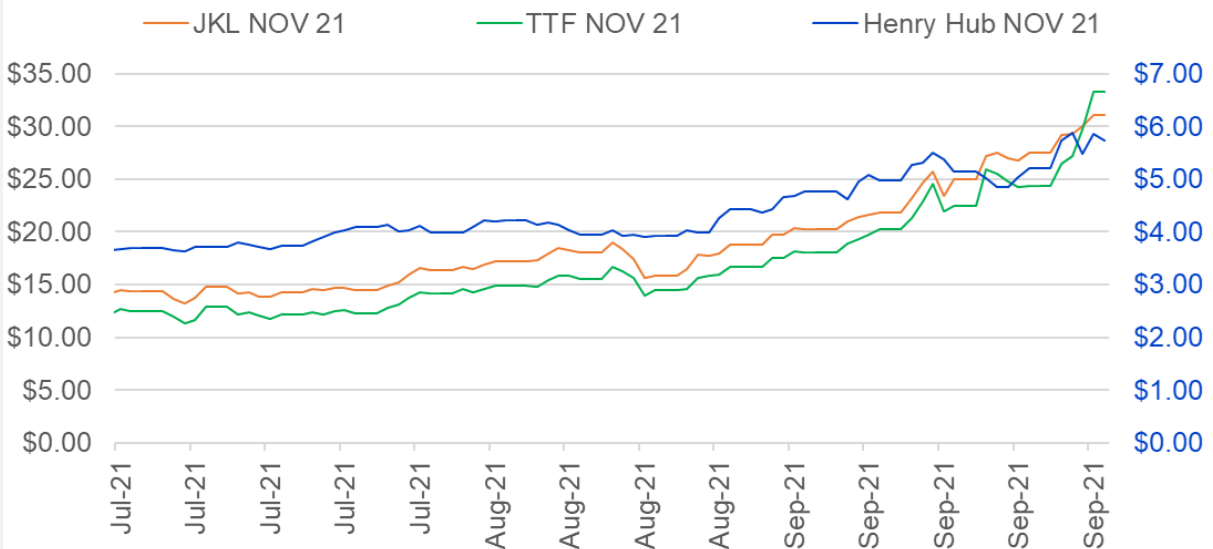


Q3 is now behind us, and it probably goes down as one of the most volatile periods over time – specifically the past few weeks. Price rose from the 3.50s to intraday highs above \$6.



The price action this past week looked to have little to do with fundamentals but more to do with the price movement in Europe and Asia.

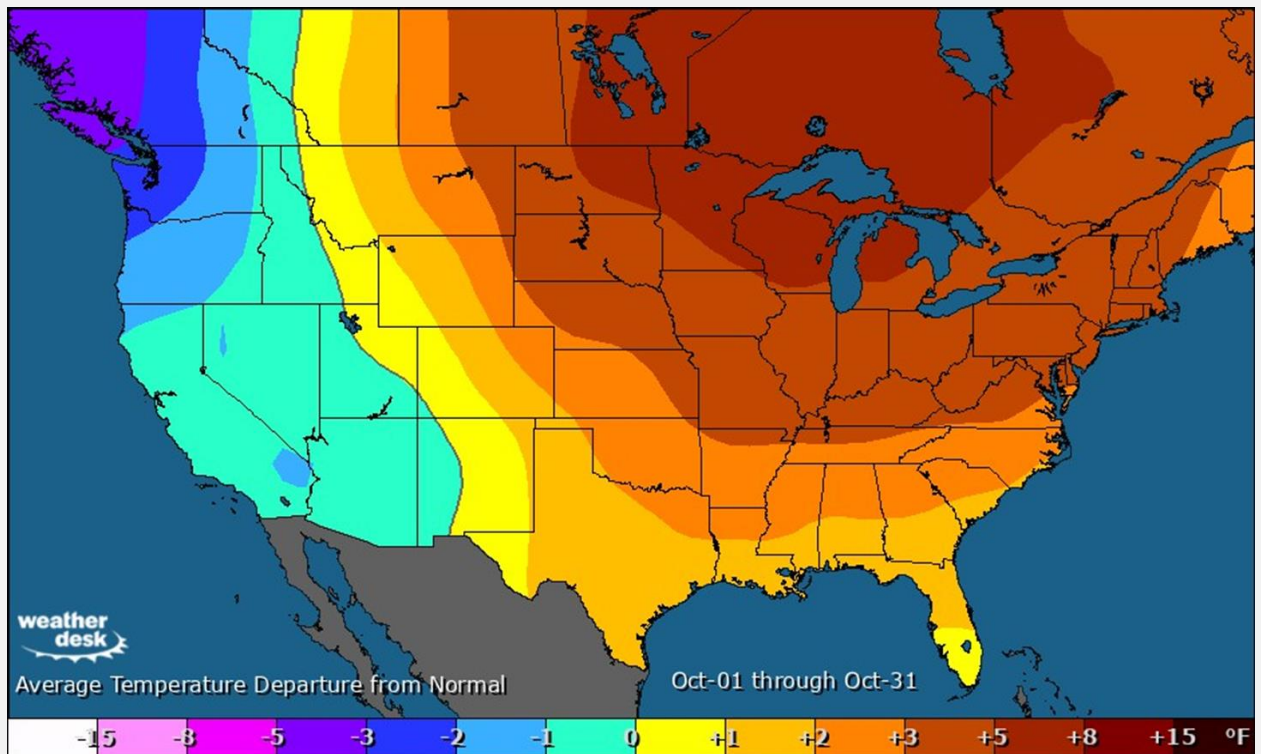
Rolling Prompt Month Contract (\$/MMBtu)



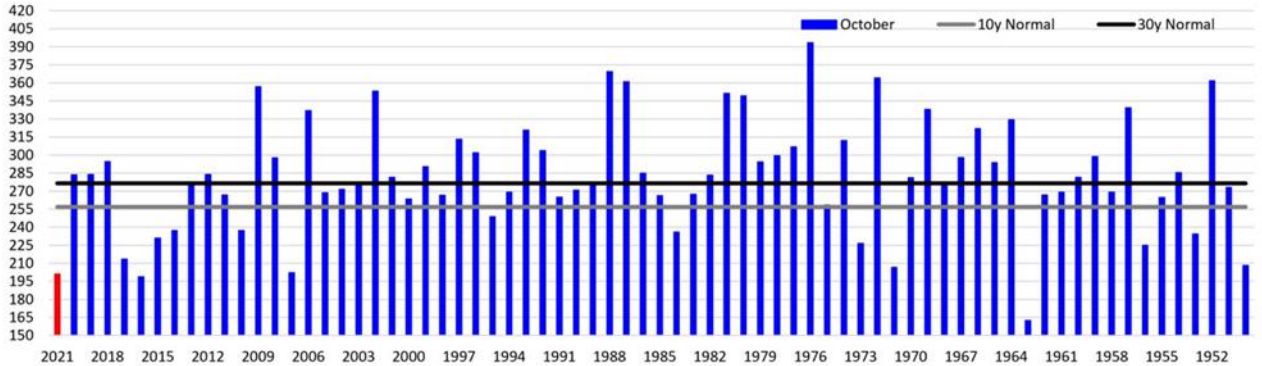
Energy shortages in China, the United Kingdom, and Europe are causing significant disruptions. There were power cuts in Northern China which left millions without electricity and closed factories. As the country faces energy shortages, the government has instructed utilities to procure enough energy for the winter at any cost to ensure the economy does not struggle. In Europe, industrial customers are having a hard time keeping up as well and many are temporarily shutting operations. Even coal plants are not able to come to the rescue because of a major coal shortage (see full story).

For the US, the price hike this past week did not match up with the fundamentals. The weather outlook starting last weekend moved more bearish all while production reached pre-Ida level - yet prices moved higher. Weather models pushed total expected Oct GWDDs much lower this week with levels falling near the levels seen in 2017. This comes with a confirmation of a La Nina episode sticking around.

Maxar Weather issued the following note on enelyst;
For October overall, we dropped our forecast to 220 GWHDDs earlier this week. This would rank as the 7th fewest for the month back to 1950. The main concern at this point is whether a recurring Typhoon Mindulle may alter the pattern; this is a risk for the 6-10 and 11-15 Day periods. There may yet be downside risk to the 220 GWHDD forecast given the record low GWHDD start to the month. Here is where October stands if assuming a normal final third of the month:

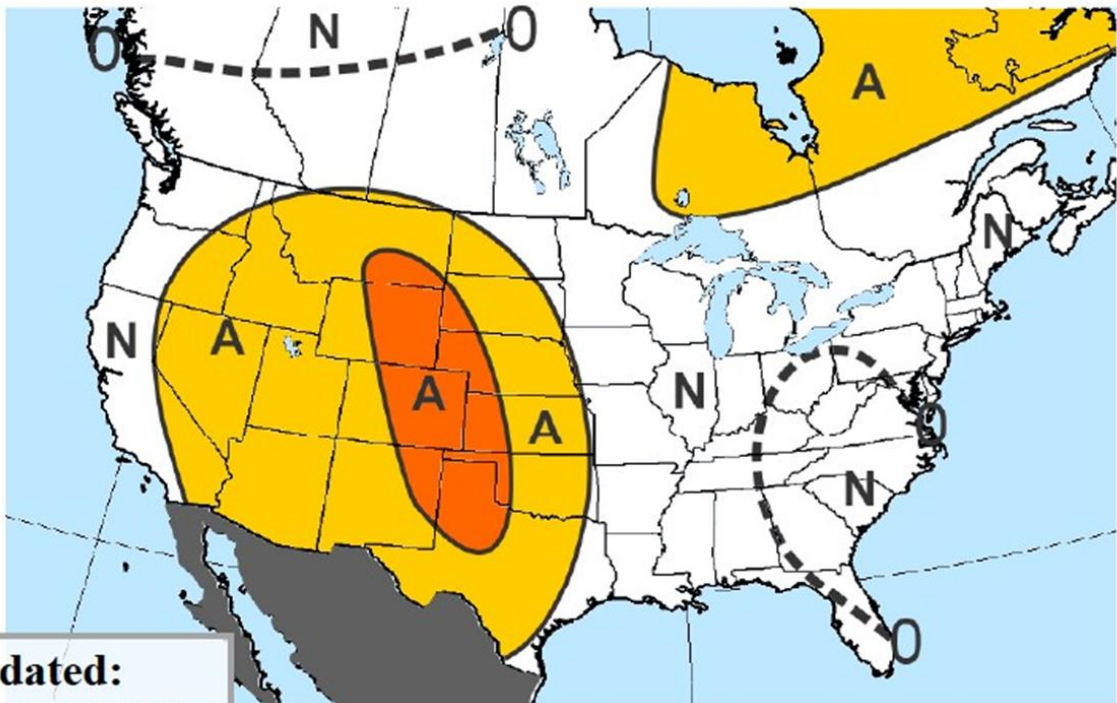


October GWHDDs - Historical & Forecast (20 days plus normal)



With the strong La Nina, Maxar is also forecasting a warm pattern for much of the Mountain and South Central regions in November. If this does play out, we anticipate injection into the first few weeks of November which would eliminate any concerns for low storage.

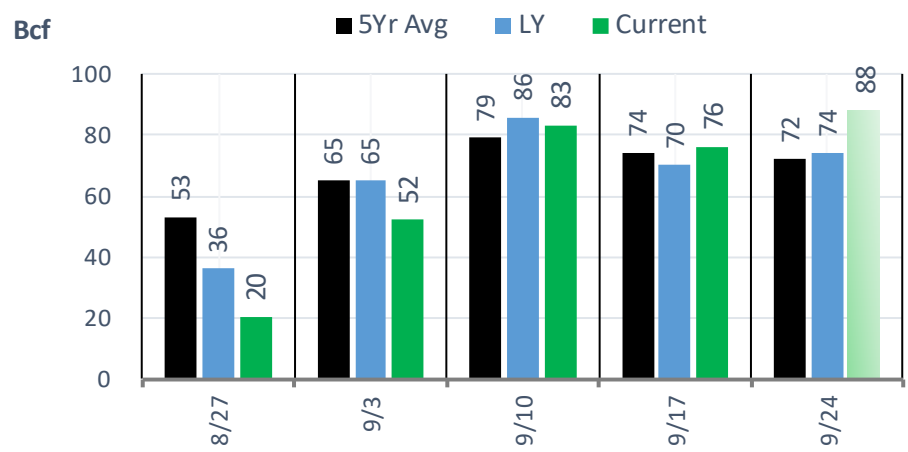
November 2021



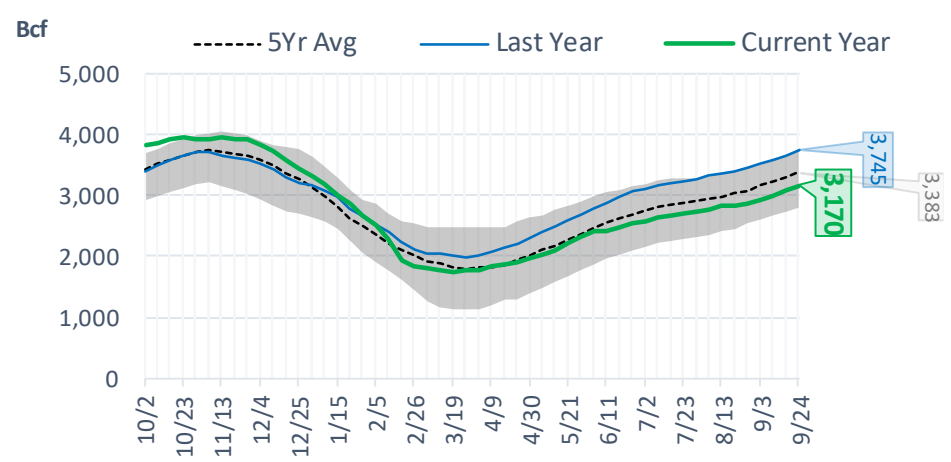
**Updated:
Sep 29, 2021**

EIA Storage Report

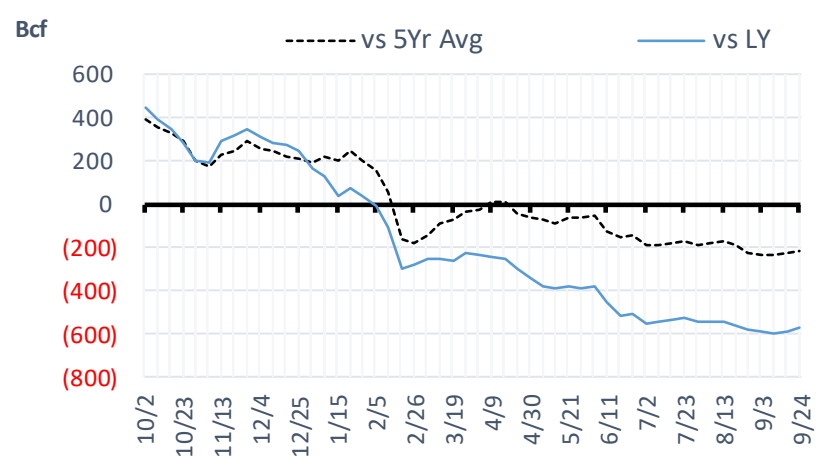
Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels



Total Lower 48 LY Surplus/Deficit

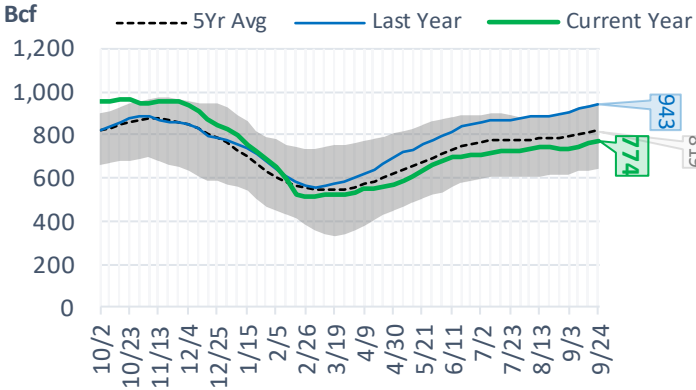


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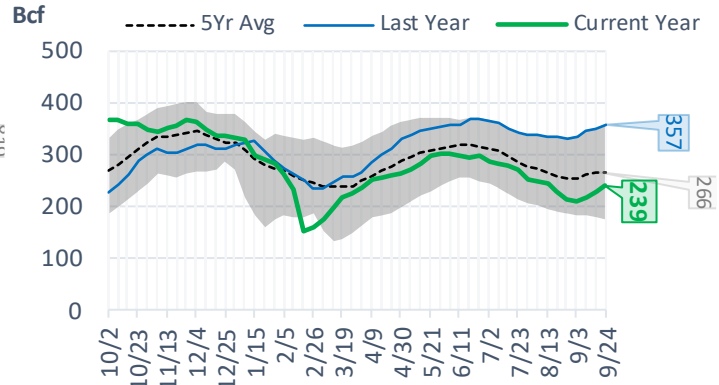
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 24-Sep	Week - 1 17-Sep	Week - 2 10-Sep	Week - 3 3-Sep	Week - 4 27-Aug	Week - 5 20-Aug
Total Lower 48 Storage Level	3170	3082	3006	2923	2871	2851
Weekly Change	+88	+76	+83	+52	+20	+29
vs LY	-575	-589	-595	-592	-579	-563
vs 5Yr Avg	-213	-229	-231	-235	-222	-189
S. Central Salt Storage Level	239	228	217	208	214	229
Weekly Change	+11	+11	+9	-6	-15	-15
vs LY	-118	-121	-130	-126	-117	-105
vs 5Yr Avg	-27	-35	-44	-45	-39	-28
S. Central NonSalt Storage Level	774	762	748	735	734	742
Weekly Change	+12	+14	+13	+1	-8	+1
vs LY	-169	-171	-176	-171	-160	-147
vs 5Yr Avg	-45	-50	-55	-57	-52	-40
Midwest Storage Level	934	904	876	842	812	790
Weekly Change	+30	+28	+34	+30	+22	+25
vs LY	-96	-101	-103	-107	-109	-111
vs 5Yr Avg	-24	-24	-21	-23	-22	-16
East Storage Level	779	751	732	703	678	661
Weekly Change	+28	+19	+29	+25	+17	+16
vs LY	-90	-96	-90	-100	-109	-110
vs 5Yr Avg	-52	-56	-51	-57	-60	-55
Mountain Storage Level	201	196	193	191	190	188
Weekly Change	+5	+3	+2	+1	+2	0
vs LY	-29	-28	-27	-24	-22	-24
vs 5Yr Avg	-10	-10	-9	-7	-5	-4
Pacific Storage Level	243	240	240	243	243	241
Weekly Change	+3	0	-3	0	+2	+1
vs LY	-72	-72	-70	-64	-61	-66
vs 5Yr Avg	-55	-54	-51	-45	-44	-45

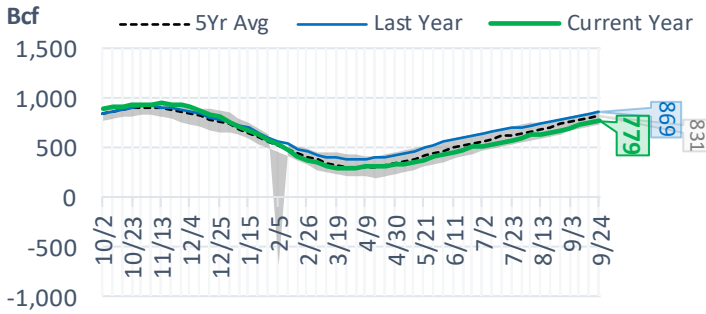
NonSalt Storage Levels



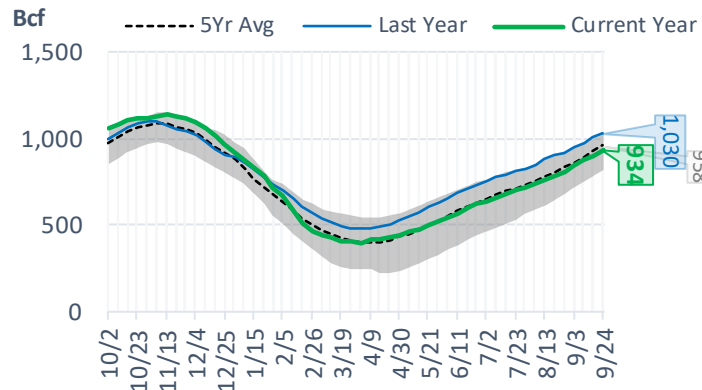
Salt Storage Levels



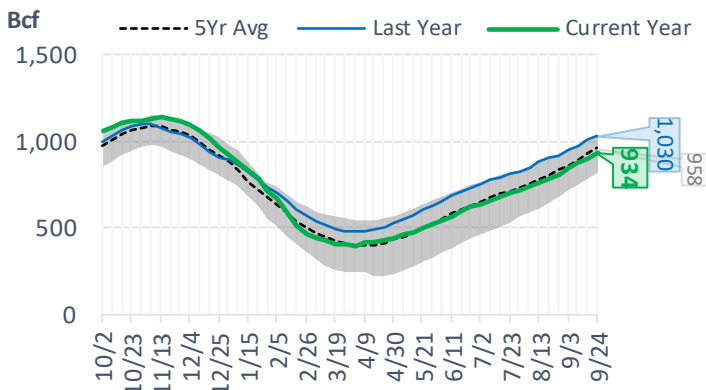
East Storage Levels



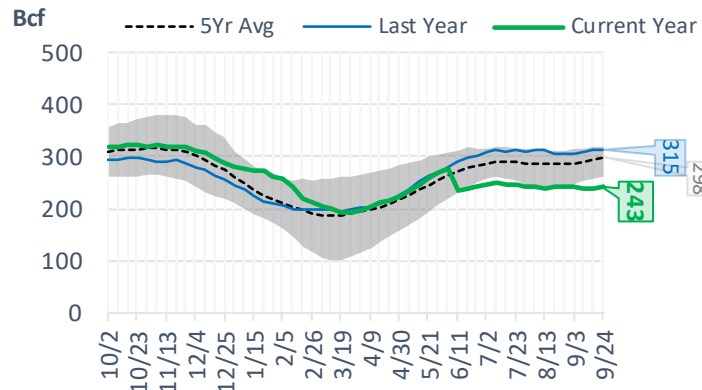
Midwest Storage Levels



Midwest Storage Levels



Pacific Storage Levels



EIA Storage Week Balances

	27-Aug	3-Sep	10-Sep	17-Sep	24-Sep	1-Oct	WoW	vs. 4W
Lower 48 Dry Production	92.8	90.6	90.9	91.5	92.6	92.9	▲ 0.3	▲ 1.5
Canadian Imports	5.3	5.0	4.8	5.2	5.2	5.7	▲ 0.5	▲ 0.7
L48 Power	41.9	38.1	33.8	35.0	33.2	30.1	▼ -3.0	▼ -4.9
L48 Residential & Commercial	7.8	7.4	6.9	7.2	8.0	8.3	▲ 0.3	▲ 0.9
L48 Industrial	20.7	18.6	19.3	20.5	20.2	20.4	▲ 0.1	▲ 0.7
L48 Lease and Plant Fuel	5.0	4.9	4.9	5.0	5.0	5.0	▲ 0.0	▲ 0.1
L48 Pipeline Distribution	2.6	2.4	2.2	2.3	2.3	2.1	▼ -0.2	▼ -0.2
L48 Regional Gas Consumption	78.0	71.4	67.2	69.9	68.7	66.0	▼ -2.7	▼ -3.3
Net LNG Exports	10.6	10.5	11.0	10.2	9.9	10.3	▲ 0.4	▼ -0.1
Total Mexican Exports	6.8	7.0	6.7	6.6	6.8	6.6	▼ -0.2	▼ -0.2
Implied Daily Storage Activity	2.8	6.7	10.9	9.8	12.3	15.7	3.4	
EIA Reported Daily Storage Activity	2.9	7.4	11.9	10.9	12.6			
Daily Model Error	-0.1	-0.8	-0.9	-1.0	-0.3			

Monthly Balances

	2Yr Ago Oct-19	LY Oct-20	Jun-21	Jul-21	Aug-21	Sep-21	MTD Oct-21	MoM	vs. LY
Lower 48 Dry Production	95.1	88.7	93.0	93.0	92.0	91.9	90.9	▼ -1.0	▲ 2.2
Canadian Imports	4.6	4.3	4.9	5.2	5.1	5.2	4.7	▼ -0.5	▲ 0.4
L48 Power	30.3	30.8	35.9	39.4	40.2	33.1	30.9	▼ -2.2	▲ 0.1
L48 Residential & Commercial	15.3	15.3	8.8	8.1	7.7	7.6	9.1	▲ 1.5	▼ -6.2
L48 Industrial	23.5	23.0	20.3	20.5	19.9	20.0	22.3	▲ 2.3	▼ -0.7
L48 Lease and Plant Fuel	5.1	4.8	5.0	5.1	5.0	5.0	4.9	▼ -0.1	▲ 0.1
L48 Pipeline Distribution	2.4	2.5	2.4	2.5	2.5	2.2	2.1	▼ -0.1	▼ -0.3
L48 Regional Gas Consumption	76.6	76.3	72.5	75.6	75.3	67.9	69.3	▲ 1.4	▼ -7.0
Net LNG Exports	6.7	8.0	10.2	10.8	10.5	10.3	10.0	▼ -0.3	▲ 2.0
Total Mexican Exports	5.4	6.0	7.4	7.1	6.9	6.7	6.7	▲ 0.0	▲ 0.7
Implied Daily Storage Activity	11.1	2.7	7.8	4.6	4.5	12.1	9.5		
EIA Reported Daily Storage Activity									
Daily Model Error									

Source: Bloomberg, analytix.ai

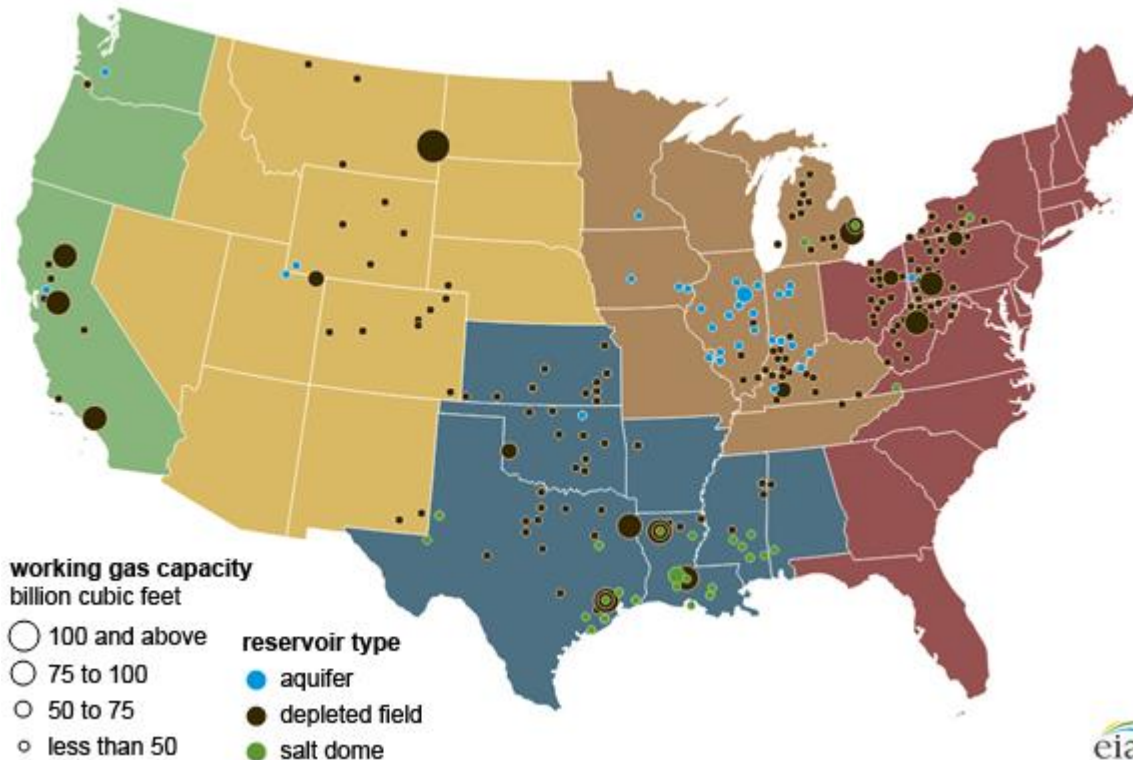
Regional S/D Models Storage Projection

Week Ending 1-Oct

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	15.4	1.0	16.4	115
East	3.3	0.8	4.1	28
Midwest	5.9	-0.8	5.1	36
Mountain	3.7	-3.4	0.3	2
South Central	1.2	5.0	6.2	43
Pacific	1.3	-0.6	0.7	5

*Adjustment Factor is calculated based on historical regional deltas

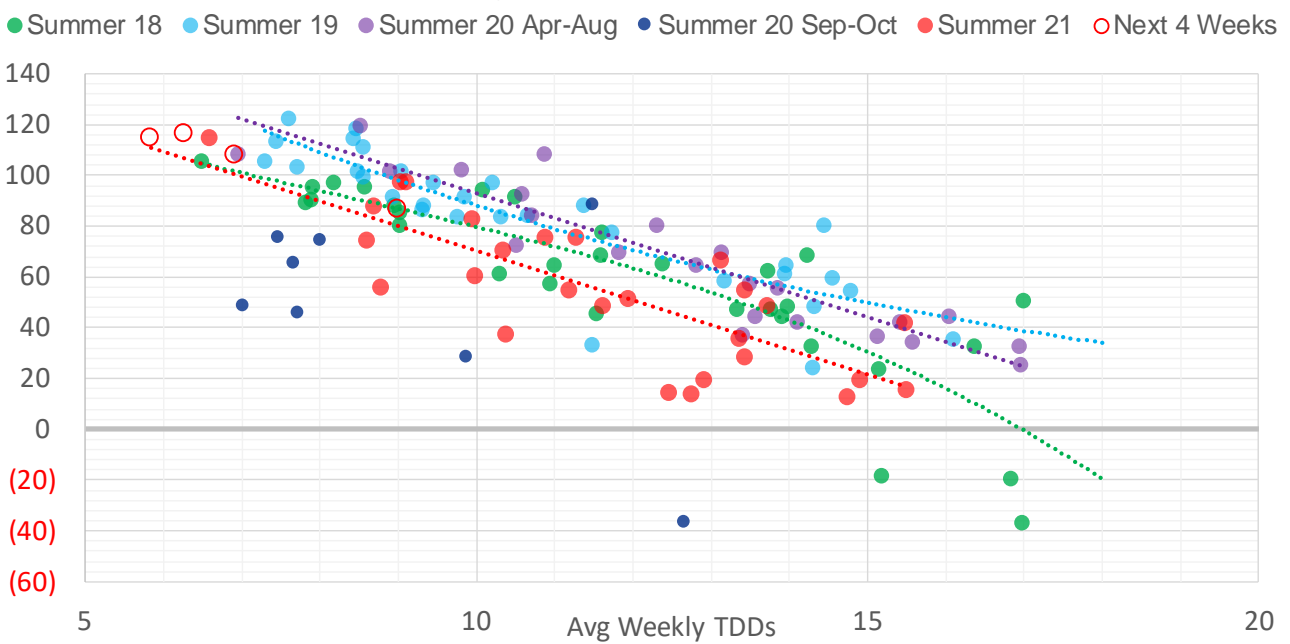
U.S. underground natural gas storage facilities by type (July 2015)



Weather Model Storage Projection

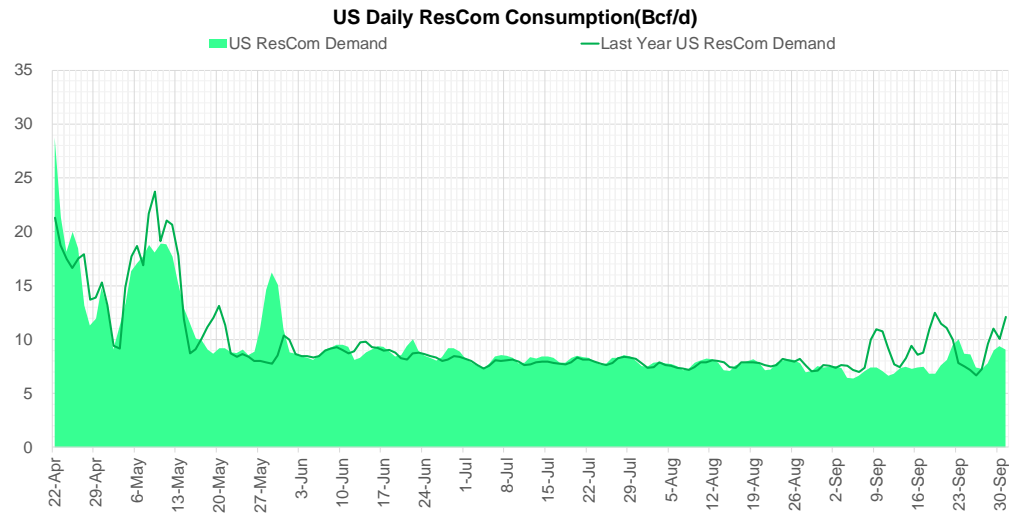
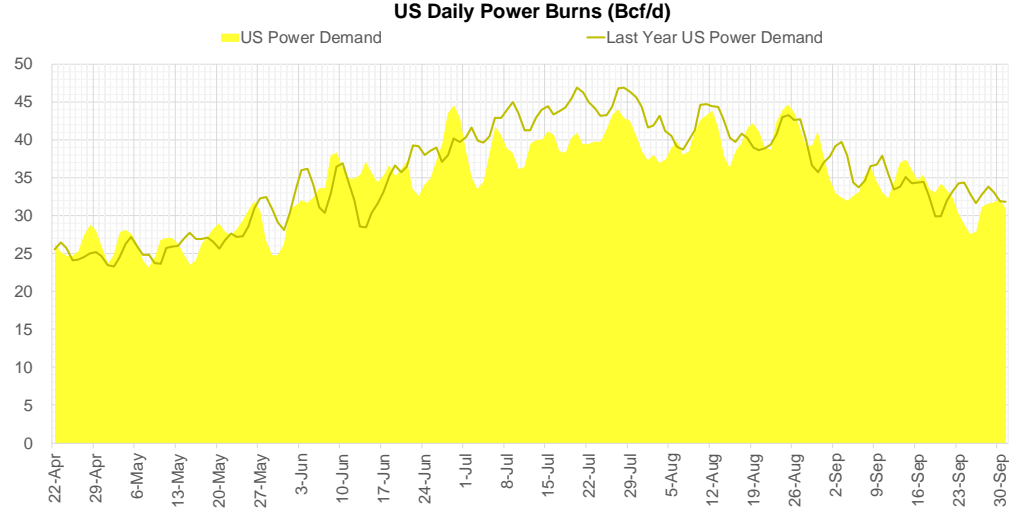
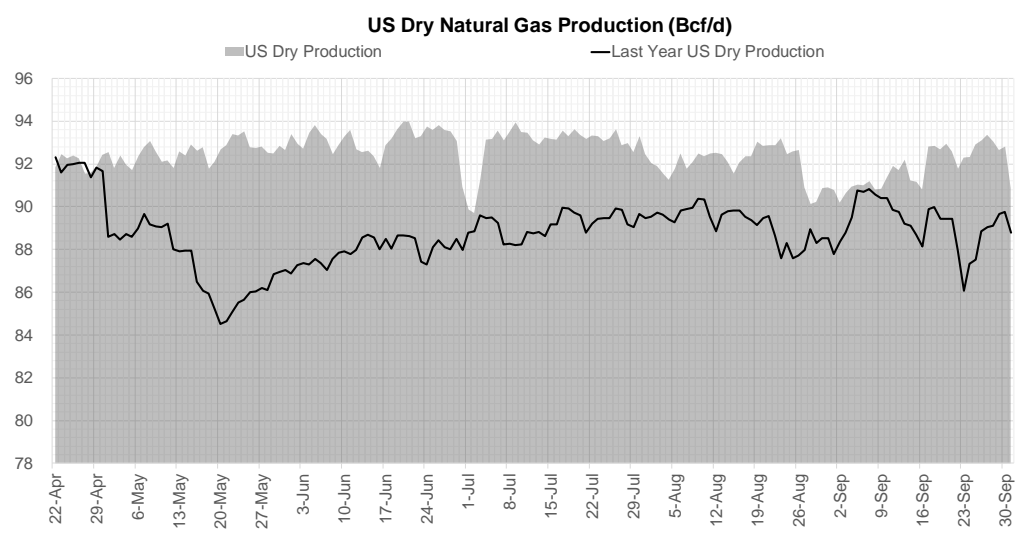
Next report and beyond		
Week Ending	Temp	Week Storage Projection
08-Oct	6.3	116
15-Oct	6.9	108
22-Oct	9.0	87

Weather Storage Model - Next 4 Week Forecast



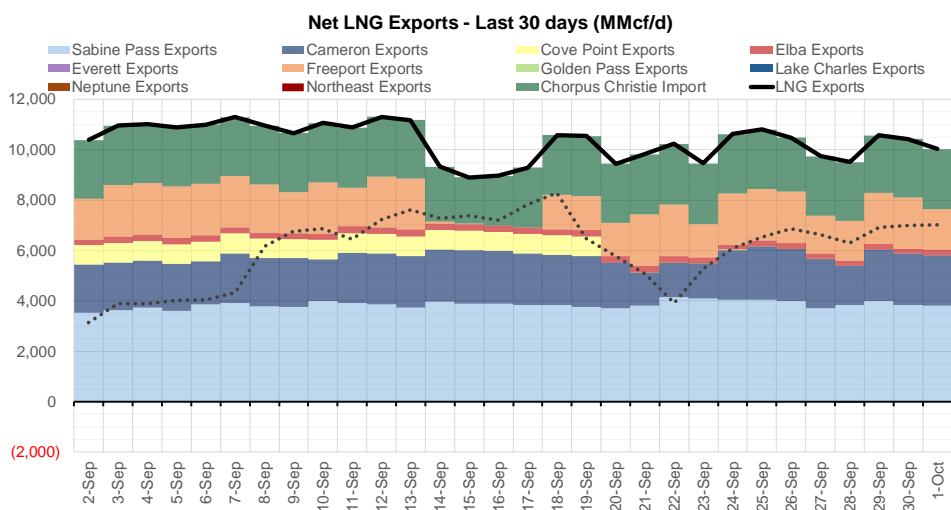
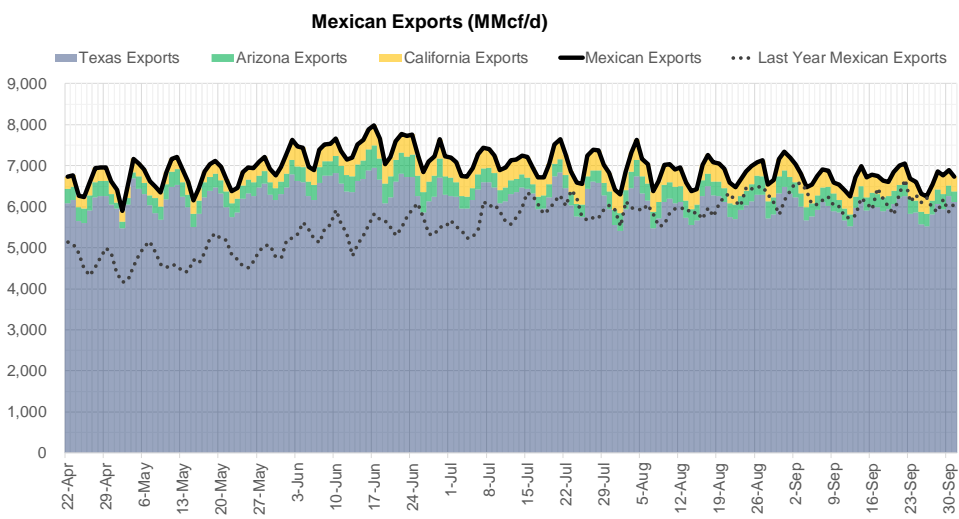
Note: this is not our official end of season forecast. This chart signifies where storage levels end with 10-year normal weather and current market tightness relative to last year

Supply – Demand Trends



Source: Bloomberg

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Source: Bloomberg

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

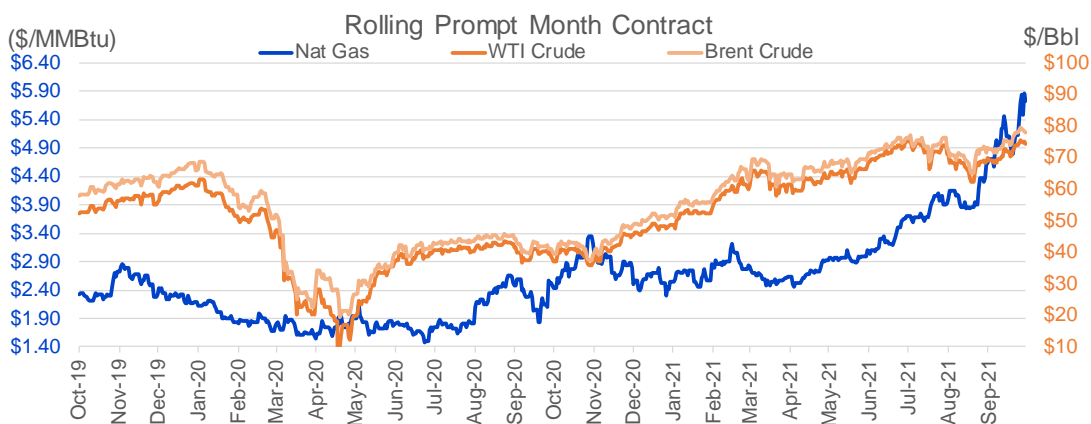
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
11	2021	P	5.00	5414	12	2021	P	2.75	42009
3	2022	P	3.75	3151	12	2021	P	2.50	38563
11	2021	C	6.00	2838	12	2021	P	3.00	32251
12	2021	C	15.00	2742	12	2021	P	4.00	30406
3	2022	C	9.00	2242	3	2022	C	10.00	30176
12	2021	C	6.00	2052	11	2021	P	3.00	30170
1	2022	P	3.75	1900	3	2022	C	8.00	26691
3	2022	C	10.00	1835	12	2021	P	3.50	25996
11	2021	P	4.50	1735	11	2021	P	4.00	24943
11	2021	P	4.25	1669	11	2021	C	7.00	22949
11	2021	C	7.00	1654	11	2021	P	4.50	22708
12	2021	P	2.75	1574	12	2021	C	4.00	22528
3	2022	C	15.00	1560	3	2022	P	3.50	20588
12	2021	C	12.00	1428	11	2021	P	3.50	20417
12	2021	C	10.00	1405	3	2022	C	5.00	20253
1	2022	C	7.00	1367	11	2021	C	4.00	20146
1	2022	P	3.00	1350	4	2022	C	3.00	19760
3	2022	P	4.00	1350	11	2021	C	6.00	18894
2	2022	P	4.00	1336	2	2022	P	3.50	18344
3	2022	P	3.00	1276	1	2022	C	5.00	18186
3	2022	P	4.50	1225	1	2022	P	3.50	17648
1	2022	C	6.00	1201	2	2022	C	5.00	17437
1	2022	P	4.75	1200	12	2021	C	6.00	17231
12	2021	P	5.00	1165	3	2022	P	4.00	16480
11	2021	C	8.00	1159	3	2022	C	4.00	16441
1	2022	P	3.50	1154	3	2022	P	2.50	16198
12	2021	C	8.00	1141	11	2021	P	5.00	15836
2	2022	P	3.25	1100	12	2021	C	7.00	15766
4	2022	C	5.00	1068	11	2021	C	5.00	15074
1	2022	C	10.00	1066	11	2021	C	4.50	15009
1	2022	C	6.50	1065	11	2021	C	5.50	14793
4	2022	P	3.00	1013	1	2022	C	4.00	14488
5	2022	P	3.00	1013	11	2021	P	2.50	14487
11	2021	C	10.00	1012	11	2021	C	3.75	14480
1	2022	P	3.25	1000	4	2022	C	5.00	14429
3	2022	C	3.75	1000	12	2022	C	5.00	14372
5	2022	C	5.00	1000	11	2021	P	3.25	14198
6	2022	C	5.00	1000	1	2022	C	6.00	14145
7	2022	C	5.00	1000	4	2022	P	2.50	14031
8	2022	C	5.00	1000	2	2022	C	4.00	13918
9	2022	C	5.00	1000	12	2021	P	2.00	13885
10	2022	C	5.00	1000	2	2022	C	6.00	13399
11	2021	P	5.50	925	1	2022	P	4.00	13377
2	2022	C	10.00	919	11	2021	C	4.25	13296
11	2021	P	4.75	864	3	2022	C	3.00	13127
11	2021	P	4.00	838	12	2022	C	4.50	13115
11	2021	C	6.50	835	5	2022	C	3.00	13110
1	2022	C	9.00	831	1	2022	C	7.00	12967
2	2022	C	6.00	825	12	2021	C	5.00	12852
					6	2022	C	3	12815

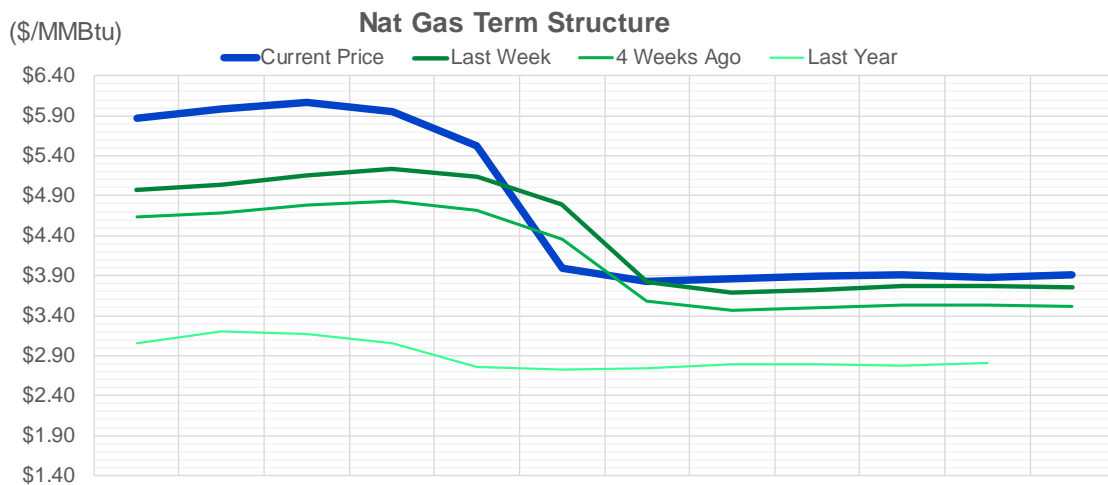
Source: CME, Nasdaq, ICE

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
NOV 21	261135	256978	4157	NOV 21	90025	89413	612
DEC 21	101815	100568	1247	DEC 21	76121	76371	-250
JAN 22	164592	161360	3232	JAN 22	94887	95377	-490
FEB 22	57123	56878	245	FEB 22	70083	70284	-202
MAR 22	126051	127324	-1273	MAR 22	75141	74097	1044
APR 22	125609	122839	2770	APR 22	73579	74017	-438
MAY 22	120854	120949	-95	MAY 22	70502	70574	-73
JUN 22	37467	38750	-1283	JUN 22	54341	54633	-292
JUL 22	35908	36479	-571	JUL 22	56662	56711	-49
AUG 22	32076	31841	235	AUG 22	55463	55365	98
SEP 22	34945	35011	-66	SEP 22	56305	56213	92
OCT 22	91090	91481	-391	OCT 22	62310	62203	108
NOV 22	31725	32374	-649	NOV 22	48316	48284	32
DEC 22	26060	25863	197	DEC 22	51656	51591	65
JAN 23	24311	24495	-184	JAN 23	37922	37922	1
FEB 23	9984	9896	88	FEB 23	31399	31256	143
MAR 23	13641	13466	175	MAR 23	33332	33184	148
APR 23	12568	12709	-141	APR 23	32388	32253	136
MAY 23	7879	7327	552	MAY 23	31517	31339	178
JUN 23	6127	6131	-4	JUN 23	29349	29169	180
JUL 23	4237	4214	23	JUL 23	29608	29415	193
AUG 23	3324	3343	-19	AUG 23	29364	29170	194
SEP 23	4544	4523	21	SEP 23	28562	28375	187
OCT 23	5747	5739	8	OCT 23	31626	31432	194
NOV 23	2504	2346	158	NOV 23	30203	29969	233
DEC 23	2615	2565	50	DEC 23	28051	27802	249
JAN 24	1477	1482	-5	JAN 24	15339	15323	16
FEB 24	1082	1082	0	FEB 24	12902	12866	36
MAR 24	3364	3357	7	MAR 24	17747	17739	8
APR 24	3384	3361	23	APR 24	11810	11871	-61

Source: CME, ICE






	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22
Current Price	\$5.867	\$5.991	\$6.073	\$5.951	\$5.517	\$3.996	\$3.824	\$3.855	\$3.896	\$3.903	\$3.884	\$3.913
Last Week	\$4.976	\$5.043	\$5.157	\$5.232	\$5.132	\$4.793	\$3.819	\$3.693	\$3.724	\$3.766	\$3.772	\$3.751
vs. Last Week	\$0.891	\$0.948	\$0.916	\$0.719	\$0.385	-\$0.797	\$0.005	\$0.162	\$0.172	\$0.137	\$0.112	\$0.162
4 Weeks Ago	\$4.641	\$4.692	\$4.780	\$4.832	\$4.717	\$4.351	\$3.581	\$3.472	\$3.499	\$3.530	\$3.538	\$3.523
vs. 4 Weeks Ago	\$1.226	\$1.299	\$1.293	\$1.119	\$0.800	-\$0.355	\$0.243	\$0.383	\$0.397	\$0.373	\$0.346	\$0.390
Last Year	\$2.527	\$3.062	\$3.204	\$3.163	\$3.049	\$2.761	\$2.719	\$2.748	\$2.785	\$2.793	\$2.780	\$2.809
vs. Last Year	\$3.340	\$2.929	\$2.869	\$2.788	\$2.468	\$1.235	\$1.105	\$1.107	\$1.111	\$1.110	\$1.104	\$1.104

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224	▲ 0.701	▲ 1.129	▲ 2.199
NatGas Oct21/Nov21	\$/MMBtu	-0.106	▼ -0.166	▼ -0.156	▼ -0.168
NatGas Oct21/Jan22	\$/MMBtu	0.120	▼ -0.131	▼ -0.073	▼ -0.188
NatGas Apr22/Oct22	\$/MMBtu	-0.073	▼ -0.027	▼ -0.040	▼ -0.085
WTI Crude	\$/Bbl	74.37	▲ 0.390	▲ 5.080	▲ 37.320
Brent Crude	\$/Bbl	77.81	▼ -0.280	▲ 5.200	▲ 38.540
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	232.72	▲ 6.010	▲ 16.780	▲ 124.220
Propane, Mt. Bel	cents/Gallon	1.29	▲ 0.015	▲ 0.099	▲ 0.806
Ethane, Mt. Bel	cents/Gallon	0.39	▲ 0.005	▲ 0.027	▲ 0.200
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 
10/1/2021						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	428	7	421	239	189	
Gas	99	0	99	25	74	
Miscellaneous	1	0	1	-2	3	
Directional	22	2	20	1	21	
Horizontal	474	3	471	245	229	
Vertical	32	2	30	16	16	
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago	
Oil	97	1	96	60	37	
Gas	68	3	65	30	38	
Miscellaneous	0	-1	1	0	0	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Ardmore Woodford	2	0	2	2	0	
Arkoma Woodford	2	0	2	1	1	
Cana Woodford	20	0	20	14	6	
DJ-Niobrara	12	0	12	8	4	
Eagle Ford	37	0	37	25	12	
Granite Wash	3	0	3	2	1	
Haynesville	47	0	47	11	36	
Marcellus	26	0	26	0	26	
Mississippian	1	0	1	1	0	
Permian	263	3	260	134	129	
Utica	12	0	12	6	6	
Williston	23	0	23	12	11	