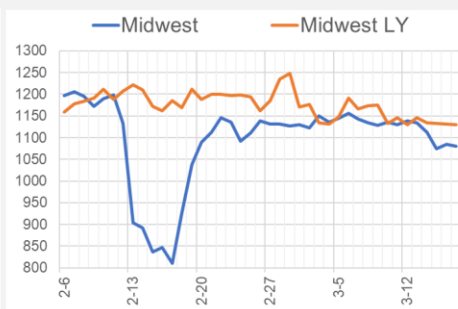
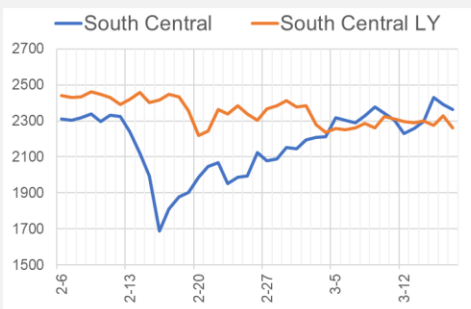
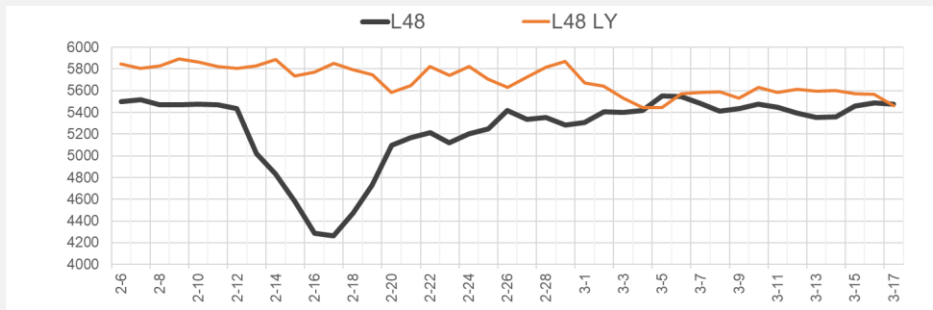


This past week the EIA reported a -11 Bcf storage draw for the week ending March 12th. This was largely in line with the output of our S/D model. The one thing that this number did was confirms that industrial natural gas consumption was still impacted post the February cold episode. Below is the modeled industrial consumption from BNEF. Industrial consumption is typically quite stable with minor fluctuations related to ambient temperature.



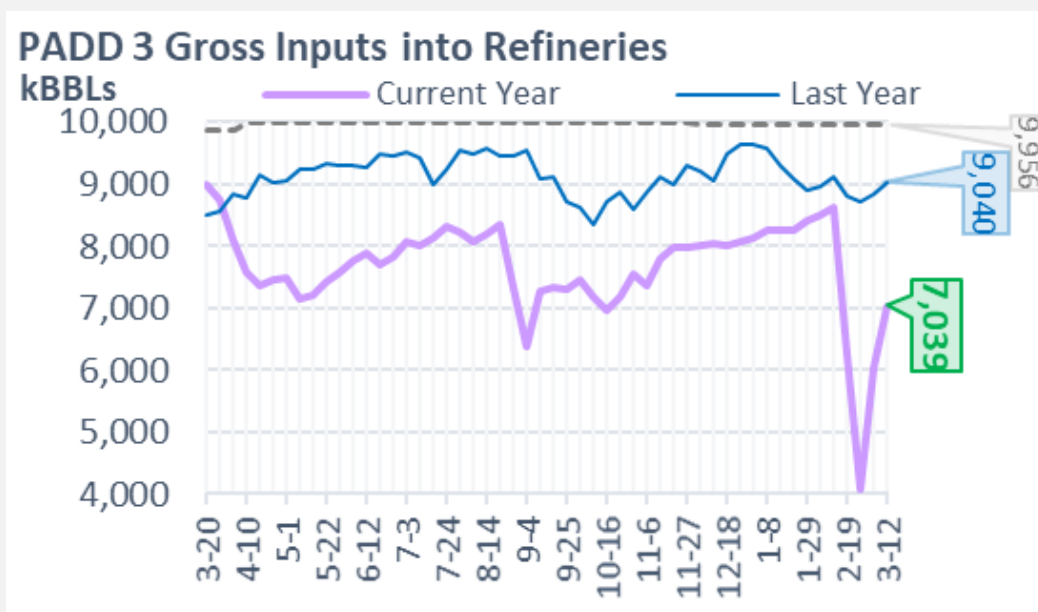
Looking at the raw pipeline data (which is usually used to model the above) gives us more insight. The raw pipeline data gives us visibility into roughly 25% of the industrial gas consumption across the L48. The below view gives a better indication of the severity of the drop in industrial consumption during and after the cold weeks of February. The data does show industrial gas consumption climbing in the South Central. We should note that the view is slightly skewed versus last year's level, as this was the week the country initiated COVID lockdowns and we tend to have refinery maintenance.



The industrial consumption includes refineries in TX and Louisiana. The oil inventory report continues to show lower refinery utilization rates. Here are the US and PADD specific refinery utilization rates. PADD 3 refinery utilization was just 70.7% for the week ending March 12th. This is 15.8% lower than the utilization before the February cold.

MMBBLs	Last Year 13-Mar-20	Week - 4 12-Feb	Week - 3 19-Feb	Week - 2 26-Feb	Week - 1 5-Mar	Current 12-Mar	WoW	YoY
US	86.4	83.1	68.6	56.0	69.0	76.1	7.1	-10.3
PADD 1	57.1	67.8	70.6	70.7	71.5	76.3	4.8	19.2
PADD 2	85.5	85.4	76.0	71.2	79.9	85.7	5.8	0.2
PADD 3	91.5	86.5	62.8	40.9	60.7	70.7	10.0	-20.8
PADD 4	86.4	86.4	86.9	88.3	88.6	86.3	-2.3	-0.1
PADD 5	82.3	71.4	73.5	75.5	77.3	78.5	1.2	-3.8

A closer look at Padd3 refinery inputs.



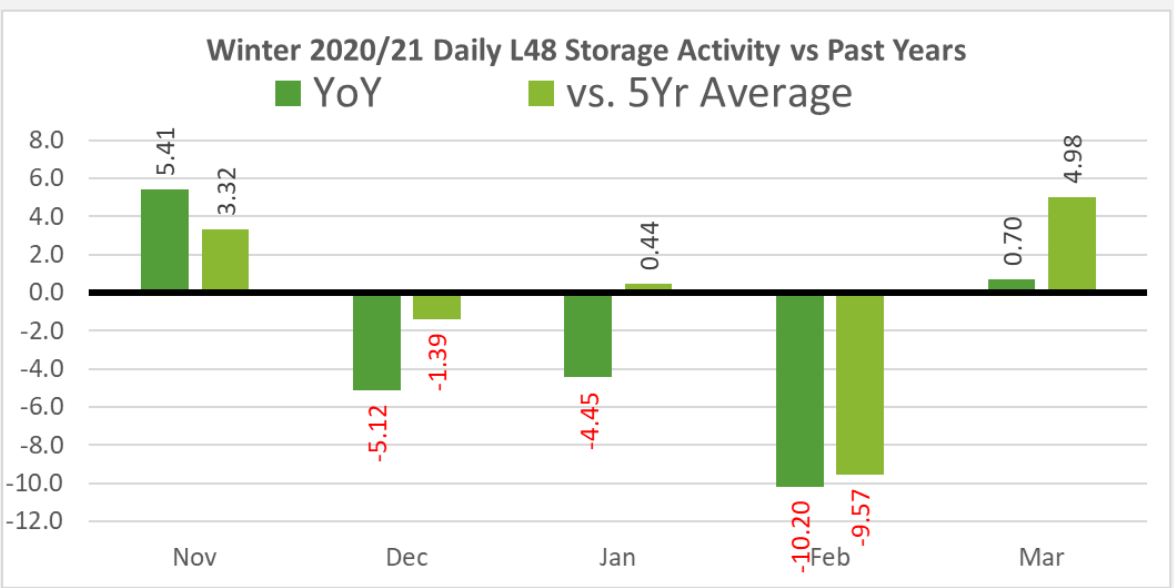
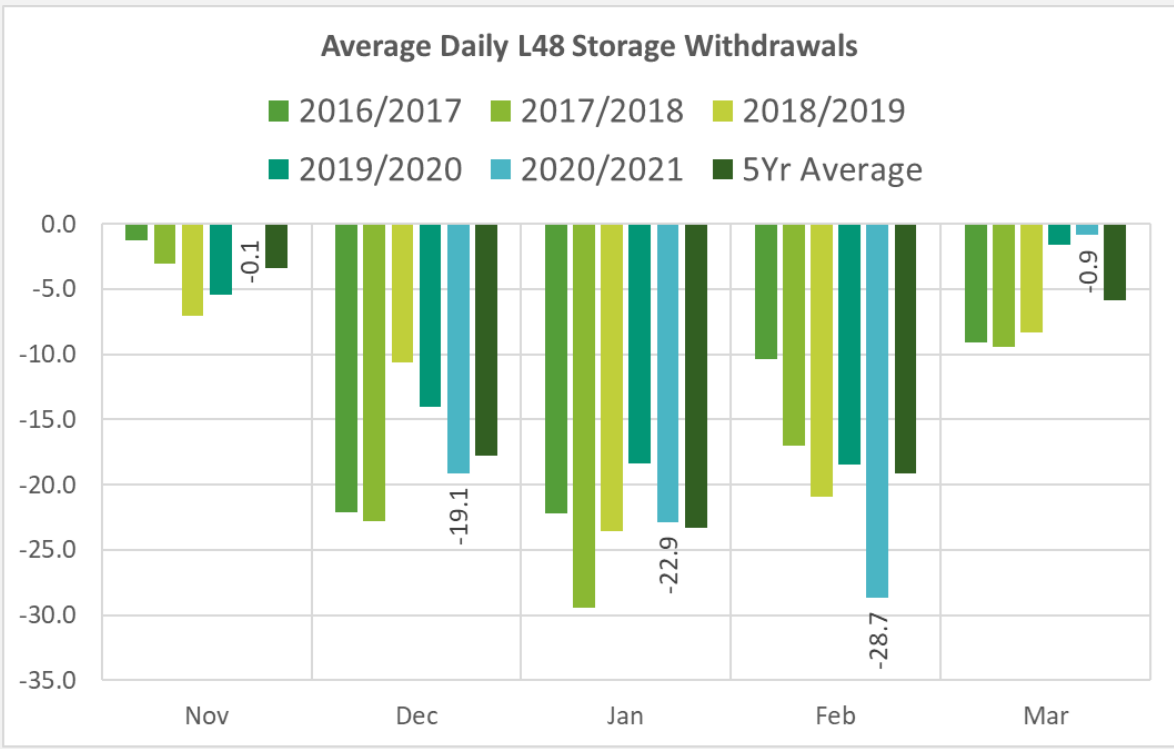
Other factors related to the lower industrial usage are the warming temps and remaining COVID impacts. This from the EIA:

“U.S. industrial consumption of natural gas decreased 2% in 2020. COVID-19-related closures and less demand reduced industrial consumption for much of the year. Industrial natural gas consumption has increased in 8 out of the past 10 years because of growth in dry natural gas production and relatively low natural gas prices.”

The modeled-up data from BNEF shows L48 natural gas consumption growing by 3.0 Bcf/d week-on-week for this upcoming report, despite temps flat.

Finally, I wanted to share a couple of charts on how this winter season finished in terms of storage activity, and what I am projecting for the summer.

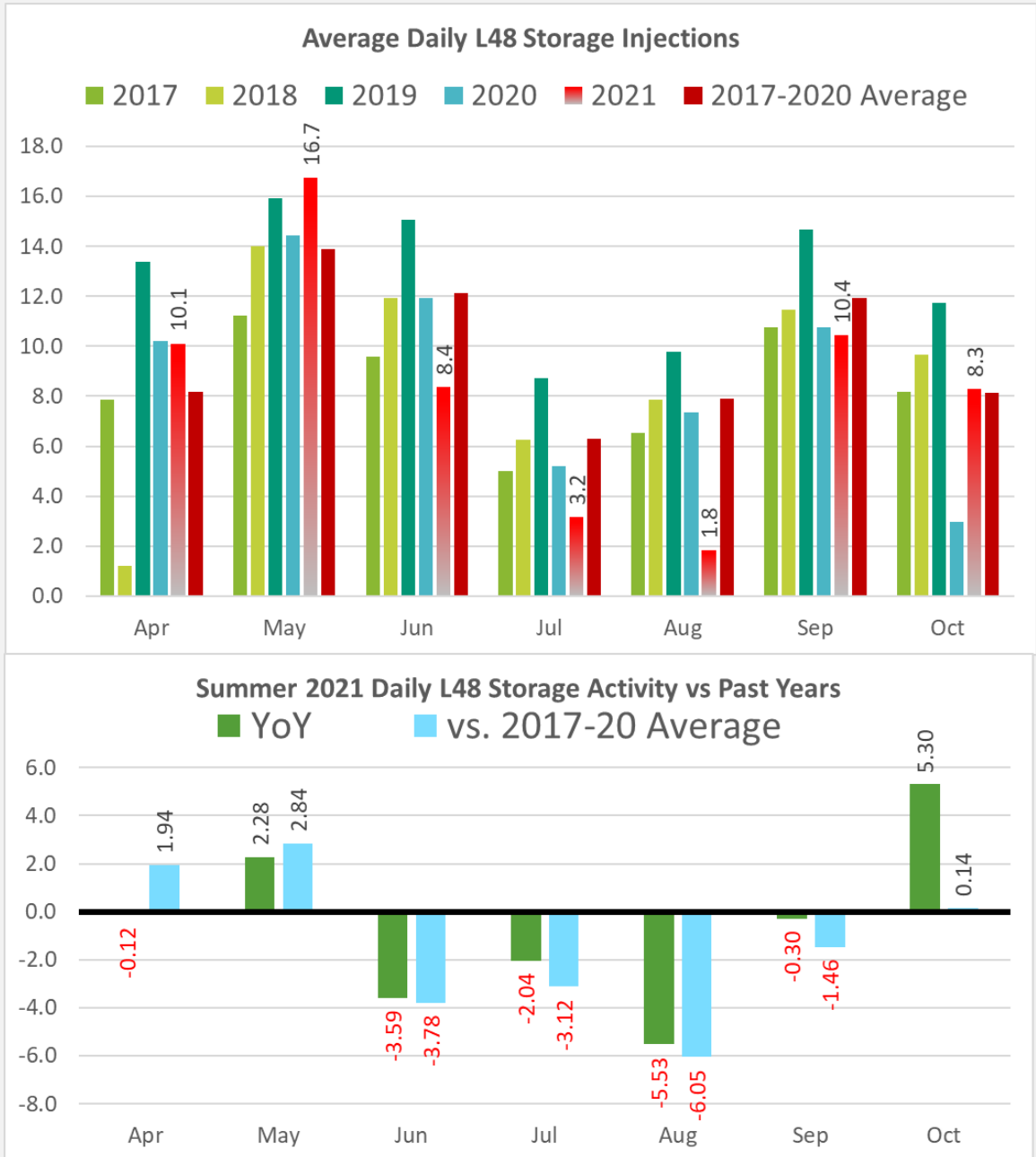
For the winter, the chart shows that storage draws in Dec and Jan were close to the 5Yr average. Feb was the major outlier with draws coming in considerably higher due to the extreme cold. This Mar is shaping up to be remarkably interesting and looking to be one of the lowest Mar draws on record



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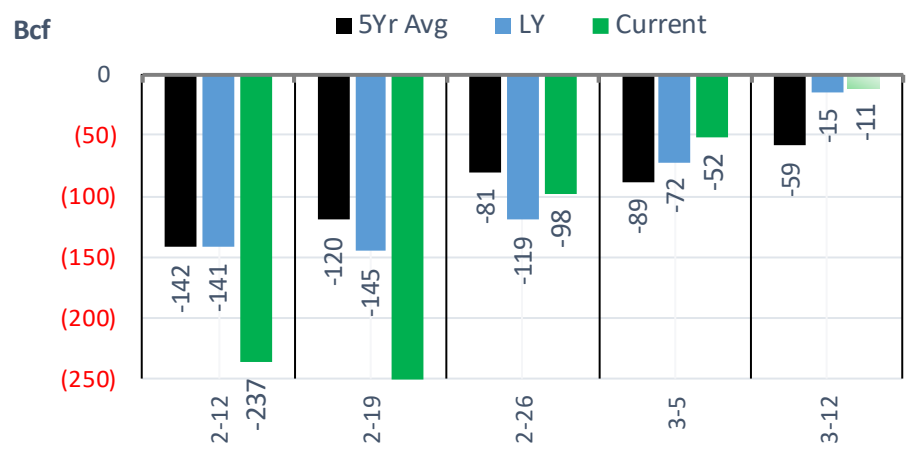
Here is the same chart for summer, including our summer storage activity forecast. At this point, it appears that June/Jul/Aug will be substantially tighter than in past years. For our modeled scenario our end of Oct storage level is 3572 Bcf.

In our summer balances, we have production ranging between 90-90.5 Bcf/d in this scenario, LNG/Mex export both growing, and model a lower gas consumption (power) mainly due to higher prices YoY and the renewable increase this past year.

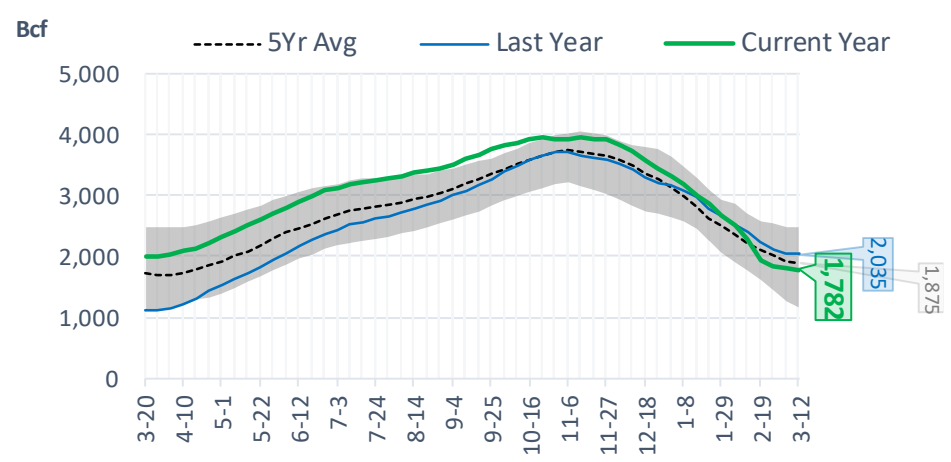


EIA Storage Report

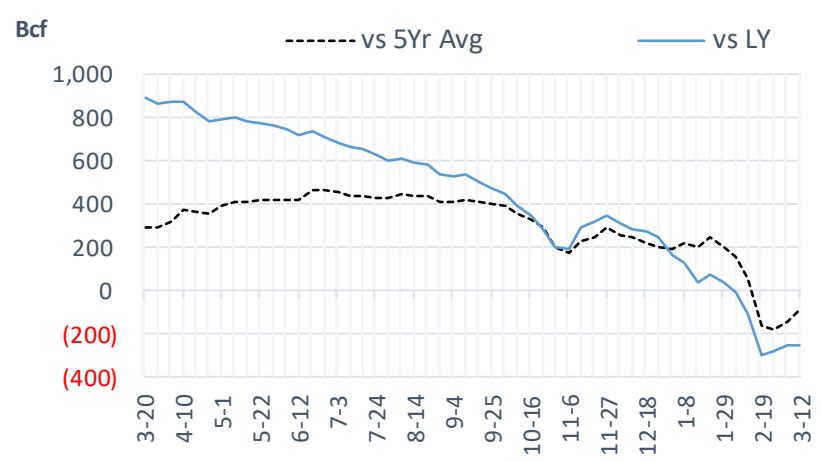
Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels



Total Lower 48 LY Surplus/Deficit

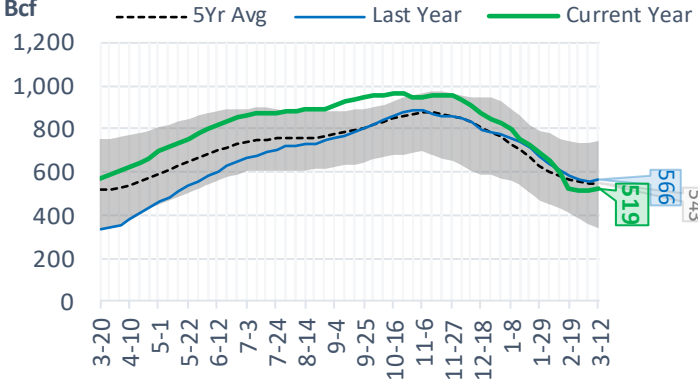


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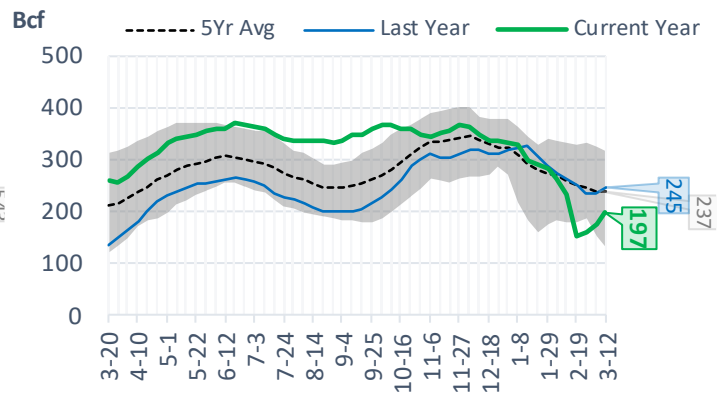
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 12-Mar	Week - 1 5-Mar	Week - 2 26-Feb	Week - 3 19-Feb	Week - 4 12-Feb	Week - 5 5-Feb
Total Lower 48 Storage Level	1782	1793	1845	1943	2281	2518
Weekly Change	-11	-52	-98	-338	-237	-171
vs LY	-253	-257	-277	-298	-105	-9
vs 5Yr Avg	-93	-141	-178	-161	+57	+152
S. Central Salt Storage Level	197	176	159	150	233	261
Weekly Change	+21	+17	+9	-83	-28	-20
vs LY	-48	-58	-74	-98	-27	-11
vs 5Yr Avg	-40	-62	-86	-99	-25	-8
S. Central NonSalt Storage Level	519	509	511	520	593	654
Weekly Change	+10	-2	-9	-73	-61	-35
vs LY	-47	-47	-51	-66	-20	+13
vs 5Yr Avg	-24	-35	-41	-42	+14	+50
Midwest Storage Level	426	440	465	508	589	666
Weekly Change	-14	-25	-43	-81	-77	-53
vs LY	-88	-93	-102	-97	-66	-37
vs 5Yr Avg	-23	-33	-42	-29	+11	+40
East Storage Level	328	350	383	424	485	529
Weekly Change	-22	-33	-41	-61	-44	-53
vs LY	-86	-80	-77	-72	-54	-48
vs 5Yr Avg	-25	-32	-32	-16	+3	+4
Mountain Storage Level	114	113	117	123	137	150
Weekly Change	+1	-4	-6	-14	-13	-8
vs LY	+18	+15	+14	+12	+17	+21
vs 5Yr Avg	+7	+4	+4	+4	+12	+18
Pacific Storage Level	199	205	210	218	244	257
Weekly Change	-6	-5	-8	-26	-13	-4
vs LY	0	+5	+13	+21	+45	+53
vs 5Yr Avg	+13	+17	+19	+21	+41	+48

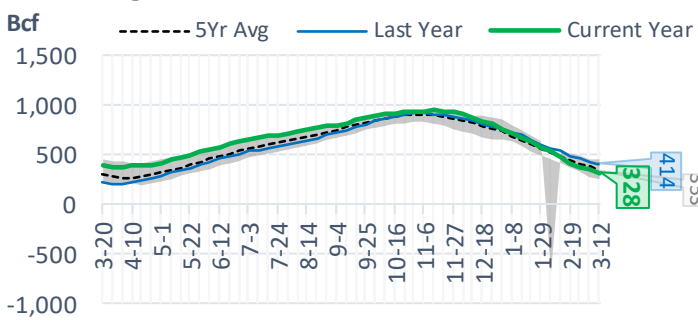
NonSalt Storage Levels



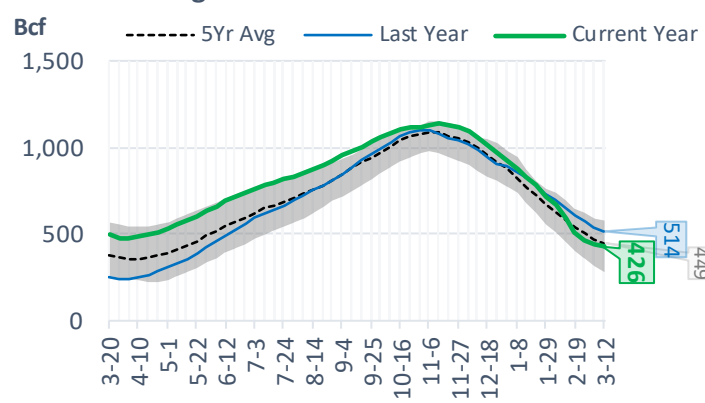
Salt Storage Levels



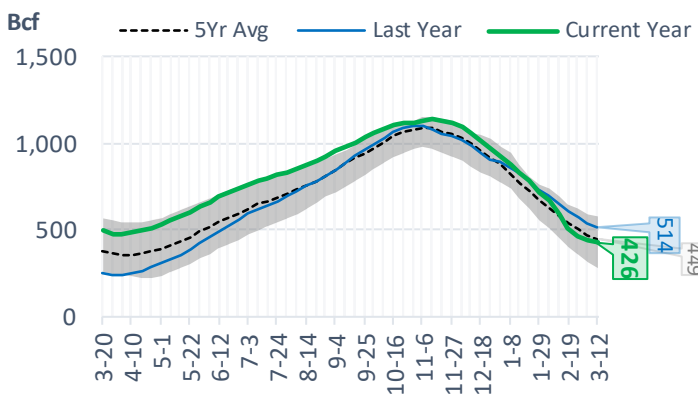
East Storage Levels



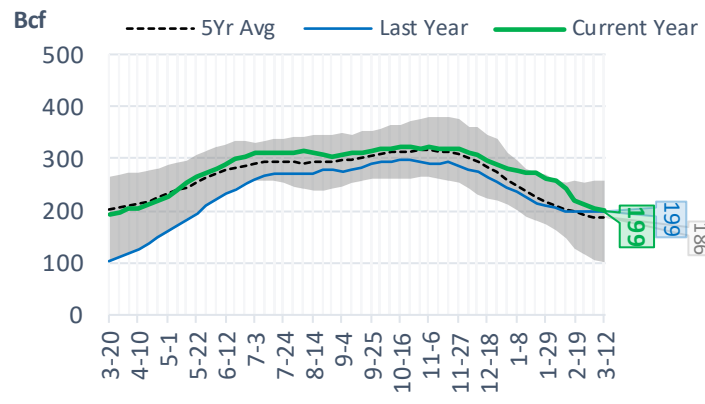
Midwest Storage Levels



Midwest Storage Levels



Pacific Storage Levels



EIA Storage Week Balances

	12-Feb	19-Feb	26-Feb	5-Mar	12-Mar	19-Mar	WoW	vs. 4W
Lower 48 Dry Production	90.3	76.5	84.6	92.4	92.5	92.4	▼ -0.1	▲ 5.9
Canadian Imports	6.3	7.8	6.2	4.9	4.7	5.0	▲ 0.2	▼ -0.9
L48 Power	28.7	30.2	25.3	26.2	24.9	24.8	▼ -0.1	▼ -1.9
L48 Residential & Commercial	52.4	59.8	41.8	35.5	30.7	30.5	▼ -0.2	▼ -11.5
L48 Industrial	23.9	20.3	21.9	19.5	18.6	21.6	▲ 3.0	▲ 1.5
L48 Lease and Plant Fuel	5.0	4.2	4.7	5.1	5.1	5.1	▼ 0.0	▲ 0.3
L48 Pipeline Distribution	3.7	4.1	3.0	2.9	2.6	2.6	▼ 0.0	▼ -0.5
L48 Regional Gas Consumption	113.7	118.6	96.7	89.2	81.8	84.6	▲ 2.8	▼ -12.0
Net LNG Exports	10.7	4.9	7.8	10.1	10.6	11.2	▲ 0.6	▲ 2.8
Total Mexican Exports	6.4	4.9	5.6	6.1	6.5	6.3	▼ -0.2	▲ 0.5
Implied Daily Storage Activity	-34.2	-44.1	-19.2	-8.0	-1.7	-4.7	-3.0	
EIA Reported Daily Storage Activity	-33.9	-48.3	-14.0	-7.4	-1.6			
Daily Model Error	-0.4	4.2	-5.2	-0.6	-0.1			

Monthly Balances

	2Yr Ago Mar-19	LY Mar-20	Nov-20	Dec-20	Jan-21	Feb-21	MTD Mar-21	MoM	vs. LY
Lower 48 Dry Production	88.7	93.7	90.6	91.3	91.2	85.7	92.3	▲ 6.6	▲ 1.1
Canadian Imports	5.1	4.1	4.6	5.8	6.3	6.4	5.0	▼ -1.4	▼ -0.8
L48 Power	25.7	28.3	25.8	28.1	28.7	27.9	25.5	▼ -2.4	▼ -2.6
L48 Residential & Commercial	35.7	27.4	25.0	39.8	44.4	48.5	32.2	▼ -16.4	▼ -7.6
L48 Industrial	23.0	22.1	22.0	23.7	22.8	21.7	20.0	▼ -1.7	▼ -3.6
L48 Lease and Plant Fuel	4.9	5.2	5.0	5.0	5.0	4.7	5.1	▲ 0.4	▲ 0.0
L48 Pipeline Distribution	2.9	2.6	2.5	3.1	3.3	3.4	2.7	▼ -0.7	▼ -0.3
L48 Regional Gas Consumption	92.3	85.7	80.4	99.7	104.3	106.3	85.5	▼ -20.7	▼ -14.2
Net LNG Exports	4.8	8.5	10.2	11.0	10.5	8.4	10.8	▲ 2.4	▼ -0.2
Total Mexican Exports	4.9	5.4	6.1	5.8	6.2	5.7	6.4	▲ 0.7	▲ 0.6
Implied Daily Storage Activity	-8.1	-1.9	-1.4	-19.5	-23.5	-28.3	-5.5		
EIA Reported Daily Storage Activity									
Daily Model Error									

Source: Bloomberg, analytix.ai

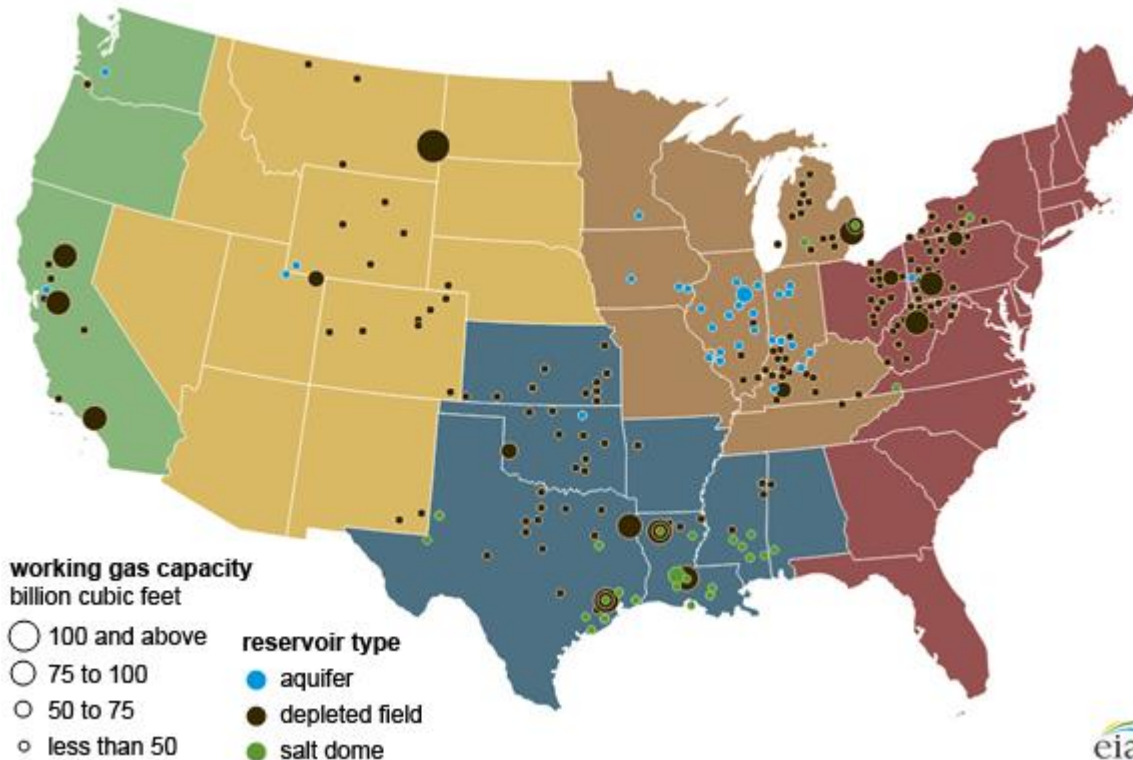
Regional S/D Models Storage Projection

Week Ending 19-Mar

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	-5.0	1.1	-3.9	-27
East	-5.2	2.4	-2.8	-20
Midwest	-2.7	-0.6	-3.3	-23
Mountain	2.9	-3.2	-0.3	-2
South Central	0.9	3.0	3.9	28
Pacific	-0.9	-0.5	-1.4	-10

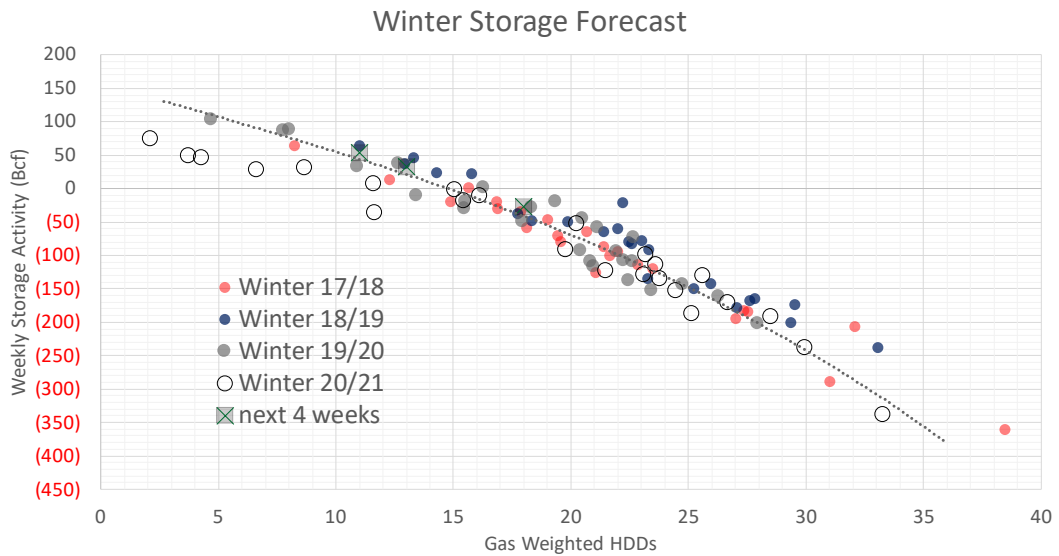
*Adjustment Factor is calculated based on historical regional deltas

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



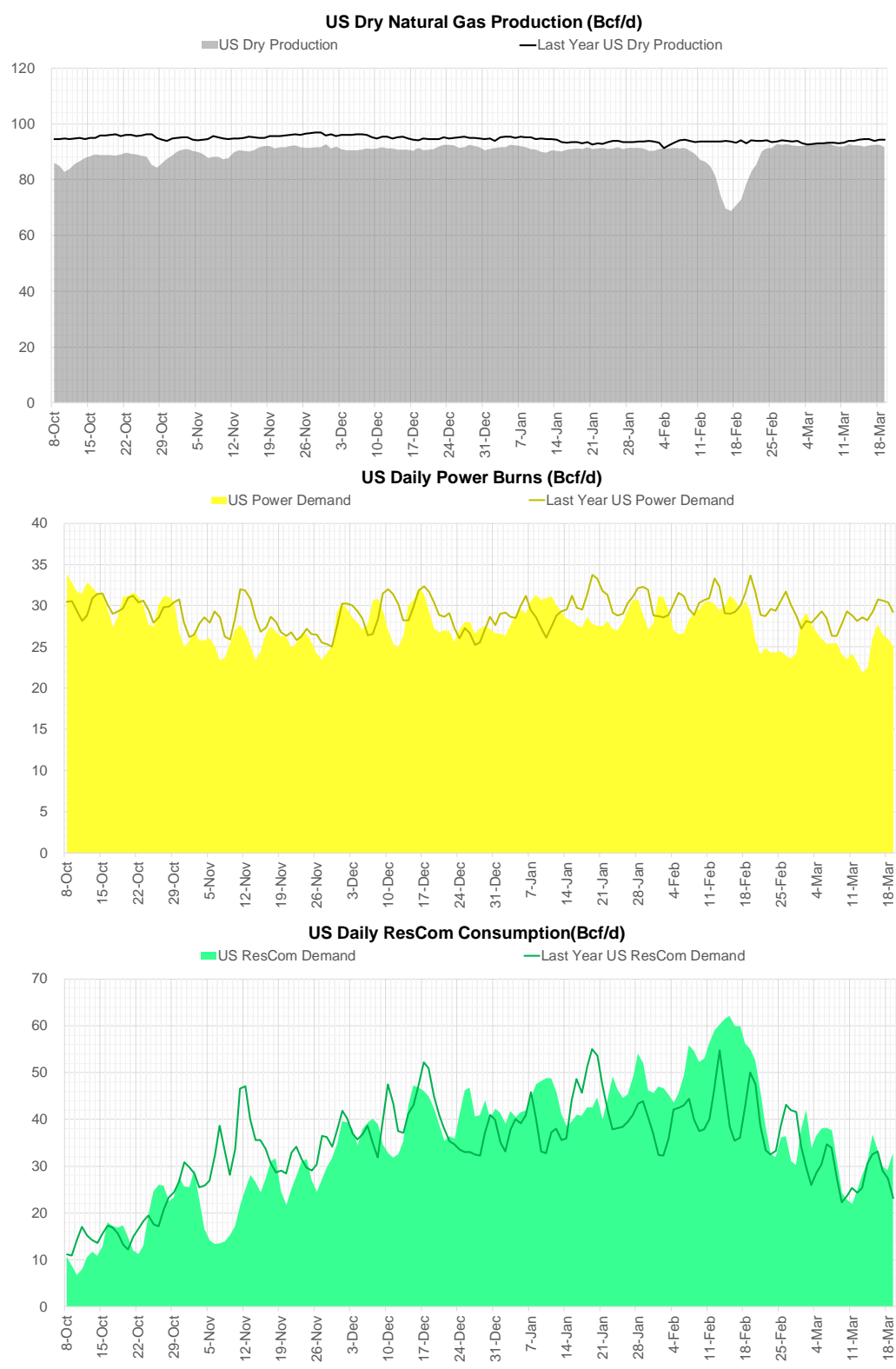
Weather Model Storage Projection

Next report and beyond		
Week Ending	Temp	Week Storage Projection
26-Mar	13.0	34
02-Apr	11.0	55
09-Apr	#N/A	#N/A



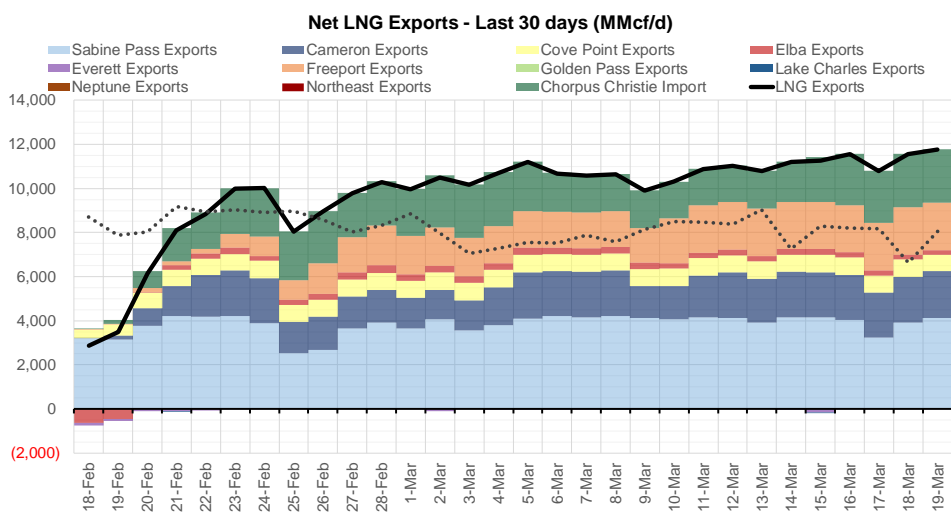
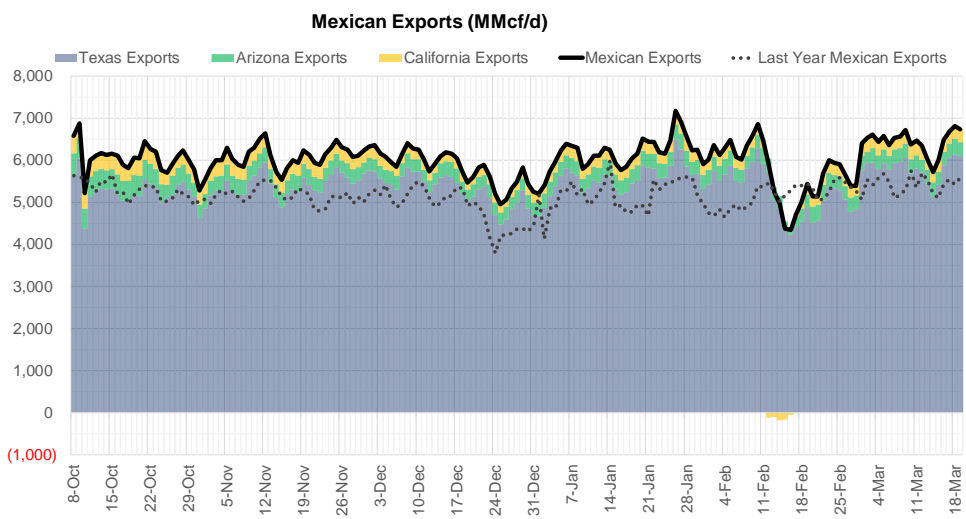
Note: this is not our official end of season forecast. This chart signifies where storage levels end with 10-year normal weather and current market tightness relative to last year

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

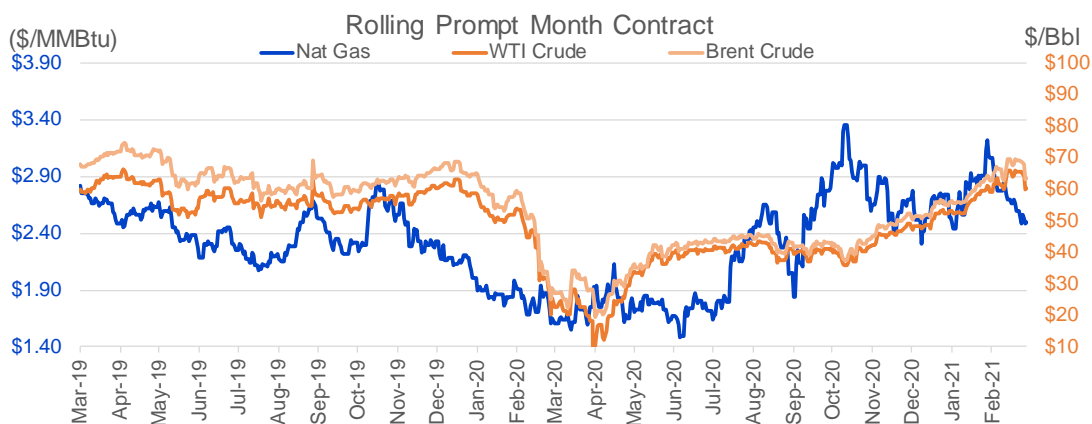
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
4	2021	P	2.25	4863	4	2021	C	3.00	56572
4	2021	P	2.40	3924	4	2021	C	4.00	53148
4	2021	C	2.60	3711	10	2021	C	4.00	42743
4	2021	C	2.75	3672	4	2021	P	2.50	42702
4	2021	P	2.50	3316	4	2021	C	3.25	39622
5	2021	C	3.00	3080	8	2021	C	4.00	33657
5	2021	P	2.30	2339	7	2021	C	4.00	31188
4	2021	C	2.50	2306	4	2021	C	2.75	31139
5	2021	C	2.95	2291	8	2021	C	3.50	29698
5	2021	C	2.85	2279	10	2021	C	3.25	29551
5	2021	P	2.50	1956	5	2021	C	3.00	28956
9	2021	C	3.50	1854	6	2021	C	4.00	27953
4	2021	P	2.45	1806	4	2021	P	2.00	26415
5	2021	P	2.20	1644	4	2021	P	2.25	26228
9	2021	C	3.35	1500	5	2021	C	3.50	25554
4	2021	P	2.35	1451	5	2021	P	2.50	24837
4	2021	P	2.30	1305	5	2021	C	4.00	24706
6	2021	P	2.40	1275	10	2021	C	5.00	24630
5	2021	P	2.25	1263	4	2021	C	3.50	23983
5	2021	C	2.65	1168	5	2021	C	3.25	23541
5	2021	C	3.10	1028	4	2021	P	2.75	22775
6	2021	C	2.85	1000	10	2021	C	3.50	21088
4	2021	C	2.55	992	6	2021	P	2.50	20875
6	2021	P	2.50	933	4	2021	C	5.00	20533
7	2021	C	3.50	931	6	2021	C	3.00	20418
5	2021	P	2.35	913	8	2021	P	2.25	20386
5	2021	P	2.00	855	5	2021	P	2.25	20343
5	2021	C	2.75	852	4	2021	P	2.60	18974
8	2021	P	1.90	820	5	2021	P	2.00	18950
8	2021	P	2.20	820	7	2021	C	3.50	18727
4	2021	C	2.65	804	4	2022	C	3.00	18314
6	2021	P	2.60	769	10	2021	C	3.00	18261
5	2021	C	2.60	722	6	2021	C	3.50	17791
5	2021	P	2.40	715	11	2021	C	4.00	17650
5	2021	C	3.25	686	9	2021	P	2.00	17496
4	2021	P	2.20	658	10	2021	P	2.00	17311
10	2021	C	3.00	610	12	2021	C	4.00	17262
10	2021	C	3.50	600	9	2021	C	3.50	17222
1	2022	P	2.25	600	6	2021	C	3.25	16919
5	2021	P	2.15	588	4	2021	C	2.50	16731
7	2021	P	2.50	579	6	2021	P	2.00	16585
4	2021	P	2.00	572	10	2021	P	2.50	16536
7	2021	C	4.00	555	6	2021	P	2.25	16527
3	2022	P	2.25	550	7	2021	C	3.25	16070
5	2021	C	2.90	536	7	2021	P	2.50	16009
5	2021	C	2.55	523	7	2021	P	2.00	15233
7	2021	P	2.60	522	8	2021	P	2.00	15064
7	2021	P	2.25	521	4	2021	C	3.75	15049
8	2021	C	3.50	513	8	2021	C	3.25	14291
					5	2021	C	2.75	13929

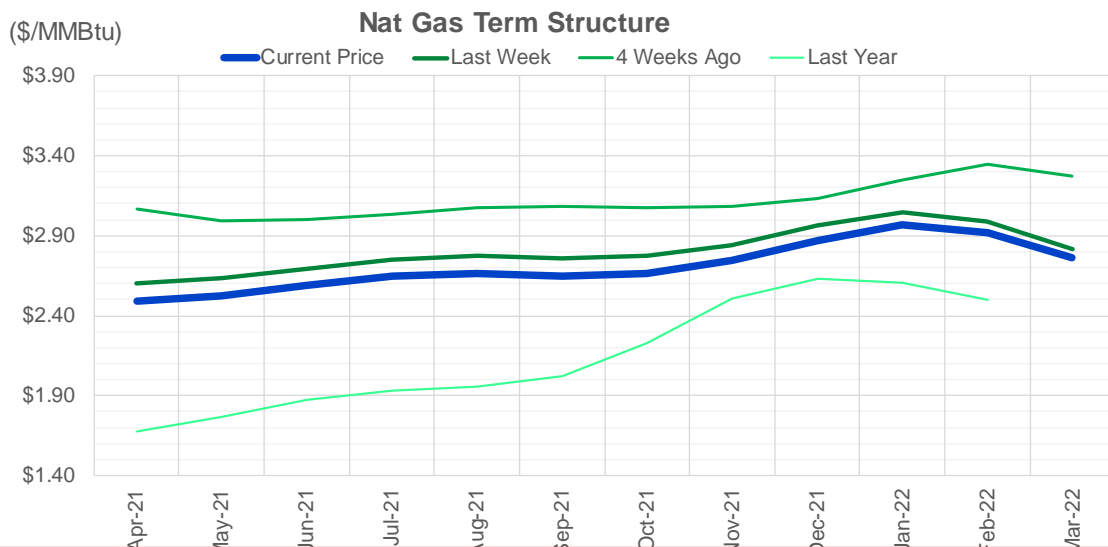
Source: CME, Nasdaq, ICE

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
APR 21	71545	84519	-12974	APR 21	87962	90099	-2137
MAY 21	264916	252133	12783	MAY 21	88011	88394	-384
JUN 21	102766	102869	-103	JUN 21	76594	76094	499
JUL 21	90693	87465	3228	JUL 21	80059	79277	782
AUG 21	51416	49855	1561	AUG 21	77920	78028	-108
SEP 21	101829	101052	777	SEP 21	69283	69270	14
OCT 21	131809	127569	4240	OCT 21	85709	85671	38
NOV 21	64703	65252	-549	NOV 21	55949	56149	-200
DEC 21	44959	45604	-645	DEC 21	57292	57502	-210
JAN 22	54367	53579	788	JAN 22	58165	58120	45
FEB 22	19309	19804	-495	FEB 22	42886	42412	474
MAR 22	42704	42996	-292	MAR 22	48308	48251	58
APR 22	43518	43492	26	APR 22	44485	44136	349
MAY 22	19810	19831	-21	MAY 22	37381	37195	187
JUN 22	13430	13123	307	JUN 22	35788	35521	267
JUL 22	8146	8058	88	JUL 22	35755	35657	97
AUG 22	8220	8171	49	AUG 22	35100	34792	308
SEP 22	8637	8567	70	SEP 22	35943	35637	307
OCT 22	19171	18907	264	OCT 22	42515	42059	457
NOV 22	9154	9048	106	NOV 22	33317	33160	157
DEC 22	8855	8948	-93	DEC 22	38382	38329	52
JAN 23	6291	6281	10	JAN 23	20860	20838	22
FEB 23	2336	2335	1	FEB 23	19227	19186	41
MAR 23	4448	4426	22	MAR 23	21210	21072	138
APR 23	4876	4934	-58	APR 23	17246	17120	126
MAY 23	3607	3558	49	MAY 23	16787	16263	523
JUN 23	1086	1086	0	JUN 23	15938	15848	90
JUL 23	992	998	-6	JUL 23	15741	15646	94
AUG 23	749	769	-20	AUG 23	16080	15985	95
SEP 23	605	605	0	SEP 23	15152	15016	136

Source: CME, ICE






	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
Current Price	\$2.493	\$2.525	\$2.588	\$2.648	\$2.661	\$2.651	\$2.666	\$2.742	\$2.873	\$2.967	\$2.920	\$2.760
Last Week	\$2.600	\$2.636	\$2.695	\$2.752	\$2.771	\$2.761	\$2.775	\$2.843	\$2.965	\$3.048	\$2.987	\$2.813
vs. Last Week	-\$0.107	-\$0.111	-\$0.107	-\$0.104	-\$0.110	-\$0.110	-\$0.109	-\$0.101	-\$0.092	-\$0.081	-\$0.067	-\$0.053
4 Weeks Ago	\$3.069	\$2.991	\$3.001	\$3.038	\$3.079	\$3.087	\$3.073	\$3.084	\$3.135	\$3.252	\$3.343	\$3.272
vs. 4 Weeks Ago	-\$0.576	-\$0.466	-\$0.413	-\$0.390	-\$0.418	-\$0.436	-\$0.407	-\$0.342	-\$0.262	-\$0.285	-\$0.423	-\$0.512
Last Year	\$1.604	\$1.675	\$1.765	\$1.877	\$1.927	\$1.957	\$2.025	\$2.226	\$2.509	\$2.630	\$2.602	\$2.501
vs. Last Year	\$0.889	\$0.850	\$0.823	\$0.771	\$0.734	\$0.694	\$0.641	\$0.516	\$0.364	\$0.337	\$0.318	\$0.259

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jan21/Apr21	\$/MMBtu	0.026	▼ -0.107	▼ -0.498	▲ 0.402
NatGas Mar21/Apr21	\$/MMBtu	-0.361	▼ -0.107	▼ -0.439	▼ -0.608
NatGas Oct21/Nov21	\$/MMBtu	0.076	▲ 0.008	▲ 0.025	▲ 0.018
NatGas Apr21/Oct21	\$/MMBtu	0.173	▲ 0.481	▲ 0.790	▼ -0.145
WTI Crude	\$/Bbl	60.21	▼ -5.400	▲ 0.970	▲ 37.780
Brent Crude	\$/Bbl	63.40	▼ -5.820	▲ 0.490	▲ 36.420
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	179.36	▼ -17.390	▼ -2.930	▲ 78.730
Propane, Mt. Bel	cents/Gallon	0.92	▼ -0.033	▲ 0.002	▲ 0.626
Ethane, Mt. Bel	cents/Gallon	0.22	▼ -0.005	▼ -0.054	▲ 0.095
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 
3/19/2021						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	318	9	309	-346	664	
Gas	92	0	92	-14	106	
Miscellaneous	1	0	1	-1	2	
Directional	14	-1	15	-35	49	
Horizontal	372	10	362	-324	696	
Vertical	25	0	25	-2	27	
Canada Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	41	-17	58	-11	52	
Gas	51	-7	58	5	46	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Ardmore Woodford	0	0	0	-4	4	
Arkoma Woodford	0	0	0	-1	1	
Barnett	1	0	1	0	1	
Cana Woodford	11	0	11	-7	18	
DJ-Niobrara	7	0	7	-13	20	
Eagle Ford	32	3	29	-35	67	
Granite Wash	0	0	0	-3	3	
Haynesville	45	0	45	2	43	
Marcellus	30	0	30	-9	39	
Mississippian	0	0	0	-2	2	
Permian	216	4	212	-189	405	
Utica	9	0	9	0	9	
Williston	13	1	12	-38	51	