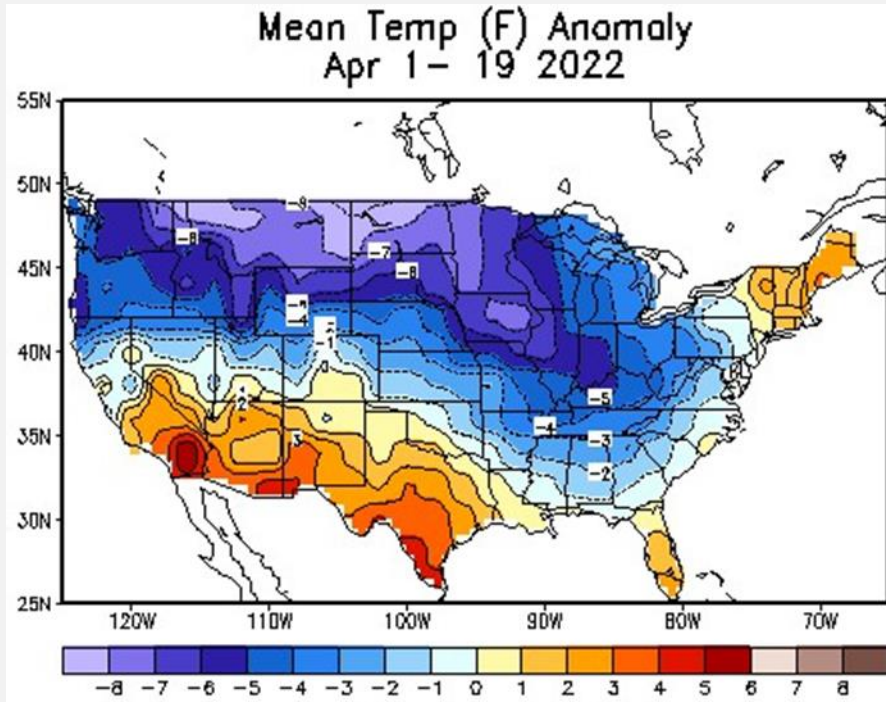
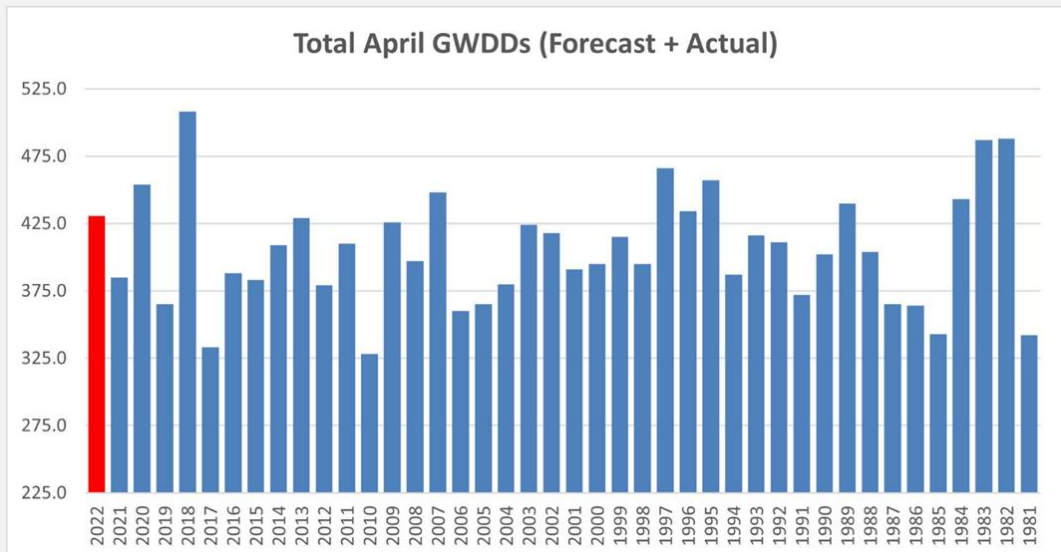


This week we start by looking at some of the upcoming summer weather trends. So far April has been wildly variable the last few years, and this year is no exception. We had Nor'easters, blizzards in the plains, heavy rain, wind storms, heat waves, and the list goes on. Here is a quick graphics shared by the team at Bespoke Weather of the mean temp anomaly for the first 2/3 of April. It has been an impressively cool April up north leading to the HDDs piling up.

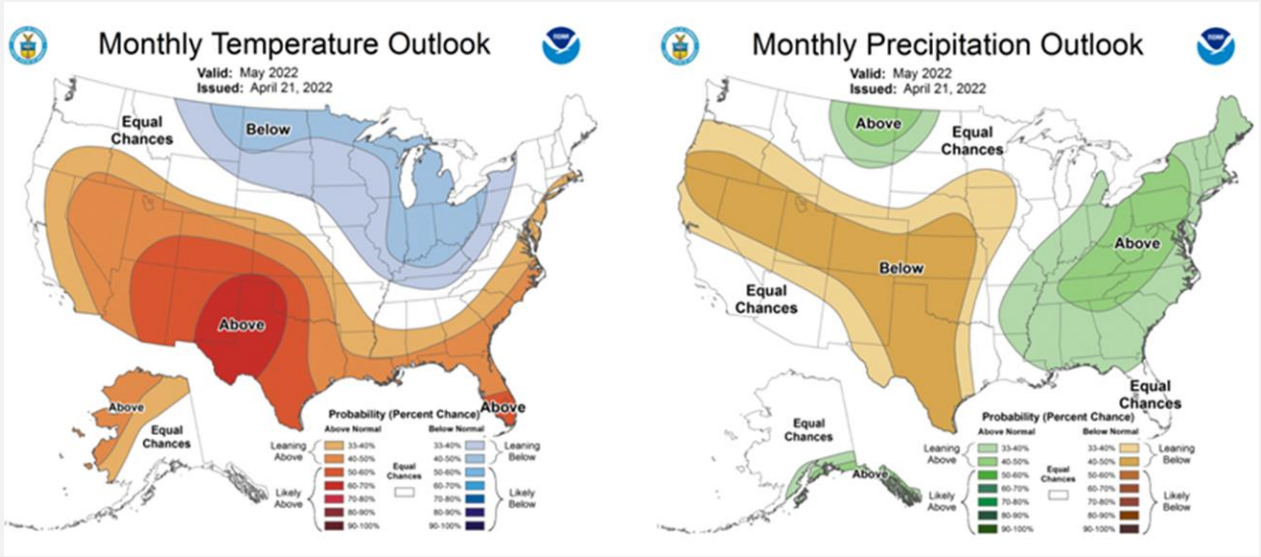


The projected total April demand (GWDDs count) is forecast to be much higher year-on-year, but the last few Aprils have been very variable (as seen in the Bespoke Weather chart below).

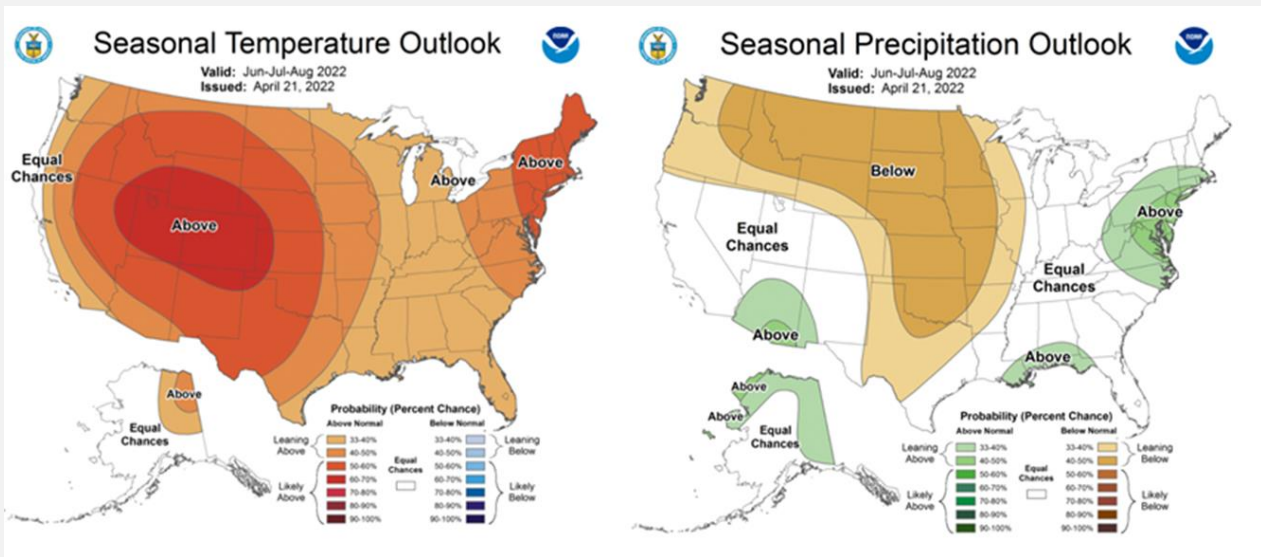


This week NOAA released its longer-term outlooks. The NOAA CPC outlook is based on its dynamic computer models and statistical models.

The latest May outlook map favors elevated odds for cool and wet conditions in the North Plains and East Midwest and hotter/drier SW Plains. This outlook amplifies the drought condition already present from California to Texas.

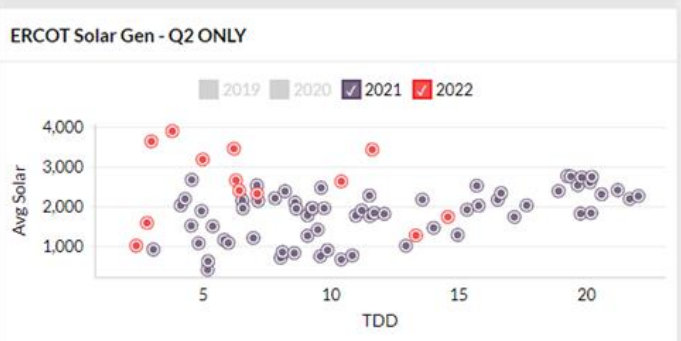
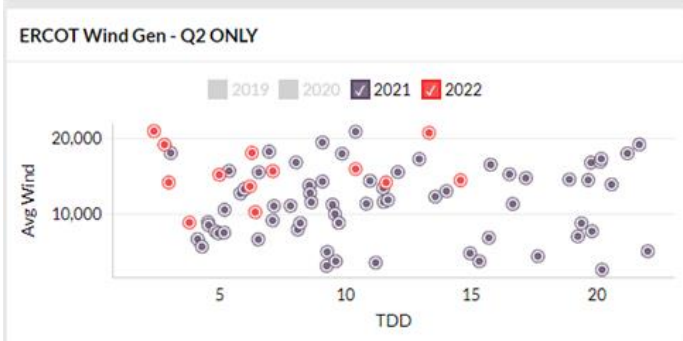
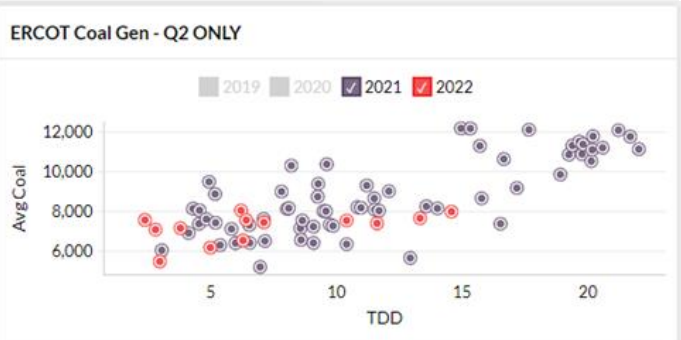
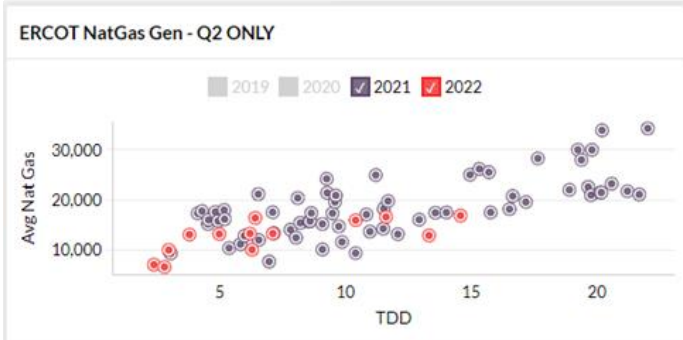
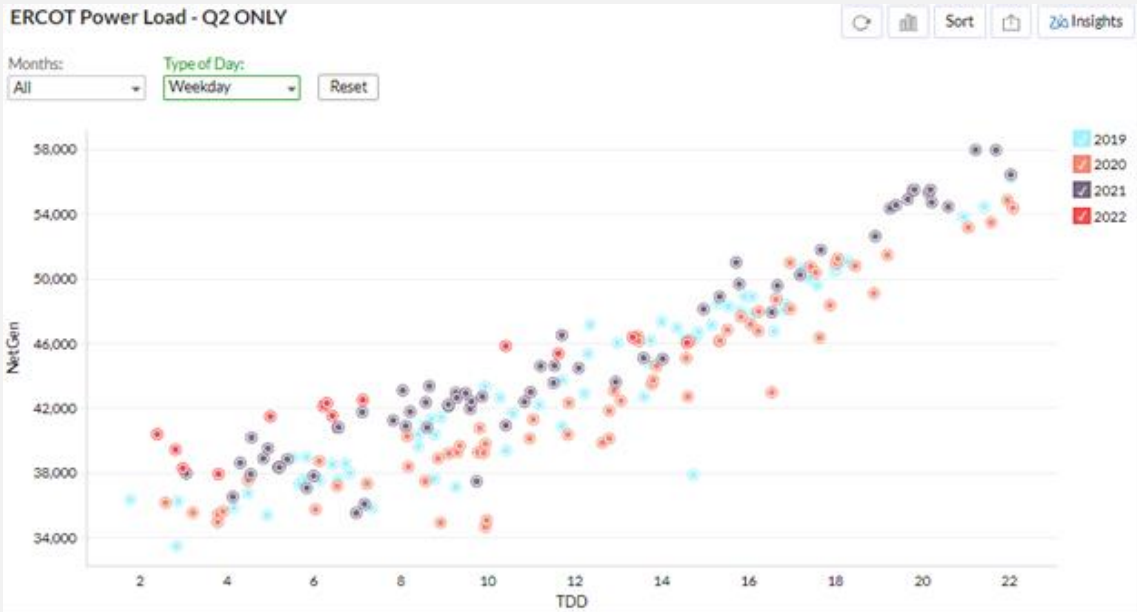


The summer peak months are even more extreme. The NOAA summer maps favor high odds for heat and dryness across much of the country with below-normal precipitation. This will greatly keep power loads elevated and impact the much-needed hydro gen. Hydro gen was already quite low last year, and it appears we are setting up for a bit of the same.



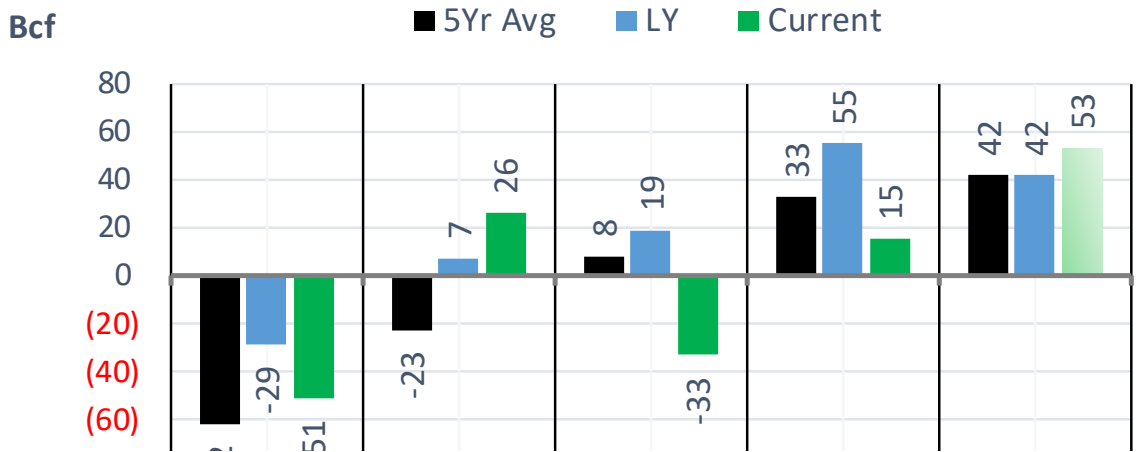
Here is a quick look at the ERCOT power load for Q2. As can be seen, it has been quite elevated with the heat the region has experienced this month so far. Natgas demand has not jumped though because we have had incremental wind/solar capacity along with overperformance of the available capacity taking on the increased load. That being said, if the US does experience the type of summer that is shown above then we are going to see gas burns jump year-on-year.

[The charts below are from our dashboards. Drop me a line at [het@analytix.ai](mailto:het@analytix.ai) to get access]

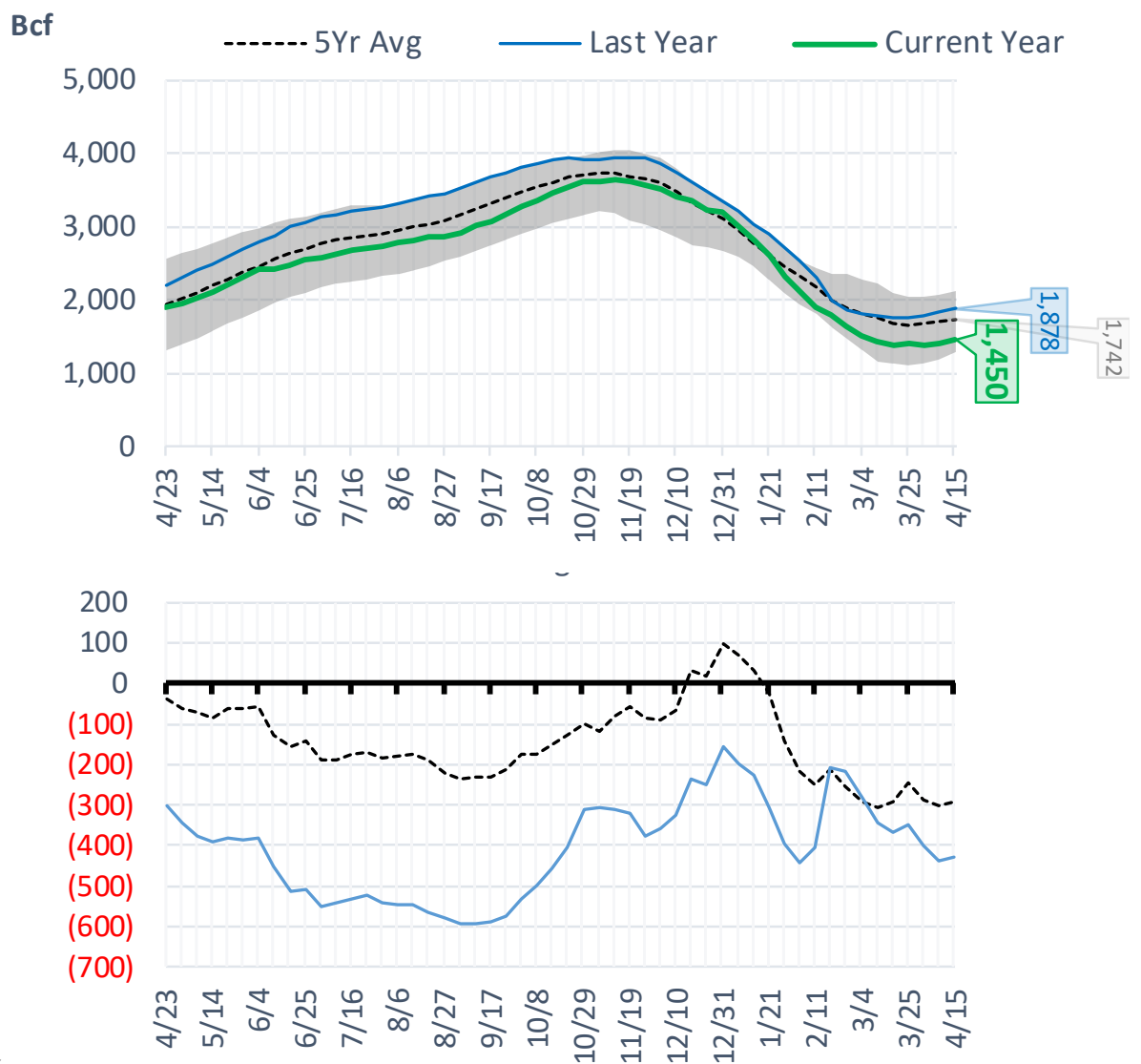


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## Total Lower 48 YoY Weekly Change



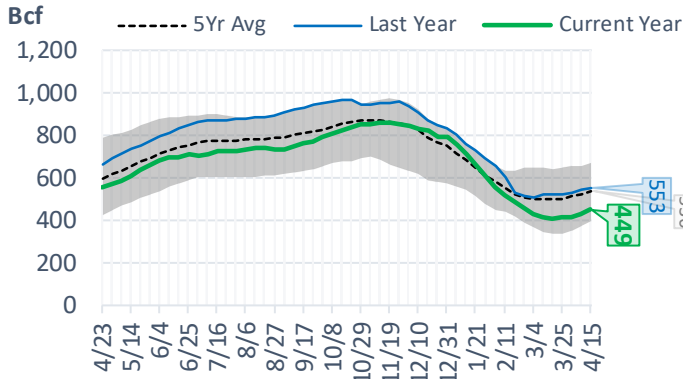
## Total Lower 48 Storage Levels



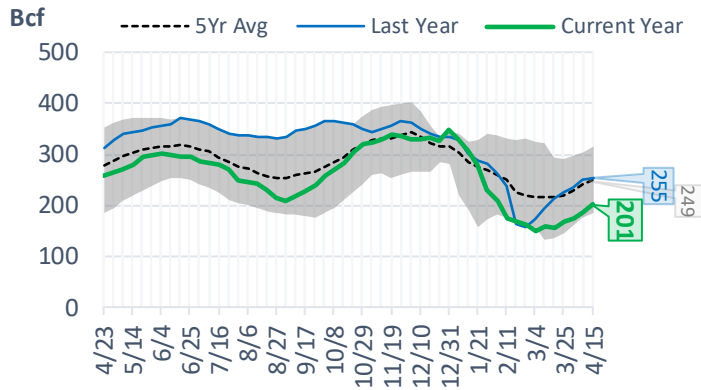
## Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 15-Apr	Week - 1 8-Apr	Week - 2 1-Apr	Week - 3 25-Mar	Week - 4 18-Mar	Week - 5 11-Mar
<b>Total Lower 48 Storage Level</b>	<b>1450</b>	1397	1382	1415	1389	1440
Weekly Change	+53	+15	-33	+26	-51	-79
vs LY	-428	-439	-399	-347	-366	-344
vs 5Yr Avg	-292	-303	-285	-244	-293	-304
<b>S. Central Salt Storage Level</b>	<b>201</b>	186	173	169	156	159
Weekly Change	+15	+13	+4	+13	-3	+8
vs LY	-54	-63	-61	-55	-56	-35
vs 5Yr Avg	-48	-54	-56	-51	-60	-56
<b>S. Central NonSalt Storage Level</b>	<b>449</b>	431	416	412	404	412
Weekly Change	+18	+15	+4	+8	-8	-19
vs LY	-104	-114	-116	-110	-115	-106
vs 5Yr Avg	-87	-92	-95	-89	-92	-87
<b>Midwest Storage Level</b>	<b>304</b>	293	296	317	318	337
Weekly Change	+11	-3	-21	-1	-19	-27
vs LY	-116	-119	-102	-85	-90	-91
vs 5Yr Avg	-72	-79	-75	-61	-77	-86
<b>East Storage Level</b>	<b>238</b>	229	241	268	268	290
Weekly Change	+9	-12	-27	0	-22	-27
vs LY	-85	-81	-64	-39	-42	-41
vs 5Yr Avg	-52	-52	-37	-17	-35	-43
<b>Mountain Storage Level</b>	<b>89</b>	90	91	89	87	87
Weekly Change	-1	-1	+2	+2	0	-6
vs LY	-29	-28	-24	-23	-25	-27
vs 5Yr Avg	-13	-10	-9	-10	-12	-14
<b>Pacific Storage Level</b>	<b>169</b>	169	165	161	157	155
Weekly Change	0	+4	+4	+4	+2	-7
vs LY	-40	-35	-32	-33	-37	-45
vs 5Yr Avg	-21	-16	-15	-14	-16	-19

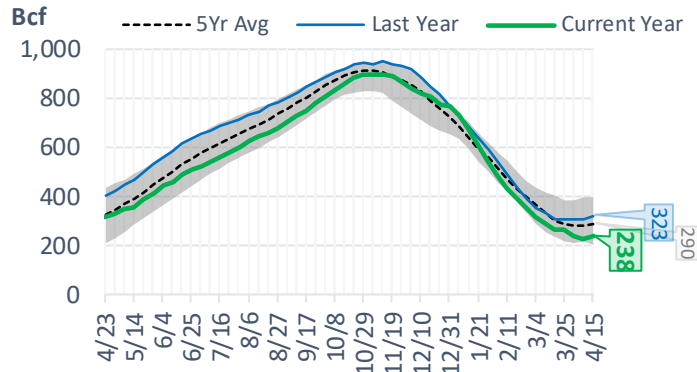
## NonSalt Storage Levels



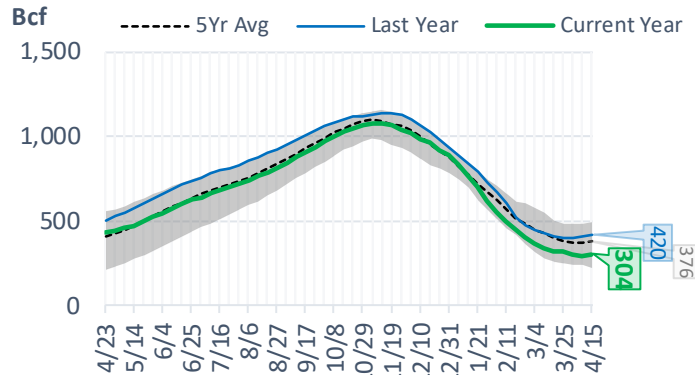
## Salt Storage Levels



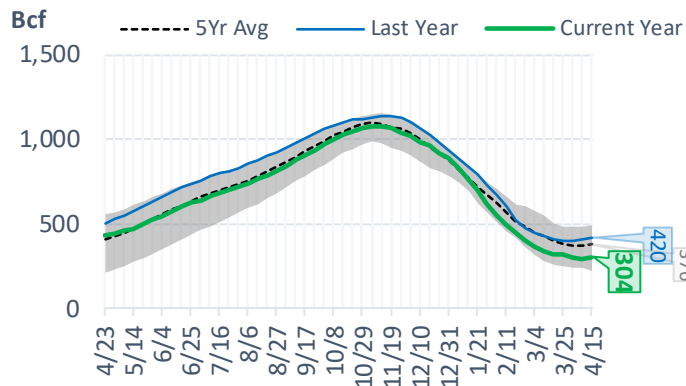
## East Storage Levels



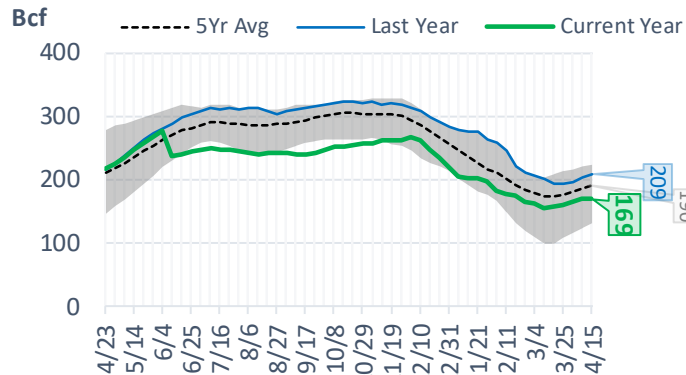
## Midwest Storage Levels



## Midwest Storage Levels



## Pacific Storage Levels



## EIA Storage Week Balances

	18-Mar	25-Mar	1-Apr	8-Apr	15-Apr	22-Apr	WoW	vs. 4W
<b>Lower 48 Dry Production</b>	<b>93.9</b>	<b>95.4</b>	<b>96.1</b>	<b>96.0</b>	<b>96.5</b>	<b>96.7</b>	▲ 0.2	▲ 0.7
<b>Canadian Imports</b>	<b>5.2</b>	<b>4.8</b>	<b>5.7</b>	<b>5.8</b>	<b>5.6</b>	<b>5.8</b>	▲ 0.3	▲ 0.4
L48 Power	27.3	25.6	26.9	26.7	26.7	26.8	▲ 0.0	▲ 0.3
L48 Residential & Commercial	31.5	23.5	29.7	24.3	21.6	23.4	▲ 1.9	▼ -1.3
L48 Industrial	20.7	20.8	22.5	21.8	20.5	21.6	▲ 1.0	▲ 0.2
L48 Lease and Plant Fuel	5.1	5.2	5.2	5.2	5.3	5.3	▲ 0.0	▲ 0.0
L48 Pipeline Distribution	3.1	2.6	2.9	2.8	2.7	2.8	▲ 0.1	▲ 0.0
<b>L48 Regional Gas Consumption</b>	<b>87.7</b>	<b>77.5</b>	<b>87.3</b>	<b>80.8</b>	<b>76.7</b>	<b>79.8</b>	▲ 3.0	▼ -0.8
<b>Net LNG Exports</b>	<b>12.9</b>	<b>13.0</b>	<b>13.1</b>	<b>12.4</b>	<b>12.5</b>	<b>12.1</b>	▼ -0.3	▼ -0.6
<b>Total Mexican Exports</b>	<b>6.6</b>	<b>6.5</b>	<b>6.4</b>	<b>6.8</b>	<b>6.6</b>	<b>6.6</b>	▲ 0.1	▲ 0.0
<b>Implied Daily Storage Activity</b>	<b>-7.9</b>	<b>3.2</b>	<b>-5.0</b>	<b>1.7</b>	<b>6.3</b>	<b>4.0</b>	<b>-2.3</b>	
<b>EIA Reported Daily Storage Activity</b>	<b>-7.3</b>	<b>3.7</b>	<b>-4.7</b>	<b>2.1</b>	<b>7.6</b>			
<b>Daily Model Error</b>	<b>-0.7</b>	<b>-0.5</b>	<b>-0.3</b>	<b>-0.4</b>	<b>-1.3</b>			

## Monthly Balances

	2Yr Ago Apr-20	LY Apr-21	Dec-21	Jan-22	Feb-22	Mar-22	MTD Apr-22	MoM	vs. LY
<b>Lower 48 Dry Production</b>	<b>92.7</b>	<b>92.5</b>	<b>96.1</b>	<b>93.6</b>	<b>93.6</b>	<b>95.1</b>	<b>96.4</b>	▲ 1.3	▲ 4.0
<b>Canadian Imports</b>	<b>4.0</b>	<b>4.7</b>	<b>4.8</b>	<b>6.7</b>	<b>6.6</b>	<b>5.2</b>	<b>5.7</b>	▲ 0.5	▲ 1.1
L48 Power	25.6	25.0	28.7	31.4	29.0	26.9	26.7	▼ -0.2	▲ 1.7
L48 Residential & Commercial	20.5	19.6	33.9	48.6	42.7	29.6	23.1	▼ -6.5	▲ 3.5
L48 Industrial	20.4	21.4	22.5	25.5	25.3	21.7	21.3	▼ -0.4	▼ -0.1
L48 Lease and Plant Fuel	5.0	5.0	5.3	5.1	5.1	5.2	5.3	▲ 0.1	▲ 0.2
L48 Pipeline Distribution	2.4	2.5	3.2	3.8	3.4	2.9	2.7	▼ -0.2	▲ 0.3
<b>L48 Regional Gas Consumption</b>	<b>74.0</b>	<b>73.5</b>	<b>93.6</b>	<b>114.4</b>	<b>105.5</b>	<b>86.3</b>	<b>79.1</b>	▼ -7.2	▲ 5.7
<b>Net LNG Exports</b>	<b>8.2</b>	<b>11.5</b>	<b>12.1</b>	<b>12.4</b>	<b>12.4</b>	<b>12.9</b>	<b>12.3</b>	▼ -0.5	▲ 0.9
<b>Total Mexican Exports</b>	<b>4.8</b>	<b>6.7</b>	<b>6.2</b>	<b>6.3</b>	<b>6.2</b>	<b>6.5</b>	<b>6.7</b>	▲ 0.1	▼ -0.1
<b>Implied Daily Storage Activity</b>	<b>9.7</b>	<b>5.5</b>	<b>-11.0</b>	<b>-32.8</b>	<b>-23.8</b>	<b>-5.4</b>	<b>4.0</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

Source: Bloomberg, analytix.ai

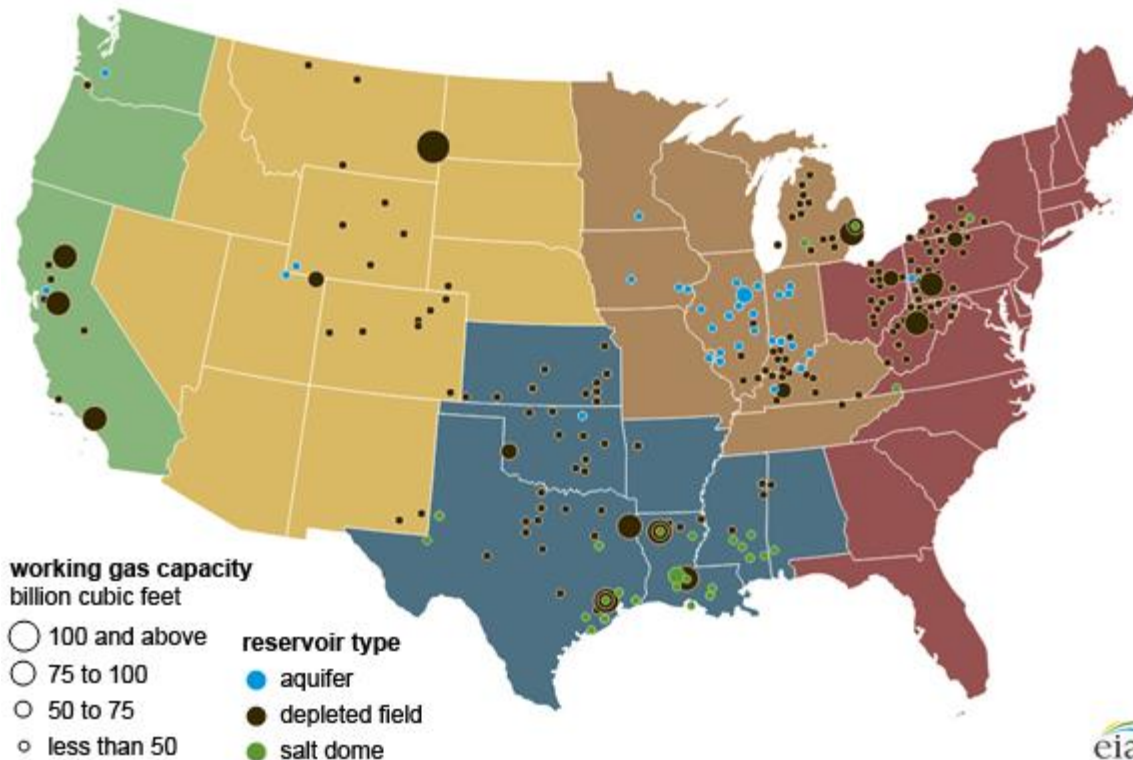
## Regional S/D Models Storage Projection

Week Ending 22-Apr

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	4.5	0.3	4.8	34
East	-1.8	1.6	-0.1	-1
Midwest	1.2	-0.6	0.6	4
Mountain	3.5	-3.5	0.1	1
South Central	1.7	2.4	4.1	29
Pacific	-0.2	0.3	0.1	1

\*Adjustment Factor is calculated based on historical regional deltas

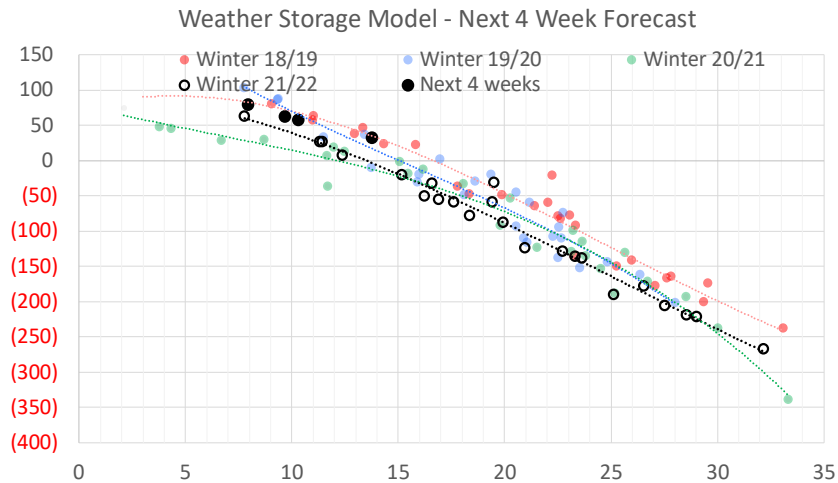
U.S. underground natural gas storage facilities by type (July 2015)





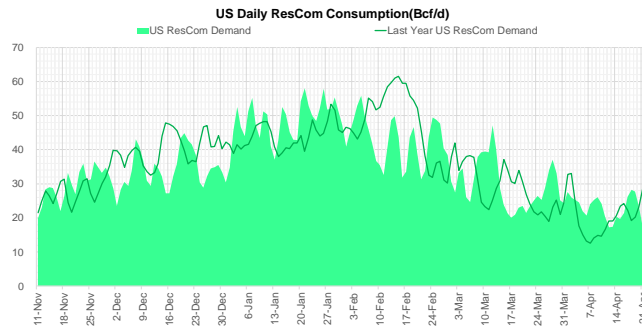
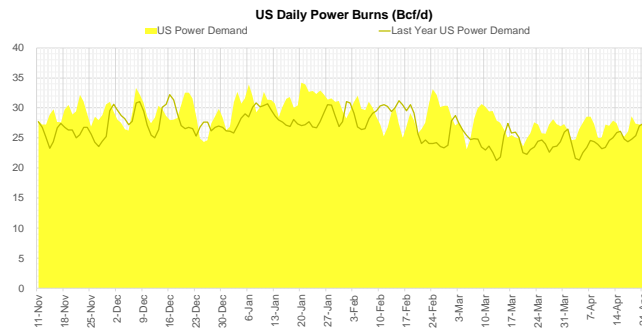
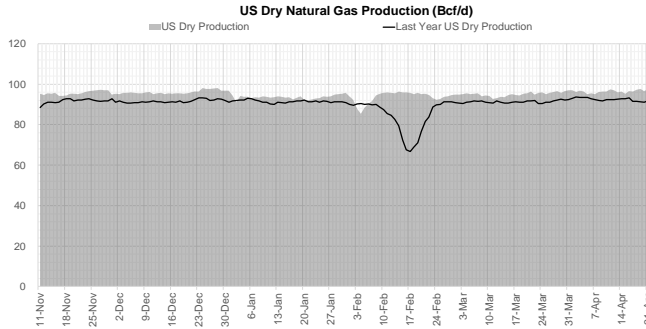
## Weather Model Storage Projection

Next report and beyond		
Week Ending	TDDs	Week Storage Projection
22-Apr	13.7	34
29-Apr	10.3	58
06-May	9.6	64
13-May	7.9	81



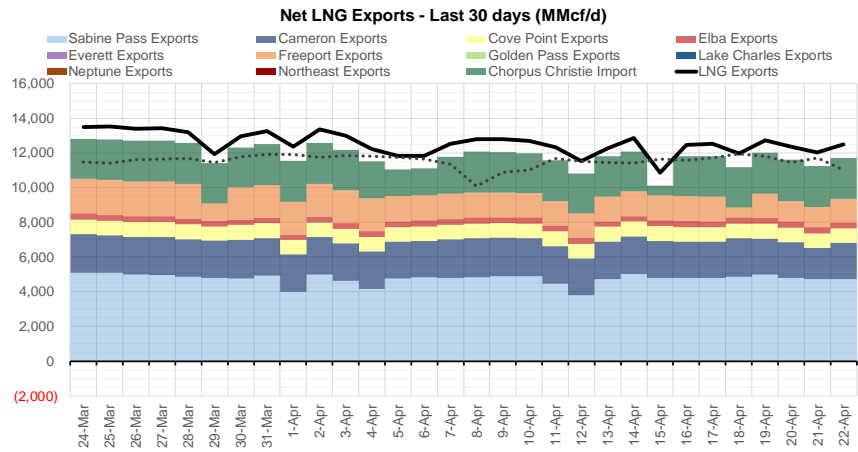
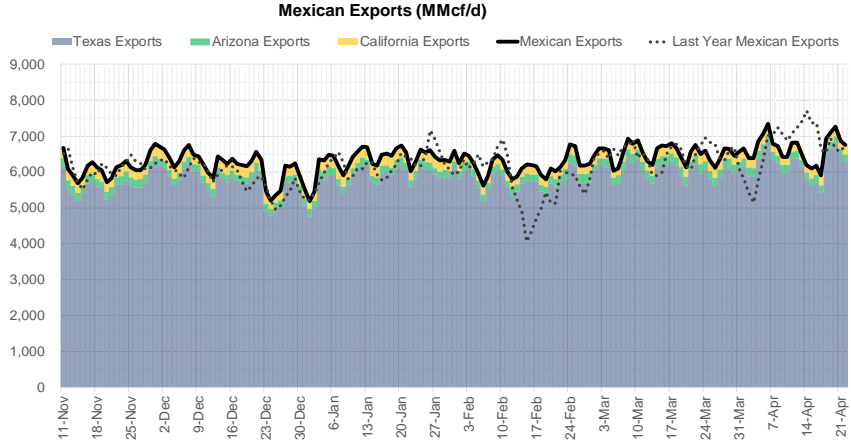
Note: this is not our official end of season forecast. This chart signifies where storage levels end with 10-year normal weather and current market tightness relative to last year

## Supply – Demand Trends



Source: Bloomberg

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Source: Bloomberg

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## Nat Gas Options Volume and Open Interest CME and ICE data combined

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
10	2022	P	3.50	4003	8	2022	C	10.00	48636
5	2022	C	7.50	3492	8	2022	C	10.50	41503
5	2022	C	8.00	3223	10	2022	C	6.00	34708
6	2022	C	9.00	2722	5	2022	P	4.00	25938
5	2022	P	6.25	2306	10	2022	C	5.00	25550
2	2023	C	8.00	2201	6	2022	C	6.00	24648
7	2022	C	8.00	2138	9	2022	C	6.00	23490
11	2022	P	3.50	2000	5	2022	P	3.00	22811
12	2022	P	3.50	2000	7	2022	C	8.00	22414
1	2023	P	2.50	2000	10	2022	P	3.00	21412
1	2023	P	4.00	2000	5	2022	C	5.00	21313
2	2023	P	2.50	2000	5	2022	C	6.00	21043
2	2023	P	4.00	2000	8	2022	C	6.00	20906
3	2023	P	2.50	2000	6	2022	P	4.00	19926
3	2023	P	4.00	2000	5	2022	P	2.50	19874
6	2022	C	10.00	1997	5	2022	C	7.00	19295
7	2022	P	5.00	1969	8	2022	C	7.00	18758
5	2022	C	7.00	1841	12	2022	C	5.00	18421
10	2022	P	2.75	1800	5	2022	C	8.00	18348
6	2022	C	8.00	1776	6	2022	C	10.00	18329
5	2022	P	6.00	1724	9	2022	C	10.00	18285
5	2022	C	9.00	1706	7	2022	C	7.00	18058
10	2023	P	2.00	1650	6	2022	C	7.00	17865
7	2022	C	10.50	1551	6	2022	C	5.00	17847
7	2022	C	10.60	1500	7	2022	C	6.00	17805
4	2023	P	2.00	1500	7	2022	P	3.25	17644
5	2023	P	2.00	1500	5	2022	P	2.75	17585
6	2023	P	2.00	1500	10	2022	P	2.50	17436
7	2023	P	2.00	1500	5	2022	P	3.50	17295
8	2023	P	2.00	1500	10	2022	P	4.00	17246
9	2023	P	2.00	1500	6	2022	P	3.00	17223
5	2022	P	6.50	1497	10	2022	P	3.50	17171
6	2022	C	12.00	1410	5	2022	P	4.50	17044
7	2022	C	10.00	1322	9	2022	C	7.00	16782
7	2022	C	7.00	1286	5	2022	P	3.75	16402
5	2022	P	6.75	1230	5	2022	P	5.00	16382
5	2022	C	7.25	1229	6	2022	P	3.50	16022
5	2022	P	7.00	1178	1	2023	C	10.00	15564
7	2022	C	12.00	1149	9	2022	P	2.50	15291
6	2022	C	13.00	1044	6	2022	C	9.00	15215
8	2022	C	10.00	971	2	2023	C	10.00	15194
10	2022	P	5.00	960	5	2022	C	9.00	15156
7	2022	P	5.50	946	6	2022	P	5.50	15030
5	2022	P	5.50	943	6	2022	P	4.75	15024
6	2022	C	7.00	913	7	2022	P	3.50	14935
10	2022	P	4.50	871	9	2022	P	2.75	14933
10	2022	P	4.00	851	7	2022	C	10.00	14930
7	2022	P	4.50	817	10	2022	P	2.00	14763
5	2022	C	7.30	813	7	2022	P	3.00	14507
					8	2022	P	3	14375

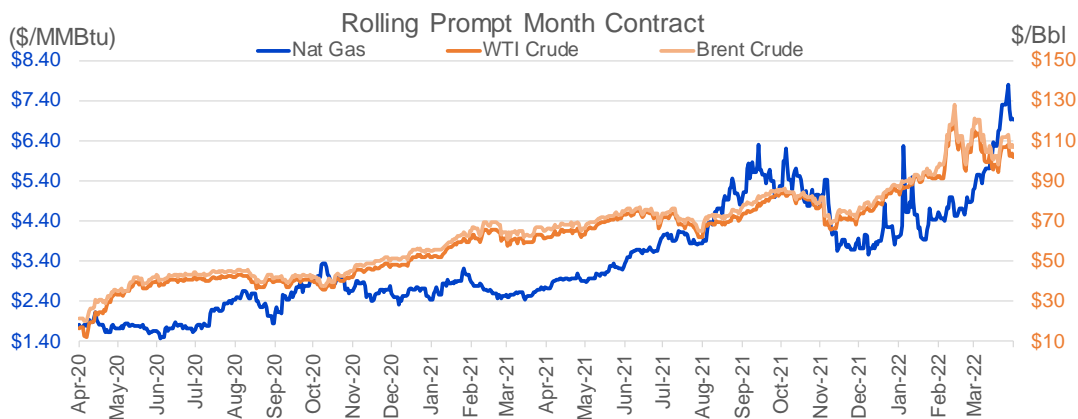
Source: CME, ICE

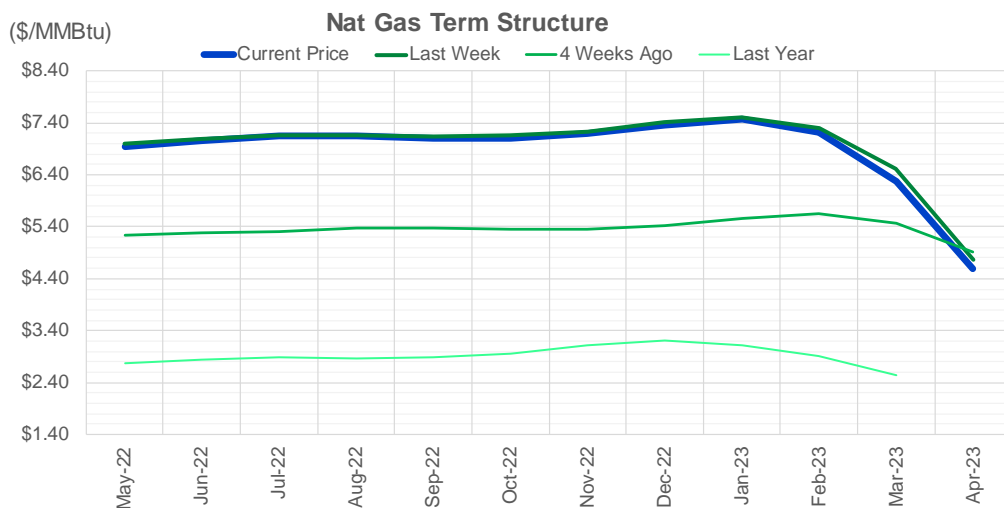
## Nat Gas Futures Open Interest

CME and ICE data combined

CME Henry Hub Futures (10,000 MMBtu)				ICE Henry Hub Futures Contract Equivalent (10,000 MM			
	Current	Prior	Daily Change		Current	Prior	Daily Change
MAY 22	29924	37952	-8028	MAY 22	80050	77459	2592
JUN 22	129798	128993	805	JUN 22	73703	73805	-102
JUL 22	162030	161432	598	JUL 22	76689	84548	-7858
AUG 22	53922	53335	587	AUG 22	62329	62377	-48
SEP 22	81171	79879	1292	SEP 22	66595	66742	-148
OCT 22	92337	95760	-3423	OCT 22	75198	75236	-39
NOV 22	42283	41889	394	NOV 22	56245	56128	118
DEC 22	47484	47198	286	DEC 22	60992	60904	88
JAN 23	61124	60962	162	JAN 23	66569	67674	-1105
FEB 23	22298	21369	929	FEB 23	47870	47253	617
MAR 23	40293	40401	-108	MAR 23	53238	53202	36
APR 23	56125	55287	838	APR 23	51693	52101	-408
MAY 23	54823	52796	2027	MAY 23	47535	47163	371
JUN 23	23144	22510	634	JUN 23	43961	44059	-99
JUL 23	17846	17539	307	JUL 23	43483	43554	-71
AUG 23	14792	15076	-284	AUG 23	43275	43344	-69
SEP 23	17732	17584	148	SEP 23	42925	43023	-98
OCT 23	37038	38332	-1294	OCT 23	50080	50355	-275
NOV 23	12397	12660	-263	NOV 23	42347	41912	435
DEC 23	15072	14721	351	DEC 23	38415	38386	30
JAN 24	23114	23639	-525	JAN 24	37423	36918	505
FEB 24	5515	5242	273	FEB 24	25137	25144	-7
MAR 24	15135	14895	240	MAR 24	29783	30341	-558
APR 24	10745	10471	274	APR 24	24125	23588	537
MAY 24	6124	6122	2	MAY 24	24227	24162	65
JUN 24	1794	1793	1	JUN 24	21463	21430	33
JUL 24	1887	1879	8	JUL 24	21573	21516	57
AUG 24	3077	3050	27	AUG 24	22572	22515	57
SEP 24	1386	1389	-3	SEP 24	21322	21335	-13
OCT 24	6759	6862	-103	OCT 24	23289	23125	165

Source: CME, ICE






	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23
<b>Current Price</b>	<b>\$6.937</b>	<b>\$7.065</b>	<b>\$7.158</b>	<b>\$7.151</b>	<b>\$7.102</b>	<b>\$7.112</b>	<b>\$7.198</b>	<b>\$7.365</b>	<b>\$7.469</b>	<b>\$7.225</b>	<b>\$6.278</b>	<b>\$4.585</b>
Last Week	\$6.997	\$7.096	\$7.173	\$7.174	\$7.151	\$7.163	\$7.238	\$7.414	\$7.516	\$7.307	\$6.511	\$4.755
vs. Last Week	-\$0.060	-\$0.031	-\$0.015	-\$0.023	-\$0.049	-\$0.051	-\$0.040	-\$0.049	-\$0.047	-\$0.082	-\$0.233	-\$0.170
4 Weeks Ago	\$5.232	\$5.274	\$5.316	\$5.366	\$5.371	\$5.350	\$5.362	\$5.423	\$5.562	\$5.653	\$5.474	\$4.925
vs. 4 Weeks Ago	\$1.705	\$1.791	\$1.842	\$1.785	\$1.731	\$1.762	\$1.836	\$1.942	\$1.907	\$1.572	\$0.804	-\$0.340
Last Year	\$2.692	\$2.776	\$2.846	\$2.876	\$2.863	\$2.881	\$2.964	\$3.111	\$3.199	\$3.124	\$2.920	\$2.539
vs. Last Year	\$4.245	\$4.289	\$4.312	\$4.275	\$4.239	\$4.231	\$4.234	\$4.254	\$4.270	\$4.101	\$3.358	\$2.046

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224	▲ 0.000	▲ 0.000	▲ 2.193
NatGas Oct21/Nov21	\$/MMBtu	0.361	▲ 0.000	▲ 0.000	▲ 0.289
NatGas Oct21/Jan22	\$/MMBtu	-1.817	▲ 0.000	▲ 0.000	▼ -2.115
NatGas Apr22/Oct22	\$/MMBtu	1.819	▼ -0.331	▲ 1.691	▲ 1.791
WTI Crude	\$/Bbl	103.79	▼ -3.160	▼ -8.550	▲ 42.360
Brent Crude	\$/Bbl	108.33	▼ -3.370	▼ -10.700	▲ 42.930
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	390.08	▲ 4.600	▼ -25.260	▲ 204.000
Propane, Mt. Bel	cents/Gallon	1.32	▼ -0.021	▼ -0.123	▲ 0.515
Ethane, Mt. Bel	cents/Gallon	0.50	▼ -0.001	▲ 0.077	▲ 0.271
Coal, PRB	\$/MTon	12.30	▲ 0.000	▲ 0.000	▲ 0.000
Coal, PRB	\$/MMBtu	0.70			

Source: CME, Bloomberg

## Baker Hughes Rig Counts

Rotary Rig Count						Baker Hughes 
4/22/2022						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	549	1	548	206	343	
Gas	144	1	143	50	94	
Miscellaneous	2	0	2	1	1	
Directional	31	-1	32	12	19	
Horizontal	639	3	636	242	397	
Vertical	25	0	25	3	22	
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago	
Oil	48	-1	49	31	17	
Gas	53	-1	54	15	38	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Ardmore Woodford	2	1	1	2	0	
Arkoma Woodford	2	0	2	2	0	
Barnett	4	0	4	3	1	
Cana Woodford	27	1	26	15	12	
DJ-Niobrara	15	0	15	8	7	
Eagle Ford	61	1	60	28	33	
Granite Wash	4	0	4	1	3	
Haynesville	67	0	67	22	45	
Marcellus	37	0	37	8	29	
Mississippian	1	0	1	1	0	
Permian	334	0	334	108	226	
Utica	12	0	12	2	10	
Williston	36	2	34	21	15	