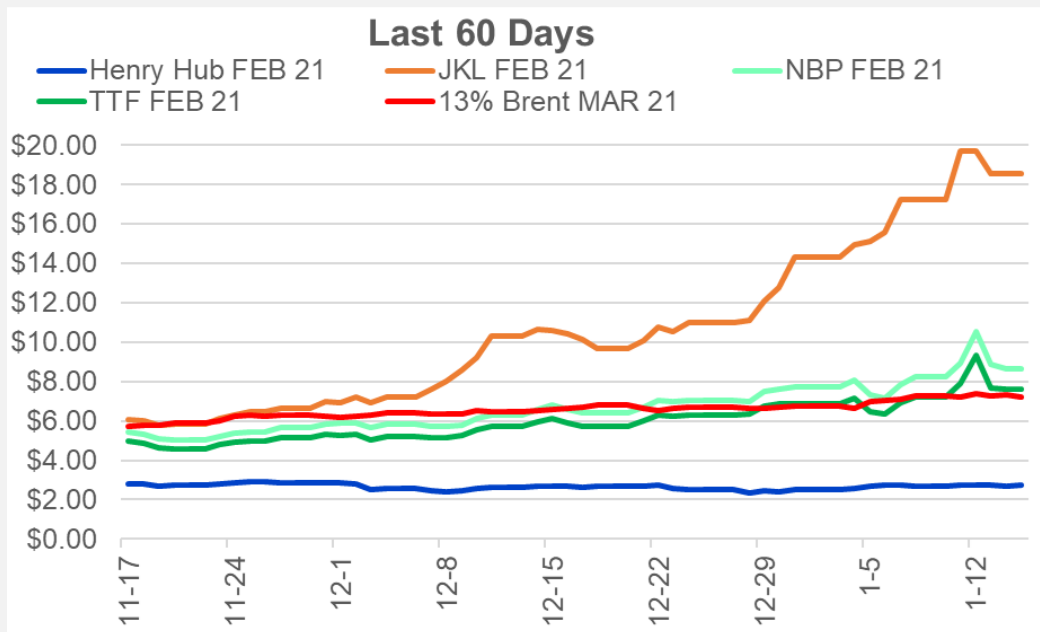
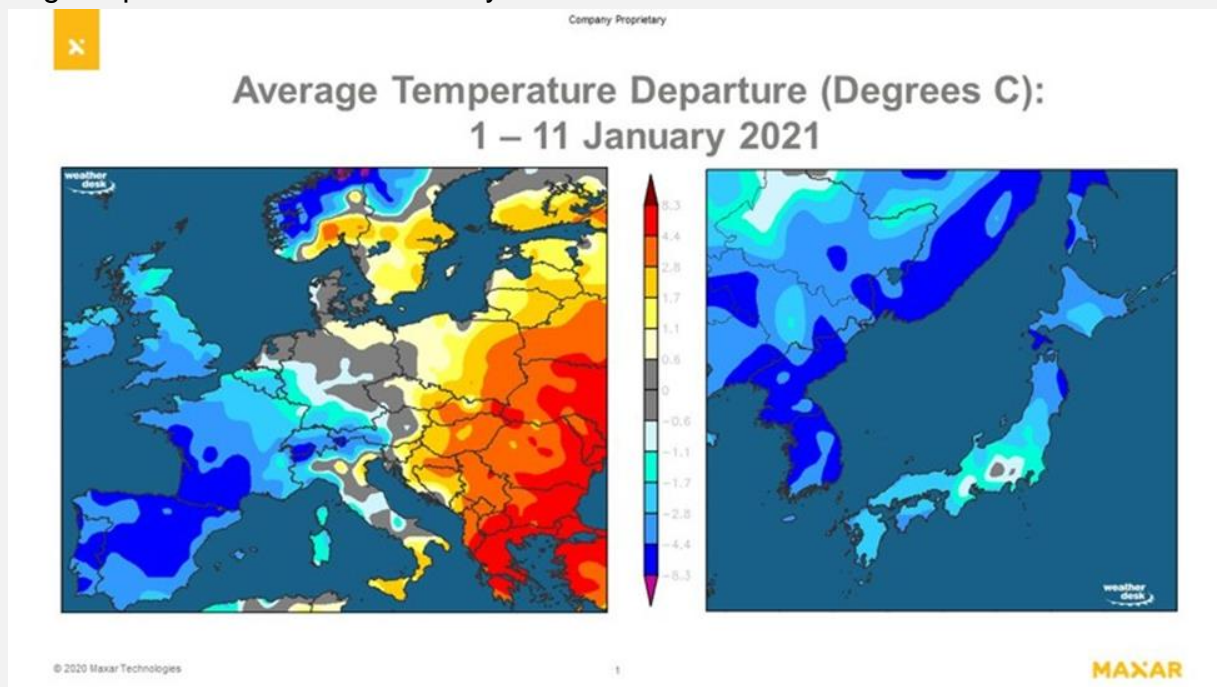


This week, we touch on the volatility in European gas markets, with prices exploding earlier this week. The Asian LNG markets along with cooler weather are weighing on TTF and NBP prices.



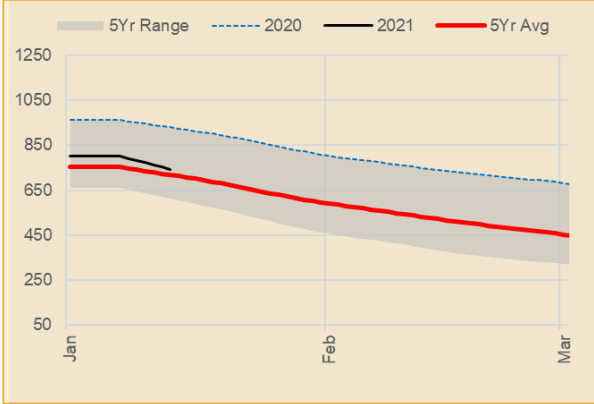
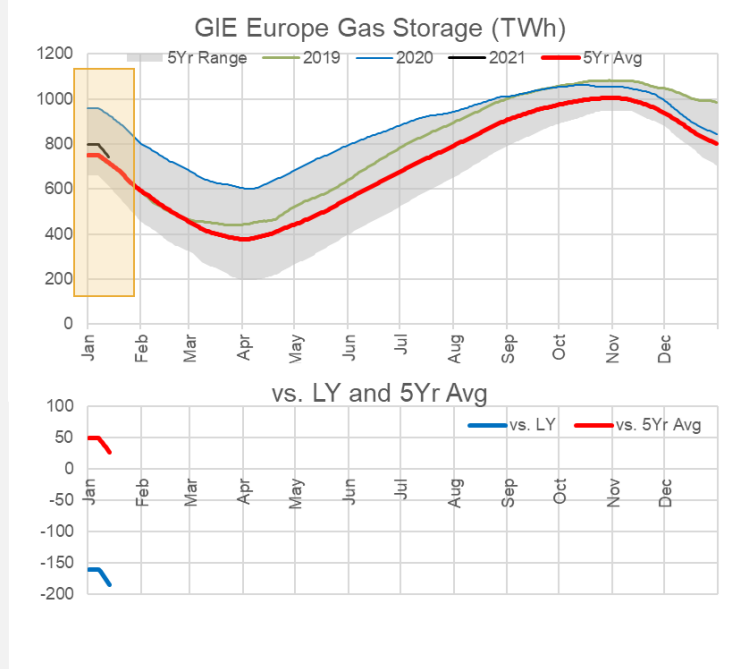
Lots of factors adding to the price surge, but the main issue is the cold weather across Asia and Europe driving natural gas demand. This was an image we posted earlier in the week showing temps for the first third of the year.



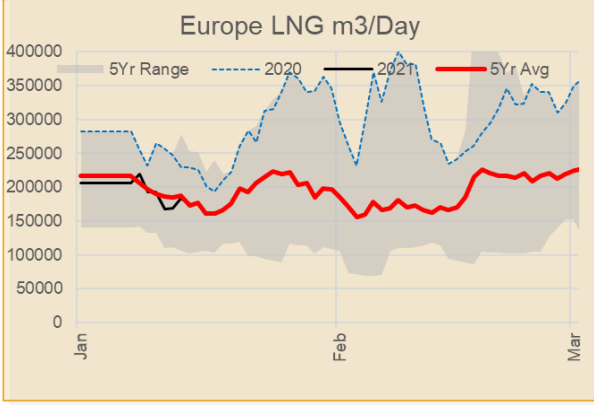
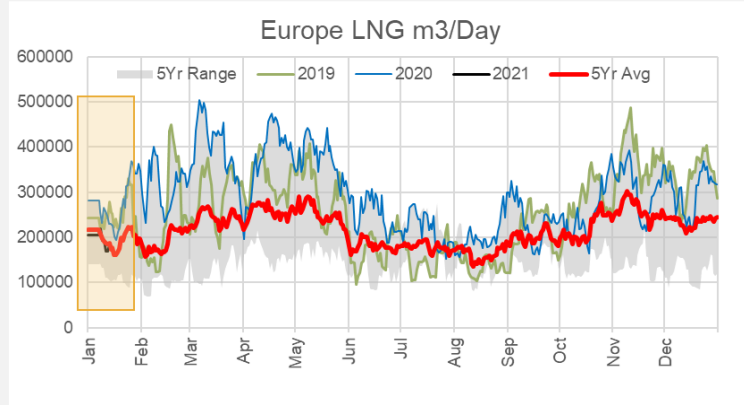
Source: Maxar

The sustained cold weather has lifted gas demand with growing concern over very cold temperatures later in January and February.

Going into the winter, European storage was maxed out. Additionally, there were large storage supplies available in Ukraine. The cold winter and LNG competition with Asia has left storage levels being drained quickly. We are currently sitting just about the 5 Yr Average, and at a large deficit to last year.

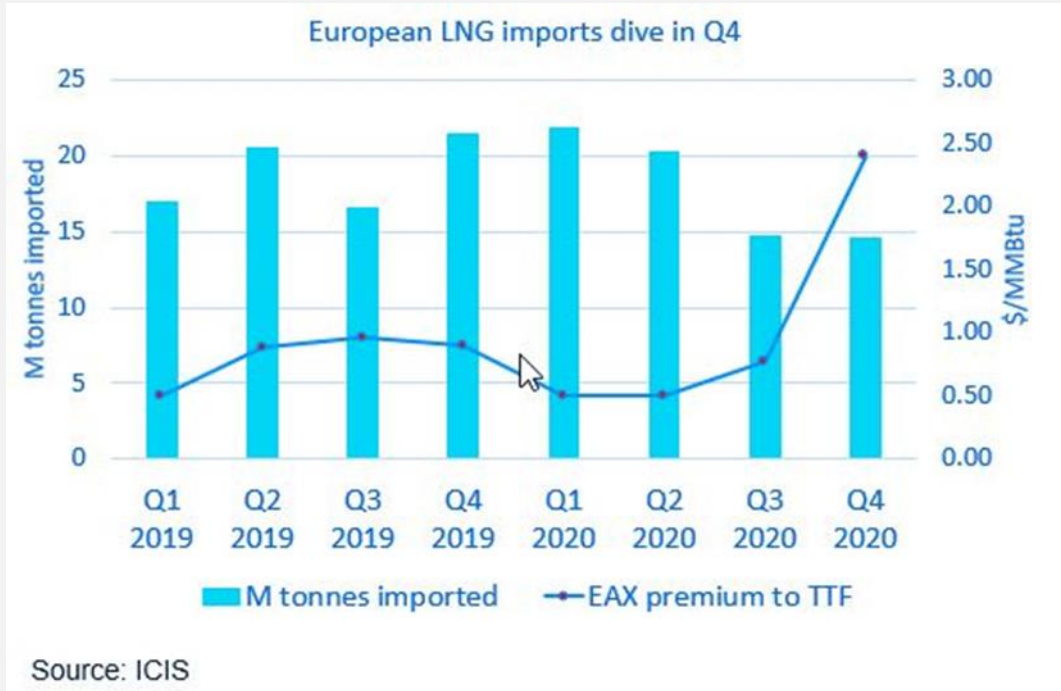


Europe may require more LNG to cover higher demand - in which case it must compete with Asian markets that are trading at even higher levels. At the moment the strong Asian prices are pulling LNG cargos away. As can be seen in the chart below, European LNG imports levels in January have been close to the 5Yr average. This is nowhere close to the levels seen in 2019 and 2020.



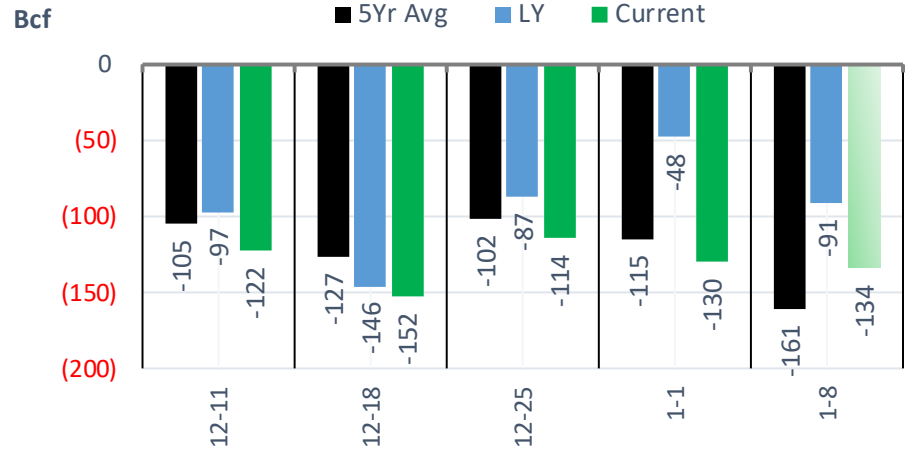
Source: Analytix.ai

This was also the case in Q4 2020. The chart from ICIS below shows ICIS spot East Asia (EAX) LNG Index premium to the TTF. The EAX premium to TTF has drawn LNG away from Europe in Q4 '20 and this is exactly what the story is for Q1 so far.

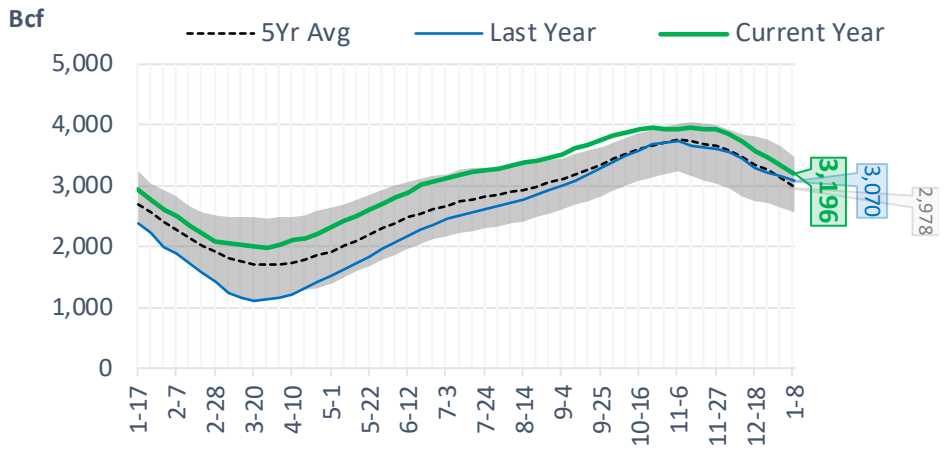


## EIA Storage Report

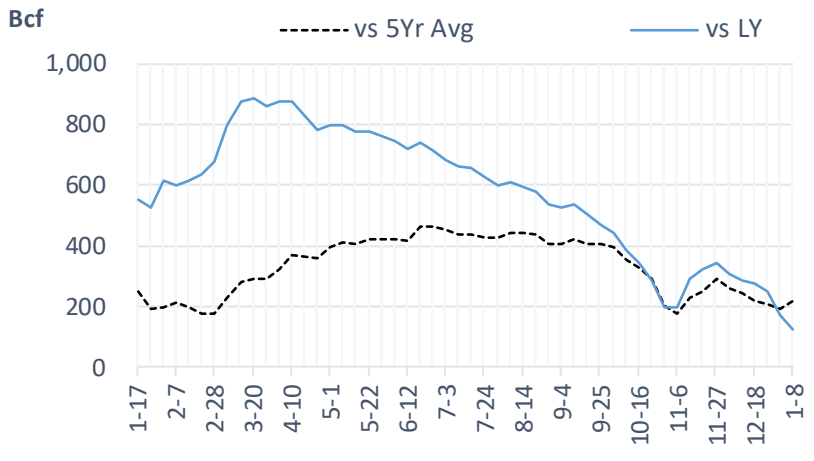
### Total Lower 48 YoY Weekly Change



### Total Lower 48 Storage Levels



### Total Lower 48 LY Surplus/Deficit

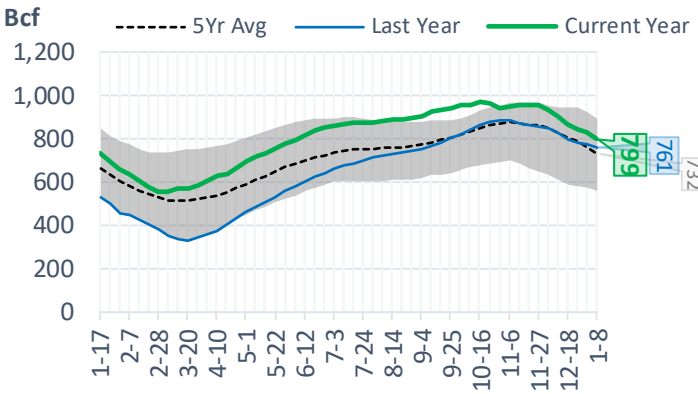


The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

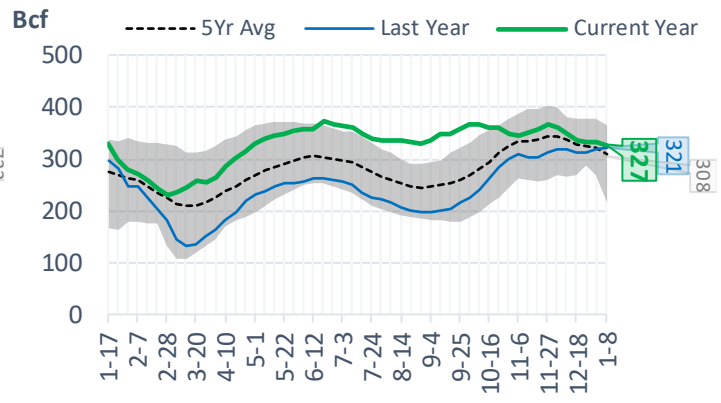
## Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 8-Jan	Week - 1 1-Jan	Week - 2 25-Dec	Week - 3 18-Dec	Week - 4 11-Dec	Week - 5 4-Dec
<b>Total Lower 48 Storage Level</b>	<b>3196</b>	3330	3460	3574	3726	3848
<b>Weekly Change</b>	<b>-134</b>	-130	-114	-152	-122	-91
<b>vs LY</b>	<b>+126</b>	+169	+251	+278	+284	+309
<b>vs 5Yr Avg</b>	<b>+218</b>	+191	+206	+218	+243	+260
<b>S. Central Salt Storage Level</b>	<b>327</b>	333	334	337	348	361
<b>Weekly Change</b>	<b>-6</b>	-1	-3	-11	-13	-7
<b>vs LY</b>	<b>+6</b>	+13	+22	+25	+28	+41
<b>vs 5Yr Avg</b>	<b>+19</b>	+11	+10	+9	+10	+16
<b>S. Central NonSalt Storage Level</b>	<b>799</b>	830	849	870	908	933
<b>Weekly Change</b>	<b>-31</b>	-19	-21	-38	-25	-25
<b>vs LY</b>	<b>+38</b>	+54	+67	+73	+78	+83
<b>vs 5Yr Avg</b>	<b>+67</b>	+67	+63	+66	+79	+84
<b>Midwest Storage Level</b>	<b>879</b>	923	973	1015	1059	1095
<b>Weekly Change</b>	<b>-44</b>	-50	-42	-44	-36	-27
<b>vs LY</b>	<b>+18</b>	+32	+63	+78	+75	+74
<b>vs 5Yr Avg</b>	<b>+50</b>	+45	+54	+61	+64	+65
<b>East Storage Level</b>	<b>726</b>	765	810	844	881	915
<b>Weekly Change</b>	<b>-39</b>	-45	-34	-37	-34	-19
<b>vs LY</b>	<b>-1</b>	+5	+32	+36	+35	+41
<b>vs 5Yr Avg</b>	<b>+29</b>	+24	+43	+48	+54	+60
<b>Mountain Storage Level</b>	<b>188</b>	196	204	212	223	232
<b>Weekly Change</b>	<b>-8</b>	-8	-8	-11	-9	-8
<b>vs LY</b>	<b>+26</b>	+28	+30	+32	+35	+37
<b>vs 5Yr Avg</b>	<b>+23</b>	+22	+20	+21	+24	+26
<b>Pacific Storage Level</b>	<b>278</b>	282	289	296	306	312
<b>Weekly Change</b>	<b>-4</b>	-7	-7	-10	-6	-6
<b>vs LY</b>	<b>+40</b>	+36	+35	+32	+32	+33
<b>vs 5Yr Avg</b>	<b>+30</b>	+22	+15	+12	+11	+9

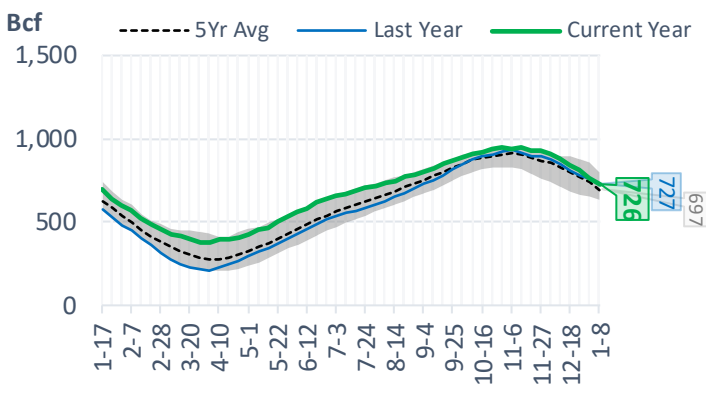
## NonSalt Storage Levels



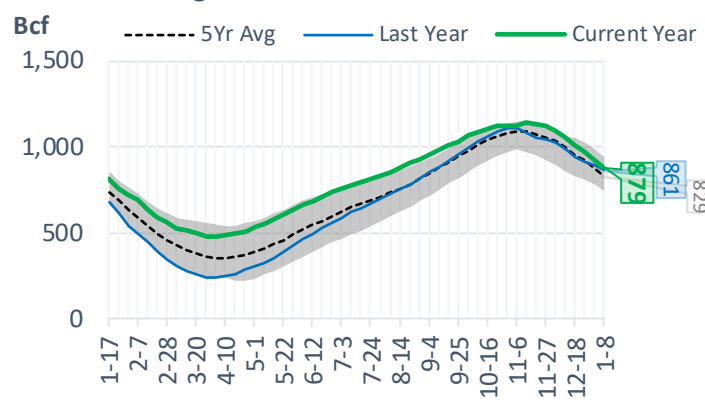
## Salt Storage Levels



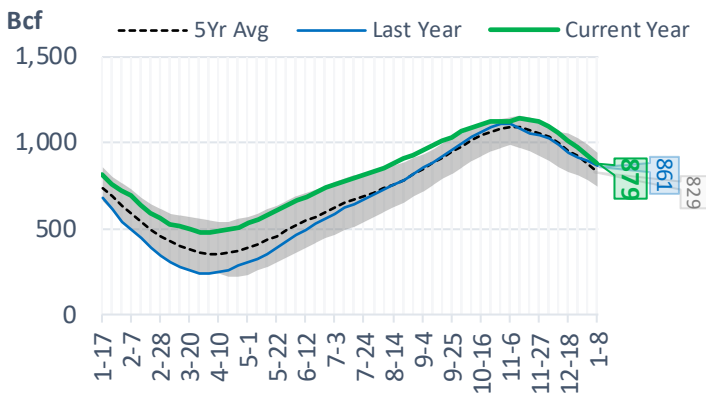
## East Storage Levels



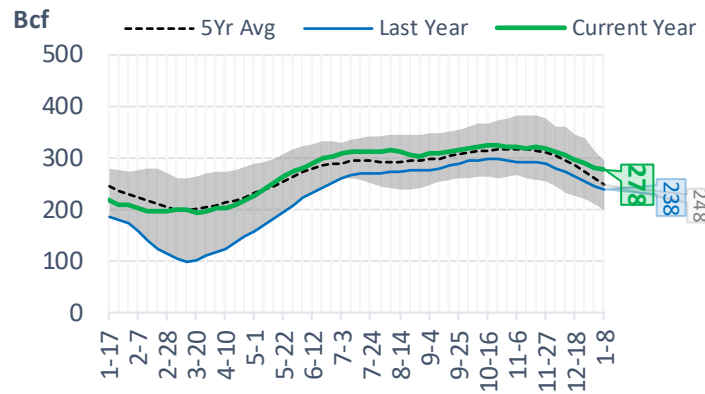
## Midwest Storage Levels



## Midwest Storage Levels

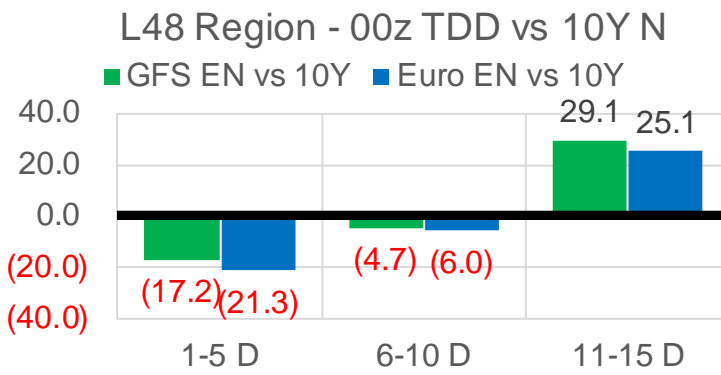
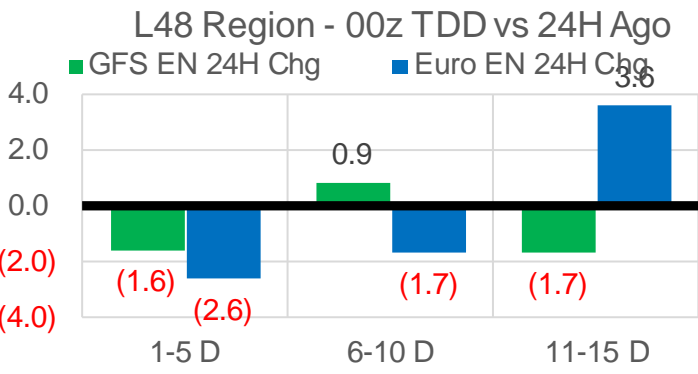
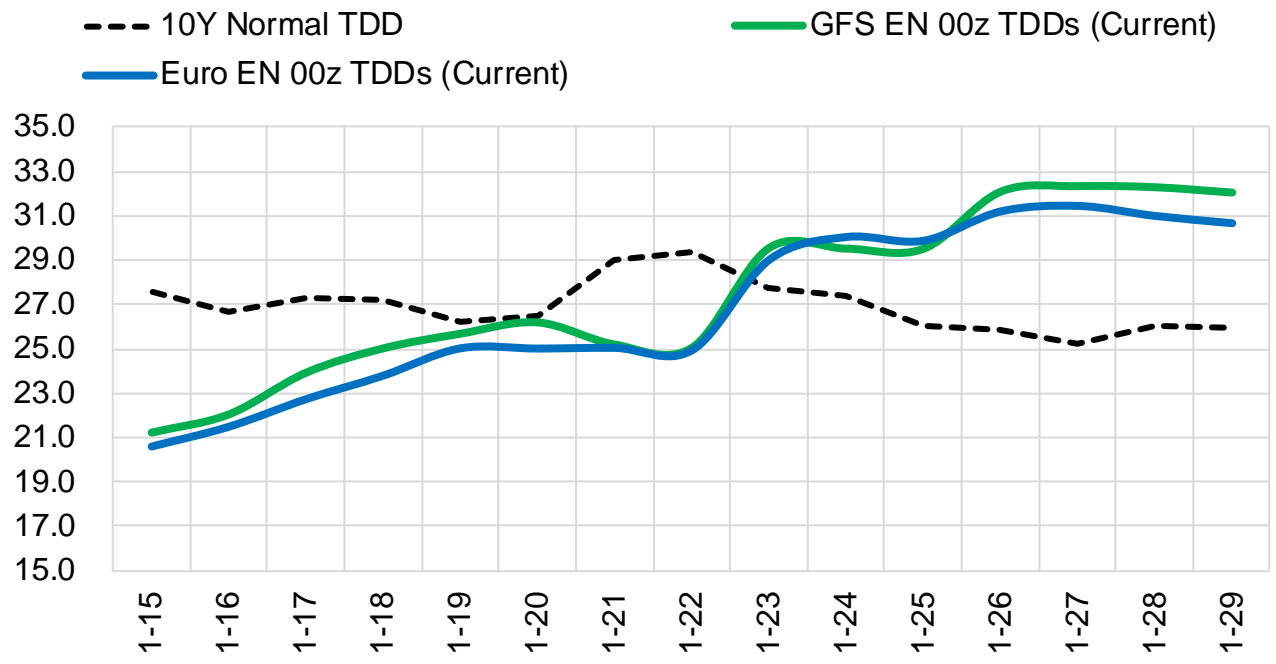


## Pacific Storage Levels



## Current Short-term Weather Model Outlooks (00z)

### L48 Region



Source: WSI, Bloomberg

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

## EIA Storage Week Balances

	11-Dec	18-Dec	25-Dec	1-Jan	8-Jan	15-Jan	WoW	vs. 4W
<b>Lower 48 Dry Production</b>	<b>90.8</b>	<b>90.9</b>	<b>91.5</b>	<b>91.7</b>	<b>91.6</b>	<b>90.4</b>	▼ -1.2	▼ -1.0
<b>Canadian Imports</b>	<b>5.9</b>	<b>5.8</b>	<b>5.8</b>	<b>5.8</b>	<b>6.1</b>	<b>6.2</b>	▲ 0.1	▲ 0.3
L48 Power	28.0	28.3	26.5	26.3	27.3	29.5	▲ 2.2	▲ 2.4
L48 Residential & Commercial	36.4	40.0	38.8	41.9	39.9	43.7	▲ 3.8	▲ 3.6
L48 Industrial	24.7	25.5	24.8	24.0	25.4	24.8	▼ -0.6	▼ -0.2
L48 Lease and Plant Fuel	5.0	5.0	5.1	5.1	5.1	5.0	▼ -0.1	▼ -0.1
L48 Pipeline Distribution	2.9	3.1	3.0	3.1	3.0	3.3	▲ 0.3	▲ 0.3
<b>L48 Regional Gas Consumption</b>	<b>97.0</b>	<b>102.0</b>	<b>98.2</b>	<b>100.3</b>	<b>100.7</b>	<b>106.4</b>	▲ 5.6	▲ 6.0
<b>Net LNG Exports</b>	<b>11.3</b>	<b>10.9</b>	<b>10.8</b>	<b>11.0</b>	<b>10.9</b>	<b>10.6</b>	▼ -0.3	▼ -0.3
<b>Total Mexican Exports</b>	<b>6.3</b>	<b>6.2</b>	<b>5.8</b>	<b>5.5</b>	<b>6.0</b>	<b>6.2</b>	▲ 0.2	▲ 0.3
<b>Implied Daily Storage Activity</b>	<b>-17.9</b>	<b>-22.5</b>	<b>-17.5</b>	<b>-19.3</b>	<b>-19.8</b>	<b>-26.5</b>	<b>-6.7</b>	
<b>EIA Reported Daily Storage Activity</b>	<b>-17.4</b>	<b>-21.7</b>	<b>-16.3</b>	<b>-18.6</b>	<b>-19.1</b>			
<b>Daily Model Error</b>	<b>-0.5</b>	<b>-0.8</b>	<b>-1.2</b>	<b>-0.7</b>	<b>-0.6</b>			

## Monthly Balances

	2Yr Ago Jan-19	LY Jan-20	Sep-20	Oct-20	Nov-20	Dec-20	MTD Jan-21	MoM	vs. LY
<b>Lower 48 Dry Production</b>	<b>87.2</b>	<b>94.0</b>	<b>88.1</b>	<b>87.5</b>	<b>90.4</b>	<b>91.2</b>	<b>90.9</b>	▼ -0.3	▼ -3.1
<b>Canadian Imports</b>	<b>5.9</b>	<b>4.8</b>	<b>3.8</b>	<b>4.3</b>	<b>4.6</b>	<b>5.9</b>	<b>6.1</b>	▲ 0.3	▲ 1.3
L48 Power	27.2	30.0	34.3	30.6	24.8	27.4	28.4	▲ 1.0	▼ -1.6
L48 Residential & Commercial	48.0	41.1	8.8	14.4	22.8	39.2	41.6	▲ 2.4	▲ 0.4
L48 Industrial	24.1	24.6	19.3	22.7	24.4	24.9	24.9	▲ 0.0	▲ 0.3
L48 Lease and Plant Fuel	4.9	5.2	4.9	4.9	5.0	5.1	5.0	▼ 0.0	▼ -0.2
L48 Pipeline Distribution	3.4	3.2	2.2	2.3	2.2	3.0	3.2	▲ 0.1	▼ -0.1
<b>L48 Regional Gas Consumption</b>	<b>107.6</b>	<b>104.1</b>	<b>69.4</b>	<b>74.9</b>	<b>79.2</b>	<b>99.6</b>	<b>103.0</b>	▲ 3.5	▼ -1.1
<b>Net LNG Exports</b>	<b>4.1</b>	<b>8.4</b>	<b>6.0</b>	<b>8.0</b>	<b>10.1</b>	<b>11.0</b>	<b>10.8</b>	▼ -0.2	▲ 2.4
<b>Total Mexican Exports</b>	<b>5.0</b>	<b>5.2</b>	<b>6.4</b>	<b>6.2</b>	<b>6.2</b>	<b>6.0</b>	<b>6.1</b>	▲ 0.1	▲ 0.8
<b>Implied Daily Storage Activity</b>	<b>-23.6</b>	<b>-18.9</b>	<b>10.1</b>	<b>2.6</b>	<b>-0.6</b>	<b>-19.5</b>	<b>-22.8</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

Source: Bloomberg, analytix.ai



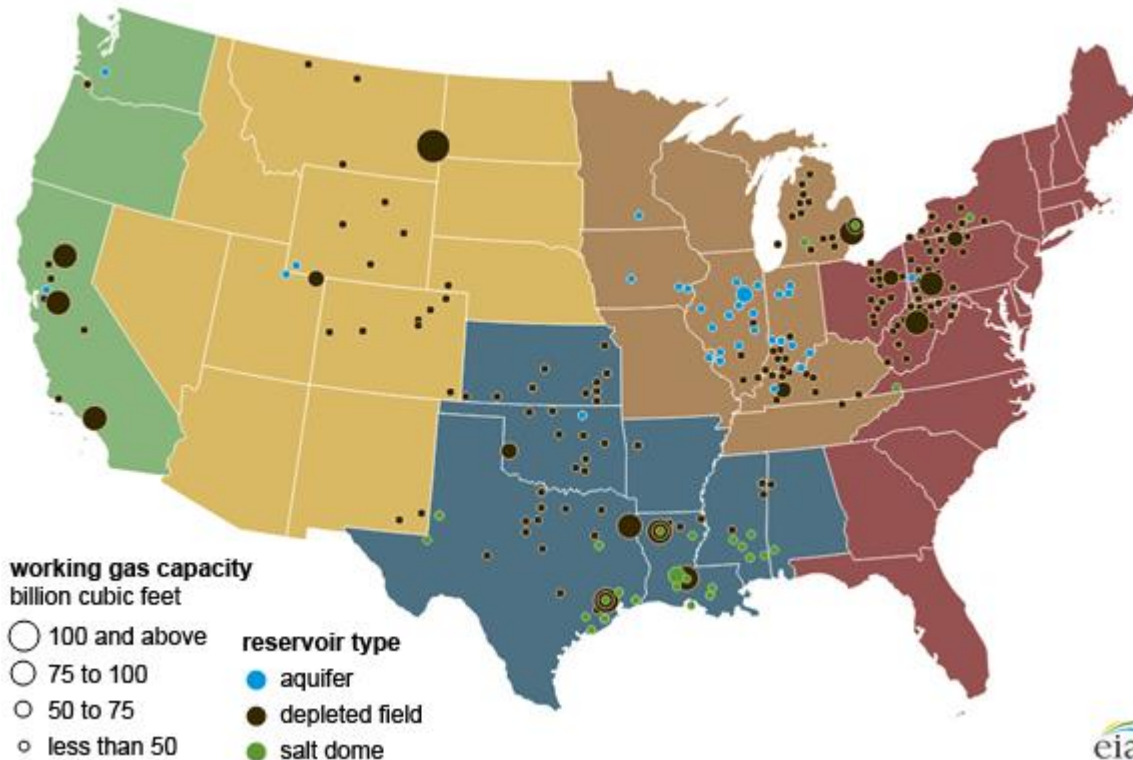
## Regional S/D Models Storage Projection

Week Ending 15-Jan

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	-26.8	1.2	-25.6	-180
East	-8.3	1.3	-6.9	-49
Midwest	-7.3	0.5	-6.8	-47
Mountain	2.0	-3.5	-1.5	-10
South Central	-13.0	3.1	-9.9	-69
Pacific	-0.3	-0.3	-0.6	-4

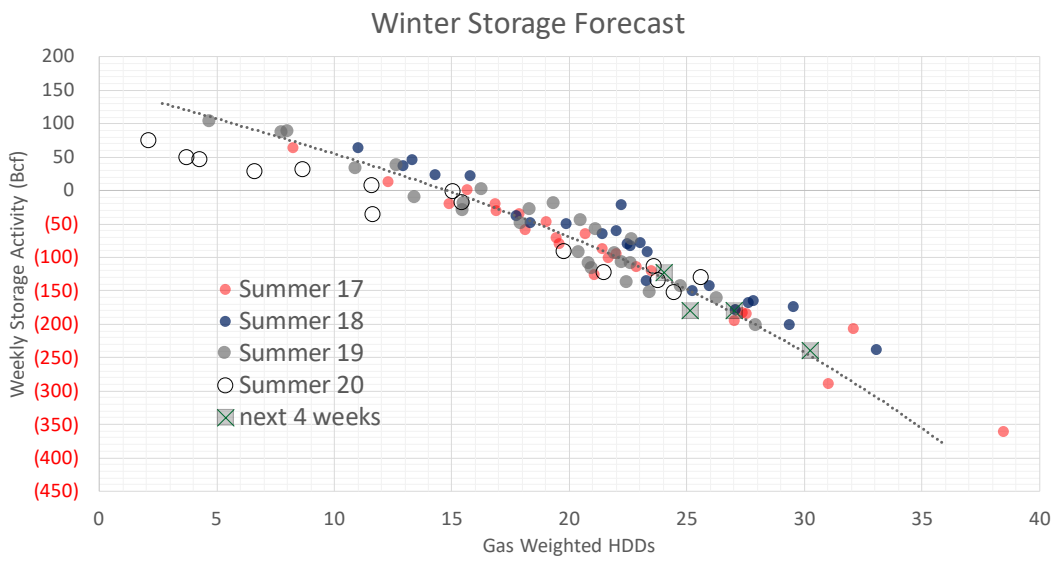
\*Adjustment Factor is calculated based on historical regional deltas

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



## Weather Model Storage Projection

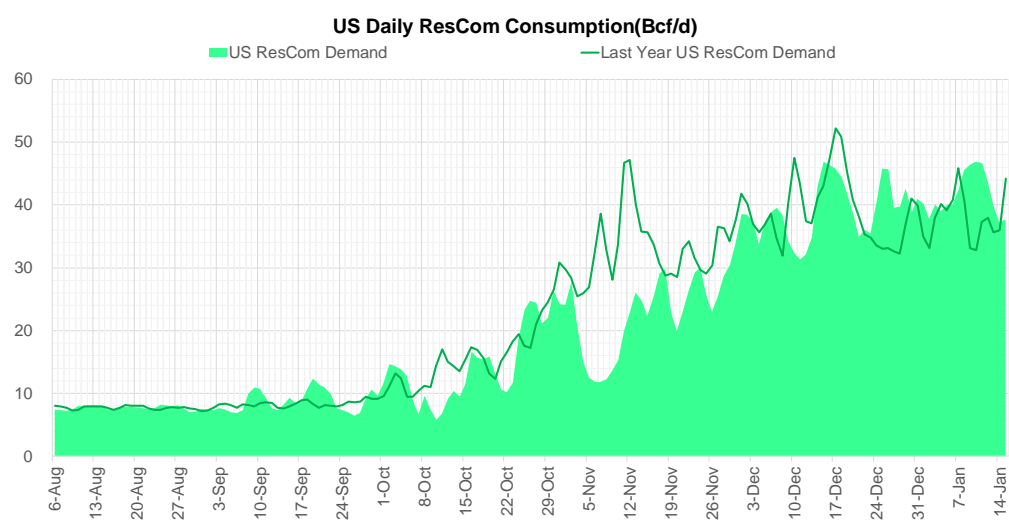
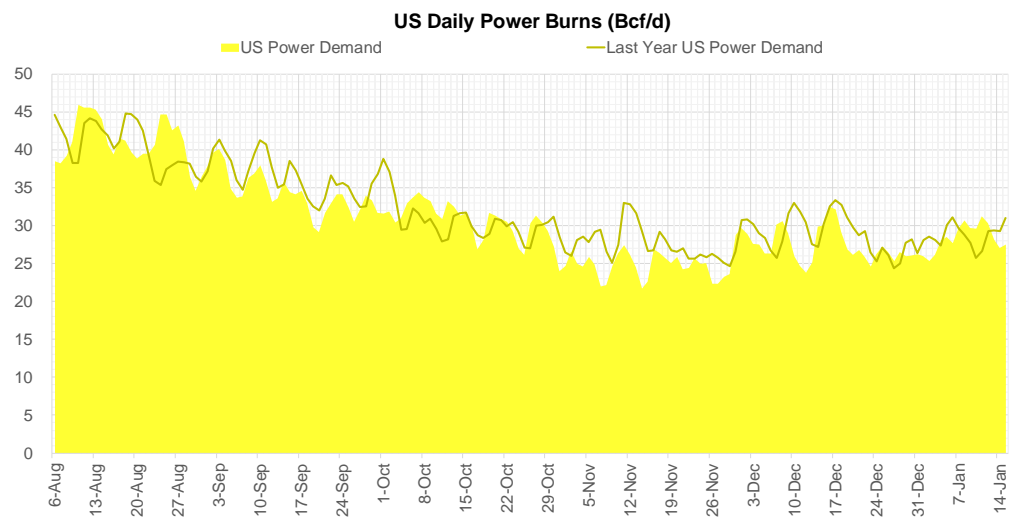
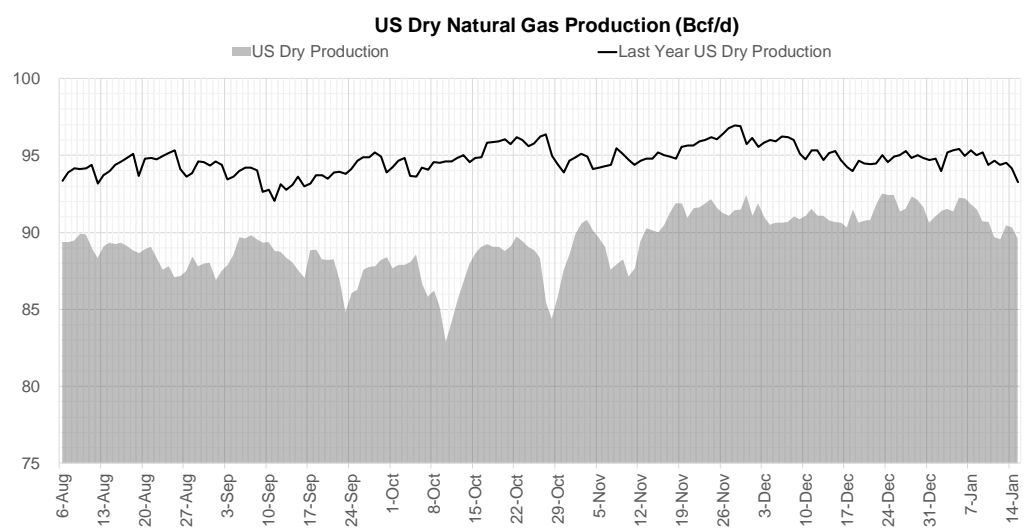
Next report and beyond		
Week Ending	Temp	Week Storage Projection
22-Jan	24.1	-122
29-Jan	30.3	-238
05-Feb	27.0	-180



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

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

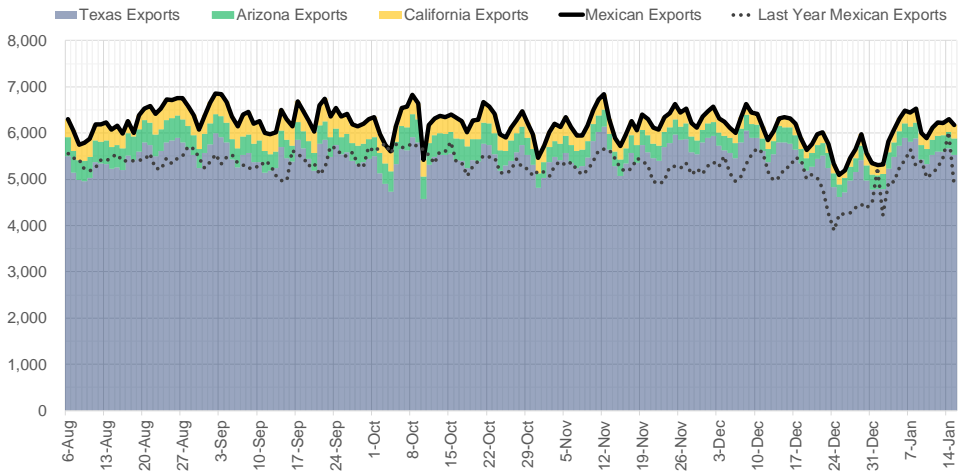
## Supply – Demand Trends



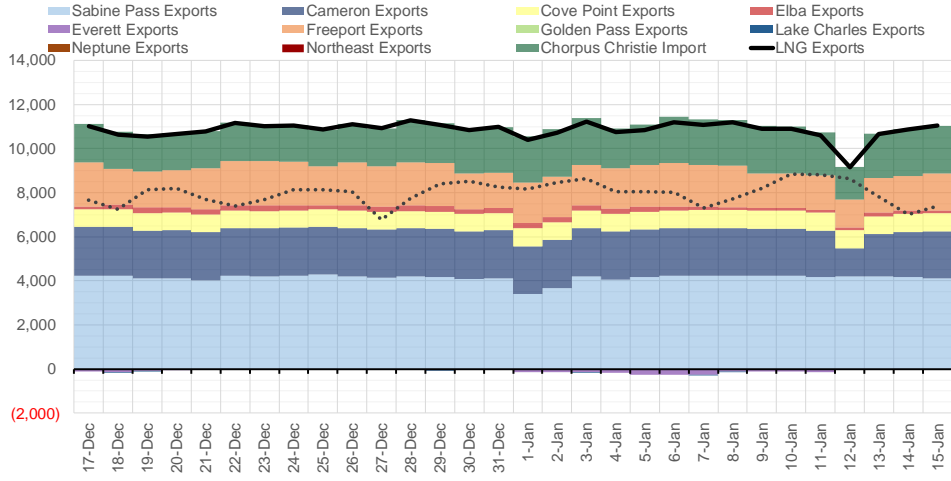
Source: Bloomberg

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

**Mexican Exports (MMcf/d)**



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



Source: Bloomberg

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

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

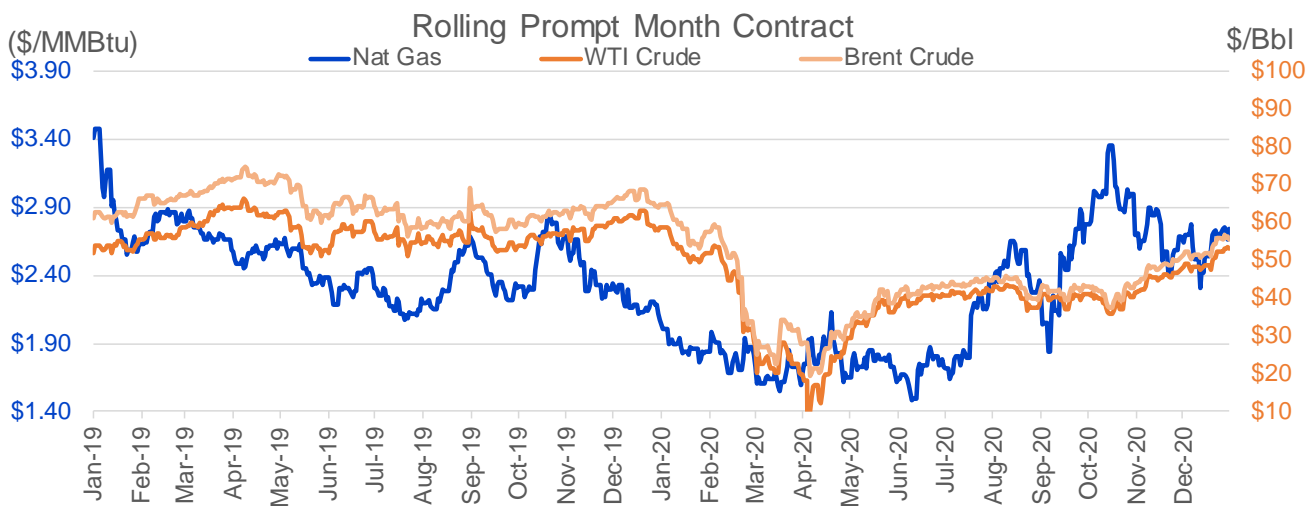
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
2	2021	C	3.00	8022	3	2021	C	3.50	48855
2	2021	P	2.50	5543	4	2021	C	3.00	45308
4	2021	C	3.00	4374	3	2021	P	2.00	42801
4	2021	C	3.50	4211	3	2021	C	4.00	39729
3	2021	C	3.50	3780	3	2021	C	3.25	37997
4	2021	P	2.00	3208	4	2021	C	4.00	35049
4	2021	P	2.25	3041	3	2021	C	5.00	32184
3	2021	P	2.50	2841	2	2021	C	4.00	31922
4	2021	C	3.25	2757	3	2021	C	3.00	29466
3	2021	C	3.25	2722	10	2021	C	4.00	29066
2	2021	P	2.40	2521	2	2021	C	3.00	27975
5	2021	C	3.50	2495	3	2021	C	4.50	26460
2	2021	C	3.25	2425	2	2021	P	2.50	25890
2	2021	P	2.25	2379	10	2021	C	3.25	25819
2	2021	P	2.60	1970	2	2021	P	2.25	25061
3	2021	C	3.10	1876	3	2021	P	2.50	24904
3	2021	P	2.25	1838	3	2021	C	6.00	24814
2	2021	C	2.75	1777	4	2021	C	3.50	21678
6	2021	P	2.00	1400	3	2021	C	7.00	21565
4	2021	P	2.50	1375	8	2021	C	4.00	21135
3	2021	P	1.90	1341	2	2021	C	3.50	20776
2	2021	P	2.70	1334	4	2021	P	2.00	20501
3	2021	C	3.00	1229	2	2021	P	2.00	19737
5	2021	P	2.25	1123	10	2021	C	5.00	19710
2	2021	C	3.50	1117	5	2021	C	3.00	19352
3	2021	P	2.60	1111	8	2021	P	2.25	18994
2	2021	C	2.90	1055	4	2021	P	2.25	18827
6	2021	C	3.25	1050	4	2021	C	5.00	18777
9	2021	P	2.50	1050	6	2021	C	4.00	18244
2	2021	P	2.10	1036	4	2021	C	2.75	18106
4	2021	C	2.90	1031	2	2021	C	3.25	18054
8	2021	C	4.00	1000	10	2021	P	2.00	17822
2	2022	C	4.00	1000	2	2021	C	5.00	17296
9	2021	C	3.25	994	7	2021	C	4.00	17155
3	2021	C	2.70	959	4	2021	P	2.50	16002
8	2021	C	3.25	950	4	2021	C	3.25	15811
10	2021	C	3.25	950	5	2021	P	2.00	15759
10	2021	C	3.50	950	5	2021	C	3.50	15366
3	2021	P	2.40	933	3	2021	P	2.25	15332
4	2021	P	2.40	930	4	2021	C	2.50	15222
3	2021	P	2.00	904	2	2021	C	4.50	15199
6	2021	C	3.50	900	10	2021	C	3.00	14905
6	2021	P	2.25	900	8	2021	P	2.00	14855
7	2021	P	2.00	900	12	2021	C	4.00	14572
8	2021	P	2.00	900	5	2021	C	3.25	14510
9	2021	P	2.00	900	2	2021	P	2.40	14296
10	2021	P	2.00	900	10	2021	P	2.50	14174
2	2021	C	2.85	897	4	2022	C	3.00	13858
5	2021	P	2.00	852	5	2021	C	4.00	13741
					5	2021	P	2.5	13695

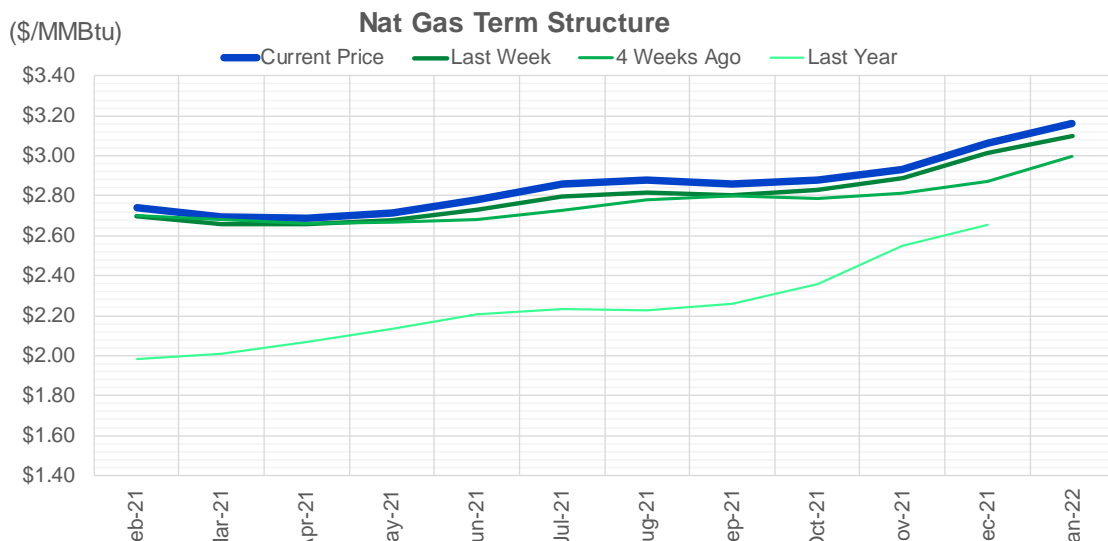
Source: CME, Nasdaq, ICE

## 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
FEB 21	91842	101860	-10018	FEB 21	78110	79207	-1098
MAR 21	292651	282914	9737	MAR 21	95193	96690	-1496
APR 21	108137	108001	136	APR 21	84677	84354	324
MAY 21	69880	68948	932	MAY 21	79267	79248	19
JUN 21	43103	42122	981	JUN 21	64807	64703	104
JUL 21	41431	40820	611	JUL 21	66116	65991	125
AUG 21	30223	30553	-330	AUG 21	66780	66677	104
SEP 21	48341	47825	516	SEP 21	63064	62915	150
OCT 21	107370	107526	-156	OCT 21	82251	82027	224
NOV 21	39619	38558	1061	NOV 21	51413	51839	-425
DEC 21	39477	39157	320	DEC 21	53156	53079	77
JAN 22	48178	46989	1189	JAN 22	52790	52130	660
FEB 22	24425	23747	678	FEB 22	38631	38553	79
MAR 22	26743	26957	-214	MAR 22	40848	40816	32
APR 22	30379	29528	851	APR 22	39544	39521	23
MAY 22	13445	13042	403	MAY 22	34734	34672	63
JUN 22	8123	7863	260	JUN 22	33088	33020	68
JUL 22	6295	6298	-3	JUL 22	33334	33365	-31
AUG 22	5937	5967	-30	AUG 22	32259	32328	-69
SEP 22	5975	5930	45	SEP 22	33091	33041	51
OCT 22	11209	11257	-48	OCT 22	36549	36518	31
NOV 22	6182	6197	-15	NOV 22	30391	30256	135
DEC 22	6568	6578	-10	DEC 22	32697	32608	90
JAN 23	4823	4815	8	JAN 23	16923	16811	112
FEB 23	1478	1468	10	FEB 23	15729	15648	81
MAR 23	2483	2477	6	MAR 23	15600	15535	65
APR 23	3963	3967	-4	APR 23	14436	14420	16
MAY 23	2006	2006	0	MAY 23	13657	13672	-15
JUN 23	735	735	0	JUN 23	13420	13389	31
JUL 23	809	809	0	JUL 23	13112	13080	32

Source: CME, ICE






	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22
<b>Current Price</b>	<b>\$2.740</b>	<b>\$2.691</b>	<b>\$2.688</b>	<b>\$2.716</b>	<b>\$2.778</b>	<b>\$2.856</b>	<b>\$2.877</b>	<b>\$2.860</b>	<b>\$2.879</b>	<b>\$2.929</b>	<b>\$3.060</b>	<b>\$3.160</b>
Last Week	\$2.700	\$2.656	\$2.659	\$2.680	\$2.733	\$2.798	\$2.816	\$2.804	\$2.829	\$2.886	\$3.014	\$3.102
vs. Last Week	\$0.040	\$0.035	\$0.029	\$0.036	\$0.045	\$0.058	\$0.061	\$0.056	\$0.050	\$0.043	\$0.046	\$0.058
4 Weeks Ago	\$2.700	\$2.681	\$2.662	\$2.670	\$2.679	\$2.725	\$2.783	\$2.801	\$2.788	\$2.815	\$2.871	\$2.998
vs. 4 Weeks Ago	\$0.040	\$0.010	\$0.026	\$0.046	\$0.099	\$0.131	\$0.094	\$0.059	\$0.091	\$0.114	\$0.189	\$0.162
Last Year	\$2.003	\$1.985	\$2.011	\$2.066	\$2.137	\$2.209	\$2.233	\$2.229	\$2.261	\$2.358	\$2.549	\$2.656
vs. Last Year	\$0.737	\$0.706	\$0.677	\$0.650	\$0.641	\$0.647	\$0.644	\$0.631	\$0.618	\$0.571	\$0.511	\$0.504

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jan21/Apr21	\$/MMBtu	0.221	▲ 0.029	▲ 0.251	▲ 0.595
NatGas Mar21/Apr21	\$/MMBtu	-0.003	▼ -0.006	▲ 0.005	▼ -0.237
NatGas Oct21/Nov21	\$/MMBtu	0.050	▼ -0.007	▼ -0.006	▼ -0.015
NatGas Apr21/Oct21	\$/MMBtu	0.191	▲ 0.553	▲ 0.306	▼ -0.118
WTI Crude	\$/Bbl	53.01	▲ 0.770	▲ 3.910	▼ -5.530
Brent Crude	\$/Bbl	55.60	▼ -0.390	▲ 3.340	▼ -9.250
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	160.34	▲ 2.390	▲ 9.040	▼ -25.580
Propane, Mt. Bel	cents/Gallon	0.92	▲ 0.061	▲ 0.271	▲ 0.478
Ethane, Mt. Bel	cents/Gallon	0.24	▲ 0.011	▲ 0.040	▲ 0.082
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 
1/15/2021						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	287	12	275	-386	673	
Gas	85	1	84	-35	120	
Miscellaneous	1	0	1	-2	3	
Directional	22	0	22	-22	44	
Horizontal	332	12	320	-377	709	
Vertical	19	1	18	-24	43	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Ardmore Woodford	0	0	0	-3	3	
Arkoma Woodford	0	0	0	-2	2	
Barnett	0	0	0	-1	1	
Cana Woodford	10	0	10	-11	21	
DJ-Niobrara	7	2	5	-12	19	
Eagle Ford	28	2	26	-41	69	
Haynesville	44	1	43	-1	45	
Marcellus	30	0	30	-11	41	
Mississippian	0	0	0	-2	2	
Permian	189	10	179	-214	403	
Utica	4	0	4	-6	10	
Williston	10	-1	11	-43	53	