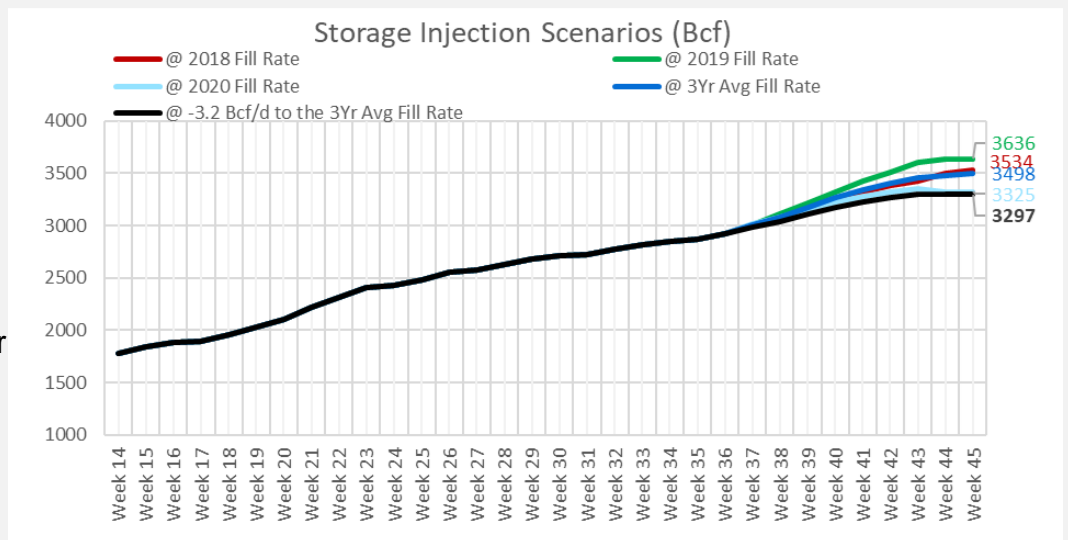


Fundamentals for the week ending Sept 10: This past week the EIA reported a +52 Bcf storage injection for week ending Sept 3rd. This report was expected to be a wild one with Hurricane Ida disrupting so many fundamental components. The report was bearish by 3-4 Bcf relative to market expectations and continued to show injections tight versus the last few years. The report led to a split-second drop after which it took off past \$5.



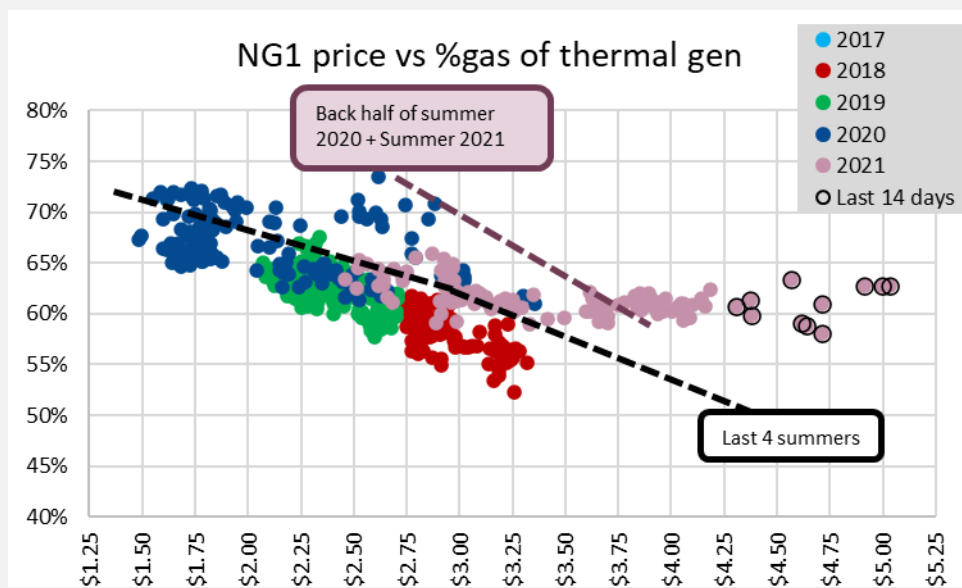
The week-on-week change in production was transparent with good visibility in the flow data, and the BSEE.gov report daily oil/gas shut-ins. The more difficult was understanding Ida's impact on Gulf Coast industrial, and res/comm as Ida moved up from New Orleans to New York City. This report helps clarify that demand destruction was larger than expected. The market is more concerned now about the tight nature of the balances going into the winter. Most analysts are expecting the end of summer levels to fall between 3.4 and 3.5 Tcf, but the last few reports are showing tighter conditions (especially if GoM production doesn't resume quickly).

The last three reports showed injections being tighter by 3.2 Bcf/d (wx adj) on average versus the average 3Yr injection profile. If we assume similar conditions for the rest of summer, we could end up below 3300 Bcf by end of summer.



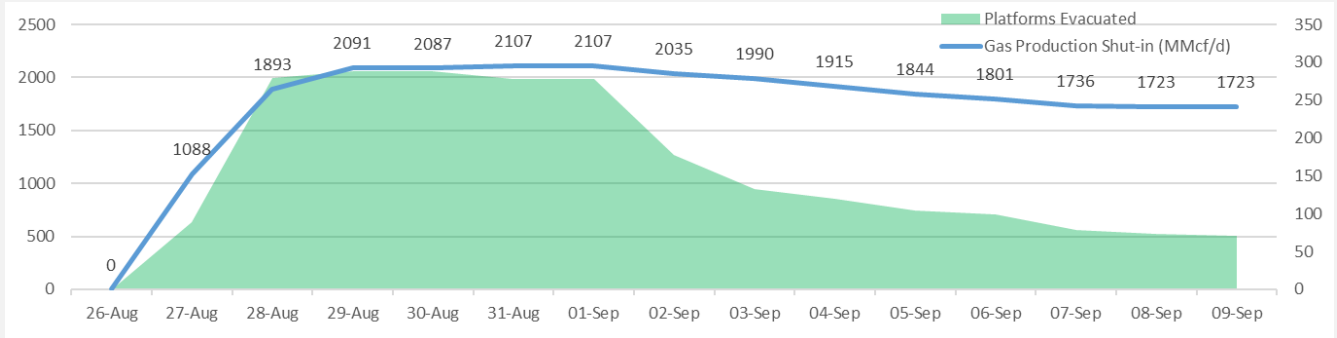
That being said, the recent market run-up seems to be less related to outright storage levels, but more with price not doing its job to rebalance the market. Typically, we'd see producers react to stronger pricing by deploying more rigs translating to more wells and production – but publicly traded producers have stuck to their “disciplined” drilling approach. The slight increase in gas rigs and frac jobs has been just enough to keep production flat this summer.

Price also instantaneously changes the order of the power stack by unwinding the C2G dynamic we have observed over the past few years. That hasn't been the cast this summer as prices broke higher. The chart below shows the share of natgas generation of total thermal generation. The negative correlation between gas prices and gas generation ceased as we crossed the \$3.25-3.50 range this summer.



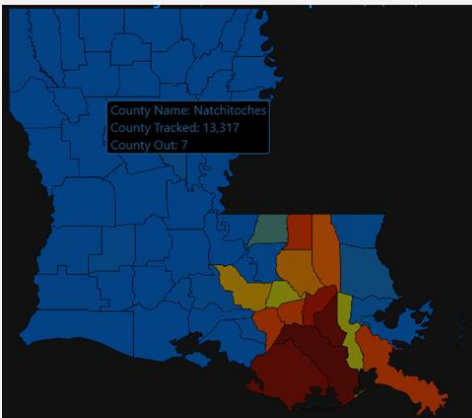
For the week ending Sept 10th, our early view is +78 Bcf. The 5Yr average is also a +79 Bcf injection. Our projected injection would take the L48 storage level to 3001 Bcf (-600 vs LY, -236 vs. 5Yr). This past week remained disordered with Hurricane Ida, and we are likely to see a wide variance in storage estimates. This weekend also happens to be the historical peak of hurricane season, but luckily at the moment, there are no threatening storms in the Atlantic.

Domestic production was hit hard last week with Hurricane Ida ripping through the Gulf of Mexico and slamming into the Louisiana coast. Starting Aug 27th, production was lost from offshore (and some onshore locations) as a result of platform evacuations and damage/flood/power outage to pipeline/processing infrastructure. The shut-ins continued this past week despite offshore producers returning staff to offshore rigs. Here is some data from the Bureau of Safety and Environmental Enforcement showing platform evacuations versus natural gas shut-ins. The disconnect between GoM platform operations and shut-in volumes confirms onshore gas processing hindering production.



Entergy is hard at work to return power to the 4 southern Louisiana parishes that house the gas processing capacity.

*These represent no later than dates and the company will explore every option to expedite restoration.



Entergy Louisiana

Last updated 9/10/21 @ 8 a.m.

Assumption Parish	Sept. 22
East Bank of Jefferson Parish	Sept. 10
Lafourche Parish	Sept. 29*
Livingston Parish	Sept. 13
Lower Jefferson Parish	Sept. 29*
Plaquemines Parish, with the exception of Belle Chasse which will be Sept. 10	Sept. 29*
St. Charles Parish	Sept. 29*
St. James Parish	Sept. 17
St. John Parish	Sept. 17
Tangipahoa Parish/St. Helena	Sept. 17
Terrebonne Parish	Sept. 29*
West Bank of Jefferson Parish	Sept. 10

Here is a good link to keep track of the restoration process:

<https://www.entergy.com/hurricaneida/etr/>

Overall, US dry gas production was higher by 0.2 Bcf/d to an average of 91.1 Bcf/d.

Total consumption was also lower this week, primarily driven by fewer pwCDDs leading to lower power burns. Total national temps were lower by 2.7F week-on-week.

Total national power generation was lower by 9.3% from the previous week, and wind generation was proportionally lower.

Generation Weekly Average - MWh (EIA)

	3-Sep	10-Sep	WoW	WoW Bcf/d Impact
US Wind	35348	32042	-3306	0.6
US Solar	13349	13951	602	-0.1
US Petroleum	3135	1981	-1154	0.2
US Other	9730	8718	-1012	0.2
US Coal	136275	116897	-19378	3.5
US Nuke	92365	93087	722	-0.1
US Hydro	28157	26929	-1228	0.2
US Gas	205380	181407	-23973	4.3
US Total	523583	475127	-48456	

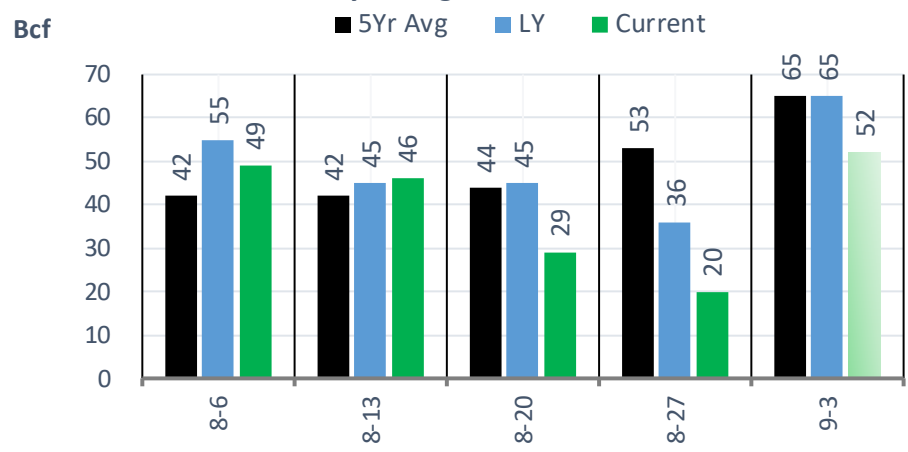
The lower power burns were slightly offset by industrial demand returning. Gulf regional demand still looks to be lower than normal by 1 Bcf/d last week.

Deliveries to LNG facilities averaged 11.0 Bcf/d, which was +0.5 Bcf/d higher than the previous week. As the ambient temps drop, the capacity factor of these plants looks to be rising. The last time the 7-day rolling feedgas levels averaged 11 Bcf was the first week of July.

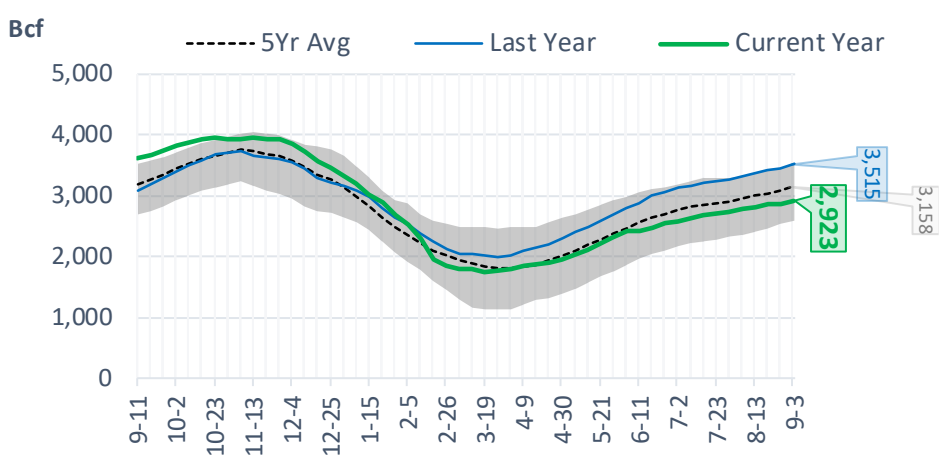
The net balance is looser by 3.8 Bcf/d week-on-week. We do expect this upcoming report to have a wide range.

EIA Storage Report

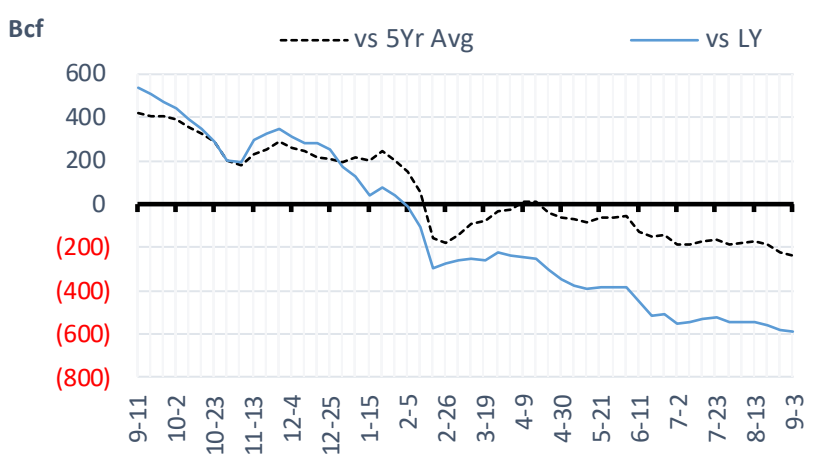
Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels



Total Lower 48 LY Surplus/Deficit

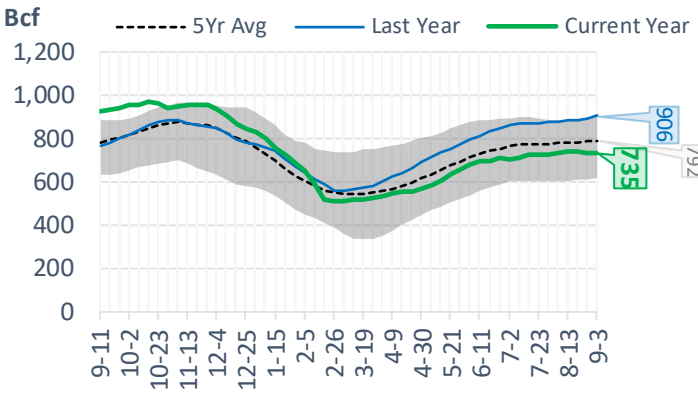


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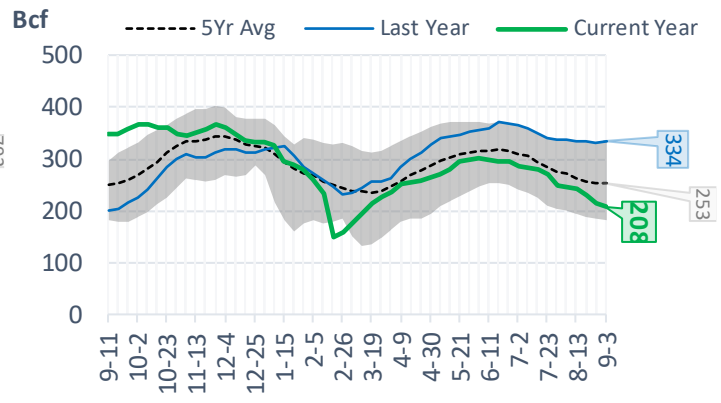
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 3-Sep	Week - 1 27-Aug	Week - 2 20-Aug	Week - 3 13-Aug	Week - 4 6-Aug	Week - 5 30-Jul
Total Lower 48 Storage Level	2923	2871	2851	2822	2776	2727
Weekly Change	+52	+20	+29	+46	+49	+13
vs LY	-592	-579	-563	-547	-548	-542
vs 5Yr Avg	-235	-222	-189	-174	-178	-185
S. Central Salt Storage Level	208	214	229	244	247	250
Weekly Change	-6	-15	-15	-3	-3	-19
vs LY	-126	-117	-105	-91	-90	-86
vs 5Yr Avg	-45	-39	-28	-20	-24	-26
S. Central NonSalt Storage Level	735	734	742	741	732	726
Weekly Change	+1	-8	+1	+9	+6	-3
vs LY	-171	-160	-147	-146	-150	-151
vs 5Yr Avg	-57	-52	-40	-40	-47	-51
Midwest Storage Level	842	812	790	765	741	719
Weekly Change	+30	+22	+25	+24	+22	+17
vs LY	-107	-109	-111	-112	-111	-109
vs 5Yr Avg	-23	-22	-16	-16	-16	-15
East Storage Level	703	678	661	645	629	604
Weekly Change	+25	+17	+16	+16	+25	+21
vs LY	-100	-109	-110	-103	-106	-112
vs 5Yr Avg	-57	-60	-55	-49	-45	-51
Mountain Storage Level	191	190	188	188	185	184
Weekly Change	+1	+2	0	+3	+1	0
vs LY	-24	-22	-24	-21	-20	-17
vs 5Yr Avg	-7	-5	-4	-2	-2	0
Pacific Storage Level	243	243	241	240	241	244
Weekly Change	0	+2	+1	-1	-3	-2
vs LY	-64	-61	-66	-73	-73	-67
vs 5Yr Avg	-45	-44	-45	-46	-45	-43

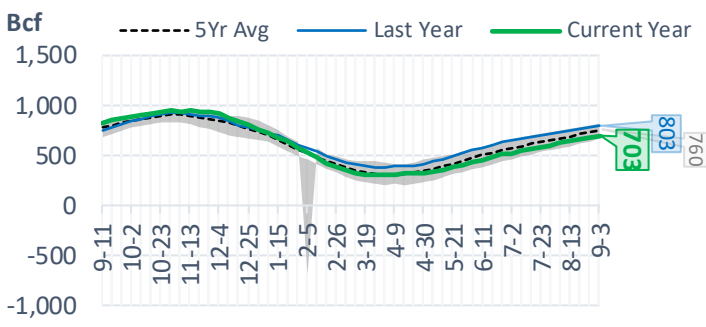
NonSalt Storage Levels



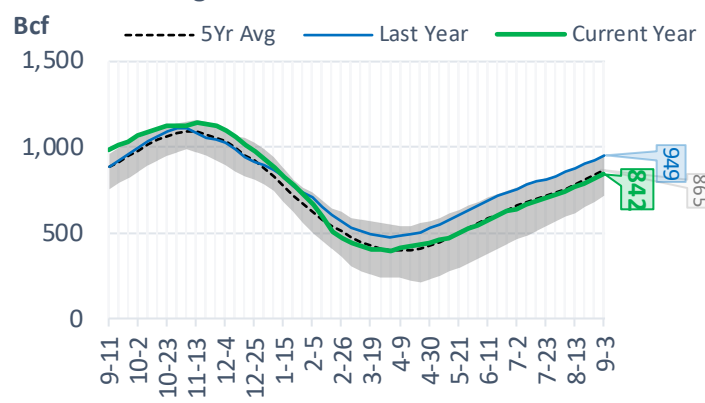
Salt Storage Levels



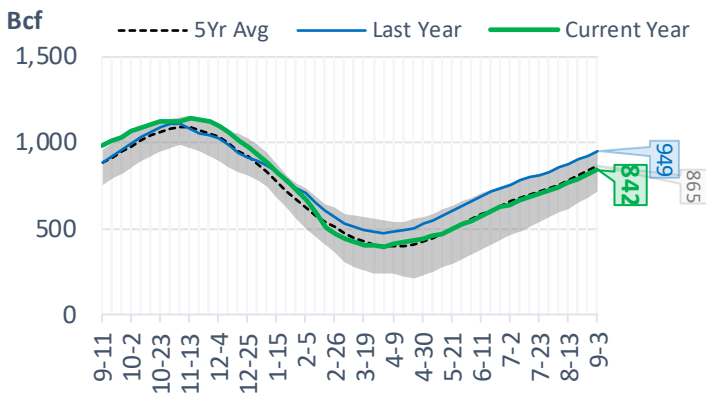
East Storage Levels



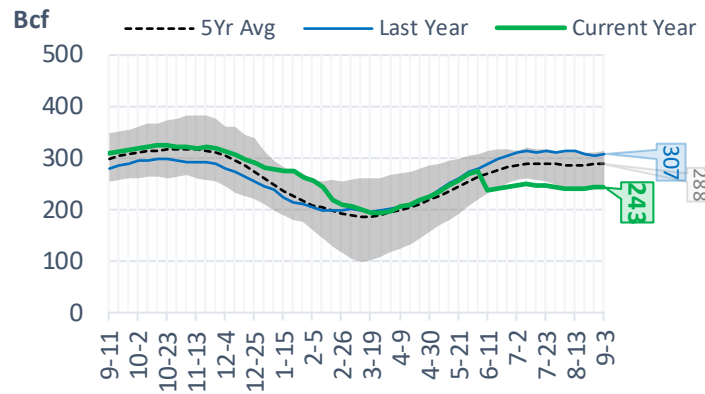
Midwest Storage Levels



Midwest Storage Levels



Pacific Storage Levels



EIA Storage Week Balances

	6-Aug	13-Aug	20-Aug	27-Aug	3-Sep	10-Sep	WoW	vs. 4W
Lower 48 Dry Production	91.9	92.4	92.4	93.0	90.9	91.1	▲ 0.2	▼ -1.0
Canadian Imports	5.0	5.2	5.0	5.3	5.0	4.8	▼ -0.2	▼ -0.3
L48 Power	38.3	41.1	39.7	41.9	38.0	33.6	▼ -4.4	▼ -6.6
L48 Residential & Commercial	8.0	7.8	7.6	7.8	7.5	7.0	▼ -0.4	▼ -0.6
L48 Industrial	20.1	19.2	20.8	20.9	18.6	19.7	▲ 1.1	▼ -0.2
L48 Lease and Plant Fuel	5.1	5.1	5.1	5.1	5.0	5.0	▲ 0.0	▼ -0.1
L48 Pipeline Distribution	2.2	2.4	2.3	2.4	2.2	2.1	▼ -0.2	▼ -0.3
L48 Regional Gas Consumption	73.8	75.5	75.5	78.1	71.3	67.4	▼ -3.9	▼ -7.7
Net LNG Exports	10.6	9.9	10.9	10.6	10.5	11.0	▲ 0.5	▲ 0.5
Total Mexican Exports	6.9	6.8	6.8	6.8	7.0	6.8	▼ -0.3	▼ -0.1
Implied Daily Storage Activity	5.7	5.2	4.2	2.8	7.1	10.8	3.8	
EIA Reported Daily Storage Activity	7.0	6.6	4.1	2.9	7.4			
Daily Model Error	-1.3	-1.4	0.1	-0.1	-0.4			

Monthly Balances

	2Yr Ago Sep-18	LY Sep-18	May-21	Jun-21	Jul-21	Aug-21	MTD Sep-21	MoM	vs. LY
Lower 48 Dry Production	86.6	86.6	93.1	93.4	92.4	92.2	90.9	▼ -1.2	▲ 4.3
Canadian Imports	4.5	4.5	4.5	4.8	5.2	5.1	4.8	▼ -0.3	▲ 0.3
L48 Power	34.3	34.3	26.8	35.9	39.6	40.2	33.6	▼ -6.6	▼ -0.7
L48 Residential & Commercial	8.5	8.5	12.8	8.9	8.6	7.7	7.2	▼ -0.5	▼ -1.3
L48 Industrial	22.6	22.6	20.8	20.6	19.6	20.0	19.5	▼ -0.5	▼ -3.1
L48 Lease and Plant Fuel	4.8	4.8	5.1	5.1	5.1	5.1	5.0	▼ -0.1	▲ 0.2
L48 Pipeline Distribution	2.1	2.1	2.1	2.2	2.3	2.3	2.1	▼ -0.2	▲ 0.0
L48 Regional Gas Consumption	72.3	72.3	67.6	72.7	75.1	75.3	67.4	▼ -7.9	▼ -4.9
Net LNG Exports	3.1	3.1	10.8	10.2	10.8	10.5	10.8	▲ 0.3	▲ 7.7
Total Mexican Exports	5.0	5.0	6.8	7.4	7.0	6.9	6.8	▼ 0.0	▲ 1.9
Implied Daily Storage Activity	10.7	10.7	12.4	8.0	4.6	4.6	10.7		
EIA Reported Daily Storage Activity									
Daily Model Error									

Source: Bloomberg, analytix.ai

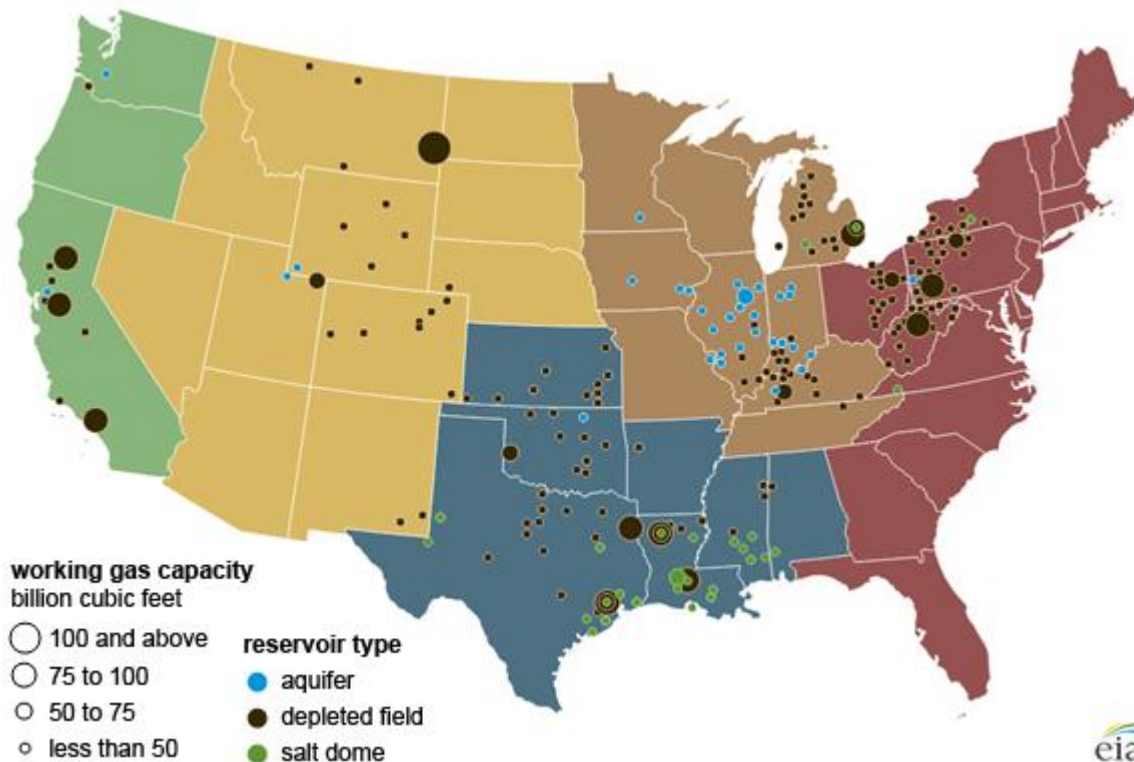
Regional S/D Models Storage Projection

Week Ending 10-Sep

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	10.5	0.6	11.1	78
East	3.0	1.0	4.0	28
Midwest	5.6	-0.2	5.4	38
Mountain	4.0	-3.3	0.6	4
South Central	-2.3	3.5	1.2	8
Pacific	0.3	-0.4	-0.1	-1

*Adjustment Factor is calculated based on historical regional deltas

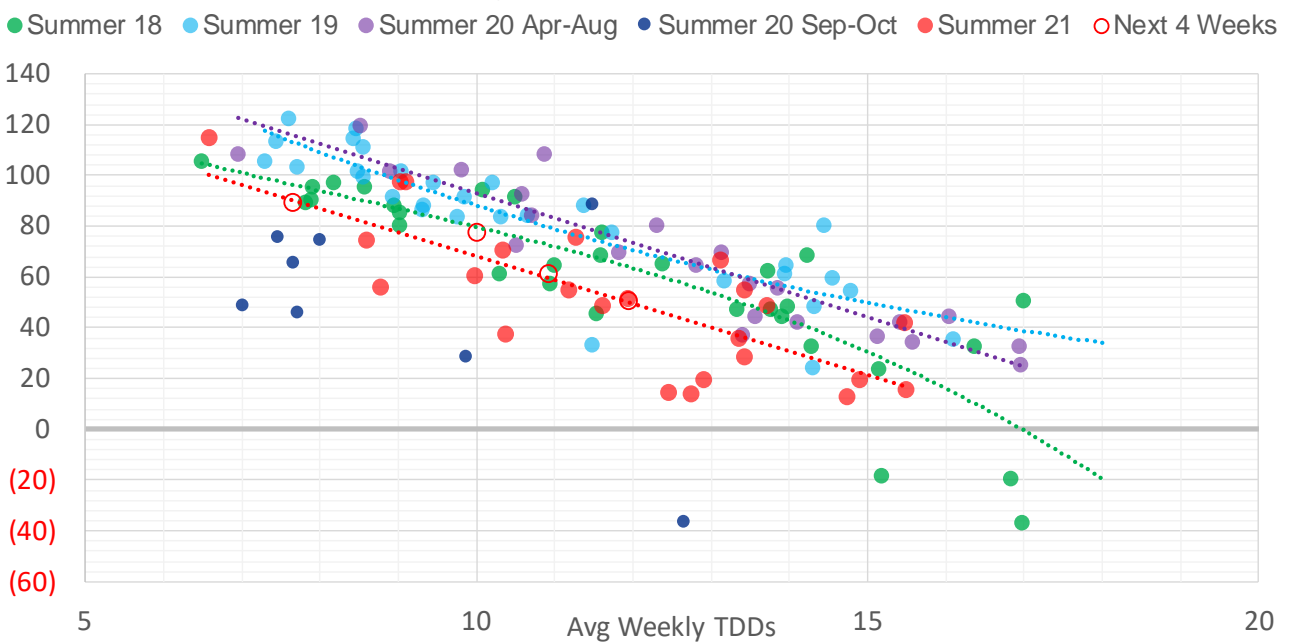
U.S. underground natural gas storage facilities by type (July 2015)



Weather Model Storage Projection

Next report and beyond		
Week Ending	Temp	Week Storage Projection
17-Sep	12.0	50
24-Sep	10.9	61
01-Oct	7.7	89

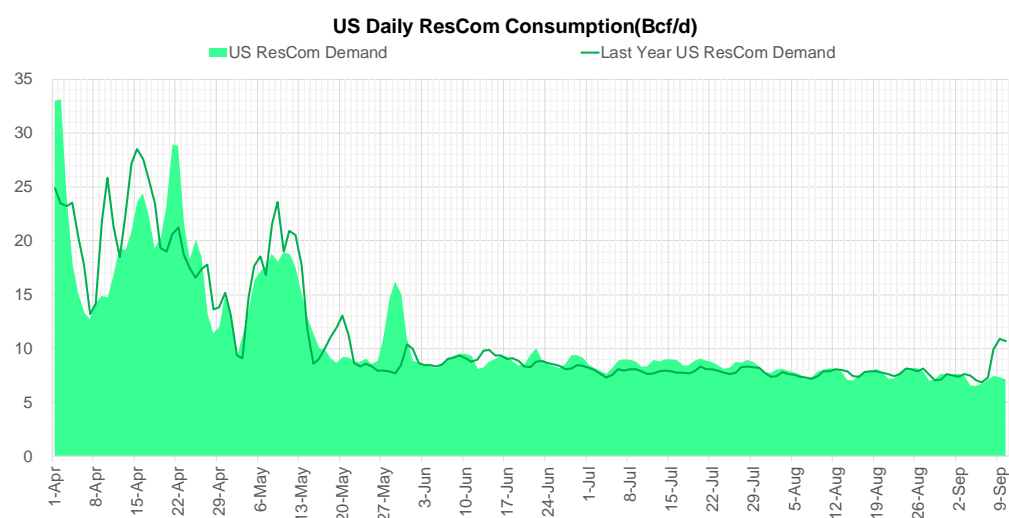
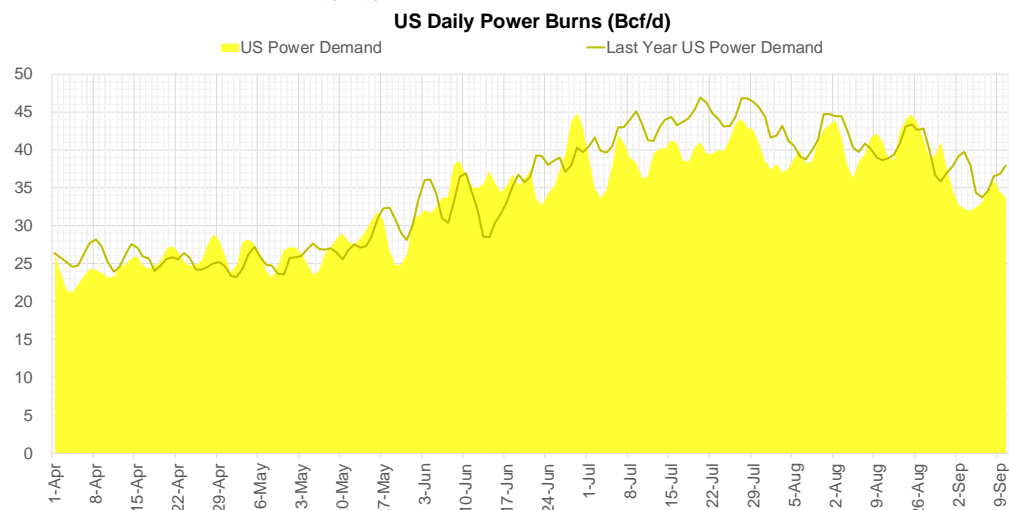
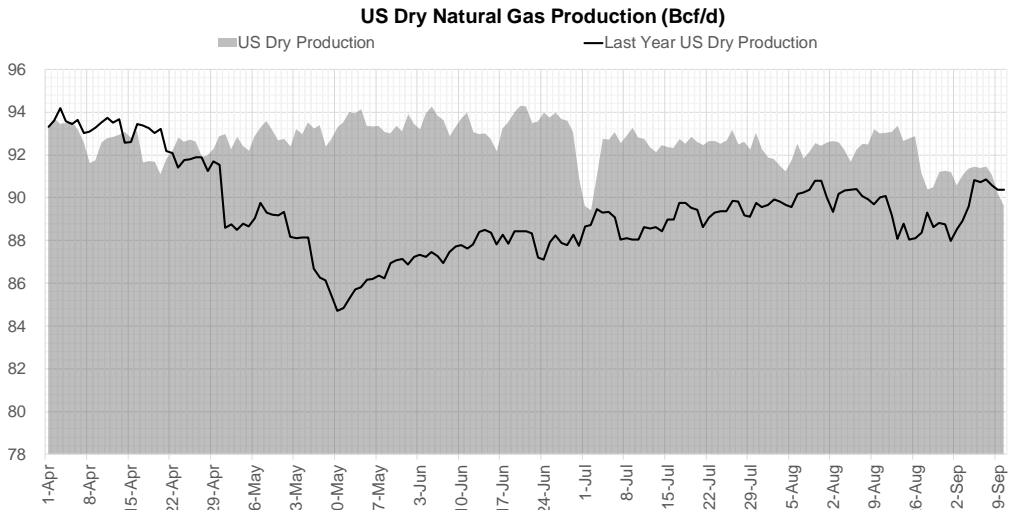
Weather Storage Model - Next 4 Week Forecast



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

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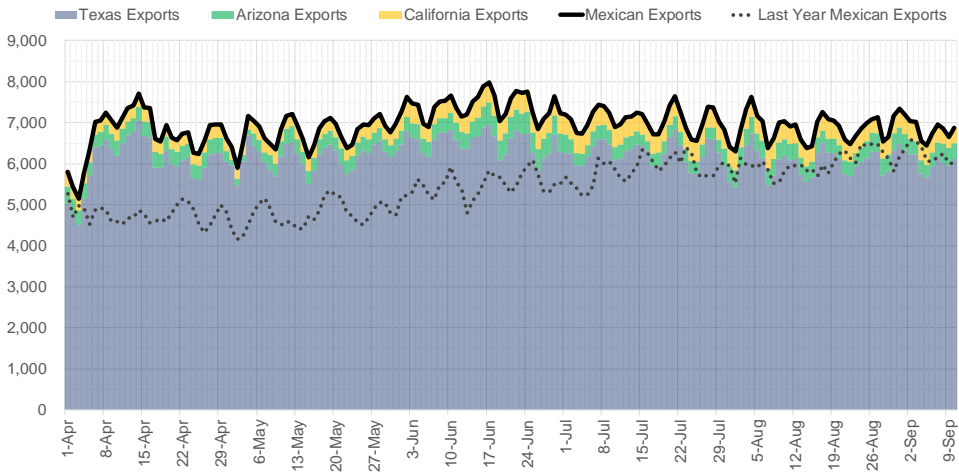
Supply – Demand Trends



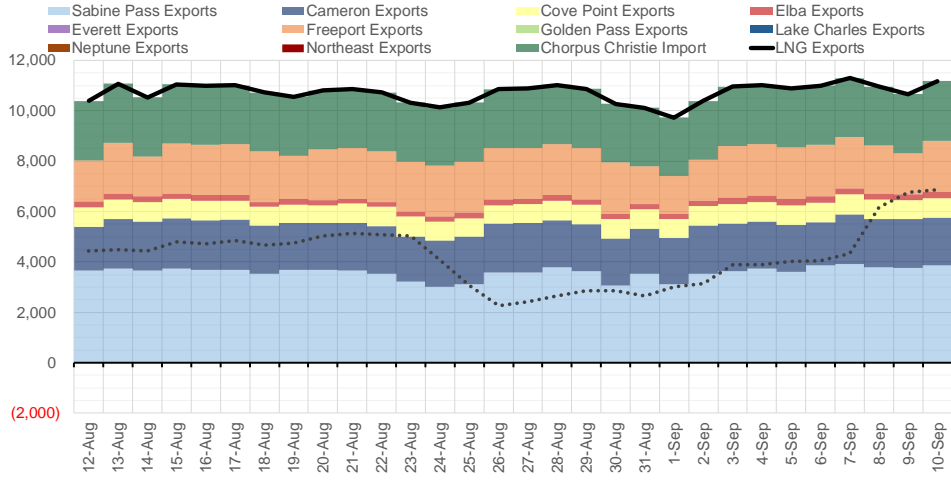
Source: Bloomberg

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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

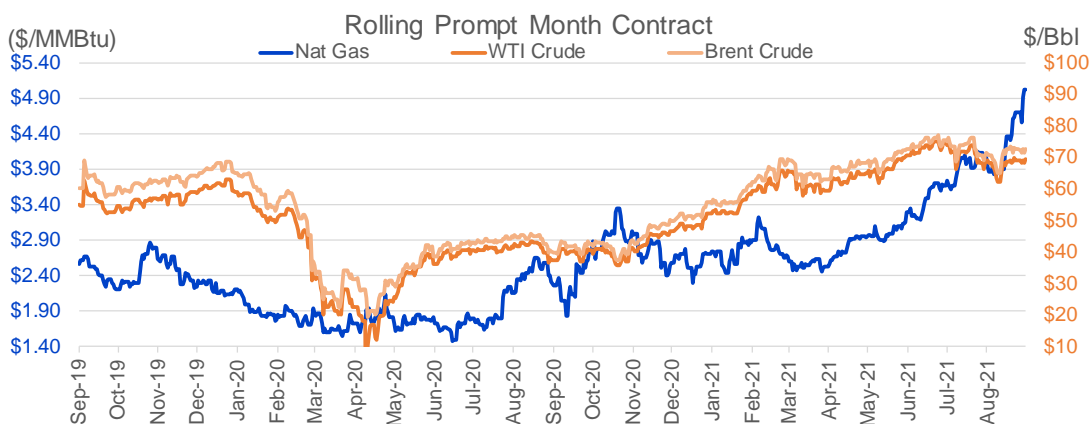
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
10	2021	P	4.50	11852	10	2021	C	5.00	57905
10	2021	C	5.75	9022	10	2021	C	4.00	42333
10	2021	C	5.50	8357	12	2021	P	2.75	42059
10	2021	C	5.00	8070	10	2021	P	3.50	41944
10	2021	C	6.00	6190	10	2021	C	4.50	41290
10	2021	P	4.25	5700	12	2021	P	2.50	38539
10	2021	P	4.00	5688	10	2021	C	6.00	36997
11	2021	P	4.00	4824	10	2021	C	3.50	32999
10	2021	P	4.20	4677	10	2021	C	4.25	32431
11	2021	C	6.00	4316	10	2021	P	3.00	31758
12	2021	P	4.00	3934	10	2021	P	4.00	30849
10	2021	C	5.25	3326	11	2021	P	3.00	30626
11	2021	C	7.00	3280	10	2021	P	2.50	29994
12	2021	C	8.00	3141	10	2021	P	2.00	28650
4	2022	C	8.00	3050	10	2021	C	3.25	28193
11	2021	P	3.50	2946	10	2021	P	2.75	26887
10	2021	P	4.40	2939	12	2021	P	3.00	25576
11	2021	C	5.50	2886	11	2021	C	4.00	23297
2	2022	C	8.00	2792	12	2021	C	4.00	22648
10	2021	P	4.35	2695	10	2021	P	3.75	22585
3	2022	C	4.75	2682	3	2022	C	10.00	21968
12	2021	C	7.00	2633	11	2021	P	3.50	21282
10	2021	P	4.75	2620	11	2021	P	4.00	20606
2	2022	P	3.50	2535	12	2021	P	4.00	20091
11	2021	C	5.00	2223	10	2021	P	2.25	19784
12	2022	C	5.00	2200	4	2022	C	3.00	19760
10	2021	P	4.85	2025	10	2021	C	3.00	18494
12	2022	C	4.50	2000	3	2022	C	5.00	18254
11	2021	P	4.50	1923	3	2022	C	8.00	18203
12	2021	C	5.25	1794	10	2021	C	5.50	18100
5	2022	C	4.00	1750	10	2021	P	3.25	17940
10	2021	P	4.70	1670	11	2021	C	7.00	17303
11	2021	P	4.25	1664	3	2022	P	3.50	17228
3	2022	C	7.00	1556	1	2022	C	5.00	17137
12	2021	C	5.50	1550	10	2021	C	3.75	16780
12	2021	C	5.00	1500	11	2021	C	5.00	16728
1	2022	C	8.00	1480	2	2022	C	5.00	16665
5	2022	C	5.00	1450	3	2022	P	2.50	16664
10	2021	P	4.80	1446	10	2021	P	4.25	16226
11	2021	C	6.50	1441	3	2022	C	4.00	16024
10	2021	P	4.90	1436	10	2021	P	4.50	15822
3	2022	C	3.00	1400	2	2022	C	4.00	15821
11	2021	C	5.75	1357	11	2021	C	4.50	15180
12	2021	P	4.40	1275	11	2021	C	6.00	14922
10	2021	P	4.45	1192	1	2022	C	4.00	14503
10	2021	P	5.00	1164	11	2021	P	2.50	14486
1	2022	C	6.50	1160	11	2021	C	3.75	14481
11	2021	P	3.90	1142	3	2022	C	3.00	14447
11	2021	C	8.00	1127	12	2021	C	6.00	14323
					4	2022	P	2.5	14184

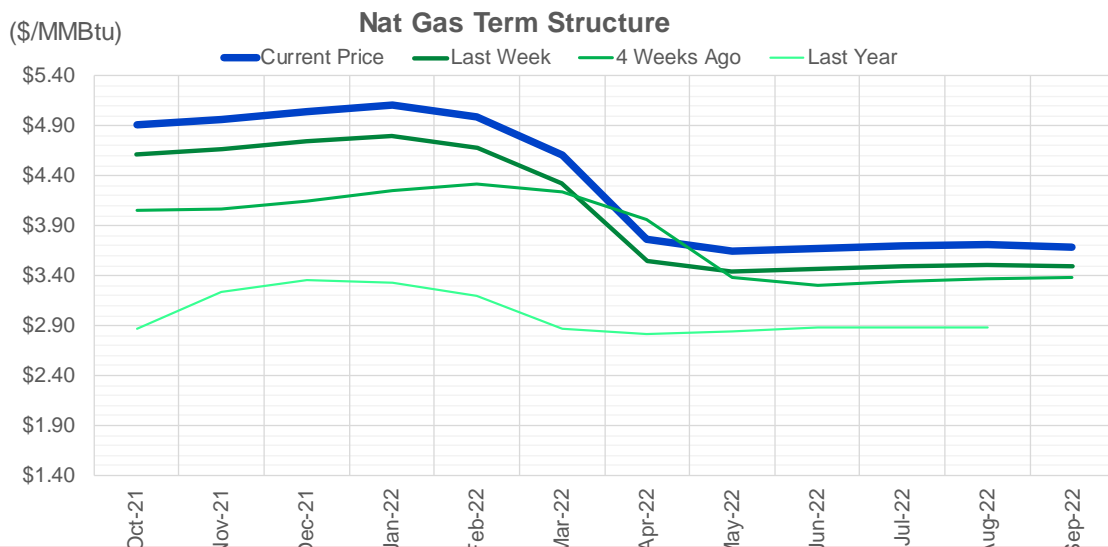
Source: CME, Nasdaq, ICE

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
OCT 21	196841	216962	-20121	OCT 21	105123	105187	-64
NOV 21	224223	218898	5325	NOV 21	76765	76277	488
DEC 21	91390	93078	-1688	DEC 21	77523	78353	-829
JAN 22	154346	153374	972	JAN 22	88155	87381	774
FEB 22	58640	57251	1389	FEB 22	68872	68153	719
MAR 22	117776	119230	-1454	MAR 22	71196	71405	-209
APR 22	117166	117734	-568	APR 22	68660	68419	241
MAY 22	114070	113789	281	MAY 22	68706	68923	-217
JUN 22	38876	38749	127	JUN 22	51931	51946	-15
JUL 22	29395	29216	179	JUL 22	53287	53125	162
AUG 22	32309	31937	372	AUG 22	53594	53447	148
SEP 22	35029	34549	480	SEP 22	53701	53590	111
OCT 22	86344	86298	46	OCT 22	60964	60708	256
NOV 22	31884	31764	120	NOV 22	47181	46895	286
DEC 22	25023	24871	152	DEC 22	50356	50044	311
JAN 23	22110	22051	59	JAN 23	36848	36716	132
FEB 23	8251	8709	-458	FEB 23	30349	30173	175
MAR 23	10646	10247	399	MAR 23	32615	32413	202
APR 23	11462	11364	98	APR 23	28848	28382	466
MAY 23	7220	7041	179	MAY 23	29360	29020	340
JUN 23	5447	5246	201	JUN 23	27301	26973	328
JUL 23	4053	3993	60	JUL 23	27432	27085	347
AUG 23	3241	3193	48	AUG 23	27275	26936	339
SEP 23	4151	4095	56	SEP 23	26567	26232	336
OCT 23	5605	5670	-65	OCT 23	28501	28146	355
NOV 23	2011	1962	49	NOV 23	28091	28077	14
DEC 23	1832	1810	22	DEC 23	25958	25893	65
JAN 24	1142	1132	10	JAN 24	14638	14475	163
FEB 24	890	890	0	FEB 24	12146	12059	87
MAR 24	3268	3283	-15	MAR 24	16322	16029	293

Source: CME, ICE






	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
Current Price	\$4.914	\$4.962	\$5.046	\$5.103	\$4.985	\$4.609	\$3.761	\$3.641	\$3.667	\$3.698	\$3.706	\$3.691
Last Week	\$4.615	\$4.663	\$4.749	\$4.798	\$4.683	\$4.321	\$3.553	\$3.442	\$3.467	\$3.499	\$3.506	\$3.492
vs. Last Week	\$0.299	\$0.299	\$0.297	\$0.305	\$0.302	\$0.288	\$0.208	\$0.199	\$0.200	\$0.199	\$0.200	\$0.199
4 Weeks Ago	\$4.059	\$4.071	\$4.143	\$4.256	\$4.319	\$4.237	\$3.967	\$3.385	\$3.309	\$3.338	\$3.371	\$3.378
vs. 4 Weeks Ago	\$0.855	\$0.891	\$0.903	\$0.847	\$0.666	\$0.372	-\$0.206	\$0.256	\$0.358	\$0.360	\$0.335	\$0.313
Last Year	\$2.406	\$2.873	\$3.241	\$3.361	\$3.323	\$3.201	\$2.862	\$2.820	\$2.844	\$2.877	\$2.887	\$2.875
vs. Last Year	\$2.508	\$2.089	\$1.805	\$1.742	\$1.662	\$1.408	\$0.899	\$0.821	\$0.823	\$0.821	\$0.819	\$0.816

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	\$/MMBtu	1.414	▲ 0.390	▲ 1.083	▲ 1.392
NatGas Oct21/Nov21	\$/MMBtu	0.041	▼ -0.010	▼ -0.032	▼ -0.009
NatGas Oct21/Jan22	\$/MMBtu	0.185	▼ -0.006	▼ -0.075	▼ -0.092
NatGas Apr22/Oct22	\$/MMBtu	-0.041	▼ -0.011	▼ -0.048	▼ -0.069
WTI Crude	\$/Bbl	68.14	▼ -1.850	▼ -0.950	▲ 30.840
Brent Crude	\$/Bbl	71.45	▼ -1.580	▲ 0.140	▲ 31.390
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	211.37	▼ -5.400	▲ 0.980	▲ 103.130
Propane, Mt. Bel	cents/Gallon	1.20	▲ 0.016	▲ 0.080	▲ 0.737
Ethane, Mt. Bel	cents/Gallon	0.37	▲ 0.014	▲ 0.035	▲ 0.163
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					
9/10/2021					
Baker Hughes 					
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	401	7	394	221	180
Gas	101	-1	102	30	71
Miscellaneous	1	0	1	-2	3
Directional	16	5	11	-5	21
Horizontal	461	-2	463	247	214
Vertical	26	3	23	7	19
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago
Oil	87	-5	92	68	19
Gas	56	-4	60	23	33
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago
Ardmore Woodford	2	-2	4	2	0
Arkoma Woodford	1	0	1	0	1
Cana Woodford	18	1	17	12	6
DJ-Niobrara	12	0	12	8	4
Eagle Ford	34	-1	35	25	9
Granite Wash	4	0	4	3	1
Haynesville	48	0	48	13	35
Marcellus	26	-2	28	2	24
Mississippian	1	1	0	1	0
Permian	254	4	250	130	124
Utica	12	0	12	7	5
Williston	23	0	23	14	9