

To the Public Utility Commission of Texas

ERCOT Wholesale Electricity Market Monthly Report

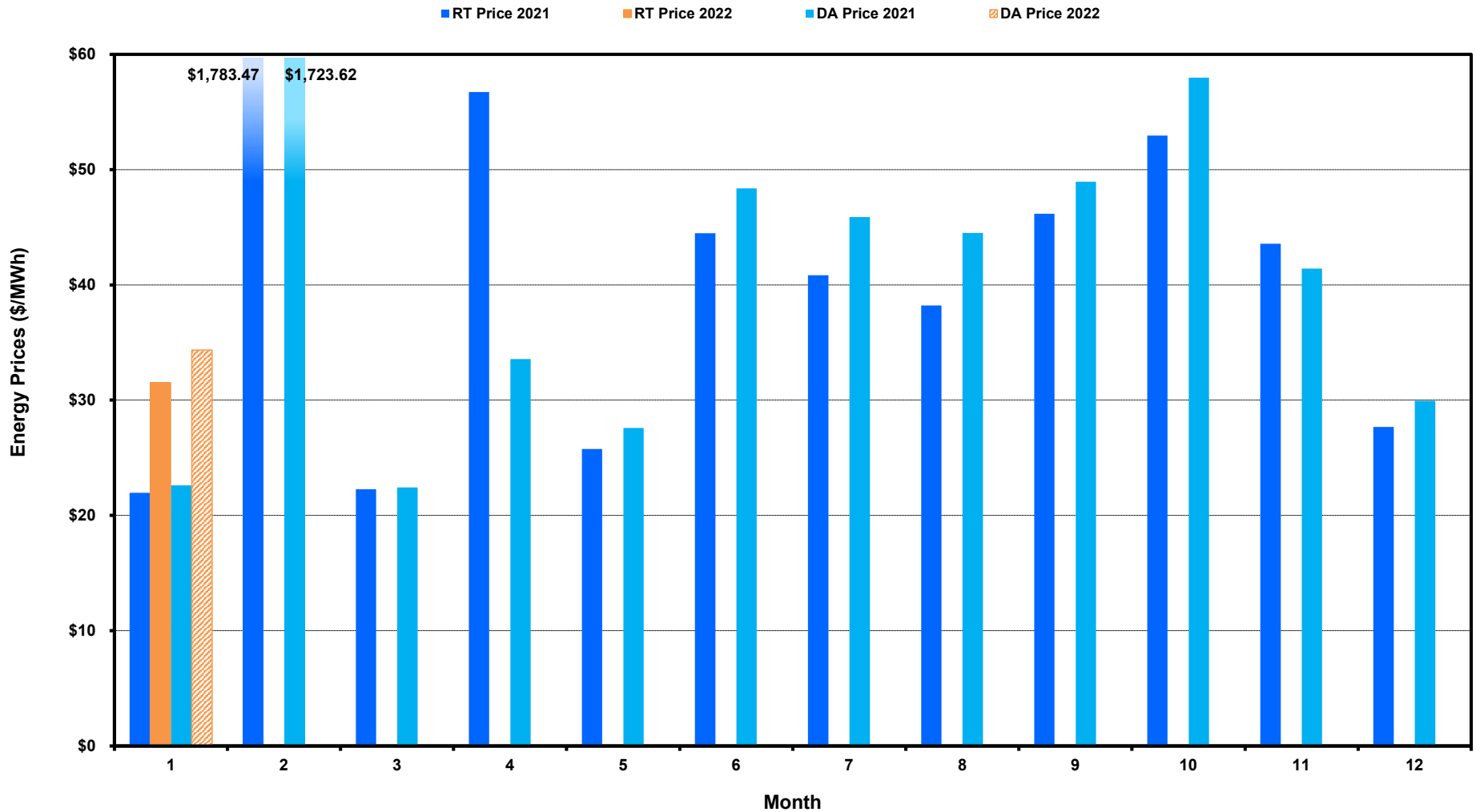
Monday, February 14, 2022

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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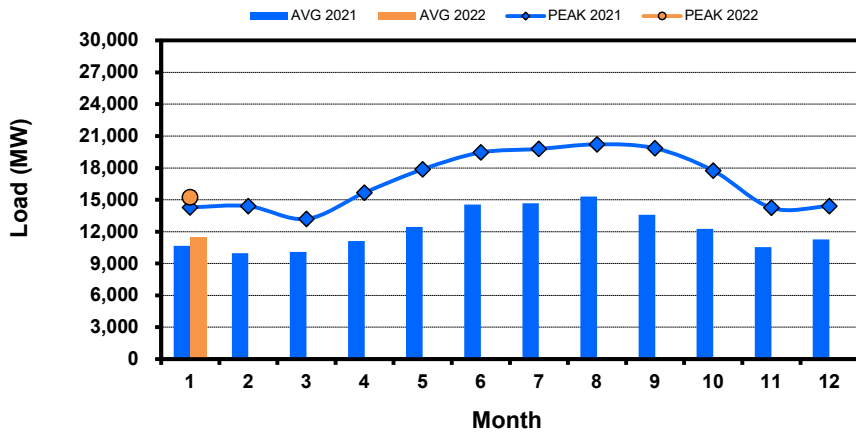
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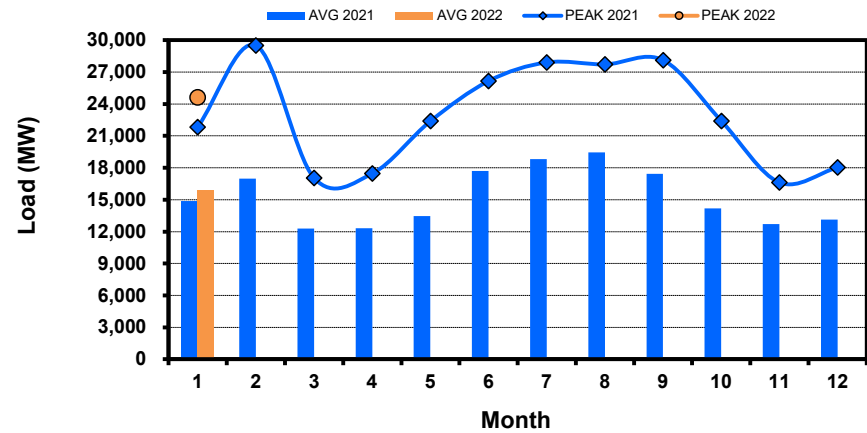
Load Zone Load Statistics

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

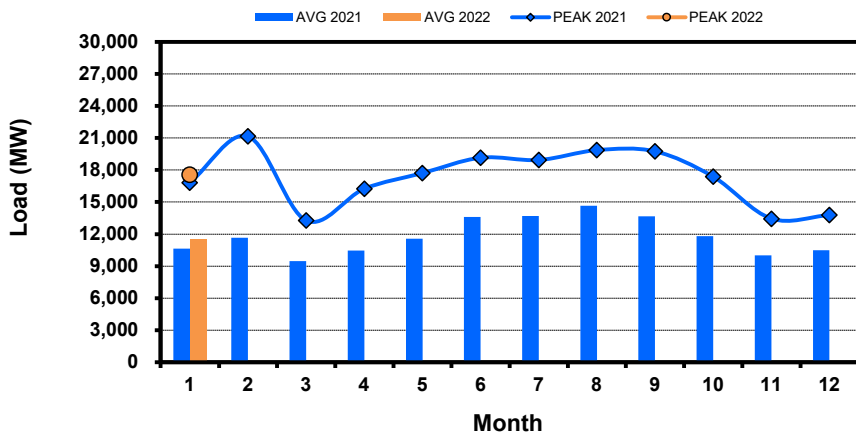
Houston Zone



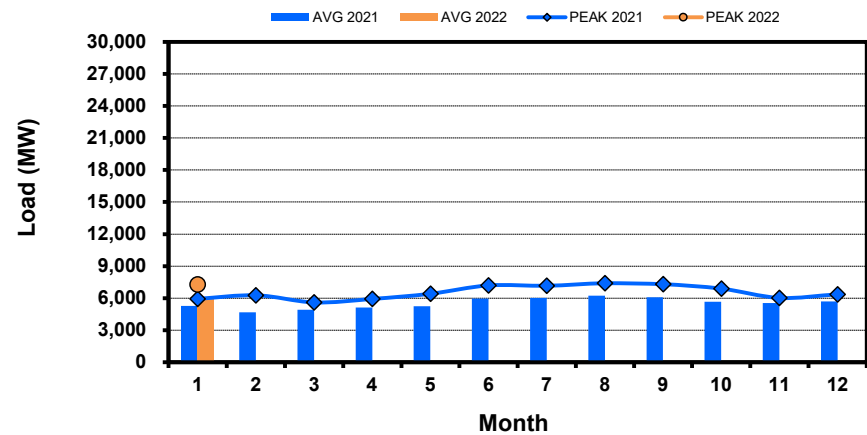
North Zone



South Zone



West Zone



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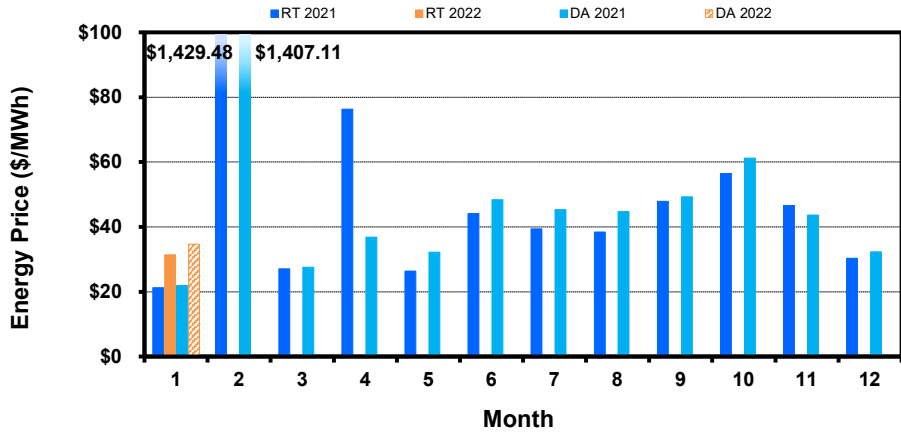
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Note: * Zonal load zone definition vs. Nodal comparable load zone definition: LZ_Houston=LZ_Houston; LZ_West=LZ_West; LZ_North=(LZ_North,LZ_RAYBN); LZ_South=(LZ_South,LZ_CPS,LZ_AEN,LZ_LCRA)

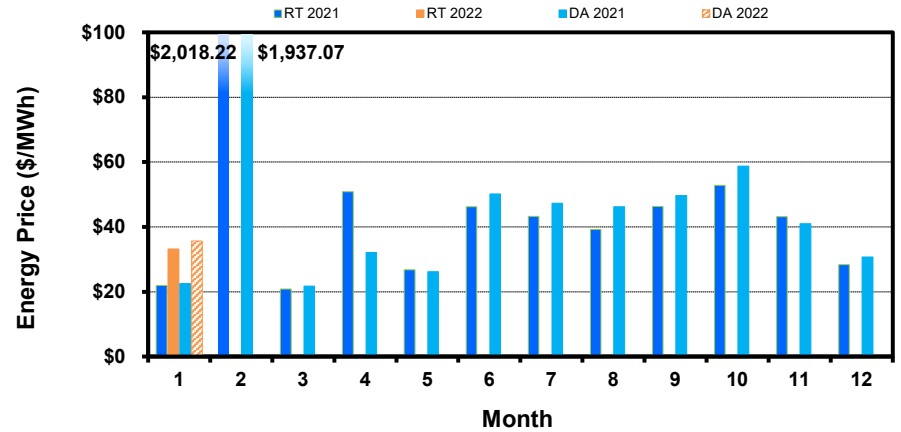
Load Zone Monthly Average Energy Price DA vs RT

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

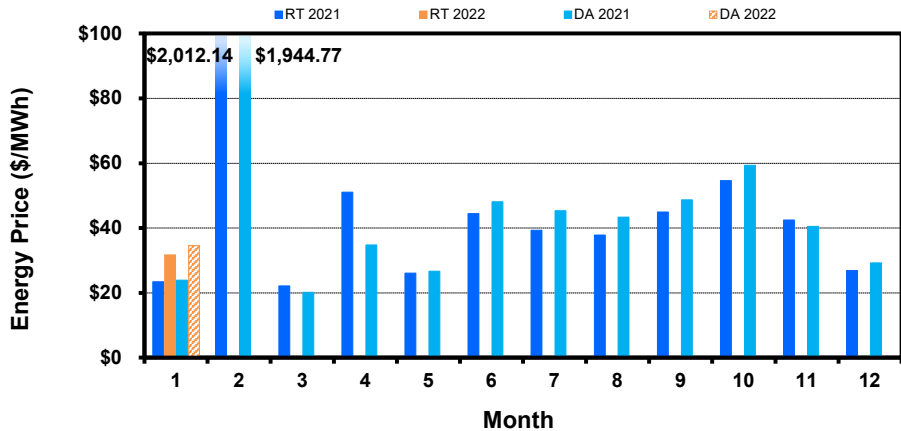
Houston Zone



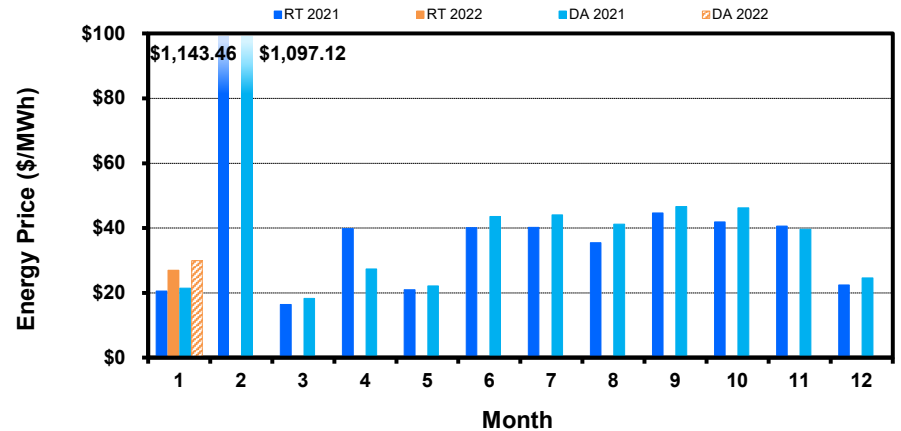
North Zone



South Zone



West Zone



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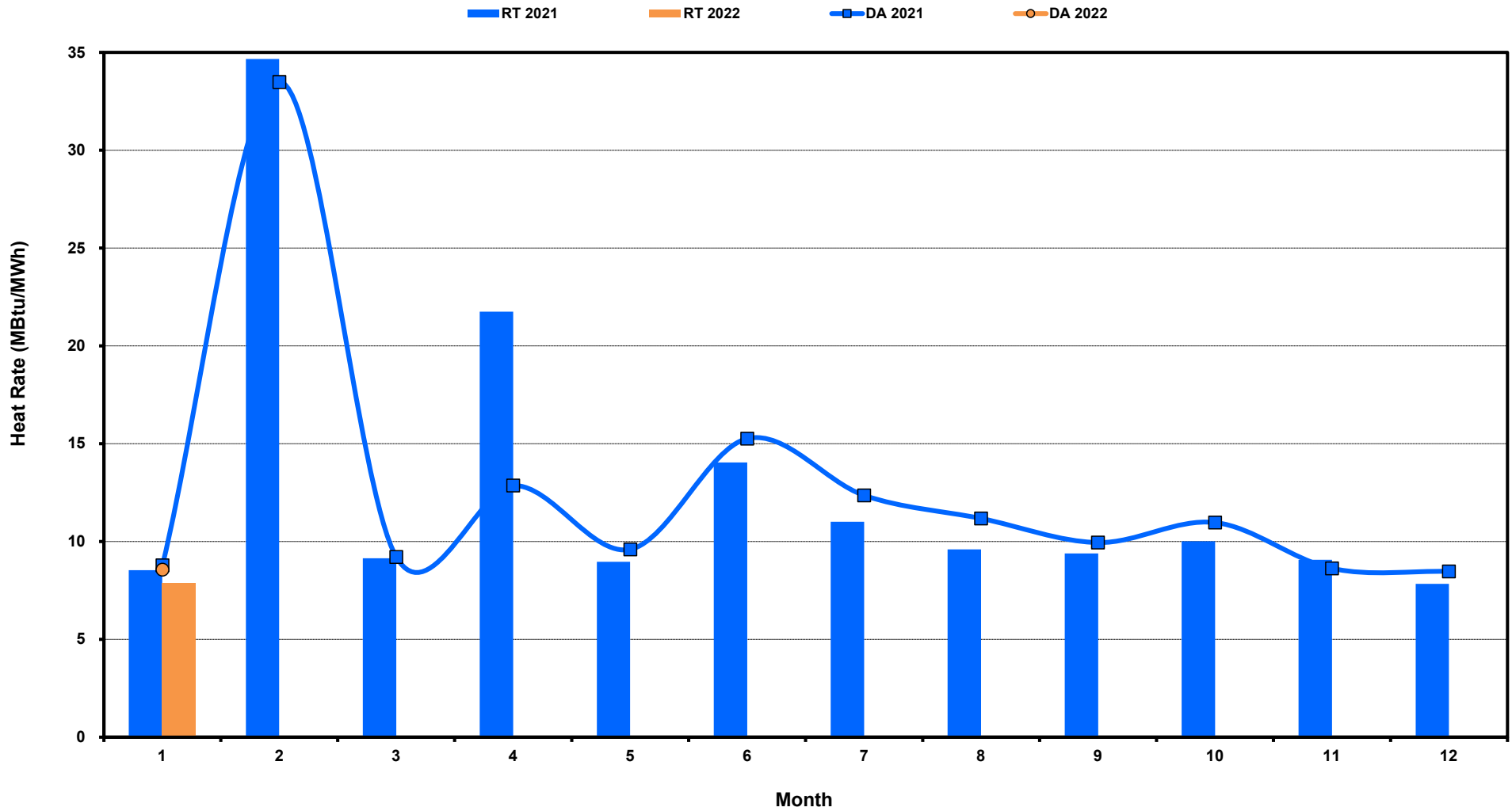
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Note: * Zonal load zone definition vs. Nodal comparable load zone definition: LZ_Houston=LZ_Houston; LZ_West=LZ_West; LZ_North=(LZ_North,LZ_RAYBN); LZ_South=(LZ_South,LZ_CPS,LZ_AEN,LZ_LCRA)

ERCOT-wide Monthly Implied Heat Rate DA vs RT

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



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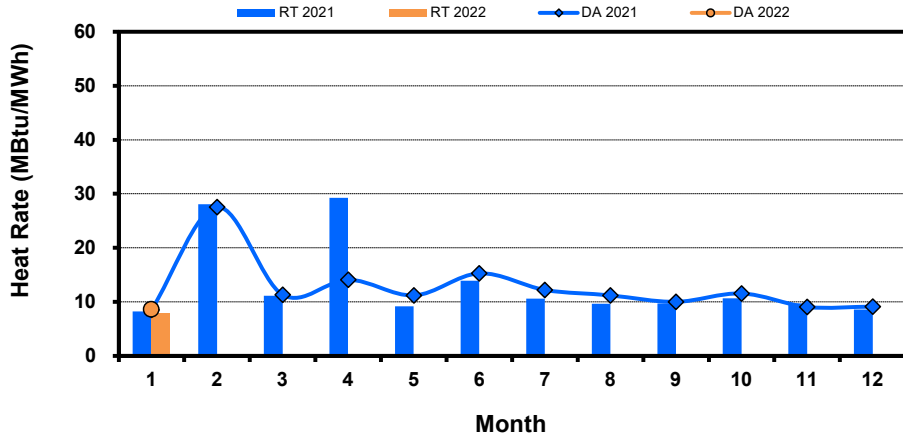
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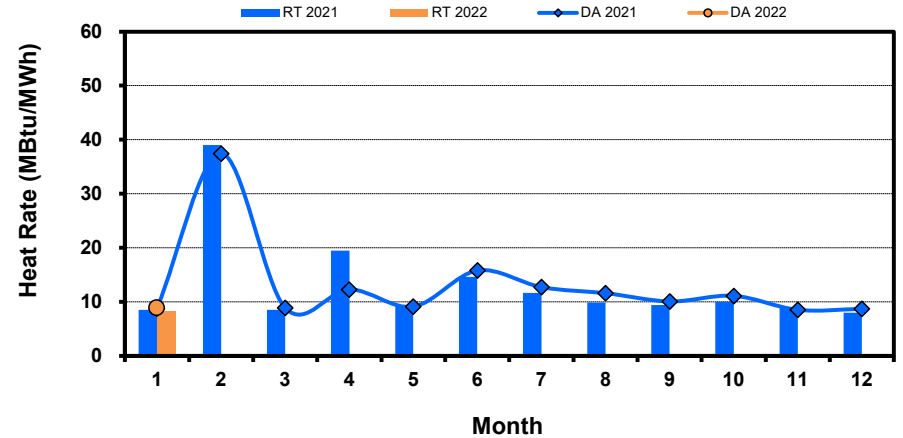
Load Zone Monthly Implied Heat Rate DA vs RT

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

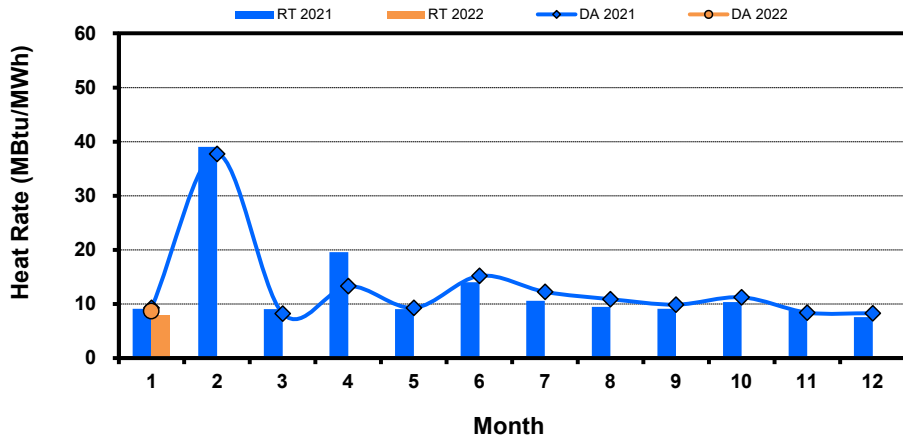
Houston Zone



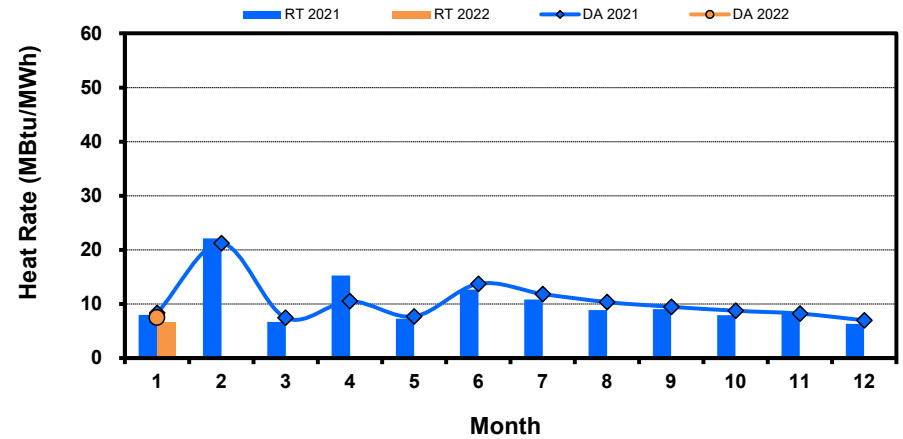
North Zone



South Zone



West Zone



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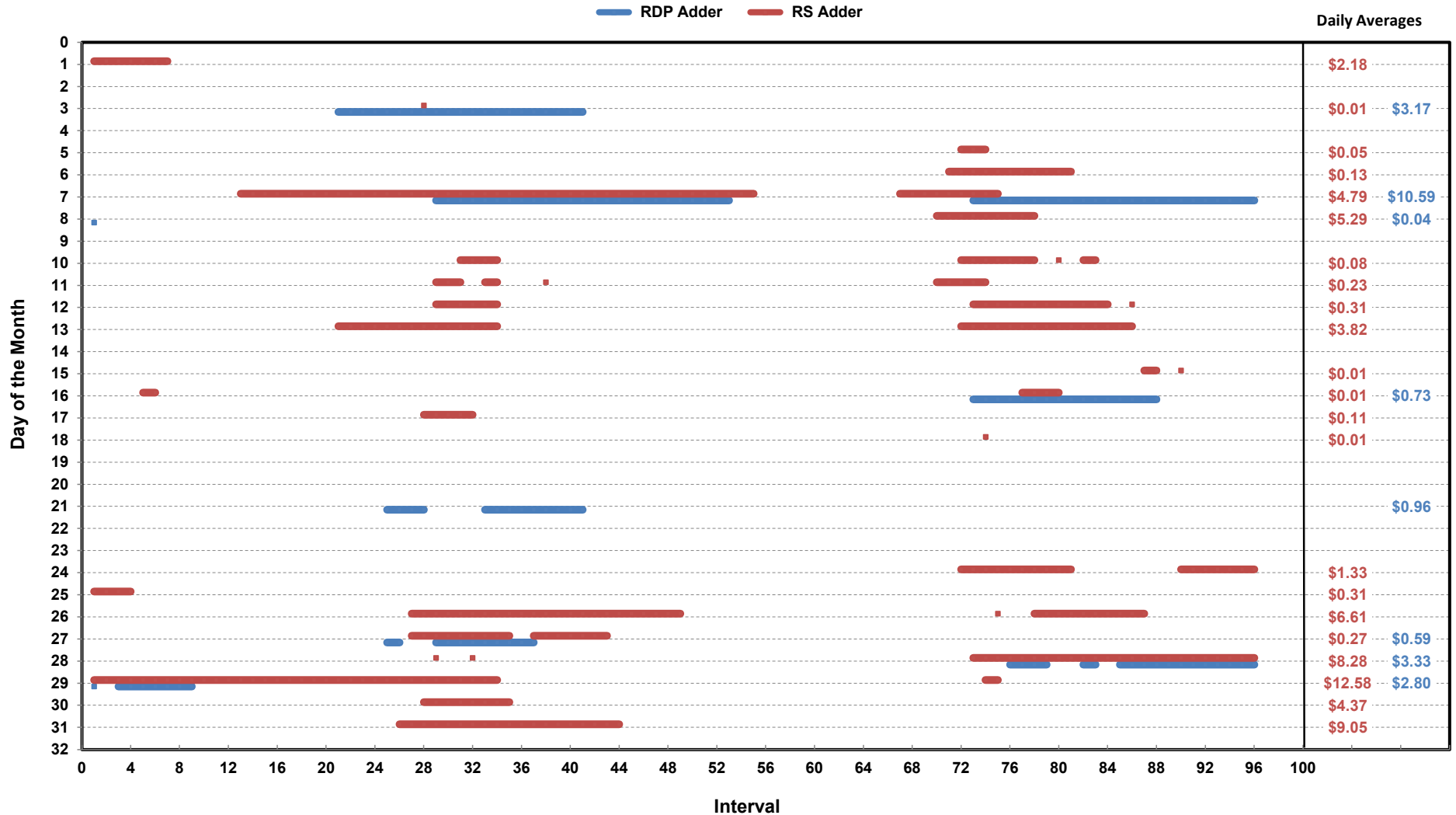
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Note: * Zonal load zone definition vs. Nodal comparable load zone definition: LZ_Houston=LZ_Houston; LZ_West=LZ_West; LZ_North=(LZ_North,LZ_RAYBN); LZ_South=(LZ_South,LZ_CPS,LZ_AEN,LZ_LCRA)

Daily ORDC Adders Average Values and Interval Duration Jan-2022



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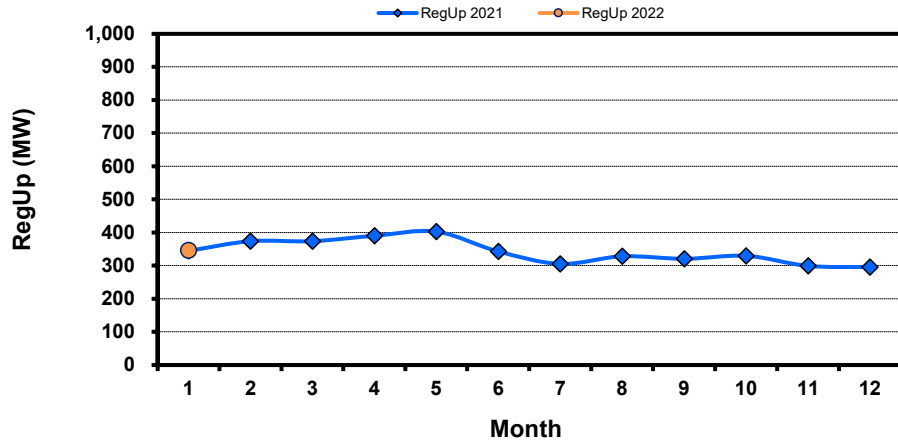
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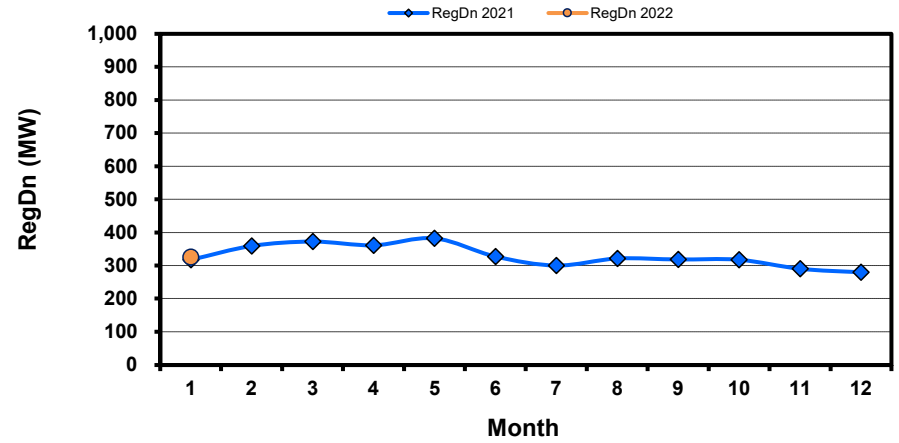
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Monthly Average of Ancillary Services Required MW

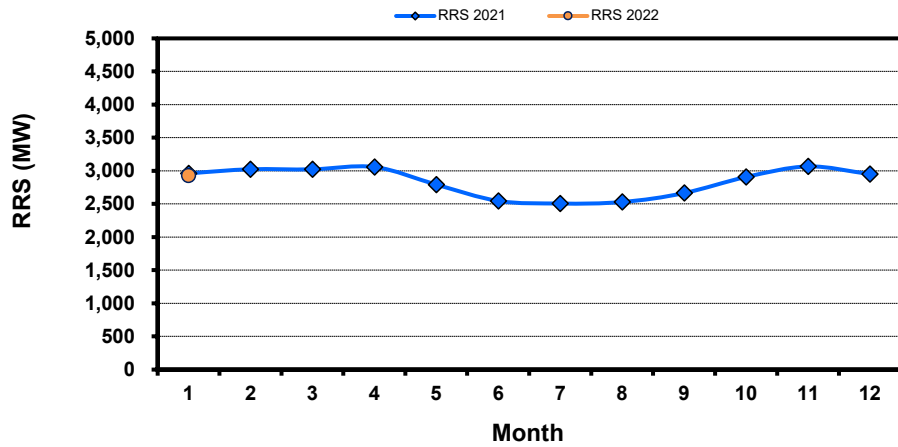
Regulation Up



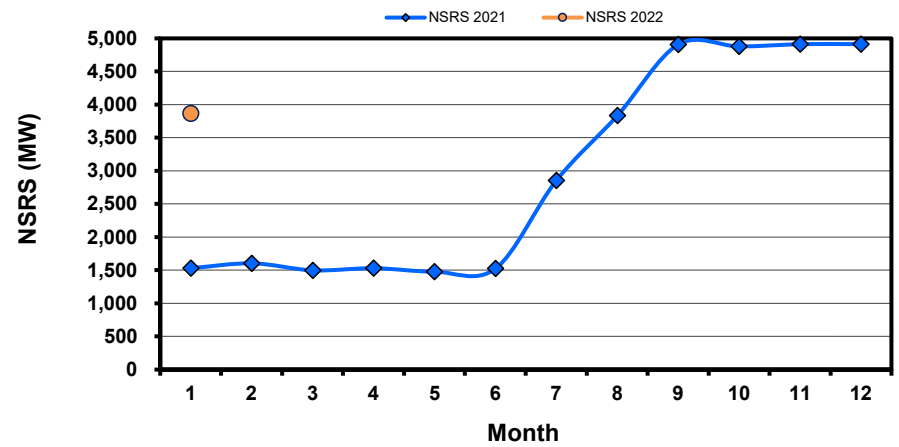
Regulation Down



Responsive Reserve



Non-Spin Reserve



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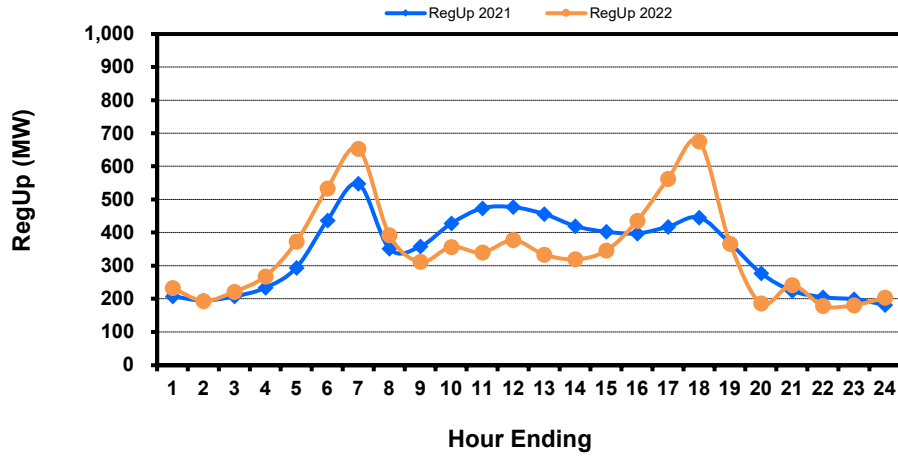
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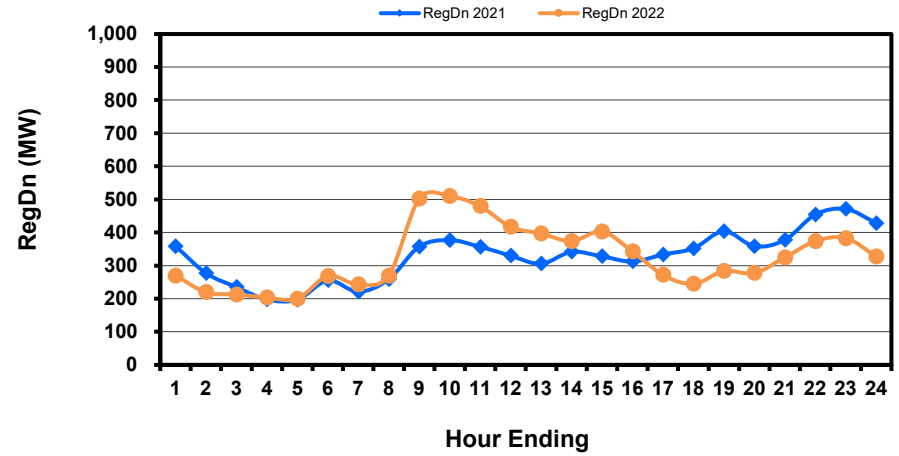
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Hourly Average of Ancillary Services Required MW

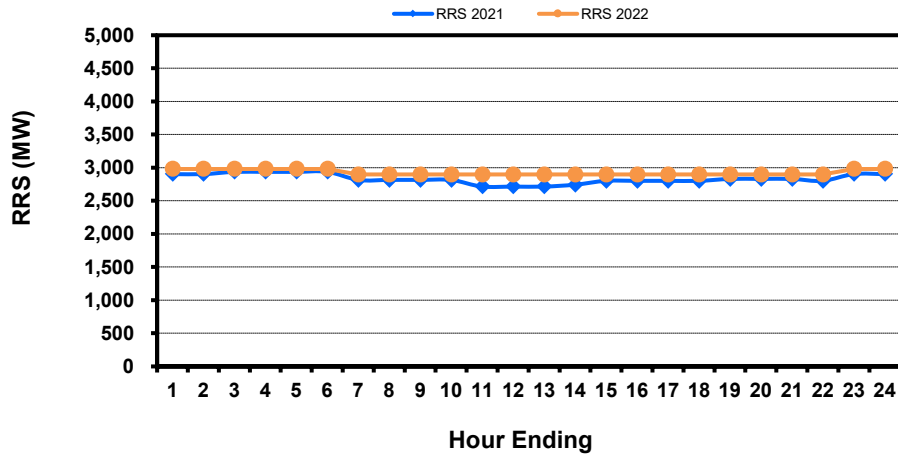
Regulation Up



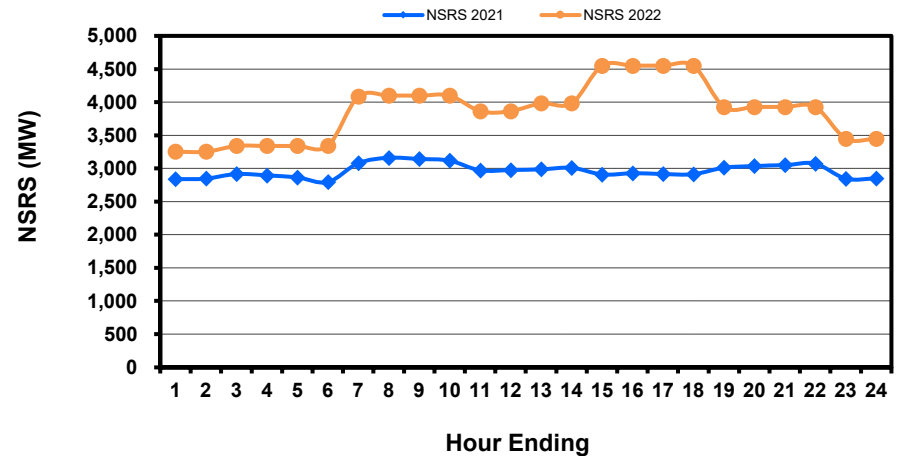
Regulation Down



Responsive Reserve



Non-Spin Reserve



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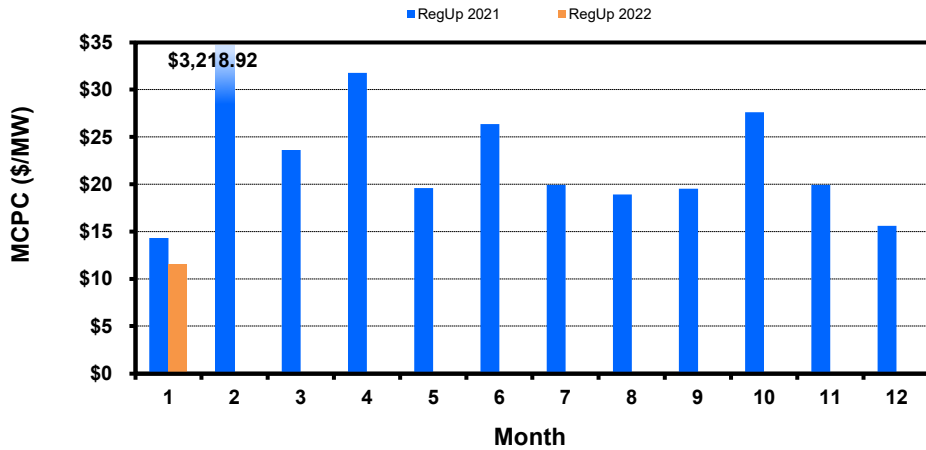
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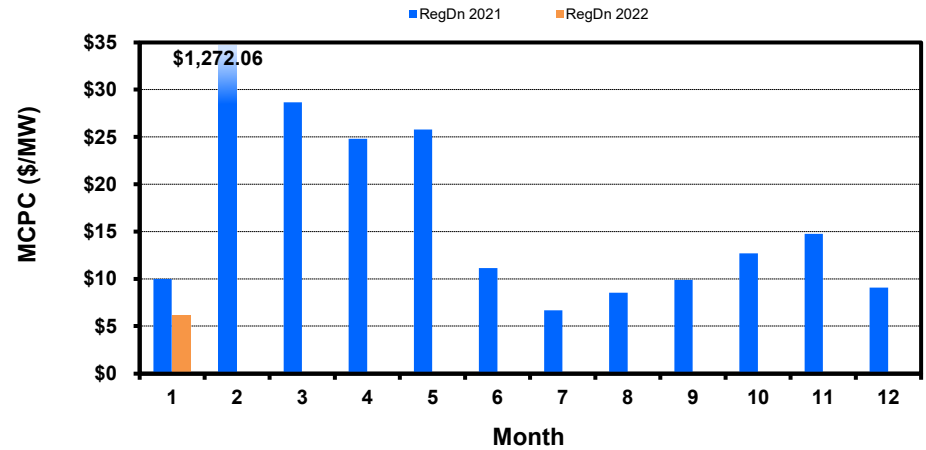
Monthly Average Ancillary Services Price

(weighted by A/S Quantities Required)

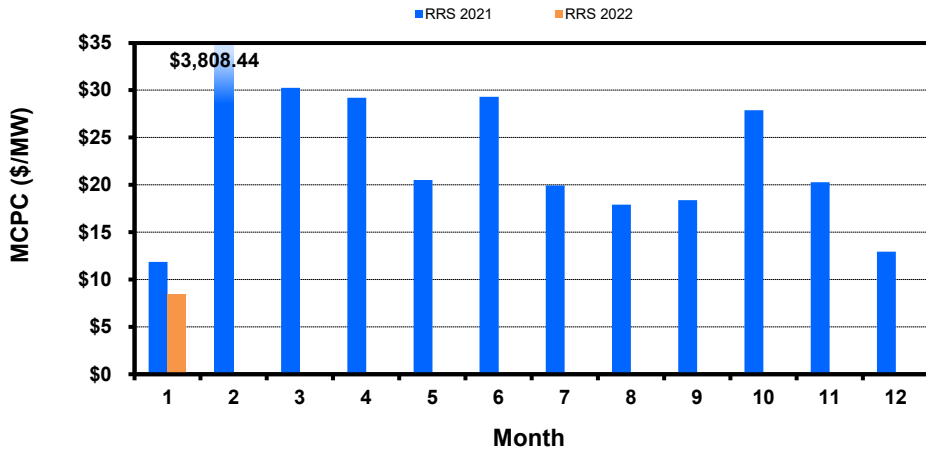
Regulation Up



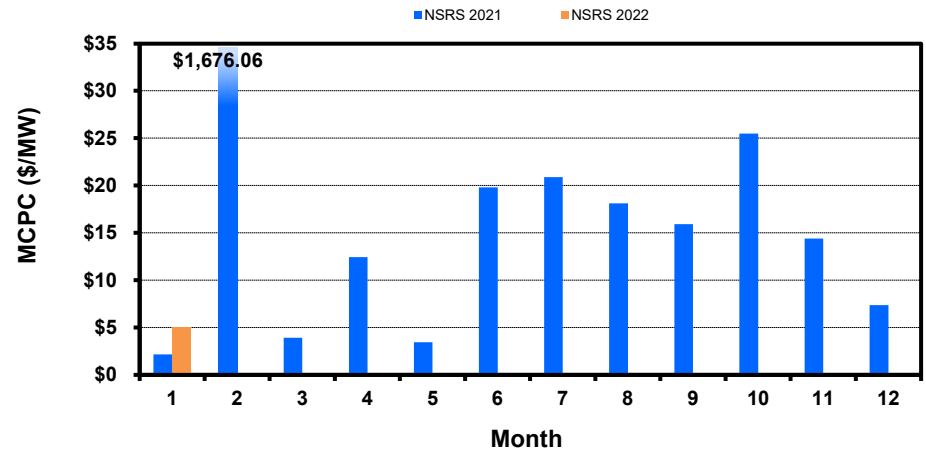
Regulation Down



Responsive Reserve



Non-Spin Reserve



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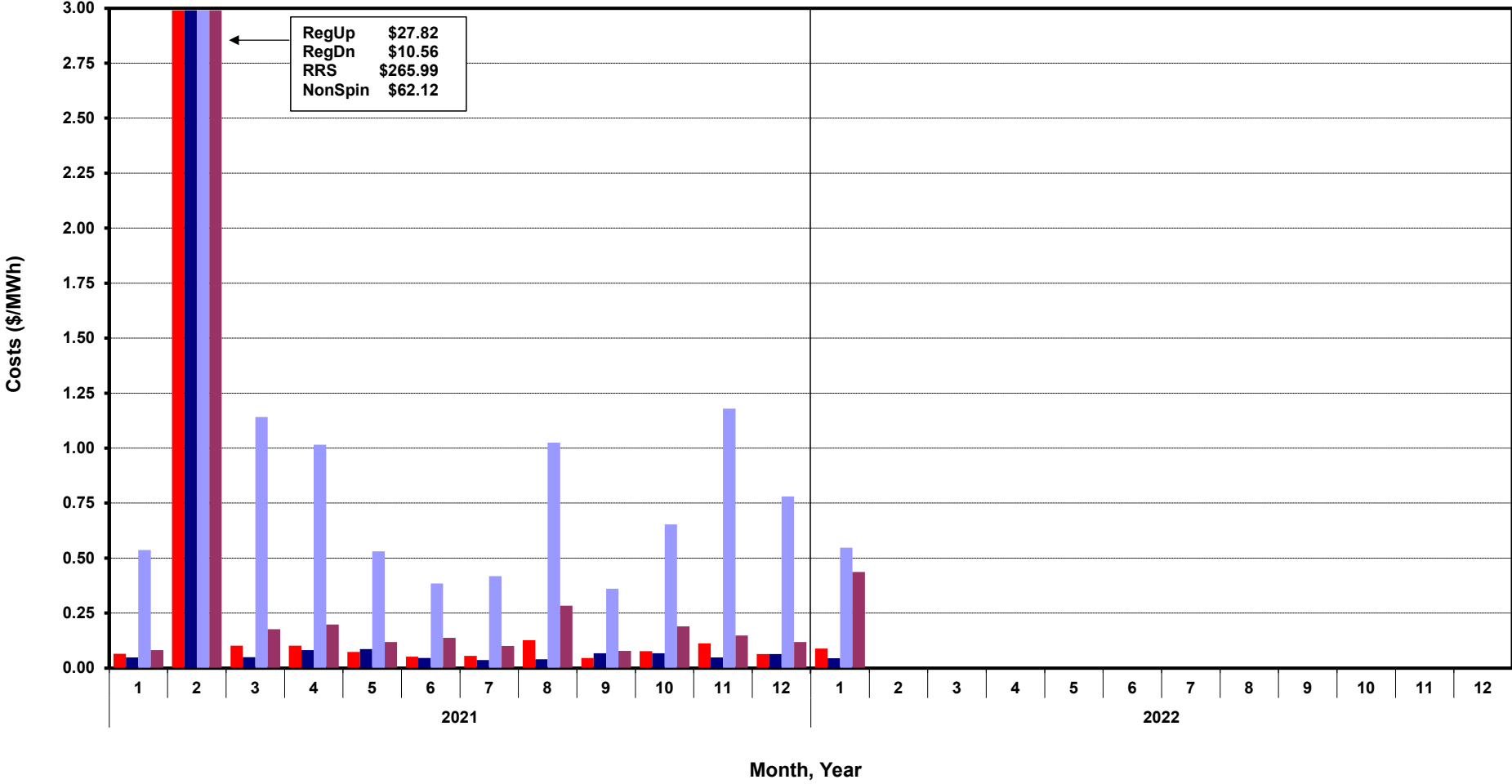
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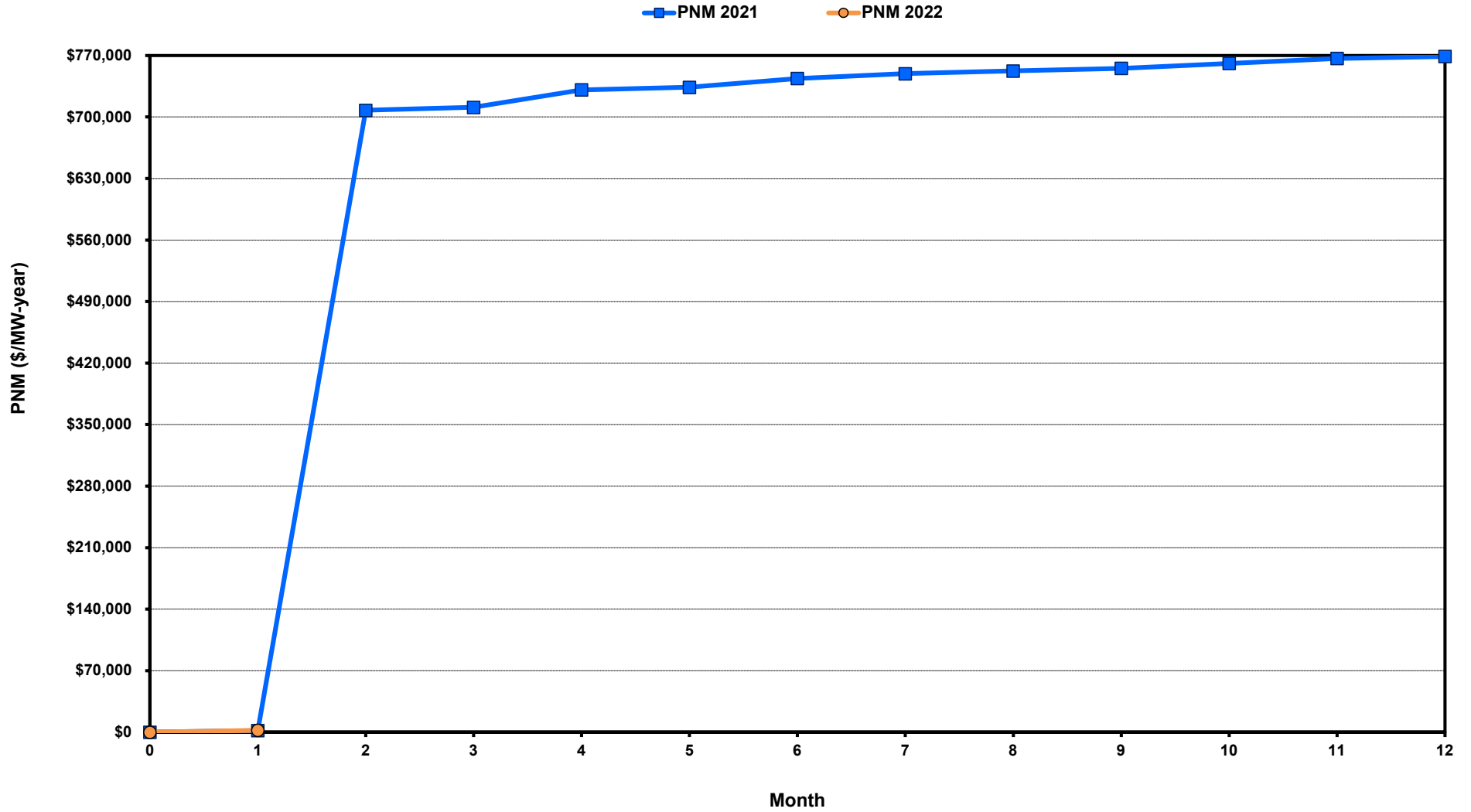
Monthly Average A/S Cost per MWh Load

■ RegUp ■ RegDn ■ RRS ■ NonSpin



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ERCOT-wide Cumulative Peaker Net Margin



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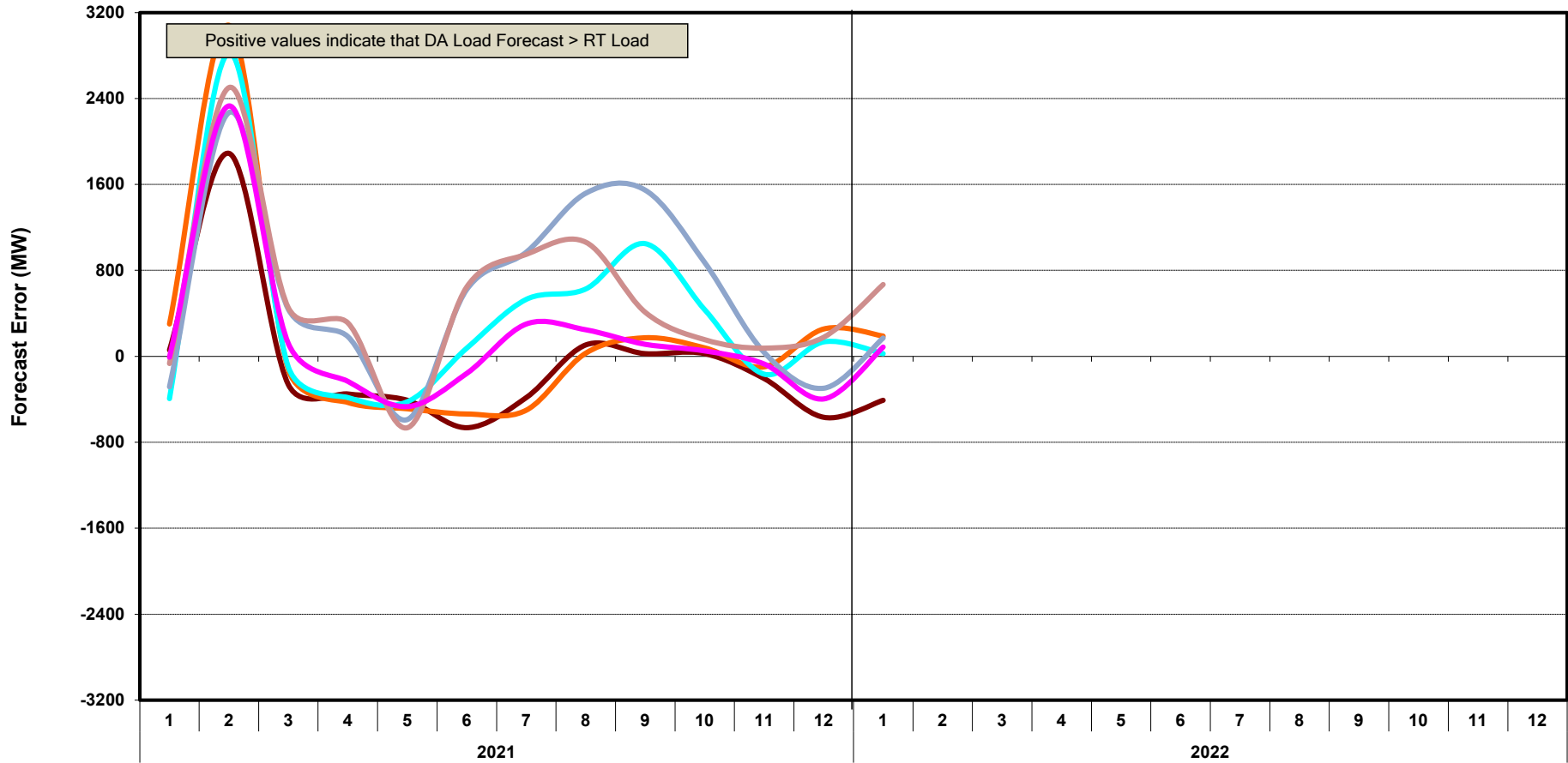
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DA vs. RT Load Forecast Error by Hour Ending

HE_1_4 HE_5_8 HE_9_12 HE_13_16 HE_17_20 HE_21_24



Month, Year

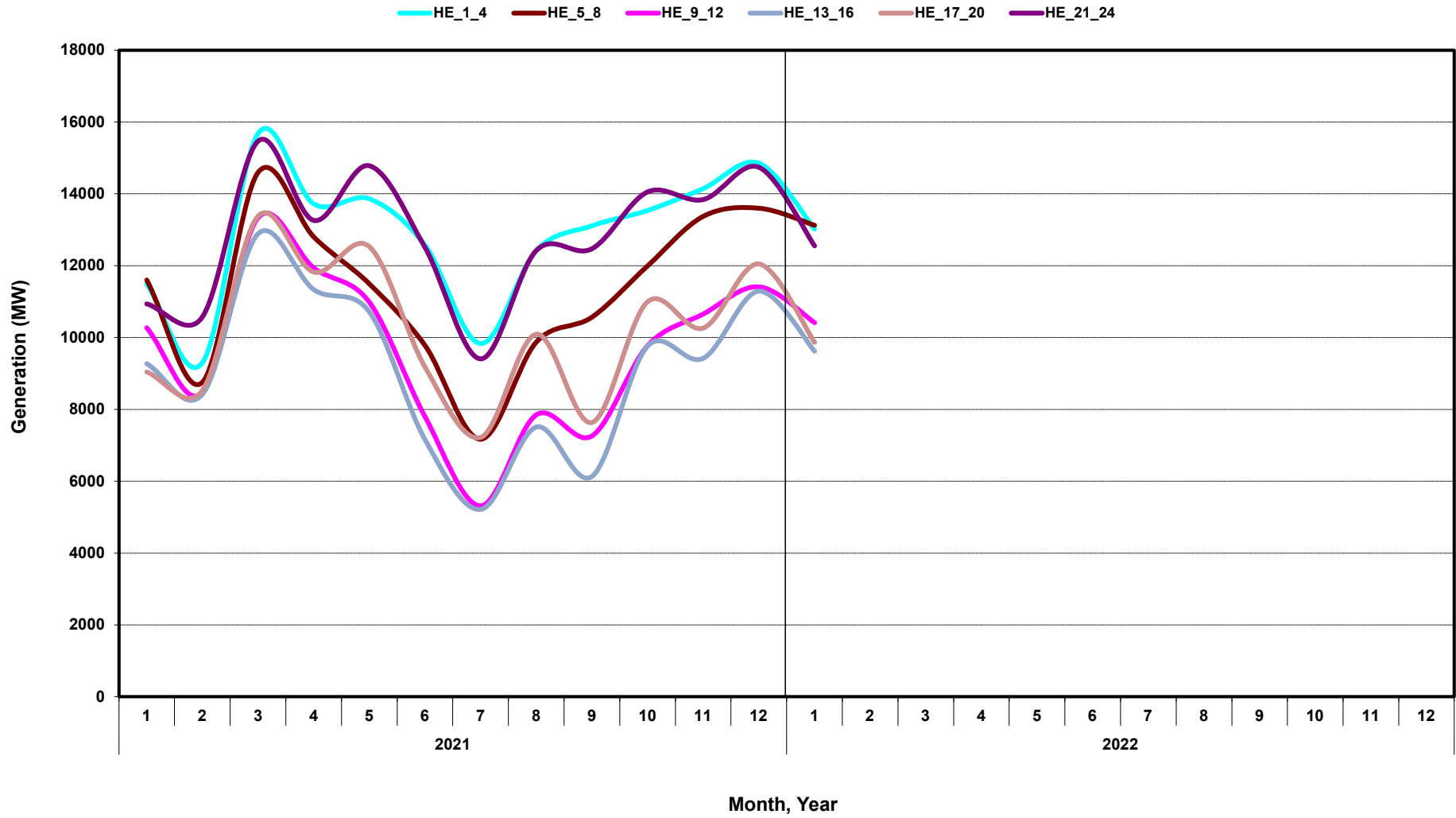
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Monthly Average of Wind Generation by Hour Ending



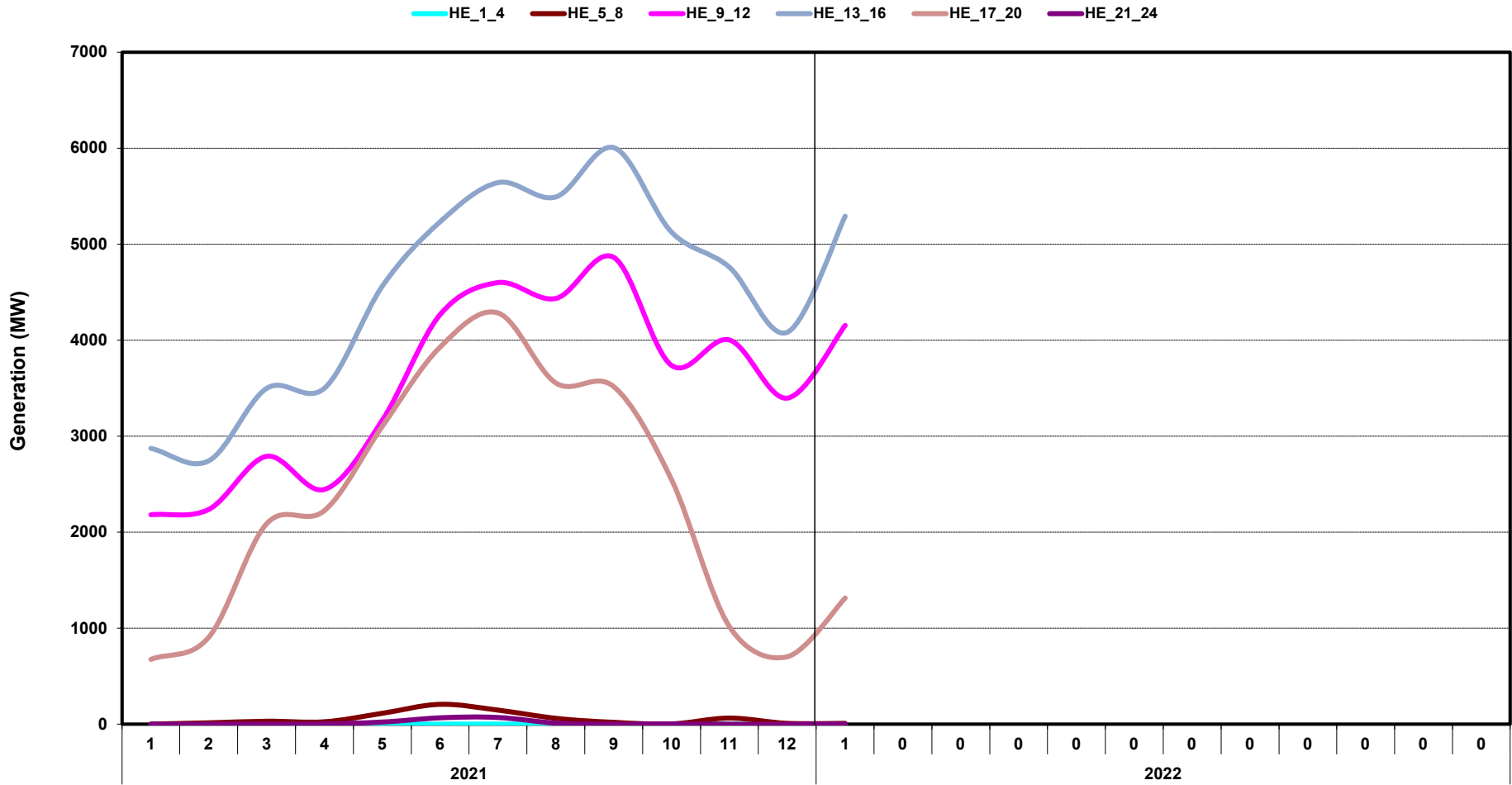
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Monthly Average of Solar Generation by Hour Ending



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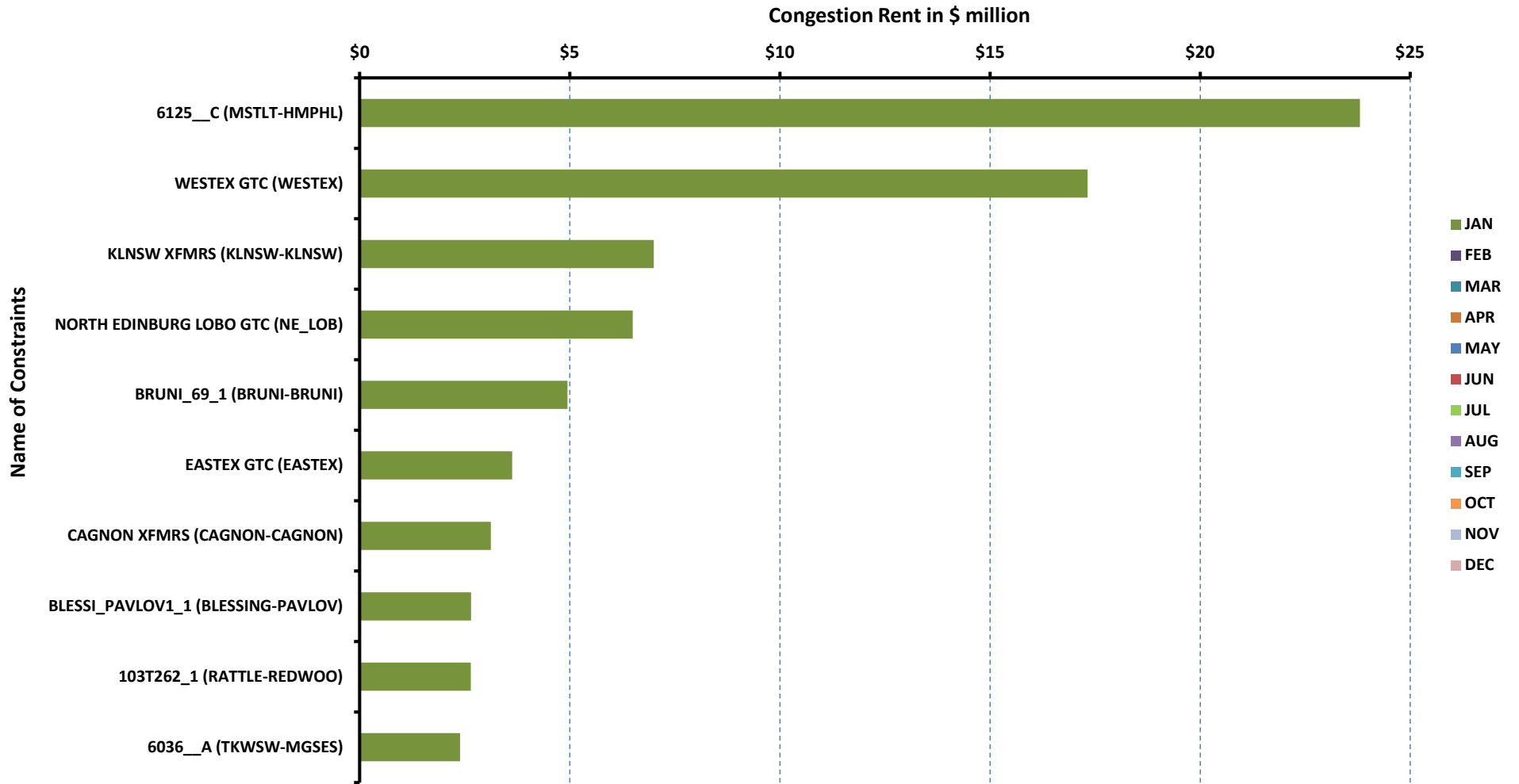
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RT Congestion Constraint Rankings - 1

Top 10 Constraints by Total Congestion Value - 2022



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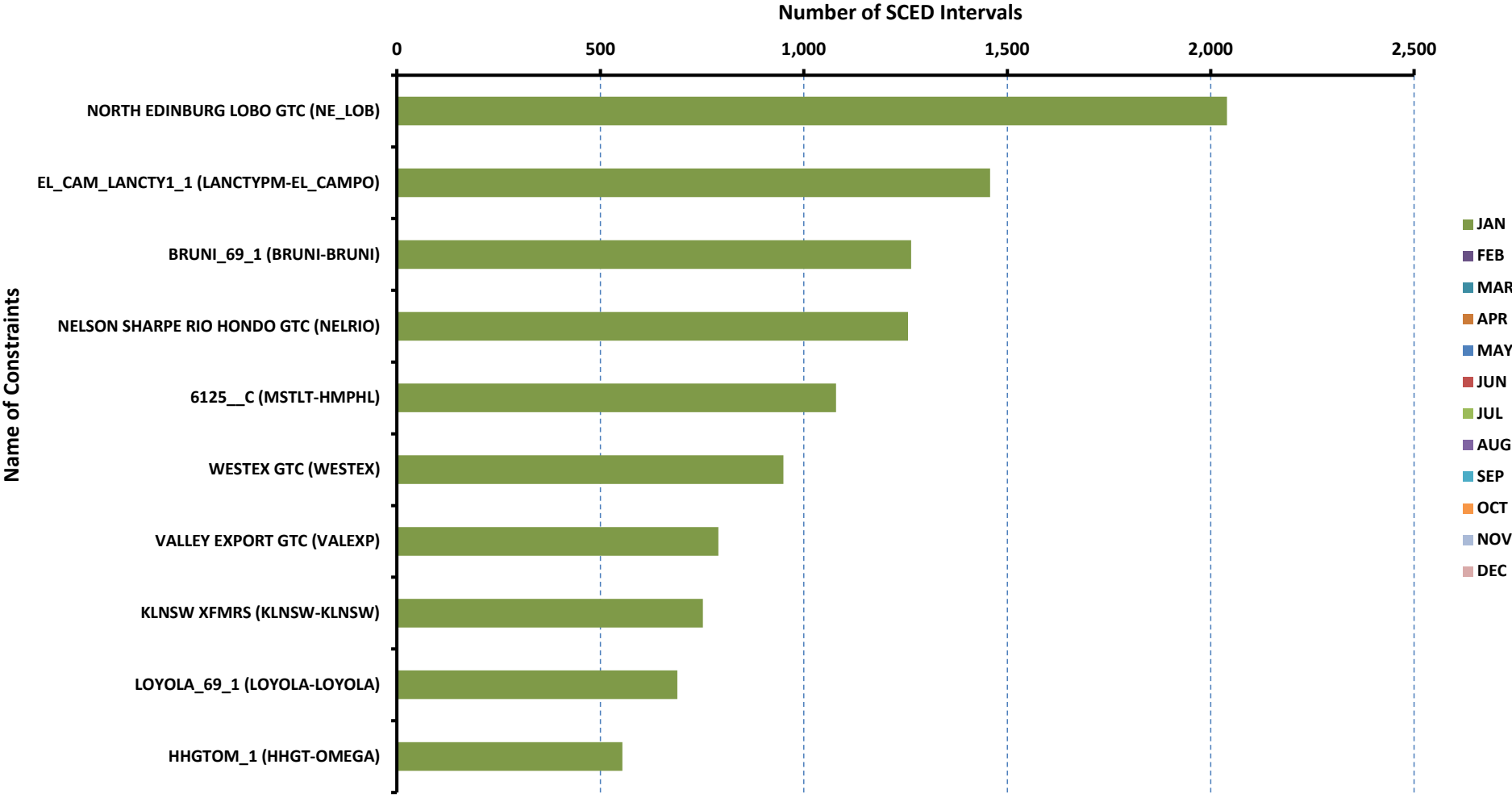
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RT Congestion Constraint Rankings - 2

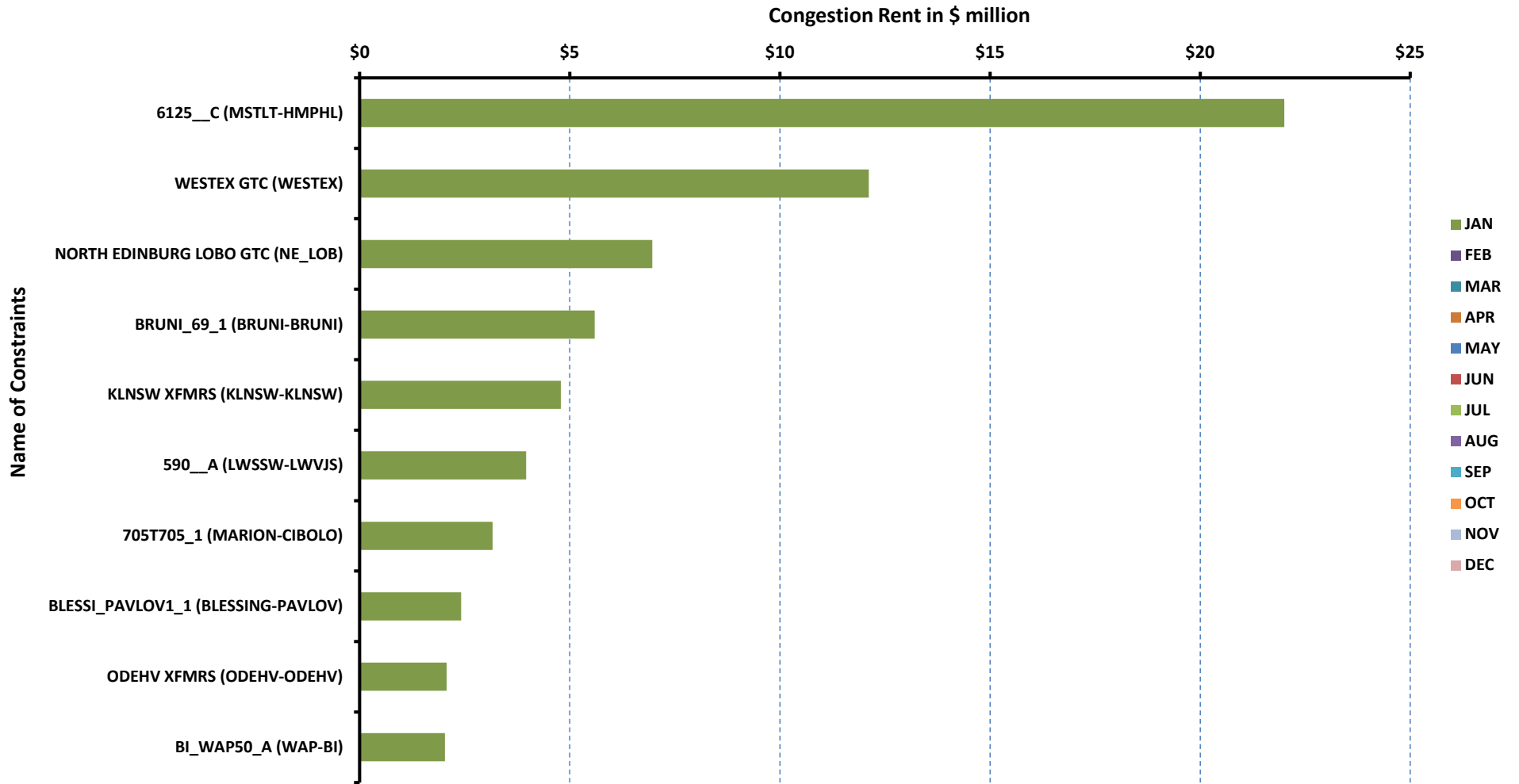
Top 10 Constraints by Binding Frequency - 2022



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DA Congestion Constraint Rankings - 1

Top 10 Constraints by Total Congestion Value - 2022



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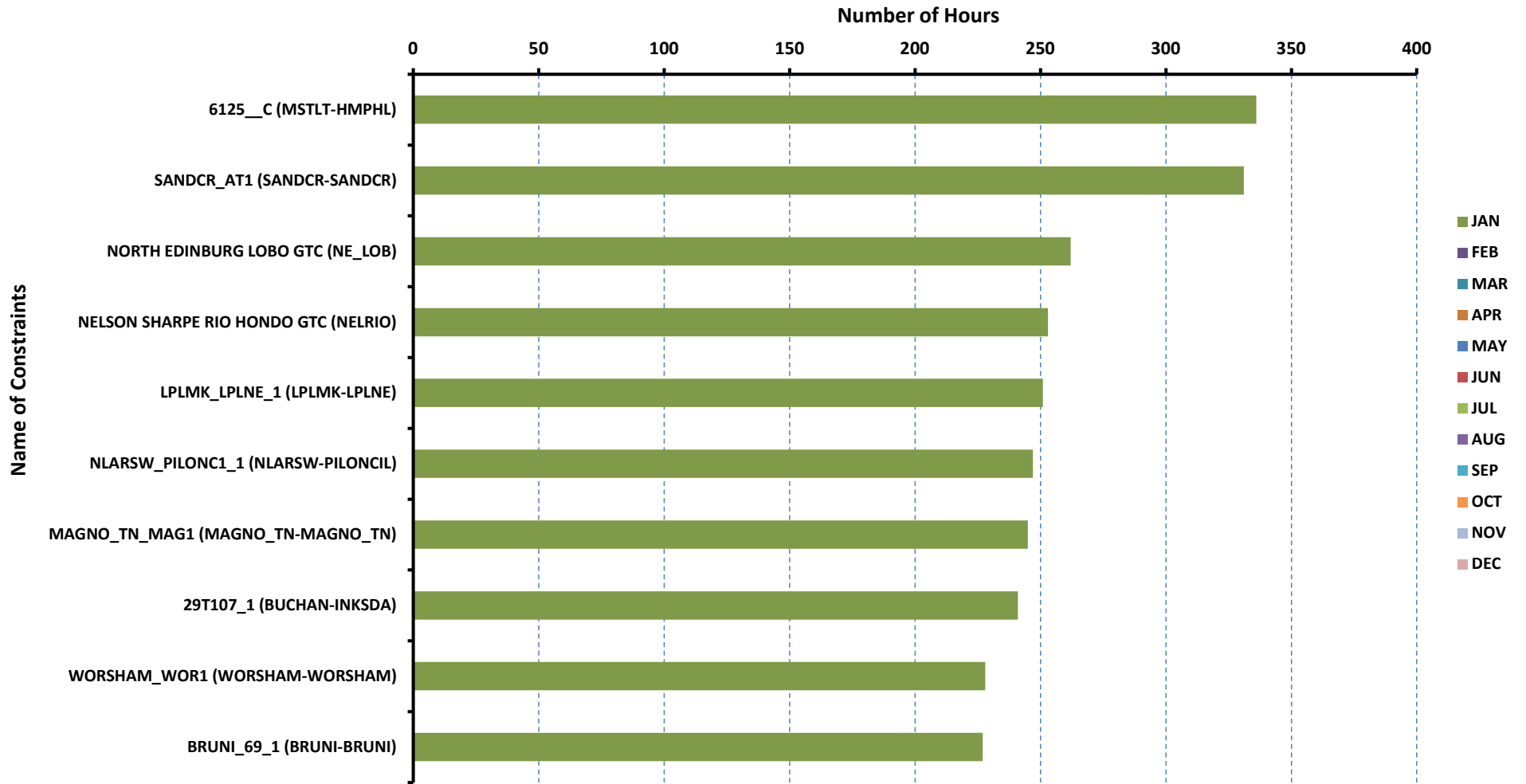
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DA Congestion Constraint Rankings - 2

Top 10 Constraints by Binding Frequency - 2022



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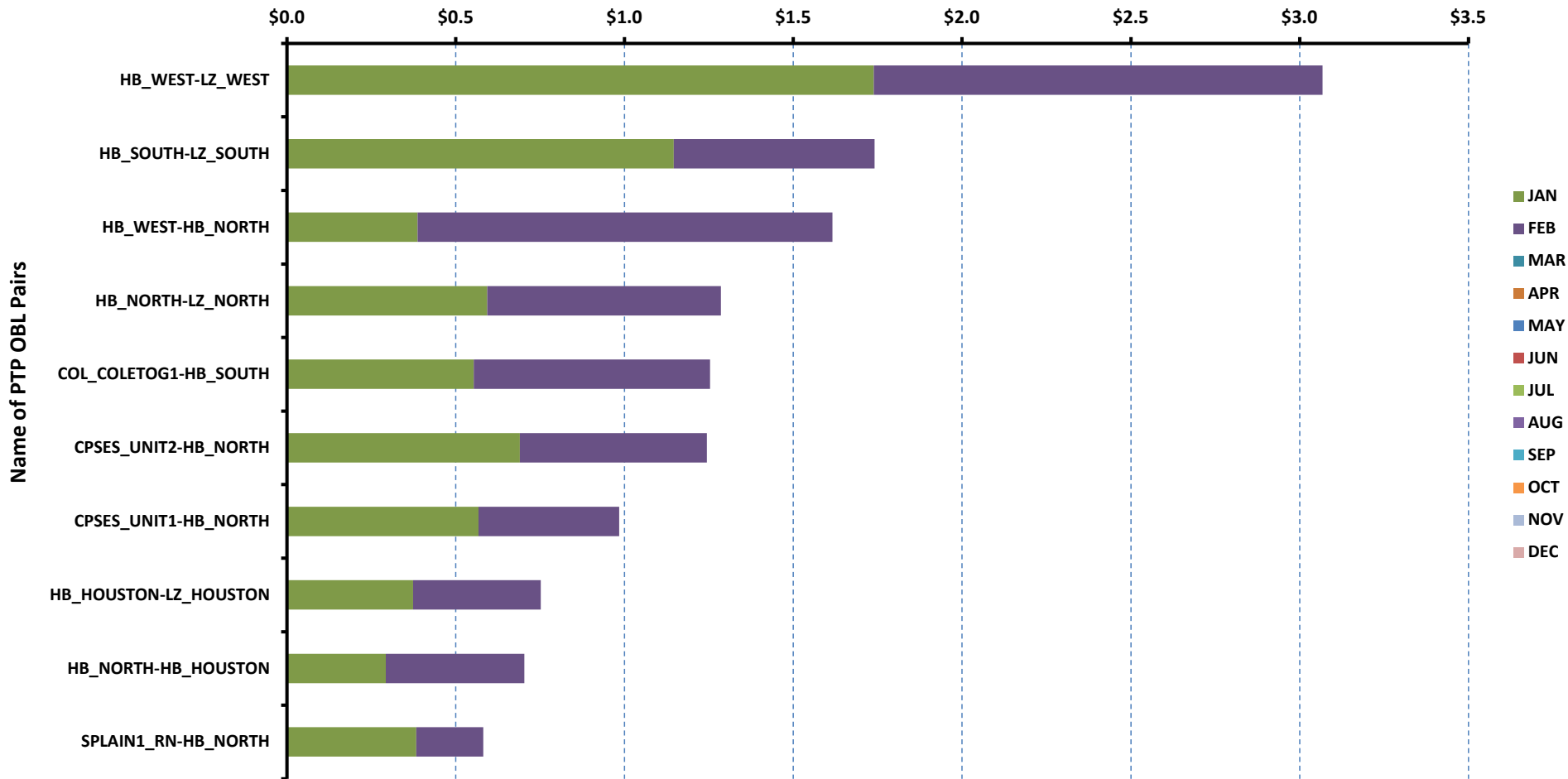
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Top 10 CRR Pairs Ranked by Monthly Auction Values - 1

Top 10 PTP Obligations by Total Transaction Value - 2022

Total Transaction Value in \$ million



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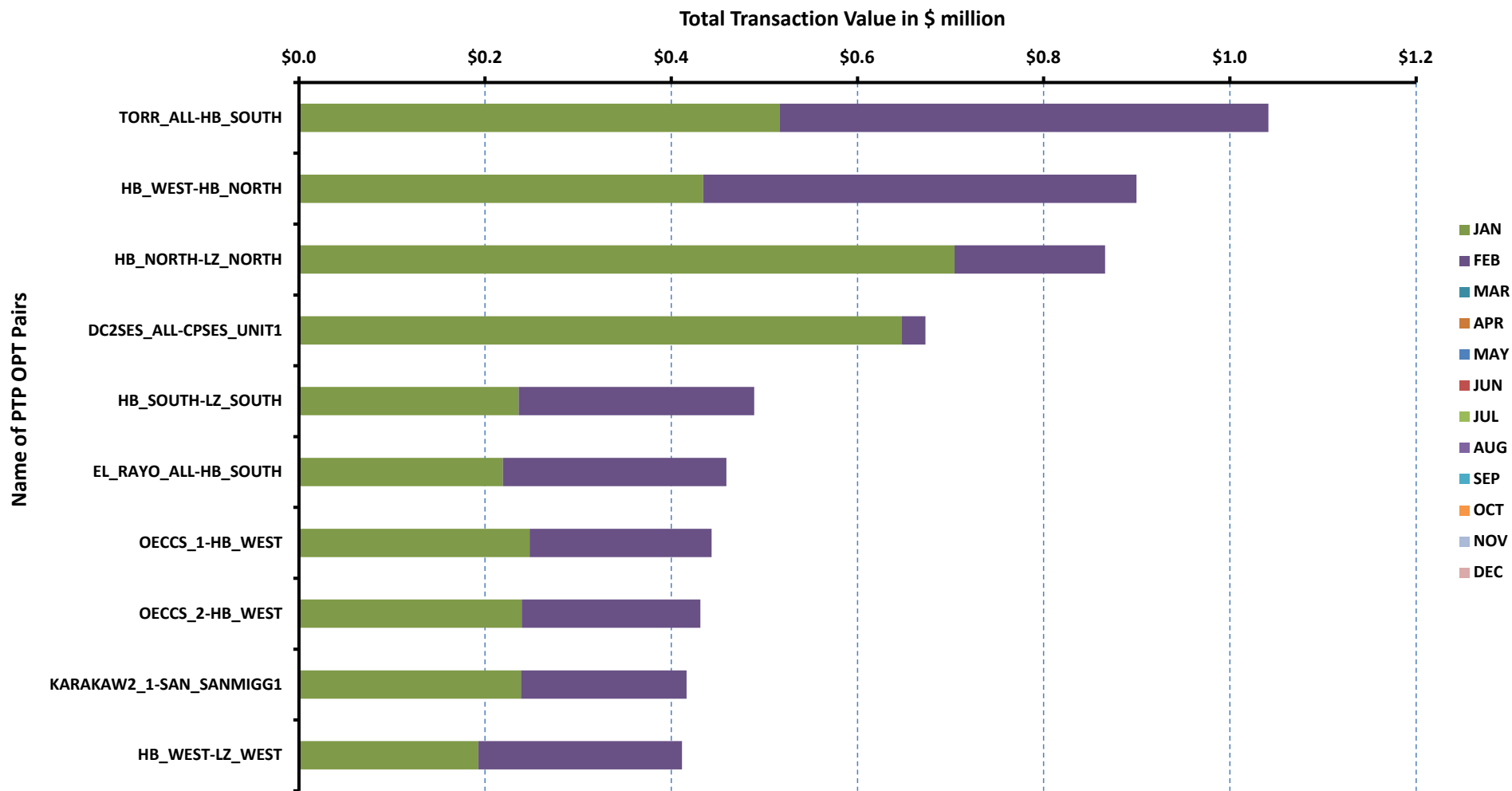
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Top 10 CRR Pairs Ranked by Monthly Auction Values - 2

Top 10 PTP Options by Total Transaction Value - 2022



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ERCOT-wide Avg. Energy Price - DA vs. RT			
year	month	dam_spp	rtm_spp
2021	1	\$ 22.60	\$ 21.96
	2	\$ 1,723.84	\$ 1,784.27
	3	\$ 22.49	\$ 22.33
	4	\$ 33.56	\$ 56.73
	5	\$ 27.60	\$ 25.76
	6	\$ 48.37	\$ 44.49
	7	\$ 45.89	\$ 40.84
	8	\$ 44.50	\$ 38.22
	9	\$ 48.95	\$ 46.18
	10	\$ 57.98	\$ 52.95
	11	\$ 41.42	\$ 43.56
	12	\$ 29.94	\$ 27.69
2022	1	\$ 34.34	\$ 31.52
	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	
2021	1	14,285	21,804	16,813	5,924	10,650	14,885	10,632	5,265	
	2	14,393	29,497	21,142	6,279	9,982	16,969	11,655	4,692	
	3	13,194	17,035	13,265	5,597	10,101	12,283	9,471	4,923	
	4	15,653	17,449	16,229	5,924	11,115	12,312	10,472	5,113	
	5	17,861	22,391	17,715	6,419	12,431	13,469	11,569	5,254	
	6	19,449	26,148	19,149	7,188	14,564	17,718	13,620	5,963	
	7	19,774	27,902	18,942	7,172	14,669	18,817	13,689	6,018	
	8	20,217	27,722	19,854	7,391	15,298	19,440	14,658	6,242	
	9	19,834	28,103	19,739	7,300	13,591	17,430	13,661	6,090	
	10	17,723	22,382	17,369	6,903	12,272	14,192	11,796	5,652	
	11	14,230	16,600	13,439	6,030	10,545	12,707	10,019	5,557	
	12	14,379	18,024	13,781	6,361	11,263	13,121	10,491	5,692	
2022	1	15,247	24,621	17,564	7,296	11,417	15,859	11,538	6,062	
	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	
2021	1	\$ 21.23	\$ 21.92	\$ 23.45	\$ 20.58	\$ 21.92	\$ 22.57	\$ 23.90	\$ 21.47	
	2	\$ 1,444.49	\$ 2,006.93	\$ 2,010.29	\$ 1,140.39	\$ 1,419.05	\$ 1,927.34	\$ 1,942.62	\$ 1,092.81	
	3	\$ 27.22	\$ 20.85	\$ 22.09	\$ 16.44	\$ 27.64	\$ 21.77	\$ 20.15	\$ 18.25	
	4	\$ 76.32	\$ 50.81	\$ 51.13	\$ 39.84	\$ 36.88	\$ 32.06	\$ 34.79	\$ 27.42	
	5	\$ 26.40	\$ 26.73	\$ 26.13	\$ 20.95	\$ 32.20	\$ 26.20	\$ 26.74	\$ 22.18	
	6	\$ 44.10	\$ 46.25	\$ 44.51	\$ 40.10	\$ 48.43	\$ 50.14	\$ 48.11	\$ 43.58	
	7	\$ 39.37	\$ 43.29	\$ 39.31	\$ 40.20	\$ 45.37	\$ 47.26	\$ 45.40	\$ 43.99	
	8	\$ 38.45	\$ 39.24	\$ 37.81	\$ 35.45	\$ 44.72	\$ 46.19	\$ 43.41	\$ 41.23	
	9	\$ 47.87	\$ 46.31	\$ 44.96	\$ 44.71	\$ 49.27	\$ 49.68	\$ 48.73	\$ 46.67	
	10	\$ 56.44	\$ 52.87	\$ 54.68	\$ 41.94	\$ 61.22	\$ 58.71	\$ 59.37	\$ 46.22	
	11	\$ 46.62	\$ 43.12	\$ 42.51	\$ 40.65	\$ 43.70	\$ 41.01	\$ 40.52	\$ 39.65	
	12	\$ 30.31	\$ 28.35	\$ 26.87	\$ 22.46	\$ 32.26	\$ 30.77	\$ 29.25	\$ 24.70	
2022	1	\$ 31.45	\$ 33.18	\$ 31.70	\$ 26.96	\$ 34.63	\$ 35.63	\$ 34.58	\$ 29.96	
	2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	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
2021	1	\$ 2.57	\$ 21.96	8.53	\$ 22.60	8.78
	2	\$ 51.48	\$ 1,784.27	34.66	\$ 1,723.84	33.49
	3	\$ 2.44	\$ 22.33	9.14	\$ 22.49	9.21
	4	\$ 2.61	\$ 56.73	21.74	\$ 33.56	12.86
	5	\$ 2.87	\$ 25.76	8.96	\$ 27.60	9.60
	6	\$ 3.17	\$ 44.49	14.04	\$ 48.37	15.27
	7	\$ 3.71	\$ 40.84	11.00	\$ 45.89	12.36
	8	\$ 3.98	\$ 38.22	9.60	\$ 44.50	11.18
	9	\$ 4.92	\$ 46.18	9.38	\$ 48.95	9.95
	10	\$ 5.29	\$ 52.95	10.01	\$ 57.98	10.97
	11	\$ 4.81	\$ 43.56	9.07	\$ 41.42	8.62
	12	\$ 3.54	\$ 27.69	7.83	\$ 29.94	8.47
2022	1	\$ 4.01	\$ 31.52	7.85	\$ 34.34	8.56
	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
2021	1	8.52	9.29	8.77	8.34	8.25	9.11	8.52	8.00
	2	27.57	37.74	37.44	21.23	28.06	39.05	38.99	22.15
	3	11.32	8.25	8.91	7.47	11.14	9.04	8.53	6.73
	4	14.14	13.33	12.29	10.51	29.25	19.60	19.48	15.27
	5	11.21	9.30	9.12	7.72	9.19	9.09	9.30	7.29
	6	15.28	15.18	15.82	13.75	13.92	14.05	14.60	12.65
	7	12.22	12.23	12.73	11.85	10.61	10.59	11.66	10.83
	8	11.23	10.91	11.60	10.36	9.66	9.50	9.86	8.90
	9	10.01	9.90	10.10	9.49	9.73	9.14	9.41	9.09
	10	11.58	11.23	11.11	8.74	10.68	10.34	10.00	7.93
	11	9.09	8.43	8.53	8.25	9.70	8.85	8.97	8.46
	12	9.13	8.27	8.70	6.99	8.57	7.60	8.02	6.35
2022	1	8.63	8.62	8.88	7.47	7.84	7.90	8.27	6.72
	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
2022	1	1	\$ 2.18	\$ -	7	0	80	90
2022	1	2	\$ -	\$ -	0	0	80	90
2022	1	3	\$ 0.01	\$ 3.17	1	21	80	90
2022	1	4	\$ -	\$ -	0	0	80	90
2022	1	5	\$ 0.05	\$ -	3	0	80	90
2022	1	6	\$ 0.13	\$ -	11	0	80	90
2022	1	7	\$ 4.79	\$ 10.59	52	49	80	90
2022	1	8	\$ 5.29	\$ 0.04	9	1	80	90
2022	1	9	\$ -	\$ -	0	0	80	90
2022	1	10	\$ 0.08	\$ -	14	0	80	90
2022	1	11	\$ 0.23	\$ -	11	0	80	90
2022	1	12	\$ 0.31	\$ -	19	0	80	90
2022	1	13	\$ 3.82	\$ -	29	0	80	90
2022	1	14	\$ -	\$ -	0	0	80	90
2022	1	15	\$ 0.01	\$ -	3	0	80	90
2022	1	16	\$ 0.01	\$ 0.73	6	16	80	90
2022	1	17	\$ 0.11	\$ -	5	0	80	90
2022	1	18	\$ 0.01	\$ -	1	0	80	90
2022	1	19	\$ -	\$ -	0	0	80	90
2022	1	20	\$ -	\$ -	0	0	80	90
2022	1	21	\$ -	\$ 0.96	0	13	80	90
2022	1	22	\$ -	\$ -	0	0	80	90
2022	1	23	\$ -	\$ -	0	0	80	90
2022	1	24	\$ 1.33	\$ -	17	0	80	90
2022	1	25	\$ 0.31	\$ -	4	0	80	90
2022	1	26	\$ 6.61	\$ -	34	0	80	90
2022	1	27	\$ 0.27	\$ 0.59	16	11	80	90
2022	1	28	\$ 8.28	\$ 3.33	26	18	80	90
2022	1	29	\$ 12.58	\$ 2.80	36	8	80	90
2022	1	30	\$ 4.37	\$ -	8	0	80	90
2022	1	31	\$ 9.05	\$ -	19	0	80	90

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Monthly Average of Ancillary Services Required MW					
year	month	ASMW_REGDN	ASMW_NSPIN	ASMW_RRS	ASMW_REGUP
2021	1	317	1,535	2,964	345
	2	360	1,604	3,024	374
	3	373	1,500	3,023	374
	4	362	1,531	3,059	391
	5	382	1,481	2,794	403
	6	327	1,527	2,548	343
	7	300	2,858	2,508	306
	8	322	3,835	2,530	328
	9	318	4,910	2,665	321
	10	318	4,880	2,908	330
	11	290	4,911	3,067	299
	12	280	4,914	2,951	296
2022	1	325	3,867	2,926	346
	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
2021	1	359	2,840	2,905	208
	2	277	2,849	2,905	195
	3	235	2,918	2,939	208
	4	198	2,896	2,940	234
	5	198	2,866	2,940	294
	6	256	2,797	2,940	438
	7	221	3,082	2,816	548
	8	259	3,161	2,816	352
	9	358	3,144	2,816	359
	10	377	3,119	2,816	428
	11	357	2,972	2,716	474
	12	330	2,977	2,716	478
	13	306	2,989	2,716	456
	14	342	3,012	2,745	420
	15	328	2,911	2,803	403
	16	313	2,929	2,803	397
	17	334	2,917	2,803	418
	18	352	2,914	2,803	446
	19	404	3,013	2,832	368
	20	358	3,038	2,832	278
	21	378	3,052	2,832	225
	22	455	3,073	2,803	205
	23	471	2,847	2,905	199
	24	428	2,853	2,905	182
2022	1	270	3,255	2,982	233
	2	220	3,255	2,982	194
	3	213	3,343	2,982	222
	4	204	3,343	2,982	268
	5	200	3,343	2,982	373
	6	269	3,343	2,982	534
	7	243	4,085	2,898	654
	8	270	4,102	2,898	393
	9	503	4,102	2,898	312
	10	510	4,102	2,898	357
	11	480	3,866	2,898	340
	12	417	3,866	2,898	378
	13	397	3,985	2,898	334
	14	374	3,985	2,898	320
	15	403	4,552	2,898	346
	16	343	4,552	2,898	436
	17	272	4,552	2,898	563
	18	245	4,552	2,898	676
	19	284	3,929	2,898	367
	20	278	3,929	2,898	187
	21	325	3,929	2,898	242
	22	374	3,929	2,898	179
	23	383	3,450	2,982	181
	24	328	3,450	2,982	204

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Monthly Average Ancillary Services Price					
year	month	MCPC_REGDN	MCPC_NSPIN	MCPC_RRS	MCPC_REGUP
2021	1	\$ 9.98	\$ 2.16	\$ 11.85	\$ 14.31
	2	\$ 1,272.06	\$ 1,676.26	\$ 3,808.44	\$ 3,218.92
	3	\$ 28.66	\$ 3.93	\$ 30.23	\$ 23.61
	4	\$ 24.82	\$ 12.43	\$ 29.20	\$ 31.78
	5	\$ 25.78	\$ 3.45	\$ 20.49	\$ 19.60
	6	\$ 11.14	\$ 19.82	\$ 29.28	\$ 26.37
	7	\$ 6.66	\$ 20.88	\$ 19.92	\$ 19.94
	8	\$ 8.53	\$ 18.12	\$ 17.90	\$ 18.91
	9	\$ 9.89	\$ 15.91	\$ 18.39	\$ 19.54
	10	\$ 12.69	\$ 25.49	\$ 27.86	\$ 27.63
	11	\$ 14.74	\$ 14.39	\$ 20.28	\$ 19.93
	12	\$ 9.08	\$ 7.35	\$ 12.94	\$ 15.62
2022	1	\$ 6.15	\$ 5.07	\$ 8.39	\$ 11.56
	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_NSPIN	AScost_RRS	AScost_REGUP
2021	1	\$ 0.08	\$ 0.08	\$ 0.85	\$ 0.12
	2	\$ 10.56	\$ 62.11	\$ 265.95	\$ 27.81
	3	\$ 0.29	\$ 0.16	\$ 2.49	\$ 0.24
	4	\$ 0.23	\$ 0.49	\$ 2.29	\$ 0.32
	5	\$ 0.23	\$ 0.12	\$ 1.34	\$ 0.18
	6	\$ 0.07	\$ 0.58	\$ 1.44	\$ 0.17
	7	\$ 0.04	\$ 1.12	\$ 0.94	\$ 0.11
	8	\$ 0.05	\$ 1.25	\$ 0.81	\$ 0.11
	9	\$ 0.06	\$ 1.54	\$ 0.97	\$ 0.12
	10	\$ 0.09	\$ 2.83	\$ 1.85	\$ 0.21
	11	\$ 0.11	\$ 1.82	\$ 1.60	\$ 0.15
	12	\$ 0.06	\$ 0.89	\$ 0.94	\$ 0.11
2022	1	\$ 0.04	\$ 0.44	\$ 0.55	\$ 0.09
	2	\$ -	\$ -	\$ -	\$ -
	3	\$ -	\$ -	\$ -	\$ -
	4	\$ -	\$ -	\$ -	\$ -
	5	\$ -	\$ -	\$ -	\$ -
	6	\$ -	\$ -	\$ -	\$ -
	7	\$ -	\$ -	\$ -	\$ -
	8	\$ -	\$ -	\$ -	\$ -
	9	\$ -	\$ -	\$ -	\$ -
	10	\$ -	\$ -	\$ -	\$ -
	11	\$ -	\$ -	\$ -	\$ -
	12	\$ -	\$ -	\$ -	\$ -

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ERCOT-wide Cumulative PNM			
year	month	pnm	pnm_accum
2021	0	\$ -	\$ -
	1	\$ 1,930.83	\$ 1,930.83
	2	\$ 705,718.36	\$ 707,649.19
	3	\$ 3,356.50	\$ 711,005.69
	4	\$ 19,870.21	\$ 730,875.90
	5	\$ 2,917.28	\$ 733,793.18
	6	\$ 10,048.24	\$ 743,841.42
	7	\$ 5,447.42	\$ 749,288.84
	8	\$ 3,062.97	\$ 752,351.81
	9	\$ 3,075.26	\$ 755,427.07
	10	\$ 5,596.65	\$ 761,023.72
	11	\$ 5,656.41	\$ 766,680.13
	12	\$ 2,293.71	\$ 768,973.84
2022	0	\$ -	\$ -
	1	\$ 2,245.58	\$ 2,245.58
	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
2021	1	58	(284)	(66)	(9)	302	(394)
	2	1,889	2,270	2,503	2,331	3,083	2,824
	3	(263)	440	452	119	(125)	(99)
	4	(349)	184	312	(233)	(428)	(384)
	5	(410)	(586)	(665)	(468)	(489)	(422)
	6	(663)	622	645	(158)	(535)	78
	7	(383)	971	950	302	(501)	530
	8	106	1,519	1,062	247	32	627
	9	26	1,548	410	113	172	1,049
	10	25	872	154	52	80	435
	11	(208)	36	77	(72)	(98)	(166)
	12	(568)	(297)	180	(395)	256	135
2022	1	(408)	171	670	86	190	25
	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
2021	1	11,491	9,270	9,037	10,939	11,606	10,274
	2	9,300	8,420	8,532	10,575	8,759	8,461
	3	15,685	12,889	13,380	15,467	14,598	13,338
	4	13,724	11,336	11,823	13,261	12,803	11,939
	5	13,861	10,718	12,533	14,784	11,494	10,984
	6	12,577	7,161	9,179	12,511	9,782	7,803
	7	9,833	5,215	7,223	9,405	7,174	5,318
	8	12,425	7,508	10,092	12,428	9,872	7,849
	9	13,114	6,136	7,634	12,472	10,567	7,265
	10	13,538	9,761	10,995	14,051	11,991	9,768
	11	14,149	9,423	10,265	13,841	13,372	10,657
	12	14,855	11,289	12,050	14,740	13,604	11,416
2022	1	13,020	9,623	9,868	12,555	13,127	10,415
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	-	-	-	-	-
	5	-	-	-	-	-	-
	6	-	-	-	-	-	-
	7	-	-	-	-	-	-
	8	-	-	-	-	-	-
	9	-	-	-	-	-	-
	10	-	-	-	-	-	-
	11	-	-	-	-	-	-
	12	-	-	-	-	-	-

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Monthly Average of Solar Generation by Hour Ending							
year	month	HE_1_4	HE_13_16	HE_17_20	HE_21_24	HE_5_8	HE_9_12
2021	1	0.1	2,874.3	675.2	0.1	1.9	2,183.9
	2	0.0	2,744.3	907.2	0.0	14.4	2,238.2
	3	0.1	3,498.4	2,090.3	1.0	31.5	2,789.9
	4	0.1	3,503.1	2,227.9	2.9	25.0	2,446.2
	5	0.2	4,561.7	3,102.7	22.2	114.1	3,164.8
	6	0.8	5,234.2	3,928.8	66.7	208.8	4,266.6
	7	1.2	5,642.7	4,283.9	71.3	147.5	4,599.8
	8	0.3	5,492.5	3,554.1	12.0	62.2	4,435.3
	9	0.1	6,004.6	3,516.7	0.1	20.4	4,862.2
	10	4.5	5,126.9	2,547.7	4.5	3.3	3,739.5
	11	0.2	4,761.4	1,018.1	0.3	64.7	4,003.0
	12	0.2	4,083.3	704.9	0.2	9.6	3,396.1
2022	1	3.3	5,290.8	1,314.4	3.4	9.3	4,155.3
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0.0	0.0	0.0	0.0	0.0	0.0

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RT Congestion Constraint Rankings - Top 10 Constraints by Binding Frequency and Top 10 Con:

category	year	item	rankvar	rank	JAN	FEB	MAR	APR
FREQ_EXIST	2022	NORTH EDINBURG LOBO GTC (NE_LOB)	2040	1	2040	0	0	0
FREQ_EXIST	2022	EL_CAM_LANCTY1_1 (LANCTYPM-EL_CAMPO)	1458	2	1458	0	0	0
FREQ_EXIST	2022	BRUNI_69_1 (BRUNI-BRUNI)	1264	3	1264	0	0	0
FREQ_EXIST	2022	NELSON SHARPE RIO HONDO GTC (NELRIO)	1256	4	1256	0	0	0
FREQ_EXIST	2022	6125_C (MSTLT-HMPHL)	1079	5	1079	0	0	0
FREQ_EXIST	2022	WESTEX GTC (WESTEX)	950	6	950	0	0	0
FREQ_EXIST	2022	VALLEY EXPORT GTC (VALEXP)	790	7	790	0	0	0
FREQ_EXIST	2022	KLNSW XFMRs (KLNSW-KLNSW)	752	8	752	0	0	0
FREQ_EXIST	2022	LOYOLA_69_1 (LOYOLA-LOYOLA)	689	9	689	0	0	0
FREQ_EXIST	2022	HHGTOM_1 (HHGT-OMEGA)	554	10	554	0	0	0
TOP10_RENT	2022	6125_C (MSTLT-HMPHL)	\$ 23.80	1	\$ 23.80	\$ -	\$ -	\$ -
TOP10_RENT	2022	WESTEX GTC (WESTEX)	\$ 17.32	2	\$ 17.32	\$ -	\$ -	\$ -
TOP10_RENT	2022	KLNSW XFMRs (KLNSW-KLNSW)	\$ 7.00	3	\$ 7.00	\$ -	\$ -	\$ -
TOP10_RENT	2022	NORTH EDINBURG LOBO GTC (NE_LOB)	\$ 6.50	4	\$ 6.50	\$ -	\$ -	\$ -
TOP10_RENT	2022	BRUNI_69_1 (BRUNI-BRUNI)	\$ 4.95	5	\$ 4.95	\$ -	\$ -	\$ -
TOP10_RENT	2022	EASTEX GTC (EASTEX)	\$ 3.63	6	\$ 3.63	\$ -	\$ -	\$ -
TOP10_RENT	2022	CAGNON XFMRs (CAGNON-CAGNON)	\$ 3.12	7	\$ 3.12	\$ -	\$ -	\$ -
TOP10_RENT	2022	BLESSI_PAVLOV1_1 (BLESSING-PAVLOV)	\$ 2.65	8	\$ 2.65	\$ -	\$ -	\$ -
TOP10_RENT	2022	103T262_1 (RATTLE-REDWOO)	\$ 2.65	9	\$ 2.65	\$ -	\$ -	\$ -
TOP10_RENT	2022	6036_A (TKWSW-MGSES)	\$ 2.39	10	\$ 2.39	\$ -	\$ -	\$ -

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straints by Total Congestion Rent

MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
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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	2022	6125_C (MSTLT-HMPHL)	336	1	336	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	SANDCR_AT1 (SANDCR-SANDCR)	331	2	331	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	NORTH EDINBURG LOBO GTC (NE_LOB)	262	3	262	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	NELSON SHARPE RIO HONDO GTC (NELRIO)	253	4	253	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	LPLMK_LPLNE_1 (LPLMK-LPLNE)	251	5	251	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	NLARSW_PILONC1_1 (NLARSW-PILONCIL)	247	6	247	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	MAGNO_TN_MAG1 (MAGNO_TN-MAGNO_TN)	245	7	245	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	29T107_1 (BUCHAN-INKSDA)	241	8	241	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	WORSHAM_WOR1 (WORSHAM-WORSHAM)	228	9	228	-	-	-	-	-	-	-	-	-	-	-
FREQ_EXIST	2022	BRUNI_69_1 (BRUNI-BRUNI)	227	10	227	-	-	-	-	-	-	-	-	-	-	-
TOP10_RENT	2022	6125_C (MSTLT-HMPHL)	\$ 22.00	1	\$ 22.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	WESTEX GTC (WESTEX)	\$ 12.11	2	\$ 12.11	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	NORTH EDINBURG LOBO GTC (NE_LOB)	\$ 6.96	3	\$ 6.96	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	BRUNI_69_1 (BRUNI-BRUNI)	\$ 5.59	4	\$ 5.59	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	KLNSW_XFMRS (KLNSW-KLNSW)	\$ 4.79	5	\$ 4.79	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	590_A (LWSSW-LWVJS)	\$ 3.96	6	\$ 3.96	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	705T705_1 (MARION-CIBOLO)	\$ 3.17	7	\$ 3.17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	BLESSI_PAVLOV1_1 (BLESSING-PAVLOV)	\$ 2.41	8	\$ 2.41	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	ODEHV_XFMRS (ODEHV-ODEHV)	\$ 2.07	9	\$ 2.07	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	BI_WAP50_A (WAP-BI)	\$ 2.03	10	\$ 2.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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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	2022	HB WEST-LZ WEST	\$ 3.07	1	\$ 1.74	\$ 1.33	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	HB SOUTH-LZ SOUTH	\$ 1.74	2	\$ 1.15	\$ 0.60	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	HB WEST-HB NORTH	\$ 1.62	3	\$ 0.39	\$ 1.23	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	HB NORTH-LZ NORTH	\$ 1.29	4	\$ 0.59	\$ 0.69	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	COL COLETG1-HB SOUTH	\$ 1.25	5	\$ 0.55	\$ 0.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	CPSES UNIT2-HB NORTH	\$ 1.24	6	\$ 0.69	\$ 0.55	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	CPSES UNIT1-HB NORTH	\$ 0.98	7	\$ 0.57	\$ 0.42	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	HB HOUSTON-LZ HOUSTON	\$ 0.75	8	\$ 0.37	\$ 0.38	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	HB NORTH-HB HOUSTON	\$ 0.70	9	\$ 0.29	\$ 0.41	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N	2022	SPLAIN1 RN-HB NORTH	\$ 0.58	10	\$ 0.38	\$ 0.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	TORR ALL-HB SOUTH	\$ 1.04	1	\$ 0.52	\$ 0.53	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	HB WEST-HB NORTH	\$ 0.90	2	\$ 0.43	\$ 0.47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	HB NORTH-LZ NORTH	\$ 0.87	3	\$ 0.70	\$ 0.16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	DC2SES ALL-CPSES UNIT1	\$ 0.67	4	\$ 0.65	\$ 0.03	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	HB SOUTH-LZ SOUTH	\$ 0.49	5	\$ 0.24	\$ 0.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	EL RAYO ALL-HB SOUTH	\$ 0.46	6	\$ 0.22	\$ 0.24	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	OECCS 1-HB WEST	\$ 0.44	7	\$ 0.25	\$ 0.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	OECCS 2-HB WEST	\$ 0.43	8	\$ 0.24	\$ 0.19	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	KARAKAW2 1-SAN_SANMIGG1	\$ 0.42	9	\$ 0.24	\$ 0.18	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Y	2022	HB WEST-LZ WEST	\$ 0.41	10	\$ 0.19	\$ 0.22	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

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