

Last week was probably one of the most interesting of the winter season. We saw massive swings in price as weather runs flipped from the previous week's mild February outlook.

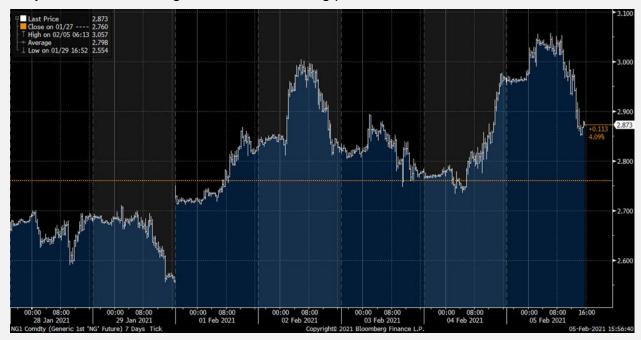
I wanted to start with this table so you did not miss it, as it includes today's 00z Euro Ensemble run as well. Today's run shows reduced intensity from Friday run, but the cooler weather does continue into the last third of February.

	Daily GWHDDs - 00z Euro Ensemble 15 Day Forecast									
	Actuals									
	AF Box Fores and Mindows									
		15 Day Forecast Window  10Y Normal								
				TOT NO	IIIIai					
	Friday	Monday	Tuesday	Wednesday	Thursday	Friday	Sunday			
	Jan 29 00z	Feb 01 00z	Feb 02 00z	Feb 03 00z	Feb 04 00z	Feb 05 00z		10Y Normal		
01-Feb	26.1	25.6	26.6	26.6	26.6	26.6	26.6	24.7		
02-Feb	26.5	25.6	25.2	25.9	25.9	25.9	25.9	26.1		
03-Feb	27.3	27.1	26.8	26.6	25.6	25.6	25.6	26.3		
04-Feb	25.8	26.1	25.9	25.8	25.3	24.9	24.9	25.4		
05-Feb	22.6	24.3	24.7	24.6	24.3	23.9	24.5	25.8		
06-Feb	25.9	27.6	29.2	28.4	27.7	27.9	27.2	25.5		
07-Feb	29.1	30.4	30.8	29.5	28.3	29.2	28.5	23.7		
08-Feb	27.8	33.3	33.4	31.6	28.9	31.5	31.6	25.5		
09-Feb	27.2	34.2	36.0	32.1	26.2	28.3	27.0	28.1		
10-Feb	26.6	32.1	34.5	33.1	29.2	31.5	27.7	27.4		
11-Feb	26.4	31.3	34.3	35.6	32.3	37.2	28.3	26.1		
12-Feb	27.0	31.1	34.5	36.1	35.0	39.4	28.0	26.5		
13-Feb	26.7	29.1	33.4	34.6	36.1	39.7	31.5	26.7		
14-Feb	24.5	27.2	31.4	32.2	34.7	37.1	35.4	24.5		
15-Feb	24.4	25.7	29.6	28.9	31.7	32.9	36.9	24.4		
16-Feb	24.1	24.1	28.0	26.2	28.6	30.1	31.8	24.1		
17-Feb	23.8	23.8	23.8	25.0	26.4	29.8	29.3	23.8		
18-Feb	22.4	22.4	22.4	22.4	24.9	29.9	28.8	22.4		
19-Feb	23.2	23.2	23.2	23.2	23.2	28.8	29.3	23.2		
20-Feb	23.2	23.2	23.2	23.2	23.2	23.2	28.1	23.2		
21-Feb	22.3	22.3	22.3	22.3	22.3	22.3	26.1	22.3		
22-Feb	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5		
23-Feb	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8		
24-Feb	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5		
25-Feb	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0		
26-Feb	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0		
27-Feb	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5		
28-Feb	21.8	21.8	21.8	21.8	21.8	21.8	21.8	21.8		
otal Feb GWHDDs	691	728	757	752	744	784	761	684		
9ET OpenPrice	\$ 2.657	\$ 2.772	\$ 2.987	\$ 2.831	\$ 2.800	\$ 3.029	???			

So let's go through the week using the same data seen in the table above. The market opened higher on Sunday as traders digested the massive cooler conditions across the Midwest and Northeast. Adding to the cold was a blanket of snow that has not been seen this season – up to 36" in some locations in Pennsylvania.



On January 29th, the March contract closed at 2.55 and by open on Sunday the market was trading at 2.72. A massive change in weather sentiment pushed the market higher on open. Every weather run throughout the week swung prices.



Overall, this cold shot sent prices soaring through the term structure. Here are the week-on-week price changes: March +0.32, Summer 21 +0.22, Winter 21/22 +0.16, Summer 22 +0.02



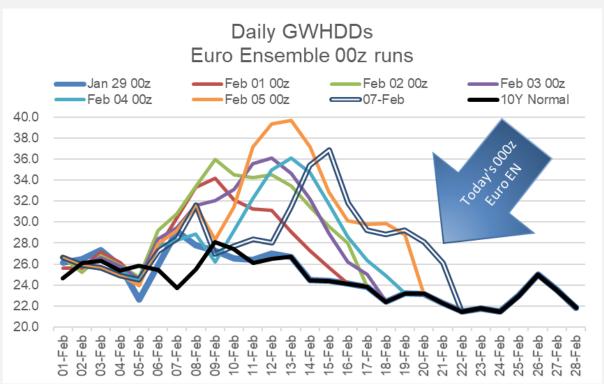


Now let's look at the big weather changes observed this week, ie going back to the data from the table in the beginning. Last weekend the weather models introduced a massive cold front that extended down over the Midwest and Northeast bringing extreme cold weather and snow over the 15-day forecast window. Throughout the week, the cold weather pattern continuously changed. It got pushed out throughout the week and then intensified on Friday morning. This can be seen in the heat chart and the line chart below. Ultimately, the 12z run on Friday turned warmer and moved the market net lower on Friday. Today's run once again pushed the cooler temps out and immensely reduced the intensity that was expected towards the end of this week.

Bradly Harvey from Maxar put this best on enelyst – "This has been one of the more challenging weeks of forecasting in some time, and the details of the forecast remain of lower than usual confidence. The lower confidence is attributed to larger than usual spreads among members of the ensemble models, which has been the case all week. It would not surprise to see models remaining volatile in upcoming runs as a result."

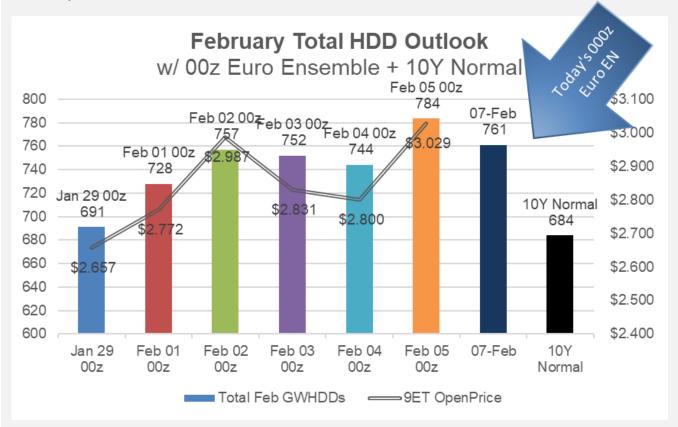
On Jan 29th, the expectation for February was right at the 10Y normal level – 691 GWHDDs vs 684 GWHDD 10Y Normal - but that shifted cooler throughout last week. With each overnight run, we saw a price reaction.

The chart below shows the daily 00z Euro Ensemble runs + 10Y normal for Feb. You can see how the HDD outlook for Feb changes throughout the week.

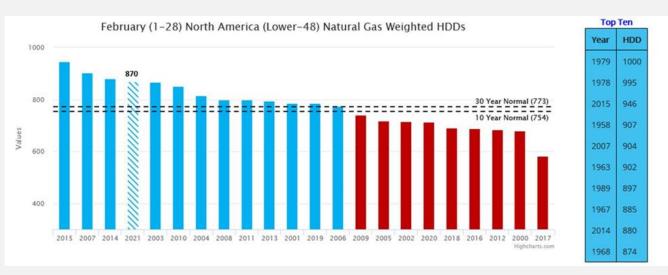




The chart below shows the cumulative Feb projected GWDD vs. the price on market open each day.



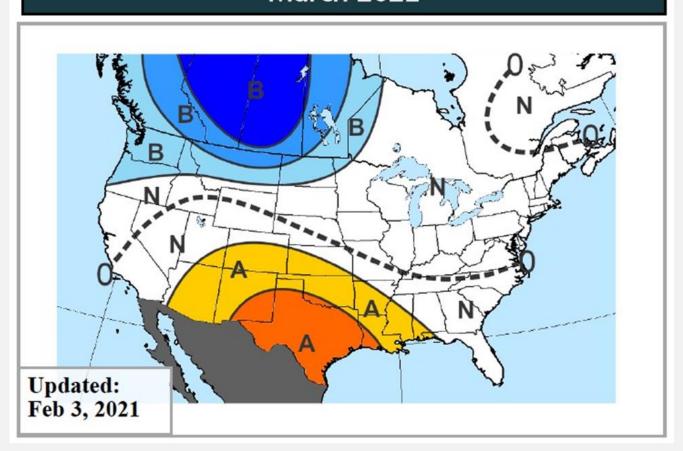
From CWG on Thursday afternoon. This Feb is shaping up to be up there with 2014 & 2015.





We end with the March outlook from Maxar Weather. Some cold up in Western Canada, but the rest of the US looks seasonal to warm. Looks cozy for most you.

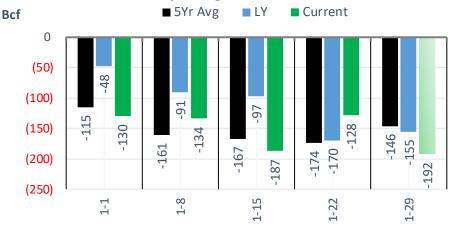
# March 2021



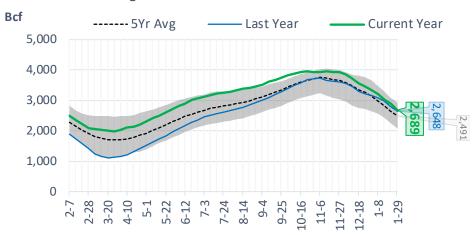


#### **EIA Storage Report**

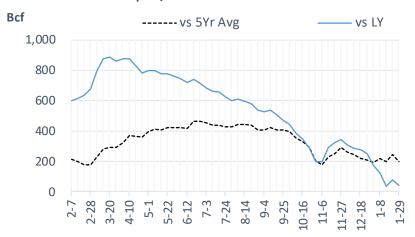
#### **Total Lower 48 YoY Weekly Change**



#### **Total Lower 48 Storage Levels**



#### **Total Lower 48 LY Surplus/Deficit**

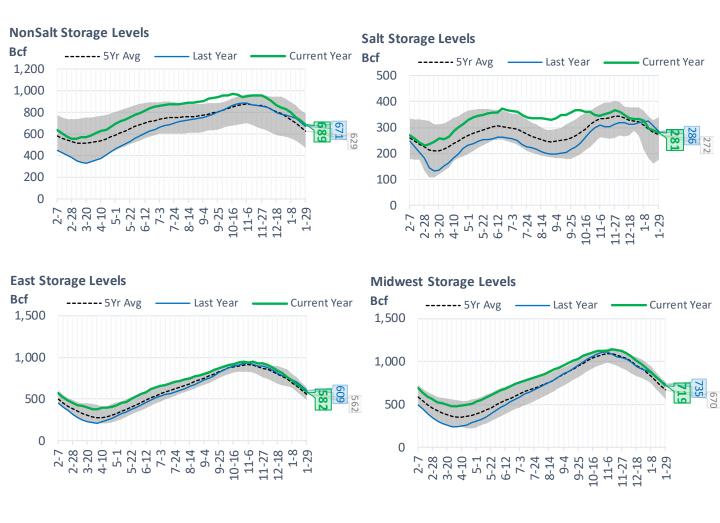


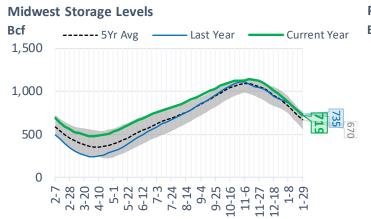


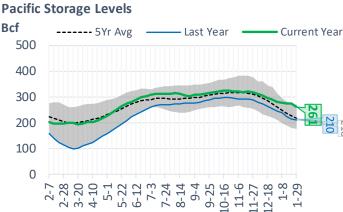
#### **Natural Gas Storage Stats - Last 5 Weeks**

	Current	Week - 1	Week - 2	Week - 3	Week - 4	Week - 5
Week Ending	29-Jan	22-Jan	15-Jan	8-Jan	1-Jan	25-Dec
Total Lower 48 Storage Level	2689	2881	3009	3196	3330	3460
Weekly Change	-192	-128	-187	-134	-130	-114
vs LY	+41	+78	+36	+126	+169	+251
vs 5Yr Avg	+198	+244	+198	+218	+191	+206
S. Central Salt Storage Level	281	288	296	327	333	334
Weekly Change	-7	-8	-31	-6	-1	-3
vs LY	-5	-18	-30	+6	+13	+22
vs 5Yr Avg	+9	+8	+3	+19	+11	+10
S. Central NonSalt Storage Level	689	726	755	799	830	849
Weekly Change	-37	-29	-44	-31	-19	-21
vs LY	+18	+17	+13	+38	+54	+67
vs 5Yr Avg	+60	+64	+56	+67	+67	+63
Midwest Storage Level	719	780	828	879	923	973
Weekly Change	-61	-48	-51	-44	-50	-42
vs LY	-16	+4	+3	+18	+32	+63
vs 5Yr Avg	+49	+62	+55	+50	+45	+54
East Storage Level	582	641	679	726	765	810
Weekly Change	-59	-38	-47	-39	-45	-34
vs LY	-27	-14	-23	-1	+5	+32
vs 5Yr Avg	+20	+36	+26	+29	+24	+43
Mountain Storage Level	158	170	176	188	196	204
Weekly Change	-12	-6	-12	-8	-8	-8
vs LY	+20	+25	+22	+26	+28	+30
vs 5Yr Avg	+18	+22	+20	+23	+22	+20
Pacific Storage Level	261	275	275	278	282	289
Weekly Change	-14	0	-3	-4	-7	-7
vs LY	+51	+62	+51	+40	+36	+35
vs 5Yr Avg	+43	+50	+39	+30	+22	+15











EIA	Storage	Week	Bal	ances
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	1-Jan	8-Jan	15-Jan	22-Jan	29-Jan	5-Feb	WoW	vs. 4W
Lower 48 Dry Production	92.3	92.4	91.2	91.5	91.8	91.7	▼-0.1	▼ 0.0
Canadian Imports	5.8	6.2	6.2	5.9	6.4	6.3	▼-0.1	<b>▲</b> 0.2
L48 Power	27.3	28.4	30.3	27.8	28.6	28.8	<b>0.2</b>	<b>0.1</b>
L48 Residential & Commercial	43.2	41.6	45.6	41.6	47.5	46.2	<b>▼</b> -1.3	<b>2.2</b>
L48 Industrial	22.3	22.9	23.3	22.4	24.7	23.3	<b>▼</b> -1.4	▼ 0.0
L48 Lease and Plant Fuel	5.1	5.1	5.0	5.0	5.1	5.1	▼ 0.0	▼ 0.0
L48 Pipeline Distribution	3.2	3.2	3.4	3.1	3.5	3.4	▼ -0.1	<b>0.1</b>
L48 Regional Gas Consumption	101.1	101.1	107.6	99.9	109.4	106.8	▼ -2.6	<b>2.3</b>
Net LNG Exports	11.0	10.9	10.6	10.4	10.0	10.7	<b>0.7</b>	▲ 0.2
Total Mexican Exports	5.3	5.9	6.1	6.1	6.6	6.2	▼ -0.3	▲ 0.1
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	-19.3 -18.6 -0.7	-19.3 -19.1 -0.2	-26.9 -26.7 -0.2	-19.0 -18.3 -0.7	-27.7 -27.4 -0.2	-25.7	2.0	

Monthly Balances									
	2Yr Ago	LY					MTD		
	Feb-19	Feb-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	MoM	vs. LY
Lower 48 Dry Production	87.9	93.6	87.3	91.0	91.9	91.7	91.5	▼-0.2	▼ -2.1
Canadian Imports	4.9	5.3	4.3	4.6	5.8	6.3	5.9	▼-0.3	<b>0.7</b>
L48 Power	27.5	30.2	30.8	25.7	28.1	28.7	29.1	<b>0.4</b>	▼-1.1
L48 Residential & Commercial	45.3	40.2	14.9	24.2	40.0	44.4	44.6	<b>0.1</b>	<b>4.3</b>
L48 Industrial	23.6	25.2	22.1	22.7	24.0	23.3	23.5	<b>0.2</b>	<b>▼</b> -1.7
L48 Lease and Plant Fuel	4.9	5.2	4.9	5.0	5.1	5.1	5.0	▼ 0.0	<b>▼</b> -0.1
L48 Pipeline Distribution	3.3	3.2	2.3	2.5	3.1	3.3	3.3	▼ 0.0	<b>0.1</b>
L48 Regional Gas Consumption	104.5	104.0	75.0	80.1	100.3	104.8	105.5	<b>0.7</b>	<b>1.5</b>
Net LNG Exports	4.1	8.5	8.0	10.1	11.0	10.5	10.9	<b>0.4</b>	<b>2.4</b>
Total Mexican Exports	4.9	5.2	6.0	6.1	5.8	6.2	6.3	<b>0.1</b>	<b>▲ 1.1</b>
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	-20.8	-18.8	2.6	-0.7	-19.5	-23.4	-25.2		

Source: Bloomberg, analytix.ai

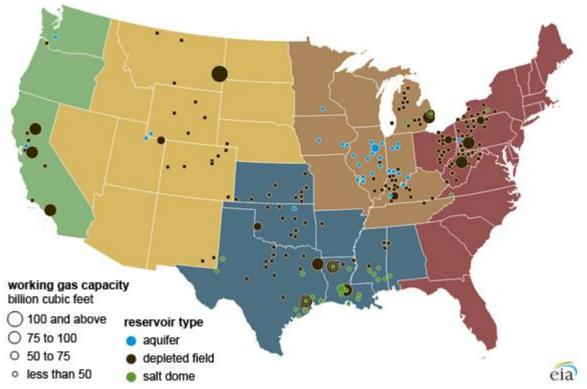
#### Regional S/D Models Storage Projection

Week Ending 5-Feb

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	-26.0	0.8	-25.2	-176
East	-10.3	2.3	-7.9	-56
Midwest	-7.5	-0.1	-7.6	-53
Mountain	2.5	-3.2	-0.7	-5
South Central	-10.3	2.0	-8.3	-58
Pacific	-0.5	-0.3	-0.7	<b>-</b> 5

<sup>\*</sup>Adjustment Factor is calcuated based on historical regional deltas

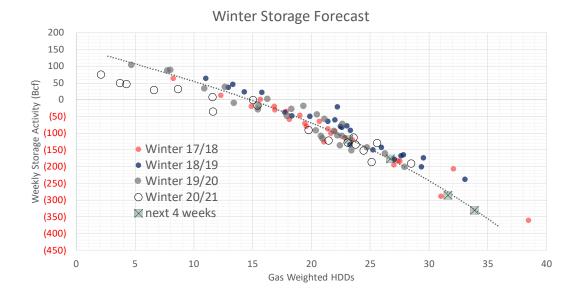
#### U.S. underground natural gas storage facilities by type (July 2015)





#### Weather Model Storage Projection

Next report and beyond		
		Week Storage
Week Ending	Temp	Projection
12-Feb	31.6	-286
19-Feb	33.9	-331
26-Feb	23.2	-118

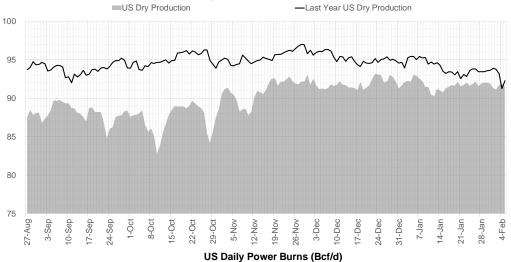


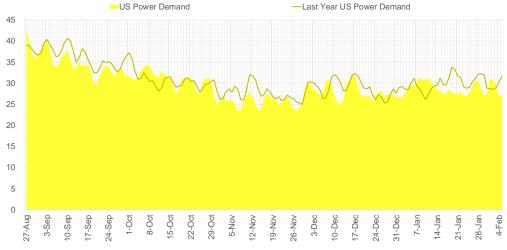
Note: this is not our official end of season forecast. This chart signifies where storage levels end with 10-year normal weather and current market tightness relative to last year



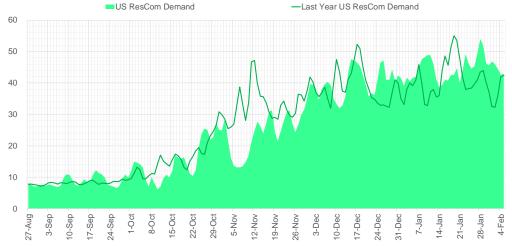
#### Supply - Demand Trends







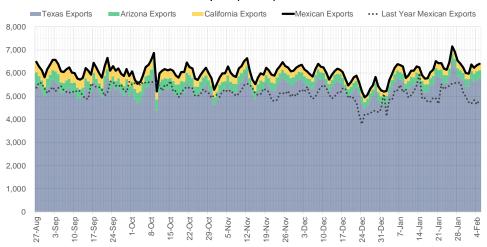
#### US Daily ResCom Consumption(Bcf/d)

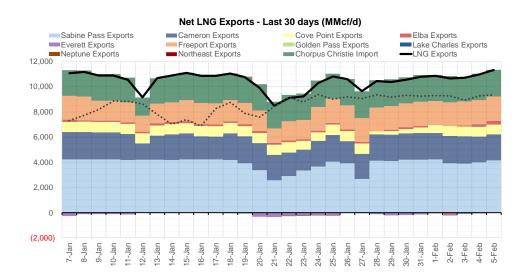


Source: Bloomberg



#### Mexican Exports (MMcf/d)





Source: Bloomberg



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

									<u> </u>
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL		CONTRACT MONTH			
3	2021	С	3.25	14716		3	3 2021	3 2021 C	3 2021 C 3.25
3	2021	Č	3.50	14437		3			
3	2021	Č	3.00	11785		4			
3	2021	P	2.25	5547		3			
		C		5352		3			
4	2021		3.25			3			
4	2021	P	2.50	4809		4			
3	2021	P	2.50	4765		3			
3	2021	С	4.00	4480					
4	2021	Р	2.25	4225	10		2021		
3	2021	С	3.75	3747	3		2021		
4	2021	Р	2.00	3714	4		2021		
4	2021	С	3.50	3234	3		2021		
4	2021	С	3.00	2937	10		2021		
4	2021	С	4.00	2605	3		2021		
1	2022	С	3.25	1900	3		2021		
10	2021	Ċ	4.00	1834	4		2021		
3	2021	Č	3.20	1738	3		2021		
3	2021	P	2.10	1690	6		2021		
3	2021	C	4.50	1614	4	202	21		
5 6	2021	P	2.10	1600	4	2021		С	C 3.25
					3	2021		С	C 3.75
3	2022	С	3.25	1600	8	2021		P	
4	2021	P	2.10	1546	8	2021		С	
10	2021	P	2.10	1546	5	2021		P	
3	2022	Р	2.50	1530	10	2021		C	
3	2021	Р	2.70	1509	5	2021		Č	
5	2021	Р	2.10	1507	4	2021		Ċ	
7	2021	Р	2.10	1500	7	2021		C	
8	2021	Р	2.10	1500	4	2021		P	
9	2021	Р	2.10	1500	4	2021		C	
4	2021	С	3.75	1411	4 5				
5	2021	P	2.50	1362		2021		С	
3	2022	P	2.00	1350	8	2021		С	
4	2022	C	3.00	1325	5	2021		P	
3	2022	C	3.30	1307	10	2021		P	
	2021	C	3.75	1250	10	2021		C	
8					6	2021		Р	
3	2021	С	3.10	1156	5	2021		С	
3	2021	P	2.75	1129	5	2021		С	
5	2021	P	2.75	1068	4	2022		С	
3	2021	С	5.00	1048	10	2021		С	
7	2021	С	3.25	1041	3	2021		С	C 2.75
3	2021	Р	2.60	1000	4	2021		С	
8	2021	Р	2.50	1000	12	2021		Č	
3	2021	Р	2.80	983	10	2021		P	
4	2021	Р	2.40	981	11	2021		C	
3	2021	C	2.75	976	8	2021		P	
3	2021	Č	3.05	929	5	2021		' P	
5	2021	P	2.25	904	3	2021		P	
4	2022	C	2.50	850	9	2021		C	
3	2021	C	2.85	850	3	2021		C	
3	2021	C	2.00	000	. 3	2022		C	C 4

Source: CME, Nasdaq, ICE

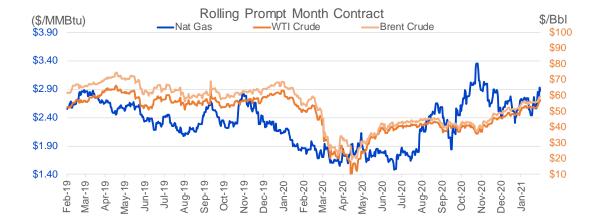


#### Nat Gas Futures Open Interest

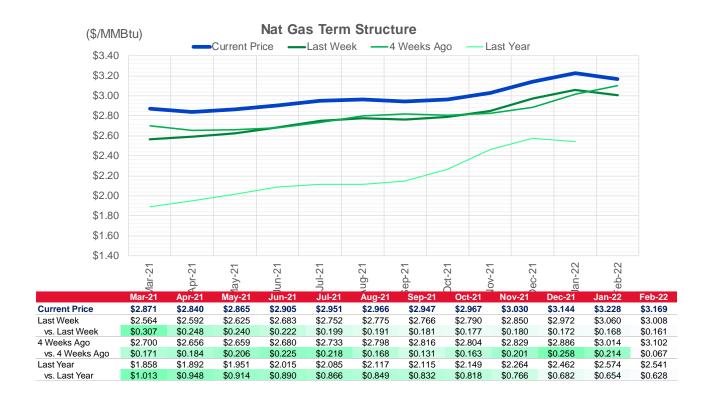
CME, ICE and Nasdaq Combined

CME Henry H	ub Futures (	(10,000 MMBtu)		ICE Henry Hub	Futures Co	ontract Equiva	lent (10,000 MM
	Current	Prior	Daily Change	FOR JUNE 26	Current	Prior	Daily Change
MAR 21	279084	281491	-2407	MAR 21	96429	99654	-3225
APR 21	112094	106584	5510	APR 21	89064	85558	3506
MAY 21	93821	91597	2224	MAY 21	81723	80005	1717
JUN 21	55151	54388	763	JUN 21	67699	67905	-206
JUL 21	54360	52955	1405	JUL 21	71970	71712	258
AUG 21	35781	33867	1914	AUG 21	72001	70097	1904
SEP 21	60747	59241	1506	SEP 21	65831	65610	221
OCT 21	128799	123176	5623	OCT 21	90040	89307	734
NOV 21	43322	42999	323	NOV 21	54395	54386	9
DEC 21	44908	44527	381	DEC 21	55427	55329	98
JAN 22	46932	45199	1733	JAN 22	51991	51697	293
FEB 22	24005	23537	468	FEB 22	38658	38327	331
MAR 22	34373	33169	1204	MAR 22	42119	41145	974
APR 22	33007	34153	-1146	APR 22	40140	40020	120
MAY 22	14958	14242	716	MAY 22	34765	34415	350
JUN 22	9643	9315	328	JUN 22	33492	33373	119
JUL 22	6821	6920	-99	JUL 22	33490	33410	81
AUG 22	6316	6385	-69	AUG 22	32561	32431	130
SEP 22	6681	6390	291	SEP 22	33407	33296	111
OCT 22	16558	14970	1588	OCT 22	38391	38156	235
NOV 22	7561	7107	454	NOV 22	30880	30737	143
DEC 22	7735	7741	-6	DEC 22	33105	33268	-163
JAN 23	5294	5212	82	JAN 23	18698	18275	424
FEB 23	2102	1766	336	FEB 23	17003	16812	191
MAR 23	3057	3011	46	MAR 23	17997	17314	683
APR 23	4344	4375	-31	APR 23	15234	14963	271
MAY 23	2807	2809	-2	MAY 23	14771	14607	164
JUN 23	822	823	-1	JUN 23	14090	13971	119
JUL 23	918	918	0	JUL 23	13759	13652	107
AUG 23	673	674	-1	AUG 23	14070	13955	115

Source: CME, ICE







				vs. 4 Weeks	
	Units	<b>Current Price</b>	vs. Last Week	Ago	vs. Last Year
NatGas Jan21/Apr21	\$/MMBtu	0.373	<b>0.248</b>	<b>0.181</b>	<b>0.732</b>
NatGas Mar21/Apr21	\$/MMBtu	-0.031	<b>-</b> 0.059	<b>-</b> 0.028	<b>-</b> 0.267
NatGas Oct21/Nov21	\$/MMBtu	0.063	<b>0.003</b>	<b>0.006</b>	-0.008
NatGas Apr21/Oct21	\$/MMBtu	0.127	<b>0.450</b>	<b>0.489</b>	<b>-</b> 0.153
WTI Crude	\$/Bbl	57.00	<b>4.800</b>	<b>4.760</b>	<b>6.680</b>
Brent Crude	\$/Bbl	59.52	<b>3.640</b>	<b>3.530</b>	<b>5.050</b>
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
Heating Oil	cents/Gallon	171.58	<b>11.540</b>	<b>13.630</b>	<b>~</b> 7.250
Propane, Mt. Bel	cents/Gallon	0.84	<b>-</b> 0.029	<b>-</b> 0.011	<b>0.461</b>
Ethane, Mt. Bel	cents/Gallon	0.27	<b>0.032</b>	<b>0.041</b>	<b>0.135</b>
Coal, PRB	\$/MTon	12.30	<b>0.000</b>	<b>0.000</b>	<b>a</b> 0.050
Coal, PRB	\$/MMBtu	0.70			

Source: CME, Bloomberg



#### **Baker Hughes Rig Counts**

	ъ.				
	2/5/202	21		Baker	Hughes >
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	299	4	295	-377	676
Gas	92	4	88	-19	111
Miscellaneous	1	0	1	-2	3
Directional	18	0	18	-28	46
Horizontal	354	10	344	-357	711
Vertical	20	-2	22	-33 <i>1</i> -13	33
vertical	20	-2	22	-13	33
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago
Oil	95	-3	98	-72	167
Gas	76	0	76	-14	90
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago
Ardmore Woodford	0	0	0	-5	5
Arkoma Woodford	0	0	0	-1	1
Barnett	1	0	1	0	1
Cana Woodford	9	-1	10	-9	18
DJ-Niobrara	7	0	7	-13	20
Eagle Ford	28	0	28	-42	70
Granite Wash	0	0	0	-1	1
Haynesville	47	2	45	6	41
Marcellus	30	0	30	-9	39
Mississippian	0	0	0	-2	2
Permian	198	6	192	-207	405
Utica	7	2	5	-4	11
Williston	12	0	12	-41	53