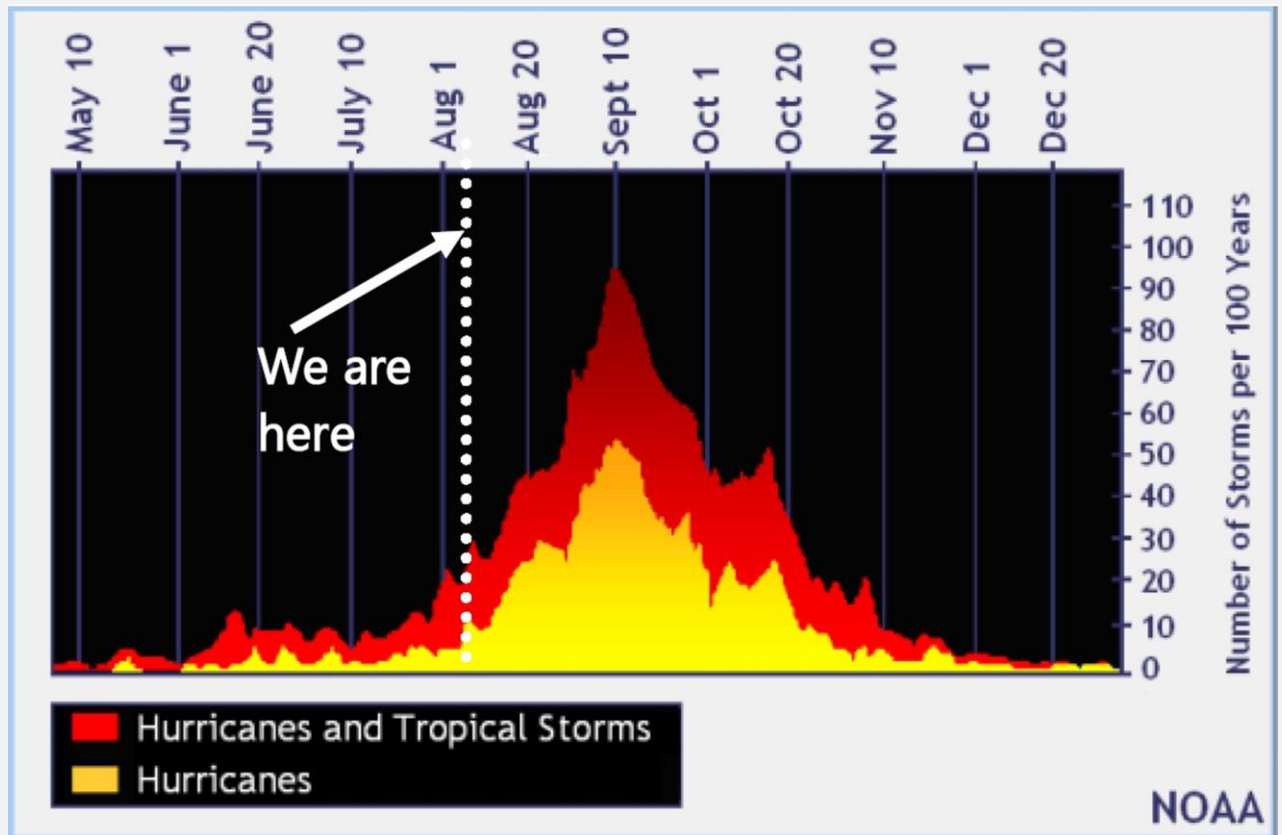


With the start of August, we are now quickly ramping up to the peak of hurricane season. Maxar reported on enelyst that “The season got off to a fast start with 5 named storms, peaking with Hurricane Elsa in early July, the earliest “E” storm on record.” However, there has been no notable tropical activity since Elsa dissipated on July 9th. This prolonged lull in activity does not mean that the season as a whole will be less active moving forward, as we are just now entering the peak hurricane season climatologically. A good stat to remember is that mid-August through mid-October accounts for 87% of Cat 1/2 hurricane days and 96% of major hurricane days.



Hurricanes are now typically net bearish for gas markets with

- 1) GoM supply being less of a concern as offshore rigs are more hurricane-resistant
- 2) GoM offshore production dropping in recent years
- 3) onshore heavy rain, flooding, and wind damaging power and LNG infrastructure leading to demand destruction
- 4) onshore cloud cover limited power consumption
- 5) LNG tanker traffic disruption.

Earlier this week, the NOAA and Colorado State University issued minor updates to their Atlantic hurricane seasonal forecasts this week. Here is a summary:

Seasonal Forecasts	Named Storms	Hurricanes	Major Hurricanes
NOAA	15-21	7-10	3-5
Colo. State	18	8	4
Maxar	17	8	4
10-Yr Avg.	17	7	3
30-Yr Avg.	14	7	3
Last Year	30	14	7

NOAA's forecast can be found here:

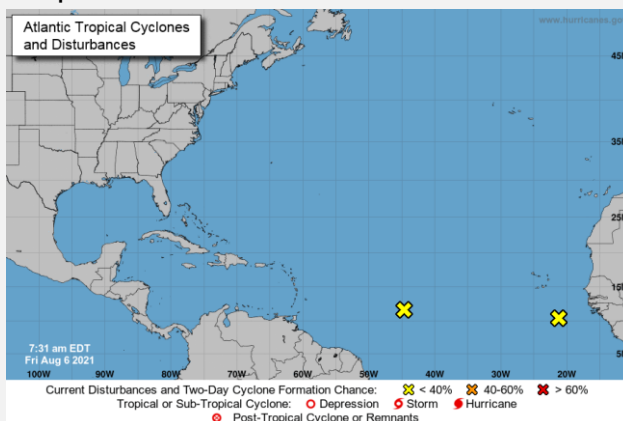
<https://www.noaa.gov/news-release/atlantic-hurricane-season-shows-no-signs-of-slowing>

Colorado State University's forecast can be found here:

<https://tropical.colostate.edu/Forecast/2021-08.pdf>

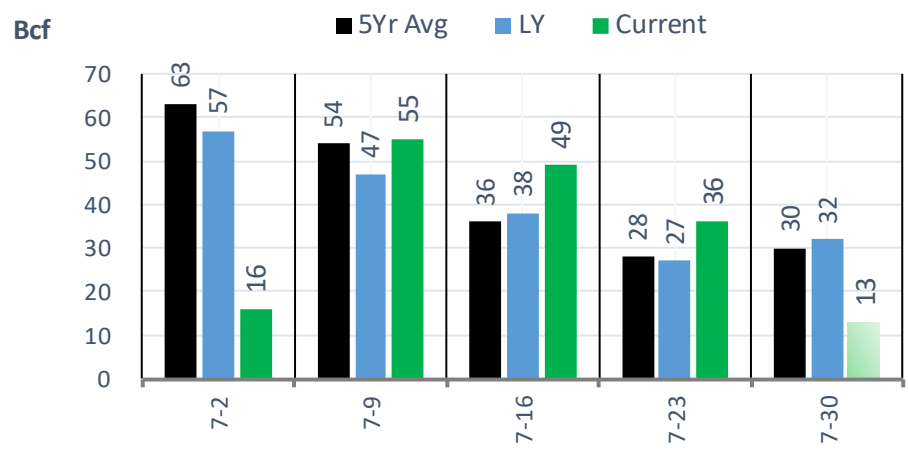
There are currently two disturbances in the central and eastern Atlantic, for which there is a low probability of developing into a tropical depression in the next week.

(<https://www.nhc.noaa.gov/?atlc>)

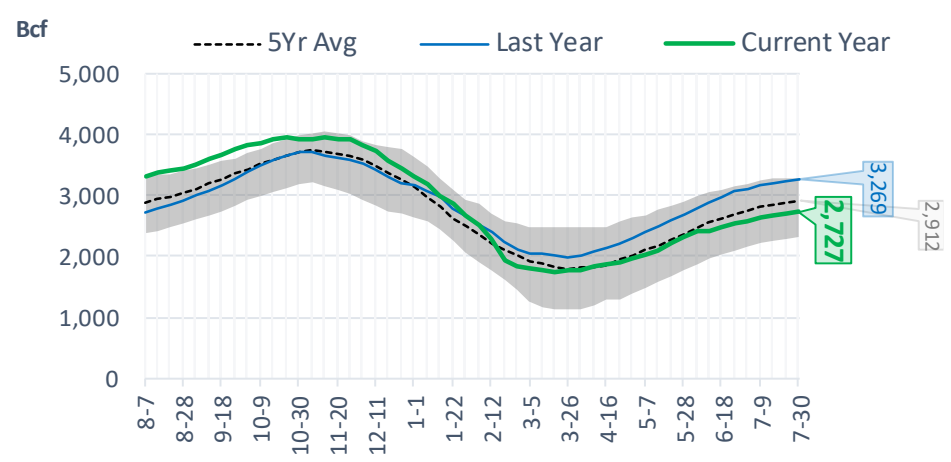


## EIA Storage Report

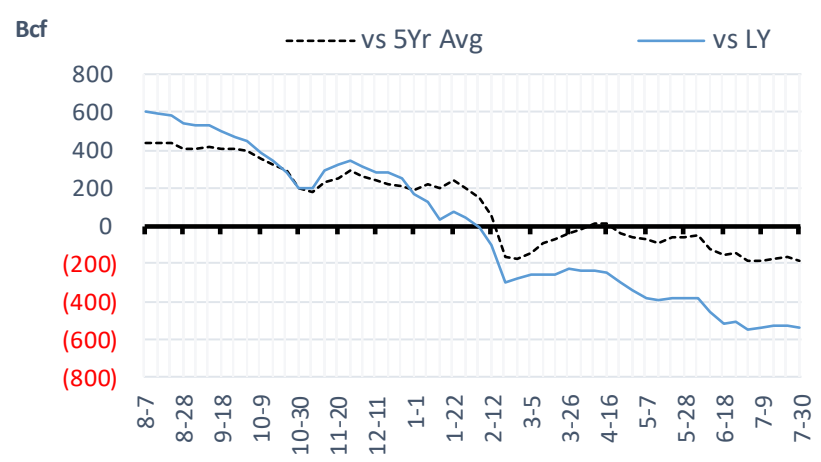
### Total Lower 48 YoY Weekly Change



### Total Lower 48 Storage Levels



### Total Lower 48 LY Surplus/Deficit

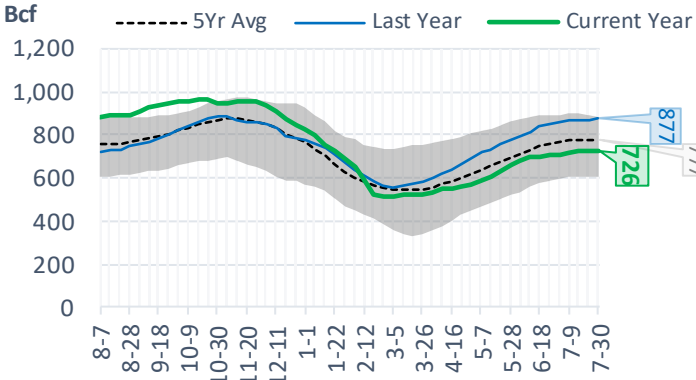


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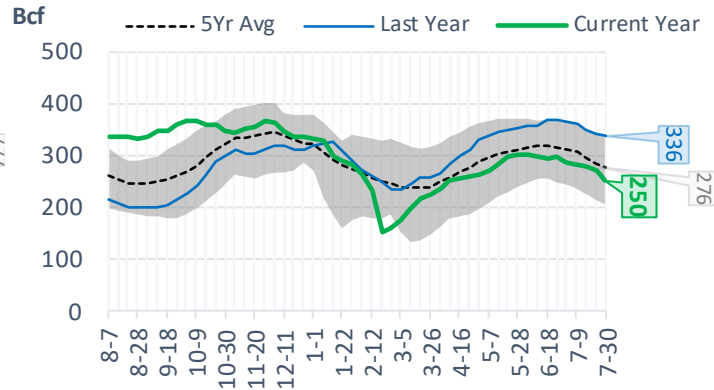
## Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 30-Jul	Week - 1 23-Jul	Week - 2 16-Jul	Week - 3 9-Jul	Week - 4 2-Jul	Week - 5 25-Jun
<b>Total Lower 48 Storage Level</b>	<b>2727</b>	2714	2678	2629	2574	2558
Weekly Change	+13	+36	+49	+55	+16	+76
vs LY	-542	-523	-532	-543	-551	-510
vs 5Yr Avg	-185	-168	-176	-189	-190	-143
<b>S. Central Salt Storage Level</b>	<b>250</b>	269	279	283	286	296
Weekly Change	-19	-10	-4	-3	-10	+1
vs LY	-86	-71	-71	-77	-79	-73
vs 5Yr Avg	-26	-14	-16	-22	-24	-19
<b>S. Central NonSalt Storage Level</b>	<b>726</b>	729	723	712	705	709
Weekly Change	-3	+6	+11	+7	-4	+12
vs LY	-151	-143	-149	-156	-156	-143
vs 5Yr Avg	-51	-47	-53	-61	-60	-46
<b>Midwest Storage Level</b>	<b>719</b>	702	683	662	638	623
Weekly Change	+17	+19	+21	+24	+15	+28
vs LY	-109	-111	-113	-115	-120	-114
vs 5Yr Avg	-15	-13	-14	-16	-18	-8
<b>East Storage Level</b>	<b>604</b>	583	562	543	521	513
Weekly Change	+21	+21	+19	+22	+8	+25
vs LY	-112	-121	-128	-127	-133	-123
vs 5Yr Avg	-51	-53	-56	-55	-57	-42
<b>Mountain Storage Level</b>	<b>184</b>	184	183	180	177	173
Weekly Change	0	+1	+3	+3	+4	+4
vs LY	-17	-11	-6	-5	-2	+1
vs 5Yr Avg	0	+3	+5	+5	+7	+9
<b>Pacific Storage Level</b>	<b>244</b>	246	247	250	246	244
Weekly Change	-2	-1	-3	+4	+2	+5
vs LY	-67	-67	-64	-62	-63	-59
vs 5Yr Avg	-43	-43	-43	-40	-40	-37

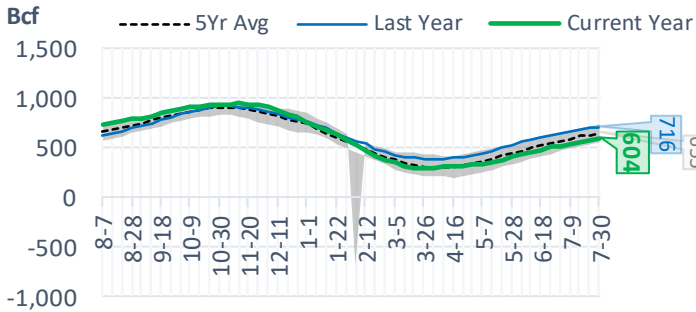
## NonSalt Storage Levels



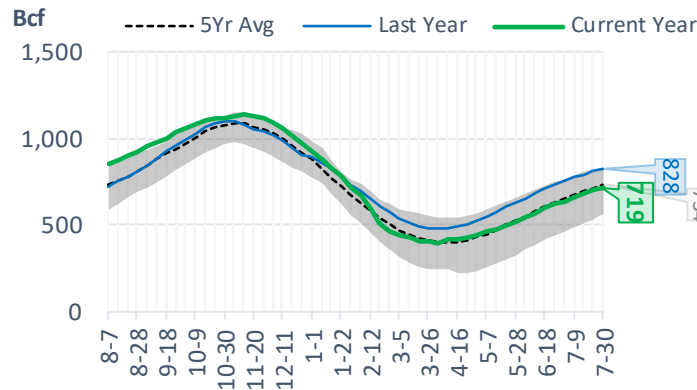
## Salt Storage Levels



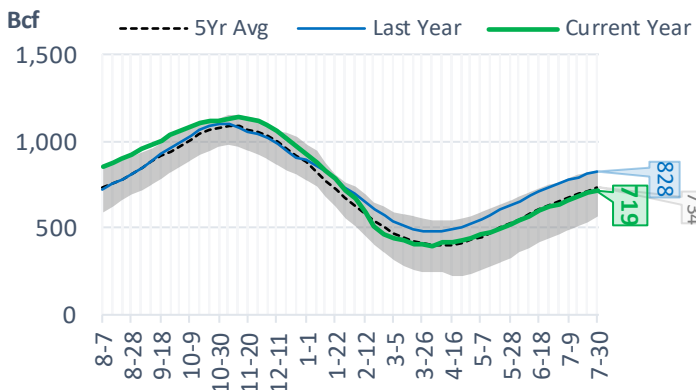
## East Storage Levels



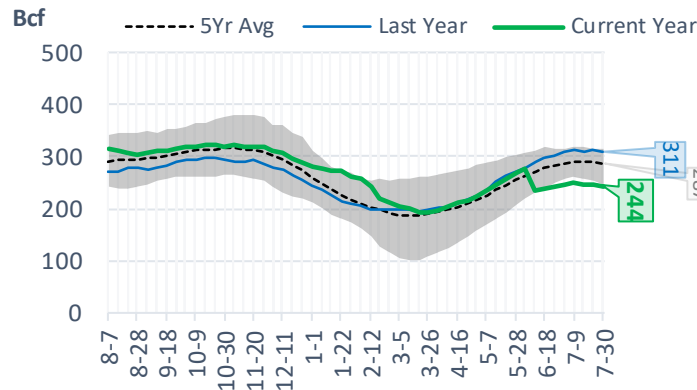
## Midwest Storage Levels



## Midwest Storage Levels



## Pacific Storage Levels



## EIA Storage Week Balances

	2-Jul	9-Jul	16-Jul	23-Jul	30-Jul	6-Aug	WoW	vs. 4W
<b>Lower 48 Dry Production</b>	<b>92.2</b>	<b>91.8</b>	<b>92.4</b>	<b>92.4</b>	<b>92.5</b>	<b>91.9</b>	▼-0.6	▼-0.3
<b>Canadian Imports</b>	<b>5.1</b>	<b>5.1</b>	<b>5.2</b>	<b>4.9</b>	<b>5.5</b>	<b>5.1</b>	▼-0.5	▼-0.1
L48 Power	39.8	37.2	38.7	39.7	42.2	38.4	▼-3.7	▼-1.0
L48 Residential & Commercial	8.6	8.2	8.4	8.4	8.3	7.9	▼-0.5	▼-0.5
L48 Industrial	21.1	19.4	19.5	19.5	20.8	20.2	▼-0.5	▲0.4
L48 Lease and Plant Fuel	5.1	5.1	5.1	5.1	5.1	5.1	▼0.0	▼0.0
L48 Pipeline Distribution	2.4	2.1	2.2	2.3	2.4	2.2	▼-0.2	▼0.0
<b>L48 Regional Gas Consumption</b>	<b>76.9</b>	<b>71.9</b>	<b>74.0</b>	<b>75.1</b>	<b>78.8</b>	<b>73.8</b>	▼-4.9	▼-1.1
<b>Net LNG Exports</b>	<b>11.2</b>	<b>11.0</b>	<b>10.8</b>	<b>10.5</b>	<b>10.8</b>	<b>10.6</b>	▼-0.2	▼-0.2
<b>Total Mexican Exports</b>	<b>7.2</b>	<b>7.1</b>	<b>7.1</b>	<b>7.1</b>	<b>7.0</b>	<b>7.0</b>	▲0.0	▼-0.1
<b>Implied Daily Storage Activity</b>	<b>2.0</b>	<b>6.8</b>	<b>5.6</b>	<b>4.6</b>	<b>1.5</b>	<b>5.6</b>	<b>4.1</b>	
<b>EIA Reported Daily Storage Activity</b>	<b>2.3</b>	<b>7.9</b>	<b>7.0</b>	<b>5.1</b>	<b>1.9</b>			
<b>Daily Model Error</b>	<b>-0.2</b>	<b>-1.1</b>	<b>-1.4</b>	<b>-0.5</b>	<b>-0.4</b>			

## Monthly Balances

	2Yr Ago Aug-19	LY Aug-20	Apr-21	May-21	Jun-21	Jul-21	MTD Aug-21	MoM	vs. LY
<b>Lower 48 Dry Production</b>	<b>94.7</b>	<b>89.6</b>	<b>92.3</b>	<b>92.7</b>	<b>92.8</b>	<b>92.2</b>	<b>91.7</b>	▼-0.5	▲2.1
<b>Canadian Imports</b>	<b>4.4</b>	<b>4.9</b>	<b>4.6</b>	<b>4.5</b>	<b>4.8</b>	<b>5.2</b>	<b>4.9</b>	▼-0.2	▲0.1
L48 Power	41.0	40.9	24.9	26.7	35.3	39.4	38.1	▼-1.3	▼-2.7
L48 Residential & Commercial	7.8	7.7	19.5	13.2	8.8	8.3	7.8	▼-0.5	▲0.2
L48 Industrial	23.5	21.9	21.2	20.3	20.8	19.8	20.4	▲0.5	▼-1.5
L48 Lease and Plant Fuel	5.2	5.0	5.1	5.1	5.1	5.1	5.1	▼0.0	▲0.1
L48 Pipeline Distribution	2.4	2.4	2.3	2.1	2.2	2.3	2.2	▼0.0	▼-0.1
<b>L48 Regional Gas Consumption</b>	<b>79.9</b>	<b>77.7</b>	<b>73.0</b>	<b>67.2</b>	<b>72.1</b>	<b>74.9</b>	<b>73.6</b>	▼-1.3	▼-4.1
<b>Net LNG Exports</b>	<b>5.2</b>	<b>4.0</b>	<b>11.5</b>	<b>10.8</b>	<b>10.2</b>	<b>10.8</b>	<b>10.4</b>	▼-0.4	▲6.4
<b>Total Mexican Exports</b>	<b>5.3</b>	<b>6.0</b>	<b>6.7</b>	<b>6.8</b>	<b>7.4</b>	<b>7.1</b>	<b>7.1</b>	▲0.0	▲1.1
<b>Implied Daily Storage Activity</b>	<b>8.8</b>	<b>6.7</b>	<b>5.7</b>	<b>12.4</b>	<b>8.0</b>	<b>4.5</b>	<b>5.4</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

Source: Bloomberg, analytix.ai

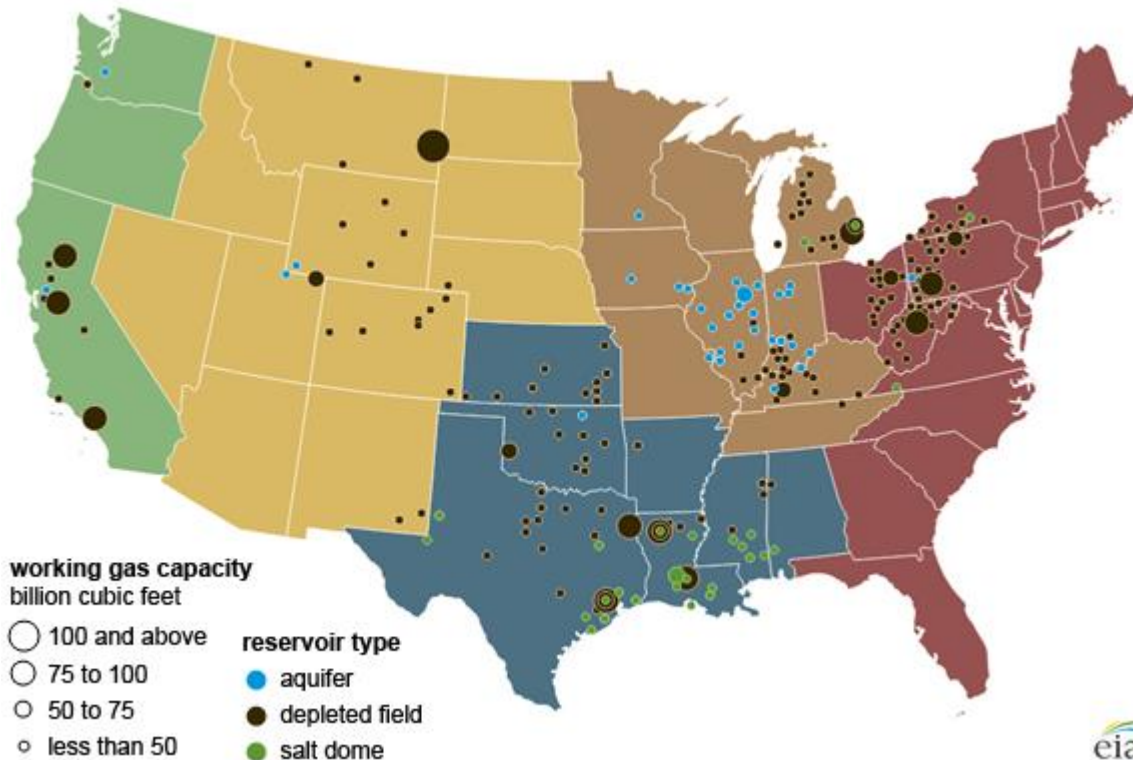
## Regional S/D Models Storage Projection

Week Ending 6-Aug

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	5.3	1.0	6.3	44
East	2.2	1.5	3.7	26
Midwest	3.3	-0.3	3.0	21
Mountain	4.3	-4.3	0.0	0
South Central	-4.4	4.2	-0.2	-1
Pacific	-0.1	-0.1	-0.2	-1

\*Adjustment Factor is calculated based on historical regional deltas

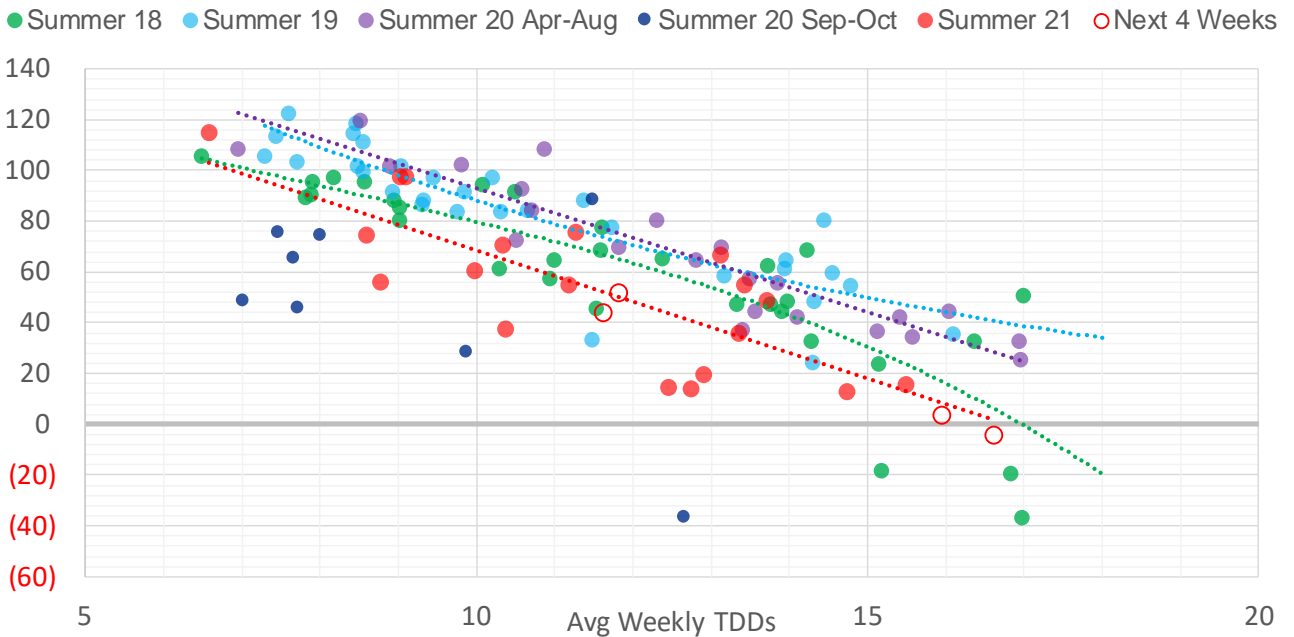
U.S. underground natural gas storage facilities by type (July 2015)



## Weather Model Storage Projection

Next report and beyond		
Week Ending	Temp	Week Storage Projection
13-Aug	16.6	-5
20-Aug	16.0	3
27-Aug	11.8	51

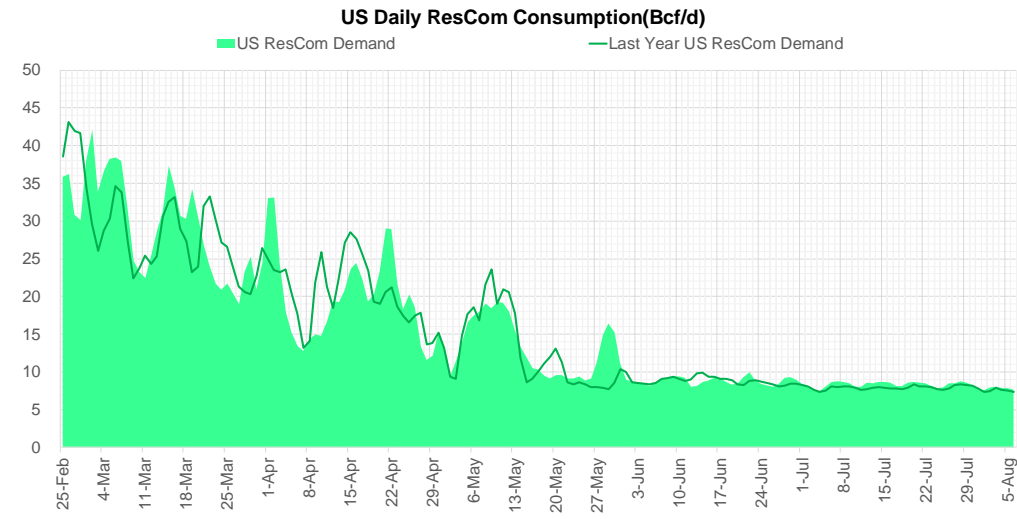
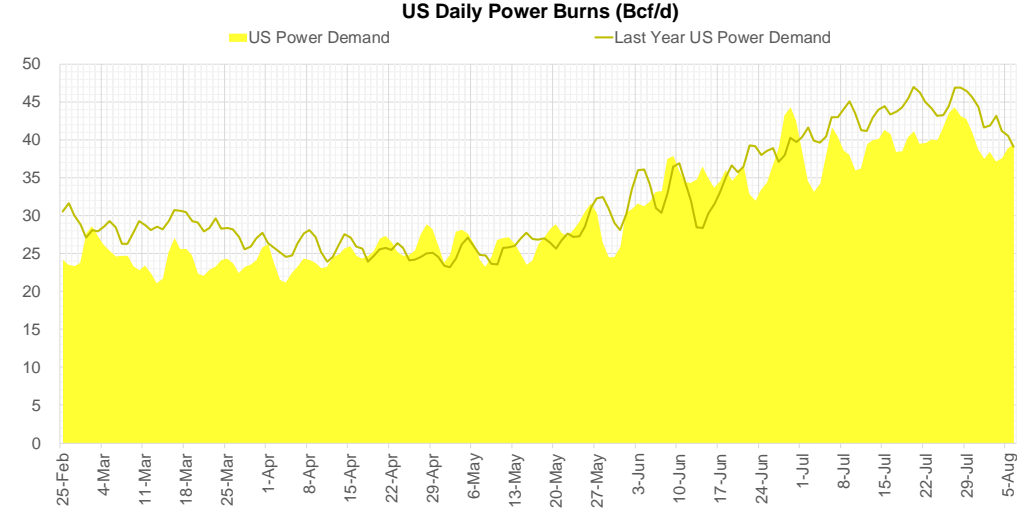
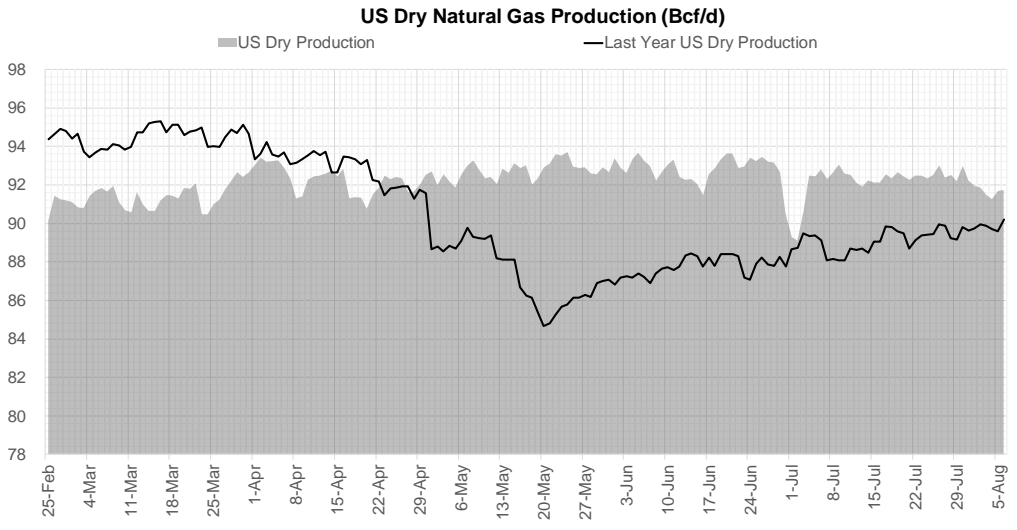
### Weather Storage Model - Next 4 Week Forecast



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

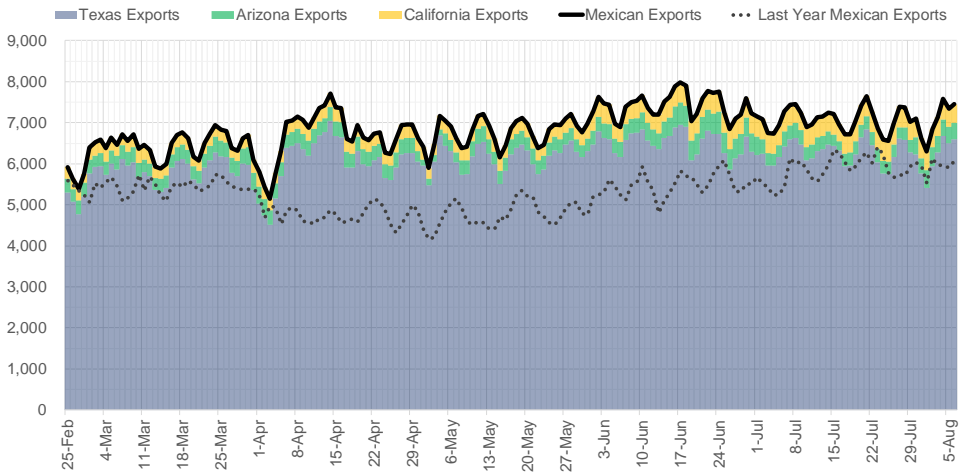


## Supply – Demand Trends

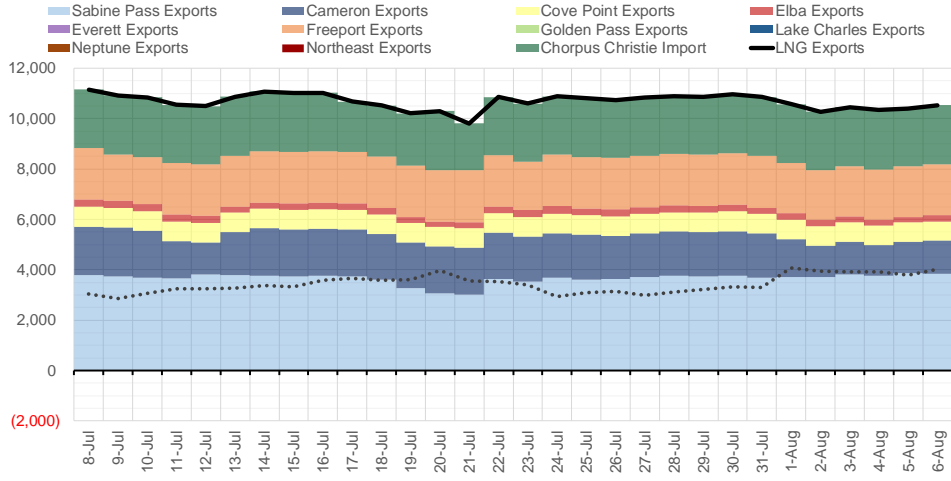


Source: Bloomberg

### Mexican Exports (MMcf/d)



### Net LNG Exports - Last 30 days (MMcf/d)



Source: Bloomberg

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## Nat Gas Options Volume and Open Interest CME, ICE and Nasdaq Combined

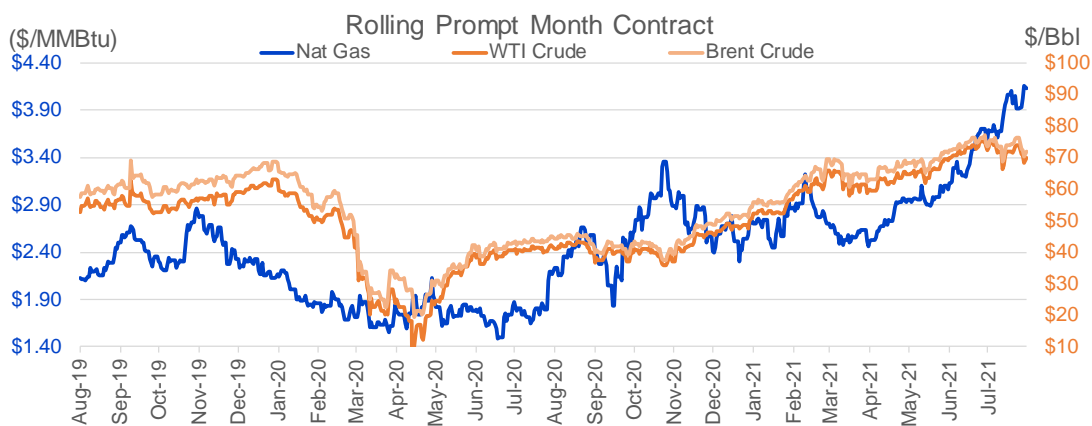
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
9	2021	C	4.75	13501	10	2021	C	4.50	42492
9	2021	C	4.50	9195	12	2021	P	2.75	41895
9	2021	C	5.00	8238	10	2021	C	4.00	40800
9	2021	C	4.25	6377	10	2021	C	5.00	34669
11	2021	P	3.00	5348	10	2021	C	3.50	33004
9	2021	P	3.85	5128	10	2021	P	2.50	30039
9	2021	P	3.75	4675	12	2021	P	2.50	29530
9	2021	P	4.00	3744	9	2021	C	4.00	28928
11	2021	P	3.25	3451	10	2021	C	3.25	28230
10	2021	C	4.50	3278	10	2021	P	2.00	26497
2	2022	P	3.25	2700	10	2021	P	2.75	25912
3	2022	P	3.50	2700	12	2021	P	3.00	25549
9	2021	P	3.40	2264	10	2021	P	3.50	25471
3	2022	P	4.00	2251	10	2021	P	3.00	25315
9	2021	P	3.50	1730	9	2021	C	5.00	23581
9	2021	P	3.60	1730	9	2021	P	2.50	23385
9	2021	P	3.90	1613	9	2021	C	3.50	22694
9	2021	C	4.40	1610	9	2021	P	3.00	22432
10	2021	P	3.75	1305	11	2021	C	4.00	22244
10	2021	P	4.10	1210	12	2021	C	4.00	22193
10	2021	C	4.30	1181	9	2021	C	4.50	21027
9	2021	P	3.65	1130	10	2021	C	6.00	20755
9	2021	P	3.80	1122	9	2021	P	2.00	20427
10	2021	P	3.50	1090	10	2021	P	2.25	19900
10	2021	P	3.90	1069	9	2021	P	3.50	19765
10	2021	C	5.00	1032	4	2022	C	3.00	19610
10	2021	P	3.60	1025	11	2021	P	3.00	19129
1	2022	C	5.25	1000	9	2021	C	3.25	18994
2	2022	P	4.25	1000	9	2021	P	3.25	18844
9	2021	P	3.70	990	10	2021	C	3.00	18501
9	2021	C	4.70	943	9	2021	C	4.75	18458
2	2022	P	3.50	850	9	2021	C	4.25	18347
9	2021	P	3.25	813	11	2021	C	5.00	17327
10	2021	C	4.75	763	10	2021	C	3.75	16815
11	2021	C	5.00	750	3	2022	C	5.00	16748
12	2021	C	5.00	750	9	2021	P	2.75	15816
12	2021	P	2.75	750	1	2022	C	5.00	15105
1	2022	P	3.50	750	11	2021	C	3.75	15089
11	2021	P	3.75	734	2	2022	C	5.00	14793
12	2021	P	3.50	724	1	2022	C	4.00	14707
1	2022	C	4.75	711	3	2022	C	3.00	14448
9	2021	P	4.10	681	12	2021	P	2.00	13889
10	2021	P	4.00	652	9	2021	P	2.60	13814
9	2021	C	4.60	638	9	2021	P	1.90	13773
10	2021	C	5.25	600	3	2022	P	2.50	13769
4	2022	C	4.00	600	11	2021	P	2.50	13647
12	2022	P	3.25	600	2	2022	C	4.00	13564
1	2022	C	6.00	591	3	2022	C	4.00	13509
1	2022	C	5.00	571	5	2022	C	3.00	13050
					9	2021	P	2.25	12773

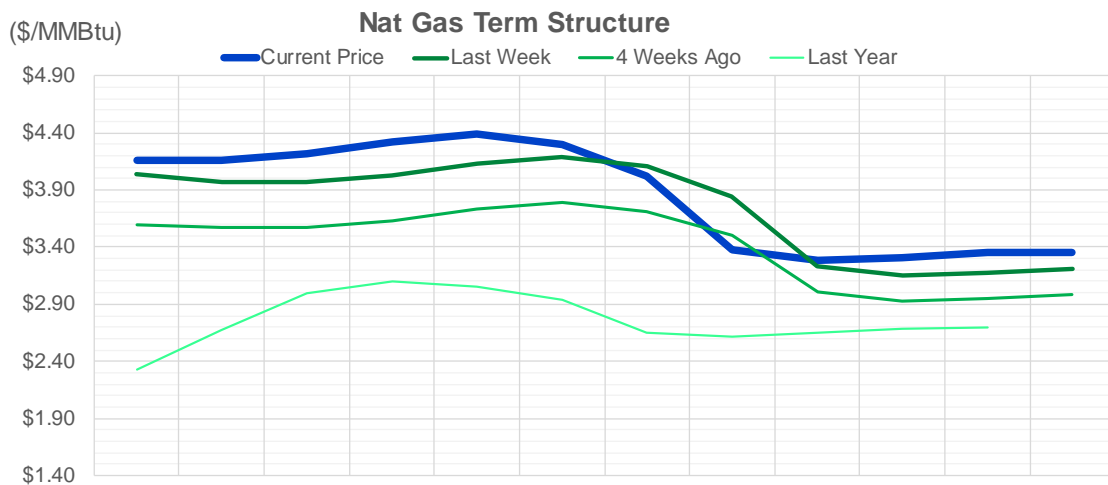
Source: CME, Nasdaq, ICE

## Nat Gas Futures Open Interest CME, ICE and Nasdaq 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
SEP 21	306592	316440	-9848	SEP 21	92698	92735	-38
OCT 21	169316	170371	-1055	OCT 21	105463	105655	-193
NOV 21	130354	129845	509	NOV 21	70098	70996	-899
DEC 21	73080	72885	195	DEC 21	75289	74808	481
JAN 22	128856	126518	2338	JAN 22	78344	77966	378
FEB 22	54419	53871	548	FEB 22	70610	69603	1007
MAR 22	107737	106544	1193	MAR 22	70798	70489	309
APR 22	106859	107304	-445	APR 22	69047	68915	133
MAY 22	85859	88250	-2391	MAY 22	66564	67514	-951
JUN 22	28708	29883	-1175	JUN 22	55121	57018	-1898
JUL 22	25827	25755	72	JUL 22	55339	56281	-942
AUG 22	25162	25643	-481	AUG 22	55911	57687	-1777
SEP 22	25026	25417	-391	SEP 22	55695	57472	-1777
OCT 22	62578	62079	499	OCT 22	62629	62827	-199
NOV 22	25421	25697	-276	NOV 22	49540	49300	240
DEC 22	23466	23535	-69	DEC 22	52133	51439	694
JAN 23	16537	16395	142	JAN 23	32488	31648	840
FEB 23	6042	6029	13	FEB 23	27515	27195	320
MAR 23	8202	7889	313	MAR 23	29269	28938	330
APR 23	9880	9885	-5	APR 23	23792	23672	120
MAY 23	5608	5580	28	MAY 23	24852	24788	64
JUN 23	3780	2471	1309	JUN 23	23178	22995	183
JUL 23	3168	2756	412	JUL 23	23268	23102	166
AUG 23	2540	1849	691	AUG 23	23086	22921	165
SEP 23	2908	2120	788	SEP 23	22628	22467	161
OCT 23	4120	2817	1303	OCT 23	24229	24331	-102
NOV 23	1304	1274	30	NOV 23	24377	24314	63
DEC 23	1778	1778	0	DEC 23	22129	22041	88
JAN 24	992	992	0	JAN 24	12971	12884	87
FEB 24	870	870	0	FEB 24	11406	11326	80

Source: CME, ICE






	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22
<b>Current Price</b>	<b>\$4.158</b>	<b>\$4.163</b>	<b>\$4.221</b>	<b>\$4.320</b>	<b>\$4.386</b>	<b>\$4.298</b>	<b>\$4.025</b>	<b>\$3.381</b>	<b>\$3.285</b>	<b>\$3.313</b>	<b>\$3.348</b>	<b>\$3.355</b>
Last Week	\$4.044	\$3.967	\$3.969	\$4.030	\$4.130	\$4.190	\$4.106	\$3.841	\$3.234	\$3.147	\$3.175	\$3.210
vs. Last Week	\$0.114	\$0.196	\$0.252	\$0.290	\$0.256	\$0.108	-\$0.081	-\$0.460	\$0.051	\$0.166	\$0.173	\$0.145
4 Weeks Ago	\$3.596	\$3.574	\$3.576	\$3.633	\$3.730	\$3.794	\$3.715	\$3.498	\$3.011	\$2.922	\$2.952	\$2.988
vs. 4 Weeks Ago	\$0.562	\$0.589	\$0.645	\$0.687	\$0.656	\$0.504	\$0.310	-\$0.117	\$0.274	\$0.391	\$0.396	\$0.367
Last Year	\$2.191	\$2.331	\$2.675	\$2.994	\$3.103	\$3.056	\$2.936	\$2.649	\$2.613	\$2.645	\$2.684	\$2.691
vs. Last Year	\$1.967	\$1.832	\$1.546	\$1.326	\$1.283	\$1.242	\$1.089	\$0.732	\$0.672	\$0.668	\$0.664	\$0.664

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	\$/MMBtu	0.531	▲ 0.088	▲ 0.480	▲ 0.517
NatGas Oct21/Nov21	\$/MMBtu	0.062	▲ 0.003	▲ 0.008	▲ 0.019
NatGas Oct21/Jan22	\$/MMBtu	0.235	▲ 0.019	▲ 0.028	▼ -0.033
NatGas Apr22/Oct22	\$/MMBtu	-0.021	▼ -0.003	▼ -0.007	▼ -0.075
WTI Crude	\$/Bbl	69.09	▼ -4.530	▼ -3.850	▲ 27.140
Brent Crude	\$/Bbl	71.29	▼ -4.760	▼ -2.830	▲ 26.200
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	210.60	▼ -8.340	▼ -1.440	▲ 85.610
Propane, Mt. Bel	cents/Gallon	1.09	▼ -0.004	▼ 0.000	▲ 0.584
Ethane, Mt. Bel	cents/Gallon	0.34	▲ 0.028	▲ 0.039	▲ 0.113
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 
8/6/2021						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	387	2	385	211	176	
Gas	103	0	103	34	69	
Miscellaneous	1	1	0	-1	2	
Directional	27	-2	29	3	24	
Horizontal	449	7	442	238	211	
Vertical	15	-2	17	3	12	
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago	
Oil	95	2	93	82	13	
Gas	60	1	59	26	34	
Miscellaneous	1	0	1	1	0	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Ardmore Woodford	3	1	2	2	1	
Arkoma Woodford	1	0	1	1	0	
Cana Woodford	17	1	16	11	6	
DJ-Niobrara	12	1	11	8	4	
Eagle Ford	32	0	32	21	11	
Granite Wash	4	1	3	3	1	
Haynesville	47	0	47	15	32	
Marcellus	29	0	29	4	25	
Permian	243	0	243	121	122	
Utica	11	0	11	5	6	
Williston	19	0	19	8	11	