

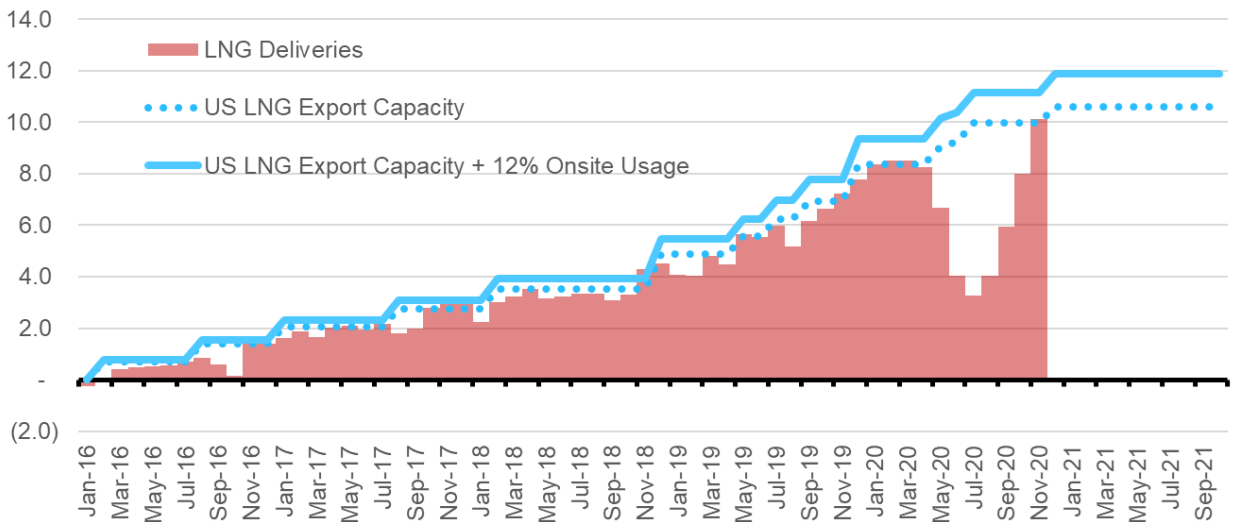
This weekend LNG feedgas levels hit a new record with all facilities starting to fire up towards their design capacity. Yesterday LNG feedgas levels hit 11.5 Bcf/d.

The Corpus Christi LNG terminal has been nominating an average of 2.2 Bcf/d over the last 7-days, with a peak of 2.26 Bcf/d observed this past week. The terminal has been authorized to commission Train 3, and the market has been looking for any indication of a significant ramp. The design capacity of Trains 1 & 2 is 0.66 Bcf, plus approximately 0.08 Bcf/d of onsite usage. So with all three terminals available, the max delivered gas should be 2.21 Bcf/d – which is approximately what we saw this past week.

In late October, Cheniere reported the Corpus Christi construction was 96.7% complete, with Train 3 ahead of schedule and within budget. The plants typically ramp up 3-5 months before they are slated for commercial use. In a separate FERC filing, Cheniere requested approval to commission LNG Storage Tank B.

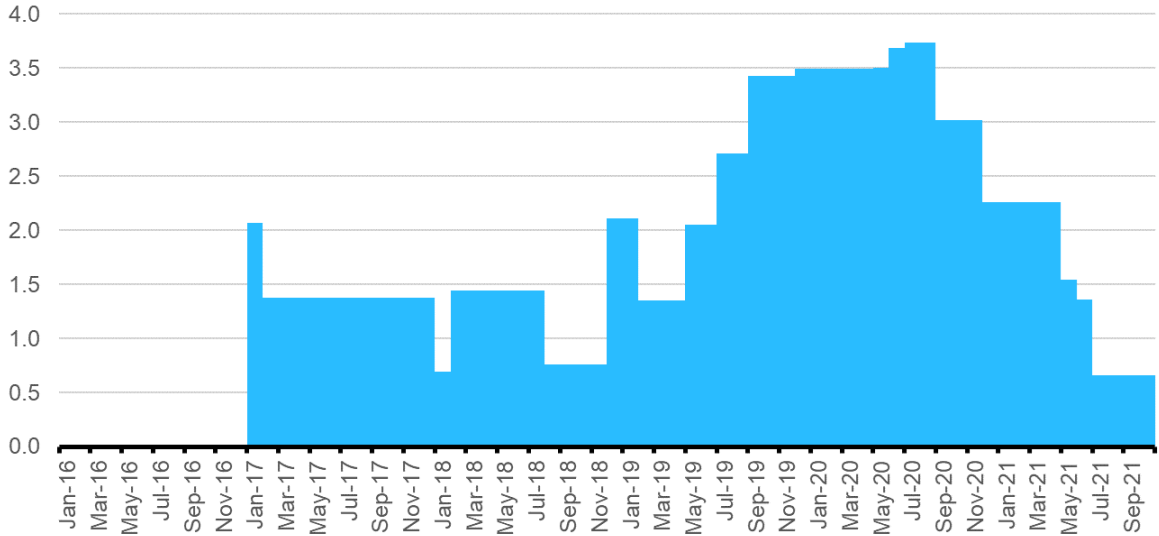
The current total LNG feedgas capacity from all US plants is approximately 11.9 Bcf/d, which includes Cheniere's Corpus Christi T3. Yesterday's nominations get us close to those levels.

Total US LNG Export Capacity (Bcf)



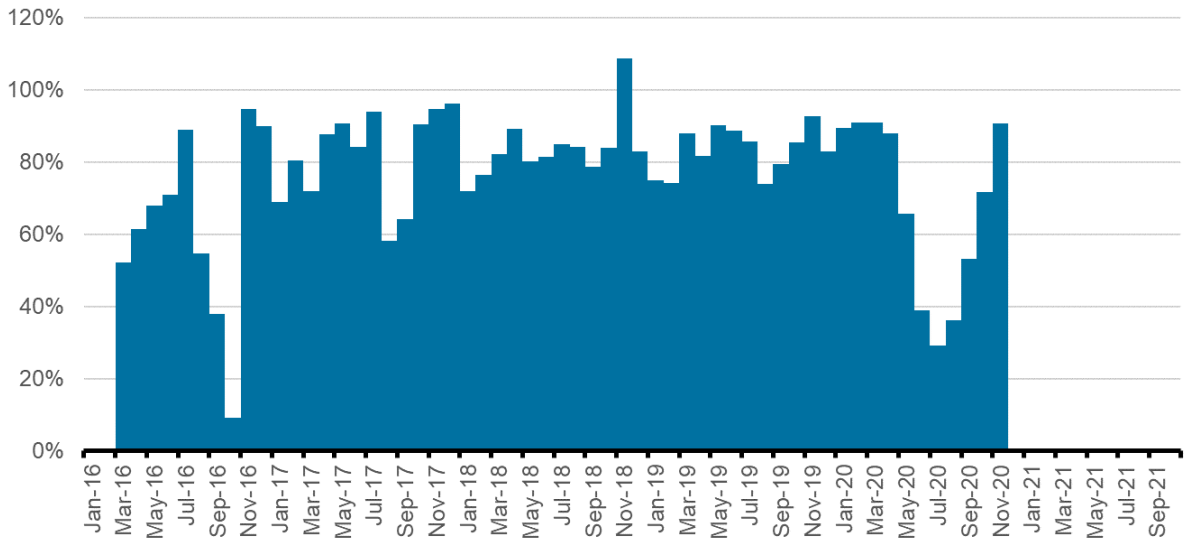
Here is the YoY change in capacity. There was a large amount of capacity that came on the market between mid-2019 and mid-2020.

YoY US LNG Export Capacity Change (Bcf)



We do not expect to reach those peak levels this winter, as the expected utilization rate is 90% (those were the levels observed last winter on average).

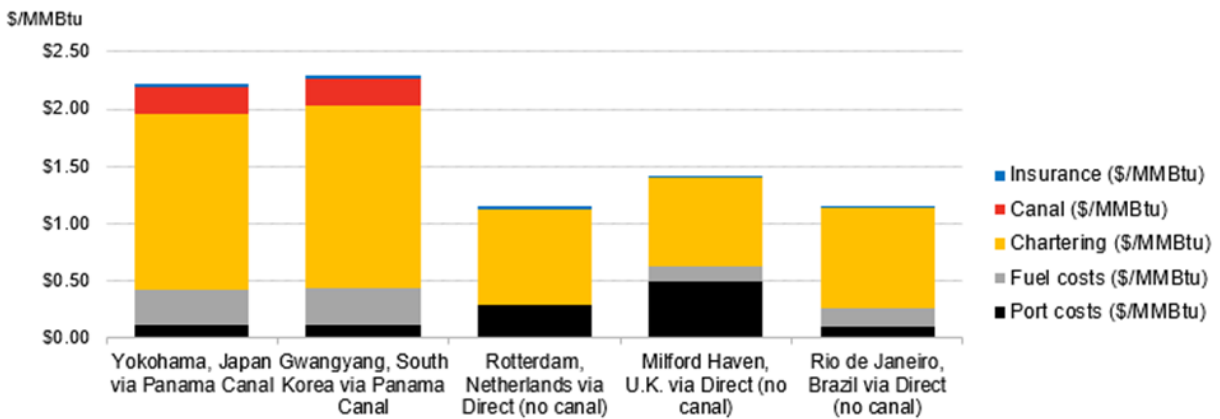
US LNG Capacity Utilization (%)



With LNG spread to Europe and Asia quite wide, we are expecting LNG levels to stay strong from the remainder of winter. Below are the US Gulf Coast netback to different major destinations.

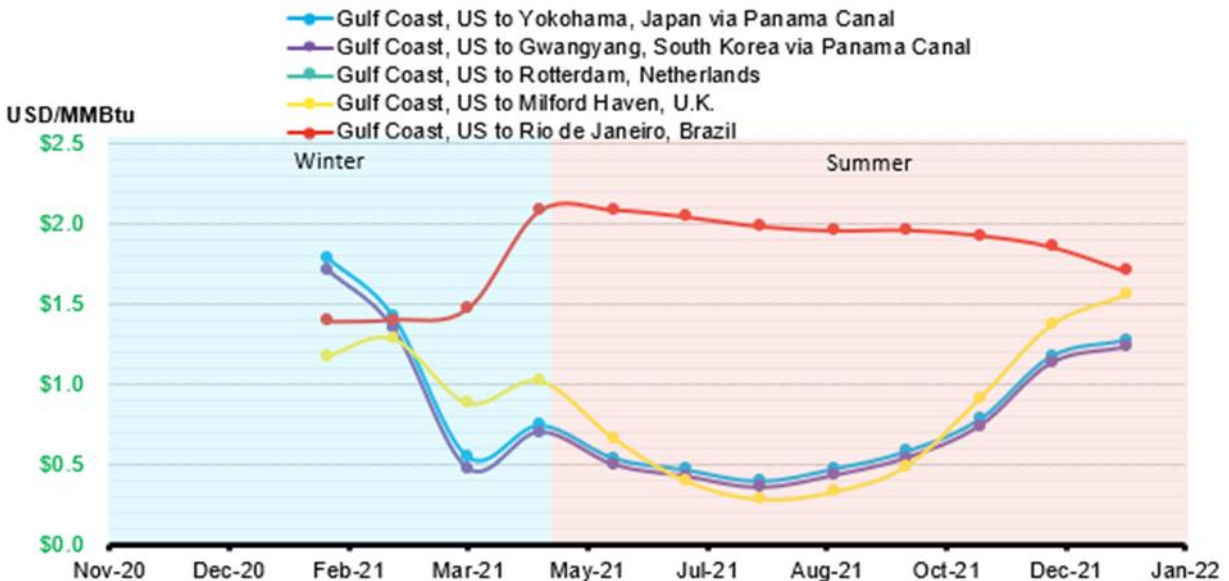
Spot charter rates are currently \$112,000/day and 1-year rates are \$47,000/day. Using the spot rate, below is a chart showing the total cost breakdown to ship to major destinations. Asia is ~\$2.25/MMBtu, while Europe and South American are ~\$1.25/MMBtu.

Cost breakdown for routes from Gulf Coast, US



With where current spreads are, the netbacks are positive with spot chartering rates applied for the first to the third month and 1-year time-charter rates applied thereafter; hence LNG economics says gas should move out of the US Gulf Coast.

Forward Profit Margins



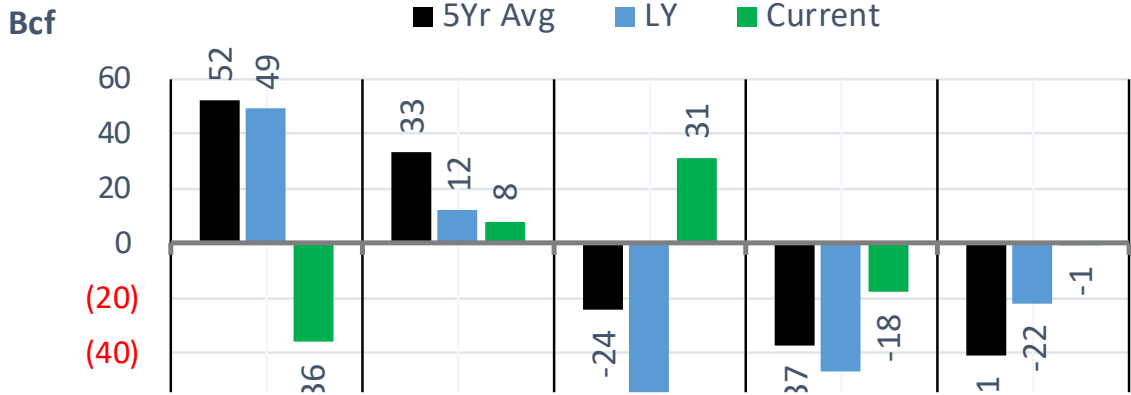
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On average for Dec through March we expect flows to LNG facilities to average 10.7 Bcf/d.

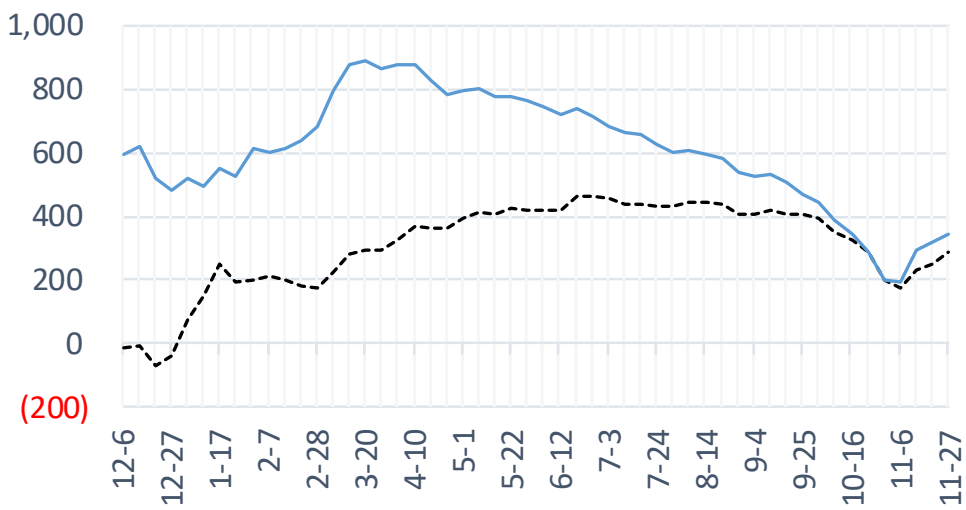
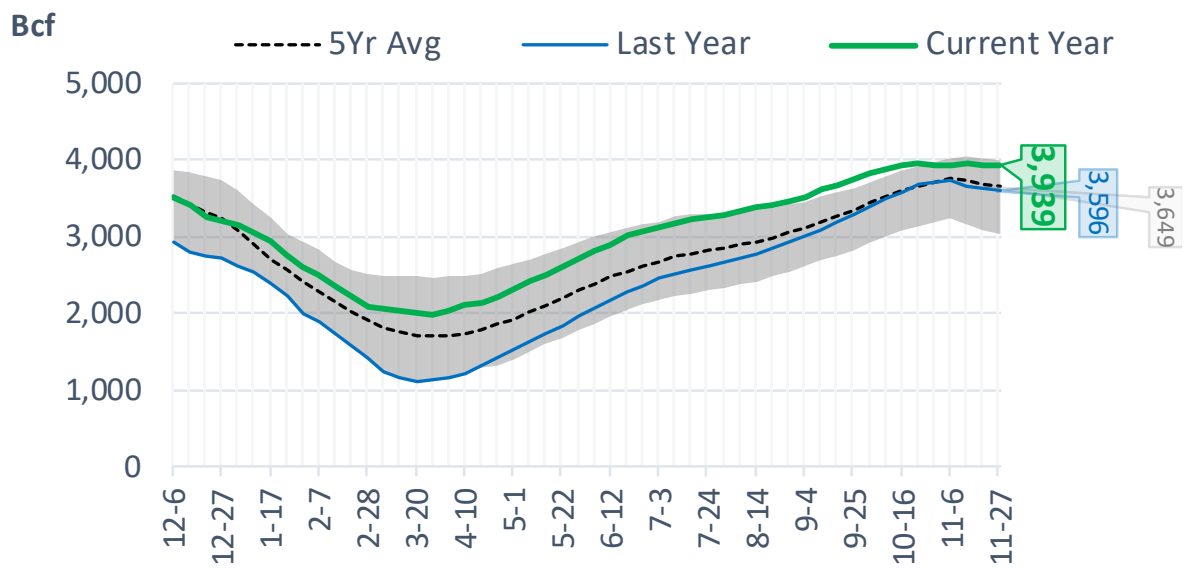
Beyond winter, the netbacks are currently positive for the summer despite expectations of tight US balances. We currently assume LNG flows to remain robust this summer – not at a 90% utilization but lower. Summer 17 utilization was 81%, and summer 18 utilization was 83%). With an 80% utilization, we should expect an average of 9.5 Bcf/d of feedgas delivered to US LNG facilities.

FIA Storage Report

Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels

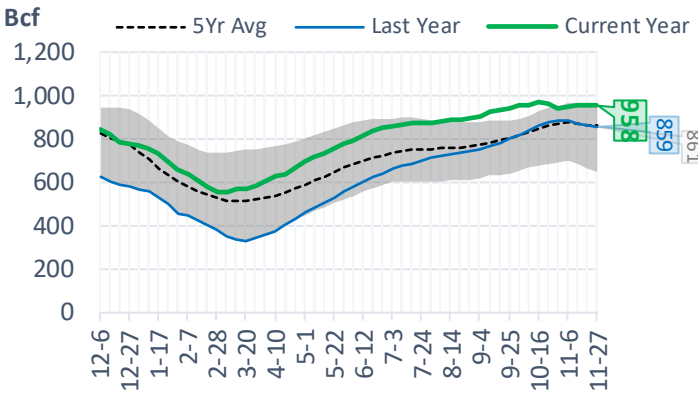


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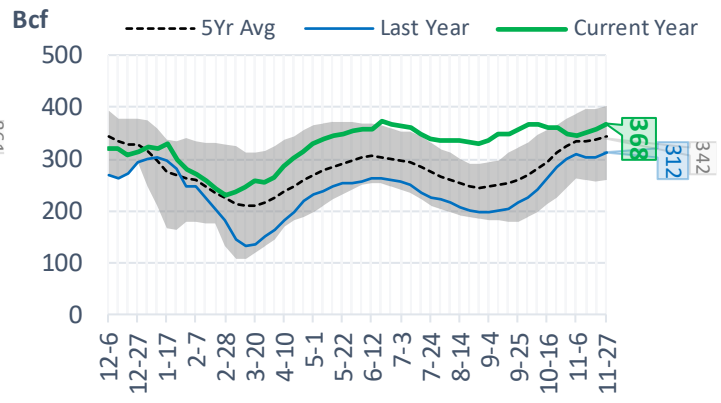
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 27-Nov	Week - 1 20-Nov	Week - 2 13-Nov	Week - 3 6-Nov	Week - 4 30-Oct	Week - 5 23-Oct
Total Lower 48 Storage Level	3939	3940	3958	3927	3919	3955
Weekly Change	-1	-18	+31	+8	-36	+29
vs LY	+343	+322	+293	+196	+200	+285
vs 5Yr Avg	+290	+250	+231	+176	+201	+289
S. Central Salt Storage Level	368	356	350	345	348	360
Weekly Change	+12	+6	+5	-3	-12	0
vs LY	+56	+54	+47	+35	+48	+74
vs 5Yr Avg	+26	+20	+15	+10	+24	+49
S. Central NonSalt Storage Level	958	956	956	948	945	968
Weekly Change	+2	0	+8	+3	-23	-1
vs LY	+99	+93	+86	+63	+59	+88
vs 5Yr Avg	+97	+89	+83	+71	+74	+107
Midwest Storage Level	1122	1133	1139	1127	1119	1118
Weekly Change	-11	-6	+12	+8	+1	+13
vs LY	+79	+76	+59	+20	+14	+30
vs 5Yr Avg	+69	+61	+53	+33	+36	+54
East Storage Level	934	934	953	942	947	941
Weekly Change	0	-19	+11	-5	+6	+18
vs LY	+42	+36	+37	+10	+20	+32
vs 5Yr Avg	+63	+47	+51	+30	+39	+41
Mountain Storage Level	240	242	241	243	240	245
Weekly Change	-2	+1	-2	+3	-5	0
vs LY	+39	+38	+35	+36	+32	+35
vs 5Yr Avg	+28	+28	+26	+27	+24	+30
Pacific Storage Level	318	320	319	322	320	323
Weekly Change	-2	+1	-3	+2	-3	0
vs LY	+30	+27	+28	+31	+26	+25
vs 5Yr Avg	+7	+6	+4	+6	+4	+8

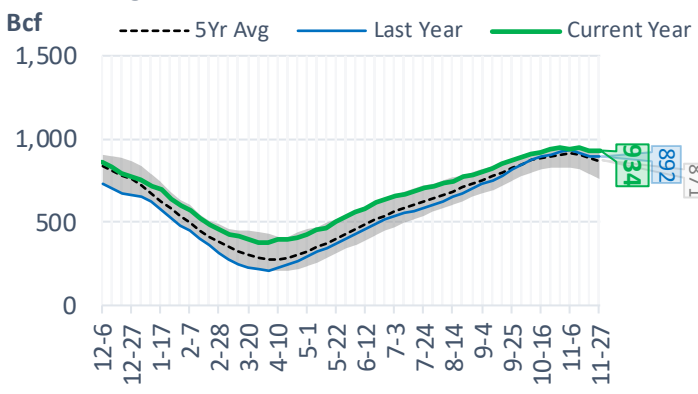
NonSalt Storage Levels



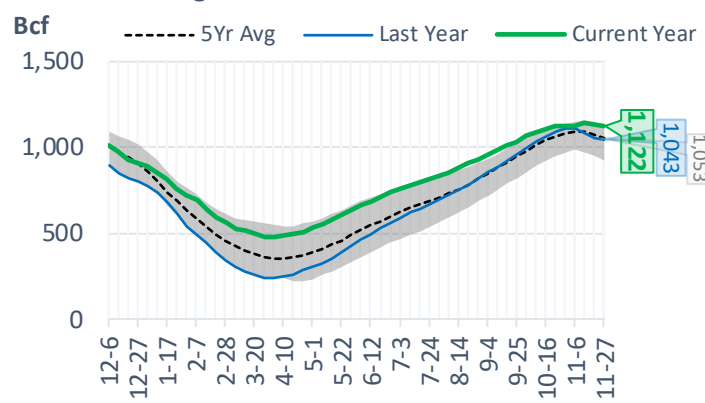
Salt Storage Levels



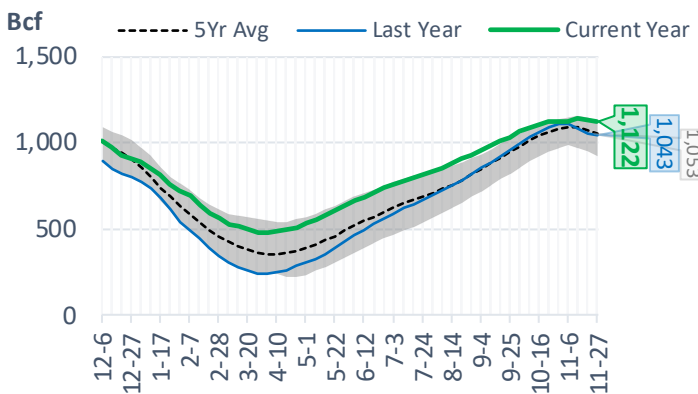
East Storage Levels



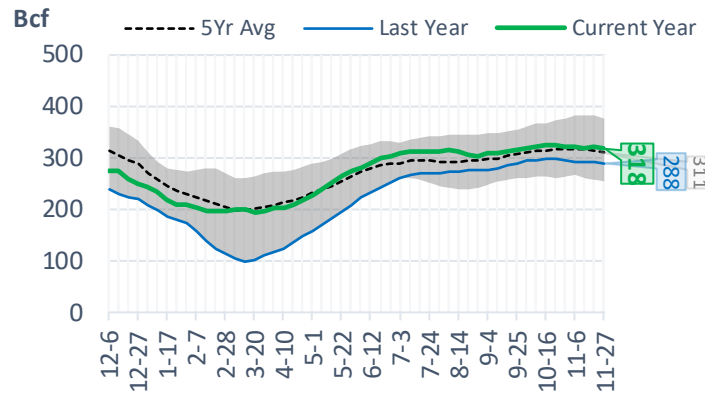
Midwest Storage Levels



Midwest Storage Levels

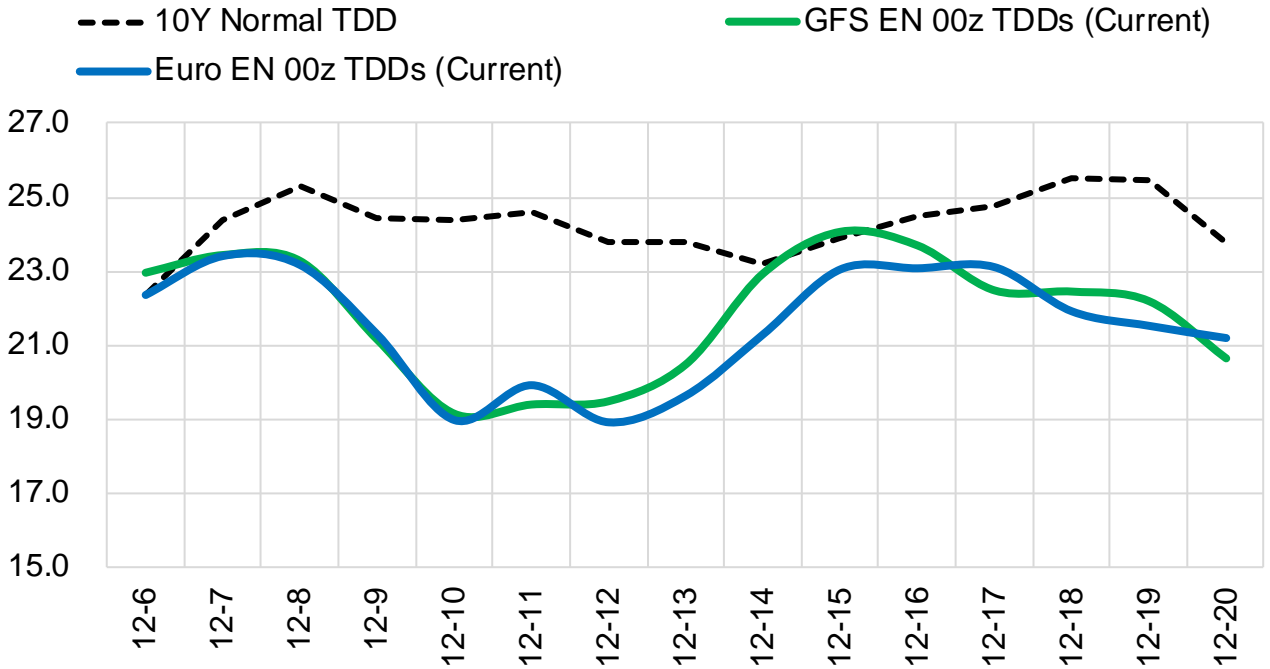


Pacific Storage Levels

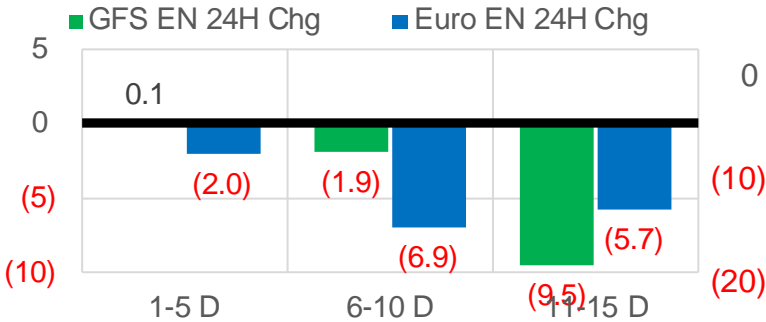


Current Short-term Weather Model Outlooks (00z)

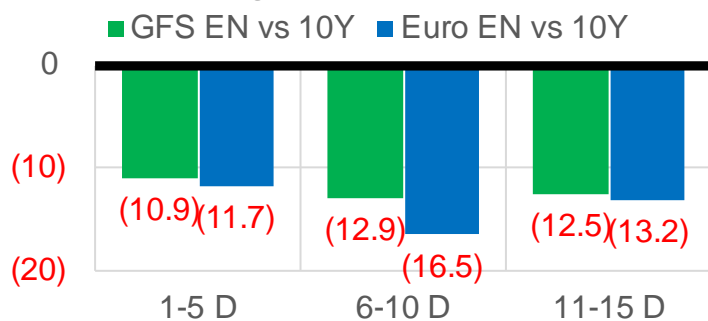
L48 Region



L48 Region - 00z TDD vs 24H Ago



L48 Region - 00z TDD vs 10Y N



Source: WSI, Bloomberg

EIA Storage Week Balances

	30-Oct	6-Nov	13-Nov	20-Nov	27-Nov	4-Dec	WoW	vs. 4W
Lower 48 Dry Production	87.4	89.6	88.2	90.9	91.6	91.6	▼ 0.0	▲ 1.5
Canadian Imports	4.8	4.9	3.9	5.1	4.5	5.3	▲ 0.8	▲ 0.7
L48 Power	28.0	24.6	24.4	24.7	24.8	26.5	▲ 1.7	▲ 1.8
L48 Residential & Commercial	22.7	23.1	16.8	27.2	26.7	34.4	▲ 7.7	▲ 10.9
L48 Industrial	24.1	23.0	24.0	23.3	22.1	23.1	▲ 1.0	▼ 0.0
L48 Lease and Plant Fuel	4.8	4.9	4.9	5.0	5.1	5.1	▲ 0.0	▲ 0.1
L48 Pipeline Distribution	2.5	2.3	1.9	2.4	2.4	2.8	▲ 0.4	▲ 0.6
L48 Regional Gas Consumption	82.1	78.0	72.1	82.6	81.0	91.8	▲ 10.8	▲ 13.4
Net LNG Exports	9.2	10.2	10.4	10.2	9.7	10.4	▲ 0.7	▲ 0.3
Total Mexican Exports	6.2	6.0	6.3	6.1	6.3	6.4	▲ 0.1	▲ 0.2
Implied Daily Storage Activity	-5.3	0.3	3.3	-2.9	-0.9	-11.7	-10.8	
EIA Reported Daily Storage Activity	-5.1	1.1	4.4	-2.6	-0.1			
Daily Model Error	-0.1	-0.8	-1.1	-0.3	-0.8			

Monthly Balances

	2Yr Ago Dec-18	LY Dec-19	Aug-20	Sep-20	Oct-20	Nov-20	MTD Dec-20	MoM	vs. LY
Lower 48 Dry Production	87.5	95.1	88.6	87.8	87.5	90.4	91.0	▲ 0.6	▼ -4.1
Canadian Imports	4.8	4.5	4.9	3.8	4.3	4.6	5.9	▲ 1.3	▲ 1.4
L48 Power	24.4	28.9	41.0	34.1	29.4	24.6	27.8	▲ 3.2	▼ -1.1
L48 Residential & Commercial	39.3	39.1	7.7	8.8	16.2	24.2	38.2	▲ 14.0	▼ -0.8
L48 Industrial	22.4	24.4	20.3	19.2	22.3	23.0	22.4	▼ -0.6	▼ -2.0
L48 Lease and Plant Fuel	4.9	5.3	4.9	4.9	4.8	5.0	5.0	▲ 0.1	▼ -0.2
L48 Pipeline Distribution	2.8	3.1	2.4	2.2	2.2	2.3	3.0	▲ 0.7	▼ -0.1
L48 Regional Gas Consumption	93.9	100.7	76.3	69.1	74.9	79.2	96.5	▲ 17.4	▼ -4.2
Net LNG Exports	4.5	7.8	4.0	5.9	8.0	10.1	11.0	▲ 0.9	▲ 3.3
Total Mexican Exports	4.5	5.0	6.3	6.4	6.2	6.2	6.4	▲ 0.1	▲ 1.4
Implied Daily Storage Activity	-10.7	-13.9	6.8	10.2	2.7	-0.5	-17.0		
EIA Reported Daily Storage Activity									
Daily Model Error									

Source: Bloomberg, analytix.ai

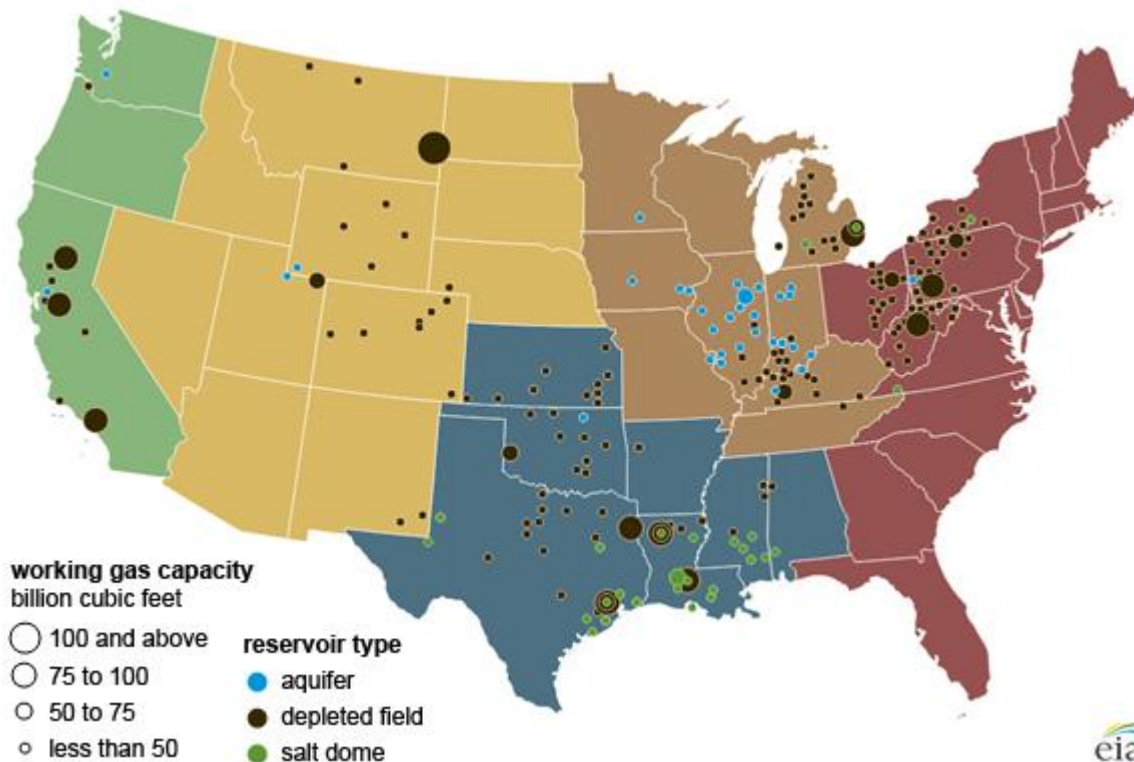
Regional S/D Models Storage Projection

Week Ending 4-Dec

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	-12.0	1.0	-11.0	-77
East	-4.0	2.0	-1.9	-13
Midwest	-4.5	0.0	-4.5	-32
Mountain	2.8	-3.5	-0.7	-5
South Central	-6.0	2.6	-3.4	-24
Pacific	-0.3	-0.2	-0.4	-3

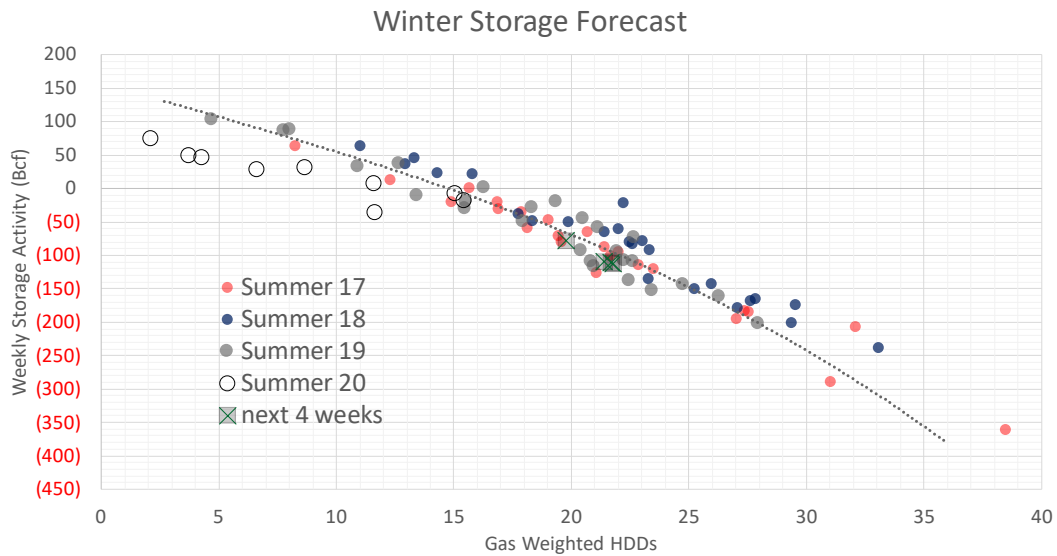
*Adjustment Factor is calculated based on historical regional deltas

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



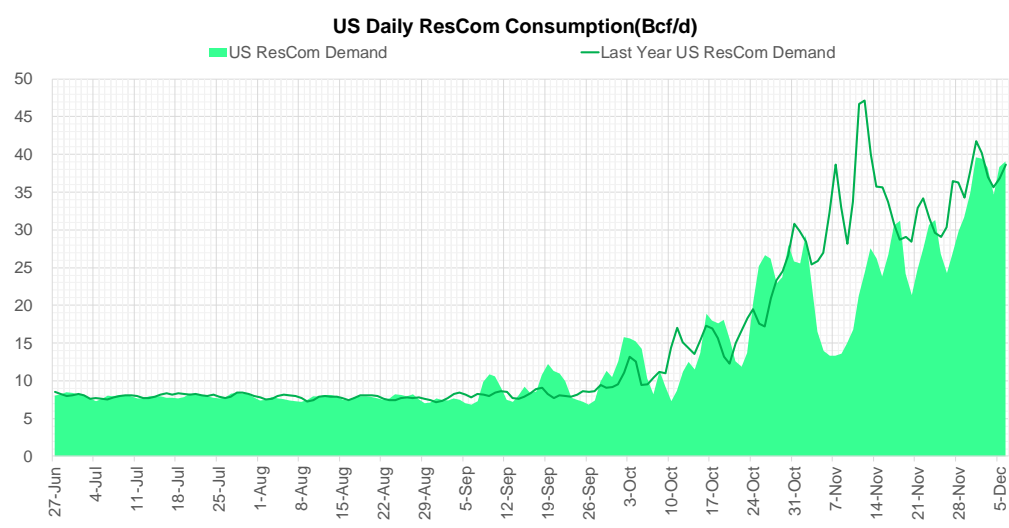
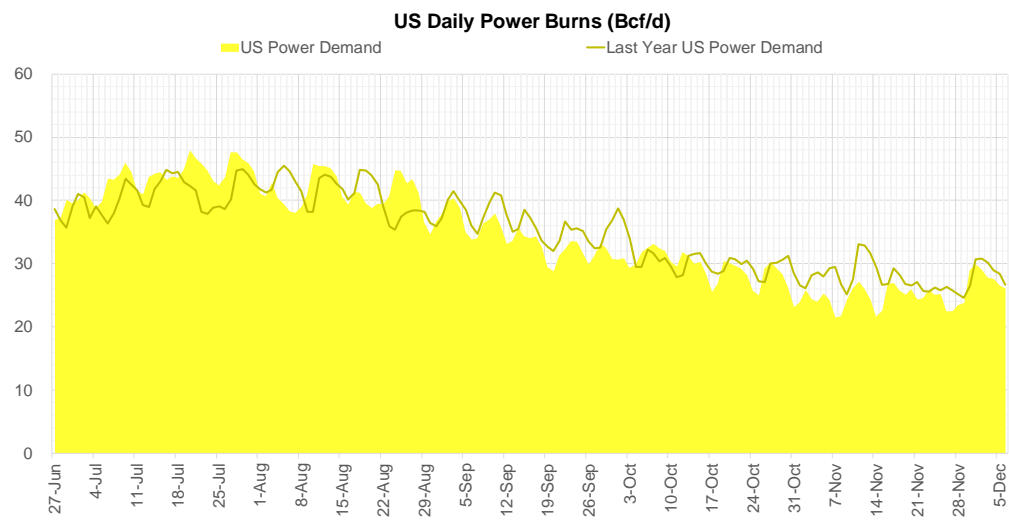
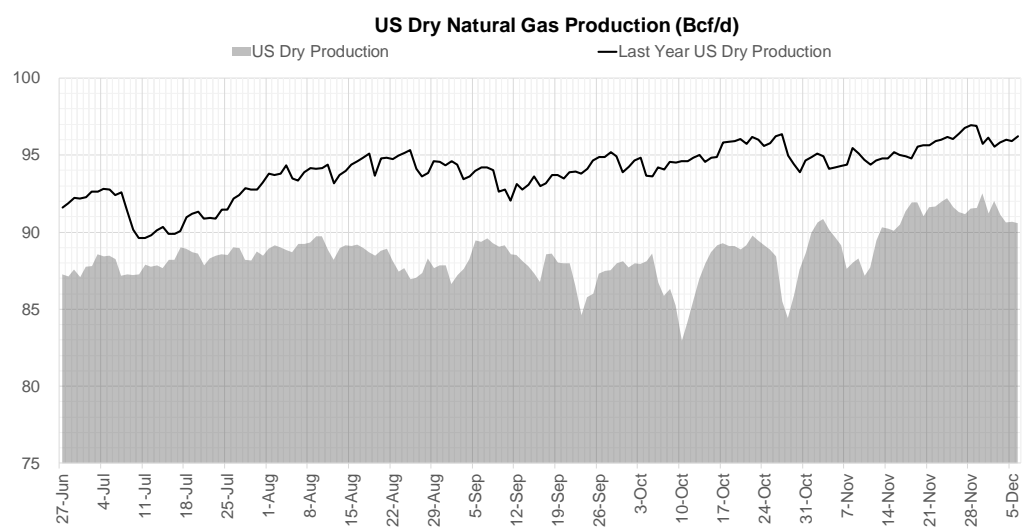
Weather Model Storage Projection

Next report and beyond		
Week Ending	Temp	Week Storage Projection
11-Dec	21.4	-110
18-Dec	21.7	-110
25-Dec	21.8	-112



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

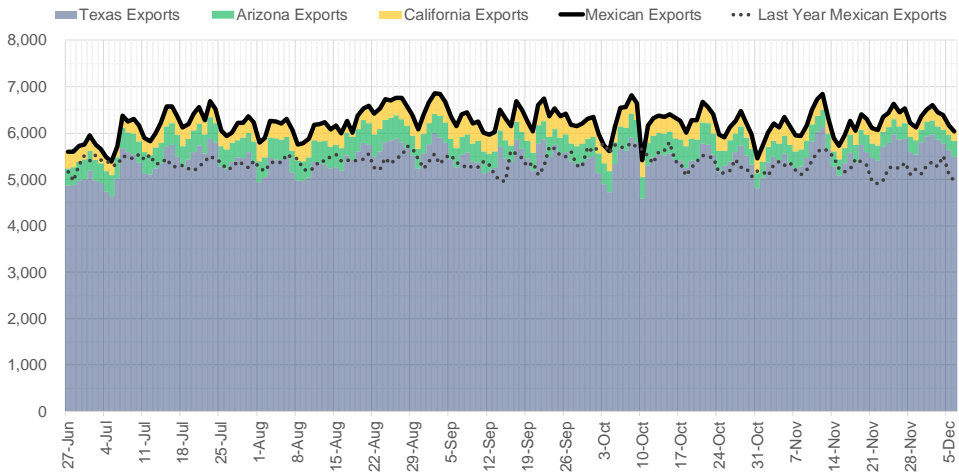
Supply – Demand Trends



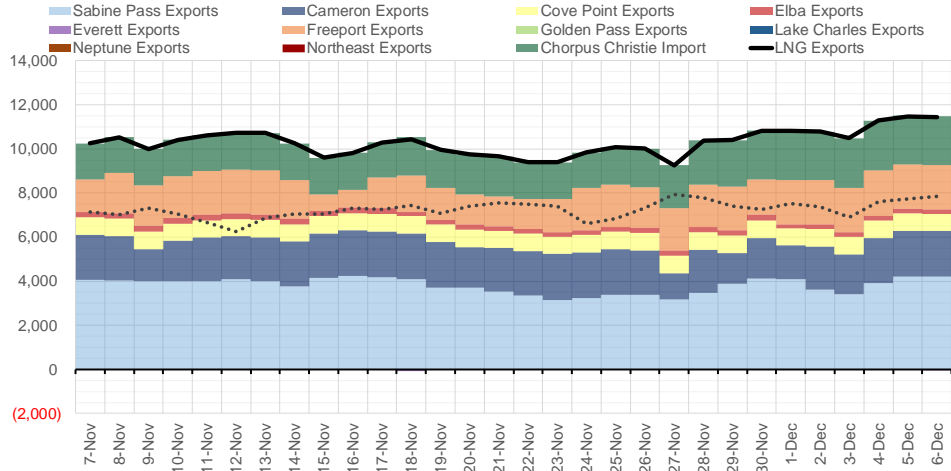
Source: Bloomberg

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Mexican Exports (MMcf/d)



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



Source: Bloomberg

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

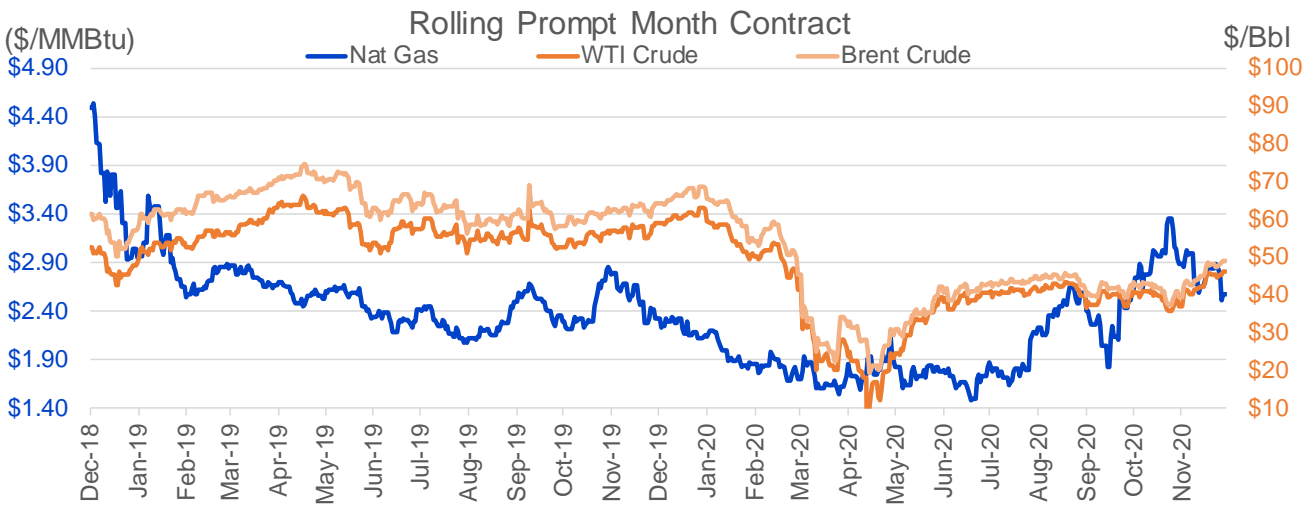
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
1	2021	C	3.00	10763	3	2021	P	2.00	42564
4	2021	C	3.00	10138	1	2021	C	3.50	40407
5	2021	C	3.00	9195	3	2021	C	4.00	34165
1	2021	P	2.25	8352	1	2021	P	2.50	32691
1	2021	P	2.50	8173	4	2021	C	3.50	30826
1	2021	P	2.00	7701	4	2021	C	4.00	28547
1	2021	C	3.50	6880	3	2021	C	5.00	28319
5	2021	C	3.50	5252	3	2021	C	3.25	28106
2	2021	C	3.00	5044	1	2021	C	4.50	27848
1	2021	C	3.25	4715	1	2021	C	4.00	27794
1	2021	C	4.00	4706	10	2021	C	4.00	27661
7	2021	C	3.50	4650	3	2021	C	6.00	26177
10	2021	C	3.25	4328	1	2021	C	5.00	25413
3	2021	C	5.00	4258	3	2021	C	4.50	25310
1	2021	C	2.75	4227	10	2021	C	3.25	24647
10	2021	C	3.00	3970	1	2021	C	3.00	24489
2	2021	C	3.50	3937	3	2021	C	3.00	23722
7	2021	C	3.25	3925	2	2021	P	2.25	23686
8	2021	C	3.00	3725	3	2021	C	7.00	23190
6	2021	C	3.00	3722	3	2021	C	3.50	22588
7	2021	C	3.00	3722	1	2021	C	3.75	22518
9	2021	C	3.00	3720	3	2021	P	2.50	21972
3	2021	C	4.50	3607	1	2021	C	6.00	21138
2	2021	P	2.00	3494	4	2021	C	3.25	21118
5	2021	C	2.75	3400	2	2021	C	3.50	21081
4	2021	C	3.25	3251	8	2021	C	4.00	19763
3	2021	P	2.00	3167	2	2021	P	2.50	19238
4	2021	C	3.50	3150	4	2021	C	5.00	18928
3	2021	C	3.50	3142	5	2021	C	3.00	18900
4	2021	C	2.75	3000	2	2021	C	4.00	18860
4	2021	P	2.00	2915	10	2021	C	5.00	18574
1	2021	C	2.50	2835	1	2021	P	2.00	18403
8	2021	C	3.50	2750	8	2021	P	2.25	18367
9	2021	C	3.50	2750	1	2021	C	3.25	18322
1	2021	P	2.40	2674	4	2021	C	2.75	18036
1	2021	P	1.75	2405	2	2021	C	5.00	17607
2	2021	P	1.75	2403	4	2021	C	3.00	17385
2	2021	C	3.75	2390	1	2021	P	2.25	16869
1	2021	C	2.90	2315	5	2021	C	3.50	16688
1	2021	C	2.60	2231	2	2021	P	2.00	14985
3	2021	C	4.00	2181	4	2021	P	2.00	14858
2	2021	P	2.50	2140	1	2021	P	2.75	14368
3	2021	P	2.50	2084	1	2021	P	3.00	14084
6	2021	C	4.00	2080	10	2021	C	3.00	14014
6	2021	C	3.50	1950	6	2021	P	2.50	13785
10	2021	C	3.50	1950	6	2021	C	4.00	13681
8	2021	C	2.75	1900	1	2021	C	7.00	13527
10	2021	P	2.25	1900	2	2021	C	4.50	13318
7	2021	C	2.75	1800	3	2021	P	2.25	13239
					2	2021	C	3	13218.25

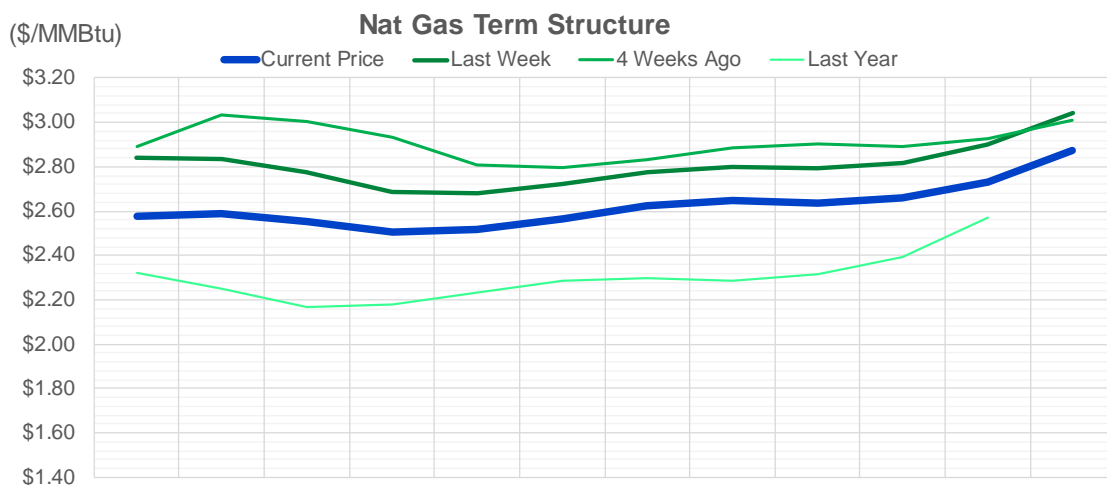
Source: CME, Nasdaq, ICE

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
JAN 21	297838	298896	-1058	JAN 21	100435	102629	-2194.5
FEB 21	95441	96590	-1149	FEB 21	71988	71158	830
MAR 21	192347	195204	-2857	MAR 21	94777	93304	1473.25
APR 21	88461	86784	1677	APR 21	80379	70262	10117.5
MAY 21	55584	54769	815	MAY 21	73361	73250	111
JUN 21	36352	37810	-1458	JUN 21	60818	61347	-529
JUL 21	30751	30464	287	JUL 21	62121	62880	-759.5
AUG 21	26922	26170	752	AUG 21	65402	64524	877.75
SEP 21	38810	37505	1305	SEP 21	59565	59421	144
OCT 21	91653	92144	-491	OCT 21	75268	73247	2021.5
NOV 21	40268	40572	-304	NOV 21	50716	51587	-870.75
DEC 21	34239	33478	761	DEC 21	50136	50464	-327.25
JAN 22	38301	34556	3745	JAN 22	47390	47816	-426
FEB 22	24704	23581	1123	FEB 22	38165	38361	-195.75
MAR 22	27401	26896	505	MAR 22	39571	40552	-980.5
APR 22	23623	23771	-148	APR 22	39093	40709	-1615.5
MAY 22	12854	12519	335	MAY 22	32099	32267	-167.75
JUN 22	6780	6785	-5	JUN 22	30872	31172	-300
JUL 22	5817	5823	-6	JUL 22	32772	32786	-14.25
AUG 22	5096	5033	63	AUG 22	31349	31353	-3.75
SEP 22	4555	4454	101	SEP 22	30804	31131	-326.75
OCT 22	8278	8239	39	OCT 22	36533	35338	1194.5
NOV 22	5923	5873	50	NOV 22	31651	31646	5
DEC 22	6555	6368	187	DEC 22	34027	34064	-36.75
JAN 23	4599	4855	-256	JAN 23	15723	15416	307
FEB 23	1294	1130	164	FEB 23	14506	14436	70.75
MAR 23	2574	2562	12	MAR 23	14089	14027	62
APR 23	2160	2202	-42	APR 23	13344	13557	-213
MAY 23	518	452	66	MAY 23	12458	12374	84
JUN 23	545	517	28	JUN 23	12453	12316	136.5

Source: CME, ICE






	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Current Price	\$2.575	\$2.586	\$2.551	\$2.508	\$2.517	\$2.563	\$2.623	\$2.645	\$2.635	\$2.659	\$2.732	\$2.871
Last Week	\$2.843	\$2.832	\$2.776	\$2.685	\$2.682	\$2.719	\$2.774	\$2.796	\$2.791	\$2.819	\$2.897	\$3.044
vs. Last Week	-\$0.268	-\$0.246	-\$0.225	-\$0.177	-\$0.165	-\$0.156	-\$0.151	-\$0.151	-\$0.156	-\$0.160	-\$0.165	-\$0.173
4 Weeks Ago	\$2.888	\$3.031	\$3.005	\$2.933	\$2.807	\$2.793	\$2.834	\$2.885	\$2.900	\$2.889	\$2.928	\$3.008
vs. 4 Weeks Ago	-\$0.313	-\$0.445	-\$0.454	-\$0.425	-\$0.290	-\$0.230	-\$0.211	-\$0.240	-\$0.265	-\$0.230	-\$0.196	-\$0.137
Last Year	\$2.334	\$2.319	\$2.249	\$2.168	\$2.181	\$2.231	\$2.284	\$2.299	\$2.287	\$2.316	\$2.395	\$2.573
vs. Last Year	\$0.241	\$0.267	\$0.302	\$0.340	\$0.336	\$0.332	\$0.339	\$0.346	\$0.348	\$0.343	\$0.337	\$0.298

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jan21/Apr21	\$/MMBtu	-0.067	▲ 0.091	▲ 0.157	▲ 0.334
NatGas Mar21/Apr21	\$/MMBtu	-0.043	▲ 0.048	▼ -0.169	▼ -0.294
NatGas Oct21/Nov21	\$/MMBtu	0.073	▼ -0.005	▼ -0.007	▲ 0.004
NatGas Apr21/Oct21	\$/MMBtu	0.151	▲ 0.127	▲ 0.048	▼ -0.172
WTI Crude	\$/Bbl	46.26	▲ 0.730	▲ 9.120	▼ -12.940
Brent Crude	\$/Bbl	49.25	▲ 1.070	▲ 9.800	▼ -15.140
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	140.30	▲ 2.250	▲ 26.040	▼ -54.910
Propane, Mt. Bel	cents/Gallon	0.59	▲ 0.044	▲ 0.036	▲ 0.071
Ethane, Mt. Bel	cents/Gallon	0.19	▼ -0.027	▼ -0.031	▲ 0.009
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 
12/4/2020						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	246	5	241	-417	663	
Gas	75	-2	77	-58	133	
Miscellaneous	2	0	2	-1	3	
Directional	18	-4	22	-34	52	
Horizontal	289	6	283	-406	695	
Vertical	16	1	15	-36	52	
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago	
Oil	40	2	38	-47	87	
Gas	62	-2	64	11	51	
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	-16	25	
DJ-Niobrara	6	2	4	-15	21	
Eagle Ford	23	0	23	-37	60	
Granite Wash	0	0	0	-1	1	
Haynesville	40	0	40	-11	51	
Marcellus	25	-2	27	-12	37	
Mississippian	0	0	0	-2	2	
Permian	164	3	161	-236	400	
Utica	5	1	4	-8	13	
Williston	11	0	11	-41	52	