

To the Public Utility Commission of Texas

# ERCOT Wholesale Electricity Market Monthly Report

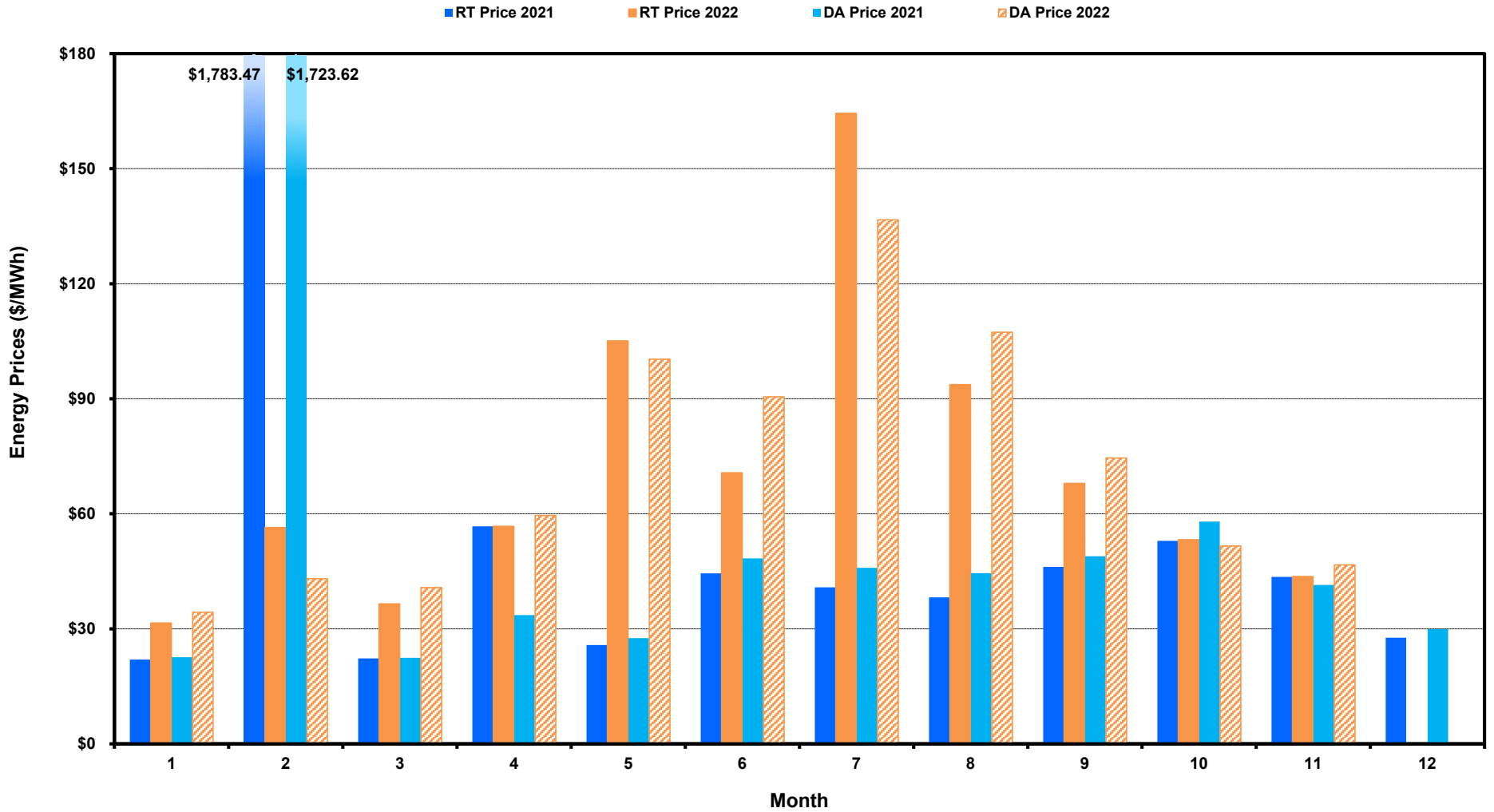
Saturday, December 10, 2022

Potomac Economics, Ltd.  
Independent Market Monitor

<b>1</b>	<b>ERCOT-wide Average Energy Prices DA vs. RT</b>
<b>2</b>	<b>Load Zone Load Statistics</b>
<b>3</b>	<b>Load Zone Monthly Average Energy Prices DA vs RT</b>
<b>4</b>	<b>ERCOT-wide Monthly Implied Heat Rates DA vs RT</b>
<b>5</b>	<b>Load Zone Monthly Implied Heat Rates DA vs RT</b>
<b>6</b>	<b>Daily ORDC Reserve Adder Avg. Value and Duration</b>
<b>7</b>	<b>Monthly Ancillary Services Required MW</b>
<b>8</b>	<b>Hourly Average of Ancillary Services Required MW</b>
<b>9</b>	<b>Monthly Average Ancillary Services Price</b>
<b>10</b>	<b>Monthly Average A/S Cost per MWh Load</b>
<b>11</b>	<b>Ercot-wide Cumulative Peaker Net Margin</b>
<b>12</b>	<b>DA vs. RT Load Forecast Error by Hour Ending</b>
<b>13</b>	<b>Monthly Average of Wind Generation by Hour Ending</b>
<b>14</b>	<b>Monthly Average of Solar Generation by Hour Ending</b>
<b>15</b>	<b>RT Constraint Rankings</b>
	<b>- Top 10 Constraints by Total Congestion Value</b>
	<b>- Top 10 Constraints by Binding Frequency</b>
<b>16</b>	<b>DA Constraint Rankings</b>
	<b>- Top 10 Constraints by Total Congestion Value</b>
	<b>- Top 10 Constraints by Binding Frequency</b>
<b>17</b>	<b>CRR Pairs by Monthly Auction Value Rankings</b>
	<b>- Top 10 PTP Obligations by Total Transaction Value</b>
	<b>- Top 10 PTP Options by Total Transaction Value</b>

# ERCOT-wide Average Energy Prices DA vs RT

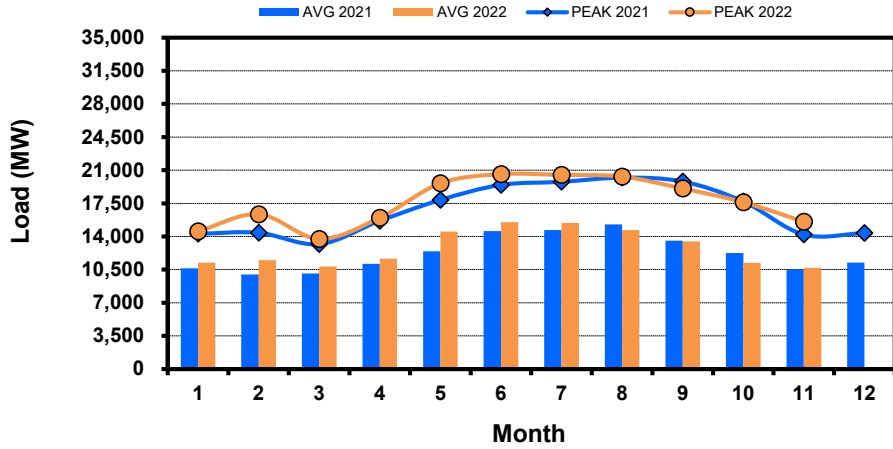
(avg. DA & RT SPPs weighted by Real Time Settlement Loads)



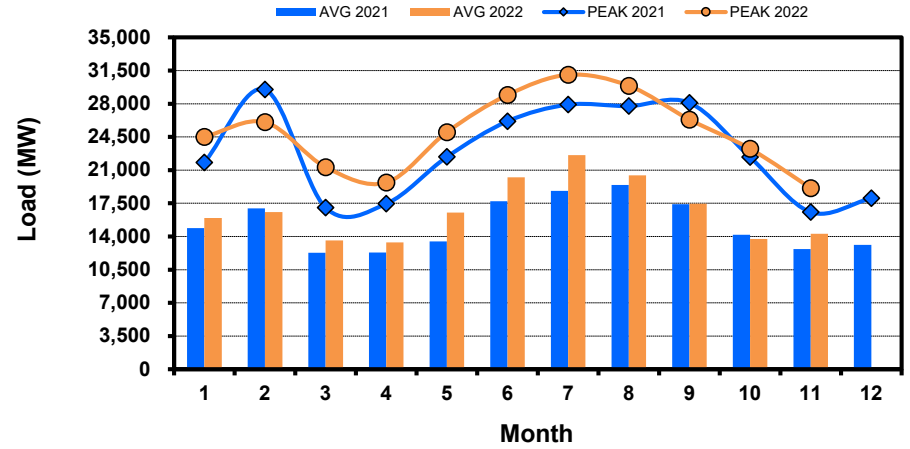
# Load Zone Load Statistics

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

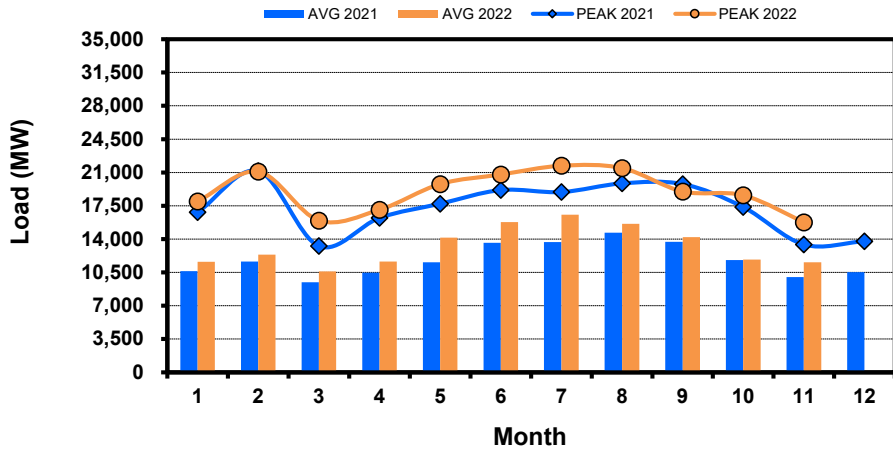
## Houston Zone



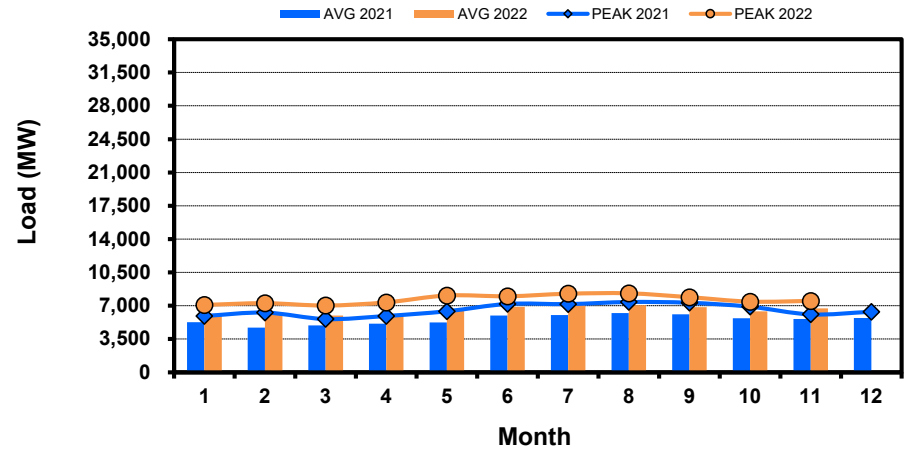
## North Zone



## South Zone



## West Zone

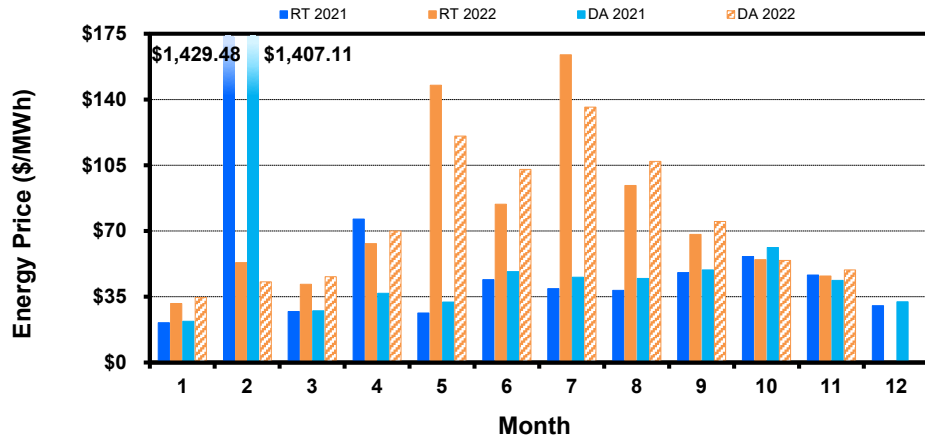


Note: \* Zonal load zone definition vs. Nodal comparable load zone definition: LZ\_Houston=LZ\_Houston; LZ\_West=LZ\_West; LZ\_North=(LZ\_North,LZ\_RAYBN); LZ\_South=(LZ\_South,LZ\_CPS,LZ\_AEN,LZ\_LCRA)

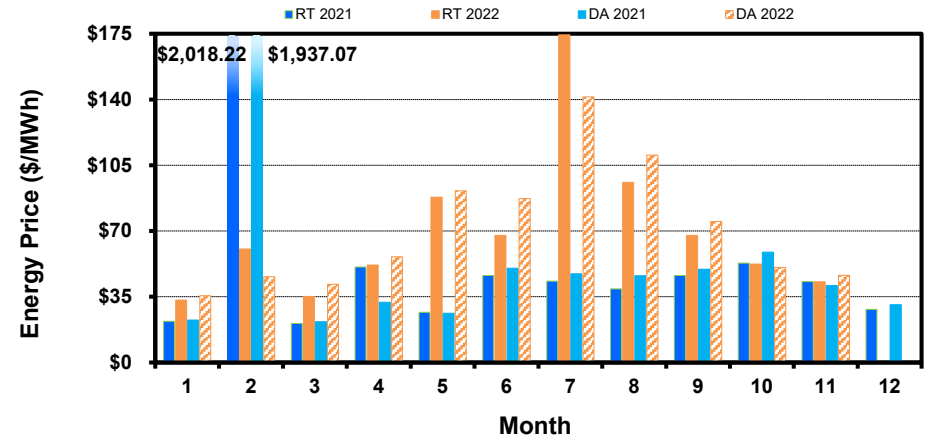
# Load Zone Monthly Average Energy Price DA vs RT

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

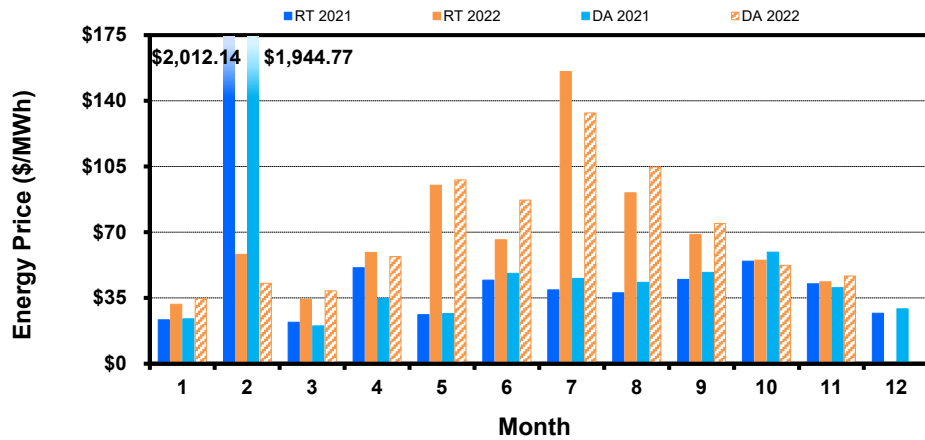
## Houston Zone



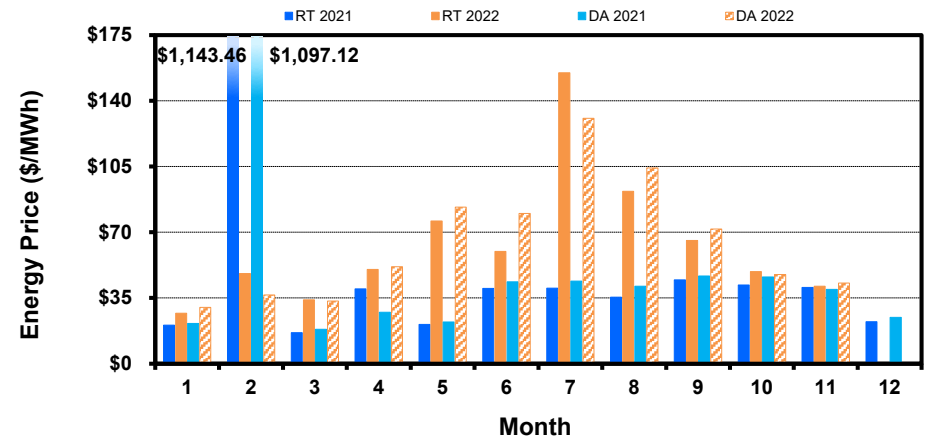
## North Zone



## South Zone



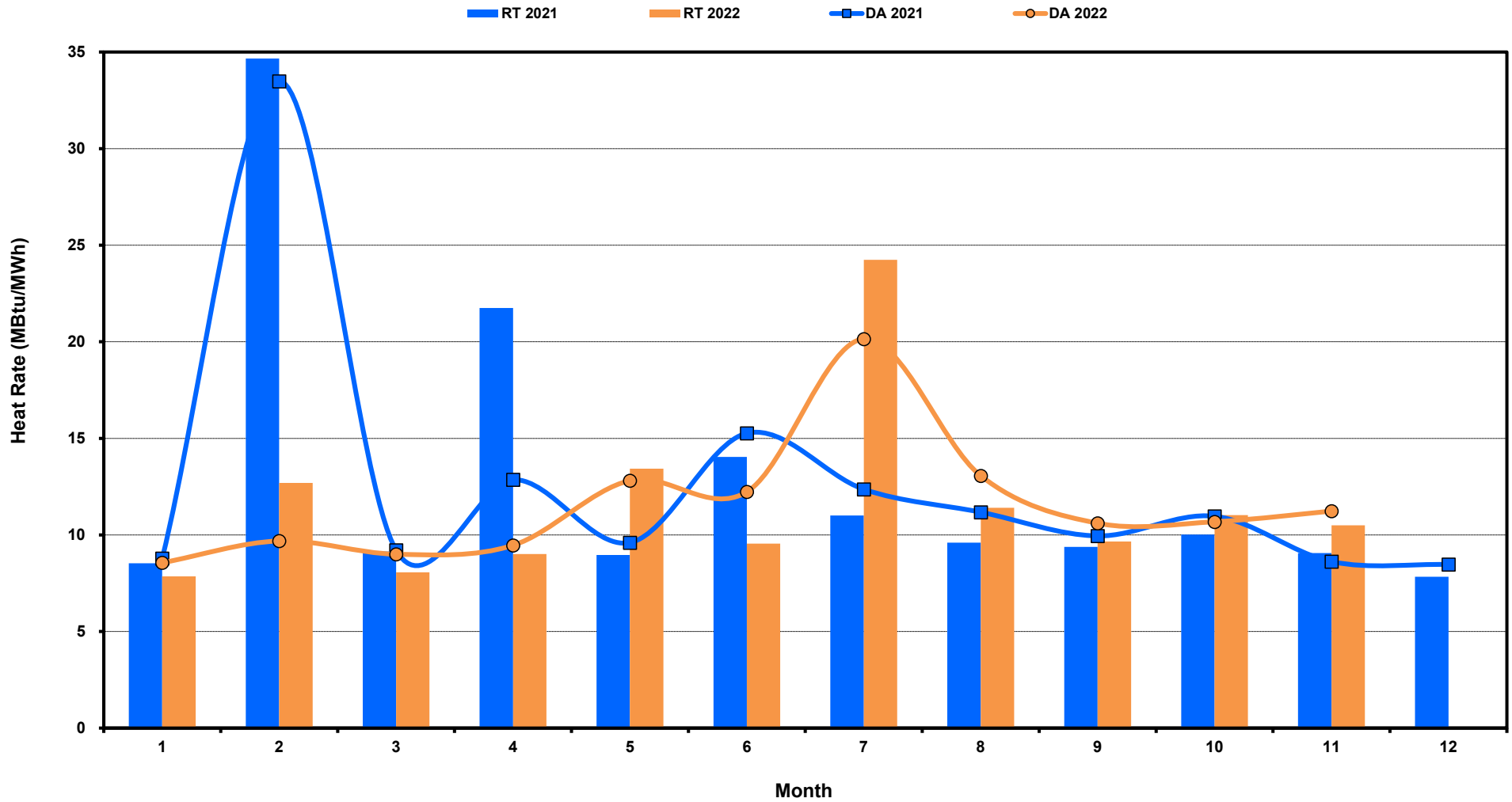
## West Zone



**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)

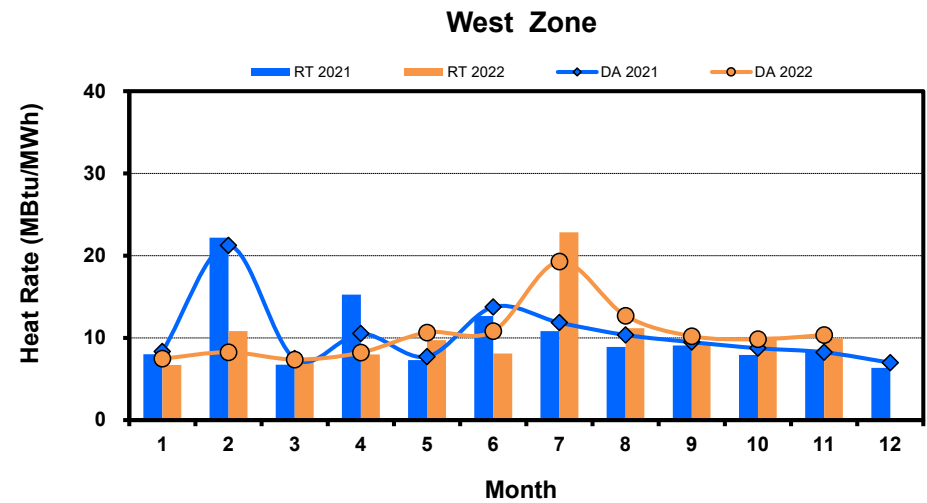
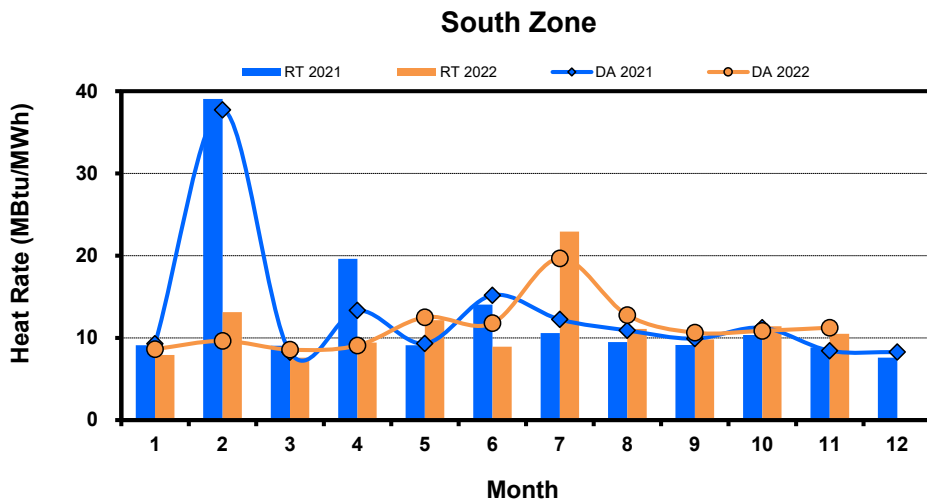
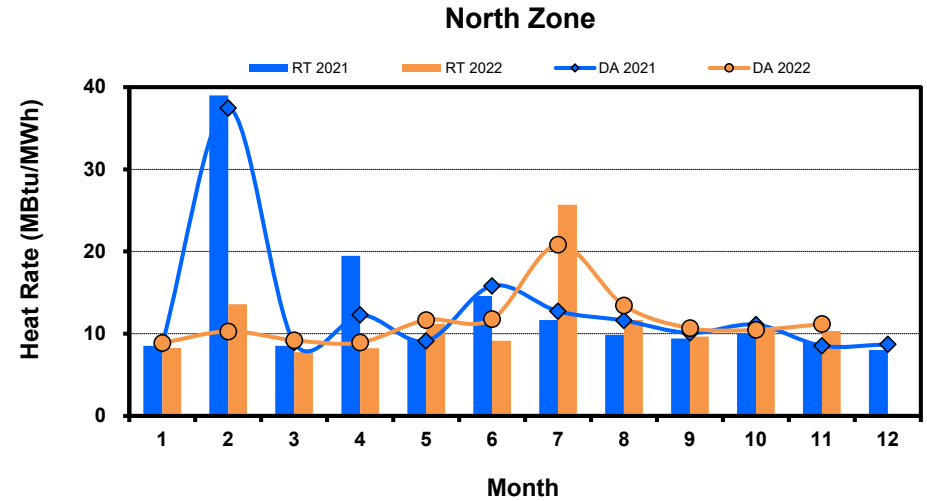
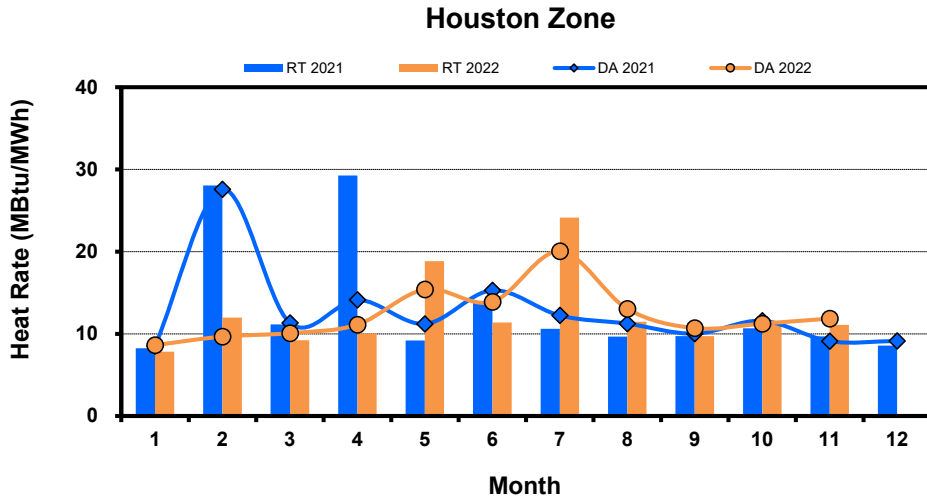
# ERCOT-wide Monthly Implied Heat Rate DA vs RT

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



# Load Zone Monthly Implied Heat Rate DA vs RT

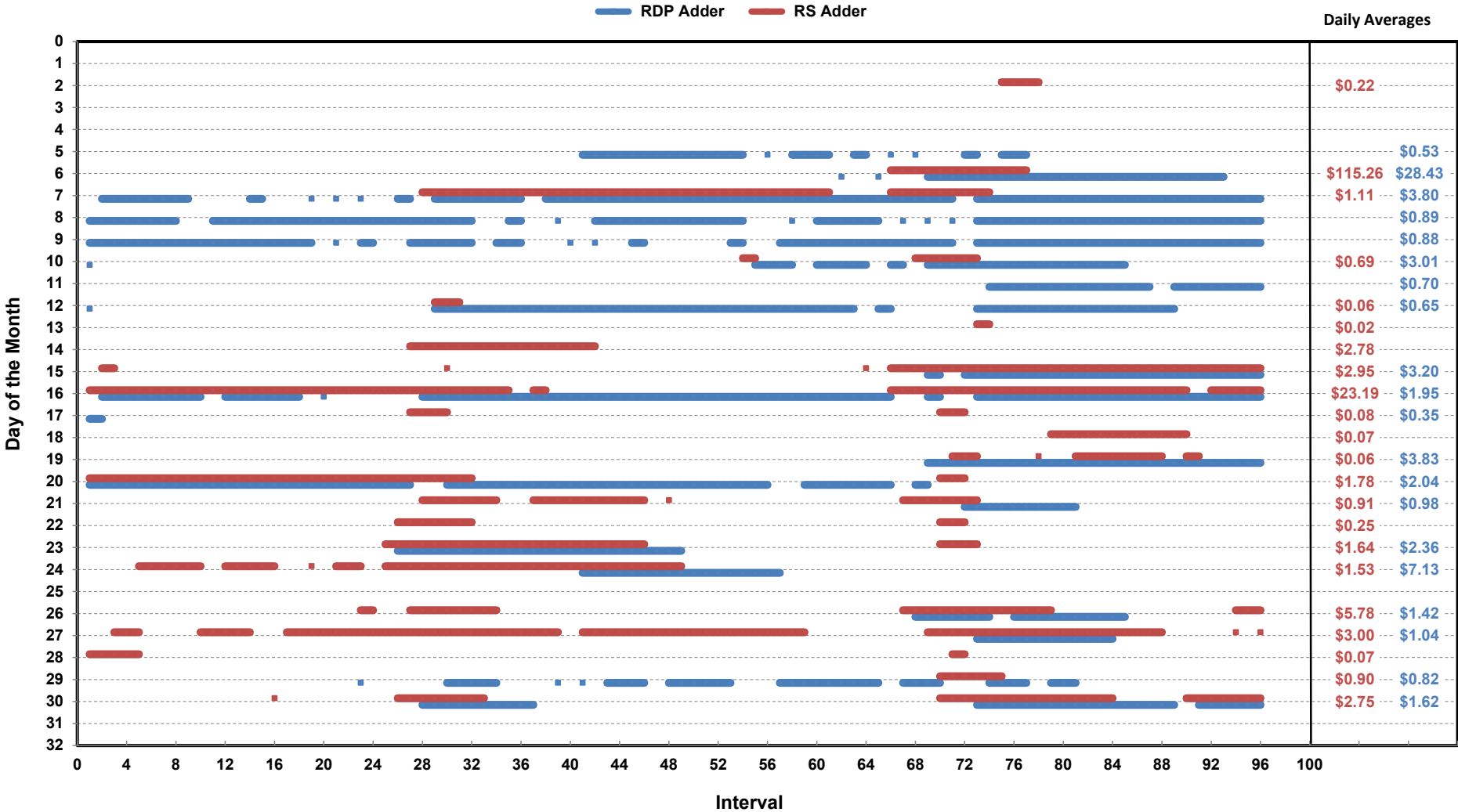
(avg. heat rates weighted by Real Time Settlement Loads)  
 (Nodal load zone made comparable to zonal sytem Load Zone definitions\*)



**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)

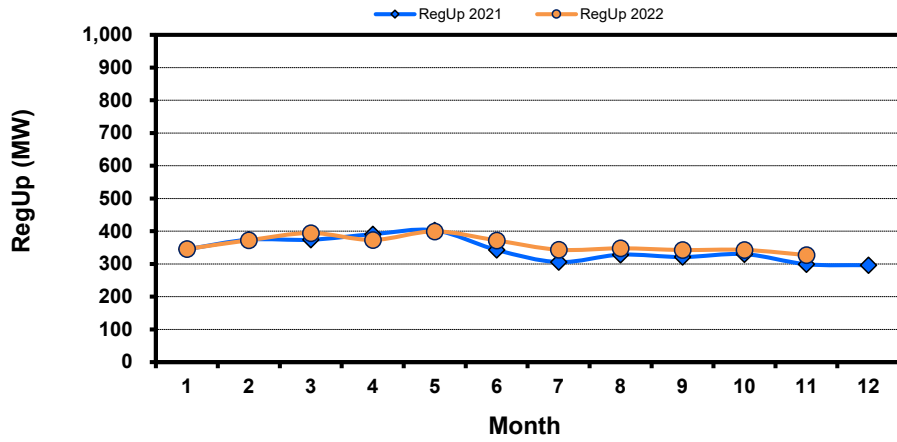
# Daily ORDC Adders Average Values and Interval Duration

## Nov-2022

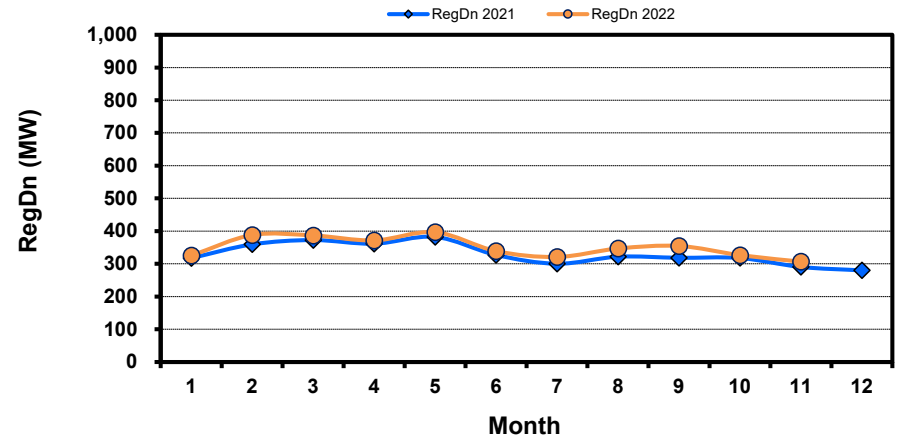


# Monthly Average of Ancillary Services Required MW

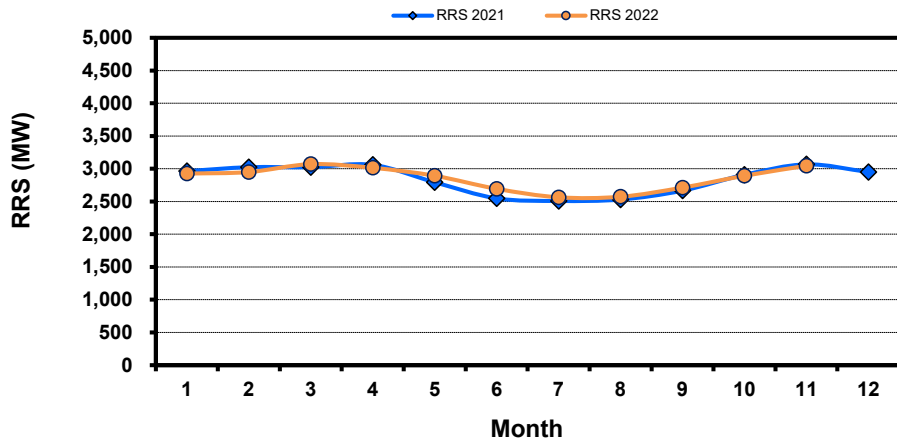
## Regulation Up



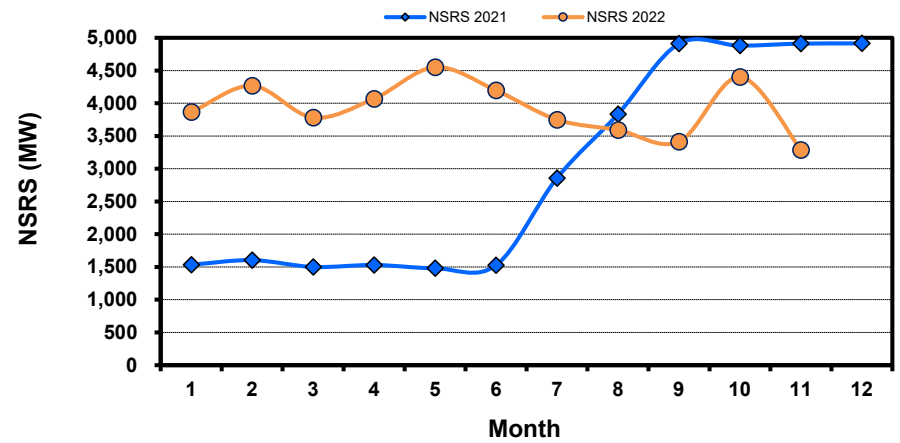
## Regulation Down



## Responsive Reserve



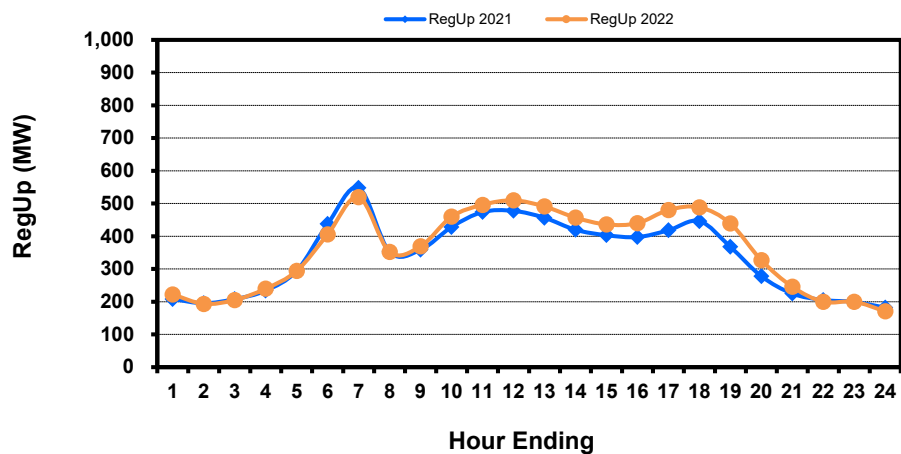
## Non-Spin Reserve



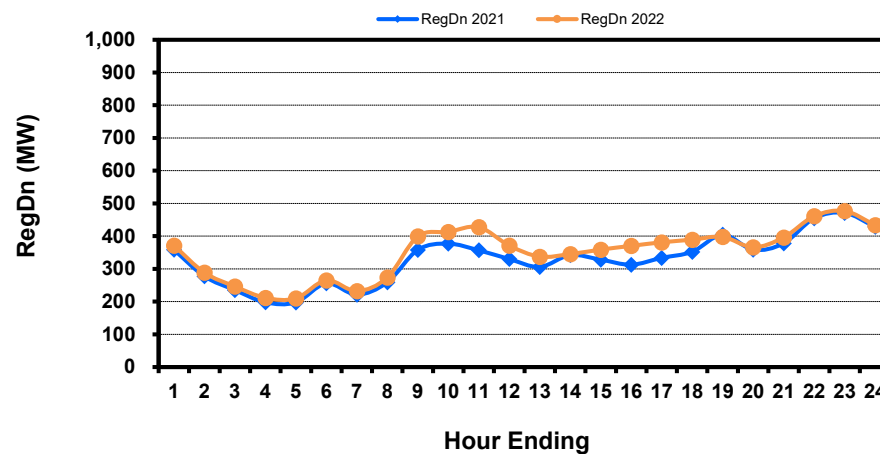


# Hourly Average of Ancillary Services Required MW

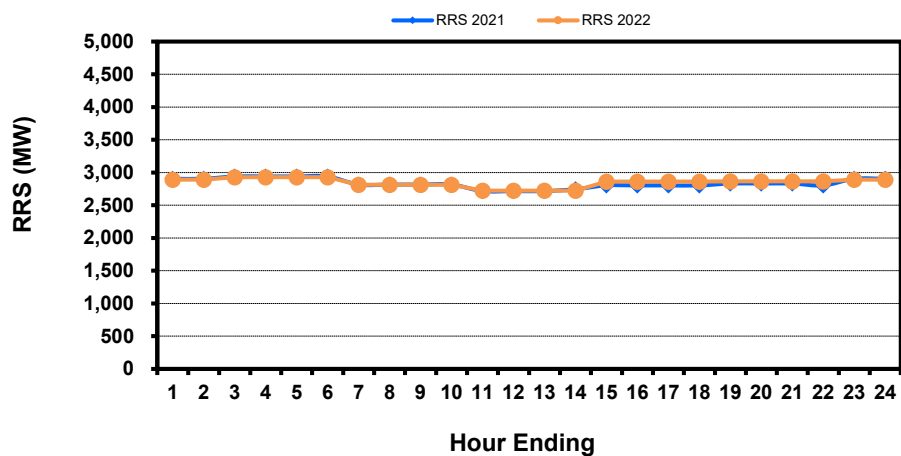
## Regulation Up



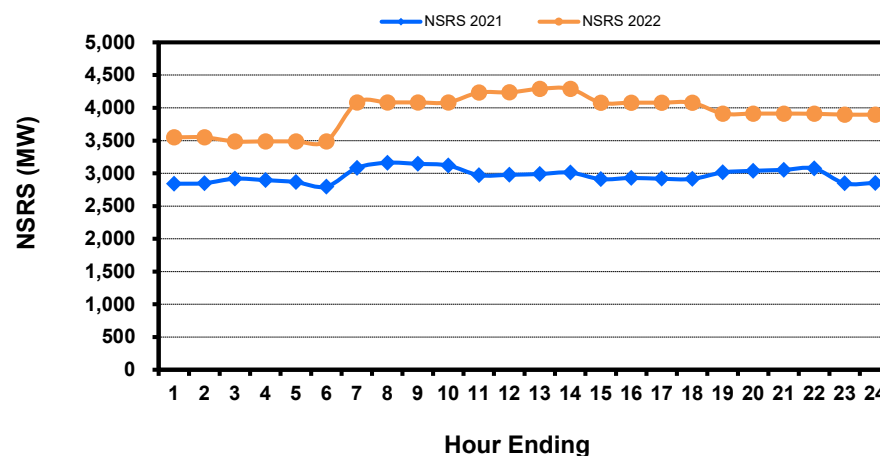
## Regulation Down



## Responsive Reserve



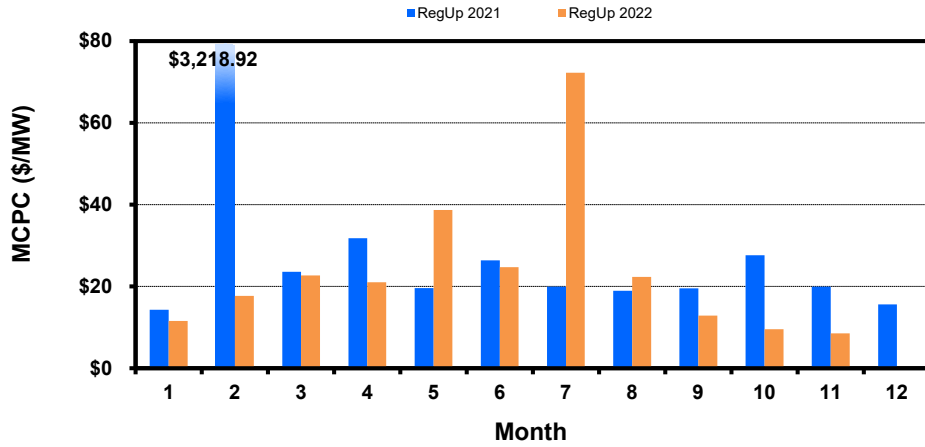
## Non-Spin Reserve



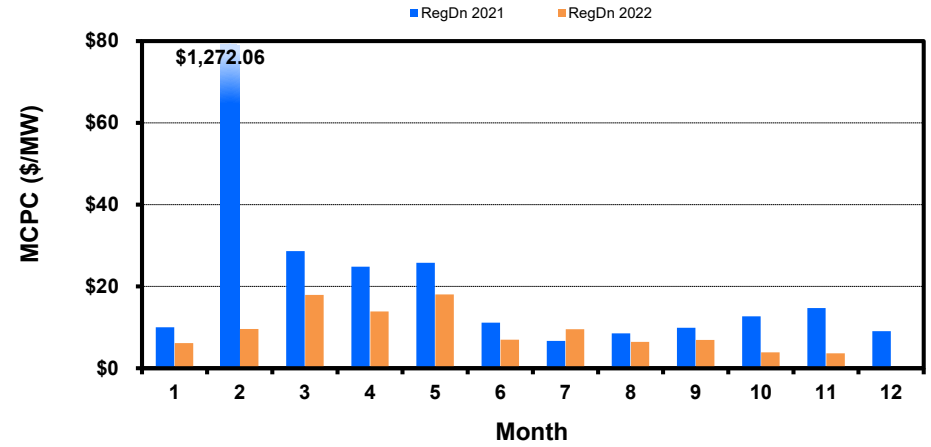
# Monthly Average Ancillary Services Price

(weighted by A/S Quantities Required)

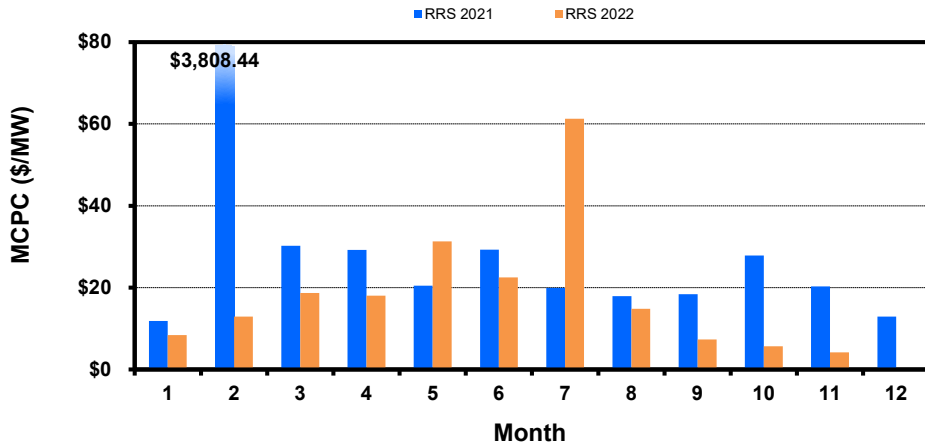
### Regulation Up



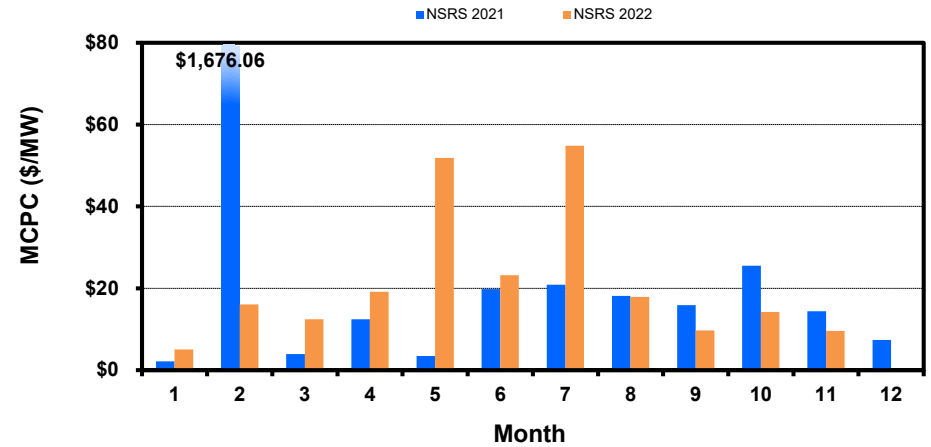
### Regulation Down



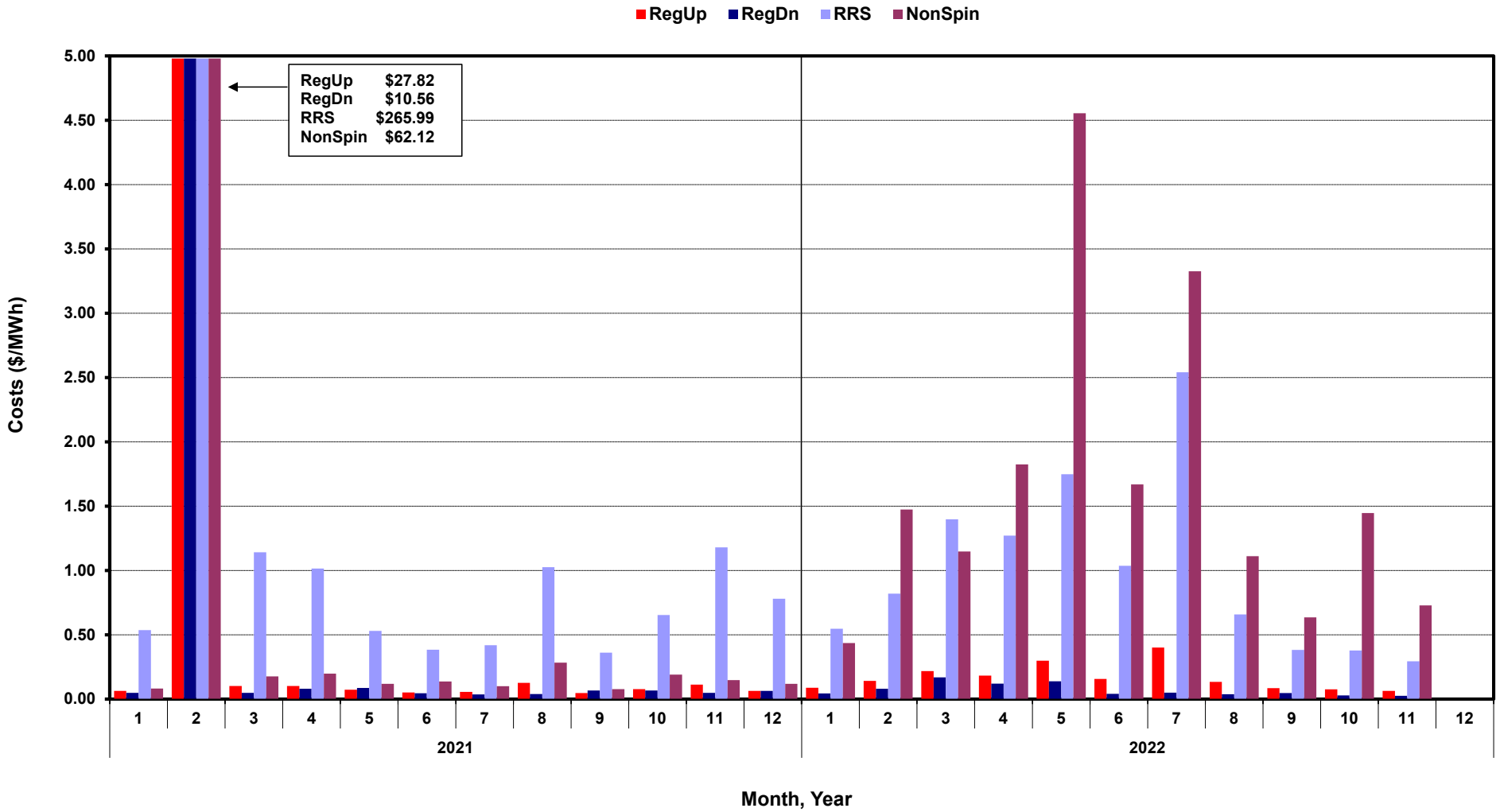
### Responsive Reserve



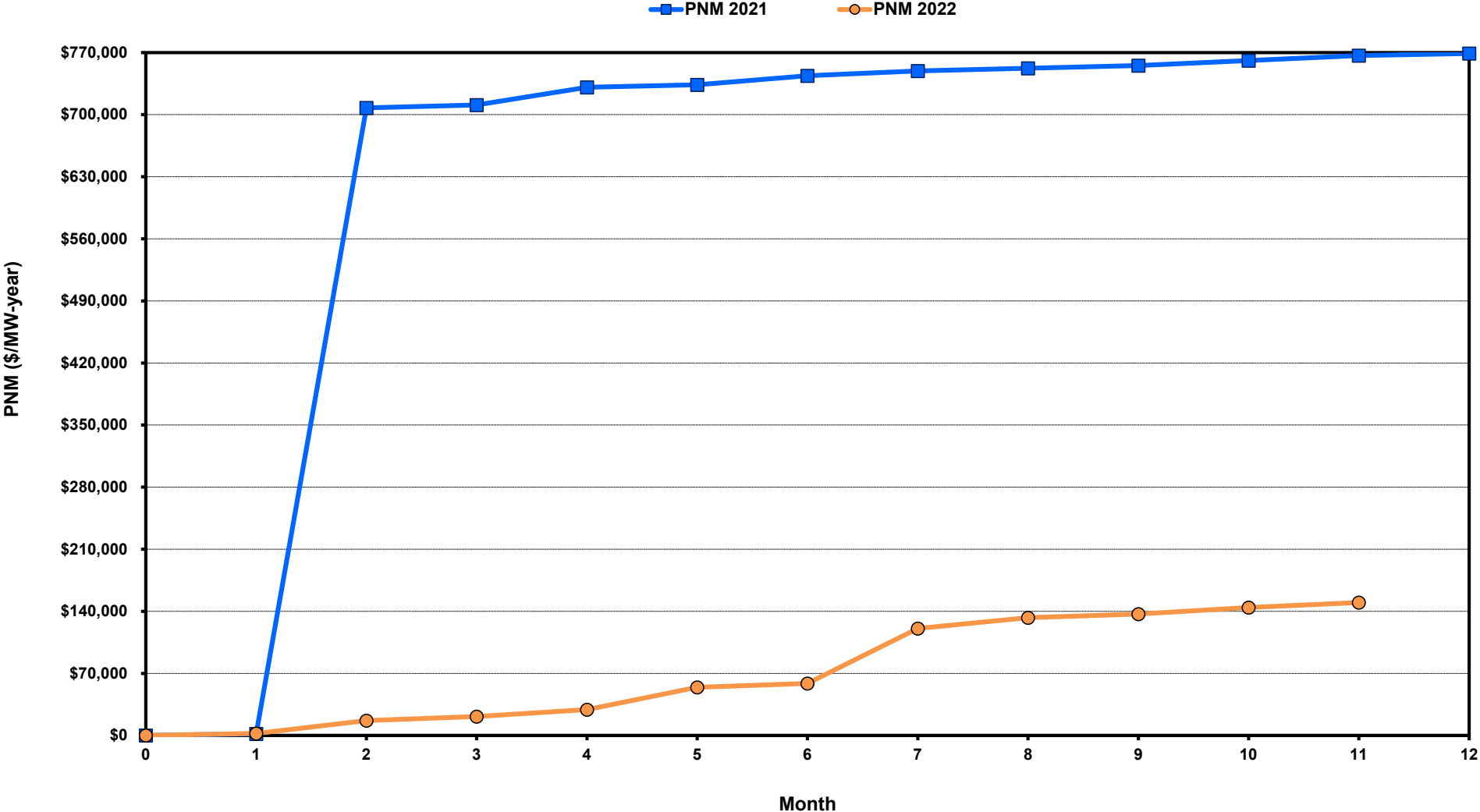
### Non-Spin Reserve



# Monthly Average A/S Cost per MWh Load

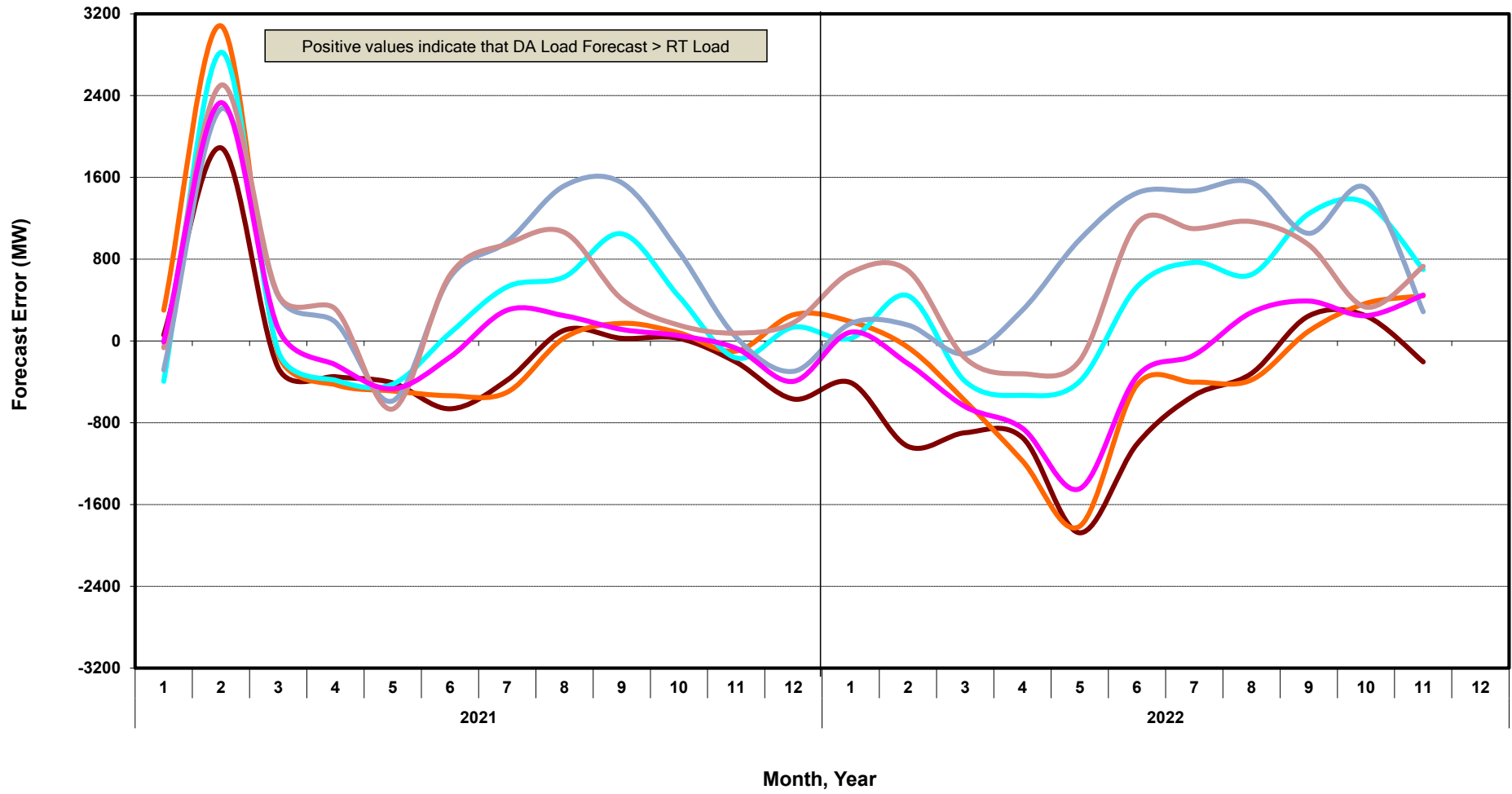


# ERCOT-wide Cumulative Peaker Net Margin

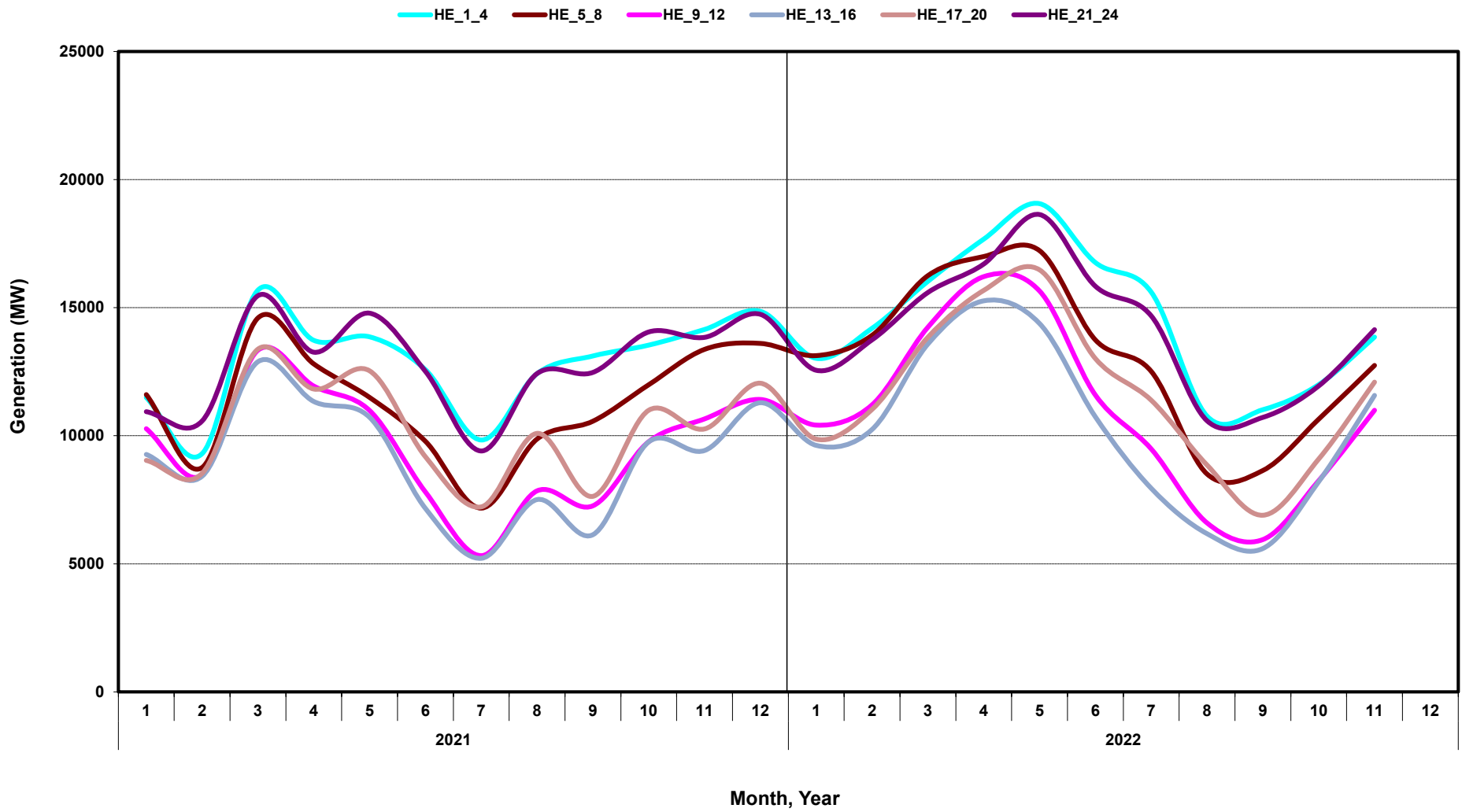


# DA vs. RT Load Forecast Error by Hour Ending

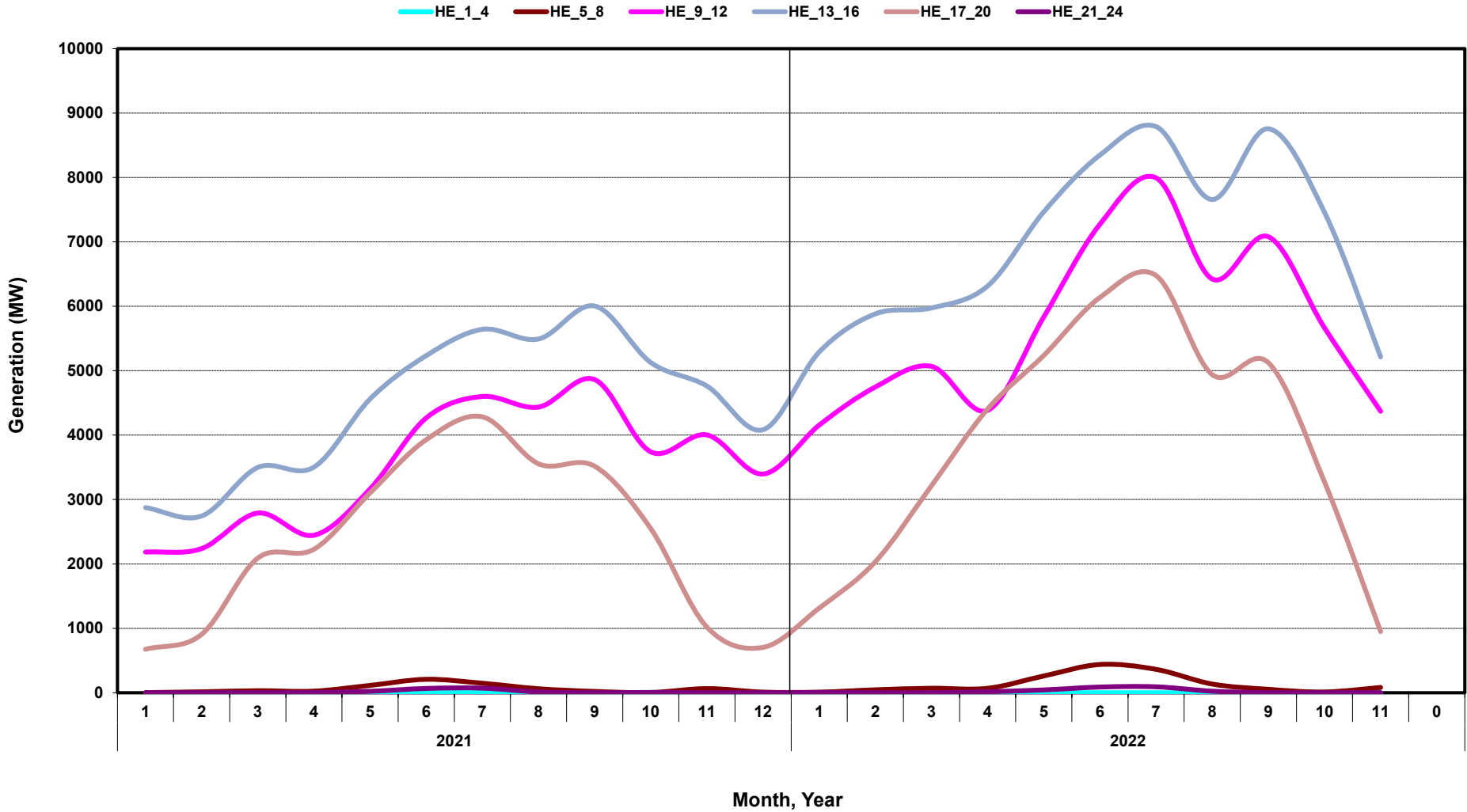
HE\_1\_4   HE\_5\_8   HE\_9\_12   HE\_13\_16   HE\_17\_20   HE\_21\_24



# Monthly Average of Wind Generation by Hour Ending

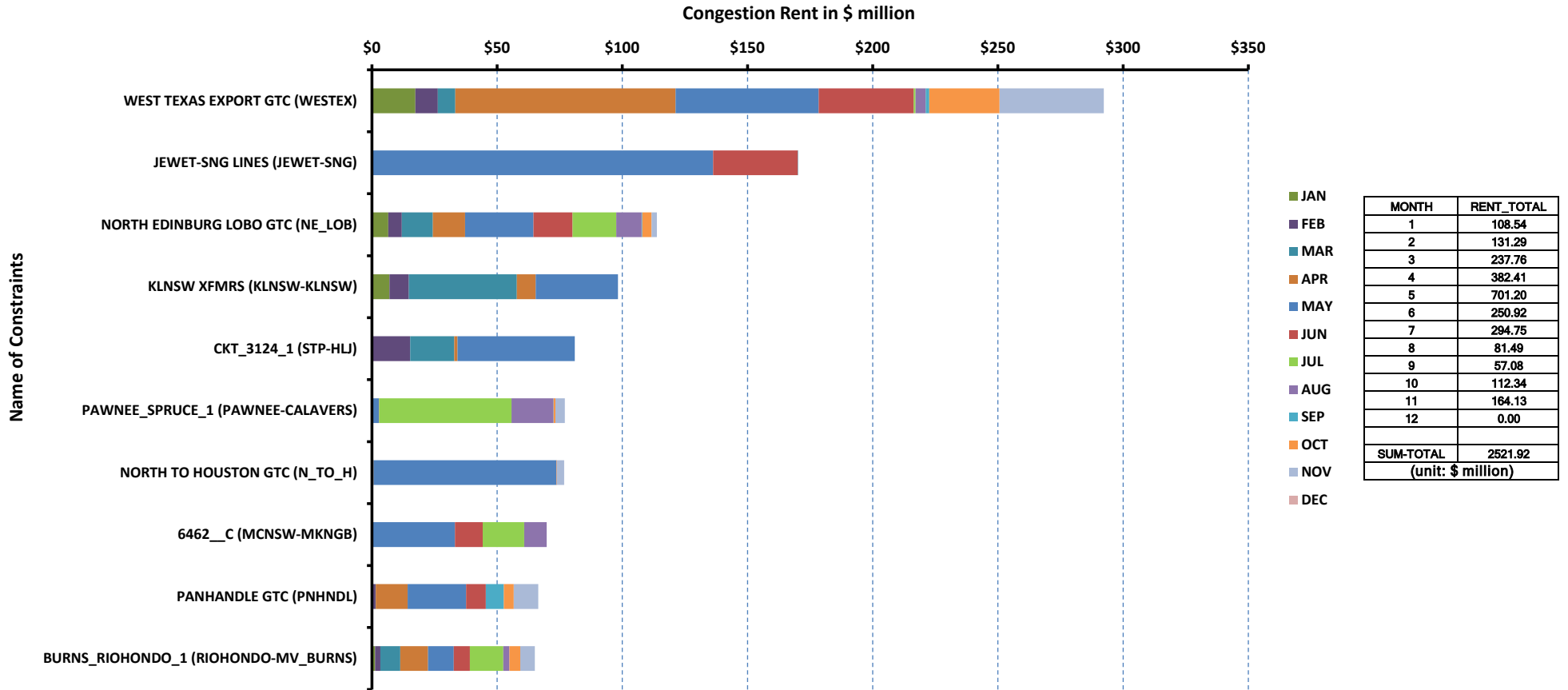


# Monthly Average of Solar Generation by Hour Ending



# RT Congestion Constraint Rankings - 1

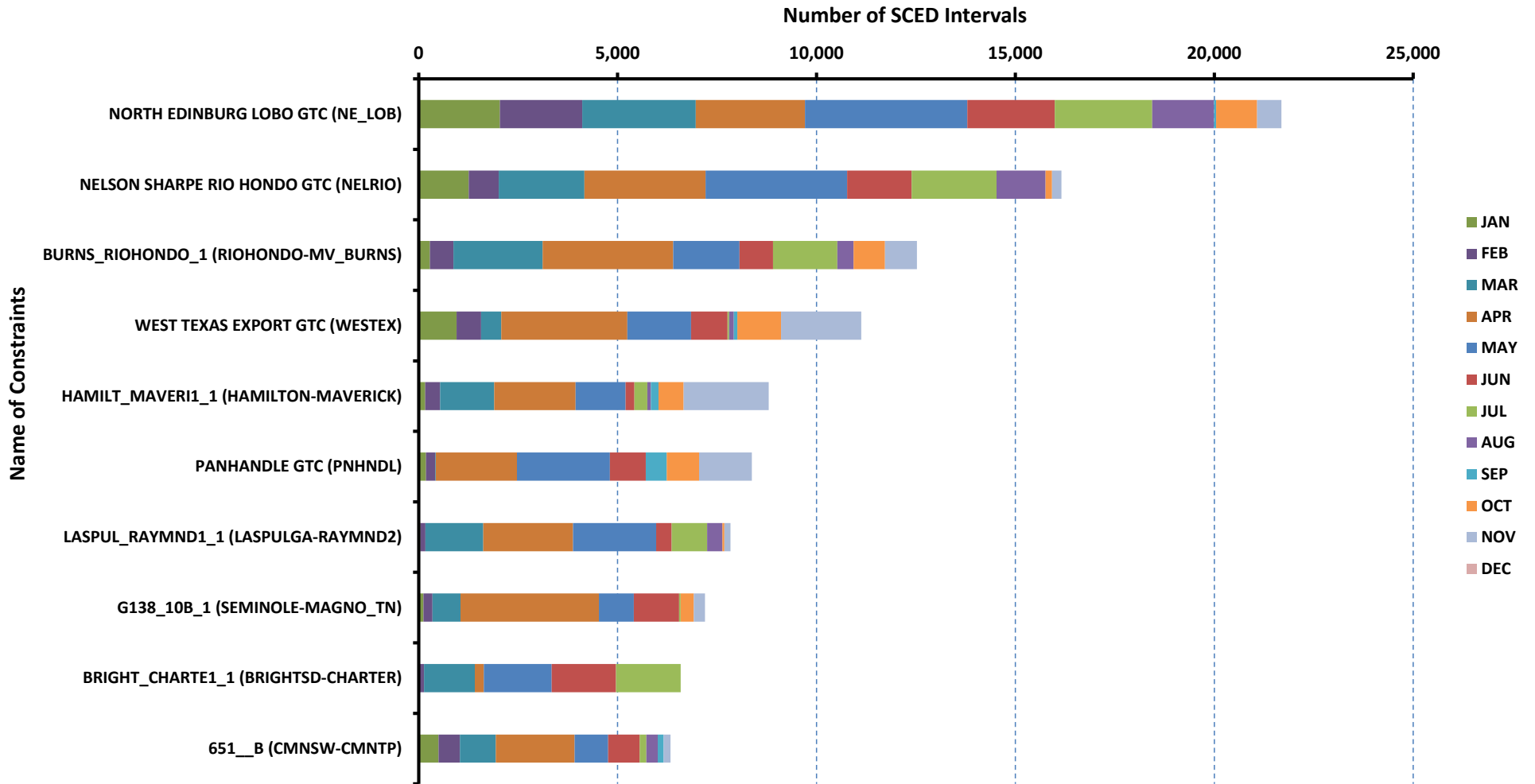
## Top 10 Constraints by Total Congestion Value - 2022





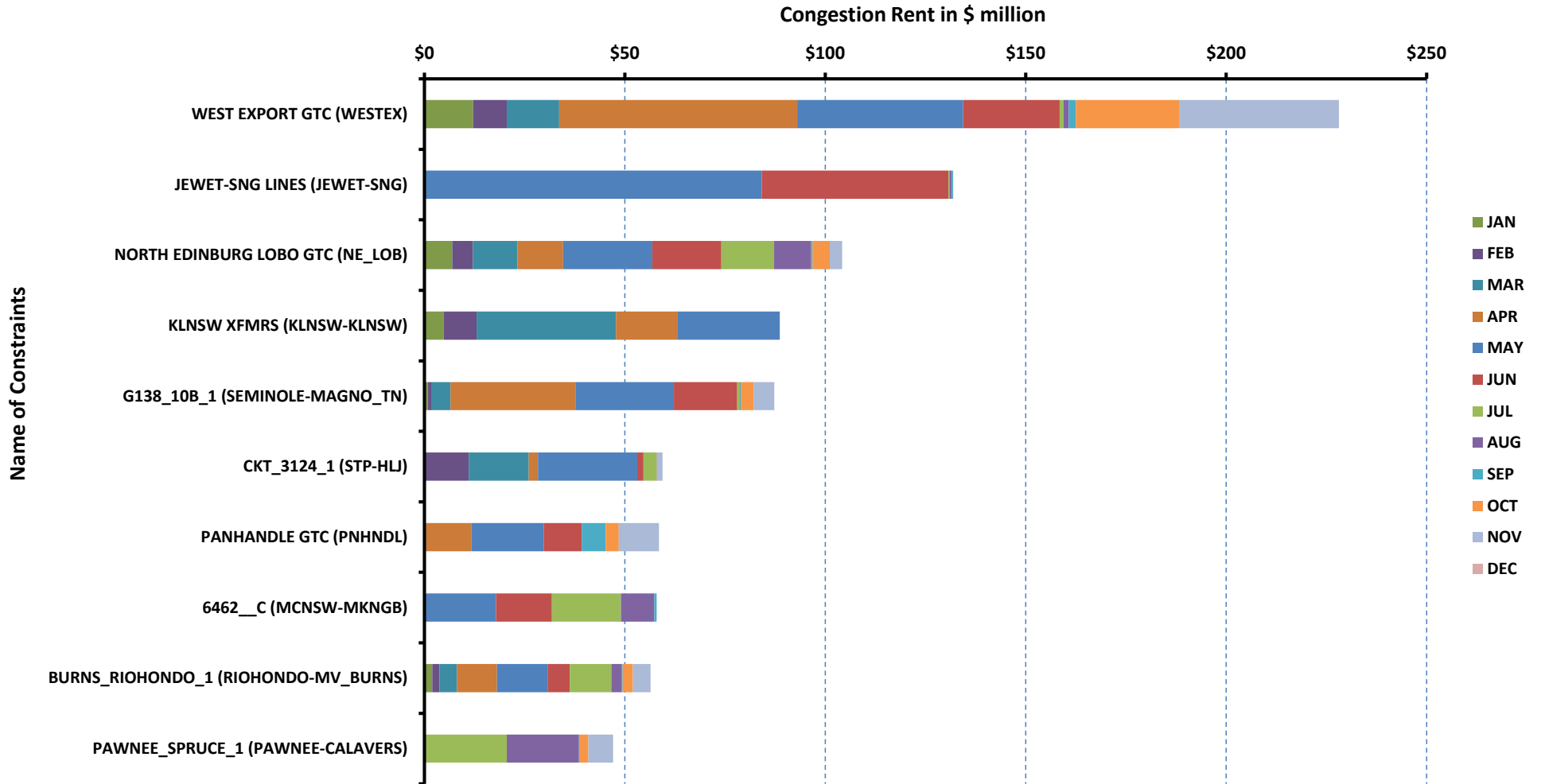
# RT Congestion Constraint Rankings - 2

## Top 10 Constraints by Binding Frequency - 2022



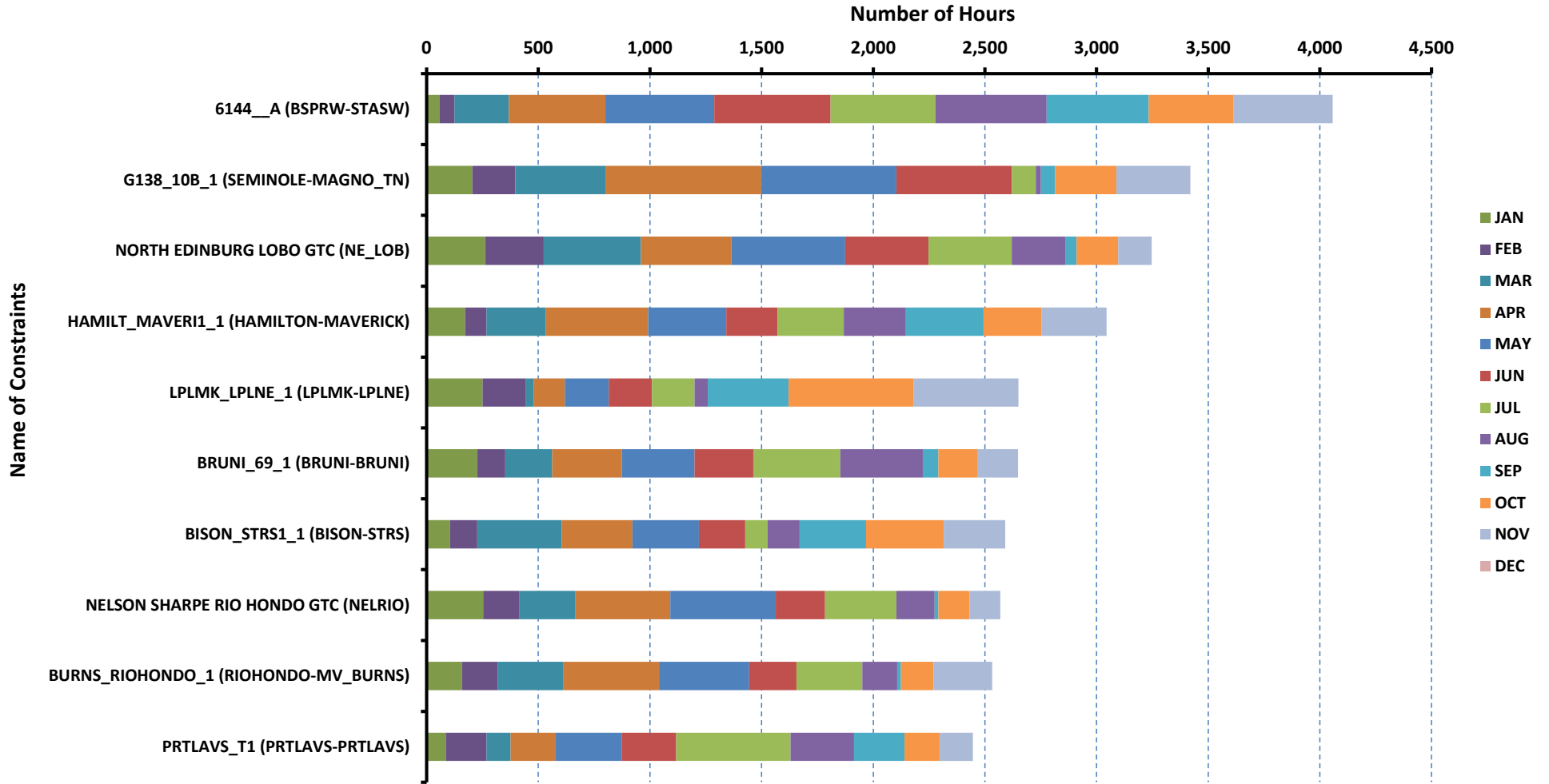
# DA Congestion Constraint Rankings - 1

## Top 10 Constraints by Total Congestion Value - 2022



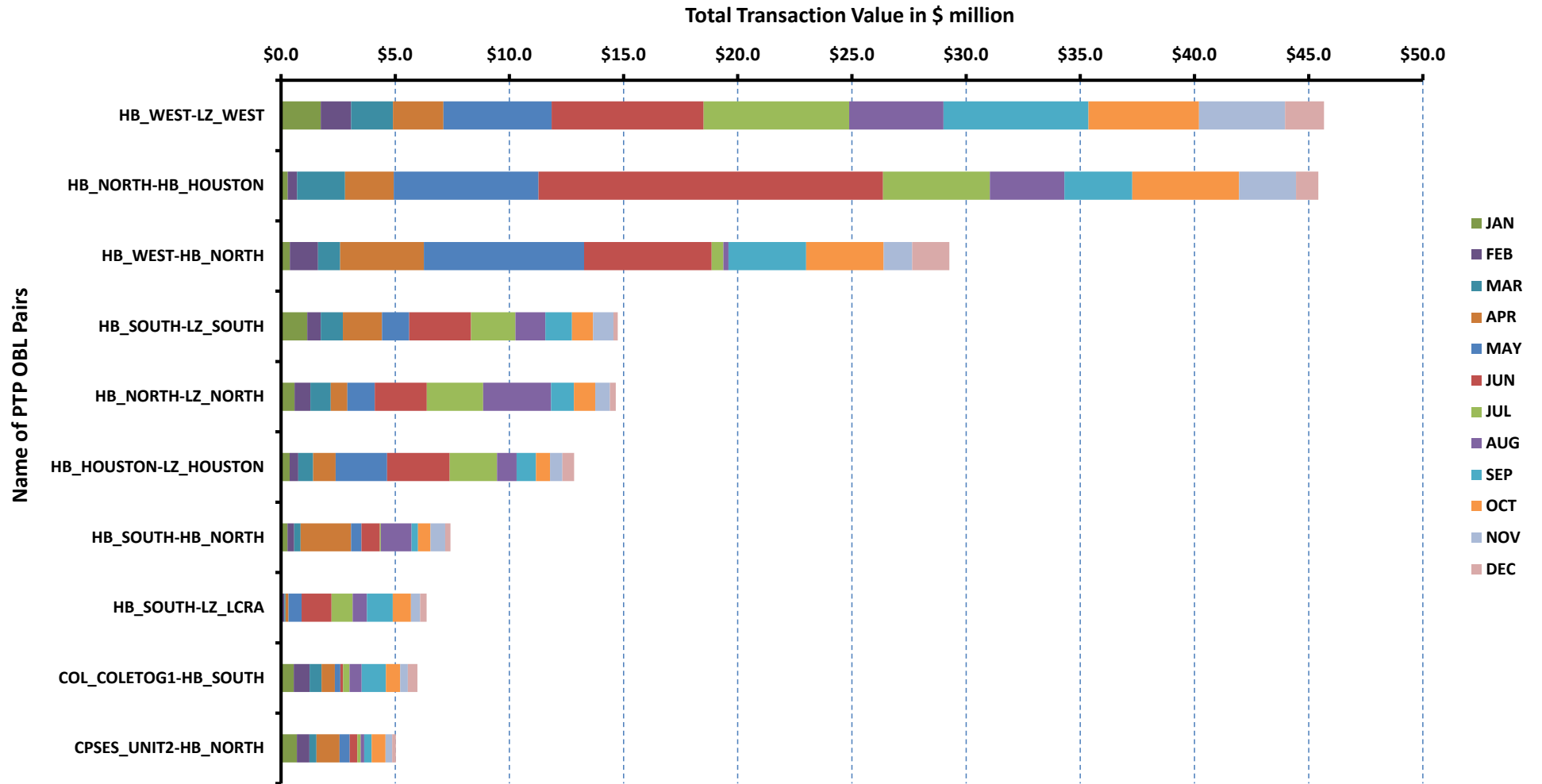
# DA Congestion Constraint Rankings - 2

## Top 10 Constraints by Binding Frequency - 2022



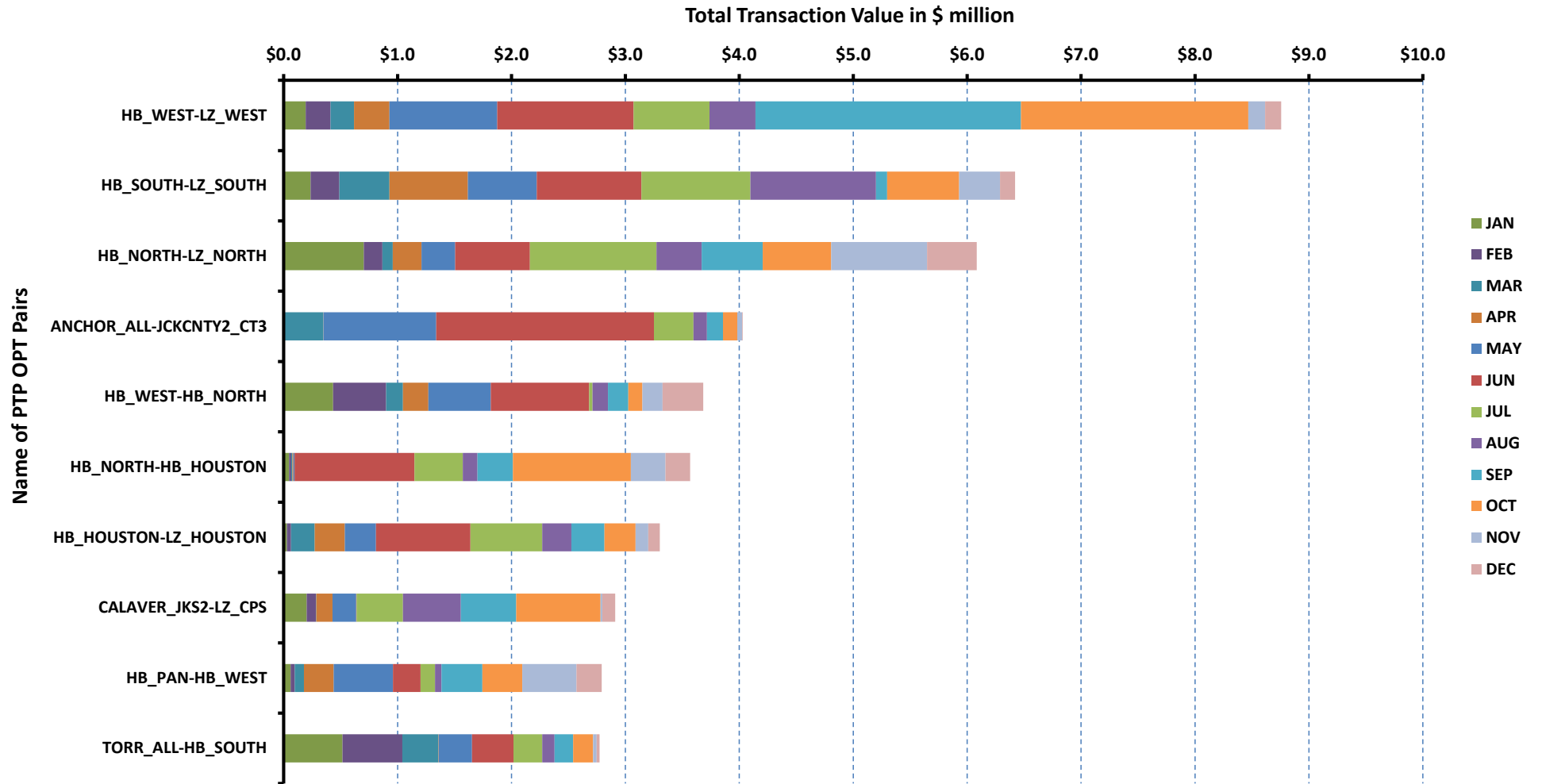
# Top 10 CRR Pairs Ranked by Monthly Auction Values - 1

## Top 10 PTP Obligations by Total Transaction Value - 2022



# Top 10 CRR Pairs Ranked by Monthly Auction Values - 2

## Top 10 PTP Options by Total Transaction Value - 2022



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	\$ 46.17
	10	\$ 57.97	\$ 52.94
	11	\$ 41.41	\$ 43.56
	12	\$ 29.94	\$ 27.69
2022	1	\$ 34.35	\$ 31.53
	2	\$ 43.07	\$ 56.44
	3	\$ 40.77	\$ 36.50
	4	\$ 59.57	\$ 56.75
	5	\$ 100.33	\$ 105.11
	6	\$ 90.49	\$ 70.68
	7	\$ 136.65	\$ 164.41
	8	\$ 107.33	\$ 93.70
	9	\$ 74.55	\$ 67.90
	10	\$ 51.61	\$ 53.25
	11	\$ 46.69	\$ 43.63
	12	\$ -	\$ -







ERCOT-wide Monthly Implied Heat Rate - DA vs. RT						
year	month	gasprice	rtm_spp	HR_rtm	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	\$ 46.17	9.38	\$ 48.95	9.95
	10	\$ 5.29	\$ 52.94	10.01	\$ 57.97	10.97
	11	\$ 4.81	\$ 43.56	9.06	\$ 41.41	8.62
	12	\$ 3.54	\$ 27.69	7.83	\$ 29.94	8.47
2022	1	\$ 4.01	\$ 31.53	7.86	\$ 34.35	8.56
	2	\$ 4.45	\$ 56.44	12.70	\$ 43.07	9.69
	3	\$ 4.53	\$ 36.50	8.06	\$ 40.77	9.00
	4	\$ 6.29	\$ 56.75	9.02	\$ 59.57	9.46
	5	\$ 7.83	\$ 105.11	13.43	\$ 100.33	12.81
	6	\$ 7.40	\$ 70.68	9.55	\$ 90.49	12.23
	7	\$ 6.78	\$ 164.41	24.24	\$ 136.65	20.15
	8	\$ 8.22	\$ 93.70	11.40	\$ 107.33	13.06
	9	\$ 7.03	\$ 67.90	9.66	\$ 74.55	10.61
	10	\$ 4.83	\$ 53.25	11.02	\$ 51.61	10.68
	11	\$ 4.16	\$ 43.63	10.50	\$ 46.69	11.23
	12	\$ -	\$ -	-	\$ -	-



Daily ORDC Adders Average Values and Interval Duration								
YEAR	MONTH	DAY	PRICE_RS	PRICE_RDP	RS_CNT	RDP_CNT	RS_POS	RDP_POS
2022	11	1	\$ -	\$ -	0	0	80	90
2022	11	2	\$ 0.22	\$ -	4	0	80	90
2022	11	3	\$ -	\$ -	0	0	80	90
2022	11	4	\$ -	\$ -	0	0	80	90
2022	11	5	\$ -	\$ 0.53	0	28	80	90
2022	11	6	\$ 115.26	\$ 28.43	12	27	80	90
2022	11	7	\$ 1.11	\$ 3.80	43	81	80	90
2022	11	8	\$ -	\$ 0.89	0	80	80	90
2022	11	9	\$ -	\$ 0.88	0	76	80	90
2022	11	10	\$ 0.69	\$ 3.01	8	29	80	90
2022	11	11	\$ -	\$ 0.70	0	22	80	90
2022	11	12	\$ 0.06	\$ 0.65	3	55	80	90
2022	11	13	\$ 0.02	\$ -	2	0	80	90
2022	11	14	\$ 2.78	\$ -	16	0	80	90
2022	11	15	\$ 2.95	\$ 3.20	35	27	80	90
2022	11	16	\$ 23.19	\$ 1.95	67	82	80	90
2022	11	17	\$ 0.08	\$ 0.35	7	2	80	90
2022	11	18	\$ 0.07	\$ -	12	0	80	90
2022	11	19	\$ 0.06	\$ 3.83	14	28	80	90
2022	11	20	\$ 1.78	\$ 2.04	35	64	80	90
2022	11	21	\$ 0.91	\$ 0.98	25	10	80	90
2022	11	22	\$ 0.25	\$ -	10	0	80	90
2022	11	23	\$ 1.64	\$ 2.36	26	24	80	90
2022	11	24	\$ 1.53	\$ 7.13	40	17	80	90
2022	11	25	\$ -	\$ -	0	0	80	90
2022	11	26	\$ 5.78	\$ 1.42	26	17	80	90
2022	11	27	\$ 3.00	\$ 1.04	72	12	80	90
2022	11	28	\$ 0.07	\$ -	7	0	80	90
2022	11	29	\$ 0.90	\$ 0.82	6	38	80	90
2022	11	30	\$ 2.75	\$ 1.62	31	33	80	90
0	0	0	\$ -	\$ -	0	0	0	0

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	388	4,267	2,950	372
	3	387	3,782	3,070	395
	4	372	4,069	3,014	373
	5	397	4,551	2,893	399
	6	339	4,197	2,694	372
	7	321	3,750	2,564	343
	8	347	3,592	2,572	348
	9	355	3,414	2,712	343
	10	327	4,404	2,893	343
	11	307	3,287	3,045	327
	12	-	-	-	-

**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	372	3,549	2,890	222
	2	289	3,549	2,890	193
	3	246	3,487	2,928	205
	4	212	3,488	2,929	240
	5	210	3,488	2,929	294
	6	265	3,488	2,929	406
	7	232	4,081	2,815	520
	8	274	4,083	2,815	352
	9	399	4,083	2,815	369
	10	413	4,083	2,815	460
	11	428	4,233	2,723	496
	12	371	4,236	2,723	510
	13	337	4,290	2,723	491
	14	345	4,292	2,723	457
	15	359	4,079	2,862	436
	16	370	4,079	2,862	440
	17	381	4,079	2,862	480
	18	389	4,079	2,862	488
	19	398	3,912	2,866	439
	20	366	3,912	2,866	327
	21	396	3,912	2,866	246
	22	461	3,909	2,866	200
	23	477	3,896	2,890	200
	24	434	3,896	2,890	171

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	\$ 9.60	\$ 16.07	\$ 12.93	\$ 17.69
	3	\$ 17.94	\$ 12.43	\$ 18.67	\$ 22.69
	4	\$ 13.88	\$ 19.17	\$ 18.04	\$ 20.99
	5	\$ 18.03	\$ 51.85	\$ 31.29	\$ 38.71
	6	\$ 7.01	\$ 23.22	\$ 22.48	\$ 24.71
	7	\$ 9.52	\$ 54.81	\$ 61.26	\$ 72.27
	8	\$ 6.45	\$ 17.89	\$ 14.80	\$ 22.36
	9	\$ 6.93	\$ 9.67	\$ 7.32	\$ 12.85
	10	\$ 3.89	\$ 14.20	\$ 5.65	\$ 9.55
	11	\$ 3.63	\$ 9.58	\$ 4.19	\$ 8.53
	12	\$ -	\$ -	\$ -	\$ -

Monthly Average A/S Cost per MWh Load					
year	month	AScost_REGDN	AScost_NSPIIN	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	\$ 0.08	\$ 1.47	\$ 0.82	\$ 0.14
	3	\$ 0.17	\$ 1.15	\$ 1.40	\$ 0.22
	4	\$ 0.12	\$ 1.82	\$ 1.27	\$ 0.18
	5	\$ 0.14	\$ 4.56	\$ 1.75	\$ 0.30
	6	\$ 0.04	\$ 1.67	\$ 1.04	\$ 0.16
	7	\$ 0.05	\$ 3.33	\$ 2.54	\$ 0.40
	8	\$ 0.04	\$ 1.11	\$ 0.66	\$ 0.13
	9	\$ 0.05	\$ 0.64	\$ 0.38	\$ 0.08
	10	\$ 0.03	\$ 1.45	\$ 0.38	\$ 0.08
	11	\$ 0.03	\$ 0.73	\$ 0.29	\$ 0.06
	12	\$ -	\$ -	\$ -	\$ -

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	\$ 14,589.18	\$ 16,834.76
	3	\$ 4,492.68	\$ 21,327.44
	4	\$ 7,843.68	\$ 29,171.12
	5	\$ 25,120.79	\$ 54,291.91
	6	\$ 4,444.47	\$ 58,736.38
	7	\$ 61,835.52	\$ 120,571.90
	8	\$ 12,243.51	\$ 132,815.41
	9	\$ 4,218.01	\$ 137,033.42
	10	\$ 7,195.67	\$ 144,229.09
	11	\$ 5,637.30	\$ 149,866.39
	12	\$ -	\$ -



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	(1,031)	155	689	(222)	(62)	442
	3	(897)	(126)	(168)	(643)	(588)	(395)
	4	(946)	302	(321)	(854)	(1,173)	(532)
	5	(1,877)	992	(191)	(1,445)	(1,812)	(395)
	6	(1,009)	1,448	1,149	(347)	(431)	530
	7	(532)	1,469	1,099	(137)	(403)	769
	8	(318)	1,551	1,167	279	(381)	650
	9	245	1,053	940	390	96	1,245
	10	245	1,496	331	247	368	1,351
	11	(204)	286	730	449	441	698
	12	-	-	-	-	-	-

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	14,195	10,245	11,028	13,744	13,920	11,206
	3	16,027	13,581	13,844	15,591	16,250	14,236
	4	17,675	15,266	15,674	16,702	16,996	16,211
	5	19,060	14,380	16,476	18,635	17,225	15,650
	6	16,762	10,737	13,012	15,837	13,740	11,588
	7	15,609	7,947	11,386	14,680	12,513	9,484
	8	10,766	6,175	8,856	10,584	8,506	6,596
	9	11,017	5,597	6,896	10,717	8,643	5,946
	10	11,993	8,206	9,091	11,943	10,646	8,245
	11	13,853	11,574	12,093	14,140	12,744	10,994
	12	-	-	-	-	-	-



RT Congestion Constraint Rankings - Top 10 Constraints by Binding Frequency and Top 10 Constraints by Total Congestion Rent																
CATEGORY	YEAR	CONSTRAINT	RANKVAR	RANK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
FREQ_EXIST	2022	NORTH EDINBURG LOBO GTC (NE_LOB)	21687	1	2040	2071	2855	2745	4082	2197	2447	1556	51	1031	612	0
FREQ_EXIST	2022	NELSON SHARPE RIO HONDO GTC (NELRIO)	16159	2	1256	755	2156	3044	3560	1619	2136	1230	0	163	240	0
FREQ_EXIST	2022	BURNS RIOHONDO 1 (RIOHONDO-MV_BURNS)	12524	3	280	592	2245	3279	1667	841	1619	410	0	787	804	0
FREQ_EXIST	2022	WEST TEXAS EXPORT GTC (WESTEX)	11126	4	950	618	507	3167	1603	917	40	119	87	1101	2017	0
FREQ_EXIST	2022	HAMILT MAVERI1 1 (HAMILTON-MAVERICK)	8799	5	162	376	1359	2048	1254	224	323	88	193	633	2139	0
FREQ_EXIST	2022	PANHANDLE GTC (PNHNDL)	8372	6	182	230	18	2040	2334	906	0	0	524	815	1323	0
FREQ_EXIST	2022	LASPUL_RAYMND1 1 (LASPULGA-RAYMND2)	7835	7	40	125	1454	2258	2092	388	893	387	0	48	150	0
FREQ_EXIST	2022	G138_10B_1 (SEMINOLE-MAGNO_TN)	7194	8	120	226	703	3481	879	1135	41	0	0	332	277	0
FREQ_EXIST	2022	BRIGHT_CHARTE1 1 (BRIGHTSD-CHARTER)	6587	9	1	132	1277	224	1706	1618	1629	0	0	0	0	0
FREQ_EXIST	2022	651_B (CMNSW-CMNTP)	6331	10	500	537	898	1982	844	793	170	282	149	0	176	0
TOP10_RENT	2022	WEST TEXAS EXPORT GTC (WESTEX)	\$ 292.24	1	\$ 17.32	\$ 8.97	\$ 6.98	\$ 88.01	\$ 57.18	\$ 37.91	\$ 0.73	\$ 4.03	\$ 1.47	\$ 28.05	\$ 41.61	\$ -
TOP10_RENT	2022	JEWET-SNG LINES (JEWET-SNG)	\$ 170.17	2	\$ -	\$ -	\$ -	\$ 0.04	\$ 136.25	\$ 33.70	\$ 0.00	\$ 0.15	\$ 0.03	\$ -	\$ -	\$ -
TOP10_RENT	2022	NORTH EDINBURG LOBO GTC (NE_LOB)	\$ 113.81	3	\$ 6.50	\$ 5.42	\$ 12.38	\$ 12.92	\$ 27.32	\$ 15.61	\$ 17.46	\$ 10.08	\$ 0.32	\$ 3.66	\$ 2.15	\$ -
TOP10_RENT	2022	KLNSW_XFMRS (KLNSW-KLNSW)	\$ 98.24	4	\$ 7.00	\$ 7.77	\$ 43.13	\$ 7.47	\$ 32.88	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	CKT_3124_1 (STP-HLJ)	\$ 80.97	5	\$ -	\$ 15.25	\$ 17.63	\$ 1.28	\$ 46.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	PAWNEE_SPRUCE 1 (PAWNEE-CALAVERS)	\$ 77.05	6	\$ 0.07	\$ -	\$ -	\$ -	\$ 2.71	\$ 0.10	\$ 52.84	\$ 16.77	\$ 0.11	\$ 0.69	\$ 3.76	\$ -
TOP10_RENT	2022	NORTH TO HOUSTON GTC (N_TO_H)	\$ 76.73	7	\$ -	\$ -	\$ -	\$ 0.61	\$ 73.04	\$ 0.07	\$ -	\$ -	\$ -	\$ 0.15	\$ 2.86	\$ -
TOP10_RENT	2022	6462_C (MCNSW-MKNGB)	\$ 69.75	8	\$ -	\$ -	\$ -	\$ 0.49	\$ 32.66	\$ 11.11	\$ 16.54	\$ 8.96	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	PANHANDLE GTC (PNHNDL)	\$ 66.43	9	\$ 0.52	\$ 0.94	\$ 0.08	\$ 12.75	\$ 23.31	\$ 7.88	\$ -	\$ -	\$ 7.16	\$ 3.99	\$ 9.81	\$ -
TOP10_RENT	2022	BURNS RIOHONDO 1 (RIOHONDO-MV_BURNS)	\$ 65.08	10	\$ 1.26	\$ 2.09	\$ 7.94	\$ 11.13	\$ 10.28	\$ 6.42	\$ 13.31	\$ 2.50	\$ -	\$ 4.32	\$ 5.83	\$ -

MONTH	RENT TOTAL
1	108.54
2	131.29
3	237.76
4	382.41
5	701.20
6	250.92
7	294.75
8	81.49
9	57.08
10	112.34
11	164.13
12	0.00
Sum-Total	2521.92

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	6144_A (BSPRW-STASW)	4,057	1	59	66	243	433	487	521	470	497	458	380	443	-
FREQ_EXIST	2022	G138_10B_1 (SEMINOLE-MAGNO_TN)	3,420	2	205	192	404	697	606	517	107	23	63	275	331	-
FREQ_EXIST	2022	NORTH EDINBURG LOBO GTC (NE_LOB)	3,247	3	262	262	436	405	509	374	372	242	49	186	150	-
FREQ_EXIST	2022	HAMILT_MAVERI1_1 (HAMILTON-MAVERICK)	3,045	4	172	96	266	458	350	229	297	278	348	260	291	-
FREQ_EXIST	2022	LPLMK_LPLNE_1 (LPLMK-LPLNE)	2,650	5	251	194	35	139	197	193	191	59	362	559	470	-
FREQ_EXIST	2022	BRUNI_69_1 (BRUNI-BRUNI)	2,648	6	227	125	210	312	326	263	389	370	70	174	182	-
FREQ_EXIST	2022	BISON_STRS1_1 (BISON-STRS)	2,591	7	104	123	378	317	297	208	100	143	298	348	275	-
FREQ_EXIST	2022	NELSON SHARPE RIO HONDO GTC (NELRIO)	2,569	8	253	161	251	426	472	221	320	171	17	139	138	-
FREQ_EXIST	2022	BURNS_RIOHONDO_1 (RIOHONDO-MV_BURNS)	2,533	9	158	160	293	430	403	212	295	156	17	146	263	-
FREQ_EXIST	2022	PRTLAVS_T1 (PRTLAVS-PRTLAVS)	2,446	10	86	182	108	202	295	245	512	284	226	158	148	-
TOP10_RENT	2022	WEST EXPORT GTC (WESTEX)	\$ 228.14	1	\$ 12.11	\$ 8.42	\$ 13.08	\$ 59.40	\$ 41.34	\$ 24.11	\$ 0.94	\$ 1.27	\$ 1.85	\$ 25.87	\$ 39.74	\$ -
TOP10_RENT	2022	JEWET-SNG LINES (JEWET-SNG)	\$ 131.90	2	\$ -	\$ -	\$ 0.08	\$ 0.04	\$ 84.02	\$ 46.56	\$ 0.25	\$ 0.62	\$ 0.34	\$ -	\$ -	\$ -
TOP10_RENT	2022	NORTH EDINBURG LOBO GTC (NE_LOB)	\$ 104.18	3	\$ 6.96	\$ 5.11	\$ 11.10	\$ 11.39	\$ 22.27	\$ 17.21	\$ 13.17	\$ 9.25	\$ 0.33	\$ 4.33	\$ 3.06	\$ -
TOP10_RENT	2022	KLNSW_XFMRS (KLNSW-KLNSW)	\$ 88.64	4	\$ 4.79	\$ 8.24	\$ 34.77	\$ 15.27	\$ 25.58	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOP10_RENT	2022	G138_10B_1 (SEMINOLE-MAGNO_TN)	\$ 87.26	5	\$ 0.85	\$ 0.98	\$ 4.66	\$ 31.20	\$ 24.53	\$ 15.83	\$ 0.53	\$ 0.06	\$ 0.27	\$ 3.22	\$ 5.14	\$ -
TOP10_RENT	2022	CKT_3124_1 (STP-HLJ)	\$ 59.39	6	\$ 0.04	\$ 11.02	\$ 14.99	\$ 2.26	\$ 24.75	\$ 1.57	\$ 3.34	\$ 0.00	\$ -	\$ 0.02	\$ 1.40	\$ -
TOP10_RENT	2022	PANHANDLE GTC (PNHNDL)	\$ 58.52	7	\$ 0.07	\$ -	\$ 0.27	\$ 11.37	\$ 18.02	\$ 9.50	\$ -	\$ -	\$ 5.96	\$ 3.28	\$ 10.05	\$ -
TOP10_RENT	2022	6462_C (MCNSW-MKNGB)	\$ 57.93	8	\$ -	\$ -	\$ 0.09	\$ 0.03	\$ 17.73	\$ 13.96	\$ 17.17	\$ 8.34	\$ 0.59	\$ -	\$ -	\$ -
TOP10_RENT	2022	BURNS_RIOHONDO_1 (RIOHONDO-MV_BURNS)	\$ 56.39	9	\$ 1.95	\$ 1.81	\$ 4.33	\$ 9.99	\$ 12.75	\$ 5.40	\$ 10.38	\$ 2.66	\$ 0.15	\$ 2.57	\$ 4.39	\$ -
TOP10_RENT	2022	PAWNEE_SPRUCE_1 (PAWNEE-CALAVERS)	\$ 47.04	10	\$ -	\$ -	\$ -	\$ -	\$ 0.12	\$ 0.18	\$ 20.27	\$ 18.00	\$ 0.00	\$ 2.34	\$ 6.12	\$ -

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	\$ 45.67	1	\$ 1.74	\$ 1.33	\$ 1.83	\$ 2.21	\$ 4.74	\$ 6.66	\$ 6.37	\$ 4.13	\$ 6.35	\$ 4.84	\$ 3.77	\$ 1.71		
N	2022	HB NORTH-HB HOUSTON	\$ 45.42	2	\$ 0.29	\$ 0.41	\$ 2.10	\$ 2.13	\$ 6.34	\$ 15.09	\$ 4.67	\$ 3.27	\$ 2.97	\$ 4.68	\$ 2.49	\$ 0.97		
N	2022	HB WEST-HB NORTH	\$ 29.27	3	\$ 0.39	\$ 1.23	\$ 0.97	\$ 3.67	\$ 7.02	\$ 5.58	\$ 0.51	\$ 0.22	\$ 3.41	\$ 3.39	\$ 1.25	\$ 1.63		
N	2022	HB SOUTH-LZ SOUTH	\$ 14.75	4	\$ 1.15	\$ 0.60	\$ 0.97	\$ 1.71	\$ 1.20	\$ 2.70	\$ 1.94	\$ 1.31	\$ 1.16	\$ 0.93	\$ 0.89	\$ 0.19		
N	2022	HB NORTH-LZ NORTH	\$ 14.66	5	\$ 0.59	\$ 0.69	\$ 0.89	\$ 0.73	\$ 1.20	\$ 2.28	\$ 2.46	\$ 2.98	\$ 1.00	\$ 0.94	\$ 0.64	\$ 0.26		
N	2022	HB HOUSTON-LZ HOUSTON	\$ 12.84	6	\$ 0.37	\$ 0.38	\$ 0.65	\$ 0.99	\$ 2.25	\$ 2.74	\$ 2.08	\$ 0.85	\$ 0.85	\$ 0.61	\$ 0.54	\$ 0.52		
N	2022	HB SOUTH-HB NORTH	\$ 7.41	7	\$ 0.28	\$ 0.29	\$ 0.29	\$ 2.21	\$ 0.45	\$ 0.81	\$ 0.05	\$ 1.34	\$ 0.28	\$ 0.55	\$ 0.64	\$ 0.22		
N	2022	HB SOUTH-LZ LCRA	\$ 6.37	8	\$ 0.03	\$ 0.12	\$ 0.06	\$ 0.13	\$ 0.58	\$ 1.31	\$ 0.92	\$ 0.63	\$ 1.13	\$ 0.80	\$ 0.41	\$ 0.28		
N	2022	COL COLETG1-HB SOUTH	\$ 5.97	9	\$ 0.55	\$ 0.70	\$ 0.52	\$ 0.58	\$ 0.24	\$ 0.11	\$ 0.29	\$ 0.53	\$ 1.06	\$ 0.62	\$ 0.33	\$ 0.42		
N	2022	CPSSES_UNIT2-HB NORTH	\$ 5.03	10	\$ 0.69	\$ 0.55	\$ 0.31	\$ 1.01	\$ 0.45	\$ 0.33	\$ 0.15	\$ 0.16	\$ 0.32	\$ 0.61	\$ 0.29	\$ 0.17		
Y	2022	HB WEST-LZ WEST	\$ 8.76	1	\$ 0.19	\$ 0.22	\$ 0.21	\$ 0.31	\$ 0.95	\$ 1.20	\$ 0.67	\$ 0.40	\$ 2.33	\$ 2.00	\$ 0.15	\$ 0.14		
Y	2022	HB SOUTH-LZ SOUTH	\$ 6.42	2	\$ 0.24	\$ 0.25	\$ 0.44	\$ 0.69	\$ 0.61	\$ 0.92	\$ 0.96	\$ 1.10	\$ 0.10	\$ 0.63	\$ 0.36	\$ 0.13		
Y	2022	HB NORTH-LZ NORTH	\$ 6.06	3	\$ 0.70	\$ 0.16	\$ 0.09	\$ 0.25	\$ 0.29	\$ 0.66	\$ 1.11	\$ 0.40	\$ 0.54	\$ 0.60	\$ 0.84	\$ 0.44		
Y	2022	ANCHOR_ALL-JCKCNTY2 CT3	\$ 4.03	4	\$ -	\$ -	\$ 0.35	\$ 0.00	\$ 0.99	\$ 1.91	\$ 0.35	\$ 0.12	\$ 0.14	\$ 0.13	\$ 0.04	\$ 0.01		
Y	2022	HB WEST-HB NORTH	\$ 3.68	5	\$ 0.43	\$ 0.47	\$ 0.15	\$ 0.22	\$ 0.55	\$ 0.86	\$ 0.03	\$ 0.14	\$ 0.18	\$ 0.12	\$ 0.18	\$ 0.36		
Y	2022	HB NORTH-HB HOUSTON	\$ 3.57	6	\$ 0.05	\$ 0.02	\$ 0.01	\$ 0.01	\$ 0.01	\$ 1.05	\$ 0.42	\$ 0.13	\$ 0.31	\$ 1.04	\$ 0.30	\$ 0.22		
Y	2022	HB HOUSTON-LZ HOUSTON	\$ 3.30	7	\$ 0.03	\$ 0.04	\$ 0.21	\$ 0.26	\$ 0.27	\$ 0.83	\$ 0.63	\$ 0.26	\$ 0.29	\$ 0.27	\$ 0.11	\$ 0.10		
Y	2022	CALAVER_JKS2-LZ CPS	\$ 2.91	8	\$ 0.20	\$ 0.08	\$ 0.00	\$ 0.14	\$ 0.21	\$ 0.00	\$ 0.41	\$ 0.51	\$ 0.49	\$ 0.74	\$ 0.02	\$ 0.11		
Y	2022	HB PAN-HB WEST	\$ 2.79	9	\$ 0.06	\$ 0.04	\$ 0.08	\$ 0.26	\$ 0.52	\$ 0.24	\$ 0.13	\$ 0.06	\$ 0.36	\$ 0.35	\$ 0.48	\$ 0.22		
Y	2022	TORR_ALL-HB SOUTH	\$ 2.77	10	\$ 0.52	\$ 0.53	\$ 0.32	\$ 0.00	\$ 0.29	\$ 0.37	\$ 0.25	\$ 0.11	\$ 0.16	\$ 0.18	\$ 0.03	\$ 0.02		