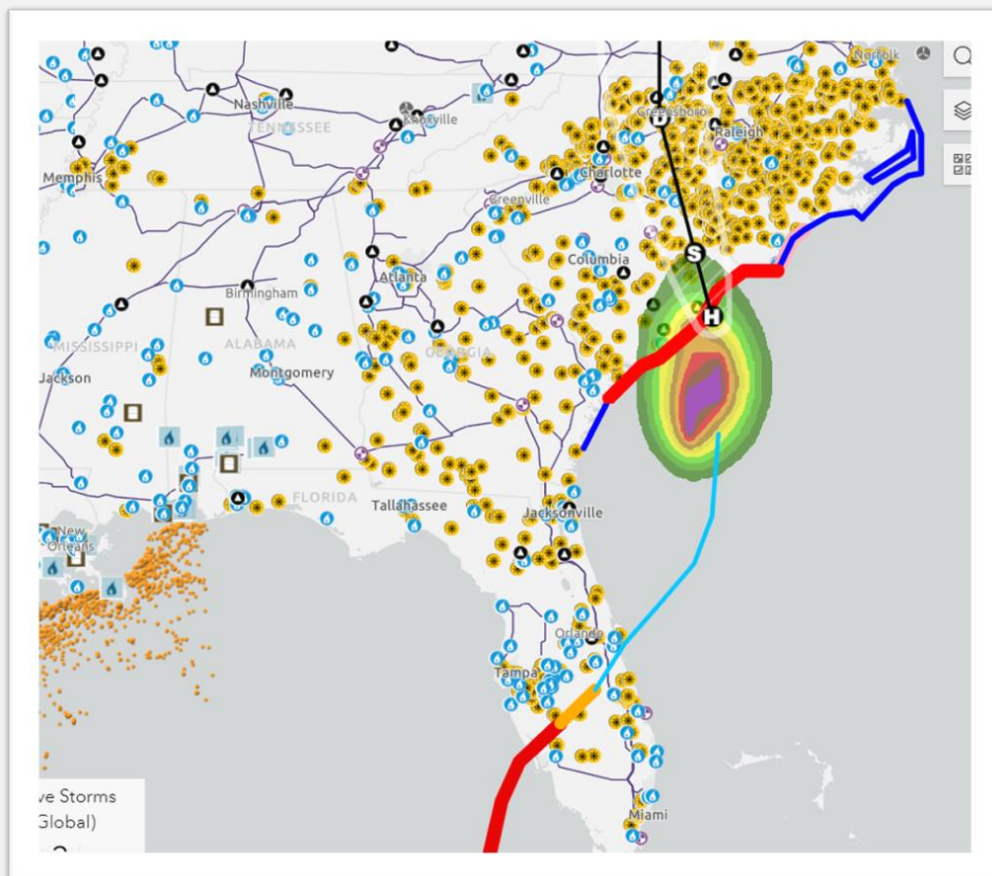


This past week came and went with so much stuff happening. Let's start by covering Hurricane Ian and its impact to natural gas markets. With the path of Ian well known early in the week, the market understood early that this storm was going to be a demand destruction story. That being said, there were some major Gulf producers that did evacuate personnel from platforms and rigs on Sept 27th and 28th. The impact to oil and gas production was minimal though. Here are the details we scrubbed from BSEE:

Date	Hurricane	Platforms Evacuated	Rigs Evacuated	Dynamically Positioned Rigs Moved	Oil Prod Shut-in (mmbbls/d)	Gas Prod Shut-in (MMcf/d)
09/27/2022	Ian-2022	12	2	4	0.19	184
09/28/2022	Ian-2022	11	5	3	0.16	128

As the storm made landfall on Wednesday, millions of Florida customers quickly lost power due to the strong winds, storm surge, and heavy rains. The storm quickly passed through Florida and entered the Atlantic where it lost energy and was degraded to a Tropic Storm. On Friday, the storm once again made landfall at a Cat 1 Hurricane into South Carolina. Here is a view of Ian as it re-entered SC on Friday:



We tracked data from PowerOutage.us to get a view of the impact to burns. Here is the approximate story on their outages up until yesterday.

Date	Hurricane	Florida		South Carolina		North Carolina	
			% outage		% outage		% outage
09/28/2021	Ian-2021	2,200,000	20%	-	0%	-	0%
09/29/2021	Ian-2021	2,650,000	24%	-	0%	-	0%
09/30/2021	Ian-2021	1,900,000	17%	216,000	8%	114,000	2%
10/01/2021	Ian-2021	1,200,000	11%	48,000	2%	290,000	6%
10/02/2021	Ian-2021	800,000	7%	2,000	0%	20,000	0%

Source: Approximate afternoon outages from PowerOutage.us

We use the estimate of % outage to approximate the demand destruction as result of Hurricane Ian. Looking at historical state-level data for Florida, South Carolina, & North Carolina, we estimate normal power burns for this time of the year to be:

Florida = 4.0 Bcf/d

South Carolina = 1.0 Bcf/d

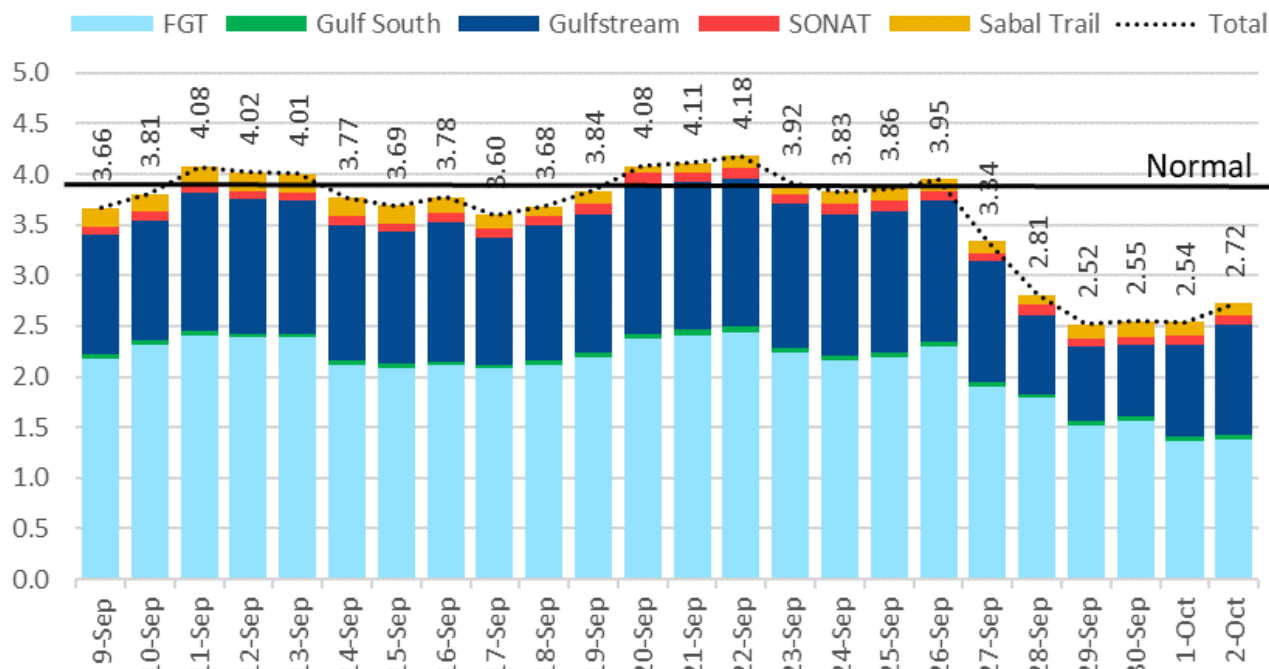
North Carolina = 0.6 Bcf/d

Using these figures we can now get a **gas Demand Destruction estimates (Bcf/d)** for the week.

Date	Florida	South Carolina	North Carolina	Total
09/28/2021	0.80	0.00	0.00	0.80
09/29/2021	0.96	0.00	0.00	0.96
09/30/2021	0.69	0.08	0.01	0.78
10/01/2021	0.44	0.02	0.04	0.49
10/02/2021	0.29	0.00	0.00	0.29

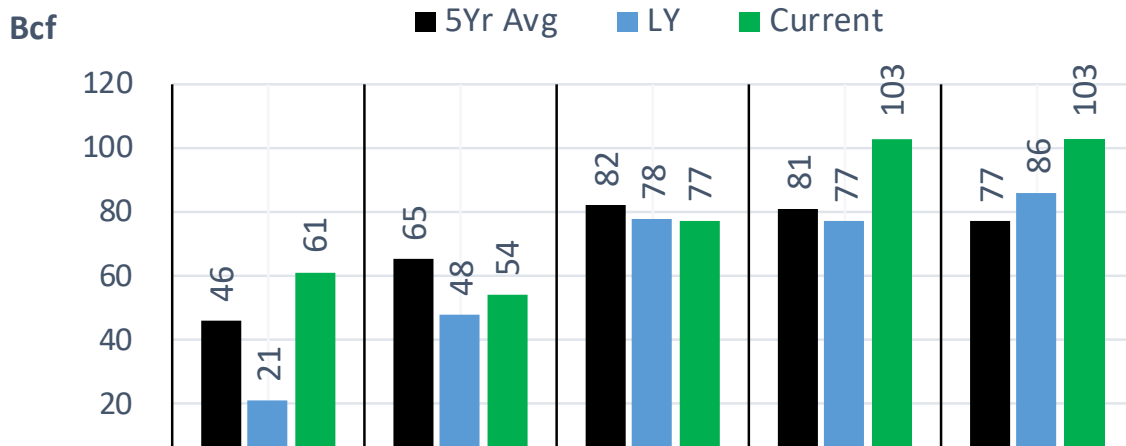
The figures above are slightly lower than the story that is painted from the change in pipeline deliveries. Based on interstate pipeline deliveries in Florida, the peak demand loss was 1.2-1.3 Bcf/d. Here is a chart showing the impact.

Florida Daily Power Plant Delivery (Bcf/d)

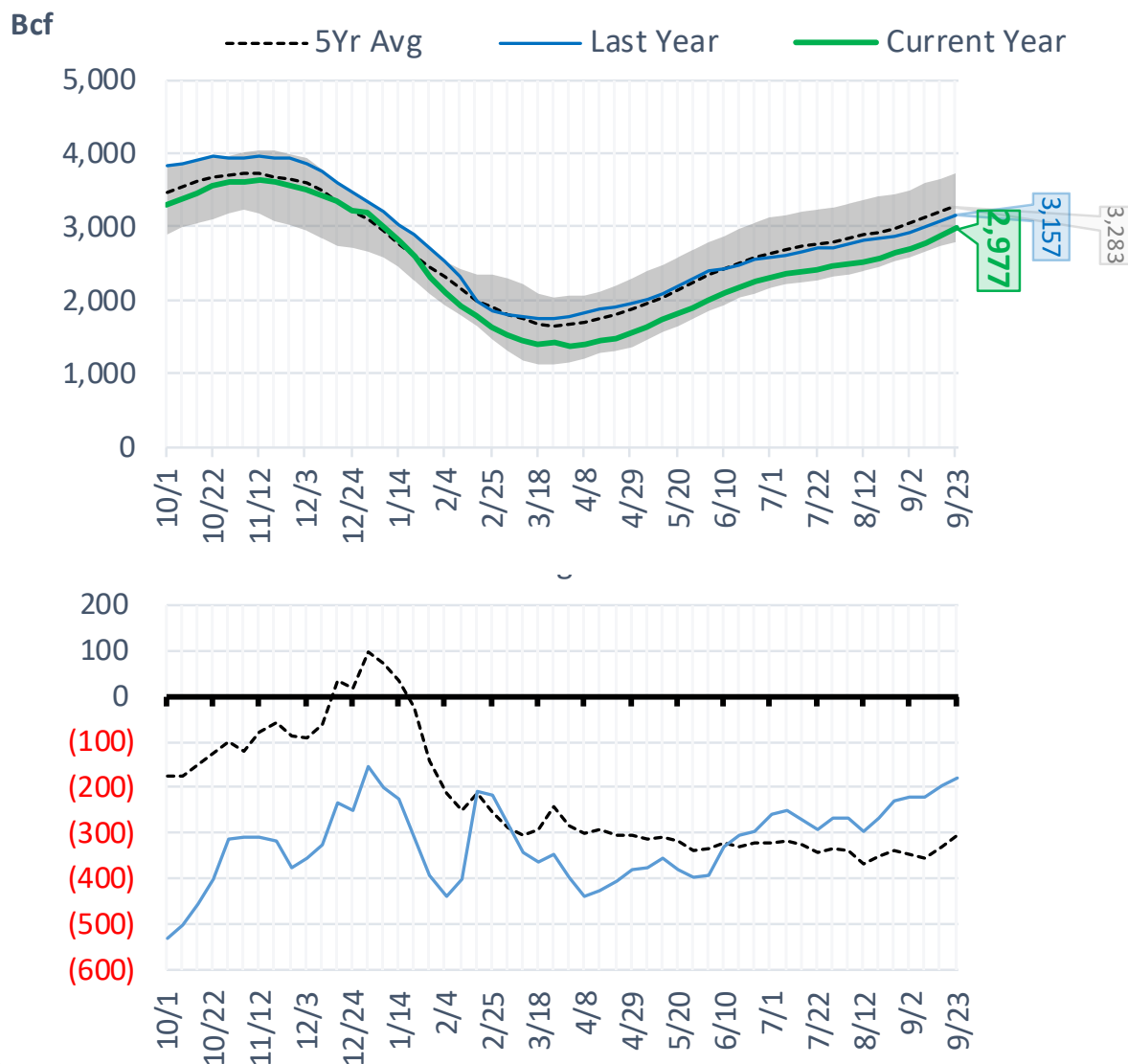


For the next two reports, we believe the impact to the storage report to be quite minimal. In fact, the above estimates should be slightly taken lower because the increased HDDs and cloud cover leading to lower solar output in the Carolinas. FL, NC, and SC have a total of 12.6 GW of solar capacity.

Total Lower 48 YoY Weekly Change



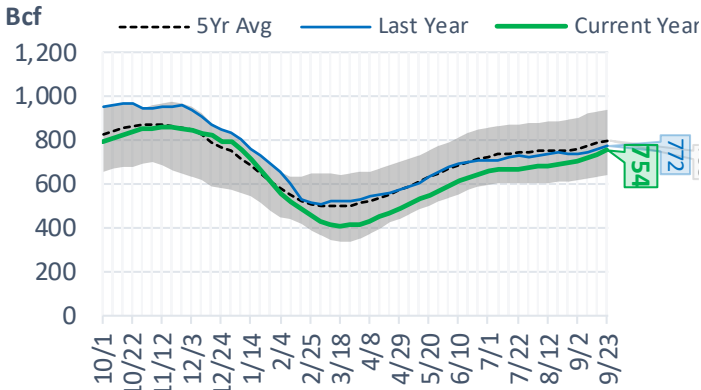
Total Lower 48 Storage Levels



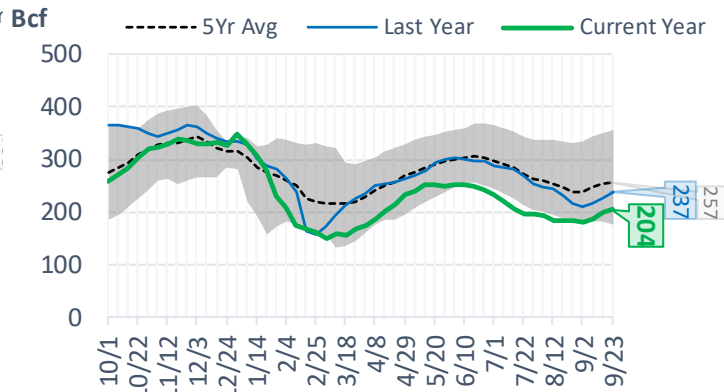
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 23-Sep	Week - 1 16-Sep	Week - 2 9-Sep	Week - 3 2-Sep	Week - 4 26-Aug	Week - 5 19-Aug
Total Lower 48 Storage Level	2977	2874	2771	2694	2640	2579
Weekly Change	+103	+103	+77	+54	+61	+60
vs LY	-180	-197	-223	-222	-228	-268
vs 5Yr Avg	-306	-332	-354	-349	-338	-353
S. Central Salt Storage Level	204	199	187	182	185	184
Weekly Change	+5	+12	+5	-3	+1	-1
vs LY	-33	-27	-29	-27	-31	-47
vs 5Yr Avg	-53	-54	-59	-56	-54	-62
S. Central NonSalt Storage Level	754	736	717	705	696	687
Weekly Change	+18	+19	+12	+9	+9	+6
vs LY	-18	-24	-29	-30	-39	-55
vs 5Yr Avg	-41	-50	-57	-57	-60	-68
Midwest Storage Level	879	844	809	776	747	714
Weekly Change	+35	+35	+33	+29	+33	+30
vs LY	-51	-56	-62	-62	-62	-72
vs 5Yr Avg	-58	-63	-67	-67	-64	-71
East Storage Level	721	690	661	635	614	598
Weekly Change	+31	+29	+26	+21	+16	+27
vs LY	-54	-58	-67	-64	-62	-61
vs 5Yr Avg	-86	-94	-98	-100	-97	-91
Mountain Storage Level	176	168	163	159	157	153
Weekly Change	+8	+5	+4	+2	+4	+2
vs LY	-24	-28	-30	-32	-33	-35
vs 5Yr Avg	-27	-31	-32	-32	-31	-33
Pacific Storage Level	243	237	235	238	241	243
Weekly Change	+6	+2	-3	-3	-2	-5
vs LY	0	-3	-5	-5	-2	+2
vs 5Yr Avg	-40	-41	-40	-36	-32	-29

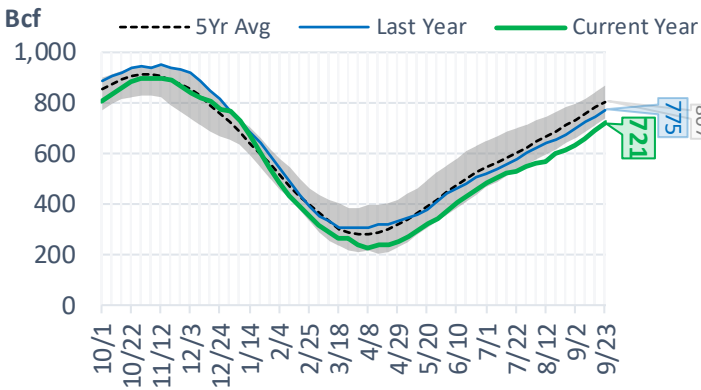
NonSalt Storage Levels



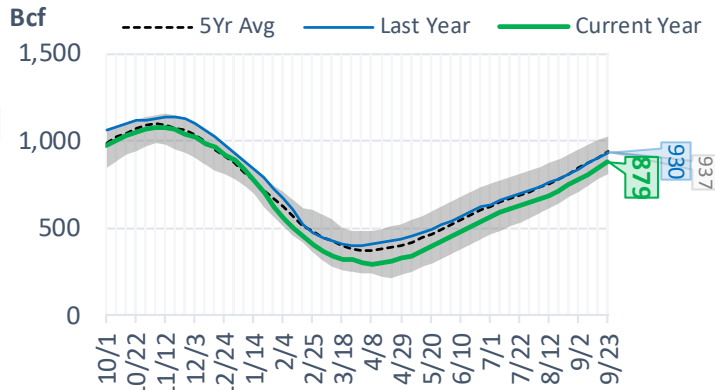
Salt Storage Levels



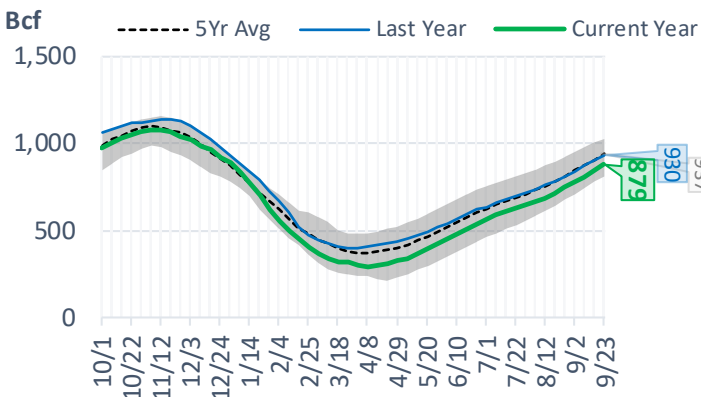
East Storage Levels



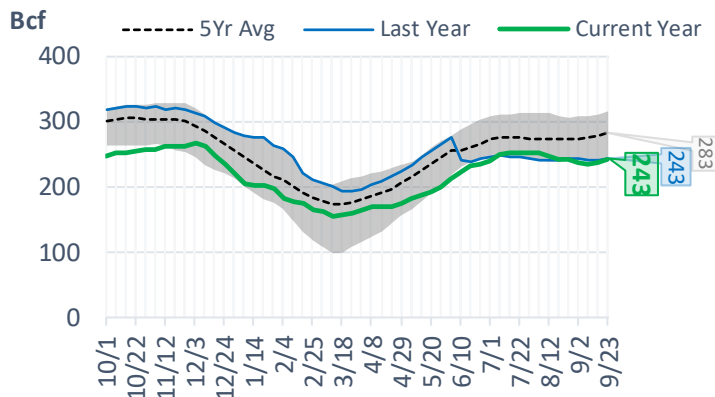
Midwest Storage Levels



Midwest Storage Levels



Pacific Storage Levels



EIA Storage Week Balances

	LY 1-Oct	2-Sep	9-Sep	16-Sep	LW 23-Sep	Current 30-Sep	WoW	vs. LY
Lower 48 Dry Production	96.5	100.3	100.9	100.9	100.8	101.6	▲ 0.8	▲ 5.1
Canadian Imports	5.7	5.8	5.9	5.6	6.1	6.2	▲ 0.1	▲ 0.5
L48 Power	30.0	42.6	41.1	37.9	37.0	31.6	▼ -5.5	1.6
L48 Residential & Commercial	9.1	8.2	7.9	8.0	8.2	11.9	▲ 3.7	2.7
L48 Industrial	21.1	21.9	21.1	20.8	21.4	21.1	▼ -0.3	0.0
L48 Lease and Plant Fuel	5.1	5.4	5.4	5.5	5.5	5.6	▲ 0.0	0.4
L48 Pipeline Distribution	2.2	2.7	2.7	2.8	2.8	2.7	▼ -0.1	0.5
L48 Regional Gas Consumption	67.5	80.8	78.3	75.0	75.0	72.9	▼ -2.1	▲ 5.3
Net LNG Exports	10.3	10.9	11.3	11.3	11.5	11.8	▲ 0.3	▲ 1.5
Total Mexican Exports	6.6	6.9	6.6	6.7	6.6	6.8	▲ 0.2	▲ 0.1
Implied Daily Storage Activity	17.7	7.6	10.7	13.5	13.8	16.3	2.5	-1.4
EIA Reported Daily Storage Activity	16.9	7.7	11.0	14.7	14.7			
Daily Model Error	0.9	-0.2	-0.3	-1.2	-0.9			

Monthly Balances

	2Yr Ago Sep-20	LY Sep-21	May-22	Jun-22	Jul-22	Aug-22	MTD Sep-22	MoM	vs. LY
Lower 48 Dry Production	88.9	95.3	96.5	97.3	97.8	99.1	101.0	▲ 1.9	▲ 5.7
Canadian Imports	3.8	5.1	5.1	5.7	5.9	5.4	5.9	▲ 0.5	▲ 0.8
L48 Power	34.4	33.1	29.8	38.0	43.7	42.6	37.1	▼ -5.5	▲ 4.0
L48 Residential & Commercial	8.9	8.7	12.4	9.1	9.0	8.3	9.0	▲ 0.6	▲ 0.2
L48 Industrial	19.9	20.2	19.7	18.7	19.5	21.3	21.1	▼ -0.1	▲ 0.9
L48 Lease and Plant Fuel	4.8	5.1	5.3	5.3	5.3	5.4	5.5	▲ 0.2	▲ 0.5
L48 Pipeline Distribution	2.4	2.3	2.4	2.5	2.8	2.7	2.8	▲ 0.0	▲ 0.4
L48 Regional Gas Consumption	70.4	69.5	69.5	73.7	80.2	80.3	75.5	▼ -4.8	▲ 6.0
Net LNG Exports	5.9	10.3	12.5	11.2	10.9	11.0	11.4	▲ 0.5	▲ 1.1
Total Mexican Exports	6.1	6.7	7.0	7.1	7.0	6.9	6.7	▼ -0.3	▼ -0.1
Implied Daily Storage Activity	10.3	13.9	12.6	10.9	5.6	6.3	13.4		
EIA Reported Daily Storage Activity									
Daily Model Error					0.2				

Source: Bloomberg, analytix.ai

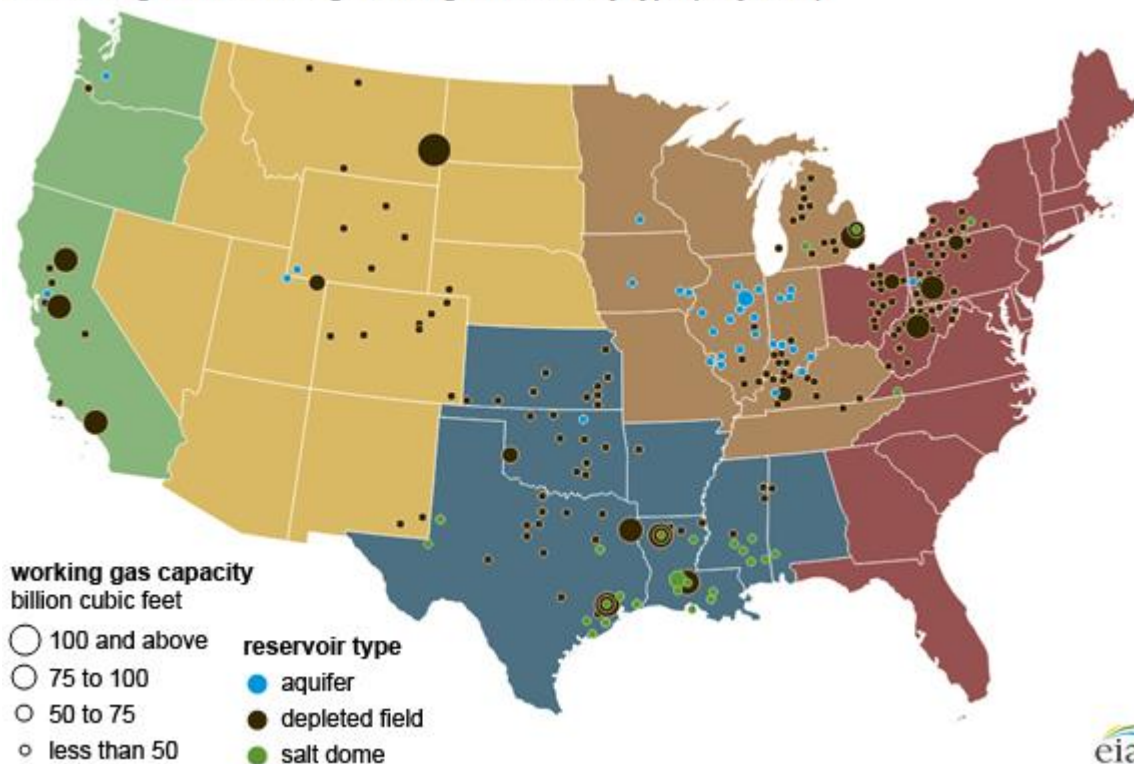
Regional S/D Models Storage Projection

Week Ending 30-Sep

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	17.4	-0.3	17.1	120
East	2.1	2.0	4.1	28
Midwest	4.0	0.2	4.2	30
Mountain	5.5	-4.1	1.3	9
South Central	5.1	2.1	7.1	50
Pacific	0.7	-0.4	0.3	2

*Adjustment Factor is calculated based on historical regional deltas

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

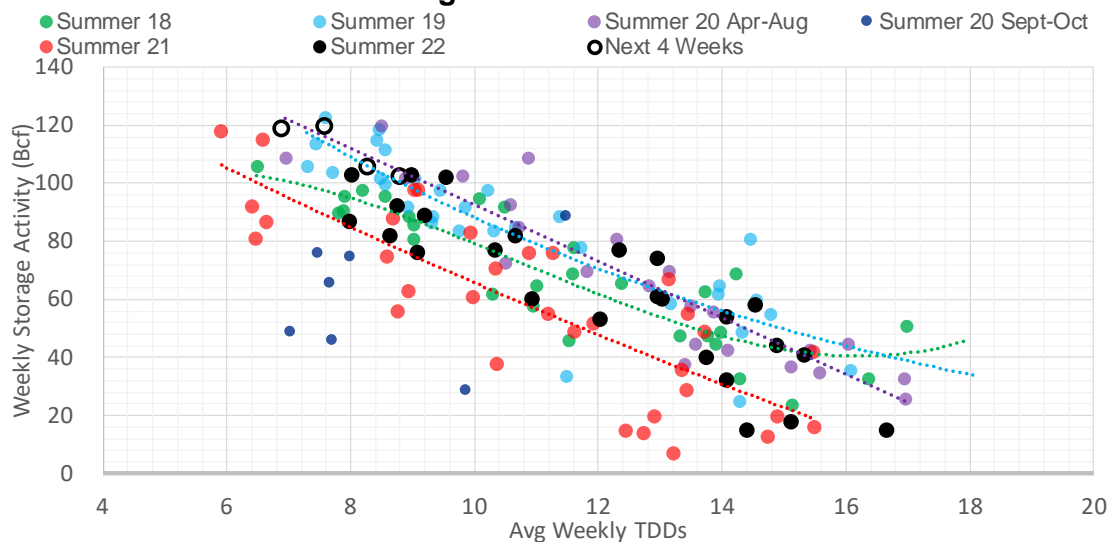


Weather Model Storage Projection

Next report
and beyond

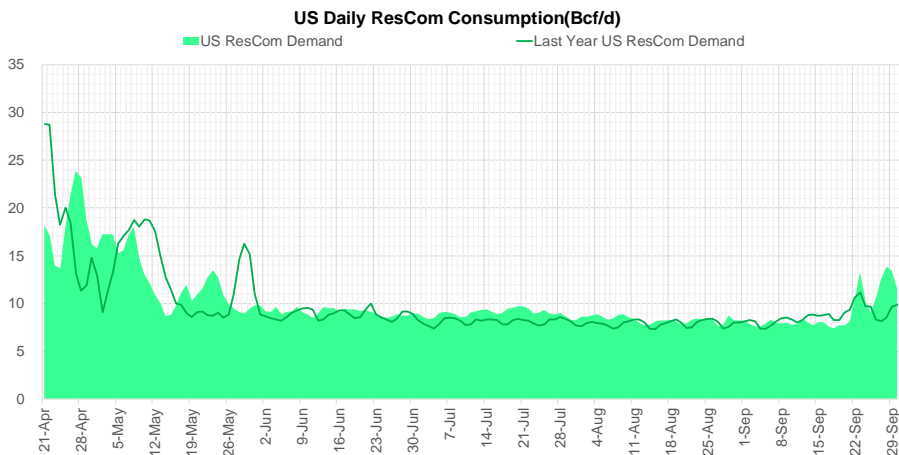
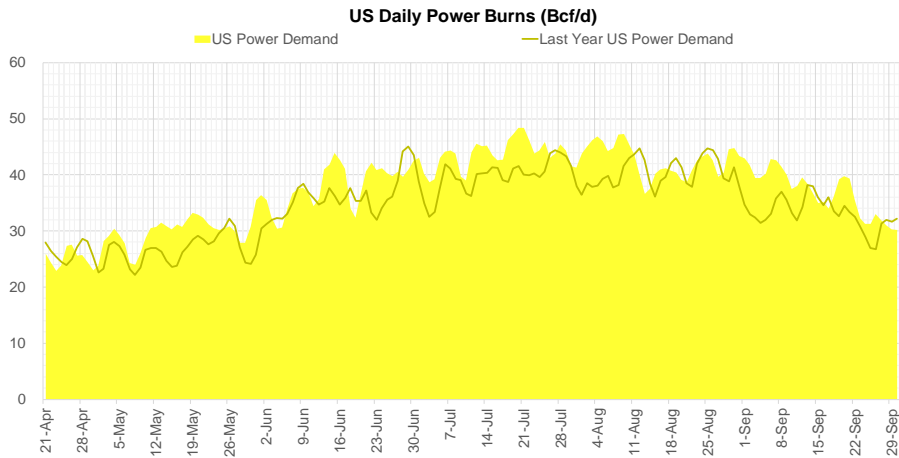
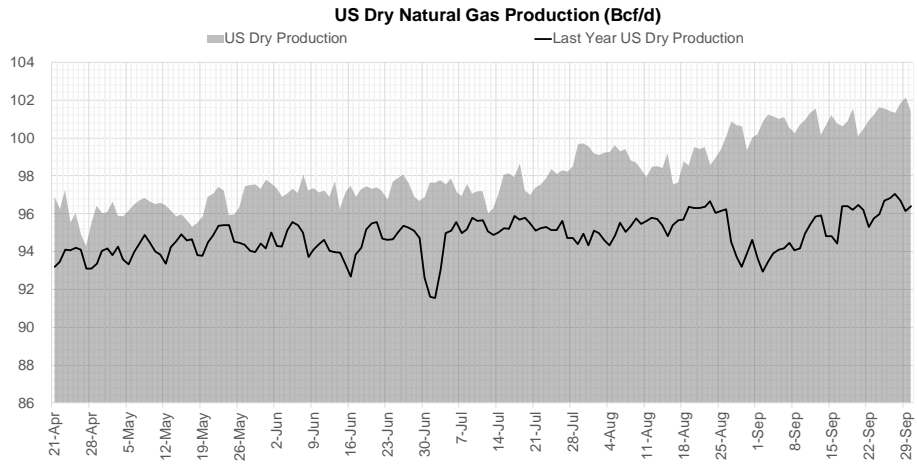
Week Ending	GWDDs	Week Storage Projection
30-Sep	7.6	120
07-Oct	6.9	119
14-Oct	8.3	105
21-Oct	8.8	102

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

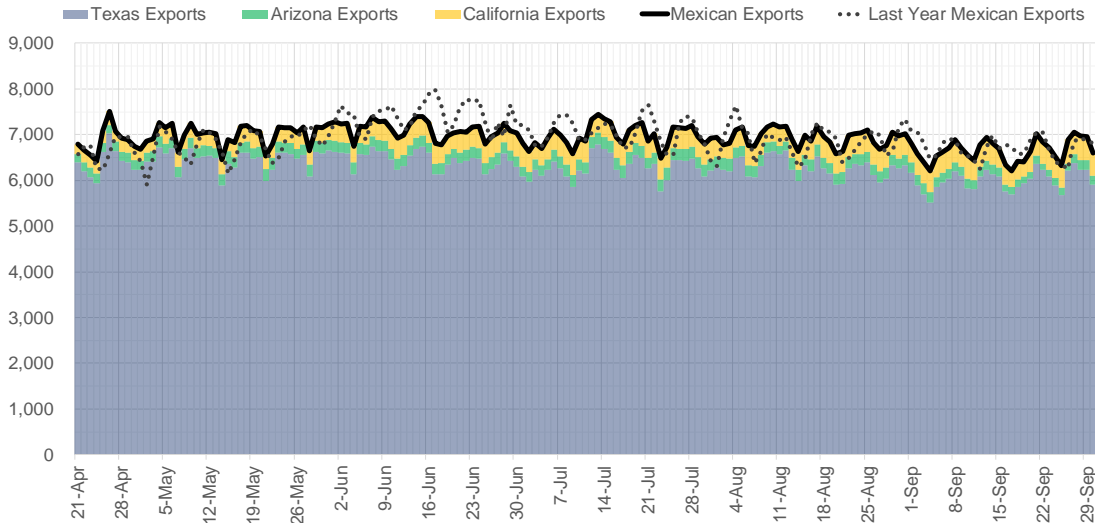
Supply – Demand Trends



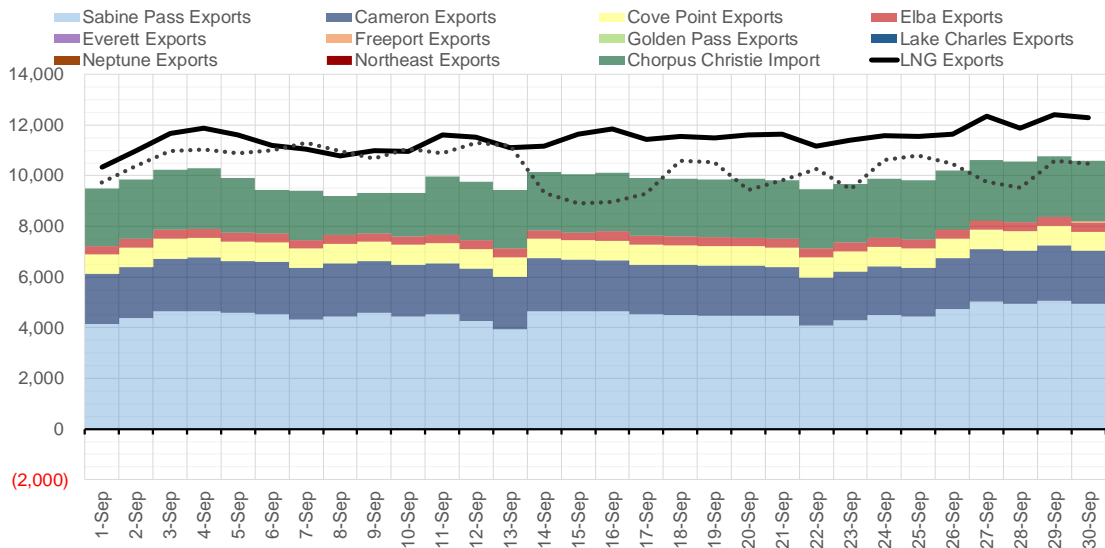
Source: Bloomberg

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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 and ICE data combined

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
3	2023	P	2.75	6205	3	2023	C	10.00	25887
11	2022	P	5.00	4882	12	2022	P	4.00	24938
1	2023	P	4.00	4500	11	2022	P	4.00	23692
3	2023	P	4.00	4352	12	2022	P	5.00	23603
2	2023	P	4.00	4200	12	2022	P	6.00	22504
1	2023	P	2.75	4000	5	2023	P	2.00	22352
2	2023	P	2.75	4000	11	2022	P	5.00	21311
11	2022	P	4.00	3970	4	2023	P	3.00	20461
3	2023	C	12.00	3150	10	2023	P	3.00	19434
11	2022	P	5.60	2755	3	2023	C	20.00	19067
11	2022	C	10.00	2751	3	2023	P	4.00	18880
11	2022	C	9.00	2584	4	2023	P	3.50	18616
2	2023	C	12.00	2477	10	2023	P	2.50	18500
1	2023	P	4.25	2425	12	2022	C	5.00	18227
1	2023	C	12.00	2376	3	2023	P	3.00	17856
11	2022	P	6.00	2262	1	2023	C	10.00	17761
11	2022	P	5.80	2087	2	2023	C	10.00	17471
11	2022	P	5.90	2083	5	2023	P	3.00	17398
2	2023	C	13.00	2075	6	2023	P	3.00	17320
4	2023	P	3.50	2075	1	2023	P	4.00	17296
11	2022	P	5.70	2051	5	2023	P	3.50	17265
3	2023	C	13.00	2031	1	2023	P	5.00	16852
1	2023	C	13.00	2010	12	2022	P	5.50	16728
2	2023	P	4.25	2000	11	2022	C	12.00	16414
3	2023	P	4.25	2000	12	2022	C	10.00	16396
11	2022	C	8.00	1891	6	2023	P	3.50	16390
11	2022	P	5.50	1793	7	2023	P	3.50	16365
5	2023	P	3.50	1775	8	2023	P	3.50	16365
6	2023	P	3.50	1775	9	2023	P	3.50	16355
7	2023	P	3.50	1725	10	2023	P	3.50	16330
8	2023	P	3.50	1725	11	2022	C	10.00	16239
9	2023	P	3.50	1725	11	2022	P	6.00	16202
10	2023	P	3.50	1725	12	2022	C	4.00	16194
12	2022	C	8.00	1518	10	2023	P	4.00	16116
10	2023	P	2.50	1510	7	2023	P	3.00	15850
4	2023	P	2.50	1475	10	2023	P	2.00	15810
5	2023	P	2.50	1475	11	2022	C	4.00	15755
6	2023	P	2.50	1475	8	2023	P	3.00	15650
7	2023	P	2.50	1475	9	2023	P	3.00	15650
8	2023	P	2.50	1475	2	2023	C	9.00	15546
9	2023	P	2.50	1475	4	2023	P	4.00	14908
4	2023	C	5.00	1445	12	2022	P	7.00	14689
5	2023	C	5.00	1445	9	2023	P	4.00	14611
6	2023	C	5.00	1445	7	2023	P	4.00	14154
7	2023	C	5.00	1445	11	2022	C	8.00	14027
8	2023	C	5.00	1445	11	2022	P	7.00	13997
9	2023	C	5.00	1445	5	2023	P	4.00	13913
10	2023	C	5.00	1445	4	2023	P	2.00	13738
11	2022	P	5.10	1401	12	2022	C	6.00	13731
					12	2022	P	6.5	13540

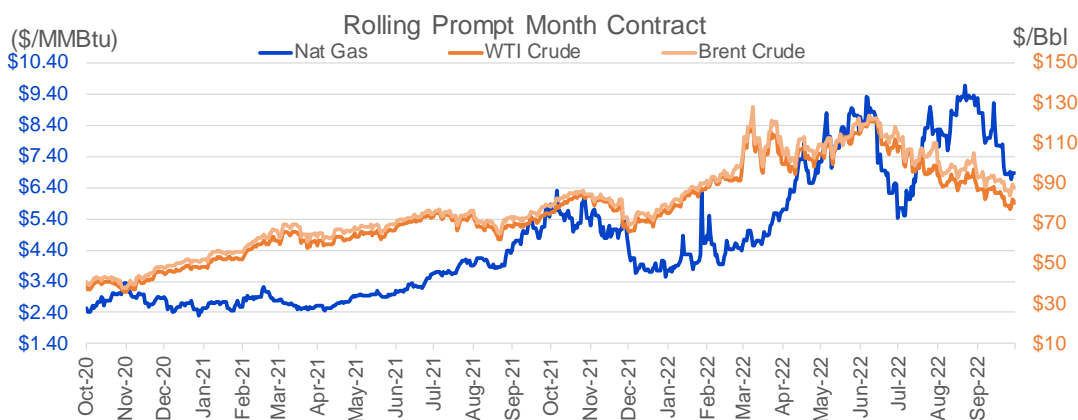
Source: CME, ICE

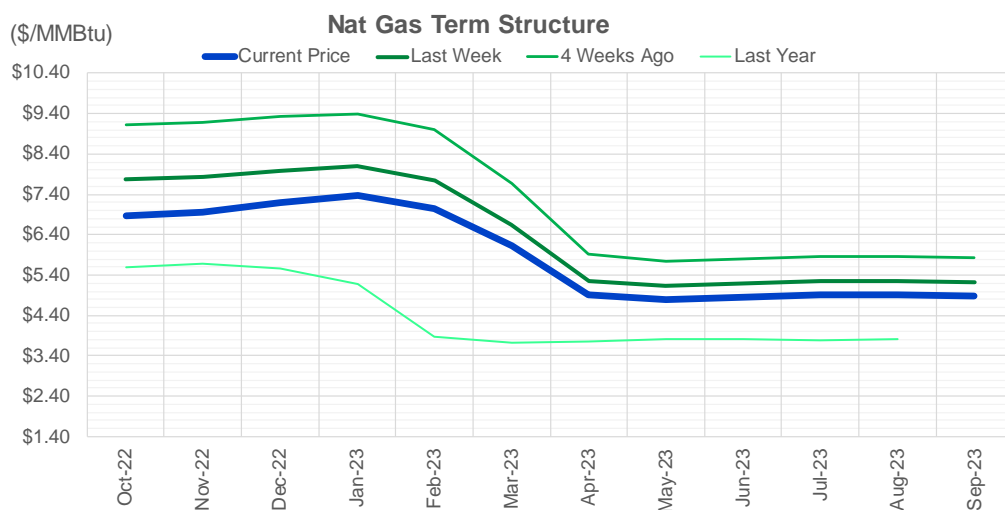
Nat Gas Futures Open Interest

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
NOV 22	162742	449	162293	NOV 22	72484	76920	-4436
DEC 22	66309	161754	-95445	DEC 22	71913	74650	-2738
JAN 23	90455	66777	23678	JAN 23	68420	70869	-2449
FEB 23	43117	89671	-46554	FEB 23	64274	66950	-2676
MAR 23	72231	43006	29225	MAR 23	56846	64416	-7570
APR 23	77872	71864	6008	APR 23	54206	56975	-2770
MAY 23	82682	77057	5625	MAY 23	54146	54369	-223
JUN 23	23025	82868	-59843	JUN 23	45017	54169	-9152
JUL 23	25224	23133	2091	JUL 23	44662	44948	-285
AUG 23	20217	24801	-4584	AUG 23	43716	44194	-478
SEP 23	22848	20152	2696	SEP 23	41122	43316	-2194
OCT 23	53537	22859	30678	OCT 23	54317	41254	13063
NOV 23	21418	53698	-32280	NOV 23	47465	54263	-6799
DEC 23	16450	20901	-4451	DEC 23	40380	47127	-6747
JAN 24	25160	16195	8965	JAN 24	43452	40335	3118
FEB 24	9643	25100	-15457	FEB 24	31125	42959	-11834
MAR 24	19103	9516	9587	MAR 24	36759	31043	5716
APR 24	16277	18907	-2630	APR 24	29631	36578	-6947
MAY 24	7854	15947	-8093	MAY 24	28128	29611	-1483
JUN 24	2741	7746	-5005	JUN 24	25420	28068	-2649
JUL 24	3679	2739	940	JUL 24	25012	25381	-370
AUG 24	3703	3670	33	AUG 24	24705	24950	-246
SEP 24	2293	3695	-1402	SEP 24	24454	24638	-185
OCT 24	9104	2295	6809	OCT 24	28437	24387	4051
NOV 24	4982	9072	-4090	NOV 24	25897	28245	-2349
DEC 24	8266	4854	3412	DEC 24	29237	25829	3407
JAN 25	17398	8271	9127	JAN 25	23901	29183	-5282
FEB 25	1588	17397	-15809	FEB 25	15909	23406	-7497
MAR 25	5211	1586	3625	MAR 25	18036	15867	2169
APR 25	5056	5187	-131	APR 25	16482	18046	-1564

Source: CME, ICE






	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23
Current Price	\$6.868	\$6.955	\$7.200	\$7.370	\$7.042	\$6.132	\$4.902	\$4.782	\$4.844	\$4.906	\$4.917	\$4.889
Last Week	\$7.779	\$7.827	\$7.990	\$8.109	\$7.753	\$6.631	\$5.257	\$5.124	\$5.183	\$5.243	\$5.254	\$5.229
vs. Last Week	-\$0.911	-\$0.872	-\$0.790	-\$0.739	-\$0.711	-\$0.499	-\$0.355	-\$0.342	-\$0.339	-\$0.337	-\$0.337	-\$0.340
4 Weeks Ago	\$9.127	\$9.189	\$9.326	\$9.396	\$9.013	\$7.660	\$5.925	\$5.753	\$5.798	\$5.846	\$5.858	\$5.842
vs. 4 Weeks Ago	-\$2.259	-\$2.234	-\$2.126	-\$2.026	-\$1.971	-\$1.528	-\$1.023	-\$0.971	-\$0.954	-\$0.940	-\$0.941	-\$0.953
Last Year	\$5.477	\$5.595	\$5.675	\$5.560	\$5.166	\$3.886	\$3.730	\$3.764	\$3.807	\$3.812	\$3.793	\$3.822
vs. Last Year	\$1.391	\$1.360	\$1.525	\$1.810	\$1.876	\$2.246	\$1.172	\$1.018	\$1.037	\$1.094	\$1.124	\$1.067

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224	▲ 0.000	▲ 0.000	▲ 0.000
NatGas Oct21/Nov21	\$/MMBtu	0.361	▲ 0.000	▲ 0.000	▲ 0.335
NatGas Oct21/Jan22	\$/MMBtu	-1.817	▲ 0.000	▲ 0.000	▼ -2.049
NatGas Apr22/Oct22	\$/MMBtu	1.532	▼ -0.221	▼ -2.394	▲ 1.615
WTI Crude	\$/Bbl	81.23	▼ -2.260	▼ -5.380	▲ 6.200
Brent Crude	\$/Bbl	88.49	▼ -1.970	▼ -3.870	▲ 9.970
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	341.46	▲ 0.310	▼ -14.660	▲ 107.290
Propane, Mt. Bel	cents/Gallon	0.99	▼ -0.018	▼ -0.089	▼ -0.298
Ethane, Mt. Bel	cents/Gallon	0.46	▼ -0.011	▼ -0.111	▲ 0.074
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					
9/30/2022					
Baker Hughes 					
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	604	2	602	176	428
Gas	159	-1	160	60	99
Miscellaneous	2	0	2	1	1
Directional	46	0	46	24	22
Horizontal	696	3	693	222	474
Vertical	23	-2	25	-9	32
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago
Oil	144	-4	148	47	97
Gas	69	2	67	1	68
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago
Ardmore Woodford	4	1	3	2	2
Arkoma Woodford	5	-3	8	3	2
Barnett	3	0	3	3	0
Cana Woodford	26	1	25	6	20
DJ-Niobrara	17	0	17	5	12
Eagle Ford	72	0	72	35	37
Granite Wash	6	0	6	3	3
Haynesville	71	0	71	24	47
Marcellus	39	3	36	13	26
Mississippian	1	-1	2	0	1
Permian	344	0	344	81	263
Utica	10	-1	11	-2	12
Williston	39	0	39	16	23