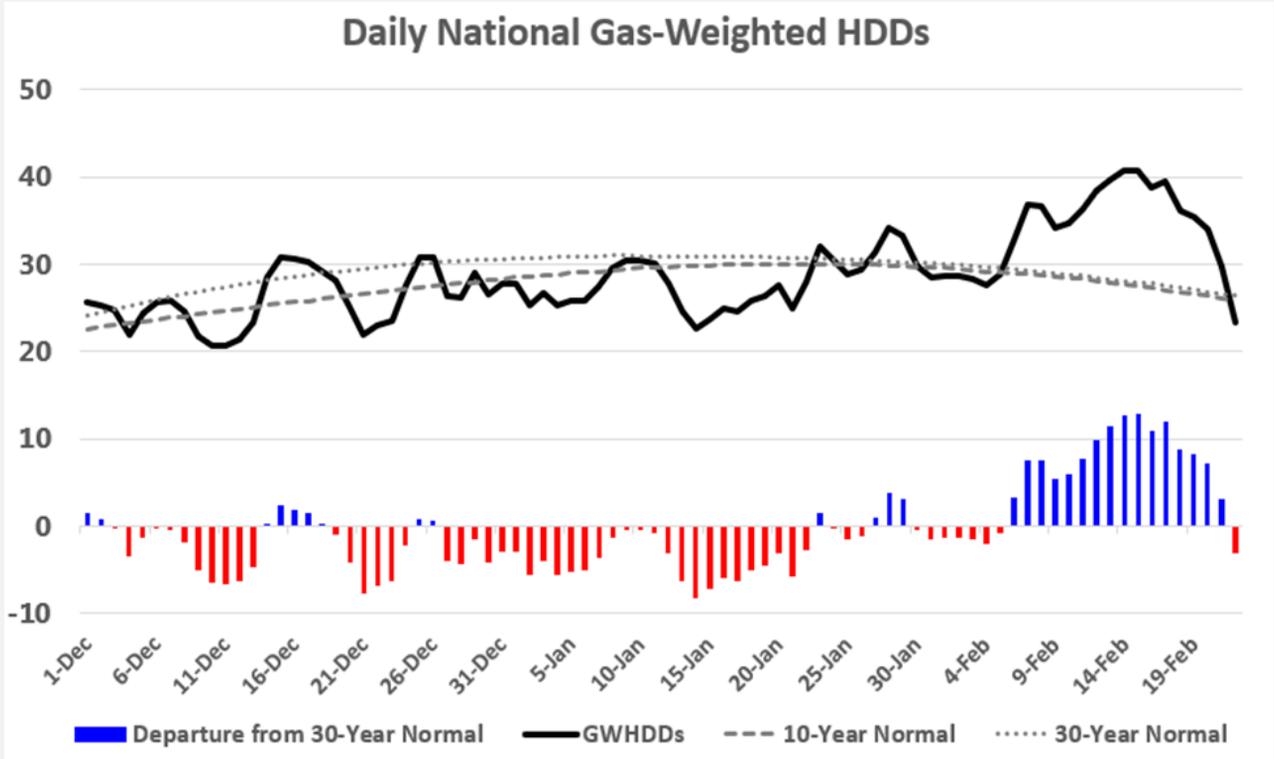
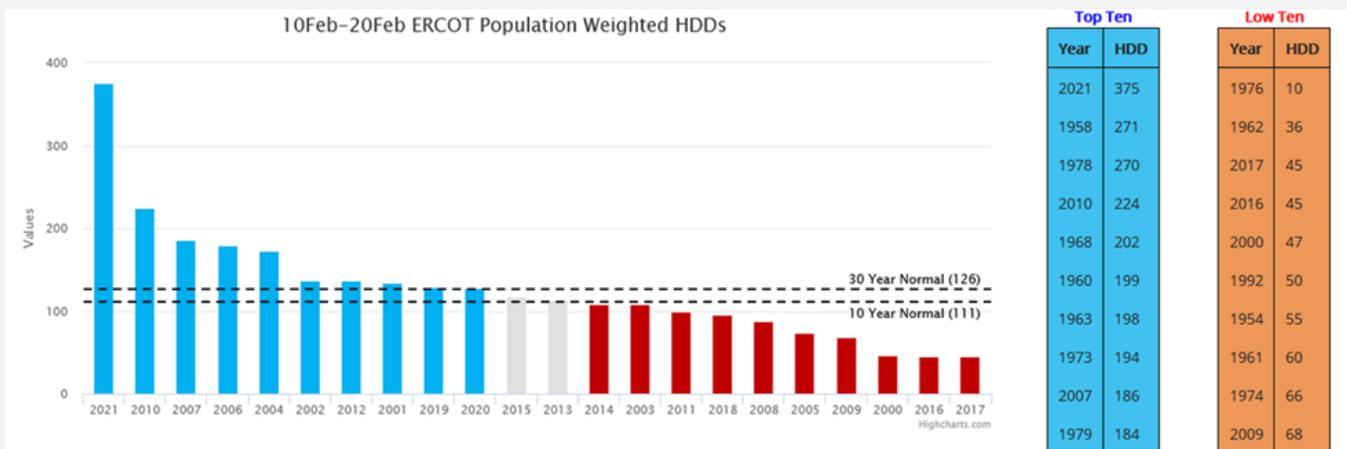


For this weekend's report, we take a look at the latest monthly supply and demand figures from the EIA. This data is most interesting because it covers the cold period during February and we can now see how each line item of the natural gas balance was impacted by the severe cold episode in that month.

As a recap on the weather intensity we saw in mid Feb, here is a graphic from Maxar showing the extreme level of HDDs from Feb 10th to the 20th.



The graphic below shows just how the Feb 10-20 window was by far the coldest on record for mid-Feb. 2010 was the only other recent year that was comparable, but even that comparison is a stretch.



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We did not anticipate the major impacts to the natural gas system and regional cash prices, as a result of severe cold weather. In the future, we can expect more major impacts besides production freeze-offs, such as:

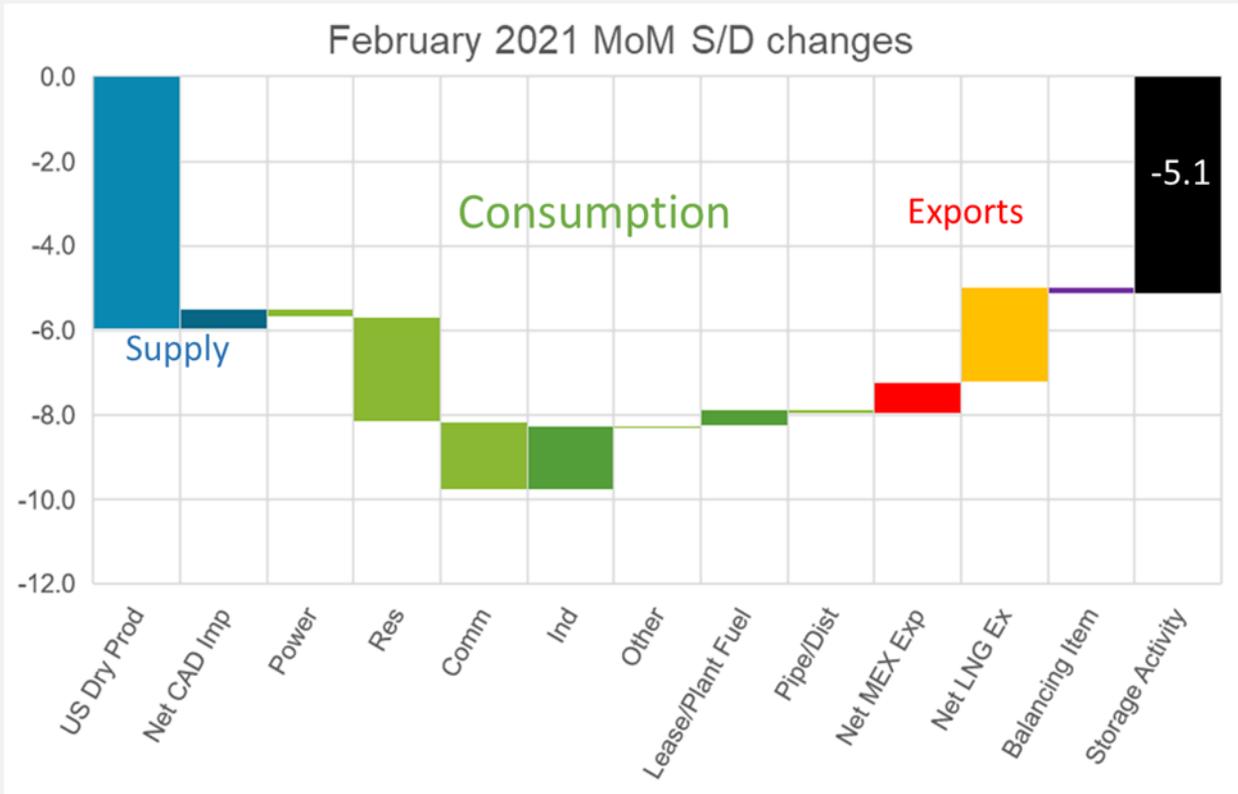
- 1) a power shortage crisis (due to restricted gas pipeline flows, frozen infrastructure at gas and coal power stations, failure of wind generation due to lack of de-icing capabilities)
- 2) industrial facility outages
- 3) changes to LNG flows due to lack of supplies and changing economics

Below are the supply and demand balances for the month. Let's keep in mind that the first 1/3 of the month was normal and that all the impact was related to the 10 days in the middle of the month plus some lingering effects past that.

	Winter 19/20					Winter 20/21				MoM	YoY
	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Nov-20	Dec-20	Jan-21	Feb-21		
US Dry Production	96.7	97.2	95.3	94.9	94.7	92.0	92.5	92.3	86.3	-6.0	-8.6
Net Imports from Canada	4.3	4.4	4.8	5.3	4.0	4.3	5.7	6.2	6.7	0.5	1.3
Power	27.3	28.9	30.0	30.3	28.4	25.6	28.2	27.9	28.1	0.2	-2.2
Res	19.6	24.3	26.5	25.3	16.9	14.6	25.6	28.3	30.7	2.5	5.5
Comm	13.0	14.7	15.7	15.3	10.9	9.8	14.5	15.8	17.4	1.6	2.2
Ind	24.5	25.1	25.5	25.2	23.2	23.7	25.4	25.5	24.0	-1.5	-1.2
Vehicle	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0
Lease and Plant Fuel	5.3	5.3	5.2	5.2	5.2	5.0	5.0	5.0	4.7	-0.4	-0.5
Pipeline and Distribution	2.8	3.1	3.2	3.2	2.7	2.5	3.1	3.2	3.3	0.1	0.1
Total Consumption	92.6	101.6	106.3	104.6	87.4	81.3	101.9	106.0	108.5	2.5	3.9
Net Exports to Mexico	5.3	4.9	5.2	5.2	5.4	5.5	5.3	5.6	4.9	-0.7	-0.3
Net LNG Export Only	6.3	6.8	7.6	7.6	7.8	9.3	9.6	9.6	7.4	-2.3	-0.2
Balancing Item	-2.3	-2.4	0.6	-1.4	0.2	-0.2	-0.6	-0.3	-0.5	-0.2	0.9
Daily Storage Activity	-5.5	-14.0	-18.4	-18.5	-1.6	-0.1	-19.1	-23.0	-28.1	-5.1	-9.6
Monthly Storage Activity	-164	-434	-570	-536	-49	-2	-593	-712	-787	-75	-251
South Central Storage Level	1180	1095	935	778	857	1313	1155	945	678	-266	-100
Pacific Storage Level	283	245	210	199	200	316	282	259	209	-50	10
Midwest Storage Level	1030	885	717	541	472	1108	918	692	453	-239	-88
East Storage Level	886	764	592	438	385	929	763	557	377	-180	-60
Mountain Storage Level	196	167	135	99	92	236	195	155	115	-40	16
L48 Storage Level	3575	3156	2588	2055	2006	3902	3313	2608	1833	-775	-222
L48 Population CDD	0.5	0.3	0.3	0.4	1.3	0.9	0.1	0.1	0.4	0.3	0.0
L48 Population HDD	18.9	22.2	22.9	22.6	14.4	13.5	23.6	25.3	27.7	2.4	5.1
L48 Population TDD	19.4	22.5	23.2	23.0	15.7	14.5	23.7	25.4	28.1	2.7	5.1
Henry Hub	\$2.60	\$2.47	\$2.16	\$1.88	\$1.82	\$3.00	\$2.90	\$2.47	\$2.76	\$ 0.29	\$ 0.88

Tightening Factors: lower domestic production, increased power, and RC usage

Offsetting (Loosening) Factors: lower industrial usage, and lower net exports to LNG and Mexico



Overall balances were -5.1 Bcf/d tighter month-on-month, and -9.6 tighter year-on-year. The cold temp resulted in a 787 Bcf draw leading to a year-on-year deficit in storage (after carrying a surplus throughout 2020).

The total draw in previous Feb's were:

2021 was 787 Bcf [28.1 Bcf/d]

2020 was 536 Bcf [19.1 Bcf/d] (29 days)

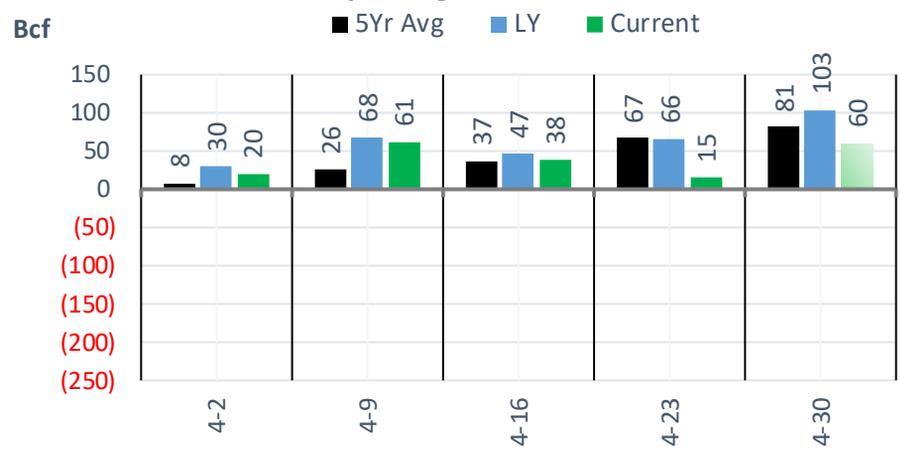
2019 was 586 Bcf [20.9 Bcf/d]

2018 was 477 Bcf [17.0 Bcf/d]

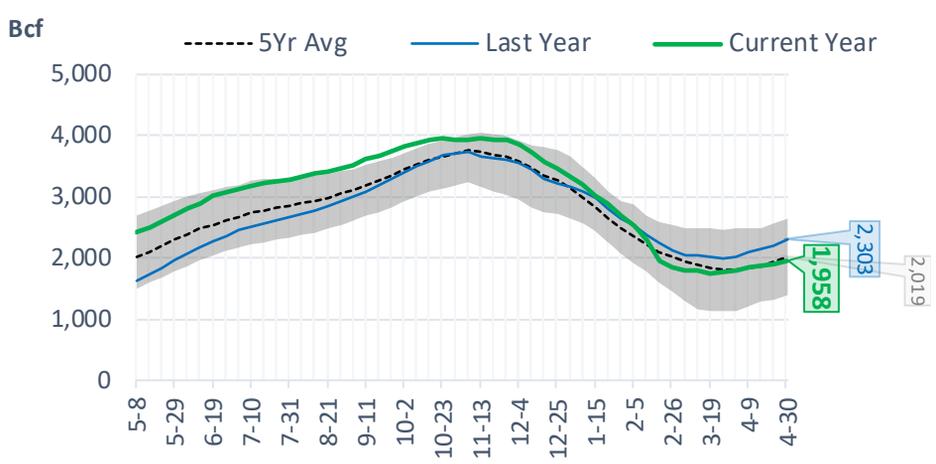
2017 was 291 Bcf [10.4 Bcf/d]

EIA Storage Report

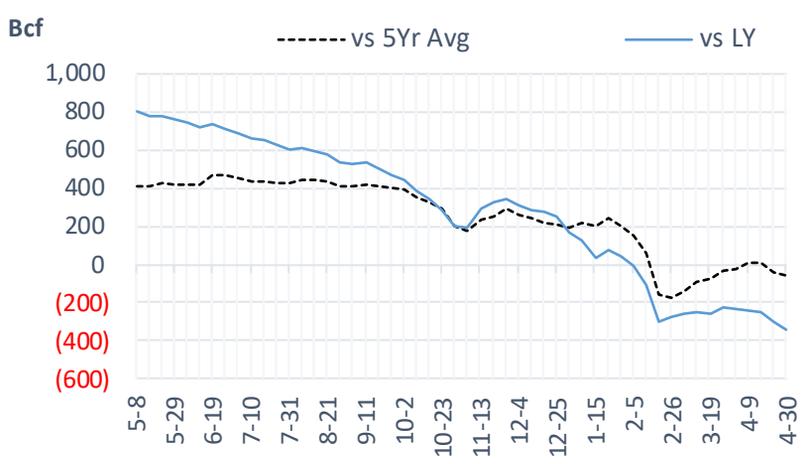
Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels



Total Lower 48 LY Surplus/Deficit

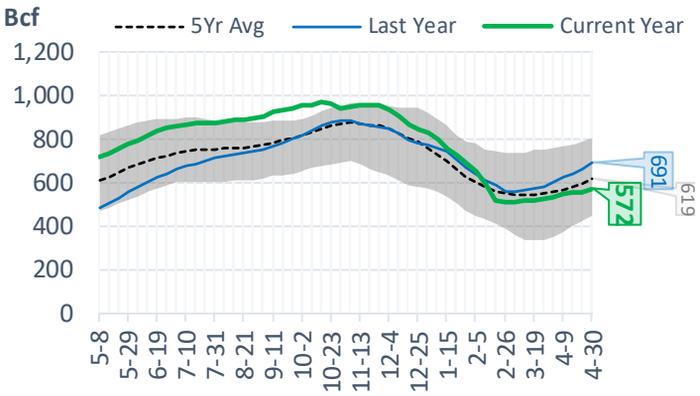


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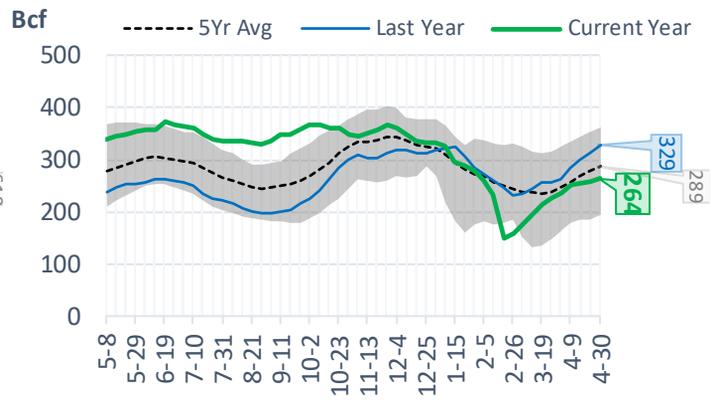
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 30-Apr	Week - 1 23-Apr	Week - 2 16-Apr	Week - 3 9-Apr	Week - 4 2-Apr	Week - 5 26-Mar
Total Lower 48 Storage Level	1958	1898	1883	1845	1784	1764
Weekly Change	+60	+15	+38	+61	+20	+14
vs LY	-345	-302	-251	-242	-235	-225
vs 5Yr Avg	-61	-40	+12	+11	-24	-36
S. Central Salt Storage Level	264	258	256	251	235	226
Weekly Change	+6	+2	+5	+16	+9	+11
vs LY	-65	-54	-43	-32	-29	-30
vs 5Yr Avg	-25	-20	-12	-7	-13	-13
S. Central NonSalt Storage Level	572	558	554	547	533	523
Weekly Change	+14	+4	+7	+14	+10	+4
vs LY	-119	-103	-84	-76	-71	-60
vs 5Yr Avg	-47	-41	-28	-22	-25	-25
Midwest Storage Level	442	427	421	414	398	401
Weekly Change	+15	+6	+7	+16	-3	-4
vs LY	-85	-77	-71	-71	-77	-77
vs 5Yr Avg	+13	+15	+20	+16	-2	-6
East Storage Level	332	319	325	311	305	307
Weekly Change	+13	-6	+14	+6	-2	0
vs LY	-89	-85	-75	-86	-77	-77
vs 5Yr Avg	-14	-7	+16	+8	+2	-3
Mountain Storage Level	124	119	118	118	115	112
Weekly Change	+5	+1	0	+3	+3	0
vs LY	+14	+17	+22	+23	+23	+20
vs 5Yr Avg	+7	+6	+9	+11	+9	+6
Pacific Storage Level	224	217	210	205	198	194
Weekly Change	+7	+7	+5	+7	+4	+1
vs LY	-3	0	+1	+2	-4	-3
vs 5Yr Avg	+5	+7	+7	+7	+4	+5

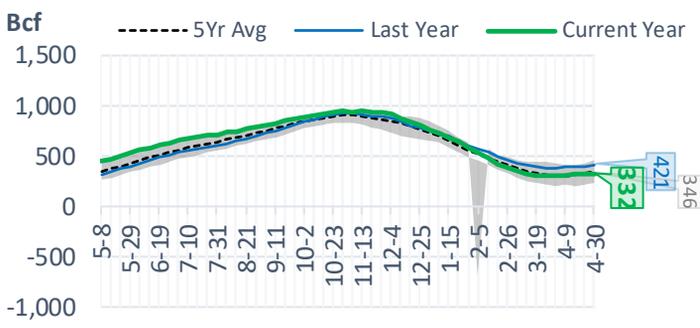
NonSalt Storage Levels



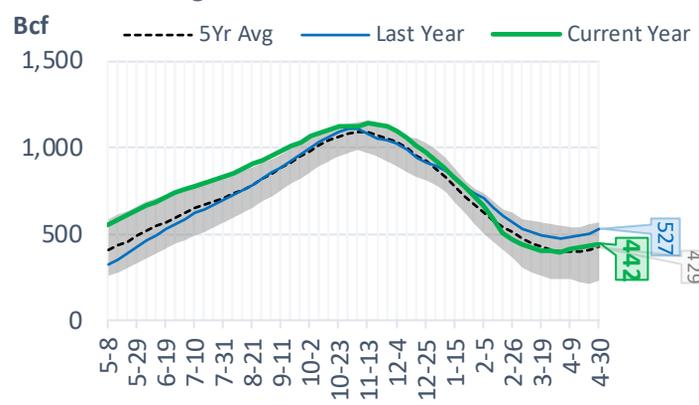
Salt Storage Levels



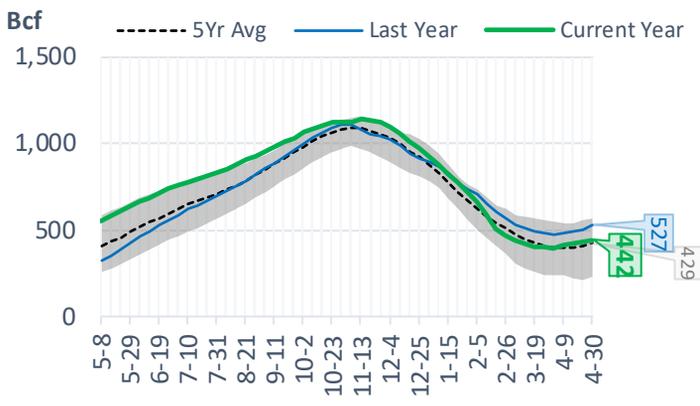
East Storage Levels



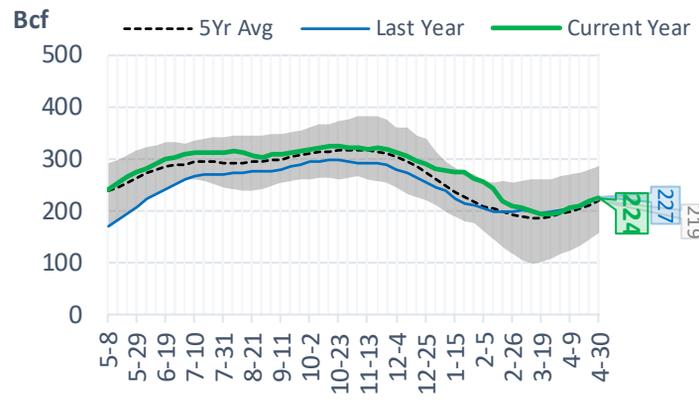
Midwest Storage Levels



Midwest Storage Levels



Pacific Storage Levels



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EIA Storage Week Balances

	2-Apr	9-Apr	16-Apr	23-Apr	30-Apr	7-May	WoW	vs. 4W
Lower 48 Dry Production	91.5	91.4	90.9	90.2	90.7	89.9	▼-0.8	▼-0.8
Canadian Imports	4.5	4.2	4.3	5.3	4.6	4.5	▼-0.1	▼-0.1
L48 Power	24.6	23.2	24.6	25.9	26.7	26.7	▼ 0.0	▲ 1.6
L48 Residential & Commercial	23.4	18.6	18.6	24.0	16.5	13.5	▼-3.1	▼-6.0
L48 Industrial	20.1	20.6	20.3	19.4	19.1	18.7	▼-0.4	▼-1.2
L48 Lease and Plant Fuel	5.0	5.0	5.0	5.0	5.0	5.0	▼ 0.0	▼ 0.0
L48 Pipeline Distribution	2.3	2.1	2.1	2.5	2.1	2.0	▼-0.1	▼-0.2
L48 Regional Gas Consumption	75.4	69.5	70.6	76.7	69.4	65.8	▼-3.6	▼-5.8
Net LNG Exports	11.7	11.5	11.4	11.6	11.4	11.3	▼-0.1	▼-0.1
Total Mexican Exports	6.4	6.2	7.3	6.8	6.7	6.7	▲ 0.0	▼ 0.0
Implied Daily Storage Activity	2.5	8.4	5.9	0.5	7.9	10.7	2.8	
EIA Reported Daily Storage Activity	2.9	8.7	5.4	2.1	8.6			
Daily Model Error	-0.4	-0.4	0.5	-1.6	-0.7			

Monthly Balances

	2Yr Ago May-19	LY May-20	Jan-21	Feb-21	Mar-21	Apr-21	MTD May-21	MoM	vs. LY
Lower 48 Dry Production	90.1	86.5	90.3	83.2	90.7	90.8	89.6	▼-1.3	▲ 6.3
Canadian Imports	4.7	3.9	6.3	6.4	4.8	4.7	4.5	▼-0.1	▼-1.8
L48 Power	26.9	26.9	28.2	27.9	25.0	25.2	26.7	▲ 1.5	▼-1.3
L48 Residential & Commercial	12.8	12.7	43.9	47.9	28.4	19.7	13.6	▼-6.1	▼-34.3
L48 Industrial	22.7	18.9	23.1	20.2	18.8	19.9	17.7	▼-2.2	▼-2.4
L48 Lease and Plant Fuel	5.0	4.8	5.0	4.7	5.0	5.0	5.0	▼ 0.0	▲ 0.3
L48 Pipeline Distribution	2.1	2.0	3.2	3.3	2.5	2.2	2.1	▼-0.2	▼-1.2
L48 Regional Gas Consumption	69.4	65.3	103.4	103.9	79.8	72.1	65.0	▼-7.1	▼-38.9
Net LNG Exports	5.6	6.7	10.5	8.4	11.1	11.5	11.3	▼-0.1	▲ 2.9
Total Mexican Exports	5.0	4.8	6.2	5.7	6.5	6.7	6.7	▲ 0.0	▲ 1.0
Implied Daily Storage Activity	14.8	13.6	-23.5	-28.5	-1.9	5.2	11.0		
EIA Reported Daily Storage Activity									
Daily Model Error									

Source: Bloomberg, analytix.ai

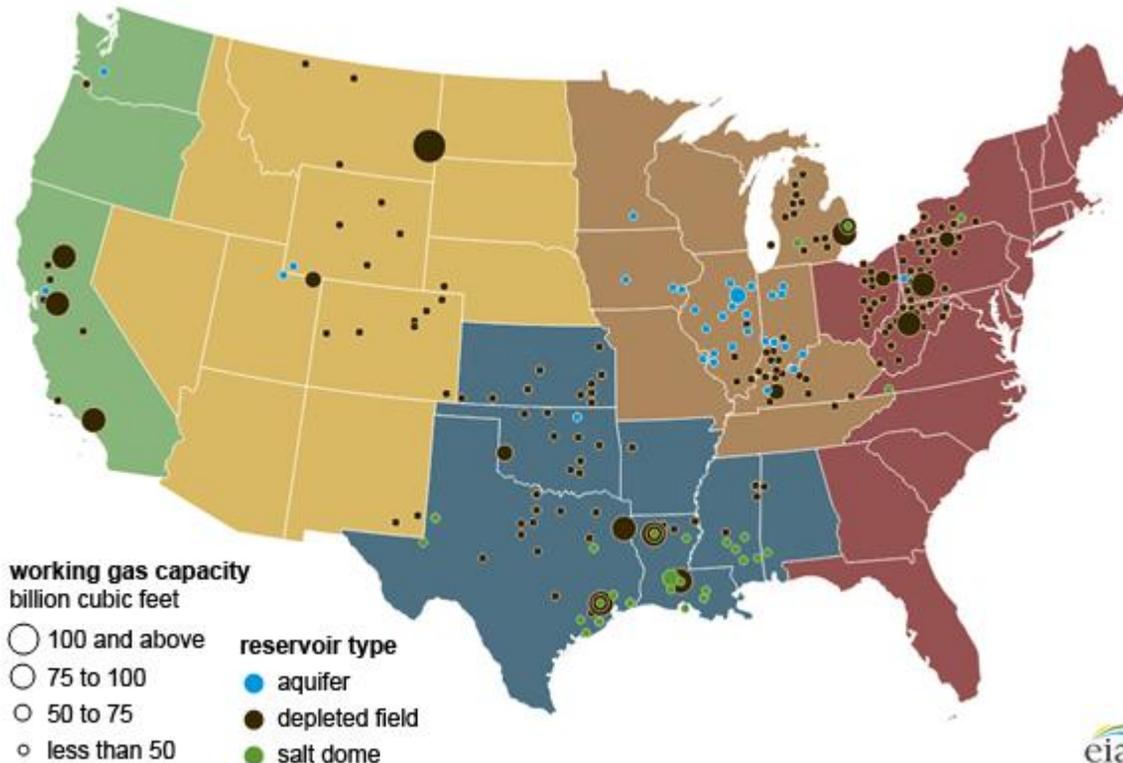
Regional S/D Models Storage Projection

Week Ending 7-May

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	10.3	0.9	11.3	79
East	0.9	1.8	2.7	19
Midwest	3.0	-0.4	2.6	18
Mountain	4.3	-3.0	1.3	9
South Central	0.4	2.8	3.1	22
Pacific	1.9	-0.3	1.5	11

*Adjustment Factor is calculated based on historical regional deltas

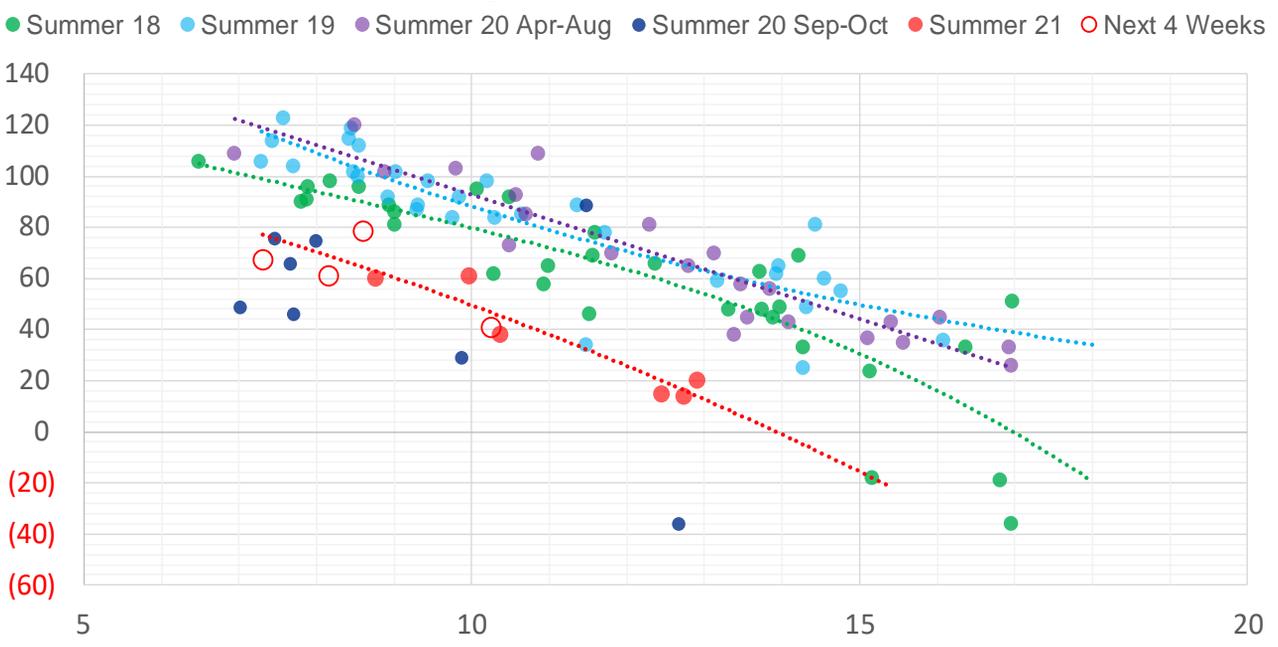
U.S. underground natural gas storage facilities by type (July 2015)



Weather Model Storage Projection

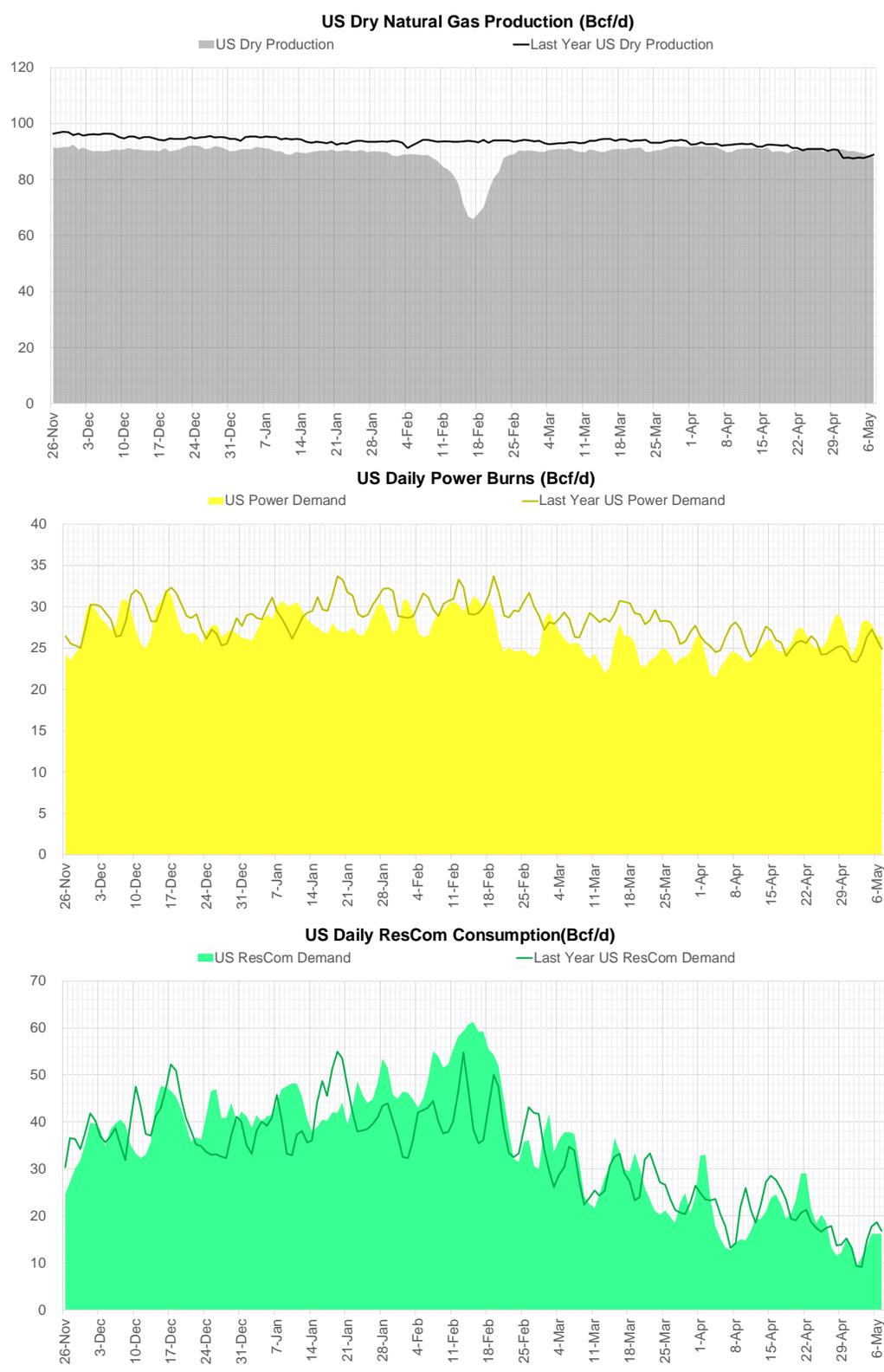
Next report and beyond		
Week Ending	Temp	Week Storage Projection
14-May	10.2	41
21-May	7.3	68
28-May	8.2	62

Weather Storage Model - Next 4 Week Forecast



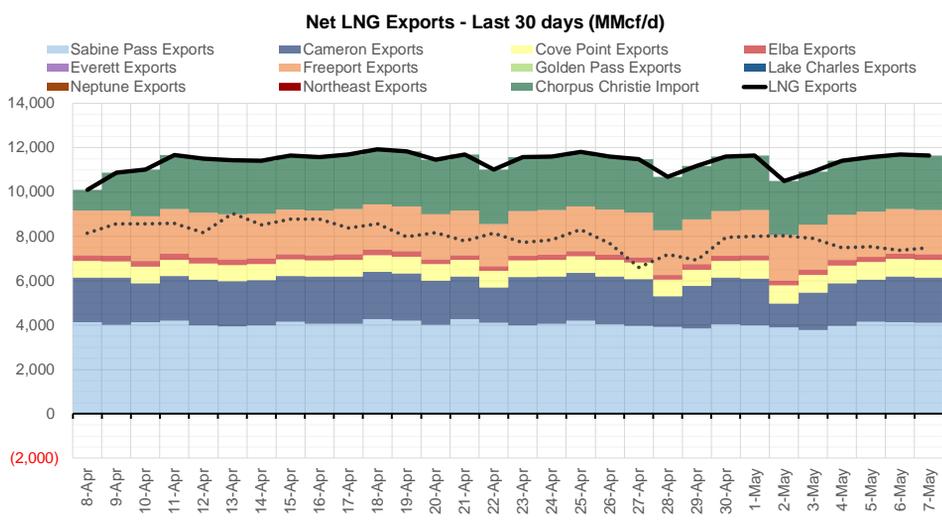
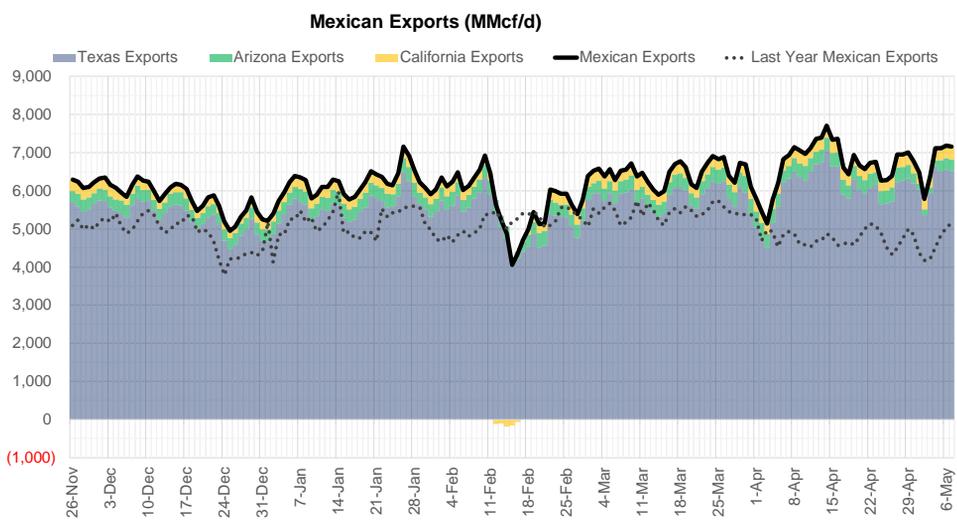
Note: this is not our official end of season forecast. This chart signifies where storage levels end with 10-year normal weather and current market tightness relative to last year

Supply – Demand Trends



Source: Bloomberg

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Source: Bloomberg

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Nat Gas Options Volume and Open Interest CME, ICE and Nasdaq Combined

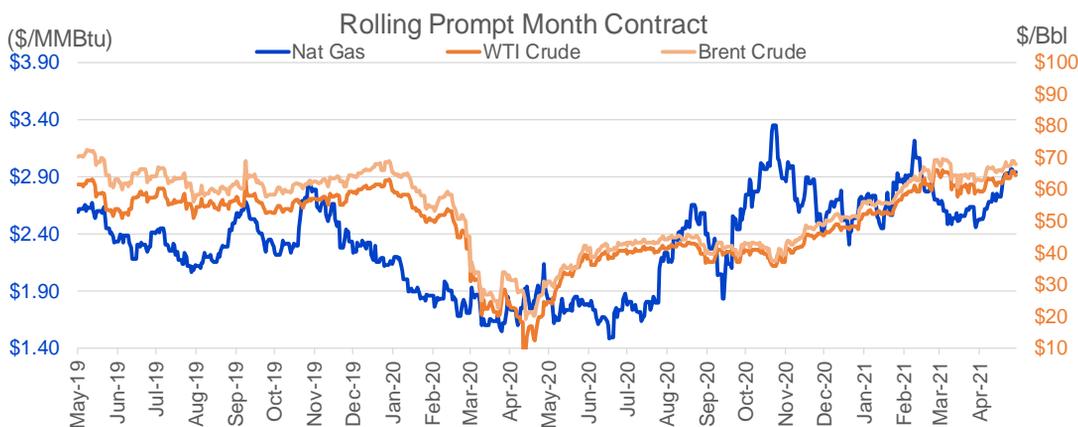
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
7	2021	P	2.65	11665	10	2021	C	4.00	42479
7	2021	P	2.80	7000	8	2021	C	3.50	33157
9	2021	C	4.00	5684	8	2021	C	4.00	31339
8	2021	C	3.50	4837	10	2021	C	3.25	29772
7	2021	C	3.50	4233	6	2021	P	2.50	29676
9	2021	P	2.60	4233	6	2021	C	3.00	28233
9	2021	C	3.50	4225	6	2021	C	3.25	28171
8	2021	P	2.60	4003	6	2021	C	4.00	27949
10	2021	P	2.60	4000	7	2021	C	4.00	27523
7	2021	P	2.75	3883	6	2021	P	2.65	27219
10	2021	C	3.50	3475	8	2021	C	3.25	26302
6	2021	P	2.90	3349	10	2021	C	5.00	25130
7	2021	P	2.60	3265	10	2021	C	3.50	24800
6	2021	C	3.25	2973	10	2021	P	2.50	23973
6	2021	P	2.70	2920	9	2021	C	4.00	23633
6	2021	P	2.80	2359	9	2021	C	3.50	23377
6	2021	P	2.60	2114	6	2021	C	3.50	23294
6	2021	P	2.75	1978	7	2021	C	3.50	23238
8	2021	C	3.25	1802	7	2021	P	2.50	22023
7	2021	P	2.50	1793	6	2021	P	2.75	21881
6	2021	C	3.00	1732	7	2021	C	3.25	21298
7	2021	C	3.00	1701	10	2021	C	3.00	19753
7	2021	C	3.75	1625	12	2021	C	4.00	19715
8	2021	P	2.90	1500	8	2021	P	2.50	19713
9	2021	P	2.90	1500	4	2022	C	3.00	19629
10	2021	P	2.90	1500	6	2021	P	2.25	19090
1	2022	C	8.00	1500	10	2021	P	2.25	18960
2	2022	C	8.00	1500	9	2021	P	2.00	18679
3	2022	C	8.00	1500	8	2021	P	2.25	18286
10	2021	P	2.50	1424	6	2021	P	2.00	17062
10	2021	C	4.50	1400	11	2021	C	4.00	17036
6	2021	C	3.40	1330	10	2021	P	2.00	16505
6	2021	C	3.15	1327	9	2021	C	3.25	16226
6	2021	P	2.50	1239	7	2021	P	2.00	16035
6	2021	P	2.65	1192	8	2021	P	2.00	15895
6	2021	C	3.30	1158	6	2021	C	3.75	15823
7	2021	P	3.00	1148	3	2022	C	4.00	15810
8	2021	P	2.70	1125	7	2021	C	3.00	15371
9	2021	P	2.70	1125	9	2021	P	2.50	15038
10	2021	P	2.70	1125	6	2021	C	2.75	15036
7	2021	P	2.90	1111	8	2021	C	3.00	14951
11	2021	P	2.60	1100	7	2021	P	2.75	14178
6	2021	P	2.85	1015	10	2021	C	4.50	14038
12	2021	C	3.50	1000	12	2021	P	2.00	14034
10	2021	C	3.25	902	10	2021	C	6.00	13994
7	2021	C	3.25	900	3	2022	C	5.00	13975
6	2021	C	3.05	829	9	2021	P	1.90	13733
9	2021	P	2.80	800	8	2021	C	3.75	13398
2	2022	C	6.00	800	5	2022	C	3.00	13202
					6	2022	C	3	12916

Source: CME, Nasdaq, ICE

Nat Gas Futures Open Interest CME, ICE and Nasdaq Combined

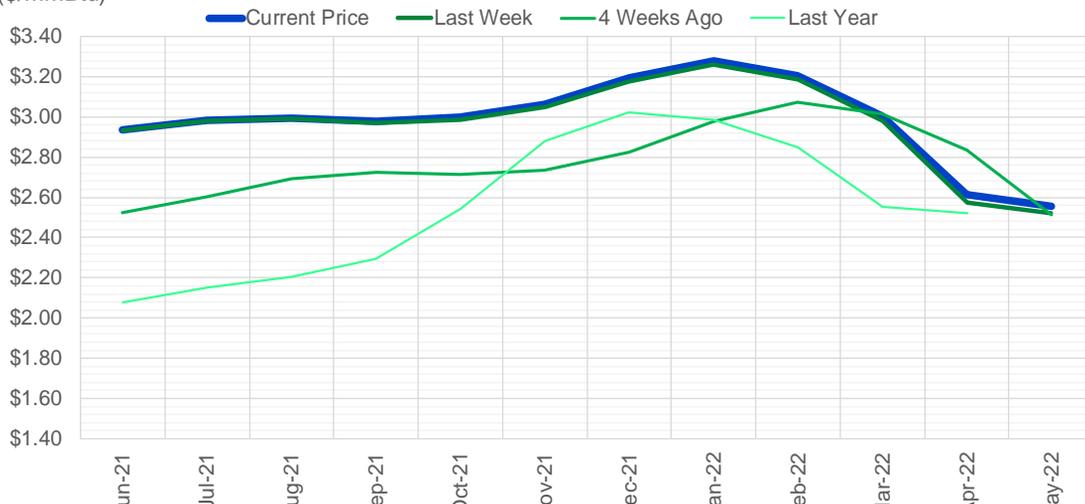
CME Henry Hub Futures (10,000 MMBtu)				ICE Henry Hub Futures Contract Equivalent (10,000 MM			
	Current	Prior	Daily Change	FOR JUNE 26	Current	Prior	Daily Change
JUN 21	198377	202186	-3809	JUN 21	88120	87642	479
JUL 21	213291	208990	4301	JUL 21	88036	86751	1285
AUG 21	74144	73621	523	AUG 21	80979	80101	878
SEP 21	109099	109508	-409	SEP 21	69674	69624	50
OCT 21	132995	131157	1838	OCT 21	88623	88942	-319
NOV 21	68892	68545	347	NOV 21	61921	61838	83
DEC 21	45084	45752	-668	DEC 21	60765	60632	133
JAN 22	77051	75464	1587	JAN 22	67169	66669	500
FEB 22	23590	23608	-18	FEB 22	48519	48313	206
MAR 22	50736	49608	1128	MAR 22	53903	53721	182
APR 22	50956	49973	983	APR 22	48744	48574	170
MAY 22	30973	30181	792	MAY 22	44552	44383	169
JUN 22	17101	16732	369	JUN 22	41328	41180	148
JUL 22	10287	10313	-26	JUL 22	41339	41056	283
AUG 22	9192	9207	-15	AUG 22	39845	39692	153
SEP 22	9305	9319	-14	SEP 22	40798	40657	141
OCT 22	22255	22281	-26	OCT 22	46178	46056	122
NOV 22	10721	10763	-42	NOV 22	36584	36435	150
DEC 22	10165	10072	93	DEC 22	40520	40276	244
JAN 23	5470	5470	0	JAN 23	23233	22942	291
FEB 23	2506	2507	-1	FEB 23	21637	21421	216
MAR 23	5135	5133	2	MAR 23	23299	23100	199
APR 23	5605	5753	-148	APR 23	18989	18784	205
MAY 23	4556	4405	151	MAY 23	19098	18909	189
JUN 23	965	964	1	JUN 23	17502	17305	197
JUL 23	1033	1053	-20	JUL 23	17619	17495	124
AUG 23	795	785	10	AUG 23	17762	17638	124
SEP 23	768	768	0	SEP 23	17148	17028	120
OCT 23	1755	1755	0	OCT 23	17970	17755	216
NOV 23	609	609	0	NOV 23	17422	17239	183

Source: CME, ICE



(\$/MMBtu)

Nat Gas Term Structure



	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22
Current Price	\$2.938	\$2.983	\$2.992	\$2.979	\$3.001	\$3.060	\$3.192	\$3.277	\$3.207	\$3.005	\$2.614	\$2.556
Last Week	\$2.931	\$2.978	\$2.989	\$2.972	\$2.987	\$3.048	\$3.175	\$3.259	\$3.184	\$2.980	\$2.574	\$2.521
vs. Last Week	\$0.007	\$0.005	\$0.003	\$0.007	\$0.014	\$0.012	\$0.017	\$0.018	\$0.023	\$0.025	\$0.040	\$0.035
4 Weeks Ago	\$2.526	\$2.605	\$2.691	\$2.724	\$2.715	\$2.735	\$2.823	\$2.980	\$3.073	\$3.013	\$2.837	\$2.511
vs. 4 Weeks Ago	\$0.412	\$0.378	\$0.301	\$0.255	\$0.286	\$0.325	\$0.369	\$0.297	\$0.134	-\$0.008	-\$0.223	\$0.045
Last Year	\$1.823	\$2.077	\$2.153	\$2.207	\$2.296	\$2.544	\$2.882	\$3.022	\$2.983	\$2.847	\$2.553	\$2.521
vs. Last Year	\$1.115	\$0.906	\$0.839	\$0.772	\$0.705	\$0.516	\$0.310	\$0.255	\$0.224	\$0.158	\$0.061	\$0.035

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	\$/MMBtu	0.018	▲ 0.009	▼ -0.026	▲ 0.011
NatGas Oct21/Nov21	\$/MMBtu	0.059	▼ -0.002	▼ -0.029	▲ 0.014
NatGas Oct21/Jan22	\$/MMBtu	0.276	▲ 0.004	▼ -0.062	▼ -0.014
NatGas Apr22/Oct22	\$/MMBtu	0.024	▲ 0.002	▼ -0.010	▼ -0.026
WTI Crude	\$/Bbl	64.51	▲ 0.930	▲ 5.190	▲ 39.770
Brent Crude	\$/Bbl	67.93	▲ 0.680	▲ 4.980	▲ 36.960
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	198.20	▲ 6.090	▲ 17.440	▲ 108.270
Propane, Mt. Bel	cents/Gallon	0.80	▼ -0.013	▼ -0.041	▲ 0.433
Ethane, Mt. Bel	cents/Gallon	0.26	▲ 0.021	▲ 0.030	▲ 0.053
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 
5/7/2021						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	344	2	342	52	292	
Gas	103	7	96	23	80	
Miscellaneous	1	-1	2	-1	2	
Directional	23	0	23	-4	27	
Horizontal	408	10	398	70	338	
Vertical	17	-2	19	8	9	
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago	
Oil	22	2	20	15	7	
Gas	33	2	31	14	19	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Ardmore Woodford	0	0	0	-3	3	
Barnett	1	0	1	-1	2	
Cana Woodford	12	0	12	8	4	
DJ-Niobrara	7	0	7	0	7	
Eagle Ford	33	-1	34	6	27	
Granite Wash	3	0	3	1	2	
Haynesville	49	4	45	17	32	
Marcellus	30	1	29	0	30	
Permian	229	5	224	31	198	
Utica	10	0	10	2	8	
Williston	15	0	15	-5	20	