

To the Public Utility Commission of Texas

ERCOT Wholesale Electricity Market Monthly Report

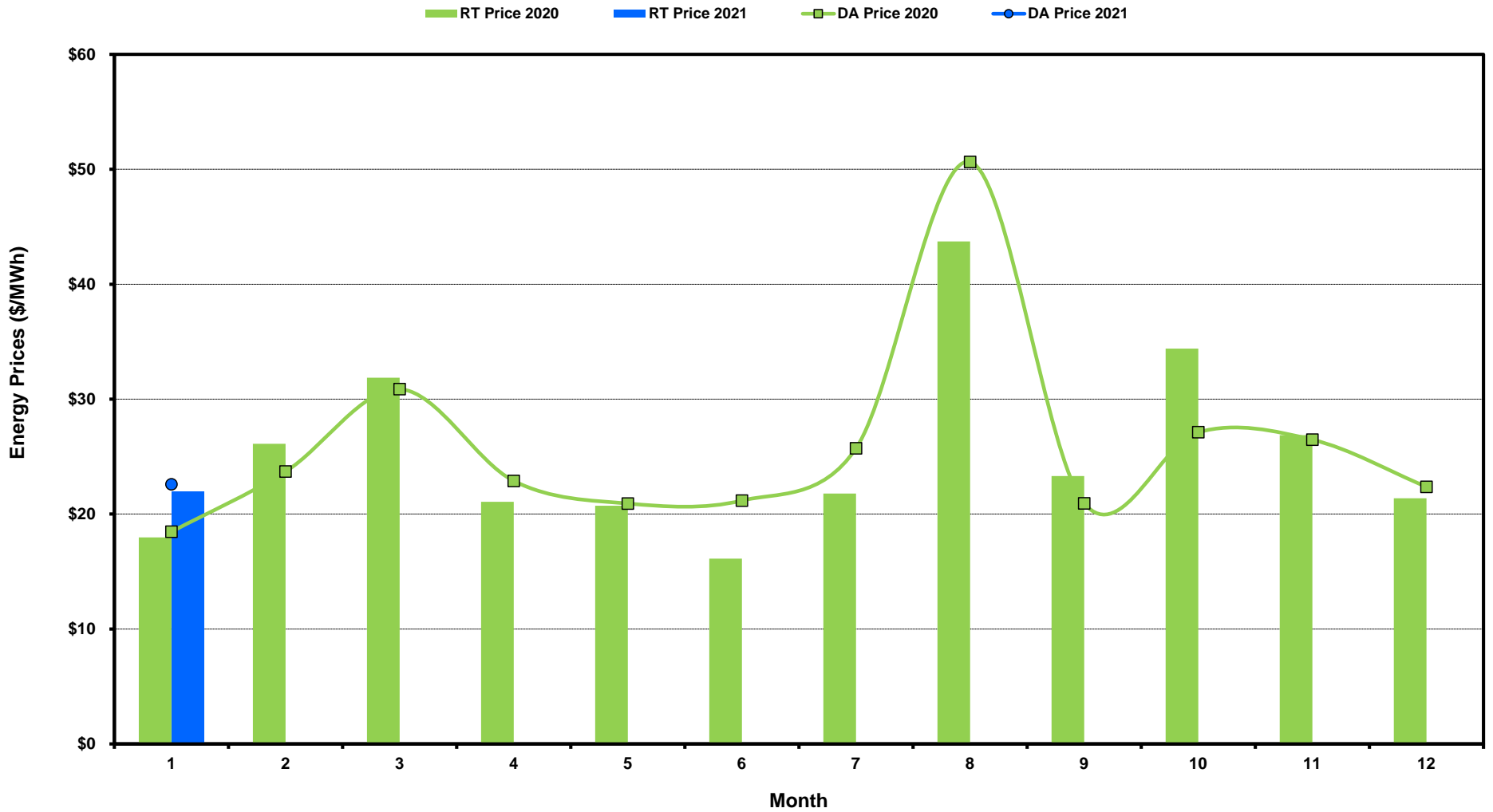
Wednesday, February 10, 2021

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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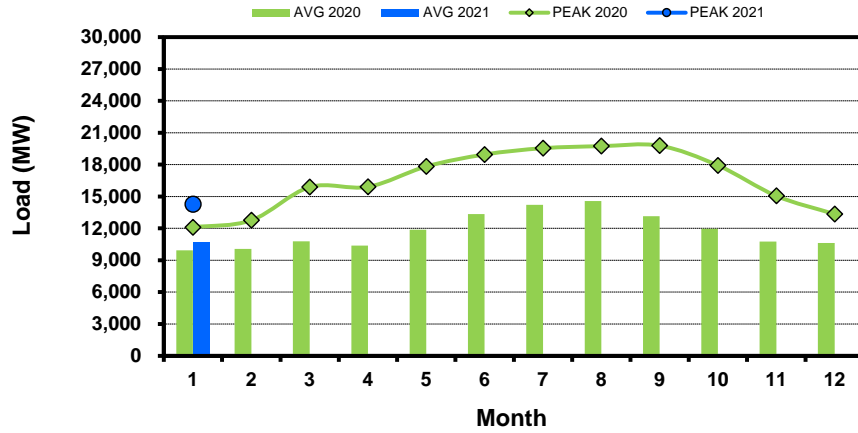
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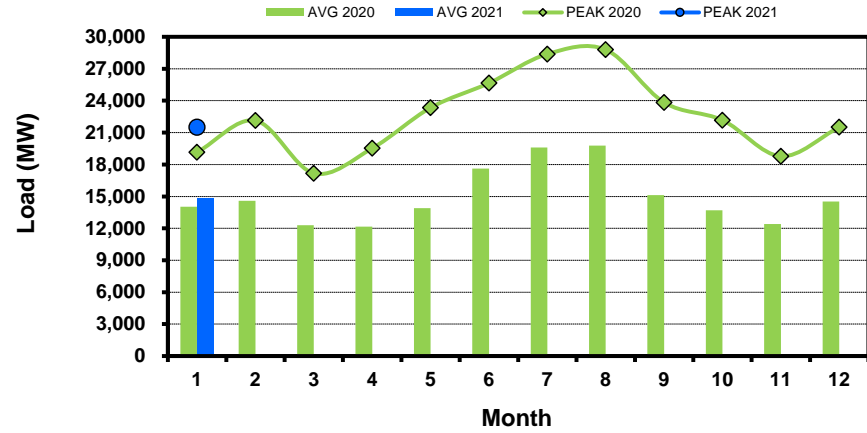
Load Zone Load Statistics

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

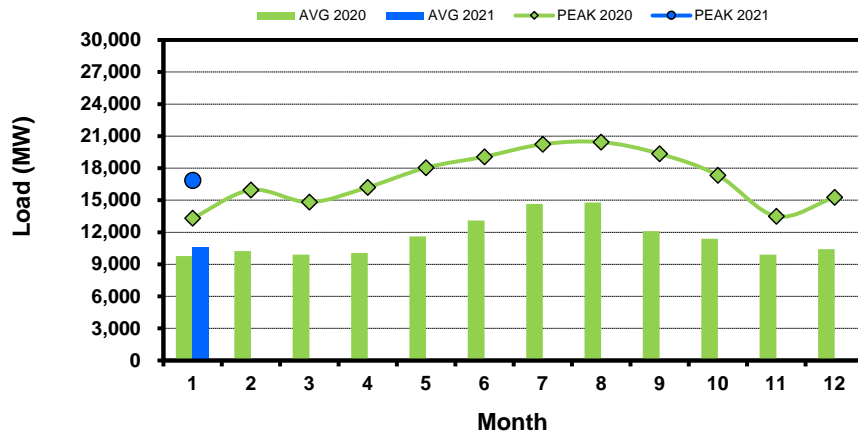
Houston Zone



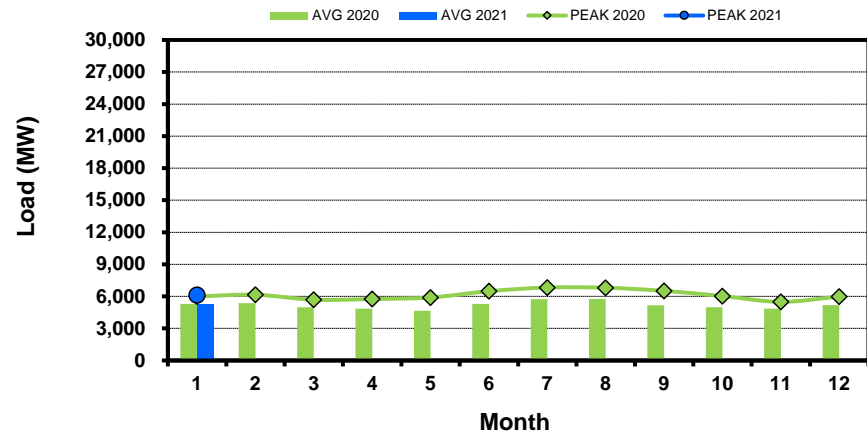
North Zone



South Zone



West Zone



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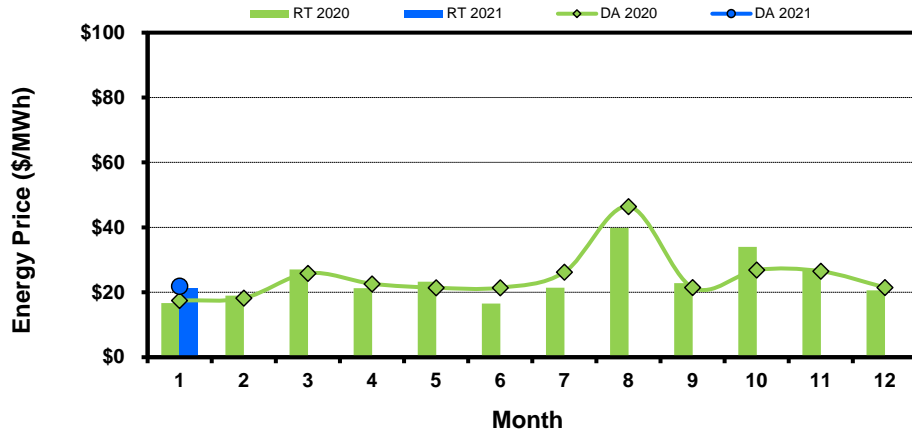
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Note: * Zonal load zone definition vs. Nodal comparable load zone definition: LZ_Houston=LZ_Houston; LZ_West=LZ_West; LZ_North=(LZ_North,LZ_RAYBN); LZ_South=(LZ_South,LZ_CPS,LZ_AEN,LZ_LCRA)

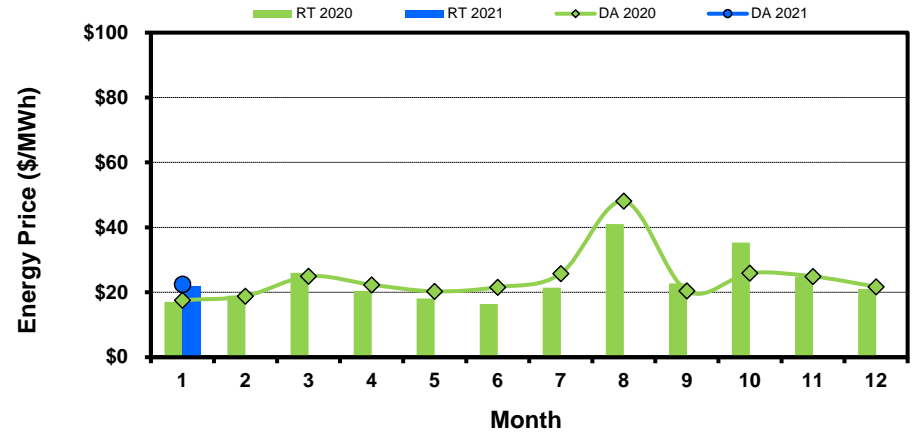
Load Zone Monthly Average Energy Price DA vs RT

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

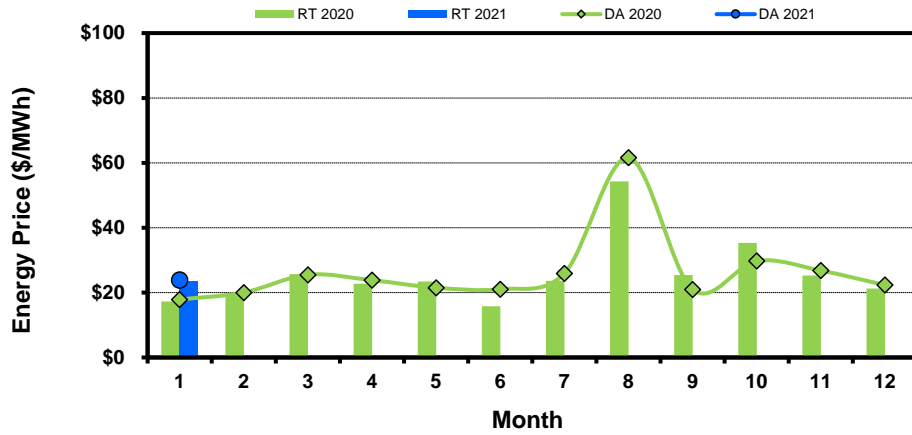
Houston Zone



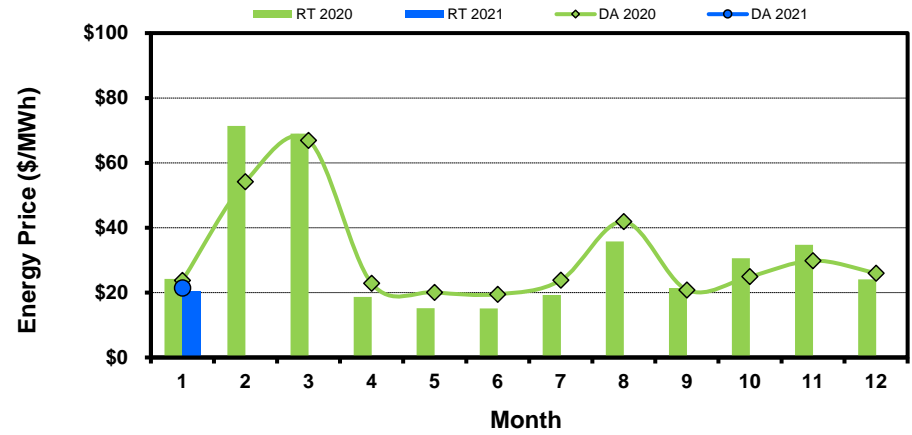
North Zone



South Zone



West Zone



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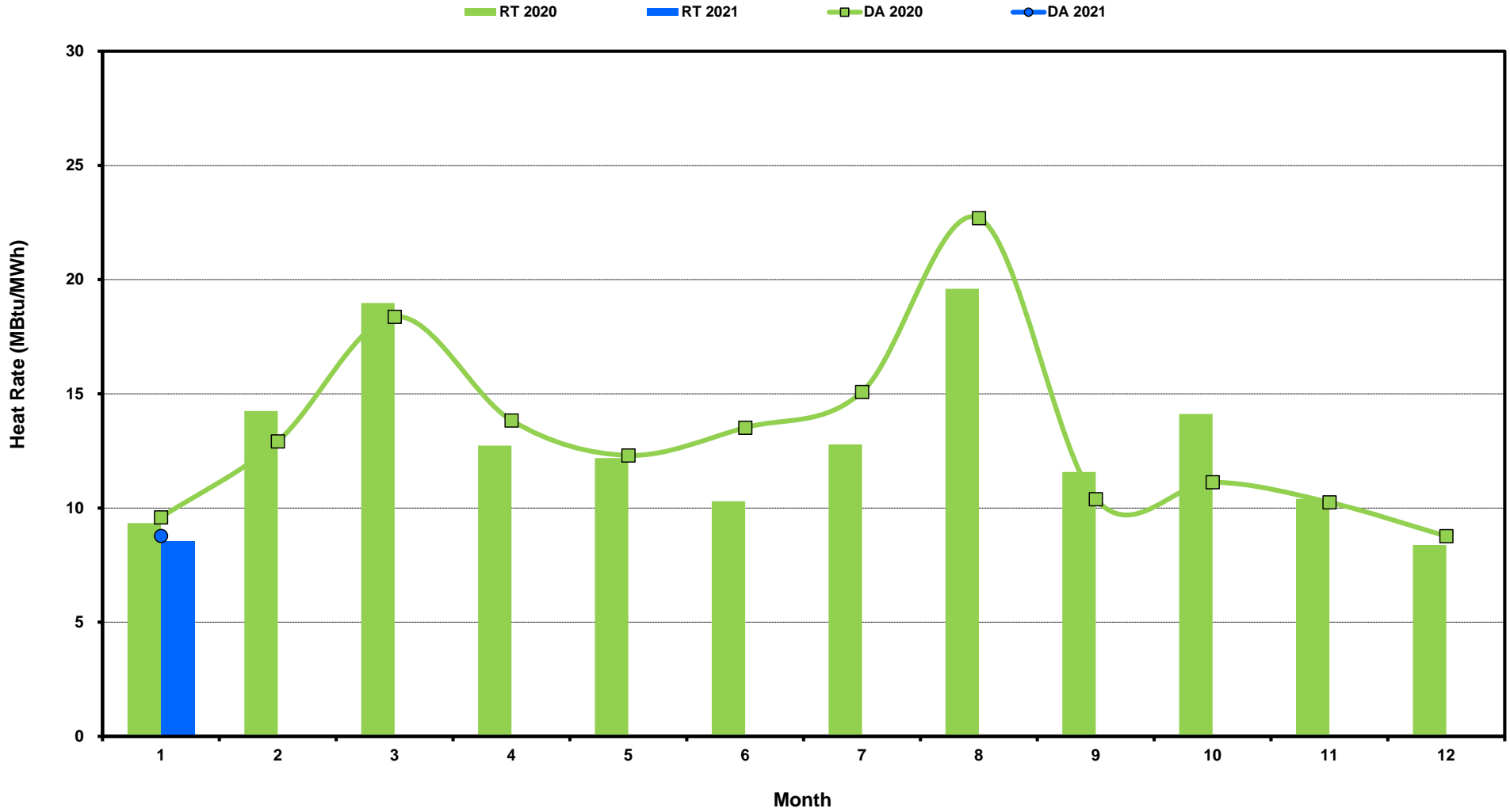
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Note: * Zonal load zone definition vs. Nodal comparable load zone definition: LZ_Houston=LZ_Houston; LZ_West=LZ_West; LZ_North=(LZ_North,LZ_RAYBN); LZ_South=(LZ_South,LZ_CPS,LZ_AEN,LZ_LCRA)

ERCOT-wide Monthly Implied Heat Rate DA vs RT

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



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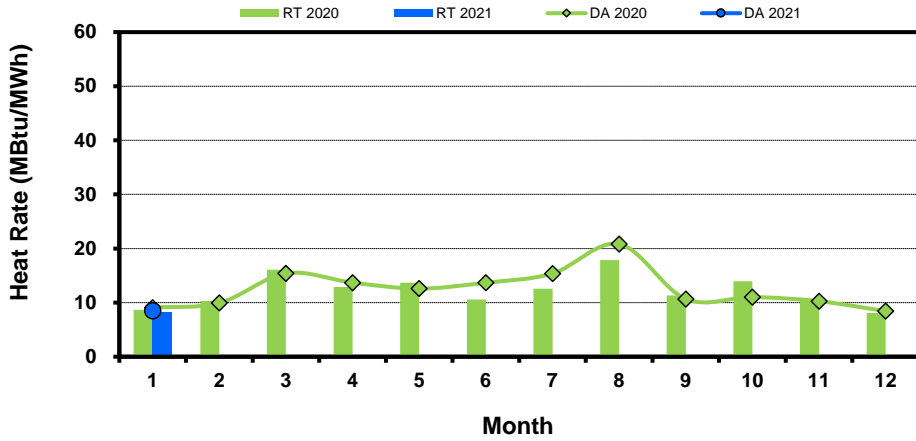
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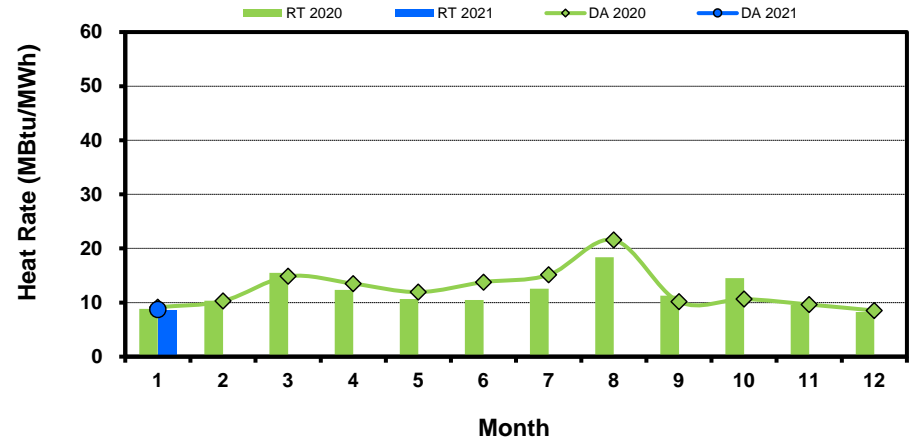
Load Zone Monthly Implied Heat Rate DA vs RT

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

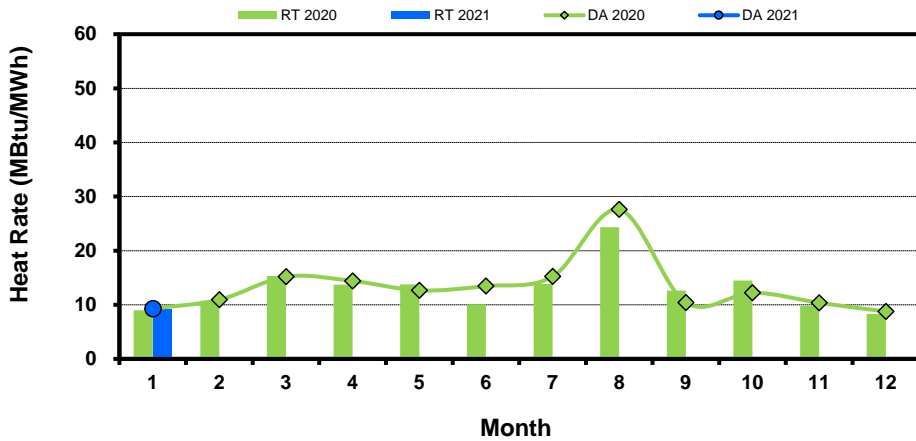
Houston Zone



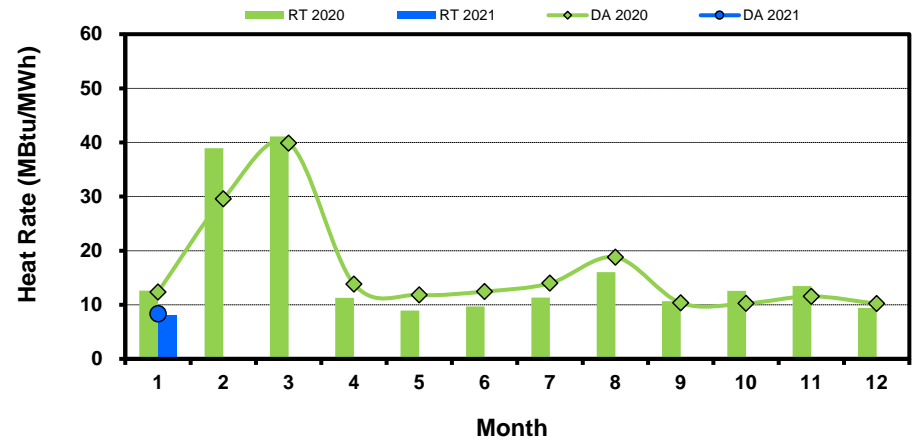
North Zone



South Zone



West Zone



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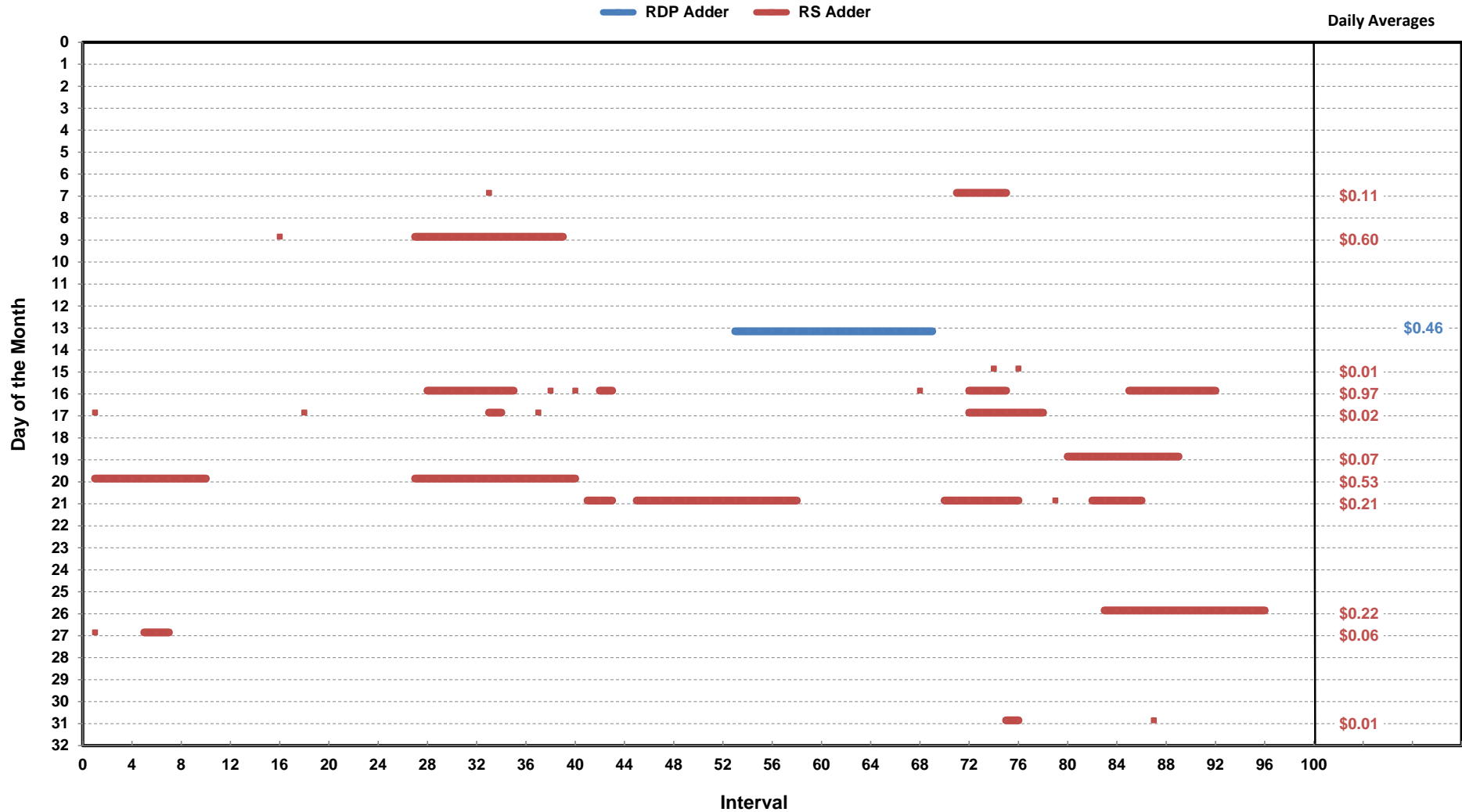
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Note: * Zonal load zone definition vs. Nodal comparable load zone definition: LZ_Houston=LZ_Houston; LZ_West=LZ_West; LZ_North=(LZ_North,LZ_RAYBN); LZ_South=(LZ_South,LZ_CPS,LZ_AEN,LZ_LCRA)

Daily ORDC Adders Average Values and Interval Duration

Jan-2021



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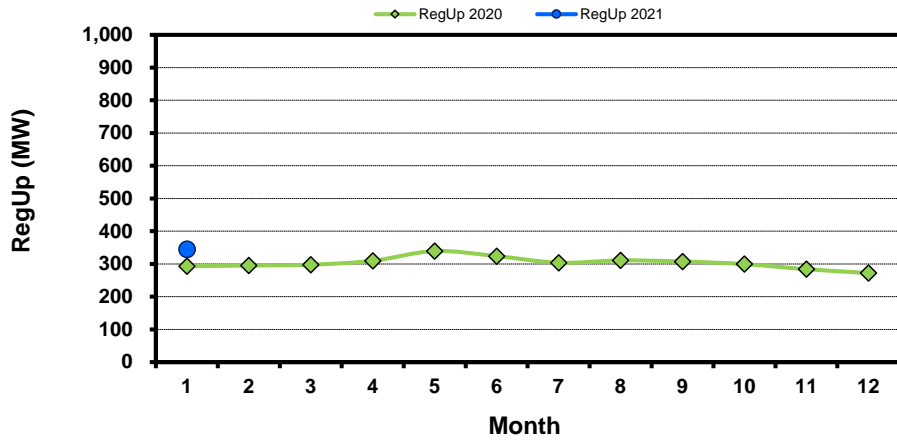
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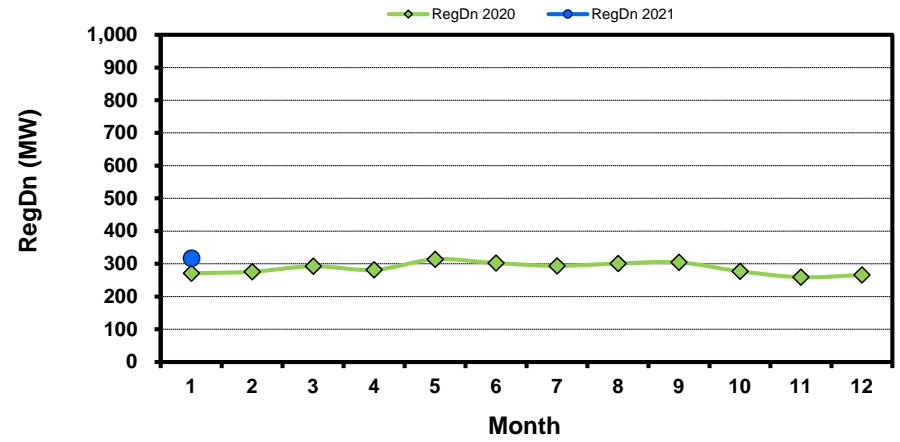
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Monthly Average of Ancillary Services Required MW

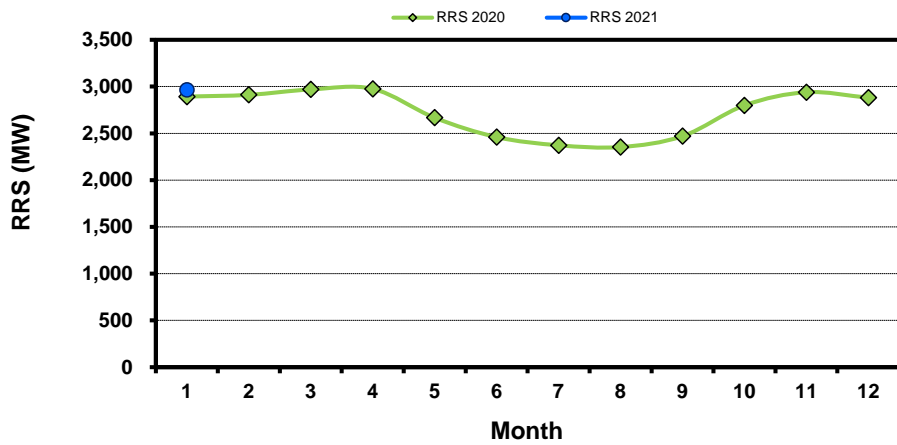
Regulation Up



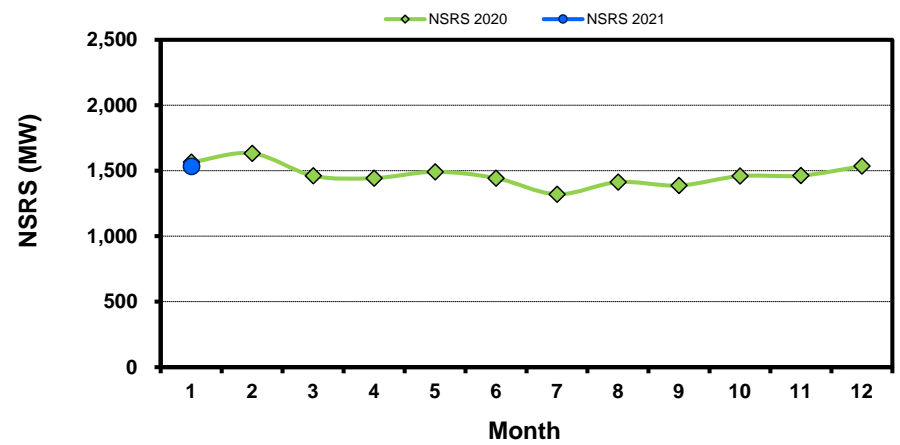
Regulation Down



Responsive Reserve



Non-Spin Reserve



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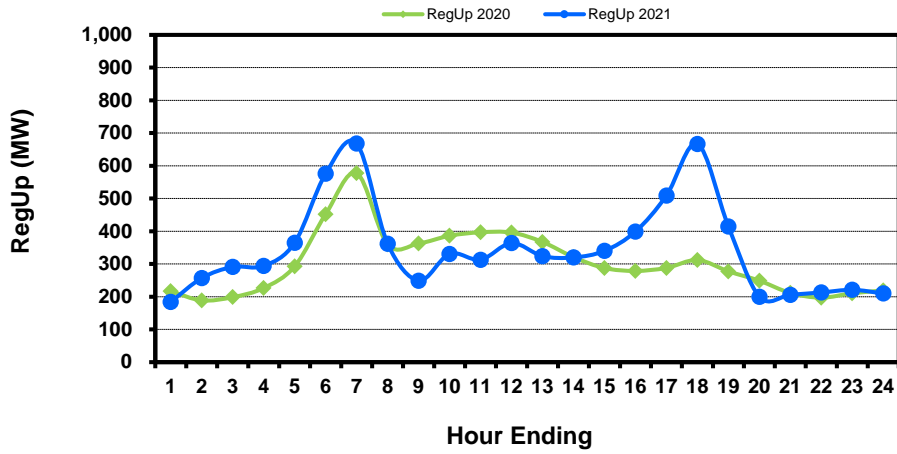
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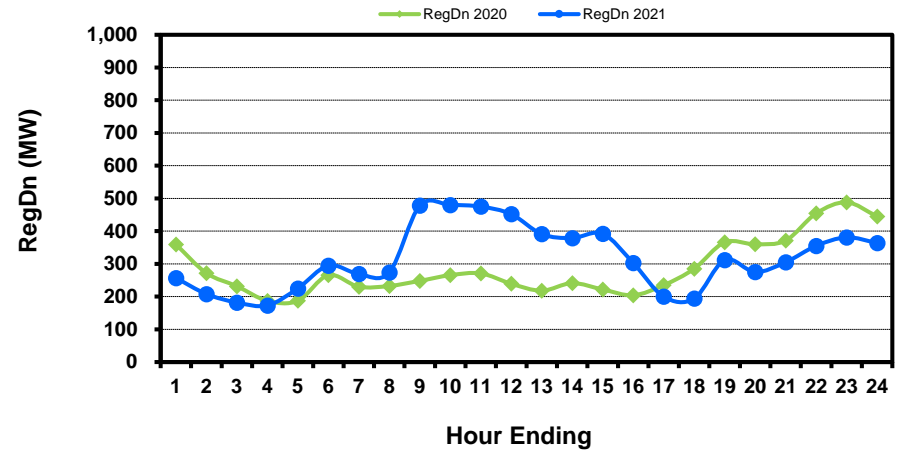
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Hourly Average of Ancillary Services Required MW

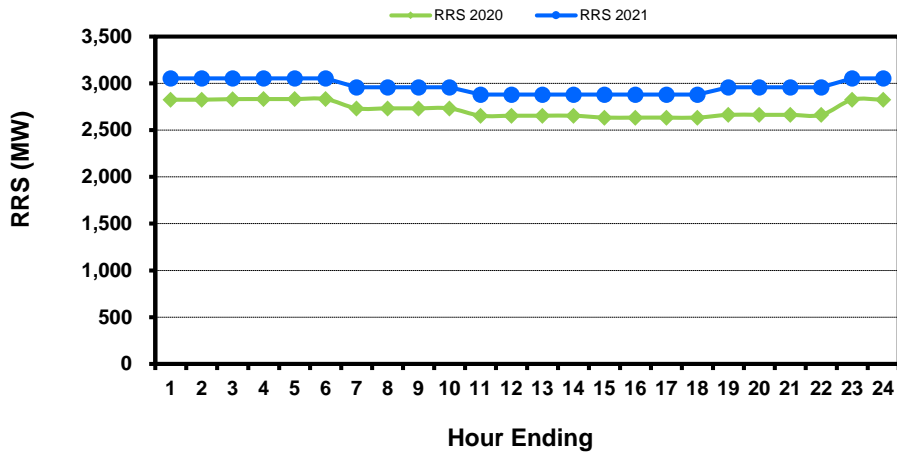
Regulation Up



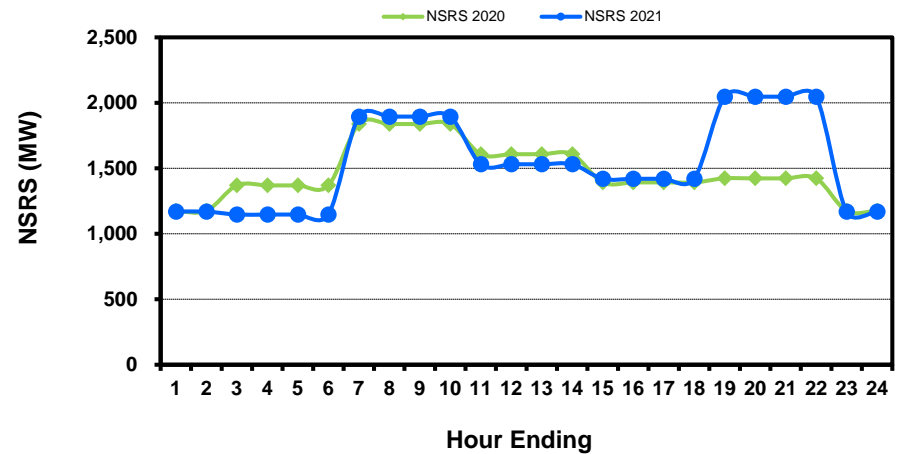
Regulation Down



Responsive Reserve



Non-Spin Reserve



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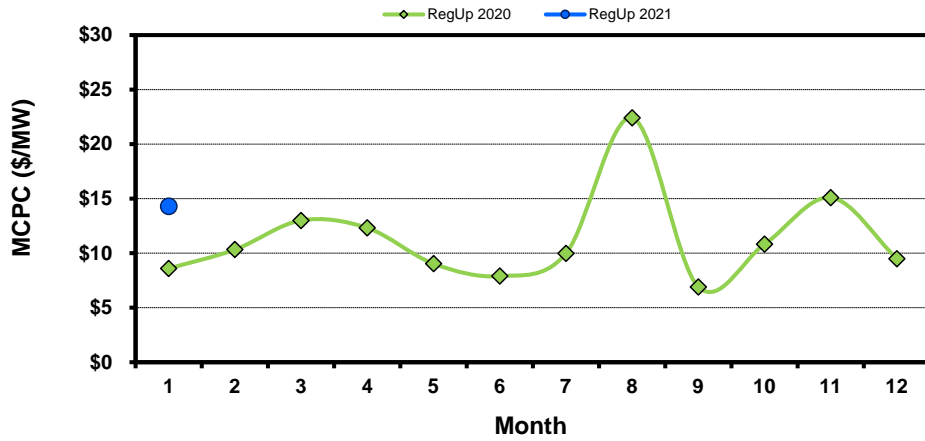
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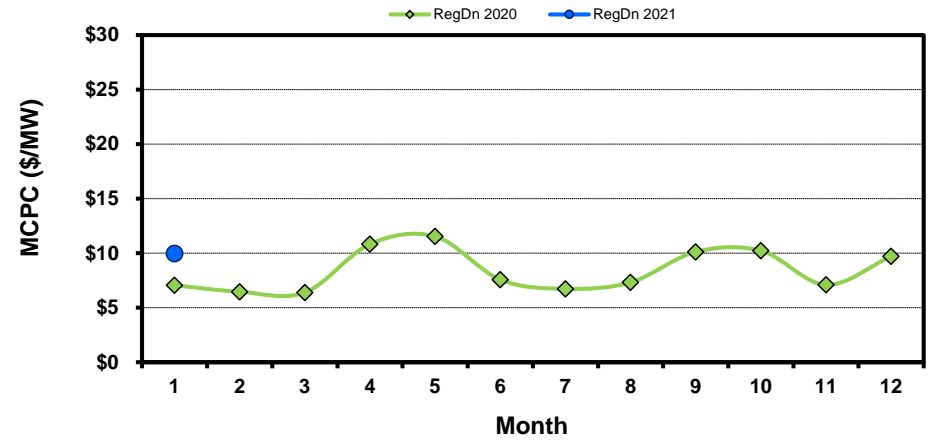
Monthly Average Ancillary Services Price

(weighted by A/S Quantities Required)

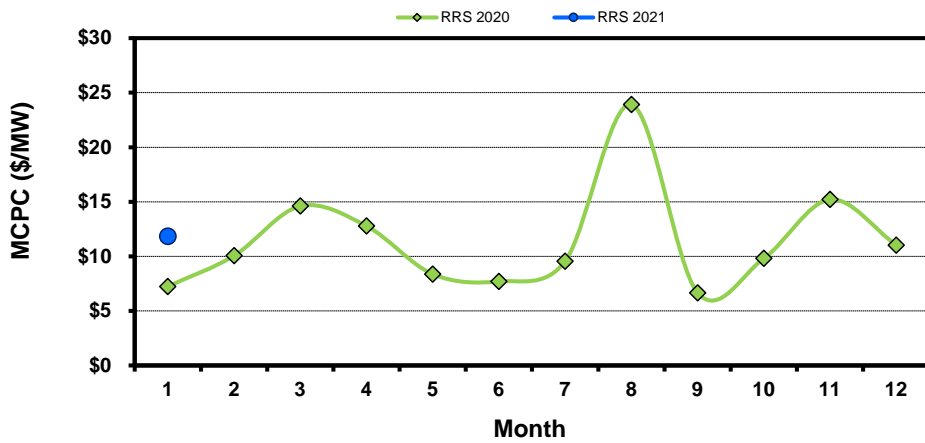
Regulation Up



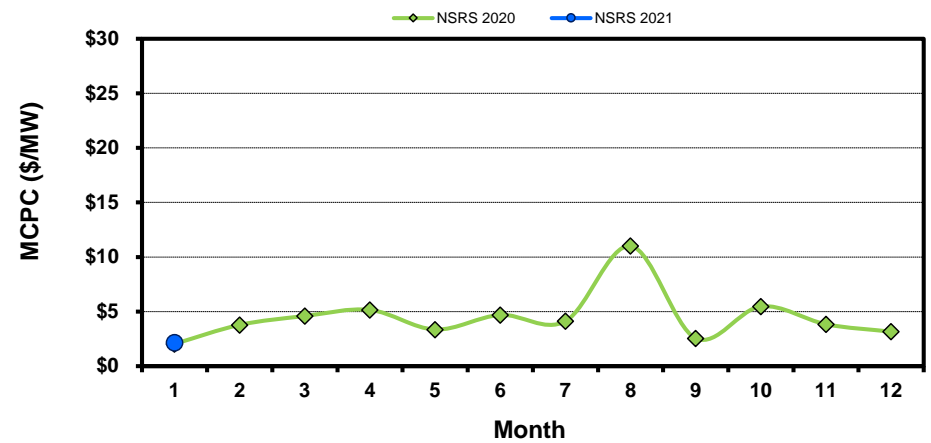
Regulation Down



Responsive Reserve



Non-Spin Reserve



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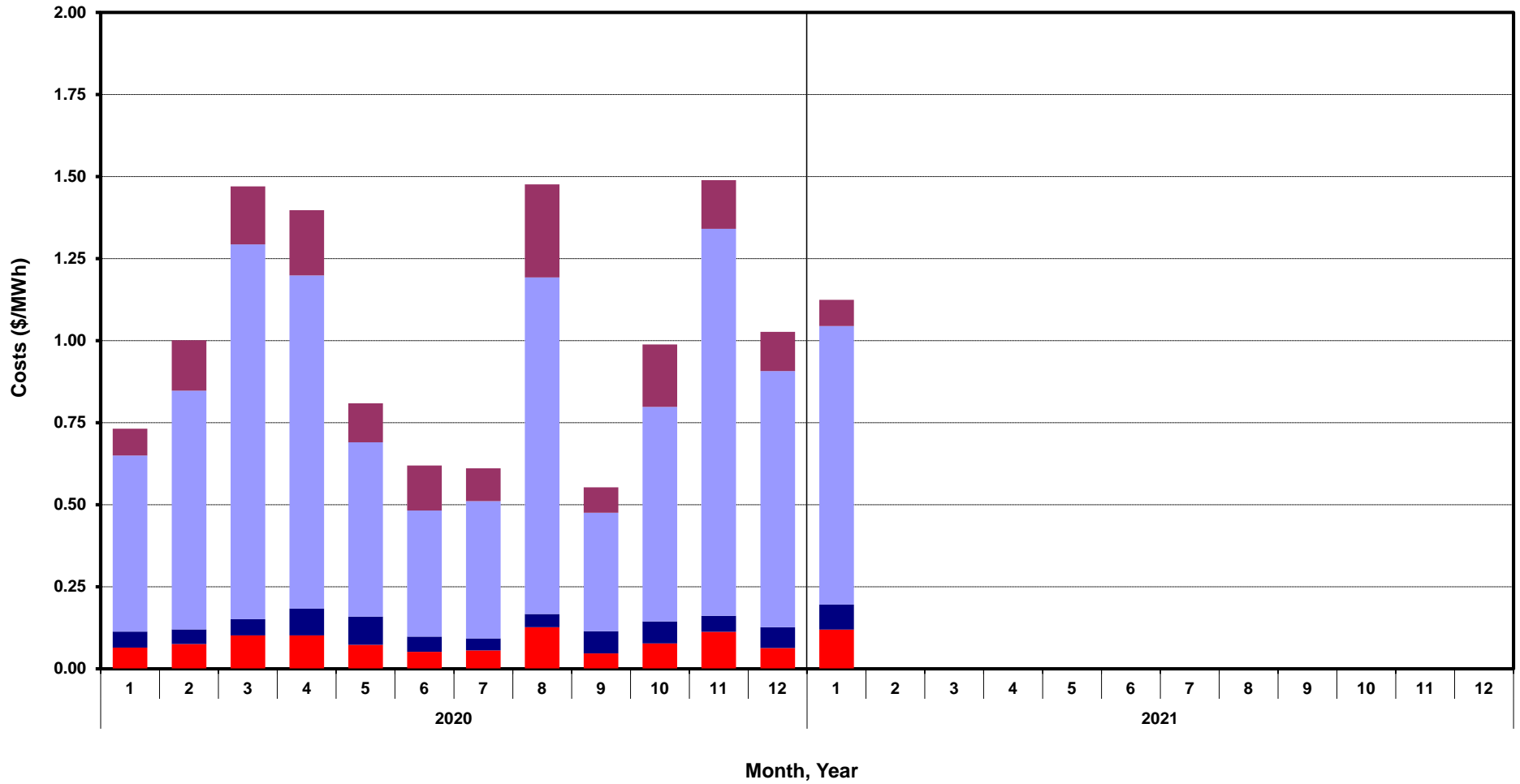
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Monthly Average A/S Cost per MWh Load

RegUp RegDn RRS NonSpin



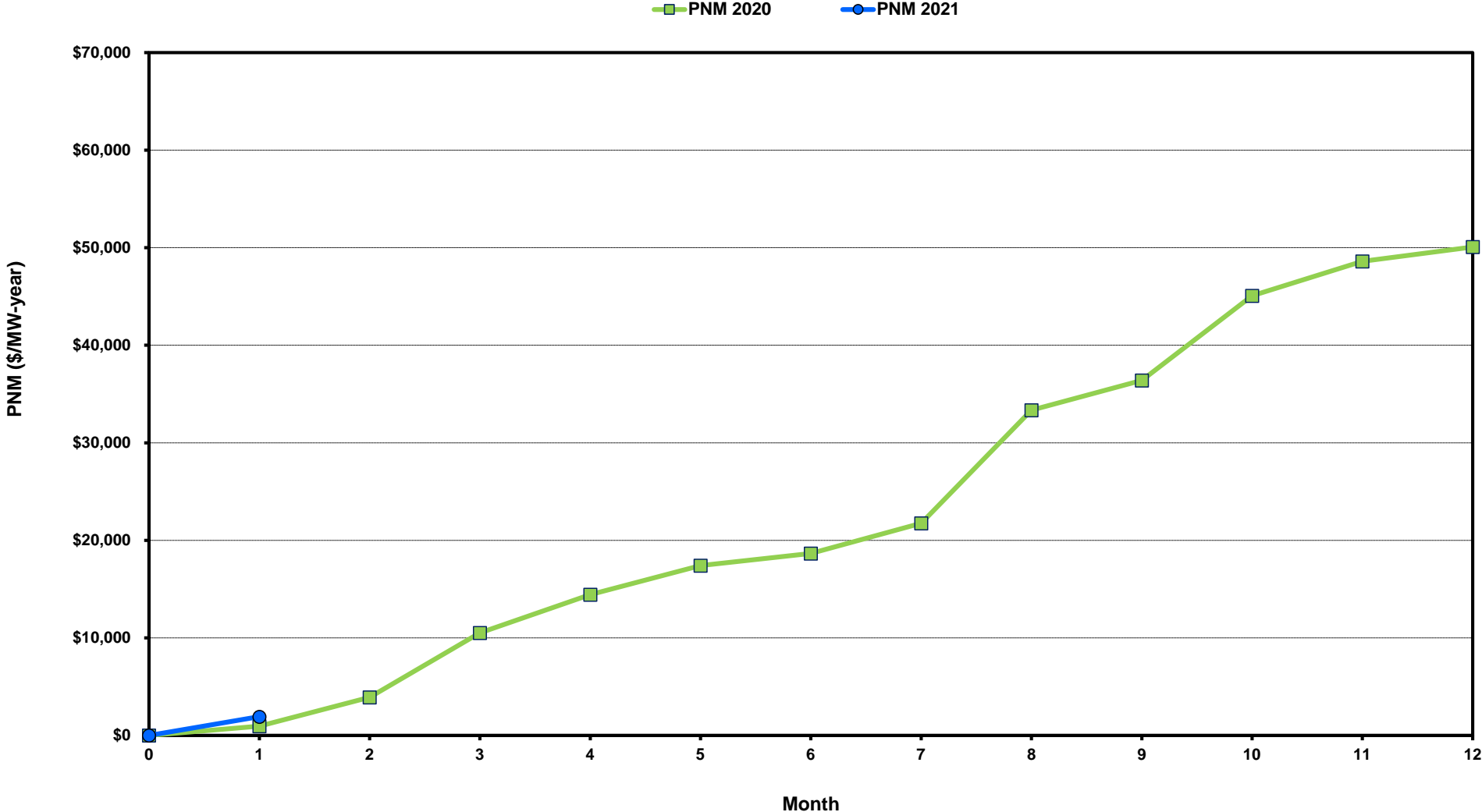
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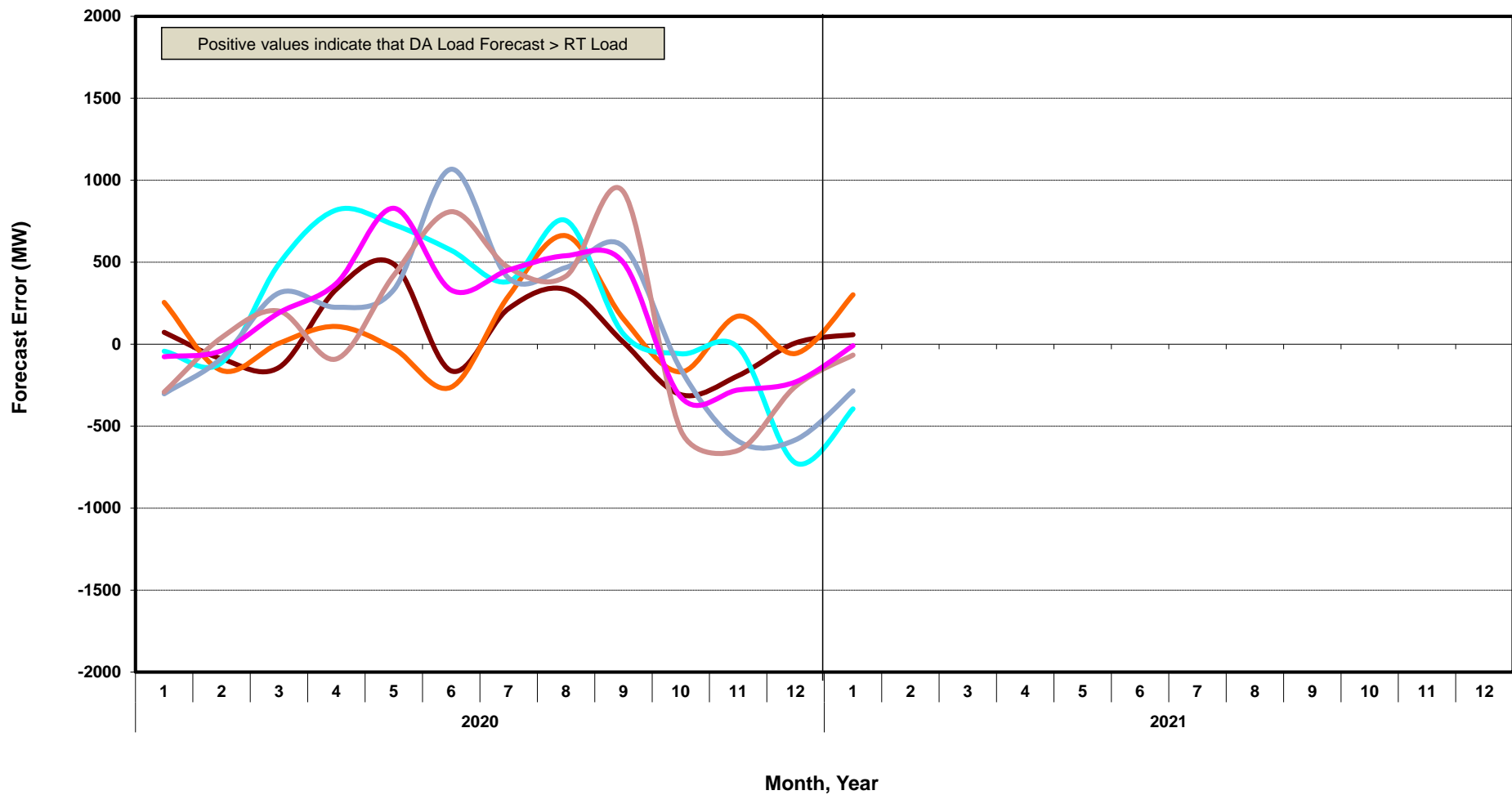
ERCOT-wide Cumulative Peaker Net Margin



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DA vs. RT Load Forecast Error by Hour Ending

HE_1_4 HE_5_8 HE_9_12 HE_13_16 HE_17_20 HE_21_24



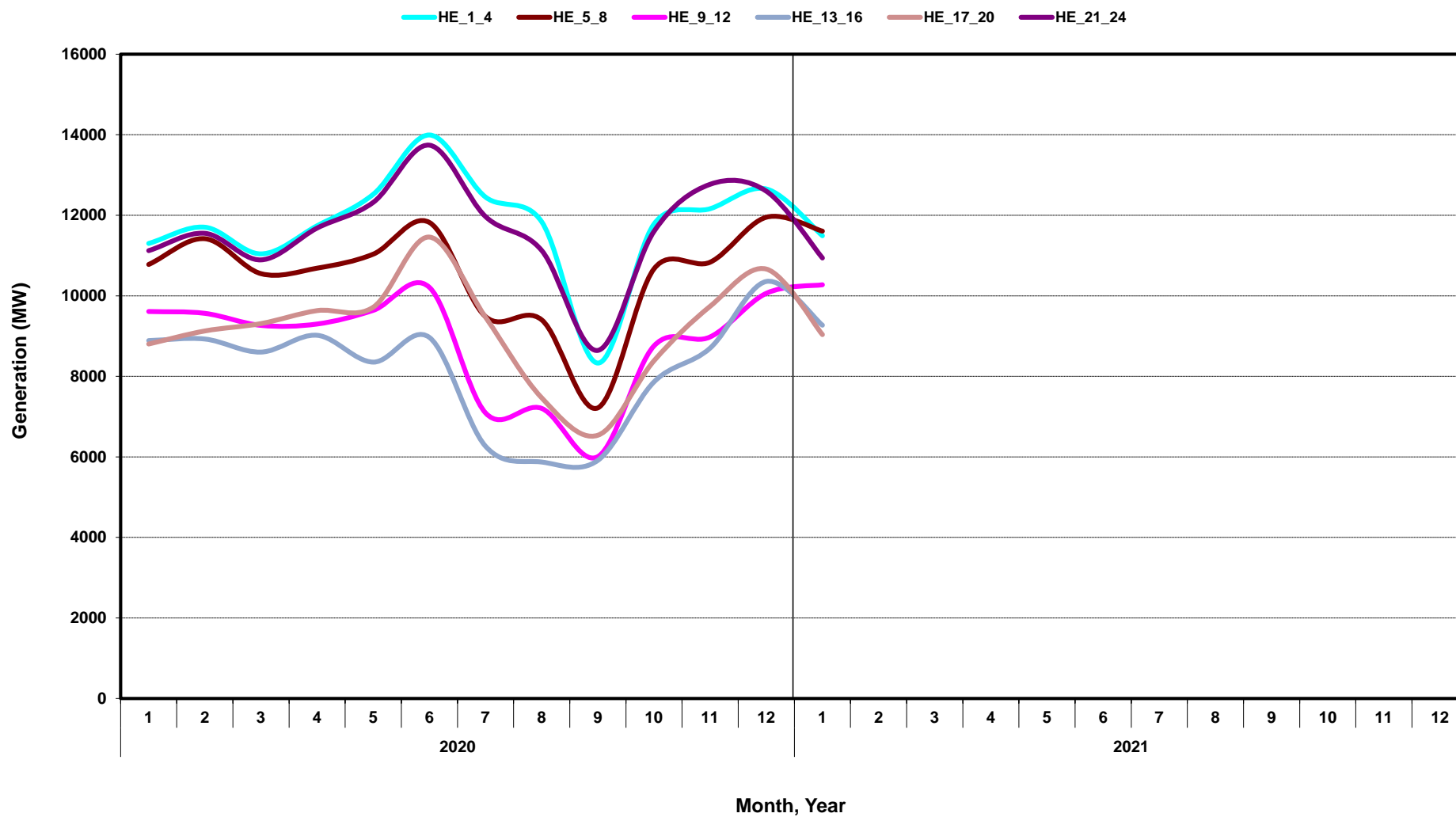
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Monthly Average of Wind Generation by Hour Ending



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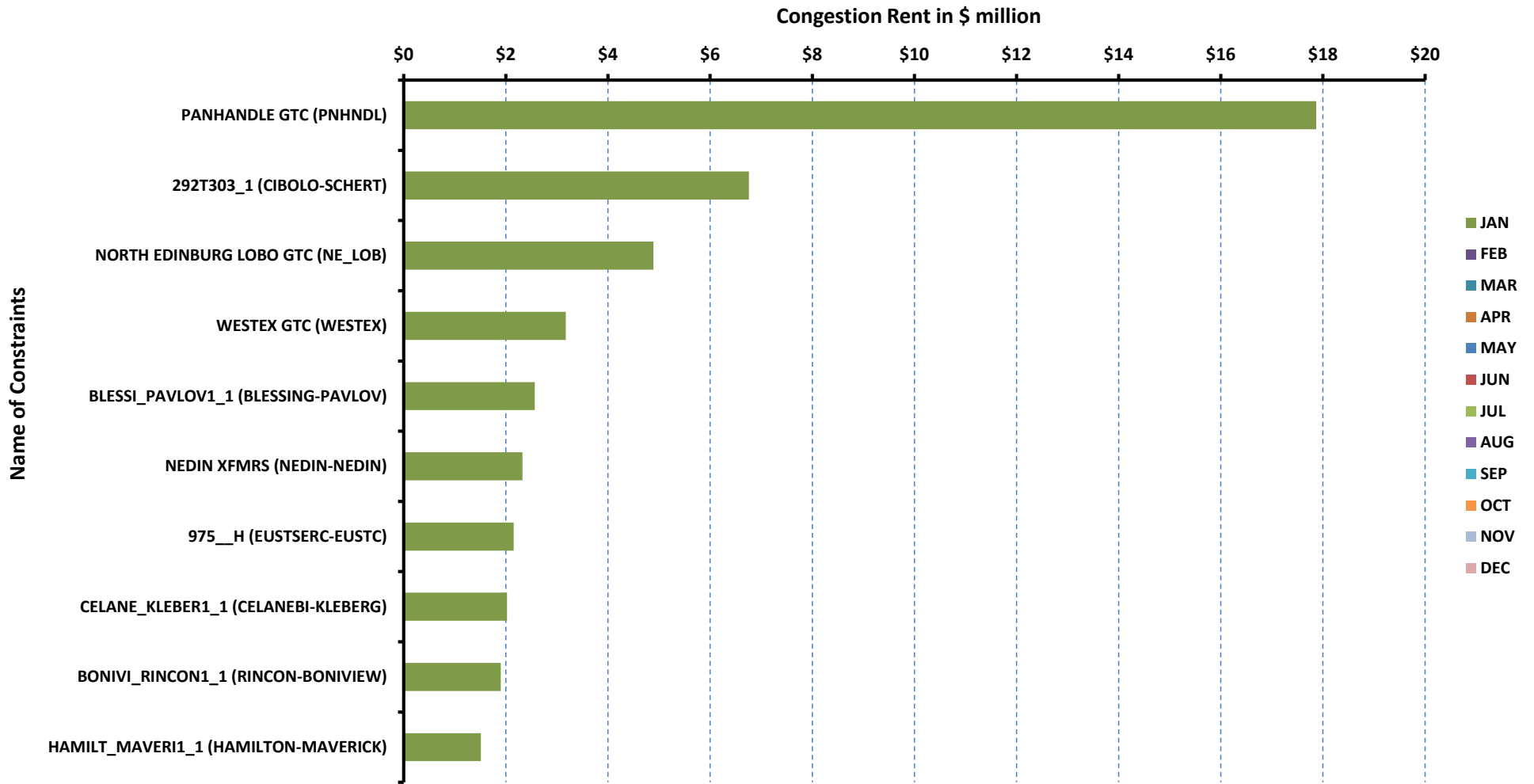
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RT Congestion Constraint Rankings - 1

Top 10 Constraints by Total Congestion Value - 2021



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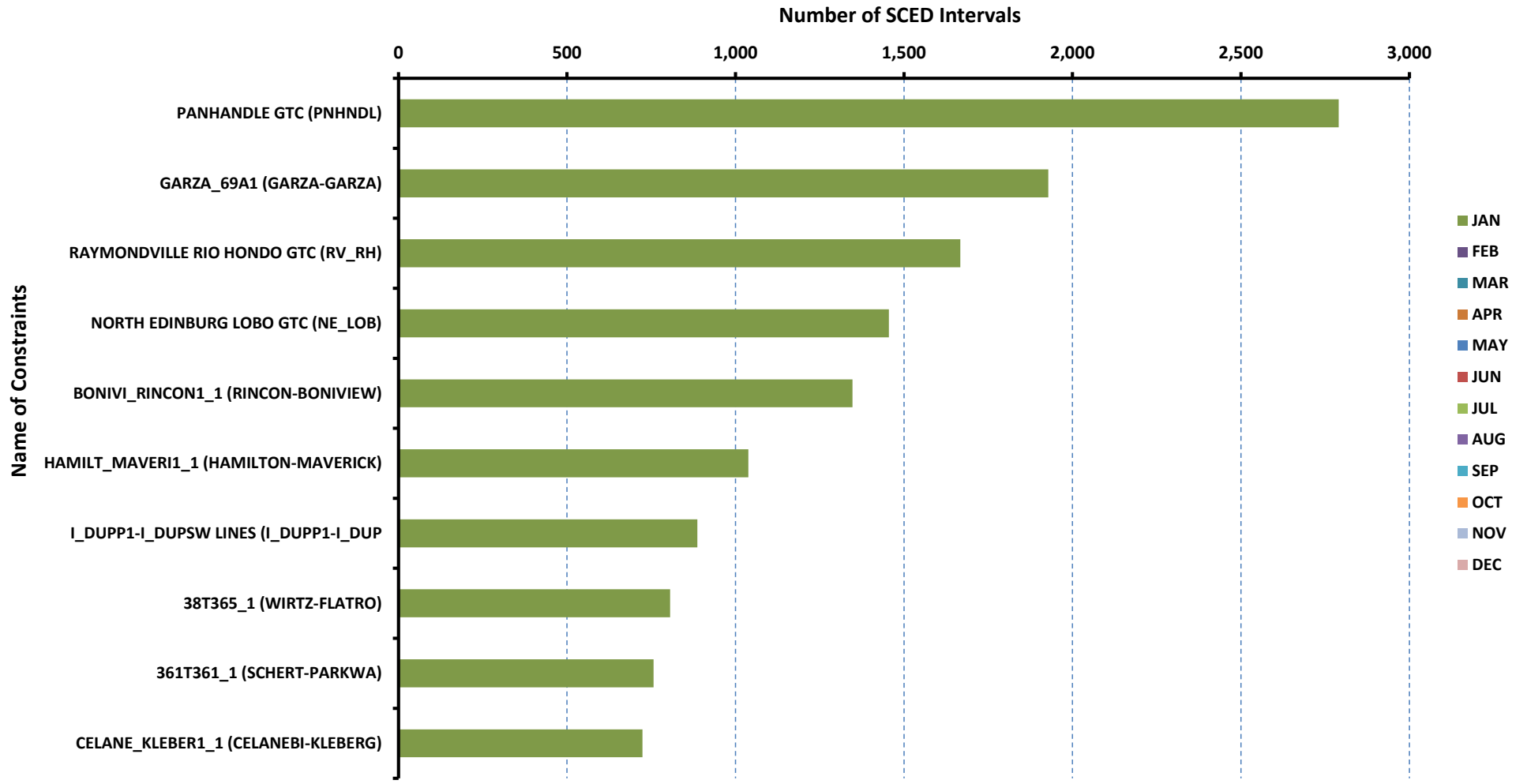
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RT Congestion Constraint Rankings - 2

Top 10 Constraints by Binding Frequency - 2021



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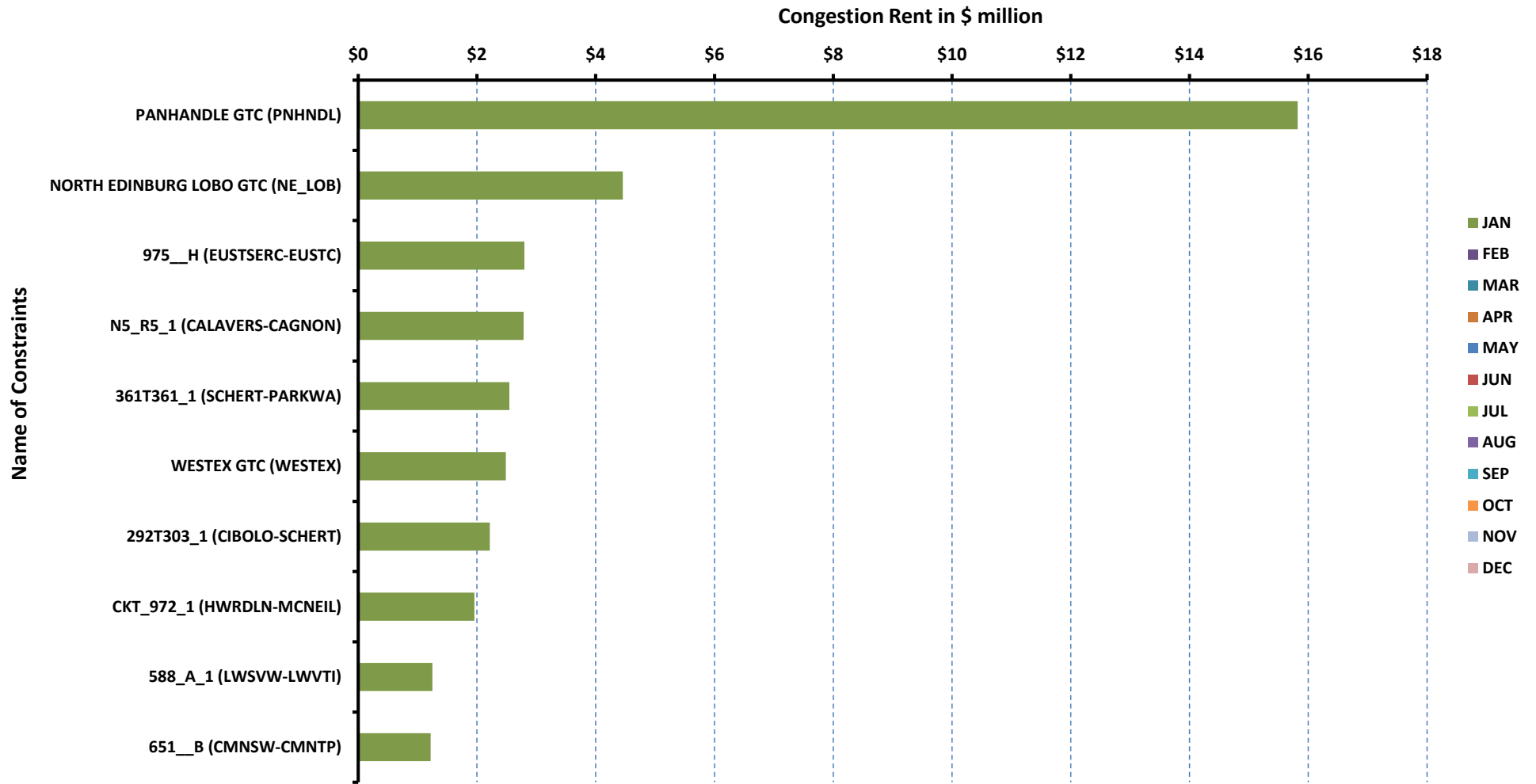
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DA Congestion Constraint Rankings - 1

Top 10 Constraints by Total Congestion Value - 2021



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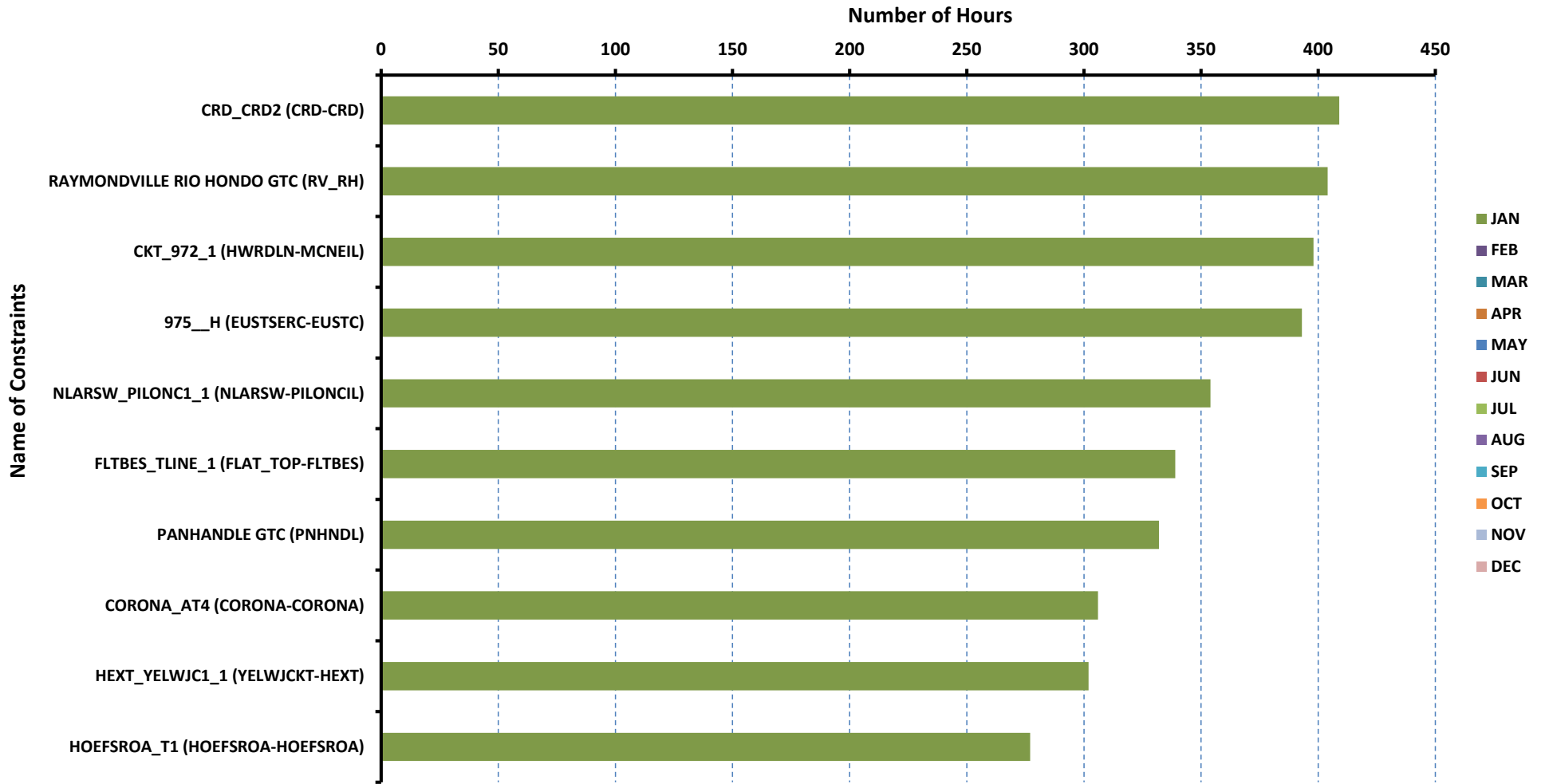
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DA Congestion Constraint Rankings - 2

Top 10 Constraints by Binding Frequency - 2021



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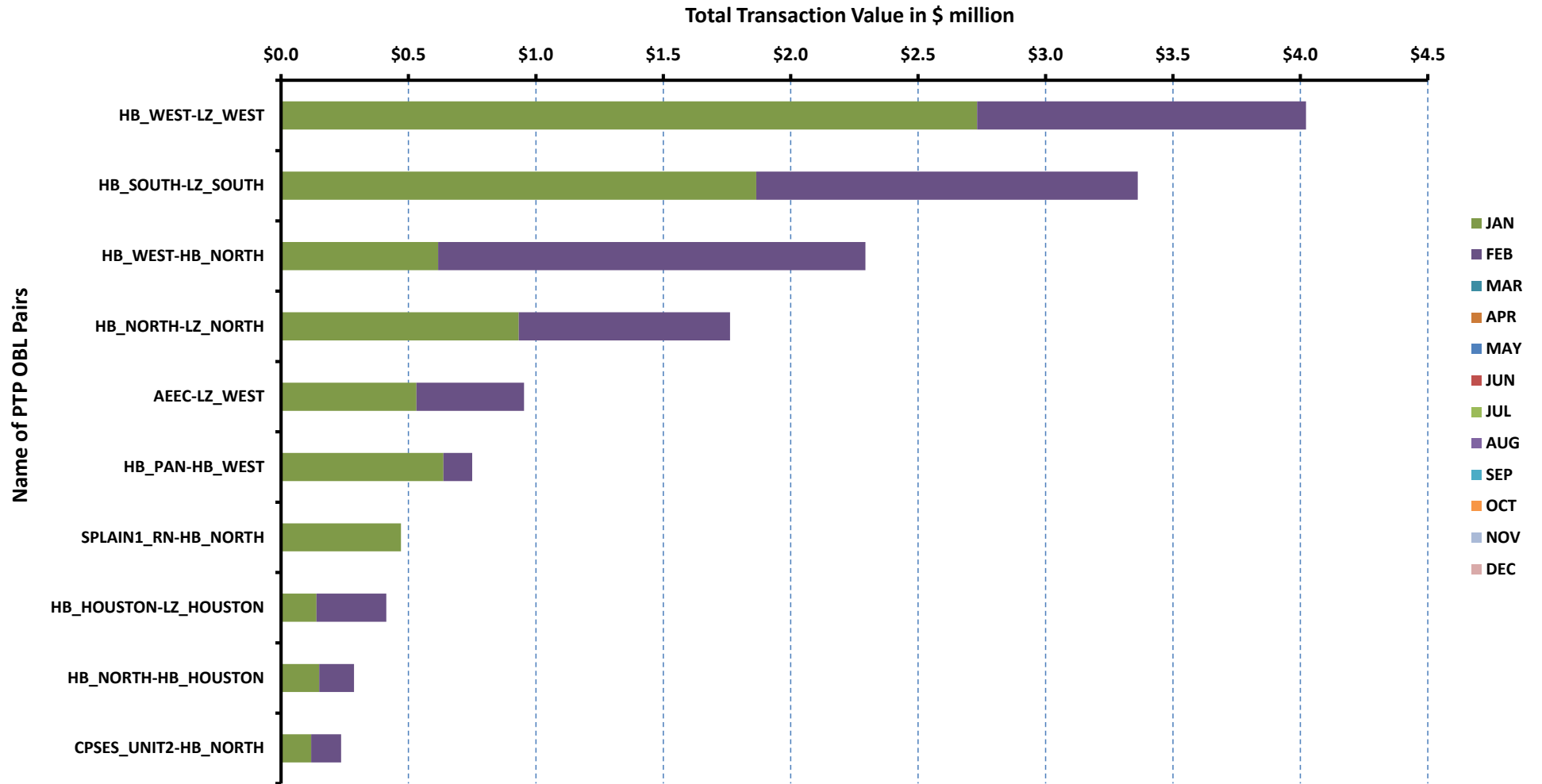
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Top 10 CRR Pairs Ranked by Monthly Auction Values - 1

Top 10 PTP Obligations by Total Transaction Value - 2021



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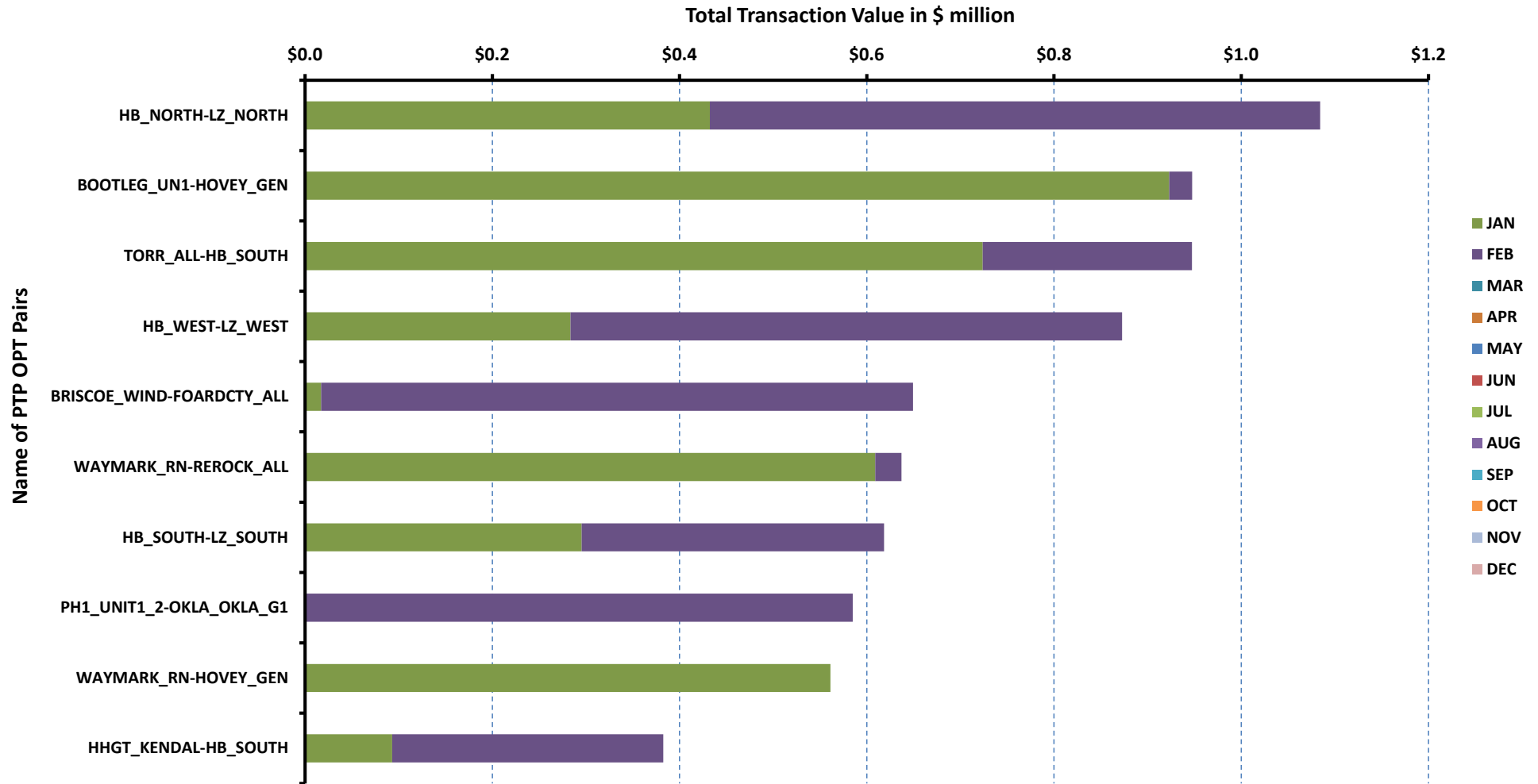
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Top 10 CRR Pairs Ranked by Monthly Auction Values - 2

Top 10 PTP Options by Total Transaction Value - 2021



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ERCOT-wide Avg. Energy Price - DA vs. RT			
year	month	dam_spp	rtm_spp
2020	1	\$ 18.46	\$ 17.97
	2	\$ 23.69	\$ 26.12
	3	\$ 30.87	\$ 31.87
	4	\$ 22.89	\$ 21.06
	5	\$ 20.92	\$ 20.72
	6	\$ 21.18	\$ 16.13
	7	\$ 25.72	\$ 21.79
	8	\$ 50.64	\$ 43.72
	9	\$ 20.93	\$ 23.32
	10	\$ 27.12	\$ 34.39
	11	\$ 26.47	\$ 26.86
	12	\$ 22.37	\$ 21.38
2021	1	\$ 22.60	\$ 21.95
	2	\$ -	\$ -
	3	\$ -	\$ -
	4	\$ -	\$ -
	5	\$ -	\$ -
	6	\$ -	\$ -
	7	\$ -	\$ -
	8	\$ -	\$ -
	9	\$ -	\$ -
	10	\$ -	\$ -
	11	\$ -	\$ -
	12	\$ -	\$ -

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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	
2020	1	12,102	19,145	13,311	5,996	9,945	14,023	9,781	5,288	
	2	12,763	22,127	15,953	6,150	10,077	14,586	10,236	5,351	
	3	15,886	17,173	14,820	5,684	10,786	12,298	9,908	4,982	
	4	15,909	19,521	16,210	5,750	10,385	12,167	10,063	4,840	
	5	17,827	23,337	18,047	5,895	11,875	13,891	11,624	4,655	
	6	18,953	25,649	19,077	6,485	13,351	17,610	13,092	5,293	
	7	19,545	28,378	20,240	6,826	14,207	19,609	14,644	5,736	
	8	19,736	28,789	20,440	6,808	14,570	19,780	14,784	5,766	
	9	19,780	23,834	19,348	6,517	13,146	15,129	12,099	5,164	
	10	17,923	22,165	17,325	6,027	11,971	13,691	11,388	4,976	
	11	15,057	18,778	13,503	5,489	10,755	12,406	9,898	4,855	
	12	13,343	21,505	15,278	5,977	10,615	14,522	10,412	5,176	
2021	1	14,272	21,505	16,861	6,135	10,684	14,784	10,638	5,300	
	2	-	-	-	-	-	-	-	-	
	3	-	-	-	-	-	-	-	-	
	4	-	-	-	-	-	-	-	-	
	5	-	-	-	-	-	-	-	-	
	6	-	-	-	-	-	-	-	-	
	7	-	-	-	-	-	-	-	-	
	8	-	-	-	-	-	-	-	-	
	9	-	-	-	-	-	-	-	-	
	10	-	-	-	-	-	-	-	-	
	11	-	-	-	-	-	-	-	-	
	12	-	-	-	-	-	-	-	-	

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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	
2020	1	\$ 16.65	\$ 17.03	\$ 17.27	\$ 24.25	\$ 17.48	\$ 17.57	\$ 17.87	\$ 23.75	
	2	\$ 18.94	\$ 18.97	\$ 19.71	\$ 71.42	\$ 18.21	\$ 18.85	\$ 20.04	\$ 54.21	
	3	\$ 27.03	\$ 26.02	\$ 25.72	\$ 69.03	\$ 25.88	\$ 24.94	\$ 25.51	\$ 66.94	
	4	\$ 21.29	\$ 20.43	\$ 22.73	\$ 18.66	\$ 22.63	\$ 22.34	\$ 23.83	\$ 22.87	
	5	\$ 23.27	\$ 18.12	\$ 23.42	\$ 15.20	\$ 21.41	\$ 20.28	\$ 21.50	\$ 20.11	
	6	\$ 16.54	\$ 16.38	\$ 15.76	\$ 15.14	\$ 21.42	\$ 21.57	\$ 21.07	\$ 19.50	
	7	\$ 21.44	\$ 21.40	\$ 23.62	\$ 19.29	\$ 26.21	\$ 25.76	\$ 25.93	\$ 23.82	
	8	\$ 39.86	\$ 41.02	\$ 54.25	\$ 35.79	\$ 46.46	\$ 48.10	\$ 61.58	\$ 41.90	
	9	\$ 22.80	\$ 22.72	\$ 25.43	\$ 21.43	\$ 21.48	\$ 20.45	\$ 20.95	\$ 20.85	
	10	\$ 34.02	\$ 35.34	\$ 35.30	\$ 30.58	\$ 26.86	\$ 25.90	\$ 29.79	\$ 24.97	
	11	\$ 27.18	\$ 24.78	\$ 25.28	\$ 34.70	\$ 26.49	\$ 24.89	\$ 26.78	\$ 29.86	
	12	\$ 20.60	\$ 21.08	\$ 21.25	\$ 24.08	\$ 21.50	\$ 21.73	\$ 22.34	\$ 26.03	
2021	1	\$ 21.25	\$ 21.87	\$ 23.45	\$ 20.59	\$ 21.92	\$ 22.54	\$ 23.90	\$ 21.50	
	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
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	9	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	11	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	12	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

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ERCOT-wide Monthly Implied Heat Rate - DA vs. RT						
year	month	gasprice	rtn_spp	HR_rtn	dam_spp	HR_dam
2020	1	\$ 1.92	\$ 17.97	9.34	\$ 18.46	9.59
	2	\$ 1.83	\$ 26.12	14.25	\$ 23.69	12.92
	3	\$ 1.68	\$ 31.87	18.98	\$ 30.87	18.38
	4	\$ 1.65	\$ 21.06	12.73	\$ 22.89	13.84
	5	\$ 1.70	\$ 20.72	12.19	\$ 20.92	12.31
	6	\$ 1.57	\$ 16.13	10.30	\$ 21.18	13.52
	7	\$ 1.70	\$ 21.79	12.78	\$ 25.72	15.09
	8	\$ 2.23	\$ 43.72	19.60	\$ 50.64	22.70
	9	\$ 2.01	\$ 23.32	11.58	\$ 20.93	10.39
	10	\$ 2.44	\$ 34.39	14.12	\$ 27.12	11.13
	11	\$ 2.58	\$ 26.86	10.40	\$ 26.47	10.25
	12	\$ 2.55	\$ 21.38	8.38	\$ 22.37	8.77
2021	1	\$ 2.57	\$ 21.95	8.53	\$ 22.60	8.78
	2	\$ -	\$ -	-	\$ -	-
	3	\$ -	\$ -	-	\$ -	-
	4	\$ -	\$ -	-	\$ -	-
	5	\$ -	\$ -	-	\$ -	-
	6	\$ -	\$ -	-	\$ -	-
	7	\$ -	\$ -	-	\$ -	-
	8	\$ -	\$ -	-	\$ -	-
	9	\$ -	\$ -	-	\$ -	-
	10	\$ -	\$ -	-	\$ -	-
	11	\$ -	\$ -	-	\$ -	-
	12	\$ -	\$ -	-	\$ -	-

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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
2020	1	9.08	9.29	9.13	12.34	8.65	8.98	8.85	12.60
	2	9.93	10.93	10.28	29.56	10.33	10.75	10.35	38.95
	3	15.41	15.19	14.85	39.87	16.10	15.32	15.49	41.11
	4	13.68	14.40	13.50	13.83	12.87	13.74	12.35	11.28
	5	12.59	12.65	11.93	11.83	13.69	13.78	10.66	8.94
	6	13.68	13.45	13.78	12.45	10.56	10.06	10.46	9.67
	7	15.38	15.21	15.11	13.98	12.58	13.86	12.56	11.32
	8	20.82	27.60	21.56	18.78	17.86	24.31	18.38	16.04
	9	10.66	10.40	10.16	10.35	11.32	12.62	11.28	10.64
	10	11.03	12.23	10.63	10.25	13.96	14.49	14.51	12.55
	11	10.25	10.37	9.64	11.56	10.52	9.79	9.60	13.44
	12	8.43	8.75	8.52	10.20	8.08	8.33	8.26	9.44
2021	1	8.52	9.29	8.76	8.35	8.26	9.11	8.50	8.00
	2	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-
	4	-	-	-	-	-	-	-	-
	5	-	-	-	-	-	-	-	-
	6	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-
	11	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-

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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
2021	1	1	\$ -	\$ -	0	0	80	90
2021	1	2	\$ -	\$ -	0	0	80	90
2021	1	3	\$ -	\$ -	0	0	80	90
2021	1	4	\$ -	\$ -	0	0	80	90
2021	1	5	\$ -	\$ -	0	0	80	90
2021	1	6	\$ -	\$ -	0	0	80	90
2021	1	7	\$ 0.11	\$ -	6	0	80	90
2021	1	8	\$ -	\$ -	0	0	80	90
2021	1	9	\$ 0.60	\$ -	14	0	80	90
2021	1	10	\$ -	\$ -	0	0	80	90
2021	1	11	\$ -	\$ -	0	0	80	90
2021	1	12	\$ -	\$ -	0	0	80	90
2021	1	13	\$ -	\$ 0.46	0	17	80	90
2021	1	14	\$ -	\$ -	0	0	80	90
2021	1	15	\$ 0.01	\$ -	2	0	80	90
2021	1	16	\$ 0.97	\$ -	25	0	80	90
2021	1	17	\$ 0.02	\$ -	12	0	80	90
2021	1	18	\$ -	\$ -	0	0	80	90
2021	1	19	\$ 0.07	\$ -	10	0	80	90
2021	1	20	\$ 0.53	\$ -	24	0	80	90
2021	1	21	\$ 0.21	\$ -	30	0	80	90
2021	1	22	\$ -	\$ -	0	0	80	90
2021	1	23	\$ -	\$ -	0	0	80	90
2021	1	24	\$ -	\$ -	0	0	80	90
2021	1	25	\$ -	\$ -	0	0	80	90
2021	1	26	\$ 0.22	\$ -	14	0	80	90
2021	1	27	\$ 0.06	\$ -	4	0	80	90
2021	1	28	\$ -	\$ -	0	0	80	90
2021	1	29	\$ -	\$ -	0	0	80	90
2021	1	30	\$ -	\$ -	0	0	80	90
2021	1	31	\$ 0.01	\$ -	3	0	80	90

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Monthly Average of Ancillary Services Required MW					
year	month	ASMW_REGDN	ASMW_NSPIN	ASMW_RRS	ASMW_REGUP
2020	1	271	1,565	2,893	293
	2	276	1,633	2,911	295
	3	293	1,462	2,969	298
	4	282	1,444	2,976	310
	5	314	1,492	2,667	339
	6	302	1,444	2,460	324
	7	294	1,321	2,373	304
	8	301	1,414	2,354	311
	9	304	1,387	2,470	307
	10	277	1,460	2,799	300
	11	259	1,463	2,939	284
	12	266	1,535	2,881	272
2021	1	317	1,535	2,964	345
	2	-	-	-	-
	3	-	-	-	-
	4	-	-	-	-
	5	-	-	-	-
	6	-	-	-	-
	7	-	-	-	-
	8	-	-	-	-
	9	-	-	-	-
	10	-	-	-	-
	11	-	-	-	-
	12	-	-	-	-

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Hourly Average of Ancillary Services Required MW					
year	DELIVERY_HOUR	ASMW_REGDN	ASMW_NSPIN	ASMW_RRS	ASMW_REGUP
2020	1	360	1,175	2,825	217
	2	272	1,175	2,825	189
	3	232	1,370	2,831	199
	4	187	1,369	2,832	226
	5	187	1,369	2,832	293
	6	266	1,369	2,832	452
	7	230	1,838	2,733	578
	8	233	1,838	2,733	360
	9	248	1,838	2,733	363
	10	265	1,838	2,733	386
	11	271	1,608	2,654	397
	12	239	1,608	2,654	396
	13	218	1,608	2,654	367
	14	241	1,608	2,654	321
	15	222	1,392	2,634	288
	16	204	1,392	2,634	279
	17	235	1,392	2,634	288
	18	285	1,392	2,634	312
	19	366	1,423	2,663	277
	20	360	1,423	2,663	249
	21	371	1,423	2,663	212
	22	454	1,423	2,663	197
	23	488	1,175	2,825	211
	24	445	1,175	2,825	219
2021	1	257	1,169	3,053	184
	2	208	1,169	3,053	257
	3	182	1,147	3,053	291
	4	173	1,147	3,053	294
	5	225	1,147	3,053	365
	6	295	1,147	3,053	576
	7	269	1,895	2,959	668
	8	274	1,895	2,959	362
	9	478	1,895	2,959	249
	10	480	1,895	2,959	331
	11	475	1,531	2,880	313
	12	452	1,531	2,880	364
	13	391	1,531	2,880	324
	14	379	1,531	2,880	320
	15	392	1,420	2,880	340
	16	303	1,420	2,880	399
	17	200	1,420	2,880	509
	18	194	1,420	2,880	667
	19	312	2,047	2,959	415
	20	275	2,047	2,959	200
	21	305	2,047	2,959	206
	22	355	2,047	2,959	213
	23	381	1,169	3,053	221
	24	364	1,169	3,053	210

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Monthly Average Ancillary Services Price					
year	month	MCPC_REGDN	MCPC_NSIPIN	MCPC_RRS	MCPC_REGUP
2020	1	\$ 7.06	\$ 2.04	\$ 7.24	\$ 8.60
	2	\$ 6.46	\$ 3.78	\$ 10.06	\$ 10.33
	3	\$ 6.39	\$ 4.59	\$ 14.60	\$ 13.00
	4	\$ 10.83	\$ 5.15	\$ 12.78	\$ 12.31
	5	\$ 11.54	\$ 3.36	\$ 8.37	\$ 9.04
	6	\$ 7.57	\$ 4.69	\$ 7.70	\$ 7.89
	7	\$ 6.73	\$ 4.12	\$ 9.56	\$ 9.98
	8	\$ 7.32	\$ 11.02	\$ 23.91	\$ 22.42
	9	\$ 10.12	\$ 2.55	\$ 6.66	\$ 6.91
	10	\$ 10.22	\$ 5.47	\$ 9.81	\$ 10.82
	11	\$ 7.10	\$ 3.84	\$ 15.21	\$ 15.10
	12	\$ 9.71	\$ 3.16	\$ 11.03	\$ 9.49
2021	1	\$ 9.98	\$ 2.16	\$ 11.85	\$ 14.31
	2	\$ -	\$ -	\$ -	\$ -
	3	\$ -	\$ -	\$ -	\$ -
	4	\$ -	\$ -	\$ -	\$ -
	5	\$ -	\$ -	\$ -	\$ -
	6	\$ -	\$ -	\$ -	\$ -
	7	\$ -	\$ -	\$ -	\$ -
	8	\$ -	\$ -	\$ -	\$ -
	9	\$ -	\$ -	\$ -	\$ -
	10	\$ -	\$ -	\$ -	\$ -
	11	\$ -	\$ -	\$ -	\$ -
	12	\$ -	\$ -	\$ -	\$ -

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Monthly Average A/S Cost per MWh Load					
year	month	AScost_REGDN	AScost_NSPIIN	AScost_RRS	AScost_REGUP
2020	1	\$ 0.05	\$ 0.08	\$ 0.54	\$ 0.06
	2	\$ 0.04	\$ 0.15	\$ 0.73	\$ 0.08
	3	\$ 0.05	\$ 0.18	\$ 1.14	\$ 0.10
	4	\$ 0.08	\$ 0.20	\$ 1.02	\$ 0.10
	5	\$ 0.09	\$ 0.12	\$ 0.53	\$ 0.07
	6	\$ 0.05	\$ 0.14	\$ 0.38	\$ 0.05
	7	\$ 0.04	\$ 0.10	\$ 0.42	\$ 0.06
	8	\$ 0.04	\$ 0.28	\$ 1.03	\$ 0.13
	9	\$ 0.07	\$ 0.08	\$ 0.36	\$ 0.05
	10	\$ 0.07	\$ 0.19	\$ 0.65	\$ 0.08
	11	\$ 0.05	\$ 0.15	\$ 1.18	\$ 0.11
	12	\$ 0.06	\$ 0.12	\$ 0.78	\$ 0.06
2021	1	\$ 0.08	\$ 0.08	\$ 0.85	\$ 0.12
	2	\$ -	\$ -	\$ -	\$ -
	3	\$ -	\$ -	\$ -	\$ -
	4	\$ -	\$ -	\$ -	\$ -
	5	\$ -	\$ -	\$ -	\$ -
	6	\$ -	\$ -	\$ -	\$ -
	7	\$ -	\$ -	\$ -	\$ -
	8	\$ -	\$ -	\$ -	\$ -
	9	\$ -	\$ -	\$ -	\$ -
	10	\$ -	\$ -	\$ -	\$ -
	11	\$ -	\$ -	\$ -	\$ -
	12	\$ -	\$ -	\$ -	\$ -

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ERCOT-wide Cumulative PNM			
year	month	pnm	pnm_accum
2020	0	\$ -	\$ -
	1	\$ 948.71	\$ 948.71
	2	\$ 2,962.95	\$ 3,911.66
	3	\$ 6,596.00	\$ 10,507.66
	4	\$ 3,928.31	\$ 14,435.97
	5	\$ 2,971.45	\$ 17,407.42
	6	\$ 1,257.14	\$ 18,664.56
	7	\$ 3,082.86	\$ 21,747.42
	8	\$ 11,591.85	\$ 33,339.27
	9	\$ 3,063.07	\$ 36,402.34
	10	\$ 8,681.74	\$ 45,084.08
	11	\$ 3,520.43	\$ 48,604.51
	12	\$ 1,469.68	\$ 50,074.19
2021	0	\$ -	\$ -
	1	\$ 1,930.83	\$ 1,930.83
	2	\$ -	\$ -
	3	\$ -	\$ -
	4	\$ -	\$ -
	5	\$ -	\$ -
	6	\$ -	\$ -
	7	\$ -	\$ -
	8	\$ -	\$ -
	9	\$ -	\$ -
	10	\$ -	\$ -
	11	\$ -	\$ -
	12	\$ -	\$ -

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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
2020	1	73	(303)	(292)	(76)	255	(43)
	2	(89)	(84)	40	(39)	(160)	(113)
	3	(142)	313	202	192	5	490
	4	335	225	(90)	371	108	819
	5	488	332	420	829	(26)	729
	6	(163)	1,067	808	330	(262)	573
	7	218	403	467	452	294	382
	8	333	468	415	540	662	754
	9	12	596	930	497	155	62
	10	(308)	(154)	(527)	(323)	(169)	(58)
	11	(192)	(592)	(648)	(279)	171	(20)
	12	8	(583)	(257)	(230)	(57)	(724)
2021	1	58	(284)	(66)	(9)	302	(394)
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	-	-	-	-	-
	5	-	-	-	-	-	-
	6	-	-	-	-	-	-
	7	-	-	-	-	-	-
	8	-	-	-	-	-	-
	9	-	-	-	-	-	-
	10	-	-	-	-	-	-
	11	-	-	-	-	-	-
	12	-	-	-	-	-	-

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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
2020	1	11,301	8,889	8,804	11,122	10,778	9,611
	2	11,703	8,927	9,127	11,552	11,418	9,565
	3	11,041	8,603	9,310	10,892	10,550	9,266
	4	11,740	9,020	9,632	11,683	10,687	9,300
	5	12,521	8,354	9,718	12,321	11,035	9,639
	6	13,993	8,966	11,459	13,741	11,821	10,210
	7	12,451	6,263	9,467	11,967	9,483	7,091
	8	11,838	5,872	7,466	11,126	9,403	7,204
	9	8,330	5,914	6,538	8,644	7,217	6,007
	10	11,781	7,862	8,387	11,600	10,670	8,756
	11	12,163	8,702	9,740	12,769	10,835	8,979
	12	12,653	10,356	10,665	12,599	11,951	10,062
2021	1	11,491	9,270	9,037	10,939	11,606	10,274
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	-	-	-	-	-
	5	-	-	-	-	-	-
	6	-	-	-	-	-	-
	7	-	-	-	-	-	-
	8	-	-	-	-	-	-
	9	-	-	-	-	-	-
	10	-	-	-	-	-	-
	11	-	-	-	-	-	-
	12	-	-	-	-	-	-

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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	2021	PANHANDLE GTC (PNHNDL)	2,790	1	2,790	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	GARZA 69A1 (GARZA-GARZA)	1,928	2	1,928	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	RAYMONDVILLE RIO HONDO GTC (RV_RH)	1,667	3	1,667	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	NORTH EDINBURG LOBO GTC (NE_LOB)	1,455	4	1,455	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	BONIVI_RINCON1_1 (RINCON-BONIVIEW)	1,347	5	1,347	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	HAMILT_MAVERI1_1 (HAMILTON-MAVERICK)	1,038	6	1,038	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	I_DUPP1-I_DUPSW LINES (I_DUPP1-I_DUP	887	7	887	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	38T365_1 (WIRTZ-FLATRO)	806	8	806	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	36T361_1 (SCHERT-PARKWA)	757	9	757	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2021	CELANE_KLEBER1_1 (CELANEBI-KLEBERG)	724	10	724	-	-	-	-	-	-	-	-	-	-	-
TOP10_RENT	2021	PANHANDLE GTC (PNHNDL)	\$ 17.87	1	\$ 17.87	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	292T303_1 (CIBOLO-SCHERT)	\$ 6.76	2	\$ 6.76	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	NORTH EDINBURG LOBO GTC (NE_LOB)	\$ 4.89	3	\$ 4.89	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	WESTEX GTC (WESTEX)	\$ 3.17	4	\$ 3.17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	BLESSI_PAVLOV1_1 (BLESSING-PAVLOV)	\$ 2.57	5	\$ 2.57	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	NEDIN_XFMRS (NEDIN-NEDIN)	\$ 2.33	6	\$ 2.33	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	975_H (EUSTSERC-EUSTC)	\$ 2.15	7	\$ 2.15	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	CELANE_KLEBER1_1 (CELANEBI-KLEBERG)	\$ 2.02	8	\$ 2.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	BONIVI_RINCON1_1 (RINCON-BONIVIEW)	\$ 1.90	9	\$ 1.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2021	HAMILT_MAVERI1_1 (HAMILTON-MAVERICK)	\$ 1.51	10	\$ 1.51	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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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	2021	CRD CRD2 (CRD-CRD)	409	1	409	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	RAYMONDVILLE RIO HONDO GTC (RV_RH)	404	2	404	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	CKT 972_1 (HWRDLN-MCNEIL)	398	3	398	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	975_H (EUSTSERC-EUSTC)	393	4	393	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	NLARSW_PILONC1_1 (NLARSW-PILONCIL)	354	5	354	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	FLTBES_TLINE_1 (FLAT_TOP-FLTBES)	339	6	339	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	PANHANDLE GTC (PNHNDL)	332	7	332	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	CORONA_AT4 (CORONA-CORONA)	306	8	306	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	HEXT_YELWJC1_1 (YELWJCKT-HEXT)	302	9	302	-	-	-	-	-	-	-	-	-	-	-	
FREQ_EXIST	2021	HOEFSROA_T1 (HOEFSROA-HOEFSROA)	277	10	277	-	-	-	-	-	-	-	-	-	-	-	
TOP10_RENT	2021	PANHANDLE GTC (PNHNDL)	\$ 15.82	1	\$ 15.82	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	NORTH EDINBURG LOBO GTC (NE_LOB)	\$ 4.45	2	\$ 4.45	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	975_H (EUSTSERC-EUSTC)	\$ 2.80	3	\$ 2.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	N5_R5_1 (CALAVERS-CAGNON)	\$ 2.79	4	\$ 2.79	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	361T361_1 (SCHERT-PARKWA)	\$ 2.55	5	\$ 2.55	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	WESTEX GTC (WESTEX)	\$ 2.49	6	\$ 2.49	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	292T303_1 (CIBOLO-SCHERT)	\$ 2.22	7	\$ 2.22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	CKT 972_1 (HWRDLN-MCNEIL)	\$ 1.96	8	\$ 1.96	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	588_A_1 (LWSVW-LWVTI)	\$ 1.25	9	\$ 1.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TOP10_RENT	2021	651_B (CMNSW-CMNTP)	\$ 1.22	10	\$ 1.22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

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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																	
fr_option	year	pair	total_value	rank	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
N	2021	HB WEST-LZ WEST	\$ 4.02	1	\$ 2.73	\$ 1.29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	HB SOUTH-LZ SOUTH	\$ 3.36	2	\$ 1.87	\$ 1.50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	HB WEST-HB NORTH	\$ 2.29	3	\$ 0.62	\$ 1.68	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	HB NORTH-LZ NORTH	\$ 1.76	4	\$ 0.93	\$ 0.83	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	AEEC-LZ WEST	\$ 0.95	5	\$ 0.53	\$ 0.42	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	HB PAN-HB WEST	\$ 0.75	6	\$ 0.64	\$ 0.11	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	SPLAIN1 RN-HB NORTH	\$ 0.47	7	\$ 0.47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	HB HOUSTON-LZ HOUSTON	\$ 0.41	8	\$ 0.14	\$ 0.27	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	HB NORTH-HB HOUSTON	\$ 0.29	9	\$ 0.15	\$ 0.14	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
N	2021	CPSES_UNIT2-HB NORTH	\$ 0.24	10	\$ 0.12	\$ 0.12	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	HB NORTH-LZ NORTH	\$ 1.08	1	\$ 0.43	\$ 0.65	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	BOOTLEG_UN1-HOVEY GEN	\$ 0.95	2	\$ 0.92	\$ 0.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	TORR_ALL-HB SOUTH	\$ 0.95	3	\$ 0.72	\$ 0.22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	HB WEST-LZ WEST	\$ 0.87	4	\$ 0.28	\$ 0.59	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	BRISCOE_WIND-FOARDCTY ALL	\$ 0.65	5	\$ 0.02	\$ 0.63	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	WAYMARK_RN-REROCK ALL	\$ 0.64	6	\$ 0.61	\$ 0.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	HB SOUTH-LZ SOUTH	\$ 0.62	7	\$ 0.30	\$ 0.32	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	PH1_UNIT1_2-OKLA OKLA_G1	\$ 0.58	8	\$ 0.00	\$ 0.58	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	WAYMARK_RN-HOVEY GEN	\$ 0.56	9	\$ 0.56	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Y	2021	HHGT_KENDAL-HB SOUTH	\$ 0.38	10	\$ 0.09	\$ 0.29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

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