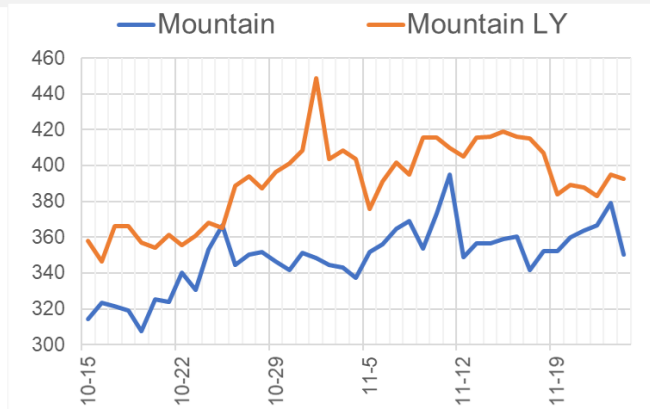
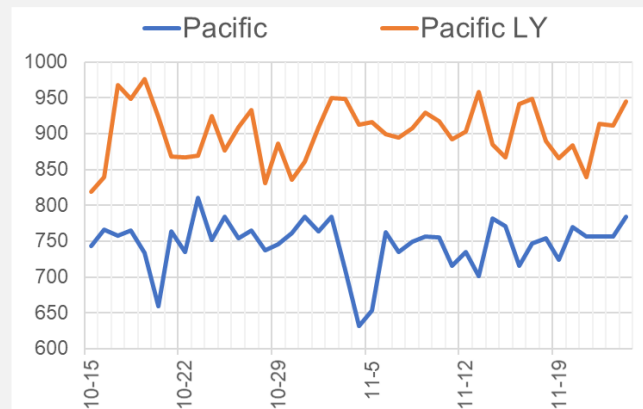
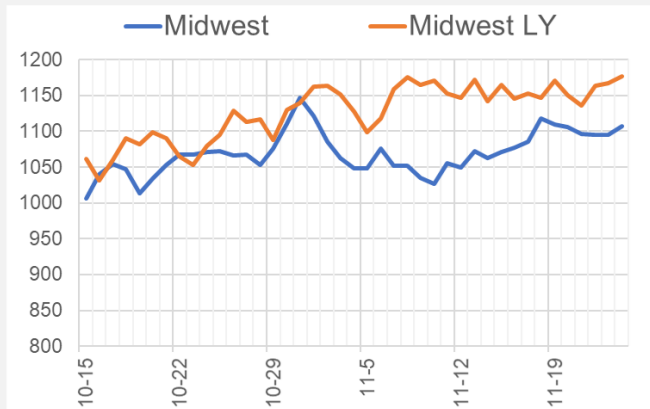
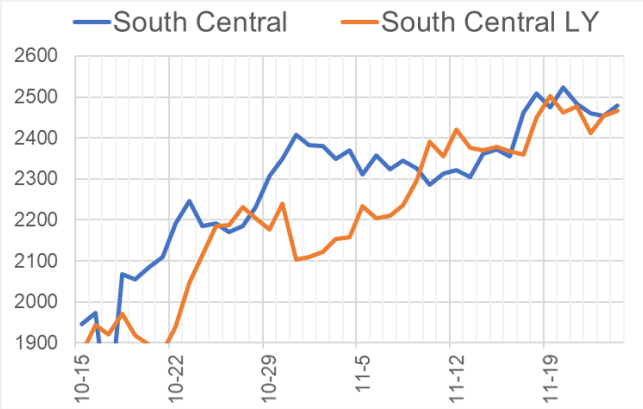
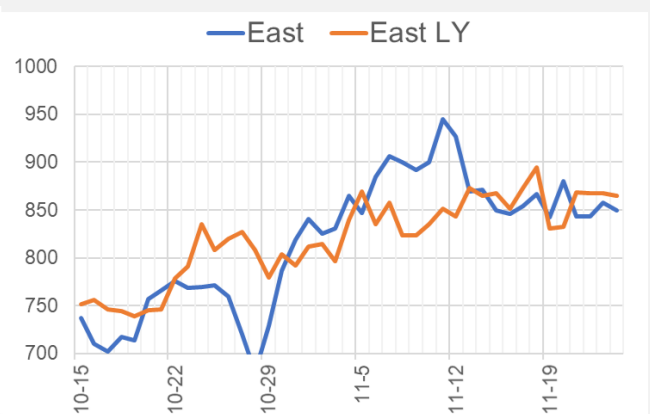
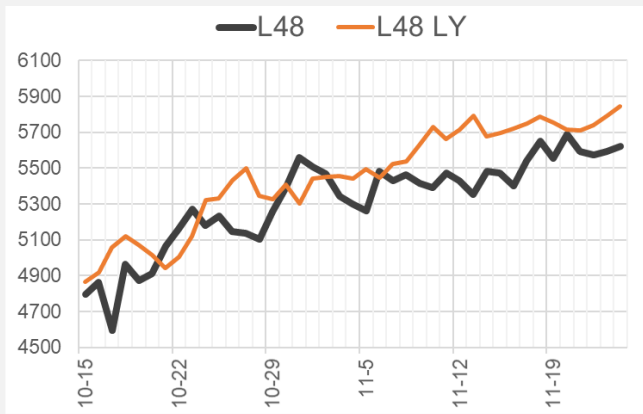


Happy Thanksgiving. This week we will review how industrial demand has continued to evolve this year with COVID slow-downs and shut-downs.

The pipeline nomination gives us decent insight into daily industrial activity. This dataset allows us to roughly see 25% of the total gas delivered to industrial facilities across the country. In some regions we have better visibility than others.

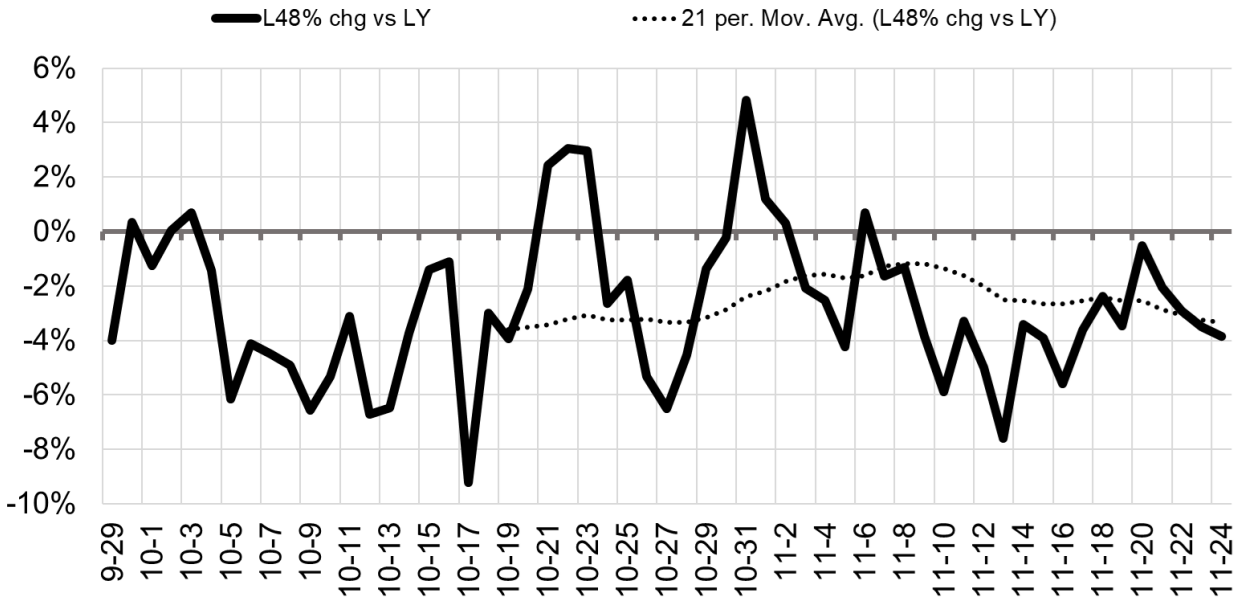
Here is how this year's data lines up to last year.



This data gives good proxy to where total industrial demand sits relative to last year by region, and what we should expect for the rest of winter.

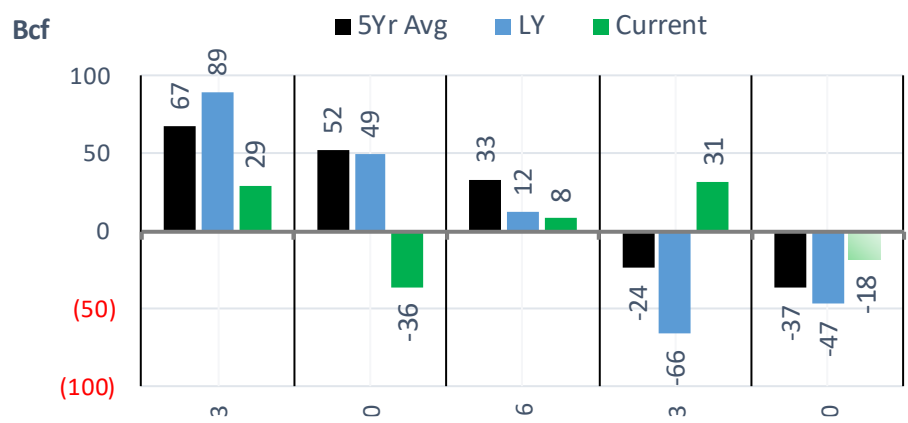
With out taking temperature into consideration, industrial demand looks to be 5% lower YoY.

L48 Industrial % Change vs. LY

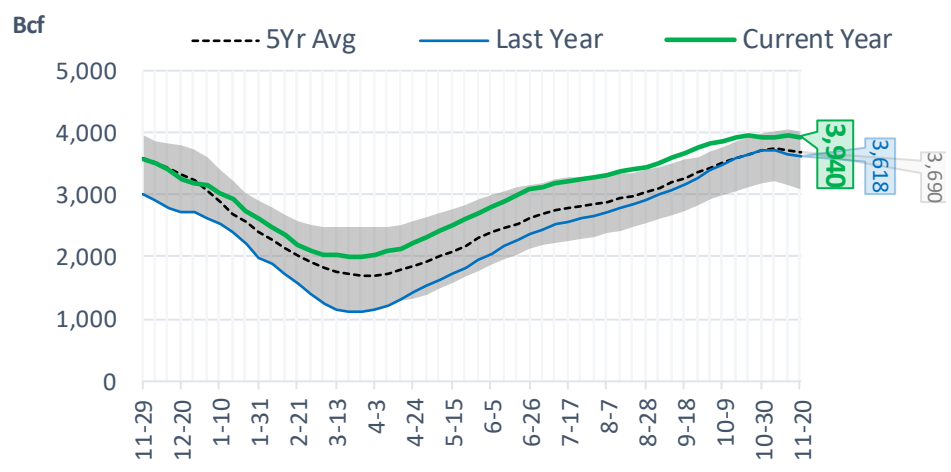


EIA Storage Report

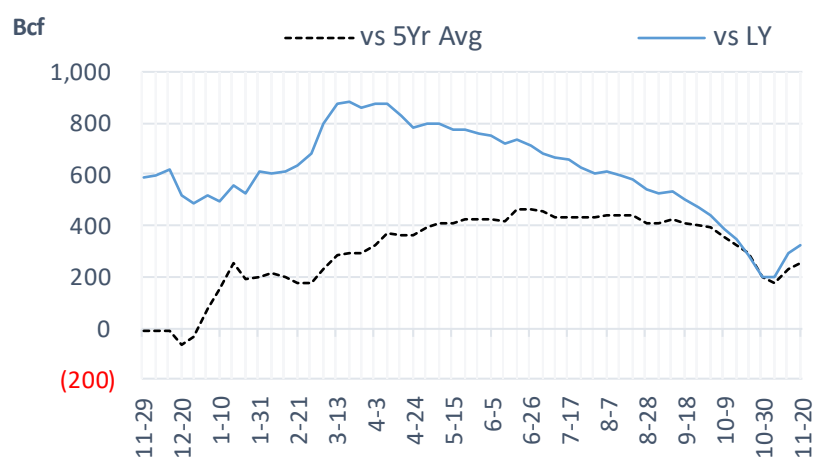
Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels



Total Lower 48 LY Surplus/Deficit

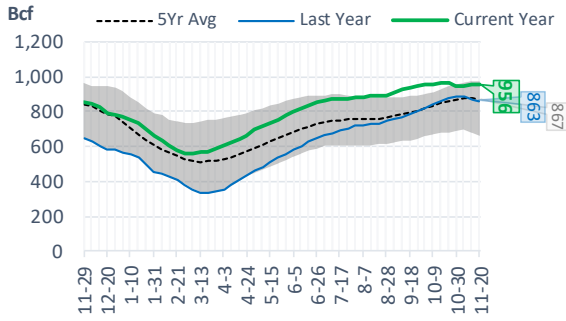


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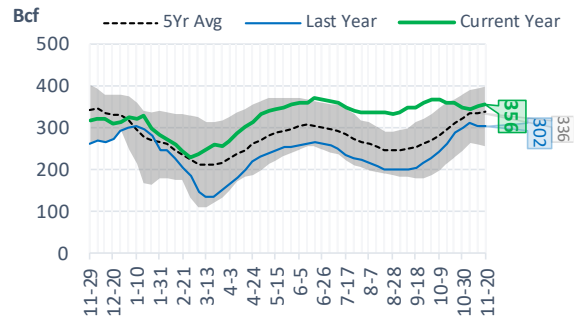
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 20-Nov	Week - 1 13-Nov	Week - 2 6-Nov	Week - 3 30-Oct	Week - 4 23-Oct	Week - 5 16-Oct
Total Lower 48 Storage Level	3940	3958	3927	3919	3955	3926
Weekly Change	-18	+31	+8	-36	+29	+49
vs LY	+322	+293	+196	+200	+285	+345
vs 5Yr Avg	+250	+231	+176	+201	+289	+327
S. Central Salt Storage Level	356	350	345	348	360	360
Weekly Change	+6	+5	-3	-12	0	-6
vs LY	+54	+47	+35	+48	+74	+98
vs 5Yr Avg	+20	+15	+10	+24	+49	+65
S. Central NonSalt Storage Level	956	956	948	945	968	969
Weekly Change	0	+8	+3	-23	-1	+9
vs LY	+93	+86	+63	+59	+88	+108
vs 5Yr Avg	+89	+83	+71	+74	+107	+120
Midwest Storage Level	1133	1139	1127	1119	1118	1105
Weekly Change	-6	+12	+8	+1	+13	+24
vs LY	+76	+59	+20	+14	+30	+43
vs 5Yr Avg	+61	+53	+33	+36	+54	+66
East Storage Level	934	953	942	947	941	923
Weekly Change	-19	+11	-5	+6	+18	+15
vs LY	+36	+37	+10	+20	+32	+30
vs 5Yr Avg	+47	+51	+30	+39	+41	+34
Mountain Storage Level	242	241	243	240	245	245
Weekly Change	+1	-2	+3	-5	0	+4
vs LY	+38	+35	+36	+32	+35	+38
vs 5Yr Avg	+28	+26	+27	+24	+30	+32
Pacific Storage Level	320	319	322	320	323	323
Weekly Change	+1	-3	+2	-3	0	+3
vs LY	+27	+28	+31	+26	+25	+26
vs 5Yr Avg	+6	+4	+6	+4	+8	+10

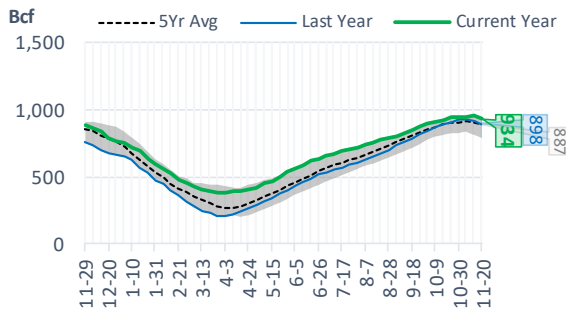
NonSalt Storage Levels



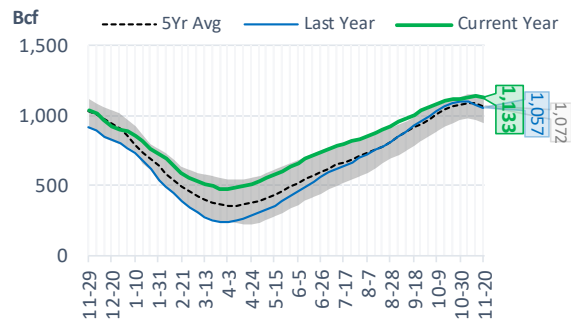
Salt Storage Levels



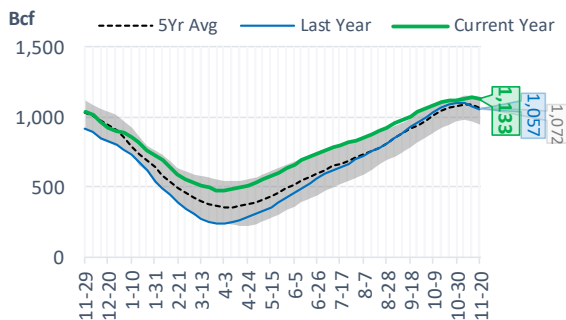
East Storage Levels



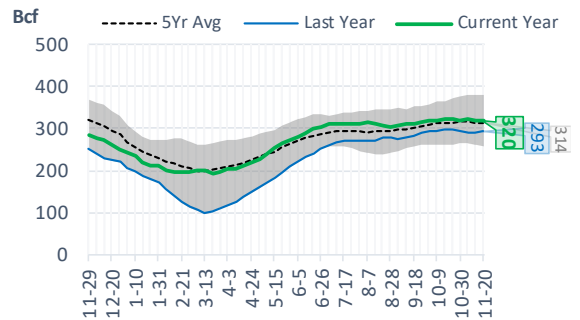
Midwest Storage Levels



Midwest Storage Levels

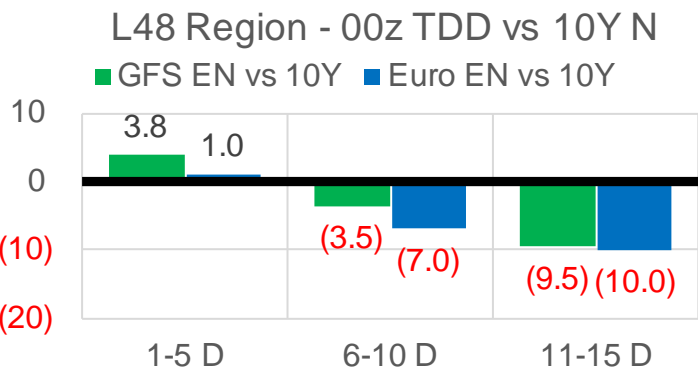
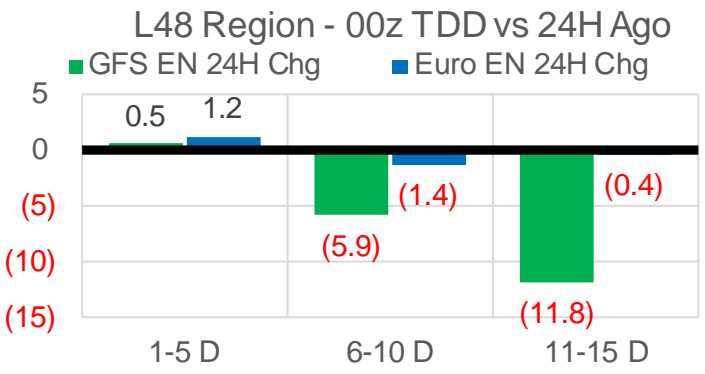
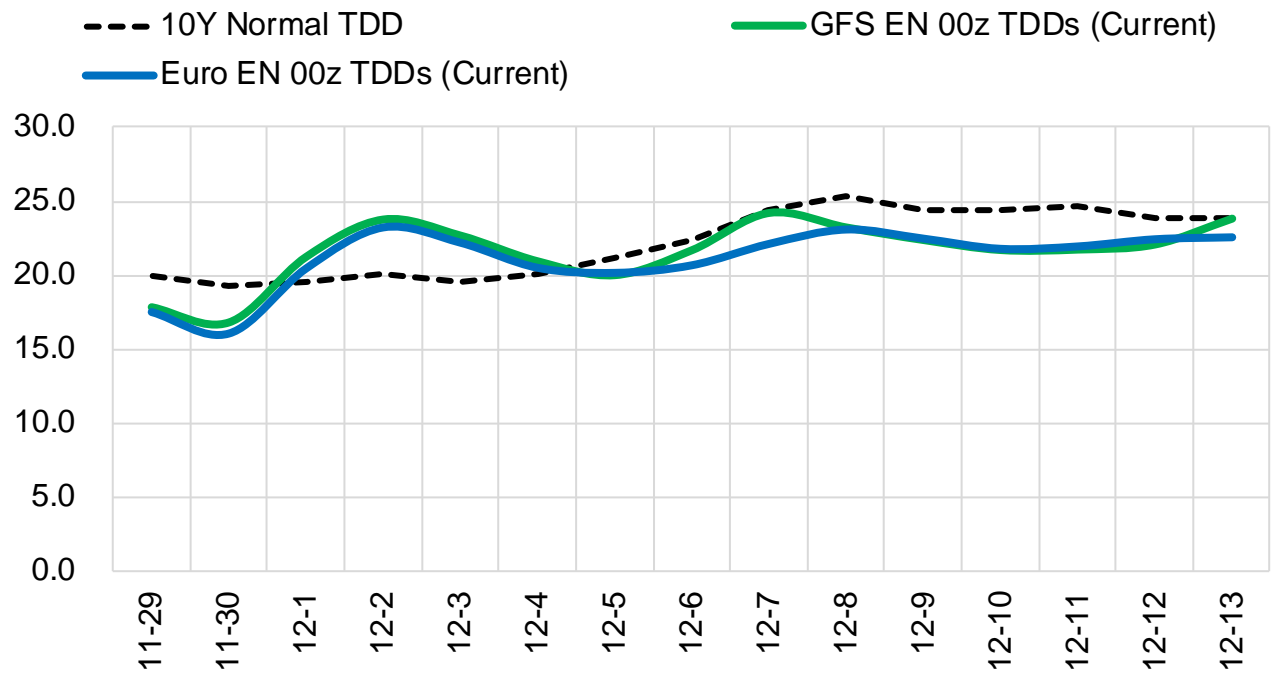


Pacific Storage Levels



Current Short-term Weather Model Outlooks (00z)

L48 Region



Source: WSI, Bloomberg

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EIA Storage Week Balances

	23-Oct	30-Oct	6-Nov	13-Nov	20-Nov	27-Nov	WoW	vs. 4W
Lower 48 Dry Production	90.0	88.1	90.4	89.0	91.7	92.4	▲ 0.7	▲ 2.6
Canadian Imports	3.6	4.6	5.1	3.7	5.2	4.5	▼ -0.7	▼ -0.2
L48 Power	28.5	28.1	24.8	24.5	24.6	24.7	▲ 0.1	▼ -0.8
L48 Residential & Commercial	16.8	23.3	23.6	17.2	27.5	27.0	▼ -0.6	▲ 4.1
L48 Industrial	22.4	24.1	23.2	24.2	23.7	23.5	▼ -0.2	▼ -0.3
L48 Lease and Plant Fuel	4.9	4.8	5.0	4.9	5.1	5.1	▲ 0.0	▲ 0.1
L48 Pipeline Distribution	2.2	2.5	2.3	1.9	2.4	2.4	▼ 0.0	▲ 0.1
L48 Regional Gas Consumption	75.0	82.9	78.8	72.8	83.4	82.7	▼ -0.7	▲ 3.2
Net LNG Exports	8.0	9.2	10.2	10.4	10.2	9.8	▼ -0.4	▼ -0.2
Total Mexican Exports	6.3	6.2	6.0	6.3	6.1	6.3	▲ 0.2	▲ 0.2
Implied Daily Storage Activity	4.2	-5.5	0.6	3.2	-2.7	-1.9	0.8	
EIA Reported Daily Storage Activity	4.1	-5.1	1.1	4.4	-2.6			
Daily Model Error	0.0	-0.4	-0.6	-1.2	-0.1			

Monthly Balances

	2Yr Ago Nov-18	LY Nov-19	Jul-20	Aug-20	Sep-20	Oct-20	MTD Nov-20	MoM	vs. LY
Lower 48 Dry Production	88.1	95.3	88.3	88.6	88.6	88.3	88.0	▼ -0.3	▼ -7.3
Canadian Imports	4.1	4.5	4.4	4.9	3.8	4.3	4.6	▲ 0.3	▲ 0.0
L48 Power	25.5	27.6	43.8	40.6	33.3	29.2	23.7	▼ -5.5	▼ -3.9
L48 Residential & Commercial	32.9	32.8	7.9	7.7	8.5	16.8	23.0	▲ 6.2	▼ -9.8
L48 Industrial	24.4	24.0	19.3	20.8	21.1	22.5	22.3	▼ -0.3	▼ -1.8
L48 Lease and Plant Fuel	5.0	5.3	4.9	5.0	4.9	4.9	4.9	▲ 0.0	▼ -0.4
L48 Pipeline Distribution	2.6	2.8	2.4	2.4	2.1	2.3	2.2	▼ -0.1	▼ -0.6
L48 Regional Gas Consumption	90.3	92.5	78.3	76.4	69.8	75.7	76.0	▲ 0.3	▼ -16.4
Net LNG Exports	4.3	7.2	3.3	4.0	5.9	8.0	10.1	▲ 2.1	▲ 2.9
Total Mexican Exports	4.8	5.3	6.1	6.3	6.4	6.2	6.0	▼ -0.2	▲ 0.7
Implied Daily Storage Activity	-7.2	-5.1	4.9	6.8	10.3	2.6	0.4		
EIA Reported Daily Storage Activity									
Daily Model Error									

Source: Bloomberg, analytix.ai

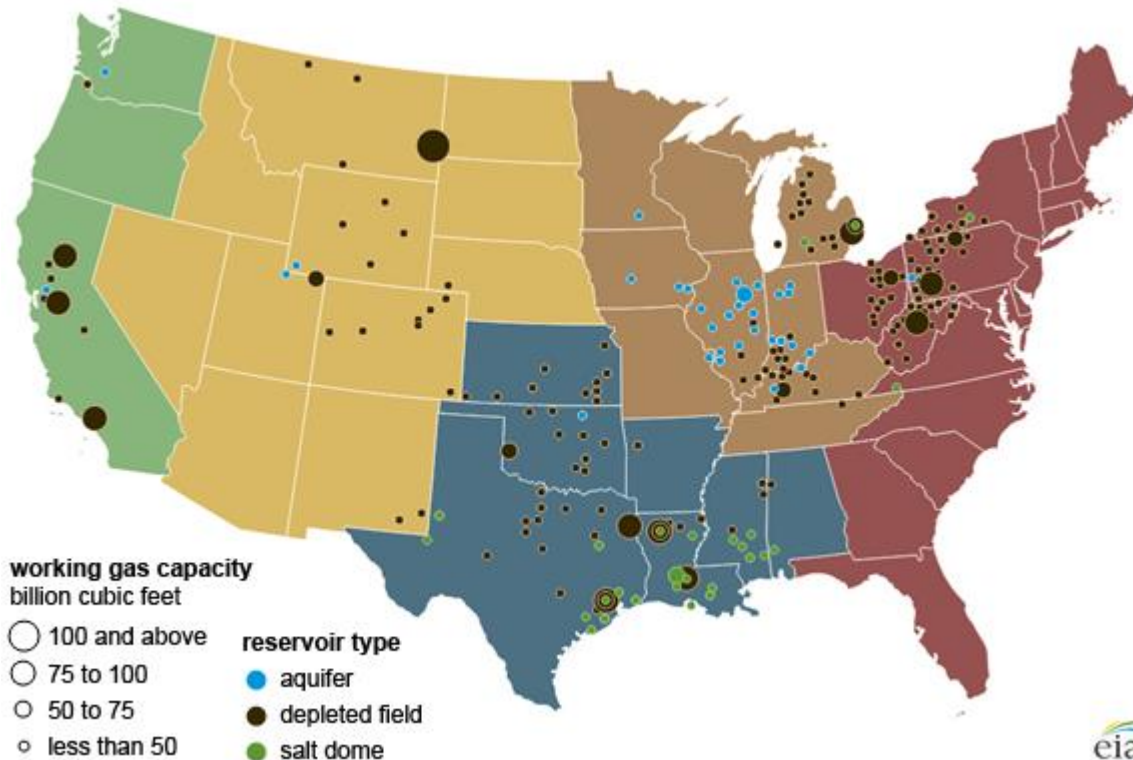
Regional S/D Models Storage Projection

Week Ending 27-Nov

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	-2.1	0.9	-1.3	-9
East	-2.5	1.8	-0.7	-5
Midwest	-1.8	0.5	-1.3	-9
Mountain	3.2	-3.4	-0.2	-2
South Central	-0.5	2.0	1.5	10
Pacific	-0.6	0.1	-0.5	-4

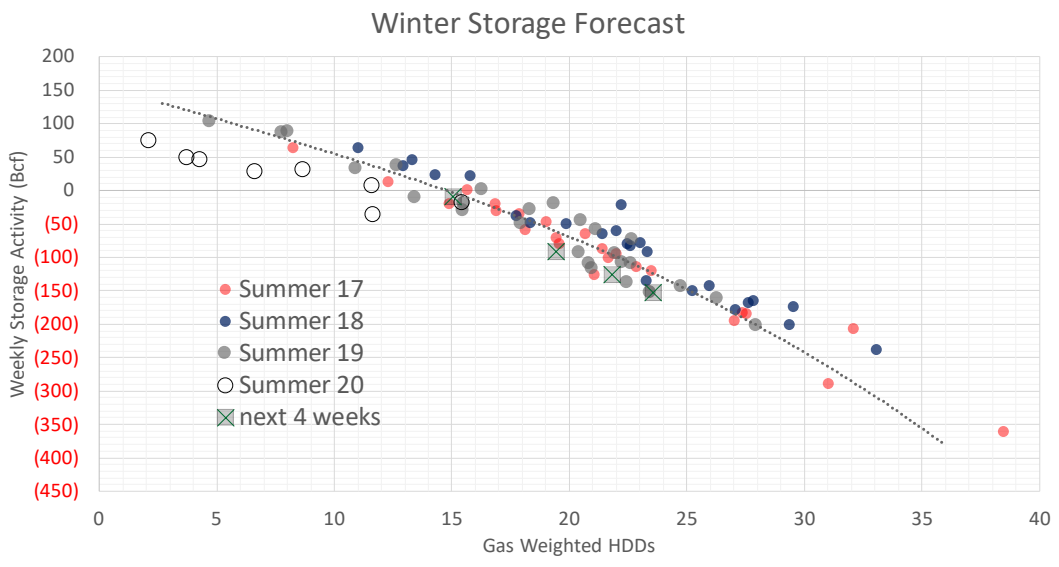
*Adjustment Factor is calculated based on historical regional deltas

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



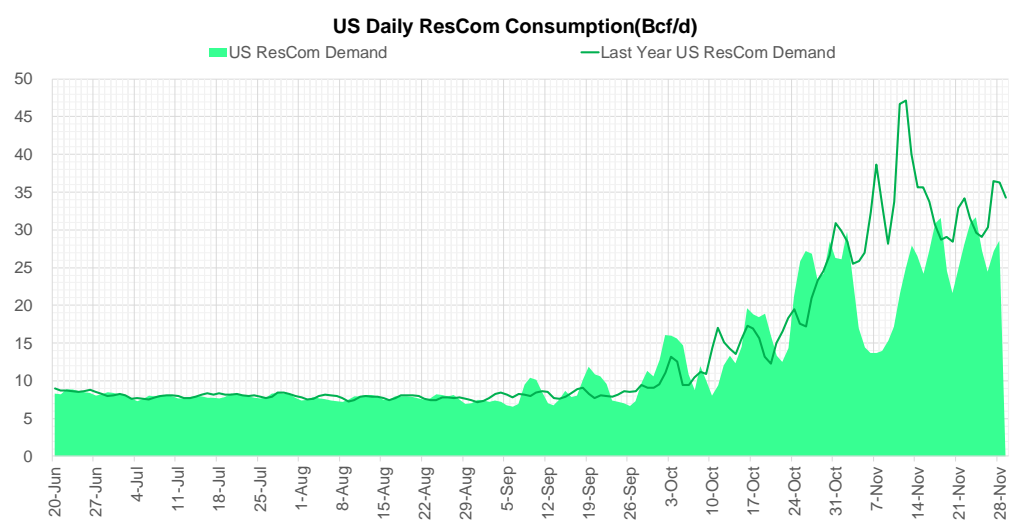
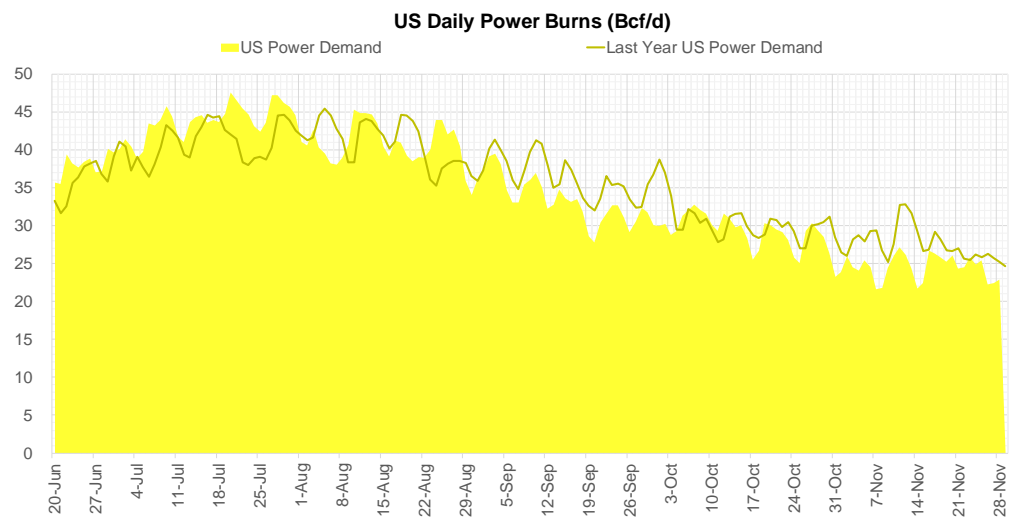
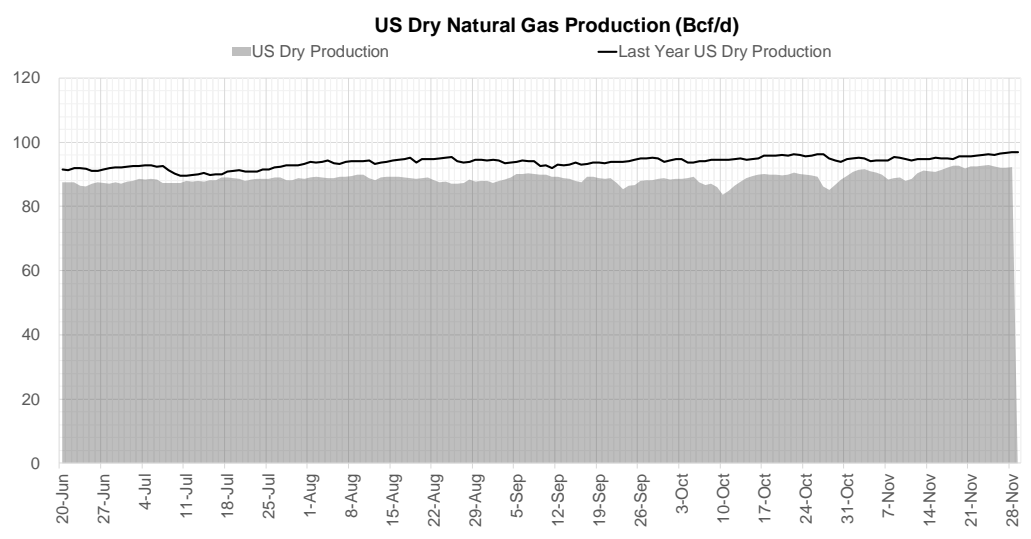
Weather Model Storage Projection

Next report and beyond		
Week Ending	Temp	Week Storage Projection
04-Dec	19.5	-90
11-Dec	21.8	-126
18-Dec	23.6	-152



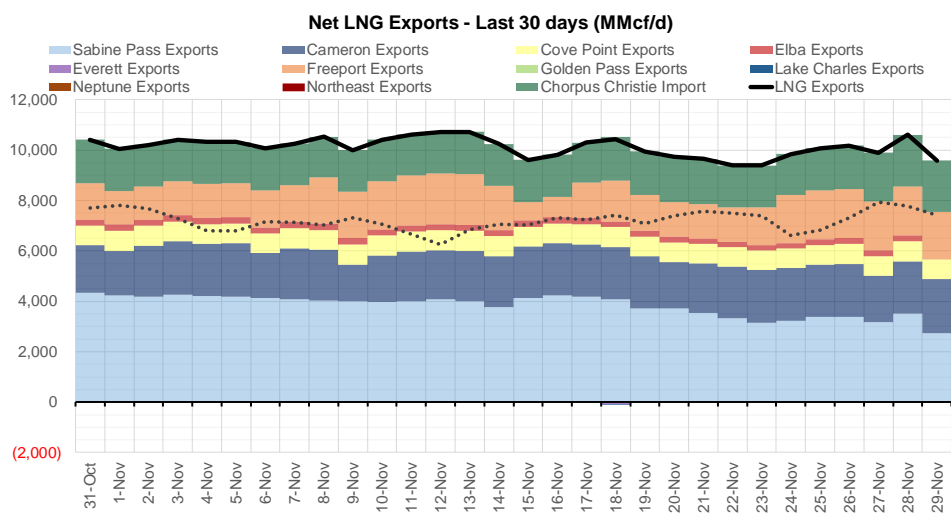
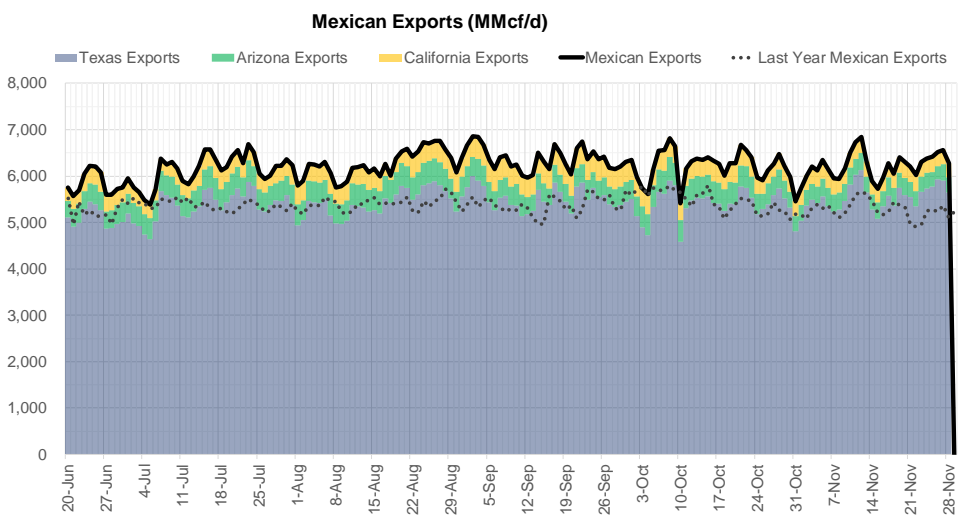
Note: this is not our official end of season forecast. This chart signifies where storage levels end with 10-year normal weather and current market tightness relative to last year

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

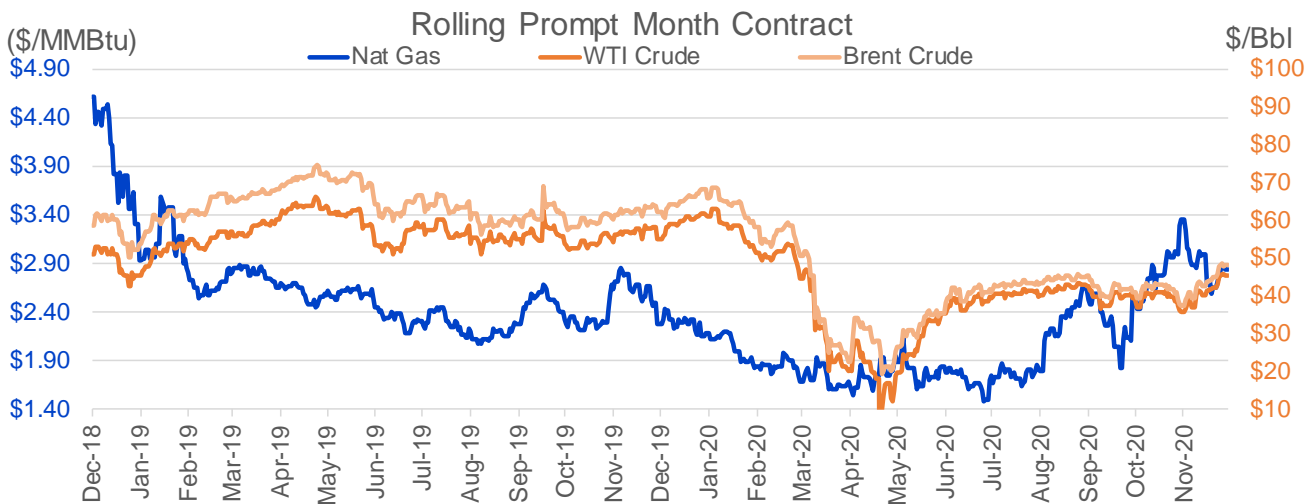
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
1	2021	C	3.50	3595	3	2021	P	2.00	40904
12	2020	P	2.75	2479	3	2021	C	4.00	38616
1	2021	P	2.40	2393	4	2021	C	4.00	32747
3	2021	P	2.40	2200	12	2020	P	2.00	31799
12	2020	C	2.80	2073	1	2021	C	3.50	29850
2	2021	P	2.40	2001	1	2021	P	2.50	29546
4	2021	P	2.40	2000	1	2021	C	4.50	28655
5	2021	P	2.40	2000	3	2021	C	3.25	28599
6	2021	P	2.40	2000	10	2021	C	4.00	28585
7	2021	P	2.40	2000	12	2020	C	3.75	27068
8	2021	P	2.40	2000	12	2020	C	3.50	25817
9	2021	P	2.40	2000	3	2021	C	6.00	25783
10	2021	P	2.40	2000	12	2020	C	4.00	25109
11	2021	P	2.40	2000	10	2021	C	3.25	24996
12	2021	P	2.40	2000	2	2021	P	2.25	24862
1	2021	P	2.75	1884	1	2021	C	5.00	24735
12	2020	C	2.75	1869	3	2021	C	7.00	23679
1	2021	P	2.70	1810	3	2021	C	3.00	23324
1	2021	P	2.50	1701	12	2020	C	3.00	22939
2	2021	P	2.00	1617	3	2021	C	4.50	22463
10	2021	P	2.00	1425	12	2020	C	4.50	22276
1	2021	C	3.00	1420	1	2021	C	3.75	21984
4	2021	P	2.00	1375	3	2021	P	2.50	21917
5	2021	P	2.00	1375	2	2021	C	3.50	21723
6	2021	P	2.00	1375	3	2021	C	3.50	21700
7	2021	P	2.00	1375	3	2021	C	5.00	21451
8	2021	P	2.00	1375	1	2021	C	4.00	21266
9	2021	P	2.00	1375	1	2021	C	6.00	21129
12	2020	P	2.65	1375	1	2021	C	3.00	20916
2	2021	C	4.00	1255	12	2020	P	2.75	20837
3	2021	P	2.00	1202	4	2021	C	3.25	20184
1	2021	C	3.25	1175	12	2020	C	3.25	20116
1	2021	C	4.50	1158	2	2021	P	2.50	19678
1	2021	P	2.60	1131	8	2021	C	4.00	19519
2	2021	C	3.50	1129	2	2021	C	4.00	19313
12	2020	P	2.70	1107	8	2021	P	2.25	19192
1	2021	P	2.00	1105	4	2021	C	3.50	19185
1	2021	C	4.00	1089	4	2021	C	5.00	18828
6	2021	P	2.70	1045	12	2020	P	3.00	18480
1	2021	C	5.00	1028	5	2021	C	3.00	18183
2	2021	P	2.70	1002	1	2021	P	2.25	18033
3	2021	P	2.70	1000	10	2021	C	5.00	17973
4	2021	P	2.70	1000	1	2021	P	2.00	17760
5	2021	P	2.70	1000	4	2021	C	3.00	17192
7	2021	P	2.70	1000	2	2021	C	5.00	16924
8	2021	P	2.70	1000	2	2021	C	4.50	16347
9	2021	P	2.70	1000	12	2020	C	5.00	15828
10	2021	P	2.70	1000	10	2021	C	3.00	15339
10	2021	P	2.70	1000	4	2021	P	2.00	15051
11	2021	P	2.00	1000	12	2020	P	2.5	15028.75

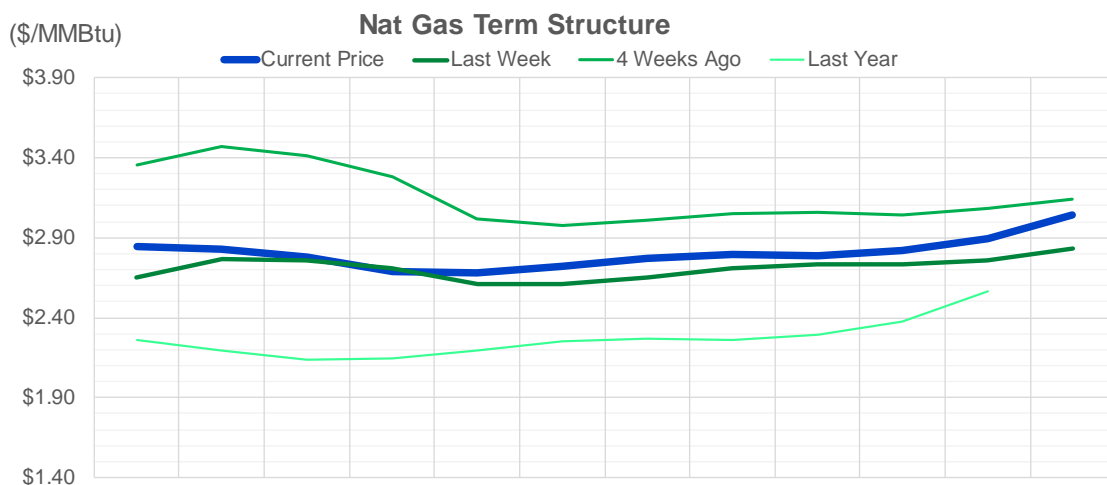
Source: CME, Nasdaq, ICE

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	FOR JUNE 26	Current	Prior	Daily Change
DEC 20	2858	17462	-14604	DEC 20	68345	66187	2157.75
JAN 21	296068	303193	-7125	JAN 21	99250	99155	94.75
FEB 21	95689	95779	-90	FEB 21	69889	69133	756.5
MAR 21	193976	190628	3348	MAR 21	88432	86901	1530.75
APR 21	83660	83301	359	APR 21	70270	69797	473
MAY 21	60877	60332	545	MAY 21	71814	71941	-126.75
JUN 21	35758	36401	-643	JUN 21	59380	59163	217
JUL 21	30860	30677	183	JUL 21	61946	61701	245
AUG 21	25859	27354	-1495	AUG 21	63821	63990	-169
SEP 21	40238	41735	-1497	SEP 21	58121	57915	205.75
OCT 21	95465	96660	-1195	OCT 21	72645	71915	730.25
NOV 21	40208	40436	-228	NOV 21	51679	51811	-131.75
DEC 21	33297	33398	-101	DEC 21	49645	49495	150.25
JAN 22	32458	30911	1547	JAN 22	48555	48702	-146.5
FEB 22	23120	22984	136	FEB 22	38582	38701	-118.75
MAR 22	25840	25418	422	MAR 22	41403	41425	-21.5
APR 22	23362	23067	295	APR 22	39655	39781	-125.75
MAY 22	12085	11985	100	MAY 22	31675	31701	-25.25
JUN 22	6491	6404	87	JUN 22	30630	30578	52
JUL 22	5674	5749	-75	JUL 22	32457	32520	-63.25
AUG 22	4834	4781	53	AUG 22	31126	31166	-40.25
SEP 22	4229	4181	48	SEP 22	30720	30661	59.5
OCT 22	7986	7941	45	OCT 22	34865	34913	-48
NOV 22	5215	5269	-54	NOV 22	31495	31505	-10
DEC 22	5656	5617	39	DEC 22	33836	33847	-10.75
JAN 23	4799	4800	-1	JAN 23	15136	15049	87.5
FEB 23	1133	1133	0	FEB 23	14107	14008	99
MAR 23	2556	2556	0	MAR 23	14050	13909	141.75
APR 23	2368	2368	0	APR 23	13188	13077	110.75
MAY 23	451	451	0	MAY 23	12309	12195	114.25

Source: CME, ICE






	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21
Current Price	\$2.843	\$2.832	\$2.776	\$2.685	\$2.682	\$2.719	\$2.774	\$2.796	\$2.791	\$2.819	\$2.897	\$3.044
Last Week	\$2.650	\$2.770	\$2.755	\$2.709	\$2.608	\$2.608	\$2.652	\$2.710	\$2.734	\$2.732	\$2.762	\$2.836
vs. Last Week	\$0.193	\$0.062	\$0.021	-\$0.024	\$0.074	\$0.111	\$0.122	\$0.086	\$0.057	\$0.087	\$0.135	\$0.208
4 Weeks Ago	\$3.354	\$3.469	\$3.416	\$3.284	\$3.017	\$2.975	\$3.006	\$3.047	\$3.059	\$3.046	\$3.080	\$3.138
vs. 4 Weeks Ago	-\$0.511	-\$0.637	-\$0.640	-\$0.599	-\$0.335	-\$0.256	-\$0.232	-\$0.251	-\$0.268	-\$0.227	-\$0.183	-\$0.094
Last Year	\$2.281	\$2.262	\$2.198	\$2.136	\$2.148	\$2.193	\$2.250	\$2.268	\$2.259	\$2.289	\$2.373	\$2.562
vs. Last Year	\$0.562	\$0.570	\$0.578	\$0.549	\$0.534	\$0.526	\$0.524	\$0.528	\$0.532	\$0.530	\$0.524	\$0.482

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jan21/Apr21	\$/MMBtu	-0.158	▲ 0.004	▲ 0.294	▲ 0.258
NatGas Mar21/Apr21	\$/MMBtu	-0.091	▲ 0.010	▼ -0.358	▼ -0.342
NatGas Oct21/Nov21	\$/MMBtu	0.078	▲ 0.004	▲ 0.020	▲ 0.005
NatGas Apr21/Oct21	\$/MMBtu	0.134	▲ 0.126	▼ -0.255	▼ -0.213
WTI Crude	\$/Bbl	45.53	▲ 3.380	▲ 9.740	▼ -9.640
Brent Crude	\$/Bbl	48.18	▲ 3.220	▲ 10.720	▼ -14.250
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	138.05	▲ 9.420	▲ 29.920	▼ -49.840
Propane, Mt. Bel	cents/Gallon	0.55	▲ 0.005	▲ 0.025	▲ 0.016
Ethane, Mt. Bel	cents/Gallon	0.22	▲ 0.000	▲ 0.000	▲ 0.018
Coal, PRB	\$/MTon	12.30	▲ 0.000	▲ 0.000	▼ -0.050
Coal, PRB	\$/MMBtu	0.70			

Source: CME, Bloomberg

Baker Hughes Rig Counts

Rotary Rig Count						Baker Hughes 
11/25/2020						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	241	10	231	-427	668	
Gas	77	1	76	-54	131	
Miscellaneous	2	-1	3	-1	3	
Directional	22	2	20	-31	53	
Horizontal	283	11	272	-418	701	
Vertical	15	-3	18	-33	48	
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago	
Oil	38	-4	42	-39	77	
Gas	64	5	59	15	49	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Arkoma Woodford	0	0	0	-3	3	
Barnett	0	0	0	-2	2	
Cana Woodford	9	0	9	-18	27	
DJ-Niobrara	4	1	3	-17	21	
Eagle Ford	23	3	20	-37	60	
Haynesville	40	0	40	-13	53	
Marcellus	27	0	27	-9	36	
Mississippian	0	0	0	-2	2	
Permian	161	5	156	-244	405	
Utica	4	0	4	-9	13	
Williston	11	0	11	-40	51	