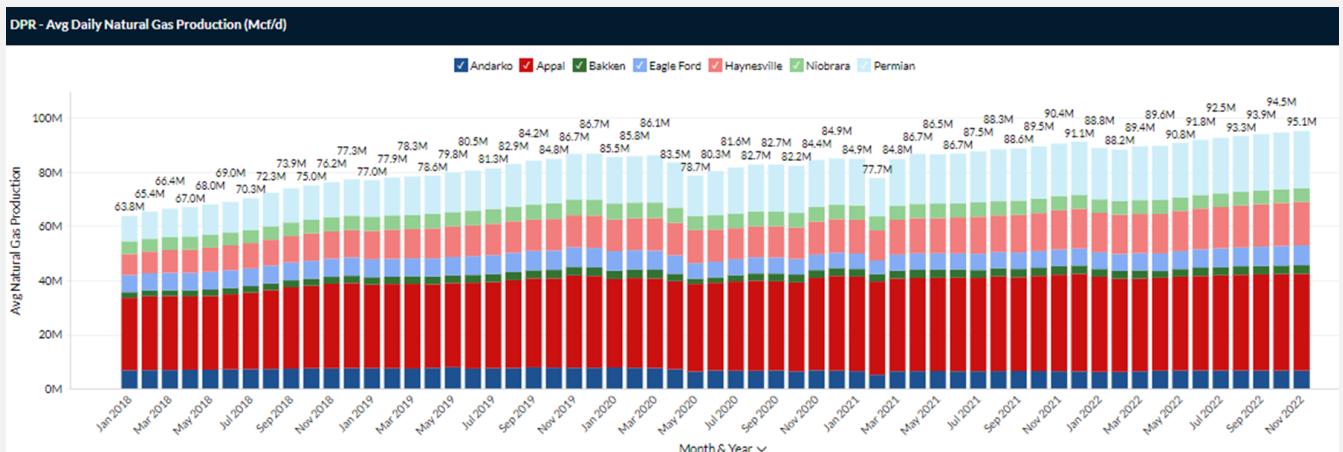


This week we start with a look at data from the latest EIA Drilling Productivity Report.

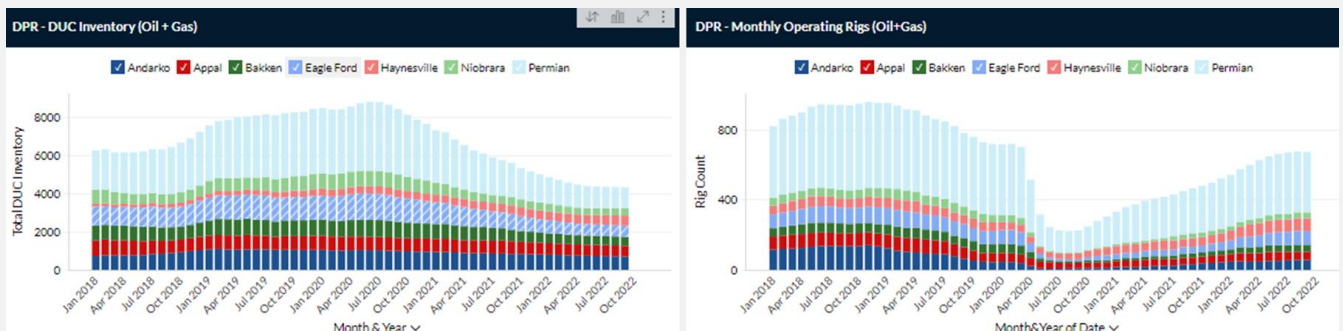
The charts below are some from our data dashboard. If you want to see the DPR data by basin and for a different timeframe, then hit this link to play around.

<http://www.analytix.ai/drilling-productivity-report.html>

Total shale production (wellhead) is expected to reach 95.1 Bcf/d from the 7 major shale basins.



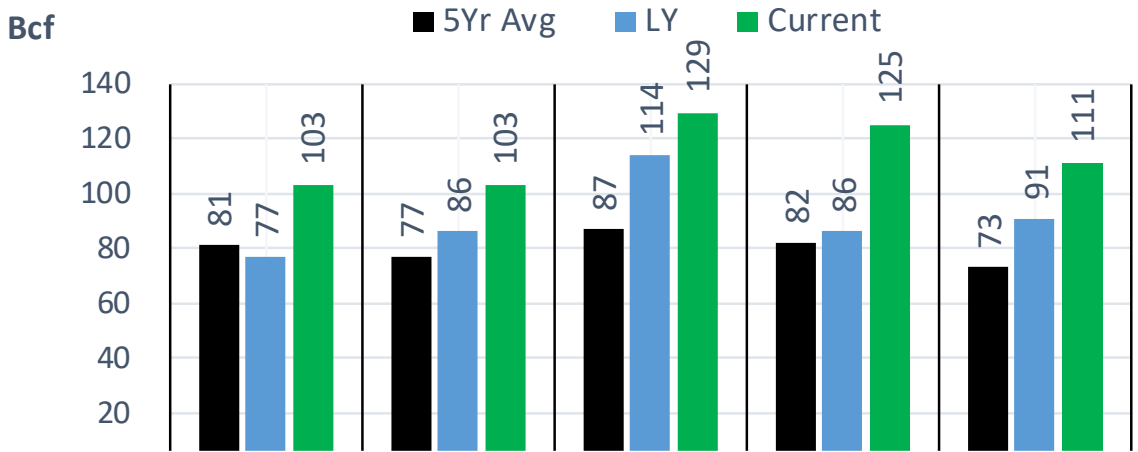
DUCs continue to fall. But the real story looks to be a result of a pickup in rigs. The newly drilled well pool looks to be servicing the growth in production rather than DUCs being drawdown. In some regions, DUCs are being added back to inventory, i.e. Haynesville.



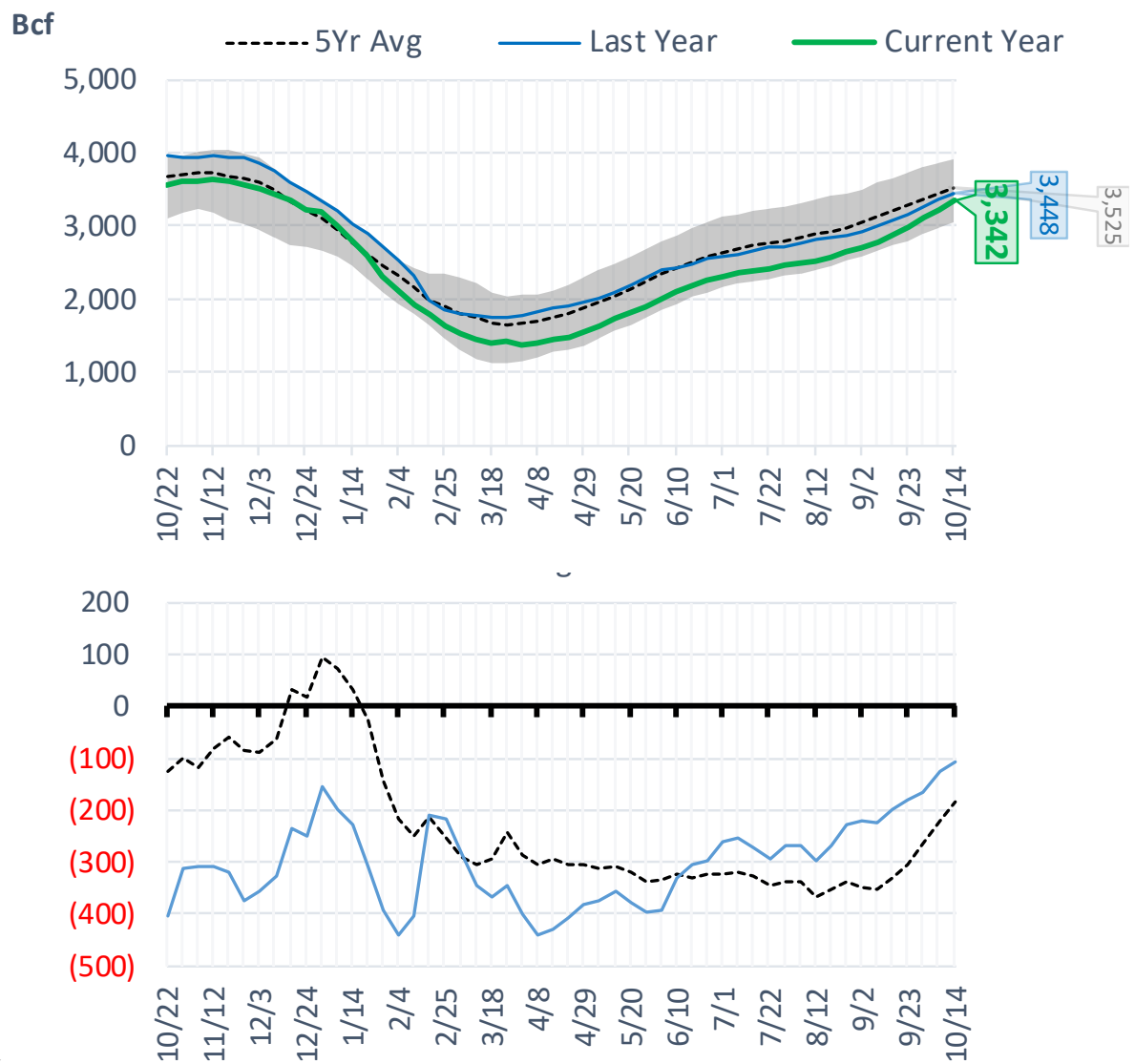
DPR - Monthly Drilled + Completed Wells (Oil + Gas)



Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels

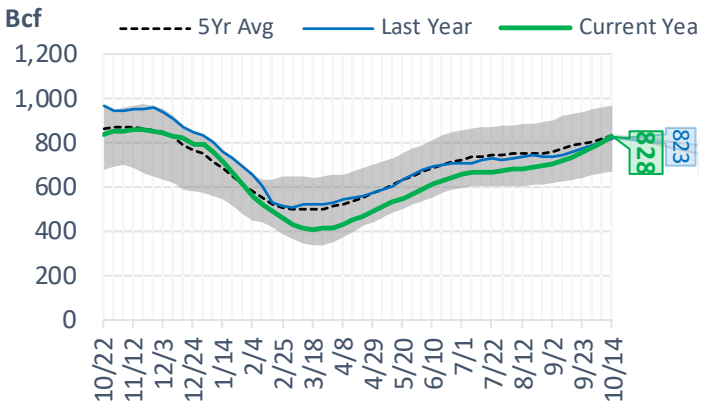


The risk person

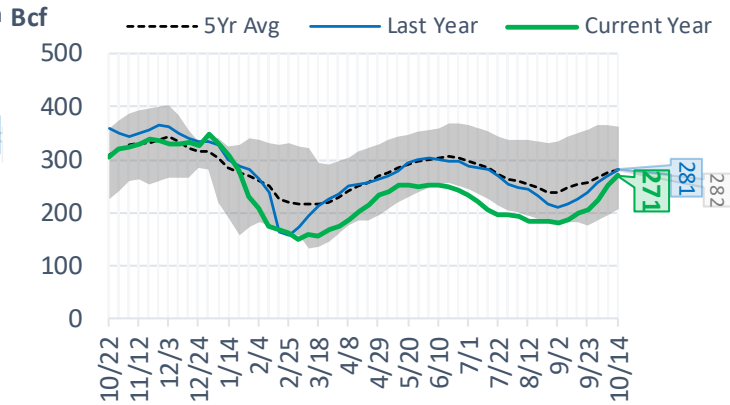
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 14-Oct	Week - 1 7-Oct	Week - 2 30-Sep	Week - 3 23-Sep	Week - 4 16-Sep	Week - 5 9-Sep
Total Lower 48 Storage Level	3342	3231	3106	2977	2874	2771
Weekly Change	+111	+125	+129	+103	+103	+77
vs LY	-106	-126	-165	-180	-197	-223
vs 5Yr Avg	-183	-221	-264	-306	-332	-354
S. Central Salt Storage Level	271	253	225	204	199	187
Weekly Change	+18	+28	+21	+5	+12	+5
vs LY	-10	-15	-31	-33	-27	-29
vs 5Yr Avg	-11	-22	-41	-53	-54	-59
S. Central NonSalt Storage Level	828	804	778	754	736	717
Weekly Change	+24	+26	+24	+18	+19	+12
vs LY	+5	-4	-14	-18	-24	-29
vs 5Yr Avg	-6	-17	-30	-41	-50	-57
Midwest Storage Level	987	952	916	879	844	809
Weekly Change	+35	+36	+37	+35	+35	+33
vs LY	-36	-41	-50	-51	-56	-62
vs 5Yr Avg	-43	-49	-54	-58	-63	-67
East Storage Level	812	782	756	721	690	661
Weekly Change	+30	+26	+35	+31	+29	+26
vs LY	-46	-49	-50	-54	-58	-67
vs 5Yr Avg	-65	-74	-77	-86	-94	-98
Mountain Storage Level	195	190	184	176	168	163
Weekly Change	+5	+6	+8	+8	+5	+4
vs LY	-16	-19	-21	-24	-28	-30
vs 5Yr Avg	-17	-21	-24	-27	-31	-32
Pacific Storage Level	249	249	247	243	237	235
Weekly Change	0	+2	+4	+6	+2	-3
vs LY	-4	-2	0	0	-3	-5
vs 5Yr Avg	-41	-40	-39	-40	-41	-40

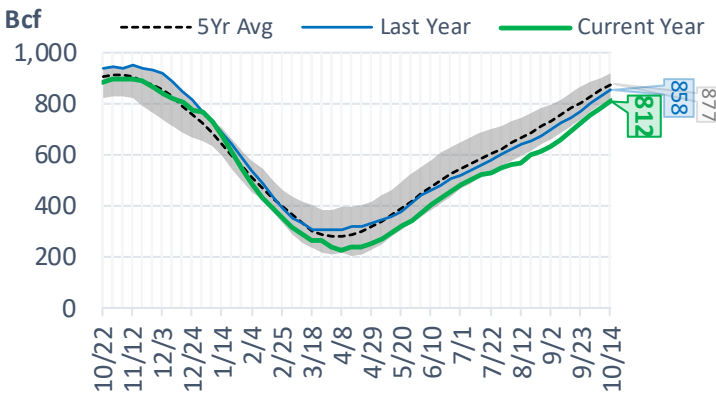
NonSalt Storage Levels



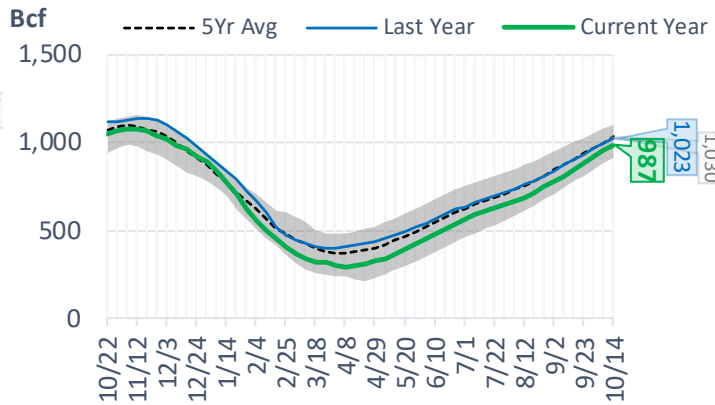
Salt Storage Levels



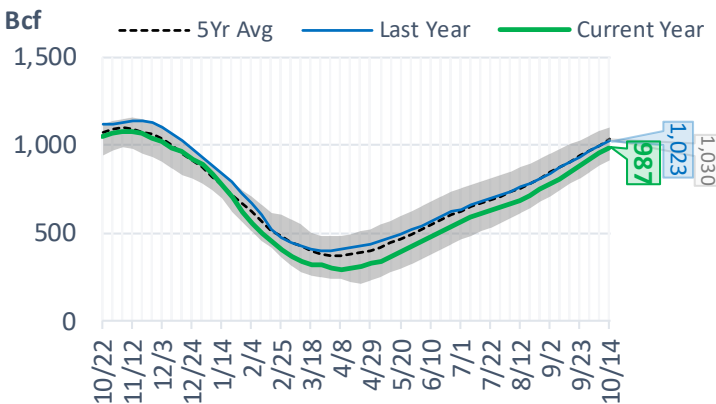
East Storage Levels



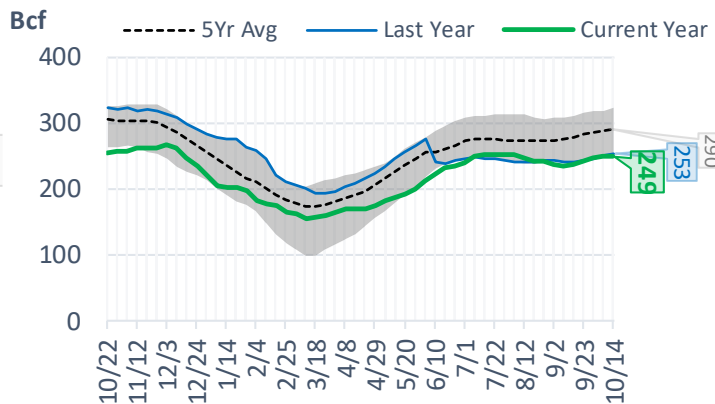
Midwest Storage Levels



Midwest Storage Levels



Pacific Storage Levels



EIA Storage Week Balances

	LY 22-Oct	23-Sep	30-Sep	7-Oct	LW 14-Oct	Current 21-Oct	WoW	vs. LY
Lower 48 Dry Production	95.1	100.6	101.4	102.2	101.9	100.4	▼ -1.5	▲ 5.3
Canadian Imports	5.6	6.1	6.2	6.0	5.5	6.1	▲ 0.5	▲ 0.5
L48 Power	29.2	37.0	31.6	30.6	30.7	30.8	▲ 0.1	1.7
L48 Residential & Commercial	13.4	8.2	11.9	13.0	14.8	21.1	▲ 6.3	7.6
L48 Industrial	20.7	21.3	20.0	20.9	20.2	19.8	▼ -0.5	-1.0
L48 Lease and Plant Fuel	5.3	5.6	5.6	5.7	5.7	5.6	▼ -0.1	0.3
L48 Pipeline Distribution	2.6	2.8	2.7	2.7	2.8	3.2	▲ 0.4	0.6
L48 Regional Gas Consumption	71.3	74.9	71.8	72.9	74.3	80.5	▲ 6.2	▲ 9.2
Net LNG Exports	10.8	11.5	11.8	11.0	11.0	11.5	▲ 0.5	▲ 0.7
Total Mexican Exports	6.6	6.6	6.9	6.7	6.6	6.5	▼ -0.1	▼ -0.1
Implied Daily Storage Activity	12.0	13.8	17.1	17.6	15.5	8.0	-7.6	-4.1
EIA Reported Daily Storage Activity	12.4	14.7	18.4	17.9	15.9			
Daily Model Error	-0.4	-0.9	-1.3	-0.3	-0.3			

Monthly Balances

	2Yr Ago Oct-20	LY Oct-21	Jun-22	Jul-22	Aug-22	Sep-22	MTD Oct-22	MoM	vs. LY
Lower 48 Dry Production	88.5	95.5	97.3	97.7	98.9	100.9	101.5	▲ 0.6	▲ 6.0
Canadian Imports	4.3	5.4	5.7	5.9	5.4	5.9	5.8	▼ -0.1	▲ 0.5
L48 Power	30.6	30.4	38.3	44.3	43.1	36.9	30.8	▼ -6.1	▲ 0.4
L48 Residential & Commercial	15.5	12.6	8.9	8.3	8.0	9.0	16.5	▲ 7.5	▲ 3.9
L48 Industrial	22.7	21.7	19.1	19.8	21.1	20.9	20.0	▼ -0.9	▼ -1.7
L48 Lease and Plant Fuel	4.8	5.3	5.5	5.5	5.5	5.6	5.7	▲ 0.1	▲ 0.3
L48 Pipeline Distribution	2.5	2.7	2.9	3.1	3.0	2.8	2.9	▲ 0.1	▲ 0.3
L48 Regional Gas Consumption	76.1	72.7	74.6	81.0	80.8	75.2	75.9	▲ 0.6	▲ 3.2
Net LNG Exports	8.0	10.6	11.2	10.9	11.0	11.5	11.1	▼ -0.4	▲ 0.5
Total Mexican Exports	6.0	6.6	7.1	7.0	6.9	6.7	6.6	▼ -0.1	▼ 0.0
Implied Daily Storage Activity	2.7	11.0	10.0	4.7	5.7	13.5	13.8		
EIA Reported Daily Storage Activity									
Daily Model Error					0.0				

Source: Bloomberg, analytix.ai

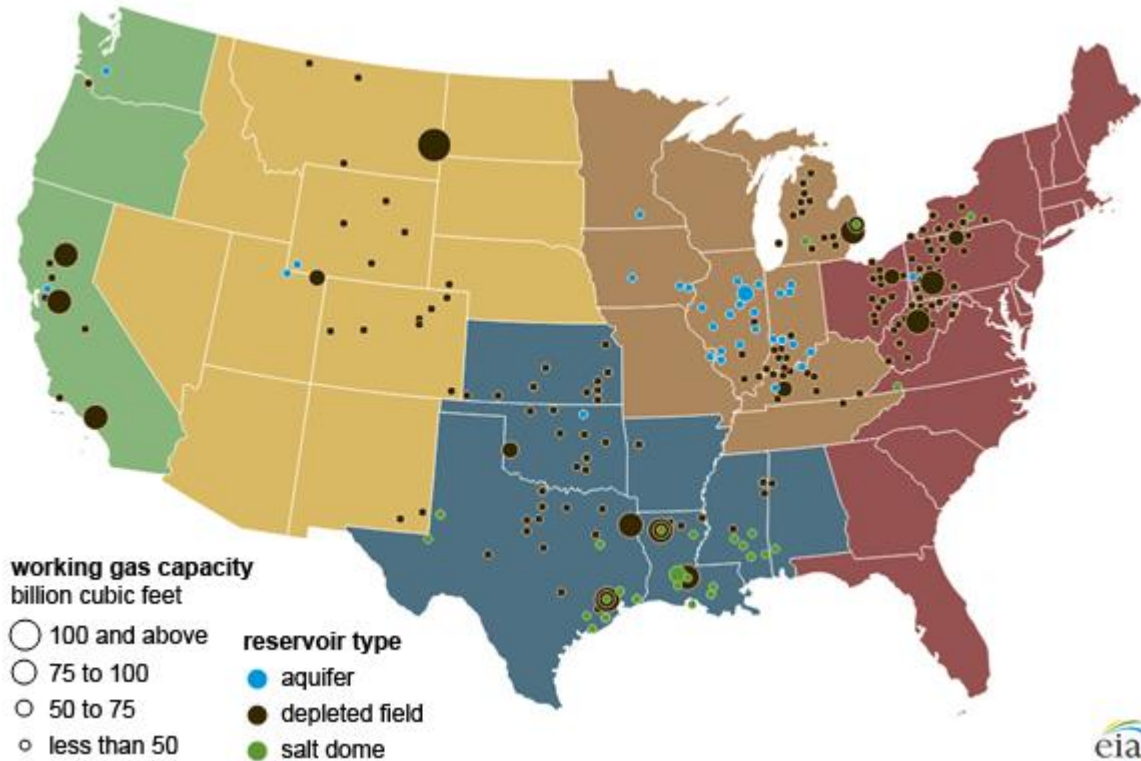
Regional S/D Models Storage Projection

Week Ending 21-Oct

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	9.1	-0.5	8.5	60
East	-1.0	2.8	1.8	13
Midwest	2.1	0.8	3.0	21
Mountain	4.6	-4.2	0.4	3
South Central	2.8	0.5	3.4	24
Pacific	0.5	-0.5	0.0	0

*Adjustment Factor is calculated based on historical regional deltas

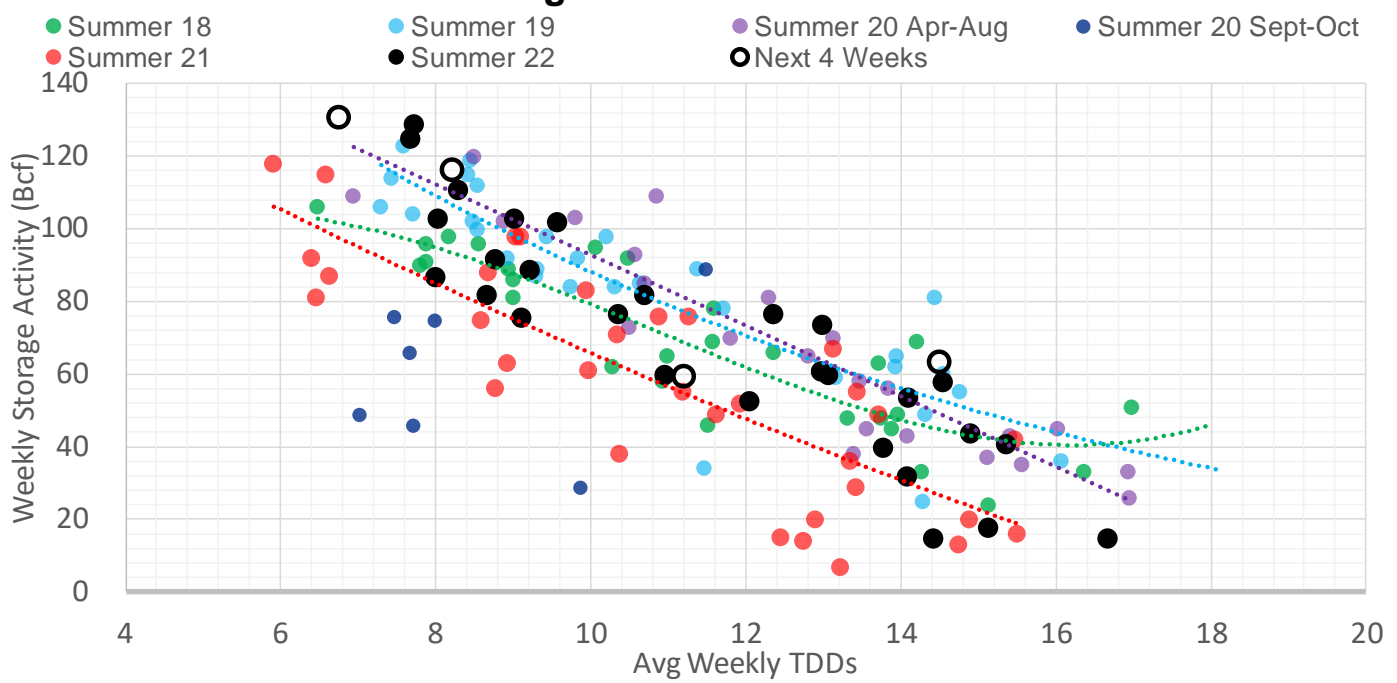
U.S. underground natural gas storage facilities by type (July 2015)



Weather Model Storage Projection

Next report and beyond		
k Ending	GWDDs	Week Storage Projection
21-Oct	11.2	60
28-Oct	6.7	131
04-Nov	8.2	117
11-Nov	14.5	64

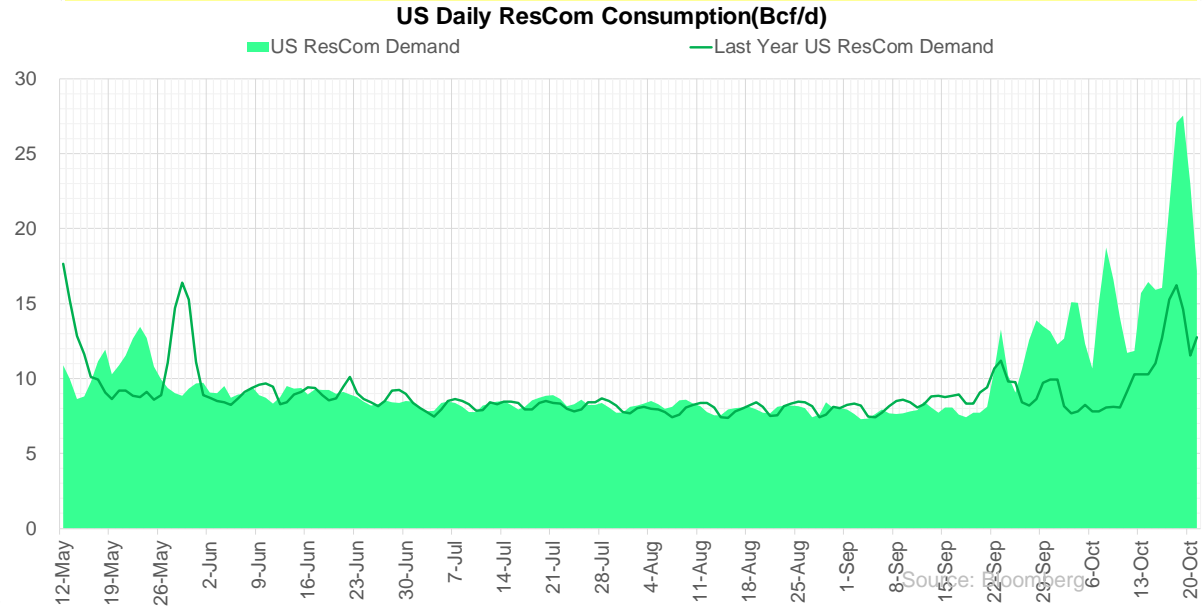
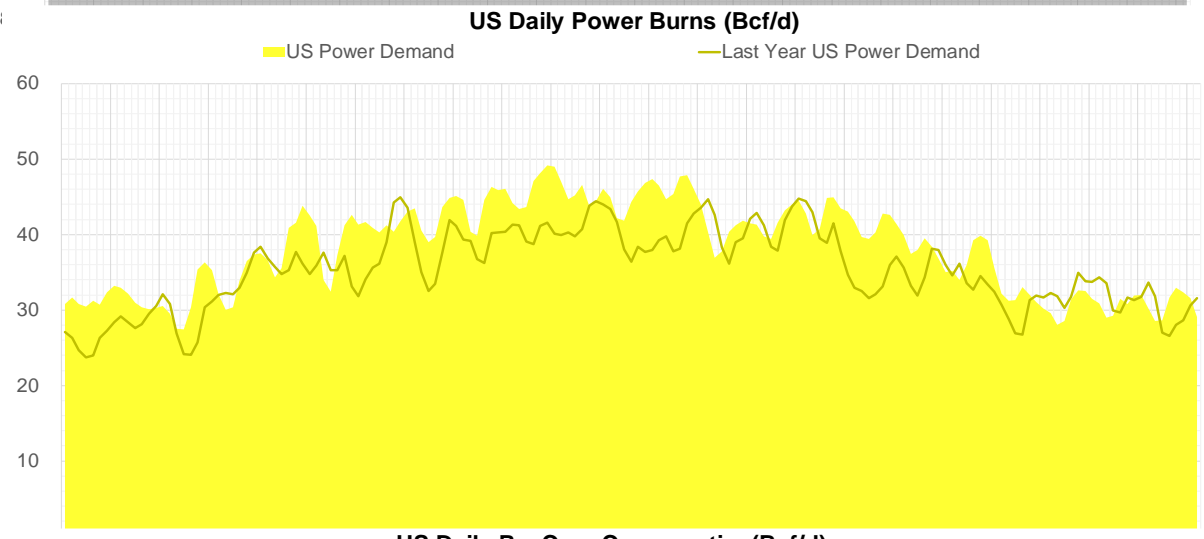
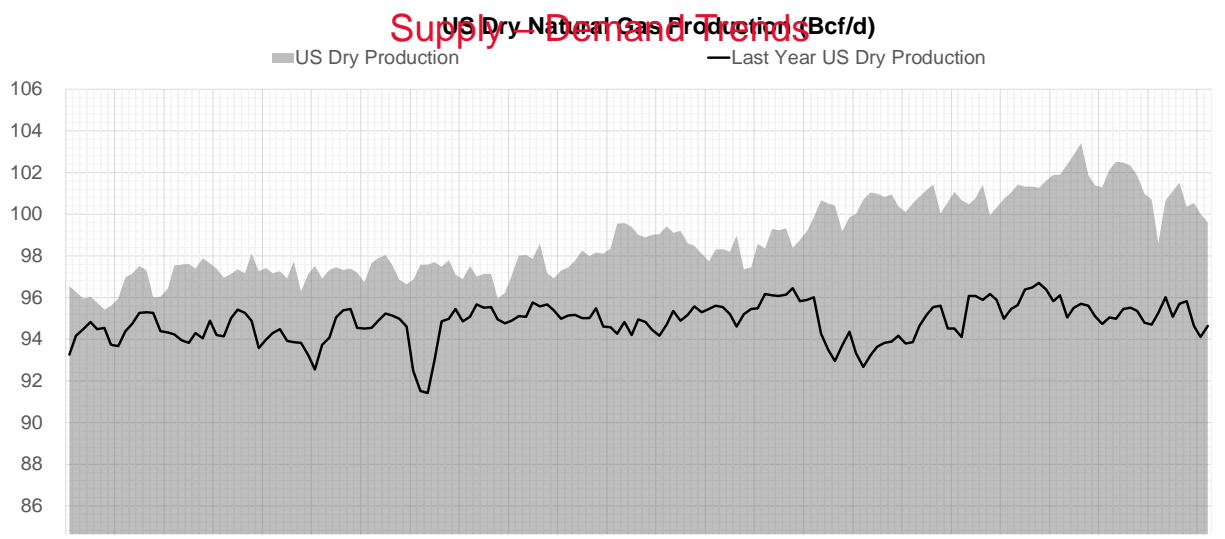
Weather Storage Model - Next 4 Week Forecast



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

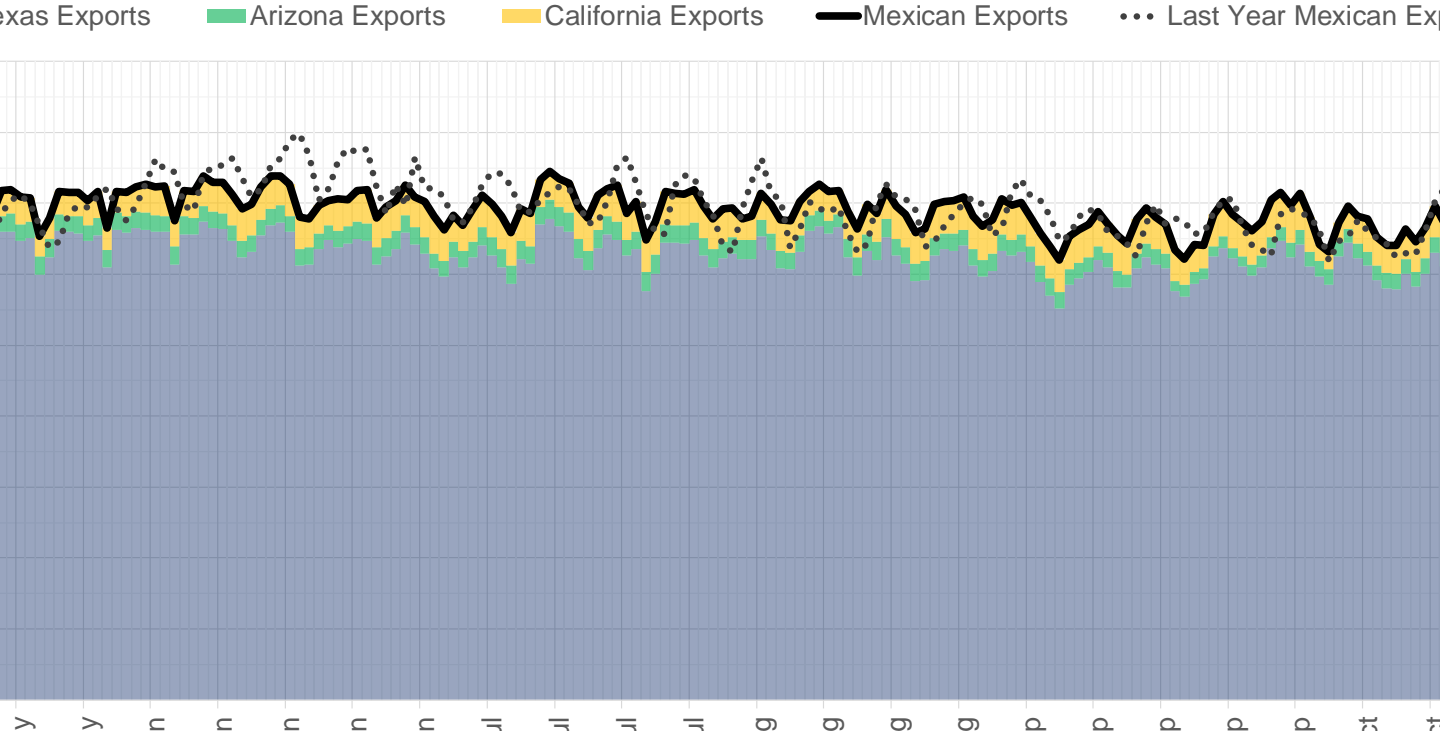
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Supply - Demand Trends

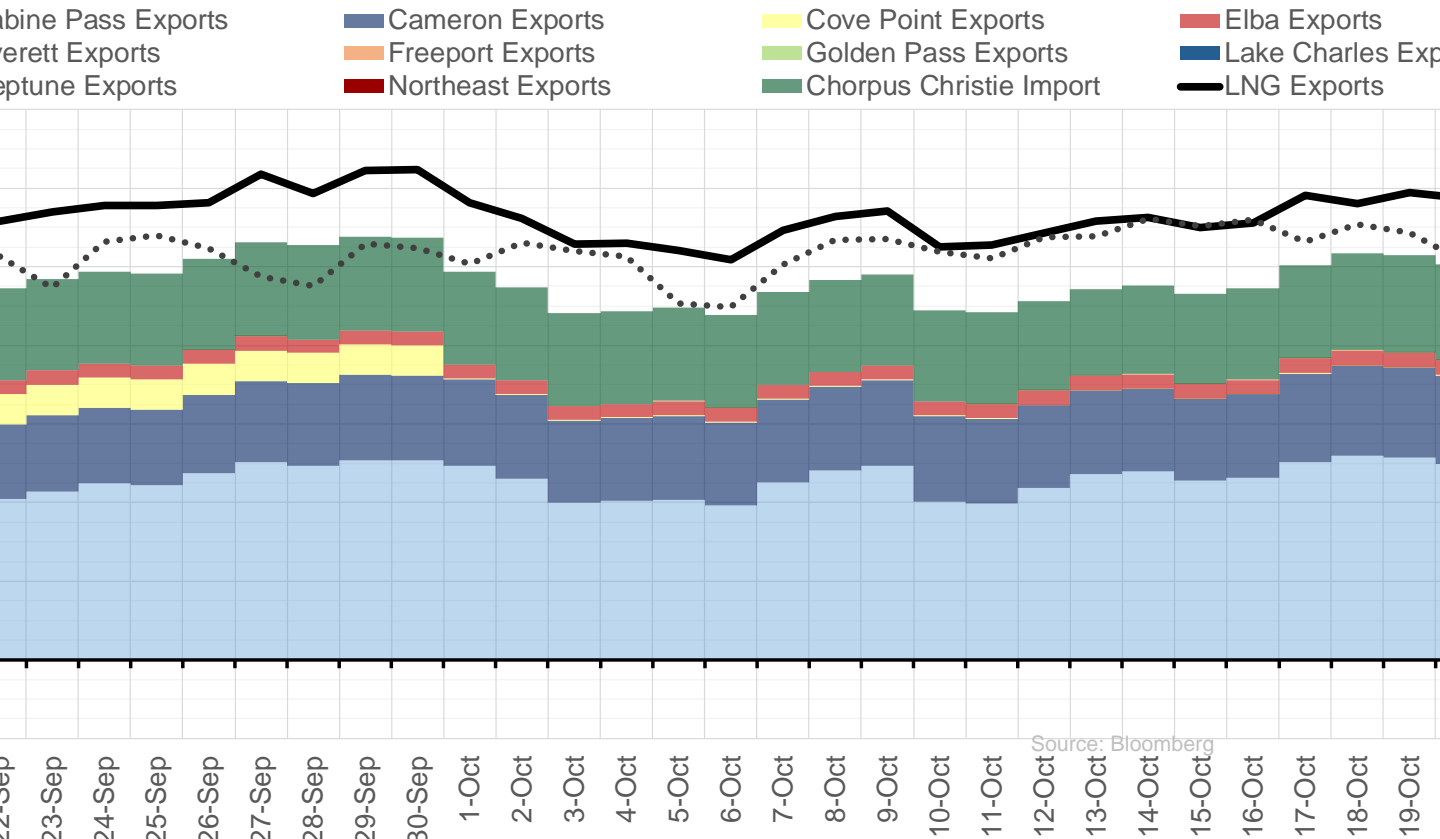


Source: Bloomberg

Mexican Exports (MMcf/d)



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



Source: Bloomberg

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

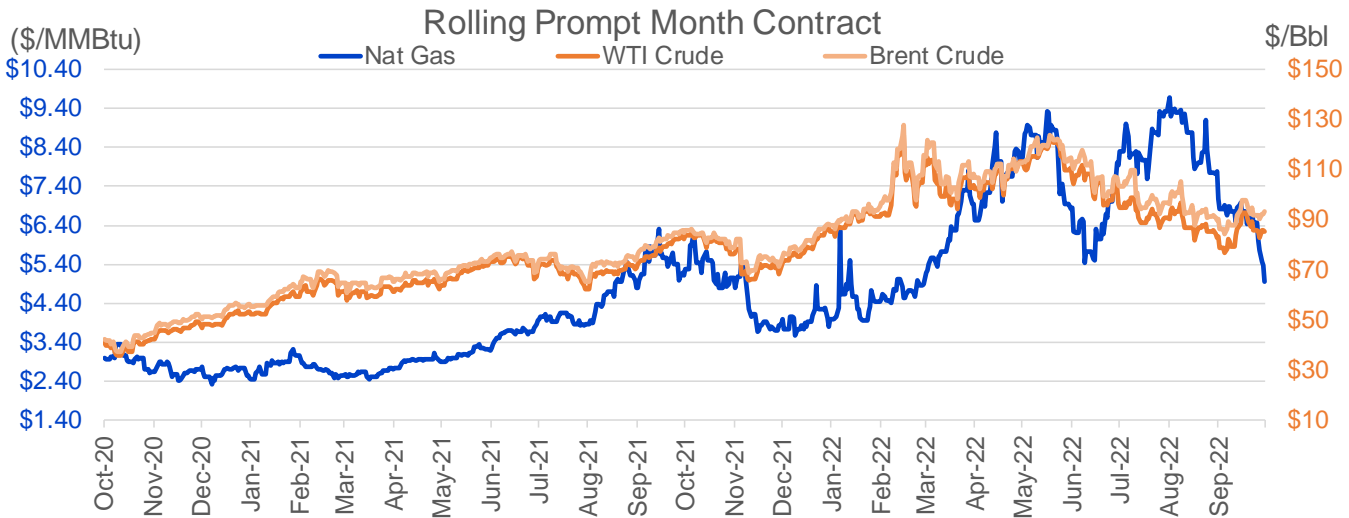
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
11	2022	P	5.00	7785	12	2022	P	5.00	28645
11	2022	P	4.75	6070	12	2022	P	4.00	27061
11	2022	C	6.50	4699	11	2022	C	10.00	26919
11	2022	P	4.50	4638	11	2022	P	4.00	26770
1	2023	C	10.00	4265	5	2023	P	2.00	24818
4	2023	P	2.00	3750	11	2022	P	6.00	24692
5	2023	P	3.00	3550	12	2022	P	6.00	24589
7	2023	P	2.00	3501	3	2023	C	10.00	24138
8	2023	P	2.00	3501	1	2023	C	10.00	21895
9	2023	P	2.00	3501	4	2023	P	3.00	21343
5	2023	P	2.00	3500	10	2023	P	3.00	21289
6	2023	P	2.00	3500	11	2022	P	5.00	21244
10	2023	P	2.00	3500	11	2022	C	8.00	19744
11	2022	P	5.25	3136	4	2023	P	3.50	19722
10	2023	P	3.00	2800	3	2023	P	4.00	19709
5	2023	C	6.00	2650	2	2023	C	10.00	19574
11	2022	C	6.25	2609	1	2023	P	4.00	19453
8	2023	P	3.00	2601	3	2023	C	20.00	19031
7	2023	P	3.00	2600	10	2023	P	2.50	19000
9	2023	P	3.00	2600	10	2023	P	4.00	18951
4	2023	P	3.00	2550	11	2022	P	5.50	18628
6	2023	P	3.00	2550	3	2023	P	3.00	18300
11	2022	C	6.00	2537	12	2022	C	5.00	18223
1	2023	C	8.00	2534	11	2022	C	12.00	17512
11	2022	C	7.00	2517	11	2022	C	6.50	17458
12	2022	C	7.00	2317	12	2022	C	10.00	17375
1	2023	P	4.50	2302	5	2023	P	3.50	17294
12	2022	C	7.10	2000	12	2022	P	5.50	17206
11	2022	C	6.75	1828	6	2023	P	3.00	17135
12	2022	C	9.00	1814	5	2023	P	3.00	16888
12	2022	C	10.00	1789	4	2023	P	4.00	16853
11	2022	P	4.00	1758	9	2023	P	4.00	16701
4	2023	P	2.25	1750	6	2023	P	3.50	16559
5	2023	P	2.25	1750	3	2023	P	2.75	16470
6	2023	P	2.25	1750	2	2023	C	9.00	16445
7	2023	P	2.25	1750	10	2023	P	3.50	16413
8	2023	P	2.25	1750	1	2023	P	5.00	16390
9	2023	P	2.25	1750	4	2023	P	2.00	16323
10	2023	P	2.25	1750	8	2023	P	3.50	16301
11	2022	C	5.50	1737	7	2023	P	3.50	16269
1	2023	P	5.00	1641	9	2023	P	3.50	16259
1	2023	P	5.50	1455	12	2022	C	4.00	16195
1	2023	P	4.25	1454	5	2023	P	2.50	15965
5	2023	C	7.00	1450	11	2022	P	6.50	15824
11	2022	C	8.00	1414	10	2023	P	2.00	15773
12	2022	C	8.00	1335	11	2022	C	4.00	15755
11	2022	P	5.50	1332	11	2022	P	5.25	15683
2	2023	P	5.00	1258	7	2023	P	3.00	15580
11	2022	C	5.75	1253	7	2023	P	4.00	15514
					6	2023	P	4	15456

Source: CME, ICE

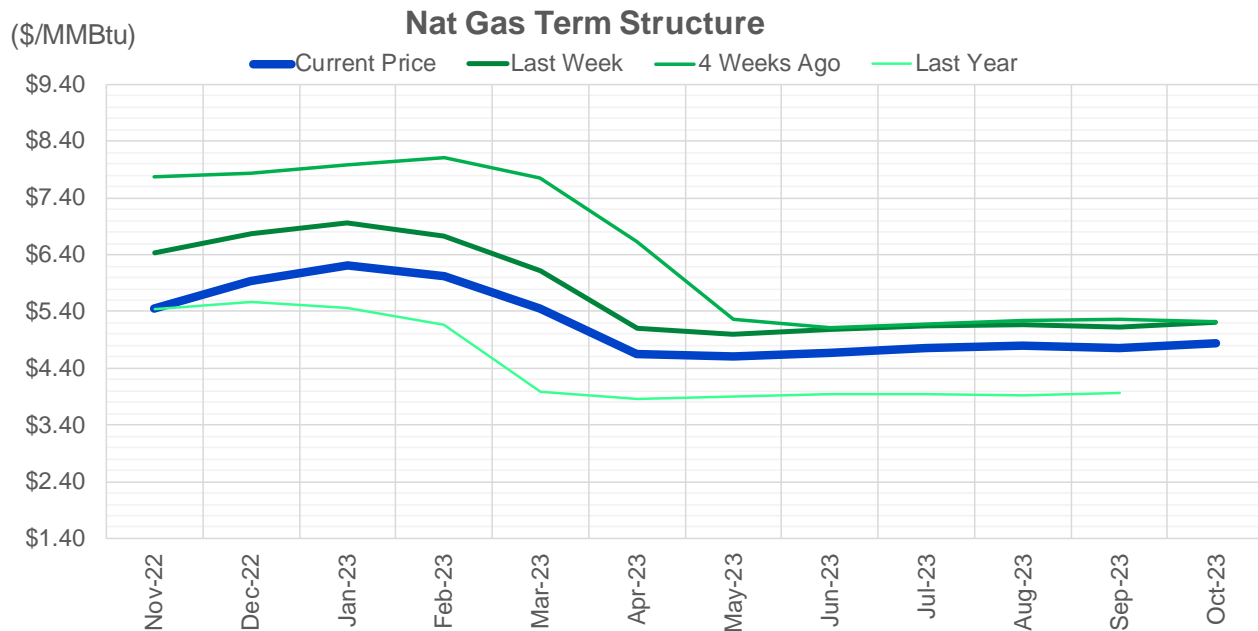
Nat Gas Futures Open Interest CME and ICE data combined

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	38740	48730	-9990	NOV 22	74413	75742	-1329
DEC 22	91963	89708	2255	DEC 22	78277	77949	329
JAN 23	131150	127908	3242	JAN 23	72910	72996	-86
FEB 23	54198	53750	448	FEB 23	67024	66969	54
MAR 23	92598	91601	997	MAR 23	60017	60342	-325
APR 23	76985	77124	-139	APR 23	55981	55762	219
MAY 23	84890	84669	221	MAY 23	57374	56559	815
JUN 23	24407	24563	-156	JUN 23	47830	47634	195
JUL 23	30991	30199	792	JUL 23	48093	47974	119
AUG 23	21217	20873	344	AUG 23	46133	45916	217
SEP 23	29466	29305	161	SEP 23	43654	43391	263
OCT 23	52435	52490	-55	OCT 23	56908	56513	395
NOV 23	23420	23136	284	NOV 23	47856	47695	161
DEC 23	26623	26092	531	DEC 23	40562	40358	204
JAN 24	34975	34519	456	JAN 24	45326	44852	474
FEB 24	10453	10284	169	FEB 24	31187	30998	189
MAR 24	21193	21120	73	MAR 24	35654	35361	293
APR 24	20265	19731	534	APR 24	30524	30804	-279
MAY 24	8475	8403	72	MAY 24	28764	28737	26
JUN 24	3217	3105	112	JUN 24	26099	26099	0
JUL 24	4053	4050	3	JUL 24	25554	25549	5
AUG 24	4020	3999	21	AUG 24	25280	25304	-24
SEP 24	2489	2469	20	SEP 24	24896	24914	-19
OCT 24	8717	8701	16	OCT 24	28996	28901	96
NOV 24	4916	4913	3	NOV 24	26273	26208	65
DEC 24	8574	8575	-1	DEC 24	30185	30119	66
JAN 25	17650	17634	16	JAN 25	23193	23222	-29
FEB 25	1819	1720	99	FEB 25	15651	15622	29
MAR 25	5296	5292	4	MAR 25	18082	18007	76
APR 25	5421	5436	-15	APR 25	16415	16372	43

Source: CME, ICE



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	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23
Current Price	\$5.462	\$5.928	\$6.212	\$6.016	\$5.444	\$4.655	\$4.604	\$4.681	\$4.765	\$4.789	\$4.762	\$4.839
Last Week	\$6.435	\$6.766	\$6.953	\$6.723	\$6.110	\$5.096	\$5.004	\$5.076	\$5.150	\$5.158	\$5.126	\$5.201
vs. Last Week	-\$0.973	-\$0.838	-\$0.741	-\$0.707	-\$0.666	-\$0.441	-\$0.400	-\$0.395	-\$0.385	-\$0.369	-\$0.364	-\$0.362
4 Weeks Ago	\$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. 4 Weeks Ago	-\$2.317	-\$1.899	-\$1.778	-\$2.093	-\$2.309	-\$1.976	-\$0.653	-\$0.443	-\$0.418	-\$0.454	-\$0.492	-\$0.390
Last Year	\$5.170	\$5.447	\$5.562	\$5.469	\$5.171	\$3.978	\$3.867	\$3.905	\$3.946	\$3.950	\$3.931	\$3.963
vs. Last Year	\$0.292	\$0.481	\$0.650	\$0.547	\$0.273	\$0.677	\$0.737	\$0.776	\$0.819	\$0.839	\$0.831	\$0.876

	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	▲ 1.087
NatGas Oct21/Jan22	\$/MMBtu	-1.817	▲ 0.000	▲ 0.000	▼ -1.437
NatGas Apr22/Oct22	\$/MMBtu	1.532	▲ 0.000	▼ -0.221	▲ 1.538
WTI Crude	\$/Bbl	85.98	▼ -3.130	▲ 2.490	▲ 3.480
Brent Crude	\$/Bbl	92.38	▼ -2.190	▲ 1.920	▲ 7.770
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	375.68	▼ -33.800	▲ 34.530	▲ 120.770
Propane, Mt. Bel	cents/Gallon	0.85	▼ -0.006	▼ -0.165	▼ -0.612
Ethane, Mt. Bel	cents/Gallon	0.40	▼ -0.027	▼ -0.071	▼ -0.025
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 
10/21/2022						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	612	2	610	169	443	
Gas	157	0	157	58	99	
Miscellaneous	2	0	2	2	0	
Directional	41	0	41	9	32	
Horizontal	708	3	705	226	482	
Vertical	22	-1	23	-6	28	
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago	
Oil	144	-6	150	51	93	
Gas	66	0	66	-5	71	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Ardmore Woodford	5	0	5	3	2	
Arkoma Woodford	3	0	3	1	2	
Barnett	3	0	3	3	0	
Cana Woodford	26	0	26	4	22	
DJ-Niobrara	20	3	17	9	11	
Eagle Ford	71	0	71	31	40	
Granite Wash	6	0	6	3	3	
Haynesville	70	0	70	24	46	
Marcellus	41	0	41	14	27	
Mississippian	1	0	1	0	1	
Permian	346	0	346	78	268	
Utica	12	0	12	2	10	
Williston	40	0	40	17	23	