective June 2015	\$ 0.01 /MWh	\$ 0.14 /MWh
Effect of Reliability Adder	\$ 3M	\$ 49M

Most Frequently RUC'd units

Resource	Location	Unit RUC Hours	Unit OPTOUT Hours	Total
Silas Ray CC1	Valley	165	43	208
WA Parish G4	Houston	46	83	129
Silas Ray 10	Valley	83	28	111
WA Parish G2	Houston	53	34	87
Barney Davis G1	Corpus Christi	8	66	74
Spencer 5	Denton	54	13	67
Cedar Bayou G2	Houston	57	9	66
WA Parish G1	Houston	47	19	66
WA Parish G3	Houston	27	32	59
Cedar Bayou G1	Houston	-	51	51
Barney Davis CC1	Corpus Christi	43	3	46
North Edinburg CC1	Valley	32	8	40
Laredo G5	Laredo	35	-	35
Mountain Creek Unit 7	Dallas	33	-	33
Nueces Bay CC1	Corpus Christi	24	8	32

Many issues of non-compliance

- Roughly a quarter of RUC events in 2016 are under review as potential enforcement actions.
- Lots of problematic behavior related to RUC OPTOUT
 - Until NPRR744 is implemented this summer, an entity may only OPTOUT of a RUC instruction if they are able to indicate that change in status via their COP prior to the first RUC hour.
 - More than 40% of RUC instructions in 2016 were provided after the deadline for COP submittal.

To the Public Utility Commission of Texas

ERCOT Wholesale Electricity Market Monthly Report

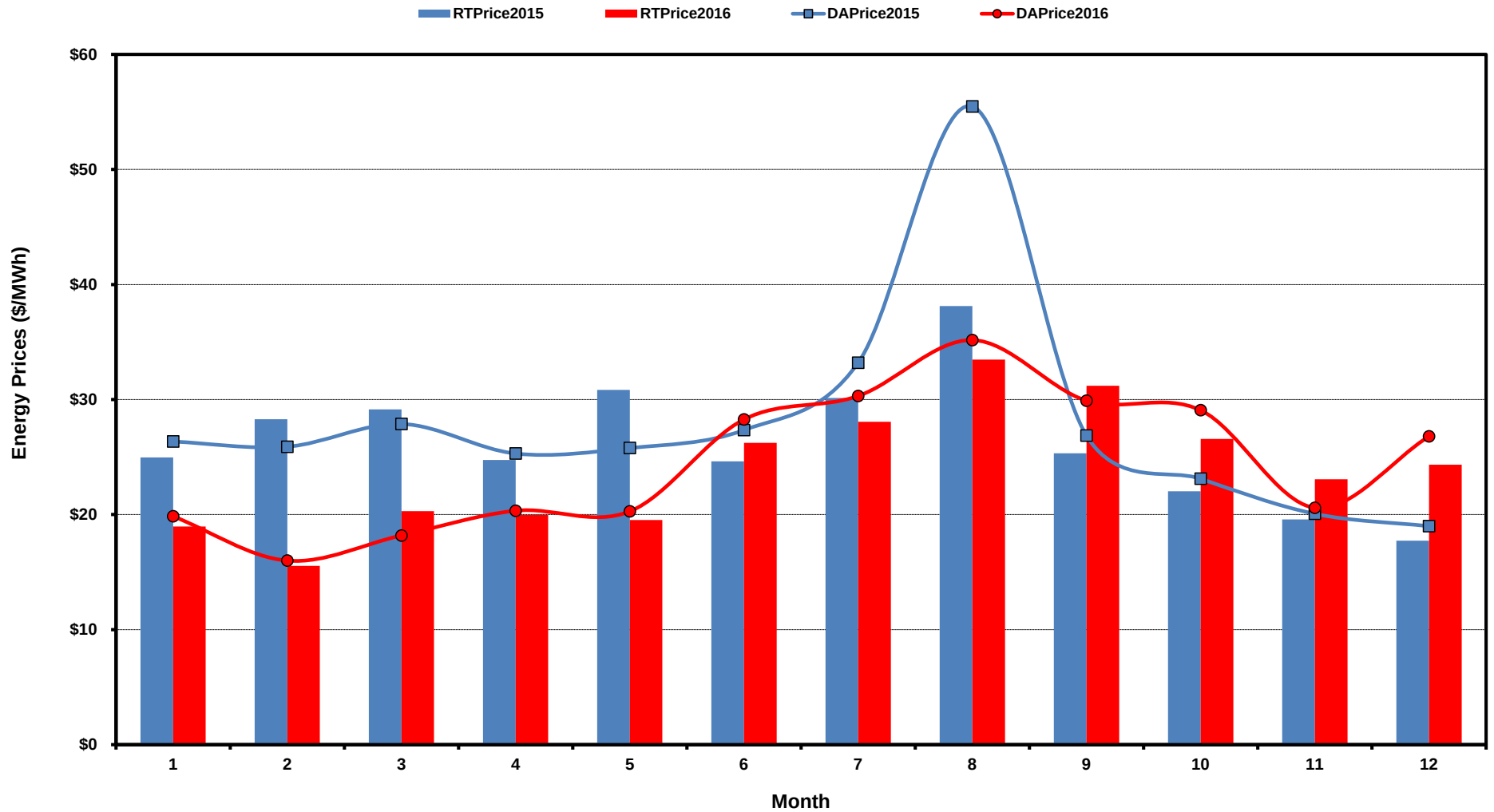
Wednesday, January 11, 2017

Potomac Economics, Ltd.
Independent Market Monitor

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ERCOT-wide Average Energy Prices DA vs RT

(avg. DA & RT SPPs weighted by Real Time Settlement Loads)



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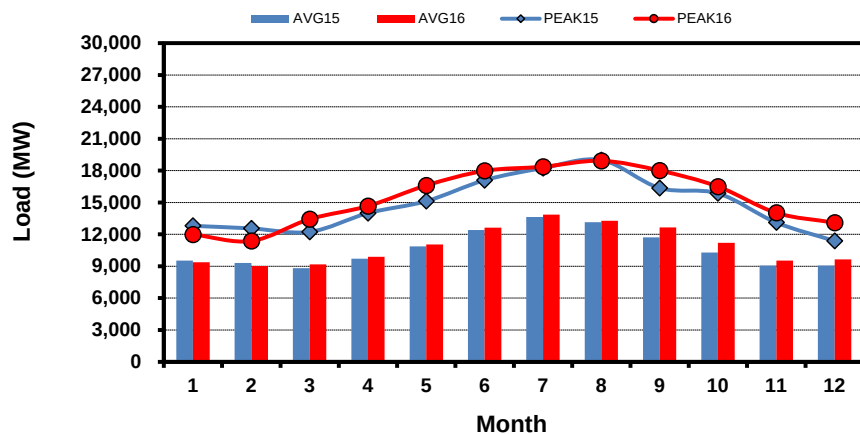
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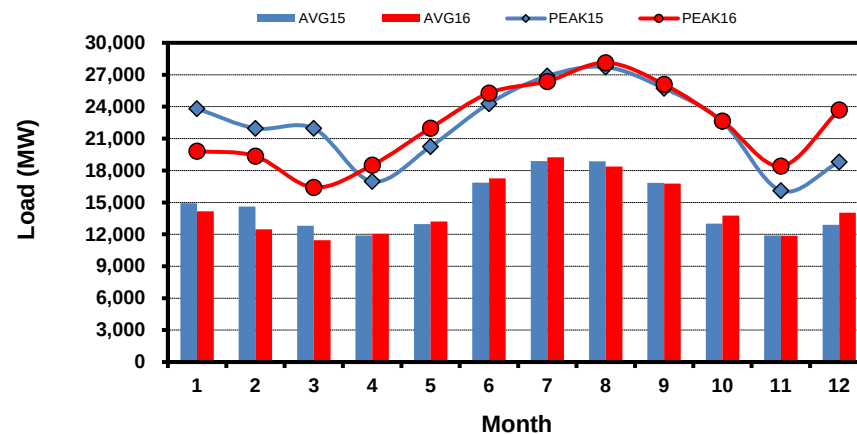
Load Zone Load Statistics

(Nodal load zone made comparable to zonal sytem Load Zone definitions*)

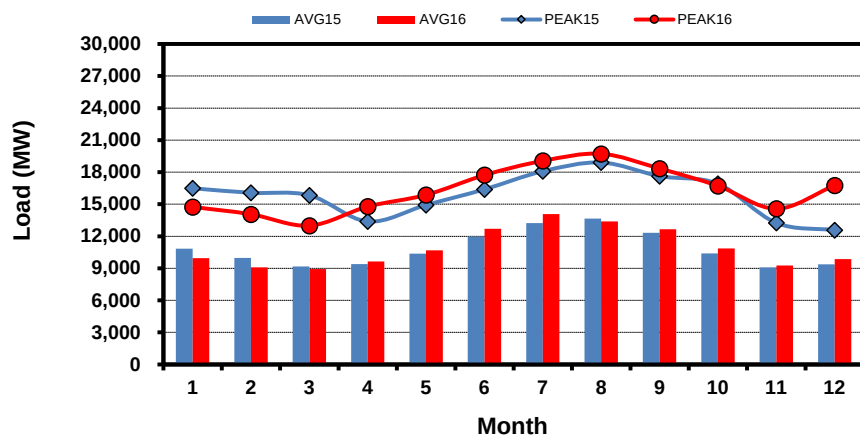
Houston Zone



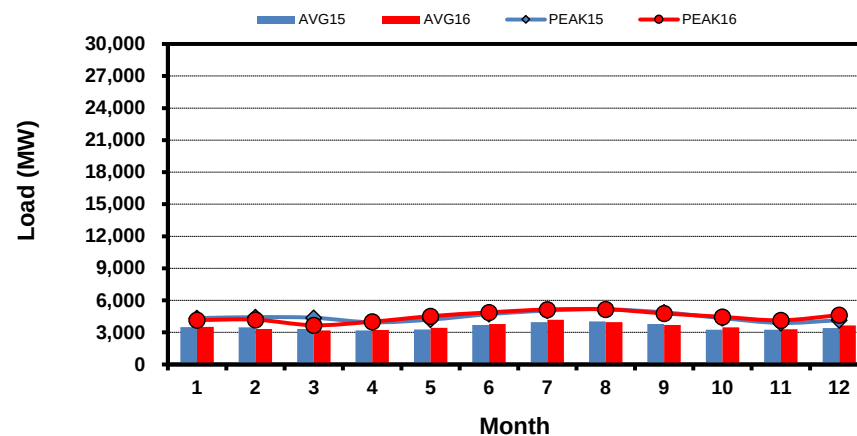
North Zone



South Zone



West Zone



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Note: * Zonal load zone definition vs. Nodal comparable load zone definition: LZ_Houston=LZ_Houston; LZ_West=LZ_West; LZ_North=(LZ_North,LZ_RAYBN); LZ_South=(LZ_South,LZ_CPS,LZ_AEN,LZ_LCRA)

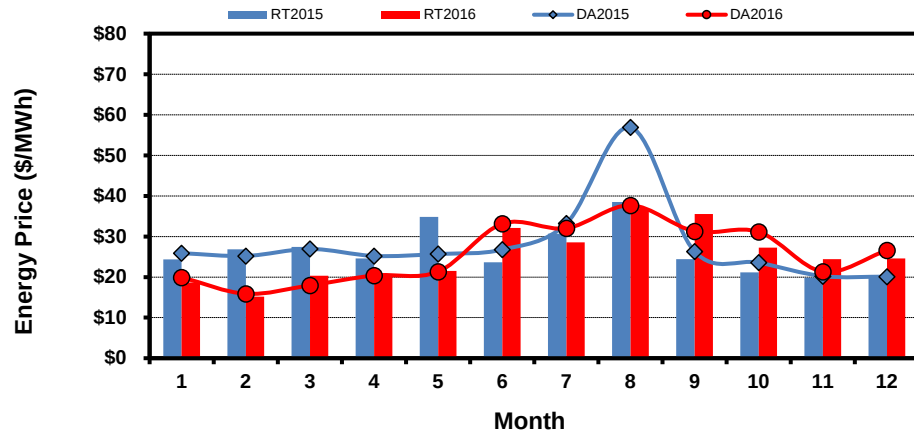
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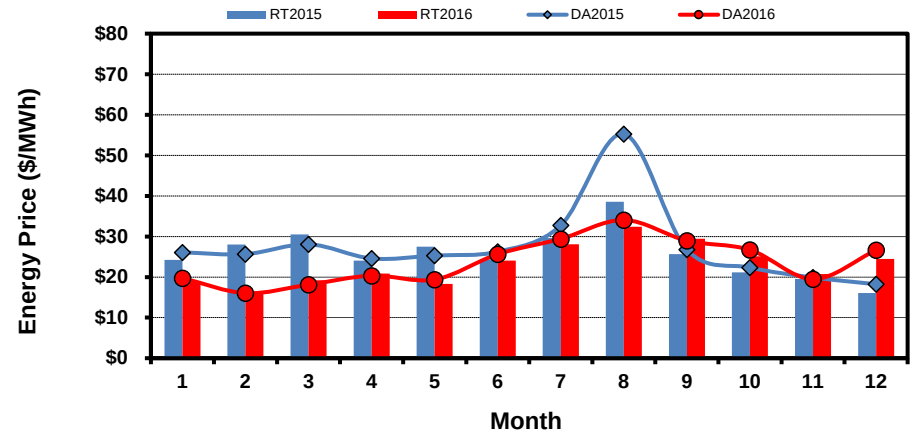
Load Zone Monthly Average Energy Price DA vs RT

(avg. DA & RT SPPs weighted by Real Time Settlement Loads)
(Nodal load zone made comparable to zonal sytem Load Zone definitions*)

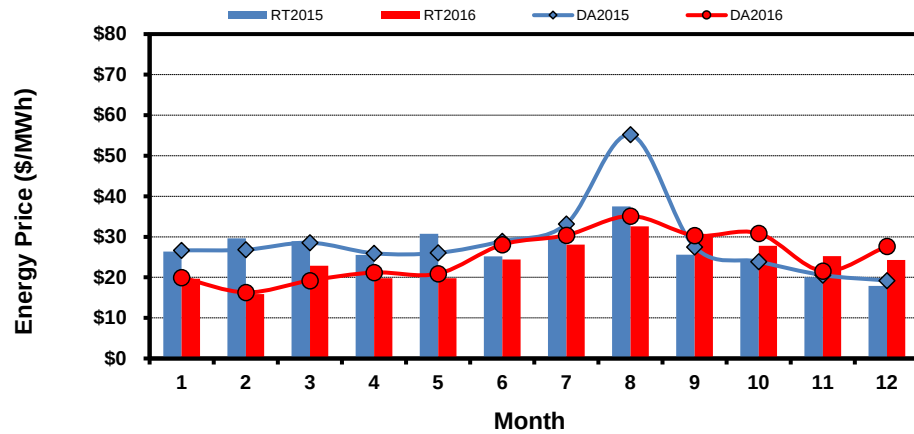
Houston Zone



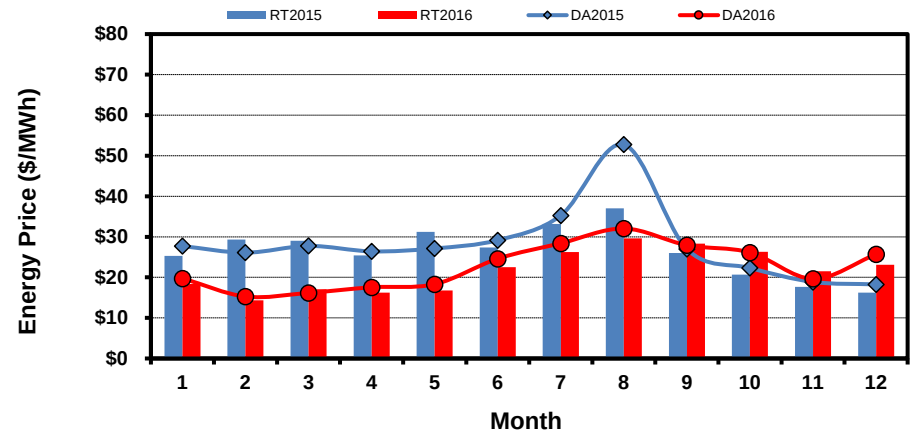
North Zone



South Zone



West Zone



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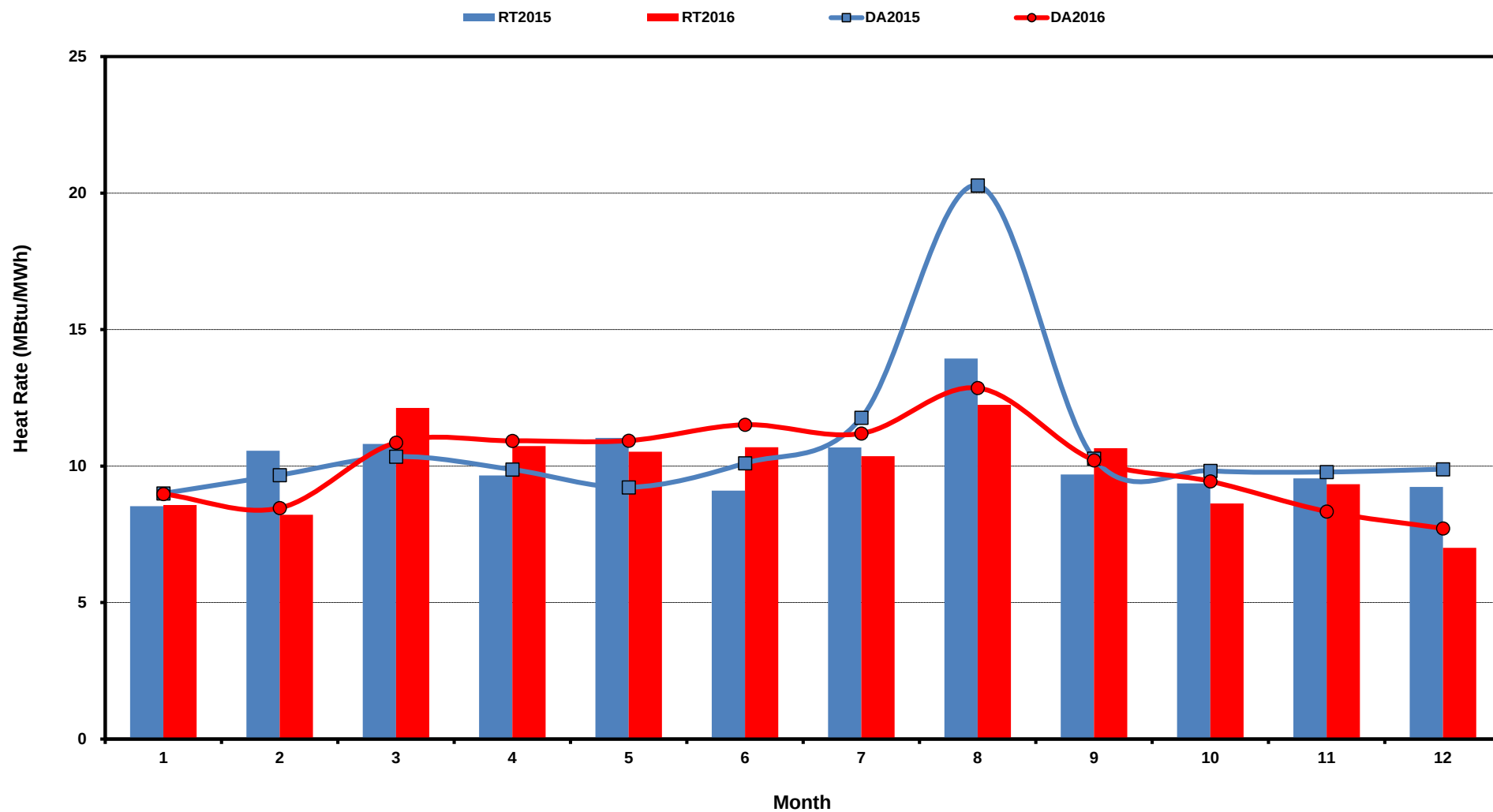
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Monthly Report to PUCT

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ERCOT-wide Monthly Implied Heat Rate DA vs RT

(avg. heat rates weighted by Real Time Settlement Loads)



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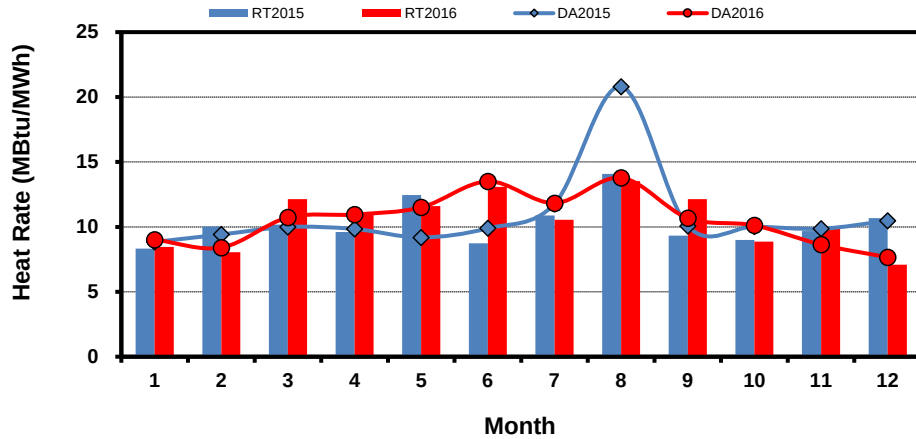
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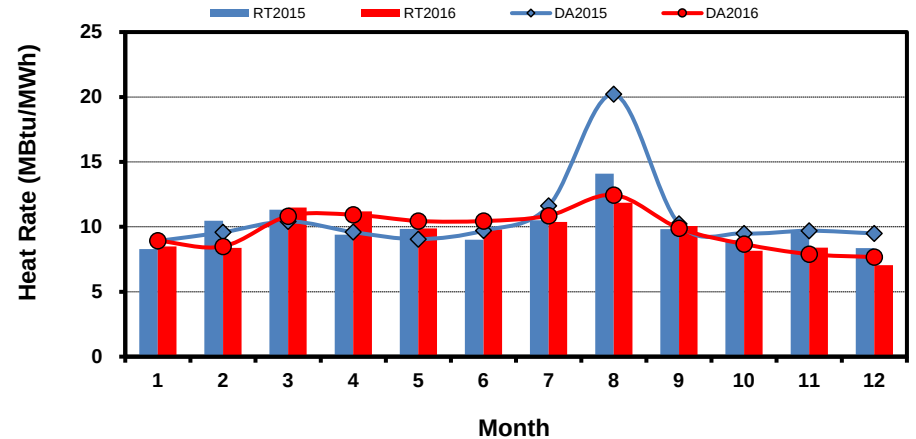
Load Zone Monthly Implied Heat Rate DA vs RT

(avg. heat rates weighted by Real Time Settlement Loads)
(Nodal load zone made comparable to zonal sytem Load Zone definitions*)

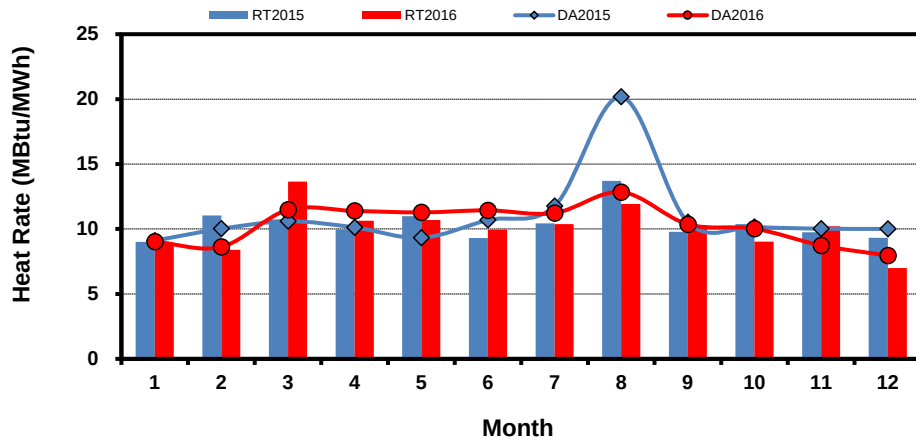
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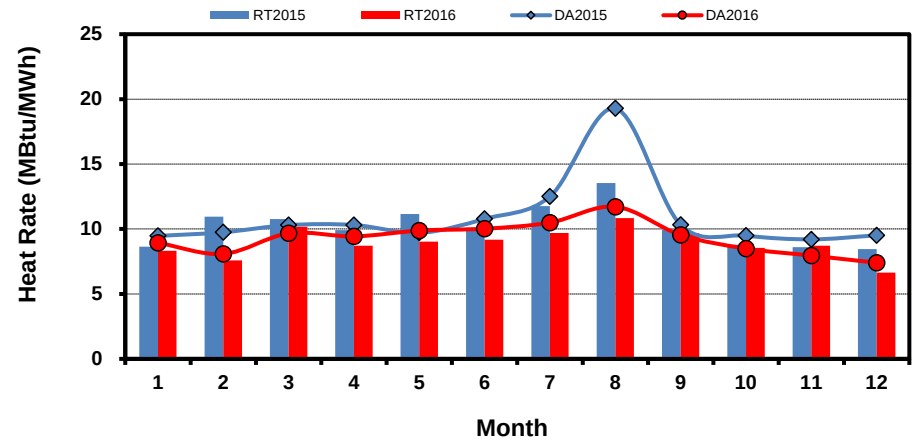
North Zone



South Zone



West Zone



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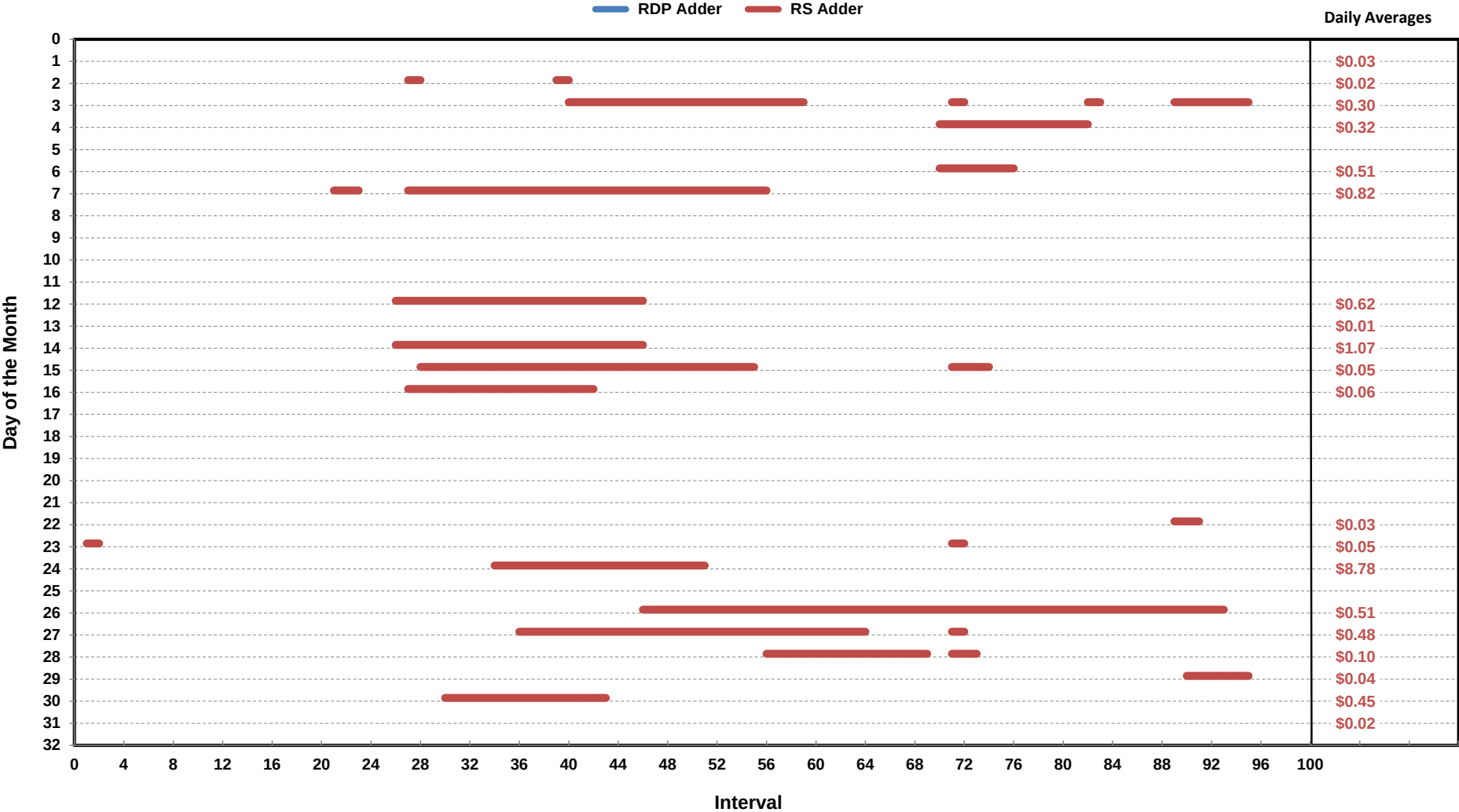
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Note: * Zonal load zone definition vs. Nodal comparable load zone definition: LZ_Houston=LZ_Houston; LZ_West=LZ_West; LZ_North=(LZ_North,LZ_RAYBN); LZ_South=(LZ_South,LZ_CPS,LZ_AEN,LZ_LCRA)

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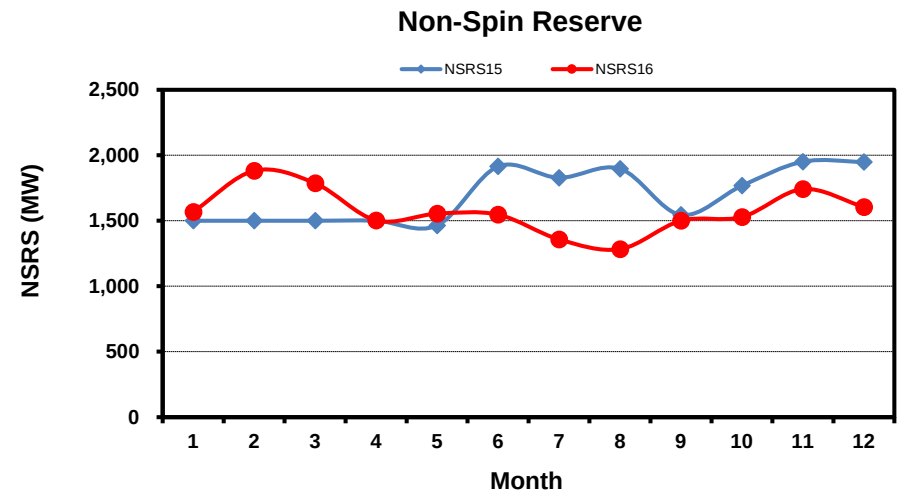
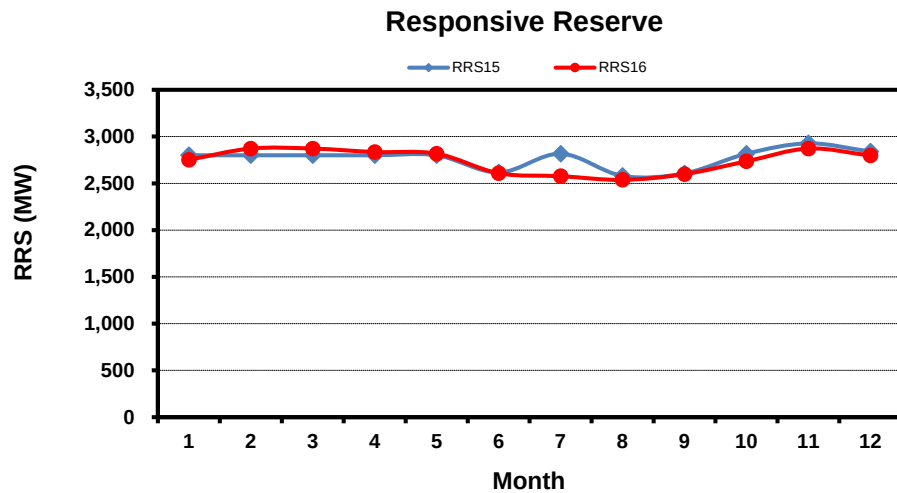
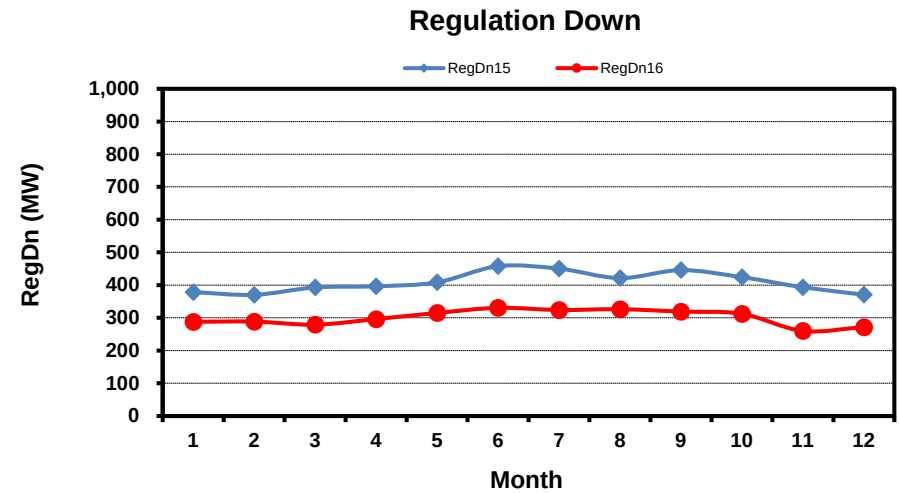
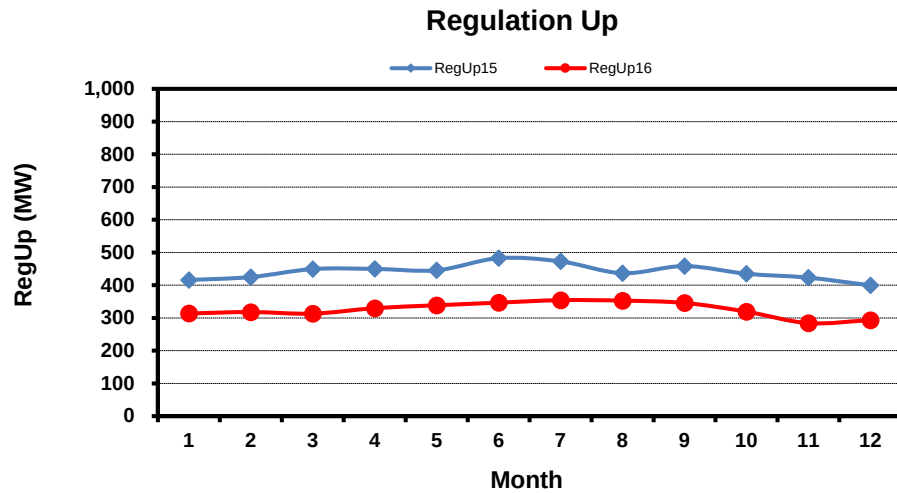
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Daily ORDC Adders Average Values and Interval Duration
Dec-2016



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Monthly Average of Ancillary Services Required MW



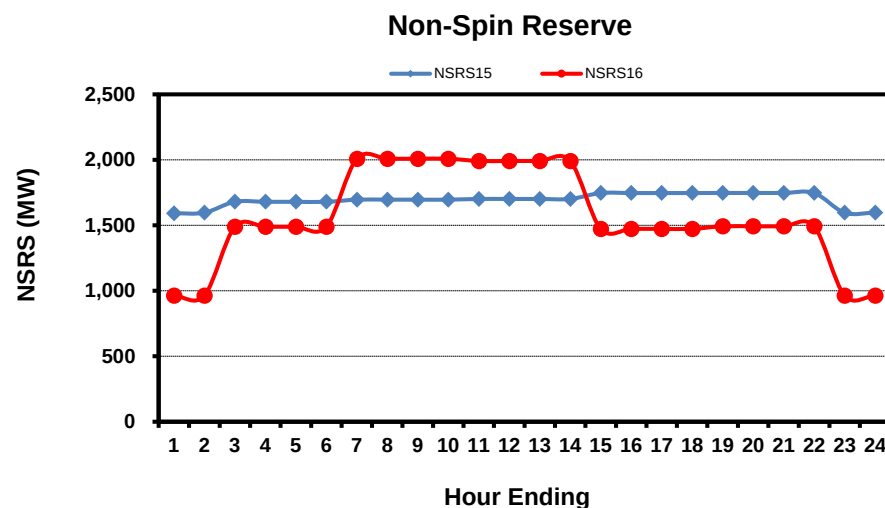
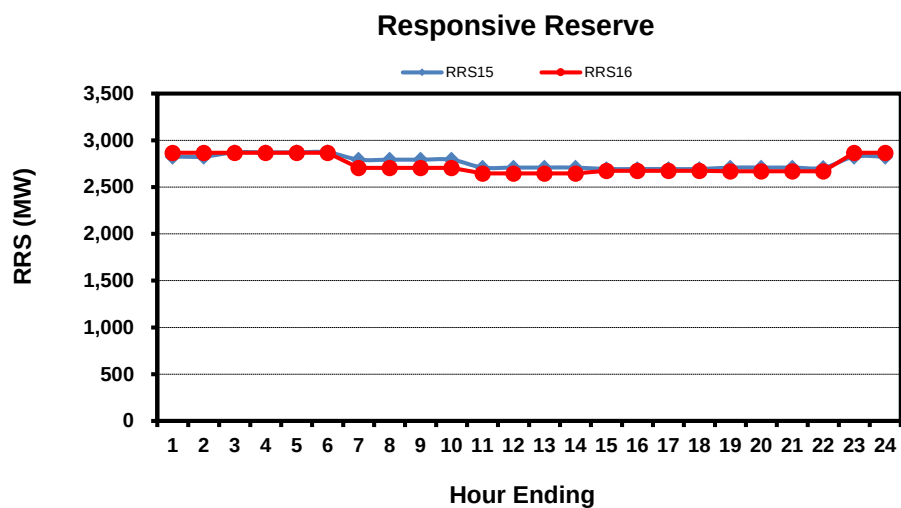
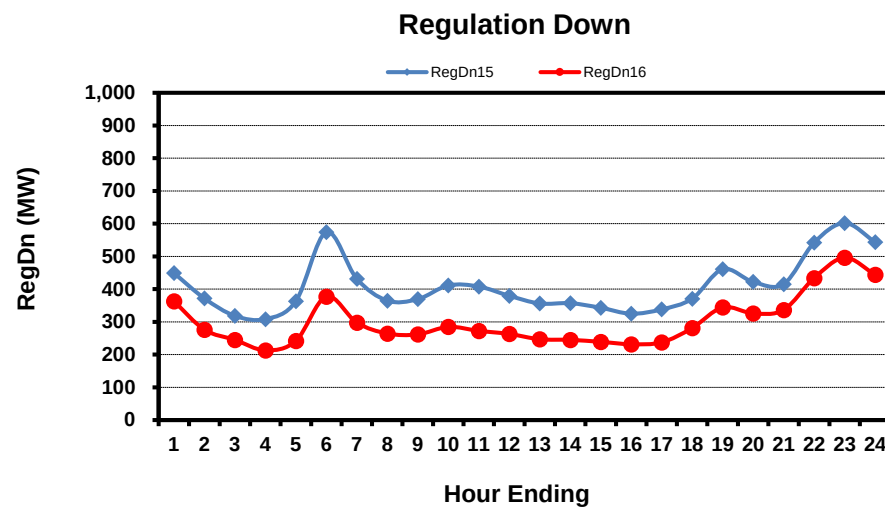
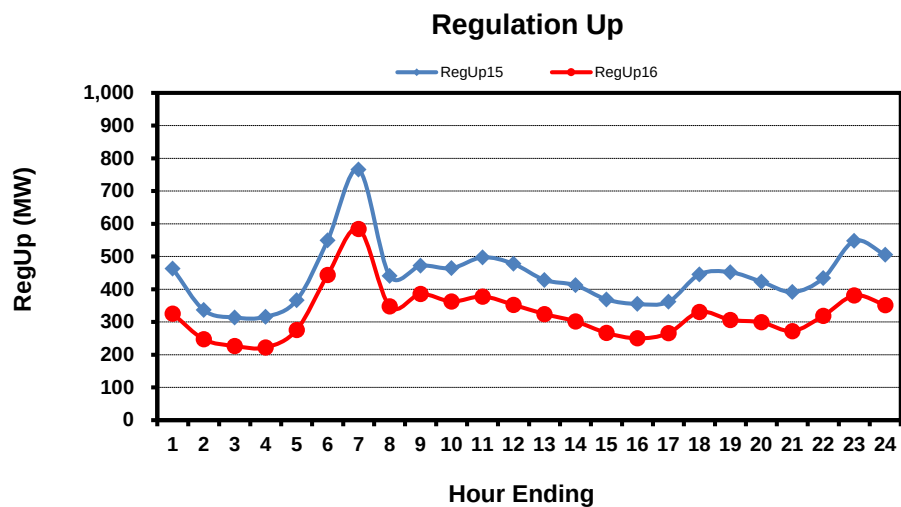
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Hourly Average of Ancillary Services Required MW



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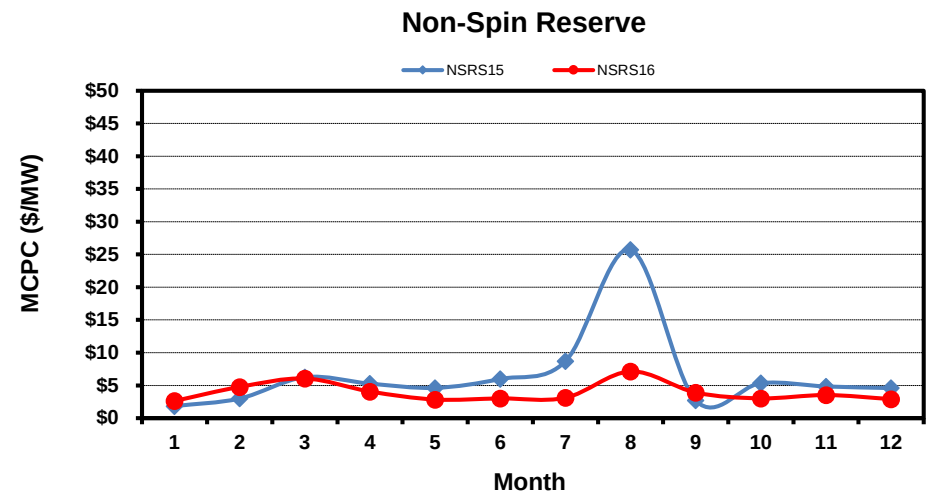
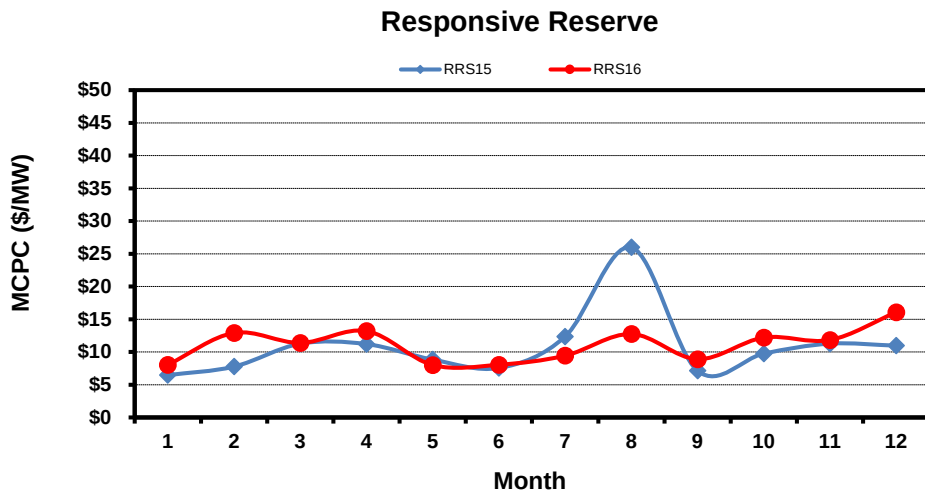
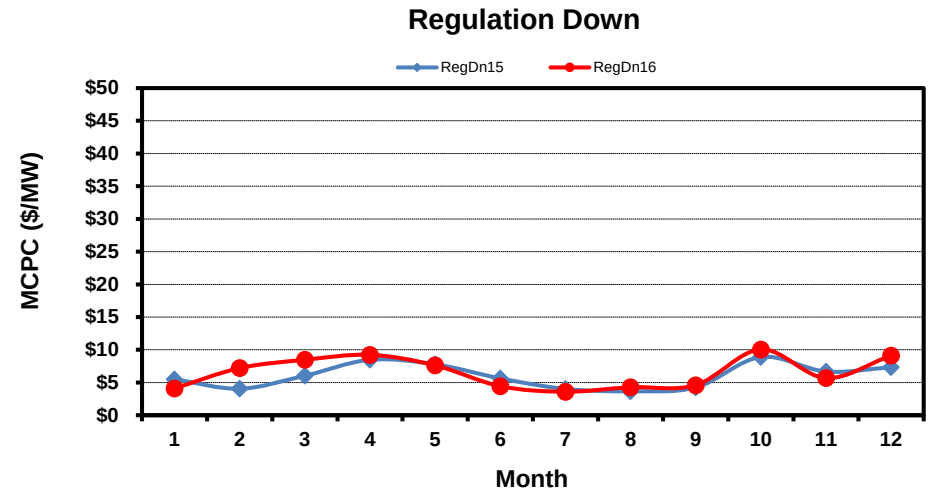
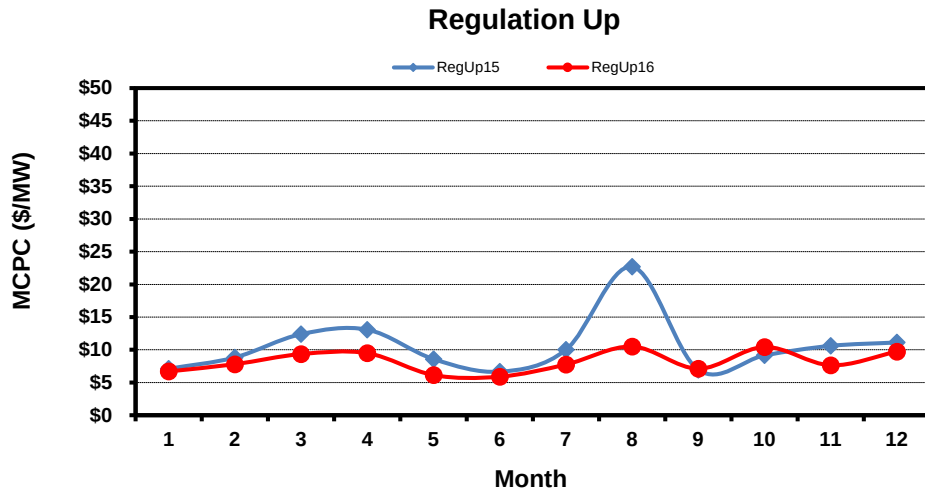
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Monthly Average Ancillary Services Price

(weighted by A/S Quantities Required)



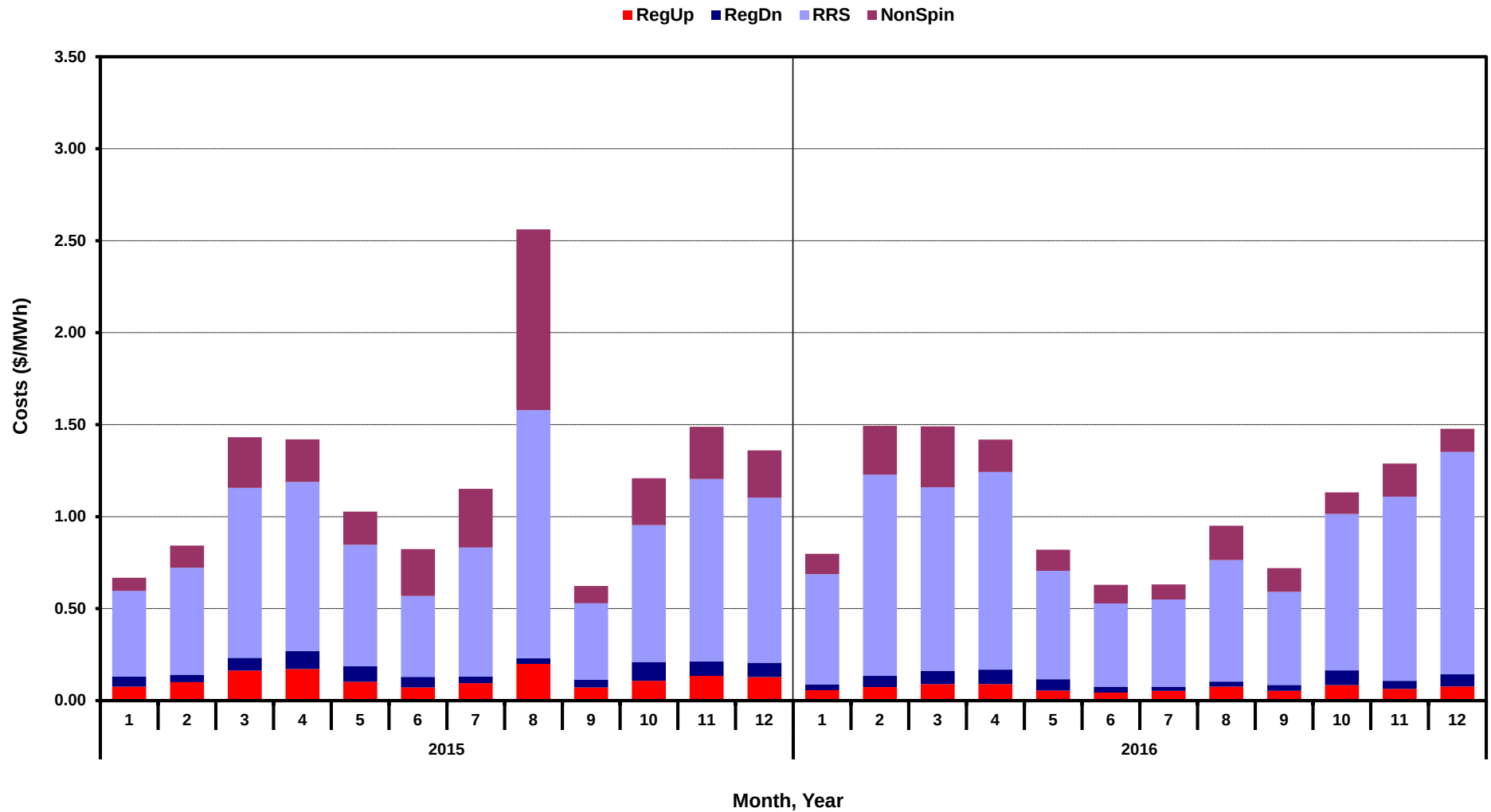
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Monthly Average A/S Cost per MWh Load



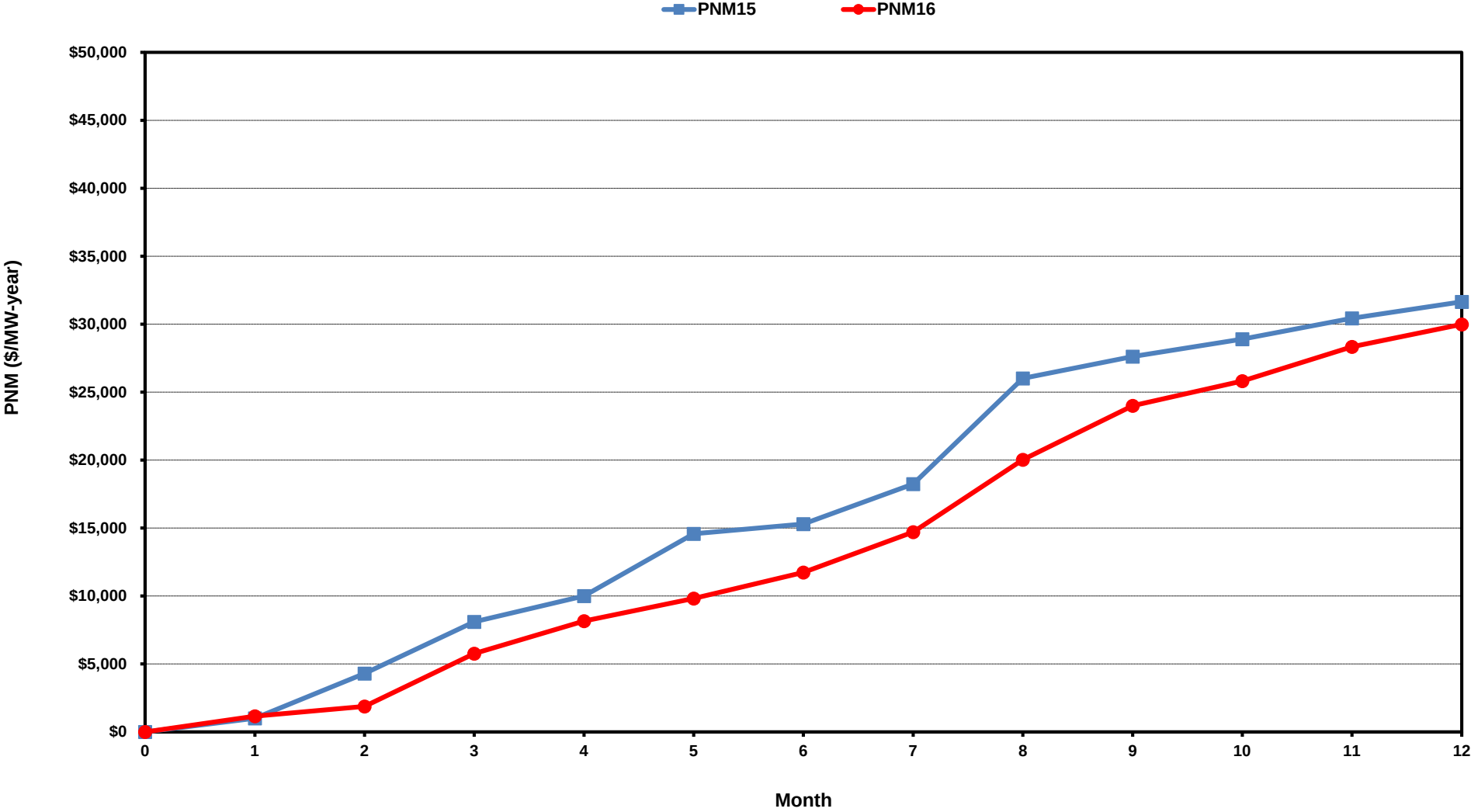
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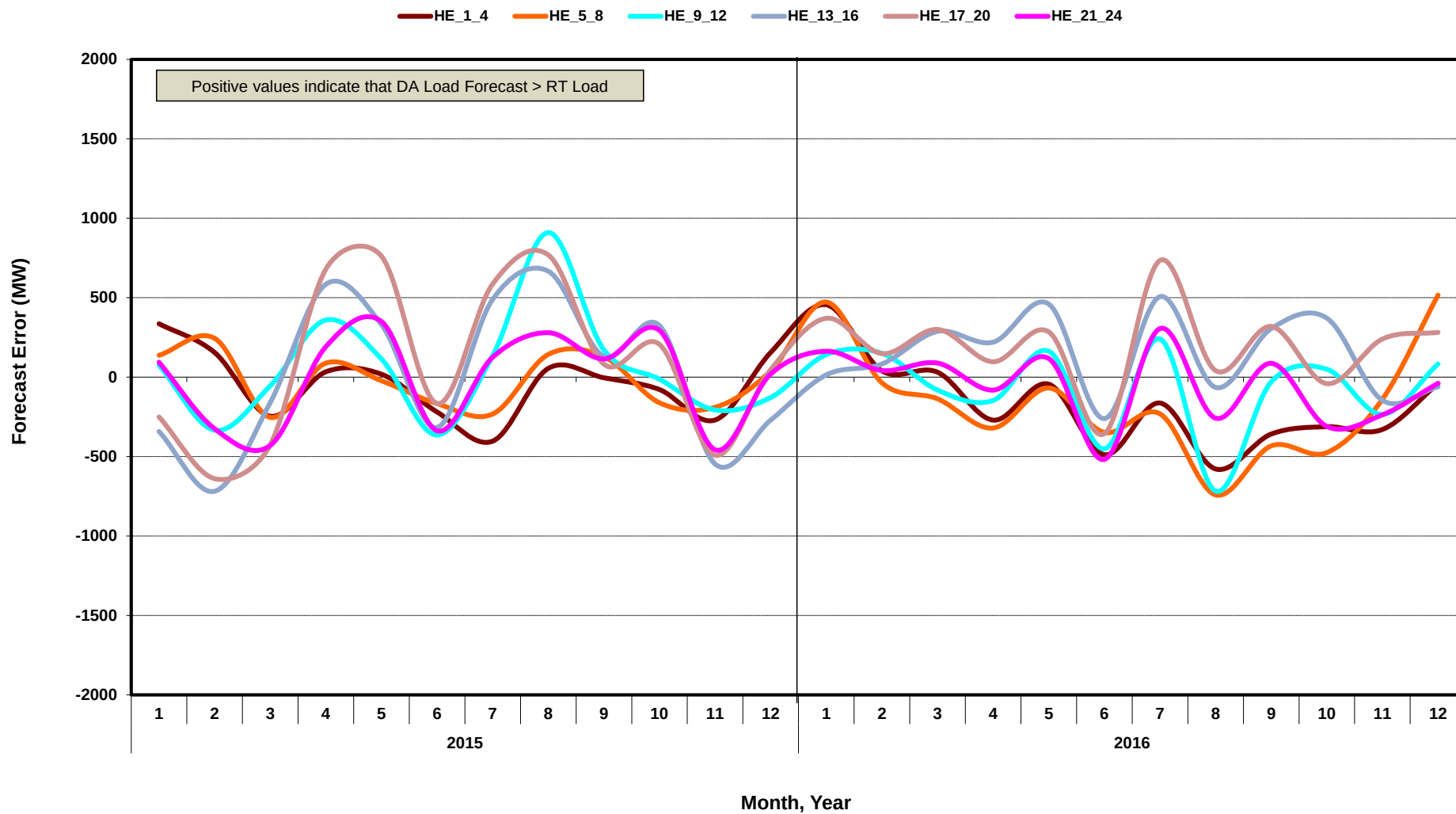
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ERCOT-wide Cumulative Peaker Net Margin



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DA vs. RT Load Forecast Error by Hour Ending



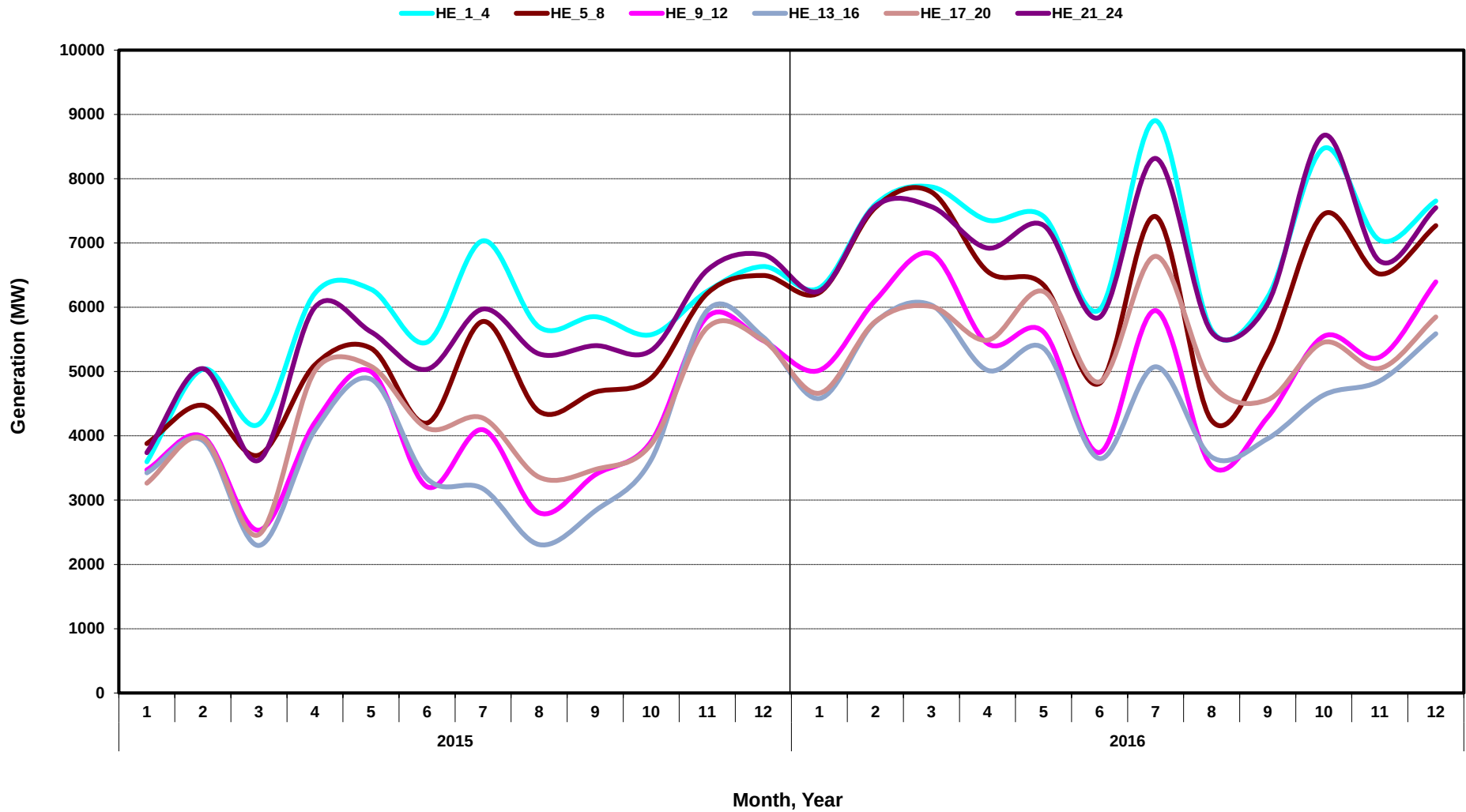
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Monthly Average of Wind Generation by Hour Ending



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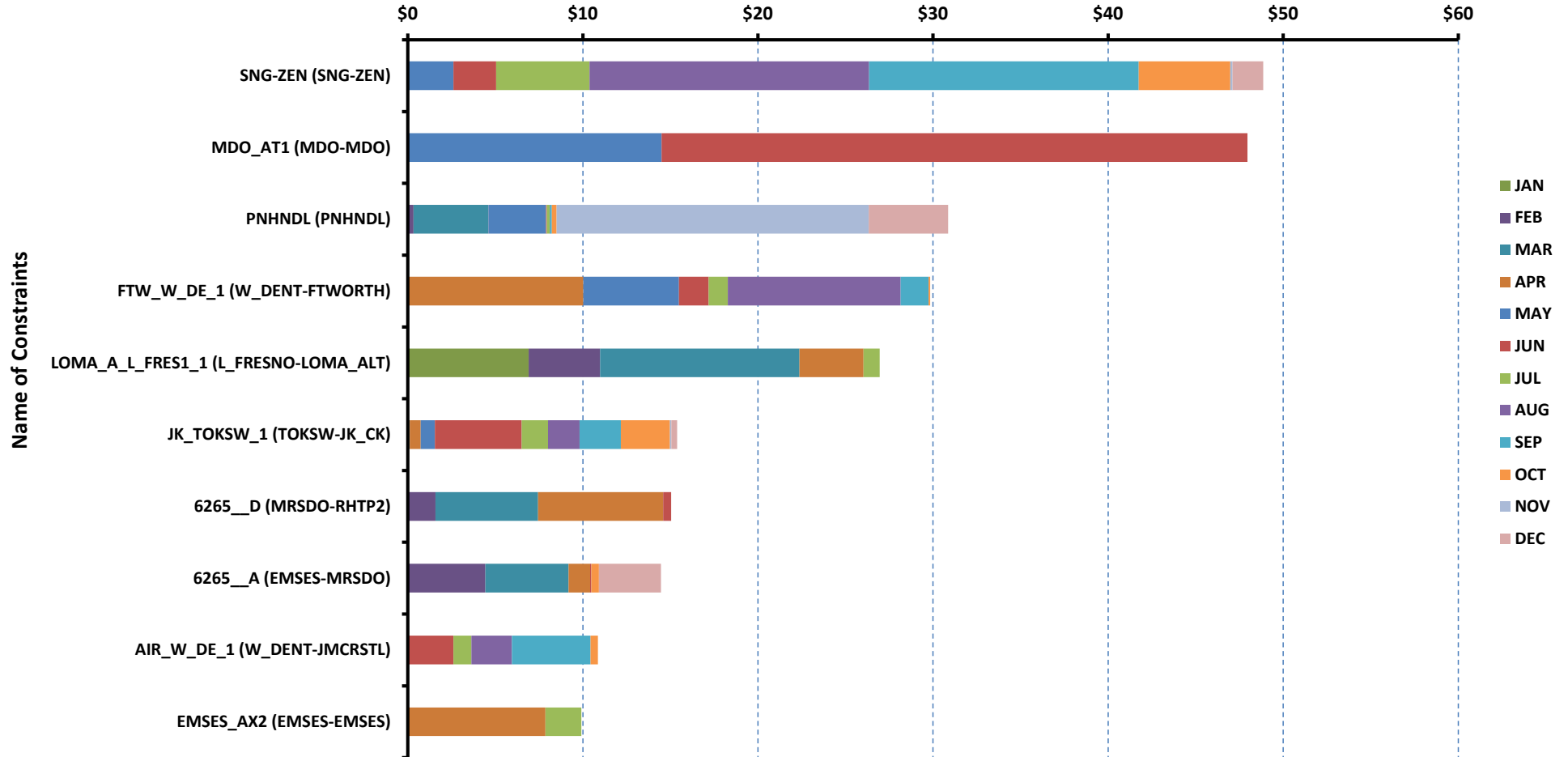
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RT Congestion Constraint Rankings - 1

Top 10 Constraints by Total Congestion Rent

Congestion Rent in \$ million



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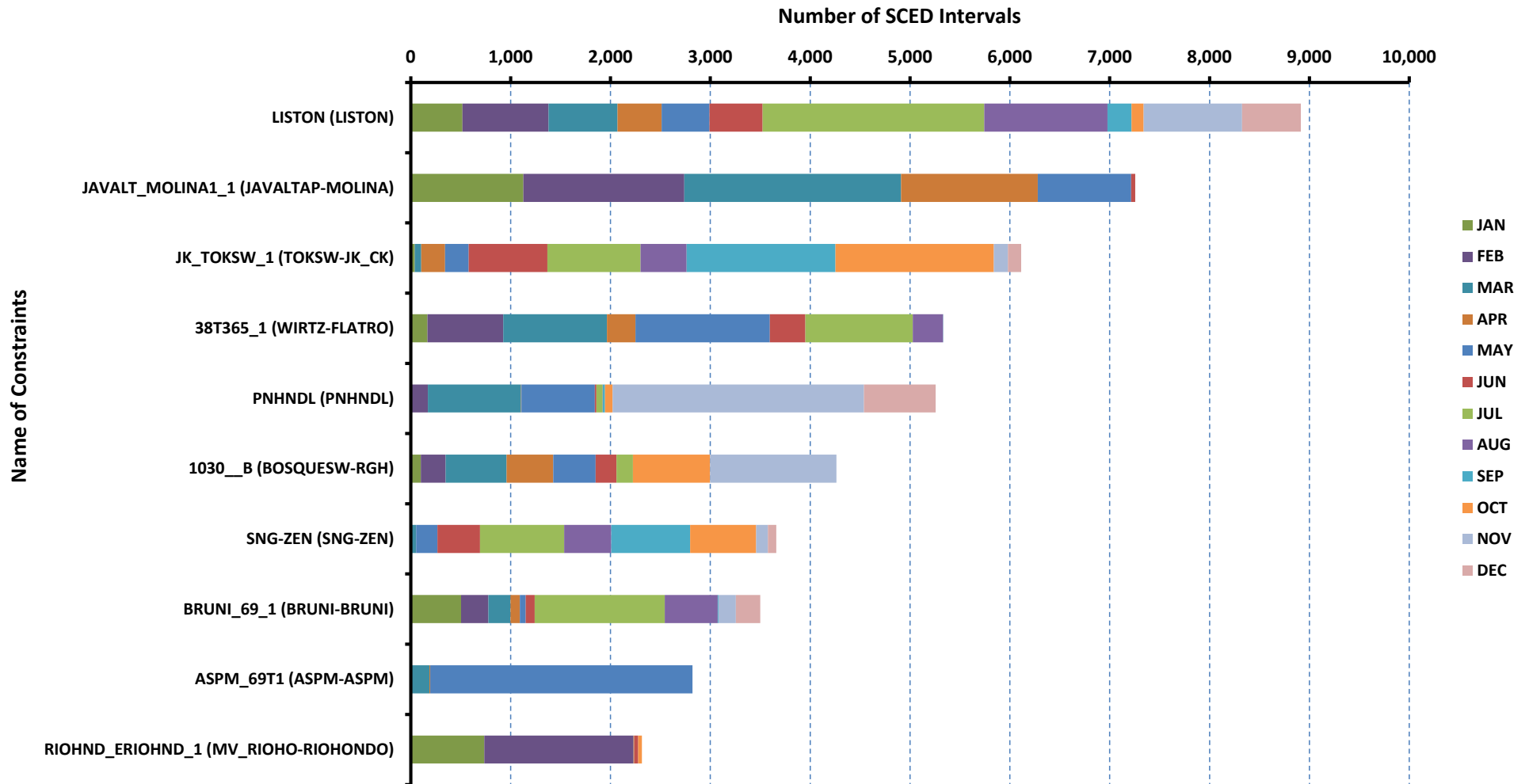
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RT Congestion Constraint Rankings - 2

Top 10 Constraints by Binding Frequency



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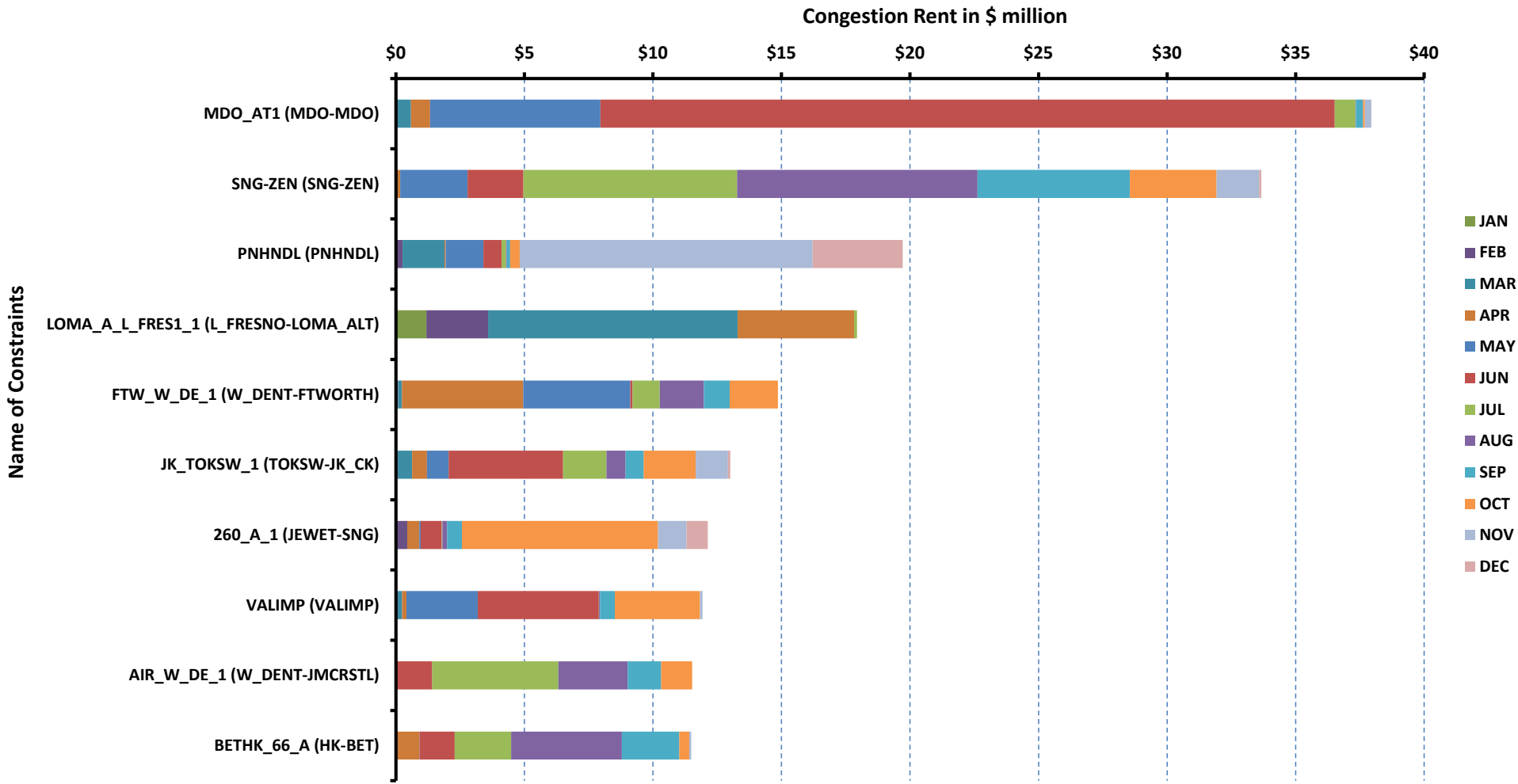
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DA Congestion Constraint Rankings - 1

Top 10 Constraints by Total Congestion Rent



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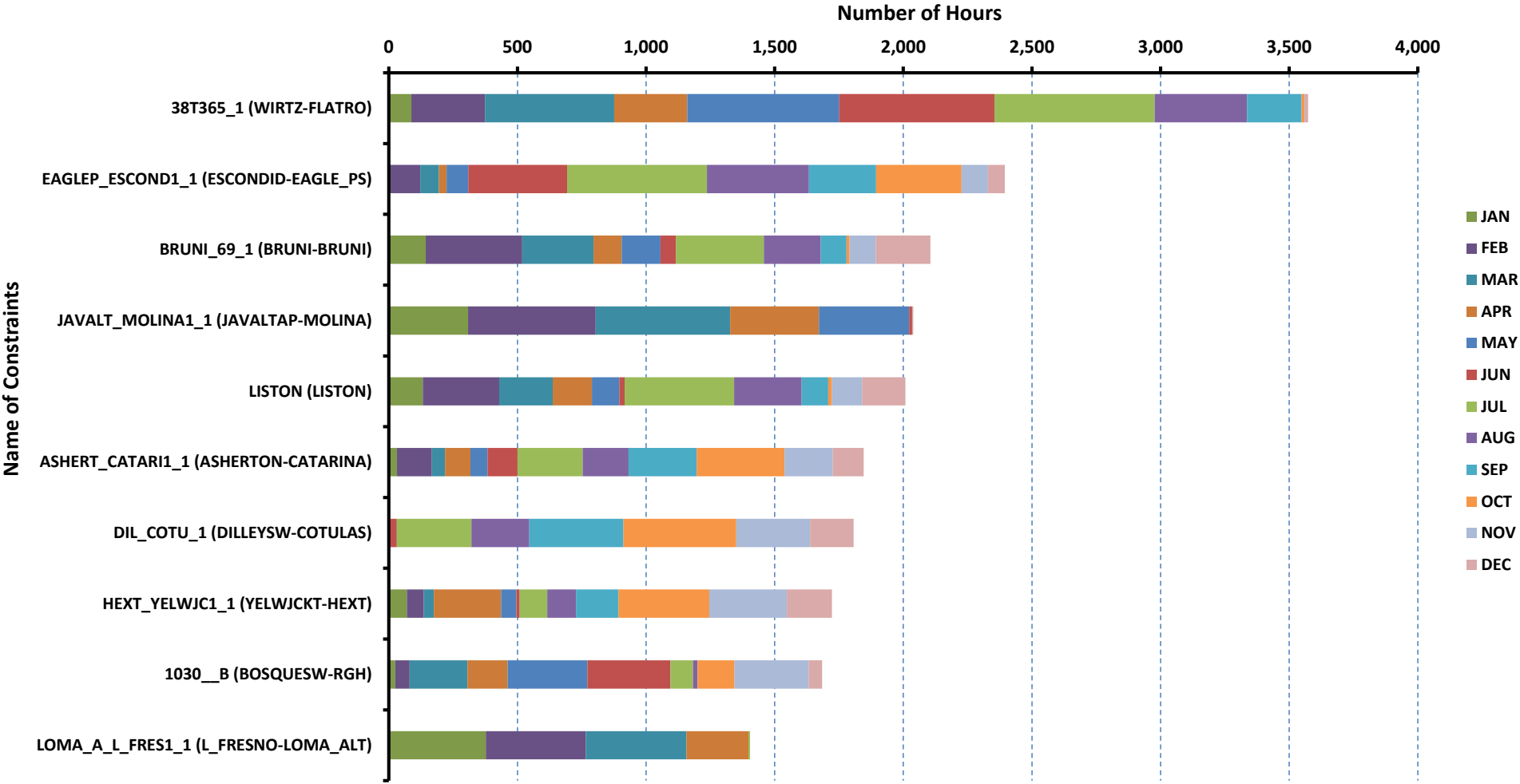
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DA Congestion Constraint Rankings - 2

Top 10 Constraints by Binding Frequency



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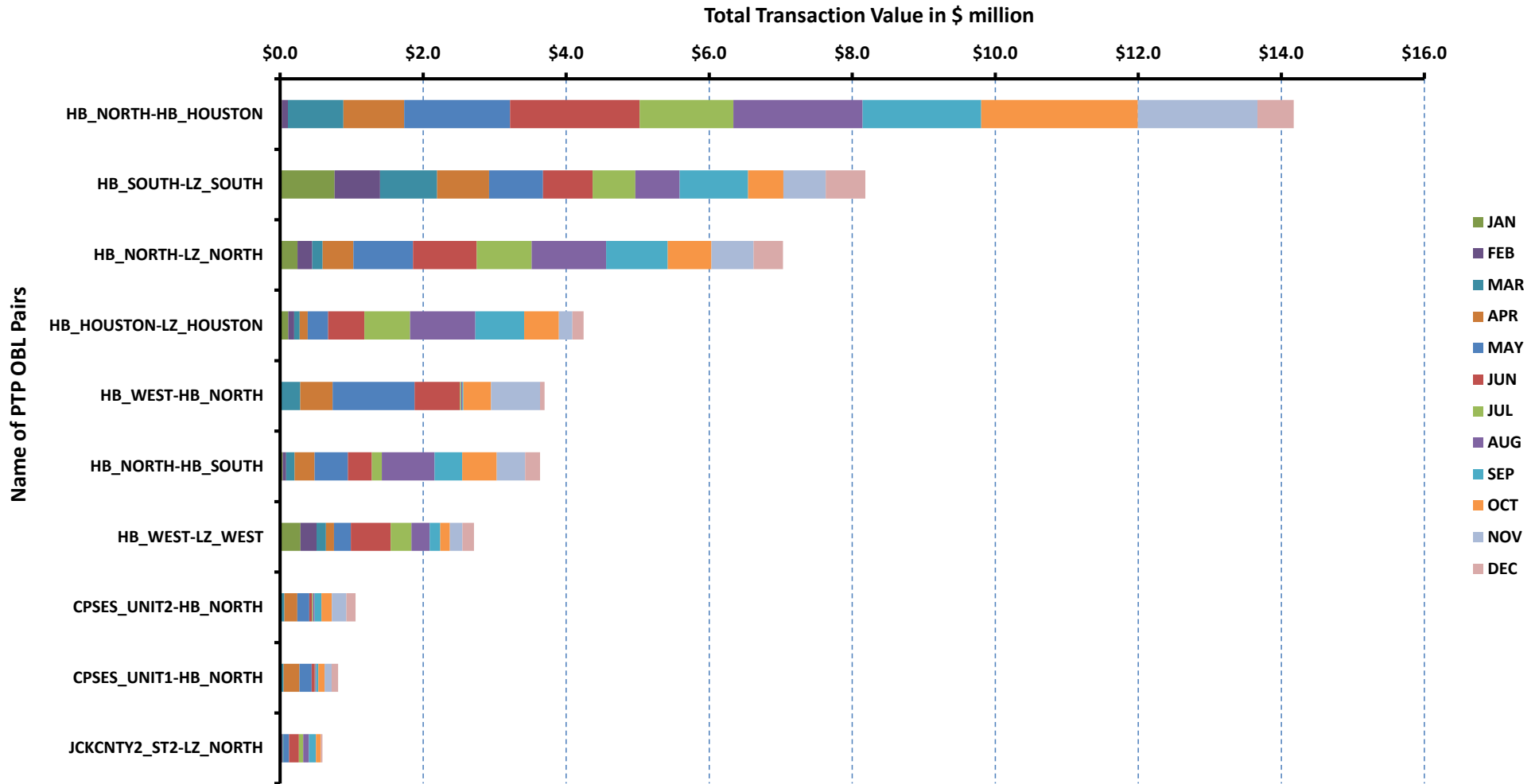
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Top 10 CRR Pairs Ranked by Monthly Auction Values - 1

Top 10 PTP Obligations by Total Transaction Value



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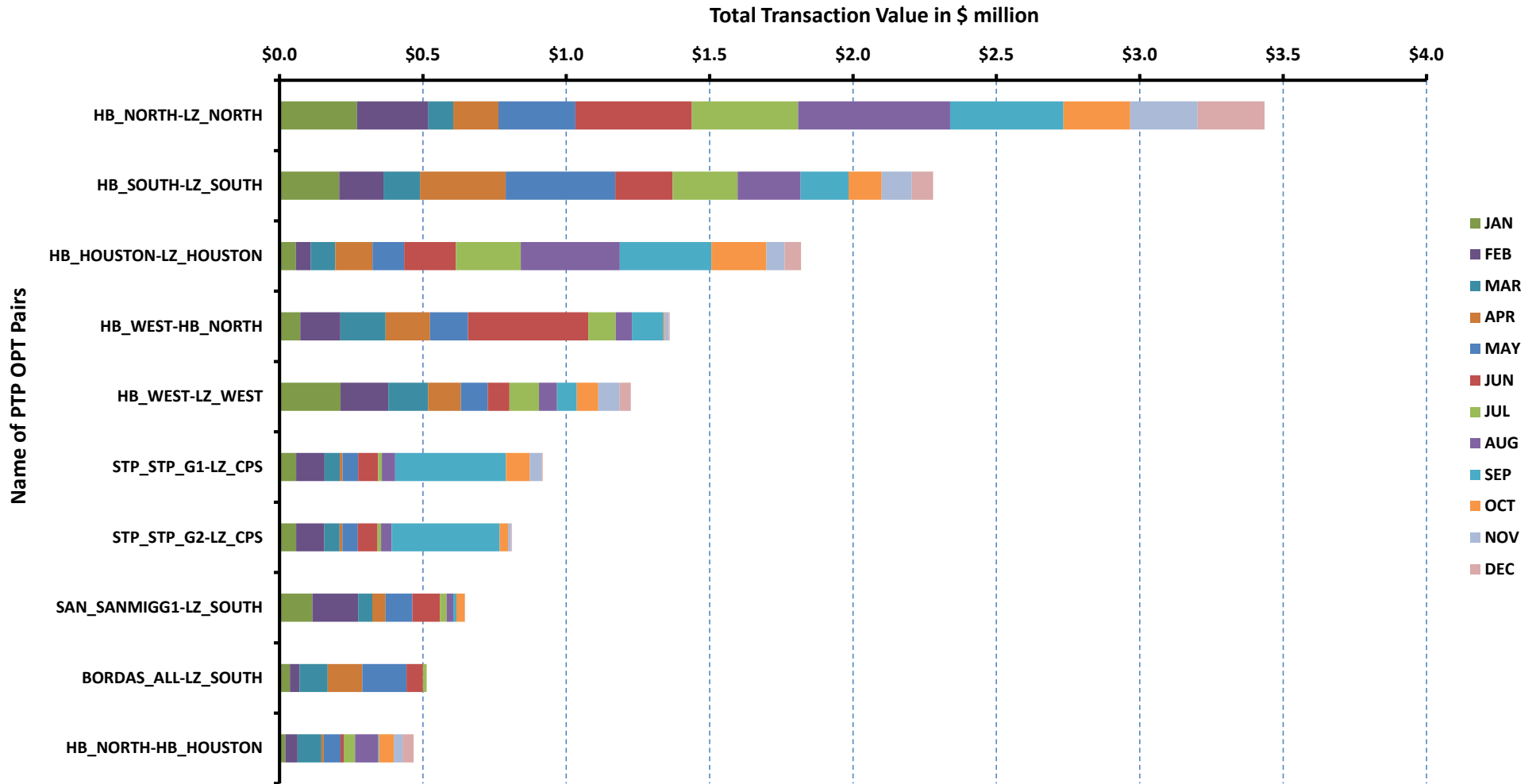
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Top 10 CRR Pairs Ranked by Monthly Auction Values - 2

Top 10 PTP Options by Total Transaction Value



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ERCOT-wide Avg. Energy Price - DA vs. RT			
year	month	dam_spp	rtm_spp
2015	1	\$ 26.35	\$ 24.97
	2	\$ 25.90	\$ 28.28
	3	\$ 27.88	\$ 29.14
	4	\$ 25.30	\$ 24.74
	5	\$ 25.78	\$ 30.84
	6	\$ 27.35	\$ 24.63
	7	\$ 33.20	\$ 30.14
	8	\$ 55.48	\$ 38.12
	9	\$ 26.87	\$ 25.33
	10	\$ 23.11	\$ 22.02
	11	\$ 20.07	\$ 19.58
	12	\$ 18.99	\$ 17.74
2016	1	\$ 19.85	\$ 18.96
	2	\$ 16.00	\$ 15.54
	3	\$ 18.18	\$ 20.30
	4	\$ 20.34	\$ 19.98
	5	\$ 20.28	\$ 19.52
	6	\$ 28.27	\$ 26.23
	7	\$ 30.31	\$ 28.06
	8	\$ 35.17	\$ 33.47
	9	\$ 29.90	\$ 31.20
	10	\$ 29.07	\$ 26.58
	11	\$ 20.59	\$ 23.06
	12	\$ 26.80	\$ 24.33

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Load Zone Load Statistics									
year	month	loadPEAK_Houston	loadPEAK_North	loadPEAK_South	loadPEAK_West	loadAVG_Houston	loadAVG_North	loadAVG_South	loadAVG_West
2015	1	12,803	23,814	16,491	4,339	9,538	14,918	10,830	3,496
	2	12,561	21,965	16,070	4,433	9,308	14,612	9,980	3,477
	3	12,235	21,950	15,837	4,372	8,827	12,810	9,182	3,318
	4	14,001	16,971	13,386	3,944	9,708	11,901	9,397	3,177
	5	15,128	20,253	14,926	4,199	10,879	12,956	10,381	3,265
	6	17,100	24,285	16,392	4,708	12,402	16,870	11,974	3,702
	7	18,236	26,878	18,084	5,043	13,643	18,882	13,232	3,958
	8	18,994	27,717	18,902	5,164	13,139	18,853	13,665	4,029
	9	16,361	25,718	17,631	4,876	11,726	16,837	12,322	3,782
	10	15,857	22,580	16,908	4,335	10,302	13,015	10,387	3,250
	11	13,116	16,108	13,252	3,884	9,076	11,891	9,089	3,255
	12	11,380	18,800	12,571	4,146	9,059	12,889	9,377	3,412
2016	1	11,996	19,817	14,745	4,154	9,367	14,160	9,958	3,525
	2	11,378	19,345	14,062	4,194	9,027	12,473	9,085	3,318
	3	13,434	16,410	12,996	3,667	9,184	11,447	8,934	3,177
	4	14,666	18,506	14,780	4,007	9,890	12,058	9,634	3,239
	5	16,608	21,991	15,871	4,520	11,044	13,212	10,679	3,423
	6	17,981	25,275	17,724	4,876	12,627	17,254	12,696	3,795
	7	18,366	26,378	19,056	5,146	13,868	19,238	14,083	4,190
	8	18,924	28,130	19,719	5,166	13,284	18,384	13,382	3,973
	9	18,005	26,091	18,339	4,781	12,648	16,770	12,650	3,697
	10	16,498	22,649	16,716	4,457	11,207	13,760	10,855	3,471
	11	14,030	18,417	14,579	4,131	9,524	11,878	9,261	3,304
	12	13,097	23,695	16,760	4,620	9,643	14,041	9,873	3,645

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Load Zone Monthly Average Energy Price - DA vs. RT										
year	month	avgRTMp_Houston	avgRTMp_North	avgRTMp_South	avgRTMp_West	avgDAMp_Houston	avgDAMp_North	avgDAMp_South	avgDAMp_West	
2015	1	\$ 24.37	\$ 24.24	\$ 26.39	\$ 25.32	\$ 25.89	\$ 26.09	\$ 26.67	\$ 27.72	
	2	\$ 26.86	\$ 28.03	\$ 29.60	\$ 29.35	\$ 25.21	\$ 25.66	\$ 26.83	\$ 26.10	
	3	\$ 27.42	\$ 30.50	\$ 28.93	\$ 29.01	\$ 26.93	\$ 28.08	\$ 28.55	\$ 27.76	
	4	\$ 24.59	\$ 24.08	\$ 25.53	\$ 25.39	\$ 25.21	\$ 24.58	\$ 25.94	\$ 26.41	
	5	\$ 34.82	\$ 27.49	\$ 30.72	\$ 31.20	\$ 25.68	\$ 25.30	\$ 26.05	\$ 27.14	
	6	\$ 23.61	\$ 24.36	\$ 25.20	\$ 27.36	\$ 26.76	\$ 26.26	\$ 28.92	\$ 29.18	
	7	\$ 30.68	\$ 29.60	\$ 29.44	\$ 33.16	\$ 33.21	\$ 32.75	\$ 33.20	\$ 35.27	
	8	\$ 38.50	\$ 38.54	\$ 37.49	\$ 37.05	\$ 56.90	\$ 55.28	\$ 55.18	\$ 52.76	
	9	\$ 24.39	\$ 25.66	\$ 25.57	\$ 25.98	\$ 26.30	\$ 26.75	\$ 27.52	\$ 27.00	
	10	\$ 21.14	\$ 21.16	\$ 24.41	\$ 20.69	\$ 23.57	\$ 22.33	\$ 23.89	\$ 22.31	
	11	\$ 19.86	\$ 19.57	\$ 20.01	\$ 17.64	\$ 20.22	\$ 19.89	\$ 20.57	\$ 18.87	
	12	\$ 20.50	\$ 16.07	\$ 17.91	\$ 16.24	\$ 20.10	\$ 18.23	\$ 19.22	\$ 18.27	
2016	1	\$ 18.68	\$ 18.77	\$ 19.69	\$ 18.39	\$ 19.93	\$ 19.74	\$ 19.95	\$ 19.76	
	2	\$ 15.20	\$ 15.84	\$ 15.89	\$ 14.35	\$ 15.89	\$ 16.05	\$ 16.30	\$ 15.28	
	3	\$ 20.31	\$ 19.22	\$ 22.84	\$ 17.04	\$ 17.95	\$ 18.12	\$ 19.22	\$ 16.18	
	4	\$ 20.32	\$ 20.84	\$ 19.79	\$ 16.22	\$ 20.39	\$ 20.35	\$ 21.20	\$ 17.56	
	5	\$ 21.52	\$ 18.32	\$ 19.82	\$ 16.75	\$ 21.33	\$ 19.38	\$ 20.92	\$ 18.32	
	6	\$ 32.12	\$ 24.08	\$ 24.42	\$ 22.53	\$ 33.15	\$ 25.64	\$ 28.08	\$ 24.60	
	7	\$ 28.55	\$ 28.07	\$ 28.10	\$ 26.26	\$ 32.03	\$ 29.41	\$ 30.40	\$ 28.41	
	8	\$ 36.96	\$ 32.41	\$ 32.61	\$ 29.63	\$ 37.68	\$ 34.06	\$ 35.13	\$ 32.04	
	9	\$ 35.54	\$ 29.45	\$ 30.02	\$ 28.35	\$ 31.27	\$ 28.97	\$ 30.34	\$ 27.94	
	10	\$ 27.27	\$ 25.14	\$ 27.77	\$ 26.33	\$ 31.14	\$ 26.70	\$ 30.86	\$ 26.15	
	11	\$ 24.40	\$ 20.74	\$ 25.23	\$ 21.51	\$ 21.33	\$ 19.50	\$ 21.58	\$ 19.65	
	12	\$ 24.59	\$ 24.50	\$ 24.29	\$ 23.10	\$ 26.60	\$ 26.63	\$ 27.65	\$ 25.70	

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ERCOT-wide Monthly Implied Heat Rate - DA vs. RT						
year	month	gasprice	rtm_spp	HR_rtm	dam_spp	HR_dam
2015	1	\$ 2.93	\$ 24.97	8.53	\$ 26.35	9.00
	2	\$ 2.68	\$ 28.28	10.56	\$ 25.90	9.67
	3	\$ 2.69	\$ 29.14	10.81	\$ 27.88	10.35
	4	\$ 2.56	\$ 24.74	9.66	\$ 25.30	9.87
	5	\$ 2.80	\$ 30.84	11.03	\$ 25.78	9.22
	6	\$ 2.71	\$ 24.63	9.10	\$ 27.35	10.11
	7	\$ 2.82	\$ 30.14	10.69	\$ 33.20	11.77
	8	\$ 2.74	\$ 38.12	13.94	\$ 55.48	20.28
	9	\$ 2.61	\$ 25.33	9.69	\$ 26.87	10.28
	10	\$ 2.35	\$ 22.02	9.36	\$ 23.11	9.83
	11	\$ 2.05	\$ 19.58	9.55	\$ 20.07	9.78
	12	\$ 1.92	\$ 17.74	9.23	\$ 18.99	9.89
2016	1	\$ 2.21	\$ 18.96	8.58	\$ 19.85	8.98
	2	\$ 1.89	\$ 15.54	8.22	\$ 16.00	8.46
	3	\$ 1.67	\$ 20.30	12.13	\$ 18.18	10.86
	4	\$ 1.86	\$ 19.98	10.73	\$ 20.34	10.92
	5	\$ 1.85	\$ 19.52	10.52	\$ 20.28	10.93
	6	\$ 2.46	\$ 26.23	10.69	\$ 28.27	11.51
	7	\$ 2.71	\$ 28.06	10.36	\$ 30.31	11.19
	8	\$ 2.73	\$ 33.47	12.24	\$ 35.17	12.86
	9	\$ 2.93	\$ 31.20	10.66	\$ 29.90	10.21
	10	\$ 3.08	\$ 26.58	8.63	\$ 29.07	9.44
	11	\$ 2.47	\$ 23.06	9.34	\$ 20.59	8.34
	12	\$ 3.47	\$ 24.33	7.00	\$ 26.80	7.72

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Load Zone Monthly Implied Heat Rate - DA vs. RT									
year	month	HRdam_Houston	HRdam_South	HRdam_North	HRdam_West	HRrtm_Houston	HRrtm_South	HRrtm_North	HRrtm_West
2015	1	8.84	9.11	8.91	9.47	8.32	9.01	8.28	8.65
	2	9.41	10.02	9.58	9.75	10.03	11.05	10.47	10.96
	3	9.99	10.60	10.42	10.30	10.18	10.73	11.32	10.77
	4	9.84	10.12	9.59	10.31	9.60	9.96	9.40	9.91
	5	9.19	9.32	9.05	9.70	12.45	10.99	9.83	11.16
	6	9.89	10.69	9.70	10.78	8.73	9.31	9.00	10.11
	7	11.78	11.77	11.61	12.51	10.88	10.44	10.50	11.76
	8	20.80	20.17	20.21	19.29	14.08	13.70	14.09	13.55
	9	10.06	10.53	10.23	10.33	9.33	9.78	9.82	9.94
	10	10.02	10.16	9.50	9.49	8.99	10.38	8.99	8.80
	11	9.86	10.03	9.70	9.20	9.68	9.75	9.54	8.60
	12	10.47	10.01	9.49	9.51	10.67	9.32	8.36	8.46
2016	1	9.02	9.02	8.93	8.94	8.45	8.91	8.49	8.32
	2	8.41	8.62	8.49	8.08	8.04	8.41	8.38	7.59
	3	10.73	11.48	10.82	9.67	12.13	13.65	11.48	10.18
	4	10.95	11.39	10.93	9.43	10.92	10.63	11.20	8.71
	5	11.50	11.28	10.45	9.88	11.60	10.68	9.88	9.03
	6	13.50	11.44	10.44	10.02	13.08	9.95	9.81	9.18
	7	11.83	11.23	10.86	10.49	10.55	10.38	10.37	9.70
	8	13.78	12.84	12.45	11.72	13.52	11.92	11.85	10.84
	9	10.68	10.36	9.89	9.54	12.14	10.25	10.06	9.68
	10	10.11	10.02	8.67	8.49	8.86	9.02	8.16	8.55
	11	8.64	8.74	7.89	7.95	9.88	10.21	8.40	8.71
	12	7.66	7.96	7.67	7.40	7.08	6.99	7.05	6.65

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Daily ORDC Adders Average Values and Interval Duration								
YEAR	MONTH	DAY	PRICE_RS	PRICE_RDP	RS_CNT	RDP_CNT	RS_POS	RDP_POS
2016	12	1	\$ 0.03	\$ -	1	0	80	90
2016	12	2	\$ 0.02	\$ -	4	0	80	90
2016	12	3	\$ 0.30	\$ -	31	0	80	90
2016	12	4	\$ 0.32	\$ -	13	0	80	90
2016	12	5	\$ -	\$ -	0	0	80	90
2016	12	6	\$ 0.51	\$ -	7	0	80	90
2016	12	7	\$ 0.82	\$ -	33	0	80	90
2016	12	8	\$ -	\$ -	0	0	80	90
2016	12	9	\$ -	\$ -	0	0	80	90
2016	12	10	\$ -	\$ -	0	0	80	90
2016	12	11	\$ -	\$ -	0	0	80	90
2016	12	12	\$ 0.62	\$ -	21	0	80	90
2016	12	13	\$ 0.01	\$ -	1	0	80	90
2016	12	14	\$ 1.07	\$ -	21	0	80	90
2016	12	15	\$ 0.05	\$ -	32	0	80	90
2016	12	16	\$ 0.06	\$ -	16	0	80	90
2016	12	17	\$ -	\$ -	0	0	80	90
2016	12	18	\$ -	\$ -	0	0	80	90
2016	12	19	\$ -	\$ -	0	0	80	90
2016	12	20	\$ -	\$ -	0	0	80	90
2016	12	21	\$ -	\$ -	0	0	80	90
2016	12	22	\$ 0.03	\$ -	3	0	80	90
2016	12	23	\$ 0.05	\$ -	4	0	80	90
2016	12	24	\$ 8.78	\$ -	18	0	80	90
2016	12	25	\$ -	\$ -	0	0	80	90
2016	12	26	\$ 0.51	\$ -	48	0	80	90
2016	12	27	\$ 0.48	\$ -	31	0	80	90
2016	12	28	\$ 0.10	\$ -	17	0	80	90
2016	12	29	\$ 0.04	\$ -	6	0	80	90
2016	12	30	\$ 0.45	\$ -	14	0	80	90
2016	12	31	\$ 0.02	\$ -	2	0	80	90

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Monthly Average of Ancillary Services Required MW					
year	month	ASMW_REGDN	ASMW_NSPIN	ASMW_RRS	ASMW_REGUP
2015	1	379	1,500	2,800	416
	2	370	1,500	2,800	425
	3	393	1,500	2,800	449
	4	396	1,500	2,800	450
	5	409	1,464	2,800	446
	6	458	1,915	2,616	483
	7	450	1,828	2,817	473
	8	422	1,897	2,579	437
	9	446	1,545	2,607	458
	10	424	1,768	2,817	435
	11	394	1,951	2,927	423
	12	371	1,949	2,840	400
2016	1	288	1,568	2,752	314
	2	289	1,882	2,872	318
	3	279	1,787	2,872	313
	4	296	1,503	2,835	330
	5	315	1,554	2,817	339
	6	331	1,547	2,608	347
	7	324	1,358	2,577	354
	8	326	1,283	2,537	353
	9	319	1,500	2,598	346
	10	312	1,529	2,735	319
	11	260	1,742	2,872	284
	12	272	1,605	2,797	293

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Hourly Average of Ancillary Services Required MW					
year	DELIVERY_HOUR	ASMW_REGDN	ASMW_NSPIN	ASMW_RRS	ASMW_REGUP
2015	1	449	1,592	2,826	463
	2	372	1,596	2,826	336
	3	318	1,680	2,872	314
	4	308	1,680	2,872	316
	5	363	1,680	2,872	367
	6	574	1,680	2,872	549
	7	432	1,696	2,793	766
	8	365	1,696	2,793	441
	9	369	1,696	2,793	472
	10	411	1,696	2,793	464
	11	408	1,701	2,709	498
	12	380	1,701	2,709	478
	13	356	1,701	2,709	428
	14	357	1,701	2,709	412
	15	343	1,746	2,693	369
	16	325	1,746	2,693	355
	17	338	1,746	2,693	362
	18	371	1,746	2,693	445
	19	461	1,747	2,709	452
	20	422	1,747	2,709	423
	21	415	1,747	2,709	391
	22	542	1,747	2,706	434
	23	602	1,596	2,826	547
	24	544	1,596	2,826	505
2016	1	363	964	2,867	325
	2	276	964	2,867	247
	3	245	1,489	2,867	227
	4	213	1,489	2,867	222
	5	242	1,489	2,867	276
	6	378	1,489	2,867	444
	7	298	2,008	2,706	584
	8	264	2,008	2,706	348
	9	262	2,008	2,706	385
	10	285	2,008	2,706	363
	11	273	1,991	2,646	378
	12	263	1,991	2,646	353
	13	247	1,991	2,646	324
	14	245	1,991	2,646	302
	15	239	1,473	2,675	267
	16	232	1,473	2,675	250
	17	237	1,473	2,675	266
	18	281	1,473	2,675	331
	19	344	1,492	2,670	306
	20	326	1,492	2,670	299
	21	337	1,492	2,670	272
	22	434	1,492	2,670	319
	23	496	964	2,867	381
	24	444	964	2,867	352

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Monthly Average Ancillary Services Price					
year	month	MCPC_REGDN	MCPC_NSPIN	MCPC_RRS	MCPC_REGUP
2015	1	\$ 5.49	\$ 1.84	\$ 6.47	\$ 7.10
	2	\$ 4.05	\$ 3.00	\$ 7.77	\$ 8.83
	3	\$ 6.04	\$ 6.26	\$ 11.27	\$ 12.39
	4	\$ 8.47	\$ 5.27	\$ 11.21	\$ 13.08
	5	\$ 7.78	\$ 4.63	\$ 8.84	\$ 8.58
	6	\$ 5.63	\$ 5.98	\$ 7.56	\$ 6.65
	7	\$ 4.01	\$ 8.69	\$ 12.37	\$ 10.00
	8	\$ 3.67	\$ 25.73	\$ 25.98	\$ 22.70
	9	\$ 4.25	\$ 2.70	\$ 7.13	\$ 6.93
	10	\$ 8.90	\$ 5.34	\$ 9.76	\$ 9.15
	11	\$ 6.67	\$ 4.84	\$ 11.28	\$ 10.60
	12	\$ 7.33	\$ 4.59	\$ 10.97	\$ 11.12
2016	1	\$ 4.10	\$ 2.62	\$ 8.05	\$ 6.69
	2	\$ 7.21	\$ 4.77	\$ 12.91	\$ 7.80
	3	\$ 8.47	\$ 6.06	\$ 11.39	\$ 9.34
	4	\$ 9.23	\$ 4.07	\$ 13.20	\$ 9.48
	5	\$ 7.63	\$ 2.84	\$ 8.01	\$ 6.14
	6	\$ 4.43	\$ 3.02	\$ 8.05	\$ 5.89
	7	\$ 3.59	\$ 3.11	\$ 9.44	\$ 7.75
	8	\$ 4.27	\$ 7.13	\$ 12.75	\$ 10.49
	9	\$ 4.59	\$ 3.91	\$ 8.91	\$ 7.12
	10	\$ 10.06	\$ 3.02	\$ 12.21	\$ 10.42
	11	\$ 5.68	\$ 3.53	\$ 11.84	\$ 7.64
	12	\$ 9.13	\$ 2.91	\$ 16.08	\$ 9.72

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Monthly Average A/S Cost per MWh Load					
year	month	AScost_REGDN	AScost_NSPIN	AScost_RRS	AScost_REGUP
2015	1	\$ 0.05	\$ 0.07	\$ 0.47	\$ 0.08
	2	\$ 0.04	\$ 0.12	\$ 0.58	\$ 0.10
	3	\$ 0.07	\$ 0.28	\$ 0.92	\$ 0.16
	4	\$ 0.10	\$ 0.23	\$ 0.92	\$ 0.17
	5	\$ 0.08	\$ 0.18	\$ 0.66	\$ 0.10
	6	\$ 0.06	\$ 0.25	\$ 0.44	\$ 0.07
	7	\$ 0.04	\$ 0.32	\$ 0.70	\$ 0.10
	8	\$ 0.03	\$ 0.98	\$ 1.35	\$ 0.20
	9	\$ 0.04	\$ 0.09	\$ 0.42	\$ 0.07
	10	\$ 0.10	\$ 0.26	\$ 0.74	\$ 0.11
	11	\$ 0.08	\$ 0.28	\$ 0.99	\$ 0.13
	12	\$ 0.08	\$ 0.26	\$ 0.90	\$ 0.13
2016	1	\$ 0.03	\$ 0.11	\$ 0.60	\$ 0.06
	2	\$ 0.06	\$ 0.26	\$ 1.09	\$ 0.07
	3	\$ 0.07	\$ 0.33	\$ 1.00	\$ 0.09
	4	\$ 0.08	\$ 0.18	\$ 1.07	\$ 0.09
	5	\$ 0.06	\$ 0.12	\$ 0.59	\$ 0.05
	6	\$ 0.03	\$ 0.10	\$ 0.45	\$ 0.04
	7	\$ 0.02	\$ 0.08	\$ 0.47	\$ 0.05
	8	\$ 0.03	\$ 0.19	\$ 0.66	\$ 0.08
	9	\$ 0.03	\$ 0.13	\$ 0.51	\$ 0.05
	10	\$ 0.08	\$ 0.12	\$ 0.85	\$ 0.08
	11	\$ 0.04	\$ 0.18	\$ 1.00	\$ 0.06
	12	\$ 0.07	\$ 0.13	\$ 1.21	\$ 0.08

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ERCOT-wide Cumulative PNM			
year	month	pnm	pnm_accum
2015	0	\$ -	\$ -
	1	\$ 1,009.59	\$ 1,009.59
	2	\$ 3,289.14	\$ 4,298.73
	3	\$ 3,800.40	\$ 8,099.13
	4	\$ 1,900.94	\$ 10,000.07
	5	\$ 4,578.64	\$ 14,578.71
	6	\$ 720.30	\$ 15,299.01
	7	\$ 2,945.67	\$ 18,244.68
	8	\$ 7,767.43	\$ 26,012.11
	9	\$ 1,612.54	\$ 27,624.65
	10	\$ 1,283.56	\$ 28,908.21
	11	\$ 1,529.59	\$ 30,437.80
	12	\$ 1,209.77	\$ 31,647.57
2016	0	\$ -	\$ -
	1	\$ 1,160.69	\$ 1,160.69
	2	\$ 720.57	\$ 1,881.26
	3	\$ 3,883.41	\$ 5,764.67
	4	\$ 2,389.99	\$ 8,154.66
	5	\$ 1,661.50	\$ 9,816.16
	6	\$ 1,922.76	\$ 11,738.92
	7	\$ 2,969.44	\$ 14,708.36
	8	\$ 5,321.18	\$ 20,029.54
	9	\$ 3,967.65	\$ 23,997.19
	10	\$ 1,824.61	\$ 25,821.80
	11	\$ 2,510.79	\$ 28,332.59
	12	\$ 1,658.38	\$ 29,990.97

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DA vs. RT Load Forecast Error by Hour Ending							
year	month	HE_1_4	HE_13_16	HE_17_20	HE_21_24	HE_5_8	HE_9_12
2015	1	336	(342)	(251)	93	137	75
	2	155	(718)	(639)	(325)	244	(334)
	3	(246)	(160)	(425)	(430)	(253)	(54)
	4	34	585	680	192	88	359
	5	18	330	761	350	(23)	114
	6	(219)	(317)	(166)	(338)	(167)	(364)
	7	(403)	490	587	126	(232)	136
	8	55	667	769	280	143	910
	9	(4)	130	81	114	129	171
	10	(78)	324	206	294	(161)	(13)
	11	(270)	(547)	(492)	(457)	(190)	(207)
	12	156	(270)	47	20	38	(128)
2016	1	455	14	371	163	473	142
	2	39	83	148	42	(36)	150
	3	31	288	300	89	(136)	(82)
	4	(271)	220	97	(82)	(320)	(147)
	5	(44)	460	285	117	(69)	163
	6	(488)	(261)	(356)	(518)	(348)	(451)
	7	(163)	507	735	306	(231)	240
	8	(578)	(65)	41	(258)	(741)	(717)
	9	(358)	305	319	87	(433)	(30)
	10	(312)	371	(41)	(310)	(475)	50
	11	(329.38)	(145.97)	239.85	(237.16)	(138.79)	(234.25)
	12	(40.58)	(60.75)	281.67	(38.46)	516.36	82.74

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Monthly Average of Wind Generation by Hour Ending							
year	month	HE_1_4	HE_13_16	HE_17_20	HE_21_24	HE_5_8	HE_9_12
2015	1	3,597	3,424	3,264	3,738	3,879	3,471
	2	5,036	3,927	3,961	5,045	4,476	3,988
	3	4,182	2,295	2,465	3,622	3,701	2,532
	4	6,218	4,090	5,011	6,002	5,105	4,209
	5	6,280	4,882	5,081	5,617	5,362	5,000
	6	5,457	3,335	4,120	5,036	4,199	3,209
	7	7,034	3,176	4,275	5,973	5,779	4,094
	8	5,692	2,309	3,357	5,275	4,380	2,803
	9	5,853	2,834	3,476	5,403	4,681	3,394
	10	5,574	3,631	3,871	5,329	4,899	3,913
	11	6,250	5,952	5,683	6,578	6,216	5,852
	12	6,634	5,535	5,484	6,817	6,494	5,481
2016	1	6,300	4,581	4,663	6,253	6,228	5,019
	2	7,602	5,772	5,779	7,573	7,552	6,109
	3	7,872	6,033	6,013	7,565	7,793	6,833
	4	7,356	5,020	5,488	6,921	6,559	5,437
	5	7,414	5,363	6,245	7,275	6,347	5,617
	6	5,963	3,648	4,840	5,845	4,816	3,741
	7	8,903	5,074	6,793	8,315	7,411	5,948
	8	5,644	3,670	4,814	5,613	4,238	3,529
	9	6,159	3,957	4,561	6,057	5,295	4,291
	10	8,472	4,634	5,455	8,674	7,449	5,548
	11	7,043	4,855	5,049	6,718	6,517	5,225
	12	7,653	5,588	5,849	7,549	7,270	6,395

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RT Congestion Constraint Rankings - Top 10 Constraints by Binding Frequency and Top 10 Constraints by Total Congestion Rent																	
category	year	item	rankvar	rank	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
FREQ_EXIST	2016	LISTON (LISTON)	8,915	1	518	862	690	442	479	532	2,220	1,235	241	120	986	590	
FREQ_EXIST	2016	JAVALT_MOLINA1_1 (JAVALTAP-MOLINA)	7,255	2	1,127	1,613	2,170	1,369	935	41	-	-	-	-	-	-	
FREQ_EXIST	2016	JK_TOKSW_1 (TOKSW-JK_CK)	6,114	3	39	-	65	239	236	789	932	463	1,490	1,587	141	133	
FREQ_EXIST	2016	38T365_1 (WIRTZ-FLATRO)	5,332	4	167	759	1,039	286	1,344	357	1,076	302	2	-	-	-	
FREQ_EXIST	2016	PNHNDL (PNHNDL)	5,256	5	5	165	934	3	737	15	63	1	22	77	2,516	718	
FREQ_EXIST	2016	1030_B (BOSQUESW-RGH)	4,262	6	100	248	612	467	424	209	164	-	-	774	1,264	-	
FREQ_EXIST	2016	SNG-ZEN (SNG-ZEN)	3,661	7	-	-	54	-	212	427	844	470	791	661	118	84	
FREQ_EXIST	2016	BRUNL_69_1 (BRUNL-BRUNI)	3,500	8	503	274	221	95	57	91	1,302	531	8	-	174	244	
FREQ_EXIST	2016	ASPM_69T1 (ASPM-ASPM)	2,821	9	-	-	186	8	2,627	-	-	-	-	-	-	-	
FREQ_EXIST	2016	RIOHND_ERIOHND_1 (MV_RIOHO-RIOHONDO)	2,314	10	736	1,495	-	7	-	40	-	-	-	36	-	-	
TOP10_RENT	2016	SNG-ZEN (SNG-ZEN)	\$ 48.86	1	\$ -	\$ -	\$ 0.06	\$ -	\$ 2.54	\$ 2.44	\$ 5.33	\$ 15.97	\$ 15.40	\$ 5.23	\$ 0.12	\$ 1.75	
TOP10_RENT	2016	MDO_AT1 (MDO-MDO)	\$ 47.96	2	\$ -	\$ -	\$ -	\$ -	\$ 14.49	\$ 33.47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2016	PNHNDL (PNHNDL)	\$ 30.86	3	\$ 0.01	\$ 0.31	\$ 4.26	\$ 0.01	\$ 3.29	\$ 0.05	\$ 0.17	\$ 0.00	\$ 0.11	\$ 0.28	\$ 17.82	\$ 4.54	
TOP10_RENT	2016	FTW_W_DE_1 (W_DENT-FTWORTH)	\$ 29.84	4	\$ -	\$ -	\$ -	\$ 10.03	\$ 5.46	\$ 1.70	\$ 1.09	\$ 9.87	\$ 1.59	\$ 0.10	\$ -	\$ -	
TOP10_RENT	2016	LOMA_A_L_FRES1_1 (L_FRESNO-LOMA_ALT)	\$ 26.95	5	\$ 6.90	\$ 4.08	\$ 11.39	\$ 3.65	\$ -	\$ -	\$ 0.92	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2016	JK_TOKSW_1 (TOKSW-JK_CK)	\$ 15.39	6	\$ 0.06	\$ -	\$ 0.05	\$ 0.63	\$ 0.82	\$ 4.96	\$ 1.50	\$ 1.80	\$ 2.36	\$ 2.80	\$ 0.08	\$ 0.33	
TOP10_RENT	2016	6265_D (MRSDO-RHTP2)	\$ 15.05	7	\$ -	\$ 1.58	\$ 5.86	\$ 7.14	\$ -	\$ 0.46	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2016	6265_A (EMSES-MRSDO)	\$ 14.46	8	\$ 0.00	\$ 4.43	\$ 4.75	\$ 1.24	\$ -	\$ 0.07	\$ -	\$ -	\$ -	\$ 0.43	\$ -	\$ 3.54	
TOP10_RENT	2016	AIR_W_DE_1 (W_DENT-JMCRSTL)	\$ 10.85	9	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2.61	\$ 1.03	\$ 2.31	\$ 4.49	\$ 0.42	\$ -	\$ -	
TOP10_RENT	2016	EMSES_AX2 (EMSES-EMSES)	\$ 9.91	10	\$ -	\$ -	\$ -	\$ 7.86	\$ -	\$ -	\$ 2.05	\$ -	\$ -	\$ -	\$ -	\$ -	

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DA Congestion Constraint Rankings - Top 10 Constraints by Binding Frequency and Top 10 Constraints by Total Congestion Rent																	
category	year	item	rankvar	rank	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
FREQ_EXIST	2016	38T365_1 (WIRTZ-FLATRO)	3,573	1	88	286	502	284	591	603	623	359	212	11	2	12	
FREQ_EXIST	2016	EAGLEP_ESCOND1_1 (ESCONDID-EAGLE PS)	2,395	2	-	122	73	30	84	384	544	396	261	332	103	66	
FREQ_EXIST	2016	BRUNI_69_1 (BRUNI-BRUNI)	2,105	3	144	375	277	109	151	60	342	221	100	12	102	212	
FREQ_EXIST	2016	JAVALT_MOLINA1_1 (JAVALTAP-MOLINA)	2,039	4	308	496	523	345	351	11	-	-	-	-	-	5	
FREQ_EXIST	2016	LISTON (LISTON)	2,008	5	132	297	208	153	106	21	425	263	103	15	117	168	
FREQ_EXIST	2016	ASHERT_CATARI1_1 (ASHERTON-CATARINA)	1,846	6	32	135	52	98	67	116	254	178	265	341	188	120	
FREQ_EXIST	2016	DIL_COTU_1 (DILLEYSW-COTULAS)	1,807	7	-	-	3	1	-	27	290	225	366	439	287	169	
FREQ_EXIST	2016	HEXT_YELWJC1_1 (YELWJCKT-HEXT)	1,723	8	70	66	39	262	59	13	107	112	165	353	301	176	
FREQ_EXIST	2016	1030_B (BOSQUESW-RGH)	1,684	9	25	56	225	156	310	323	87	18	-	144	288	52	
FREQ_EXIST	2016	LOMA_A_L_FRES1_1 (L_FRESNO-LOMA_ALT)	1,404	10	377	389	391	241	-	-	6	-	-	-	-	-	
TOP10_RENT	2016	MDO_AT1 (MDO-MDO)	\$ 37.84	1	\$ 0.00	\$ -	\$ 0.58	\$ 0.75	\$ 6.62	\$ 28.57	\$ 0.81	\$ 0.01	\$ 0.28	\$ 0.07	\$ 0.25	\$ 0.00	
TOP10_RENT	2016	SNG-ZEN (SNG-ZEN)	\$ 33.66	2	\$ -	\$ 0.01	\$ 0.02	\$ 0.14	\$ 2.62	\$ 2.18	\$ 8.31	\$ 9.36	\$ 5.92	\$ 3.37	\$ 1.66	\$ 0.08	
TOP10_RENT	2016	PNHNDL (PNHNDL)	\$ 19.72	3	\$ 0.00	\$ 0.25	\$ 1.63	\$ 0.05	\$ 1.47	\$ 0.70	\$ 0.18	\$ 0.03	\$ 0.12	\$ 0.37	\$ 11.40	\$ 3.51	
TOP10_RENT	2016	LOMA_A_L_FRES1_1 (L_FRESNO-LOMA_ALT)	\$ 17.94	4	\$ 1.18	\$ 2.40	\$ 9.71	\$ 4.53	\$ -	\$ -	\$ 0.11	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2016	FTW_W_DE_1 (W_DENT-FTWORTH)	\$ 14.86	5	\$ -	\$ 0.08	\$ 0.15	\$ 4.72	\$ 4.16	\$ 0.10	\$ 1.06	\$ 1.72	\$ 1.00	\$ 1.88	\$ -	\$ -	
TOP10_RENT	2016	JK_TOKSW_1 (TOKSW-JK CK)	\$ 13.00	6	\$ 0.05	\$ -	\$ 0.58	\$ 0.58	\$ 0.84	\$ 4.45	\$ 1.69	\$ 0.74	\$ 0.71	\$ 2.02	\$ 1.25	\$ 0.09	
TOP10_RENT	2016	260_A_1 (JEWET-SNG)	\$ 12.13	7	\$ 0.05	\$ 0.39	\$ -	\$ 0.47	\$ 0.05	\$ 0.82	\$ 0.02	\$ 0.18	\$ 0.58	\$ 7.63	\$ 1.11	\$ 0.82	
TOP10_RENT	2016	VALIMP (VALIMP)	\$ 11.93	8	\$ -	\$ 0.04	\$ 0.20	\$ 0.16	\$ 2.78	\$ 4.71	\$ 0.01	\$ 0.04	\$ 0.58	\$ 3.31	\$ 0.10	\$ -	
TOP10_RENT	2016	AIR_W_DE_1 (W_DENT-JMCRSTL)	\$ 11.52	9	\$ -	\$ -	\$ -	\$ -	\$ 0.01	\$ 1.41	\$ 4.91	\$ 2.70	\$ 1.30	\$ 1.21	\$ -	\$ -	
TOP10_RENT	2016	BETHK_66_A (HK-BET)	\$ 11.49	10	\$ -	\$ 0.00	\$ 0.00	\$ 0.91	\$ 0.01	\$ 1.36	\$ 2.20	\$ 4.31	\$ 2.24	\$ 0.39	\$ 0.08	\$ -	

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Top 10 CRR Pairs Ranked by Monthly Auction Values - Top 10 PTP Obligations by Total Transaction Values and Top 10 PTP Options by Total Transaction Values																		
ft	option	year	pair	total_value	rank	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
N		2016	HB NORTH-HB HOUSTON	\$ 14.17	1	\$ 0.02	\$ 0.08	\$ 0.78	\$ 0.85	\$ 1.48	\$ 1.81	\$ 1.31	\$ 1.81	\$ 1.66	\$ 2.19	\$ 1.67	\$ 0.51	
N		2016	HB SOUTH-LZ SOUTH	\$ 8.18	2	\$ 0.76	\$ 0.64	\$ 0.80	\$ 0.72	\$ 0.76	\$ 0.69	\$ 0.60	\$ 0.62	\$ 0.96	\$ 0.49	\$ 0.59	\$ 0.55	
N		2016	HB NORTH-LZ NORTH	\$ 7.03	3	\$ 0.24	\$ 0.21	\$ 0.15	\$ 0.43	\$ 0.83	\$ 0.89	\$ 0.77	\$ 1.04	\$ 0.86	\$ 0.61	\$ 0.59	\$ 0.41	
N		2016	HB HOUSTON-LZ HOUSTON	\$ 4.24	4	\$ 0.12	\$ 0.08	\$ 0.08	\$ 0.11	\$ 0.28	\$ 0.51	\$ 0.64	\$ 0.91	\$ 0.68	\$ 0.49	\$ 0.19	\$ 0.16	
N		2016	HB WEST-HB NORTH	\$ 3.70	5	\$ 0.01	\$ 0.00	\$ 0.27	\$ 0.45	\$ 1.15	\$ 0.63	\$ 0.02	\$ 0.02	\$ 0.02	\$ 0.39	\$ 0.69	\$ 0.06	
N		2016	HB NORTH-HB SOUTH	\$ 3.64	6	\$ 0.03	\$ 0.05	\$ 0.12	\$ 0.28	\$ 0.47	\$ 0.33	\$ 0.14	\$ 0.74	\$ 0.39	\$ 0.48	\$ 0.40	\$ 0.21	
N		2016	HB WEST-LZ WEST	\$ 2.71	7	\$ 0.29	\$ 0.23	\$ 0.13	\$ 0.11	\$ 0.24	\$ 0.56	\$ 0.29	\$ 0.25	\$ 0.15	\$ 0.13	\$ 0.17	\$ 0.16	
N		2016	CPSES UNIT2-HB NORTH	\$ 1.05	8	\$ 0.01	\$ 0.01	\$ 0.04	\$ 0.18	\$ 0.17	\$ 0.04	\$ 0.01	\$ 0.02	\$ 0.10	\$ 0.14	\$ 0.20	\$ 0.13	
N		2016	CPSES UNIT1-HB NORTH	\$ 0.81	9	\$ 0.01	\$ 0.01	\$ 0.03	\$ 0.22	\$ 0.17	\$ 0.05	\$ 0.00	\$ 0.01	\$ 0.03	\$ 0.09	\$ 0.10	\$ 0.09	
N		2016	JCKCNTY2_ST2-LZ NORTH	\$ 0.59	10	\$ 0.02	\$ 0.02	\$ 0.01	\$ -	\$ 0.07	\$ 0.14	\$ 0.06	\$ 0.08	\$ 0.10	\$ 0.07	\$ -	\$ 0.02	
Y		2016	HB NORTH-LZ NORTH	\$ 3.44	1	\$ 0.27	\$ 0.25	\$ 0.09	\$ 0.16	\$ 0.27	\$ 0.41	\$ 0.37	\$ 0.53	\$ 0.40	\$ 0.23	\$ 0.24	\$ 0.23	
Y		2016	HB SOUTH-LZ SOUTH	\$ 2.28	2	\$ 0.21	\$ 0.15	\$ 0.13	\$ 0.30	\$ 0.38	\$ 0.20	\$ 0.23	\$ 0.22	\$ 0.17	\$ 0.12	\$ 0.10	\$ 0.07	
Y		2016	HB HOUSTON-LZ HOUSTON	\$ 1.82	3	\$ 0.06	\$ 0.05	\$ 0.09	\$ 0.13	\$ 0.11	\$ 0.18	\$ 0.23	\$ 0.35	\$ 0.32	\$ 0.19	\$ 0.06	\$ 0.06	
Y		2016	HB WEST-HB NORTH	\$ 1.36	4	\$ 0.07	\$ 0.14	\$ 0.16	\$ 0.16	\$ 0.13	\$ 0.42	\$ 0.10	\$ 0.06	\$ 0.11	\$ 0.00	\$ 0.01	\$ 0.00	
Y		2016	HB WEST-LZ WEST	\$ 1.23	5	\$ 0.21	\$ 0.17	\$ 0.14	\$ 0.11	\$ 0.09	\$ 0.08	\$ 0.10	\$ 0.06	\$ 0.07	\$ 0.07	\$ 0.07	\$ 0.04	
Y		2016	STP STP G1-LZ CPS	\$ 0.92	6	\$ 0.06	\$ 0.10	\$ 0.05	\$ 0.01	\$ 0.05	\$ 0.07	\$ 0.01	\$ 0.05	\$ 0.39	\$ 0.08	\$ 0.04	\$ 0.00	
Y		2016	STP STP G2-LZ CPS	\$ 0.81	7	\$ 0.06	\$ 0.10	\$ 0.05	\$ 0.01	\$ 0.05	\$ 0.07	\$ 0.01	\$ 0.04	\$ 0.38	\$ 0.03	\$ 0.01	\$ 0.00	
Y		2016	SAN SANMIGG1-LZ SOUTH	\$ 0.65	8	\$ 0.11	\$ 0.16	\$ 0.05	\$ 0.05	\$ 0.09	\$ 0.10	\$ 0.02	\$ 0.02	\$ 0.01	\$ 0.03	\$ 0.00	\$ -	
Y		2016	BORDAS ALL-LZ SOUTH	\$ 0.51	9	\$ 0.04	\$ 0.03	\$ 0.10	\$ 0.12	\$ 0.15	\$ 0.06	\$ 0.01	\$ -	\$ -	\$ -	\$ -	\$ -	
Y		2016	HB NORTH-HB HOUSTON	\$ 0.47	10	\$ 0.02	\$ 0.04	\$ 0.08	\$ 0.01	\$ 0.06	\$ 0.01	\$ 0.04	\$ 0.08	\$ 0.00	\$ 0.05	\$ 0.03	\$ 0.04	

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