This week we start with some notes regarding the ongoing debate between Cheniere and the EPA. This got a bit of attention late in the week and seems like most are convinced it's a non-issue.

For some background: Earlier this year the EPA announced a change to its regulatory regime for gas-fired turbines under the National Emission Standards for Hazardous Air Pollutants (NESHAP). Particularly, the EPA is looking to end an 18-year deferral in enforcing the formaldehyde criteria of the rule for two subclasses of turbines and would now force all units to show compliance with the whole rule by September 5, 2022.

This change will likely impact a wide array of natural gas infrastructure – ranging from gas-fired power generators, interstate/intrastate gas compressors, and LNG. The most vocal about this regulatory change has been Cheniere, which stated in March that this ruling would require expensive upgrades and temporarily force an outage. That being said, this change is likely to impact more than just Sabine Pass. The EPA indicates that the rule change impacts turbines directly involved in the liquefaction process at Sabine Pass, Corpus Christi, and Cameron.

Aside from the impact on LNG operations, the larger issue seems to be the potential impact on interstate gas flows. BTU Analytics out a great piece (link below), with a chart showing the pipelines impacted. As seen from the list below, these are some of the major pipeline networks running North-South.

In addition to LNG and power facilities, numerous turbines used in operations at several major interstate pipelines will be newly impacted

BTU Analytics
A FACTSET Company

Pipeline/Company	# of Turbines Impacted by Lift of Stay	# Additional Turbines that May be Impacted	2021 Annual Average Demand (Bcf/d)
Transco	3	15	6.7
TGP	5	0	2.8
ANR	1	2	2.7
Northwest	2	4	2.3
Gulf South	0	5	1.8
Panhandle Eastern	6	0	1.4
Cheyenne Plains	3	0	0.02
Total	20	26	17.7

Source: BTU Analytics – a FactSet Company, EPA (Data Updated July 27, 2022)

Under the EPA rules, all equipment must comply with the emissions limit of 91 parts per billion of formaldehyde. Cheniere said its turbine technology was in compliance with air quality rules in place at the time they were proposed.

It is very unclear whether the EPA will exempt Cheniere and others from these strict emissions limits. The common thought is that Cheniere will be able to evade the requirements, as this change has drastic impacts on both domestic and international gas supply.

Here is a good note from BTU Analytics to sum up their thoughts:

"First, the language of the final rule leaves the EPA with a large amount of discretion with regard to enforcement, stating, "For a source that fails to comply with the applicable requirements…the EPA will determine an appropriate response, if any, based on, among other things, the good faith effort of the source to comply." It is entirely possible that the penalties for inaction will be minor and/or that the EPA will continue to work with operators to bring impacted units into compliance via a longer time frame that minimizes disruptions. Second, it is possible that some of the impacted units have either already been brought into compliance or were built in compliance since there has been no enforcement or testing over the last 18 years. Also, it is possible that some units could be brought into compliance without a major engineering effort. Finally, it seems likely that the Biden administration will take action to avoid disruptions, particularly to LNG assets, due to geopolitical tensions and the resulting initiatives required to provide energy security to European allies."

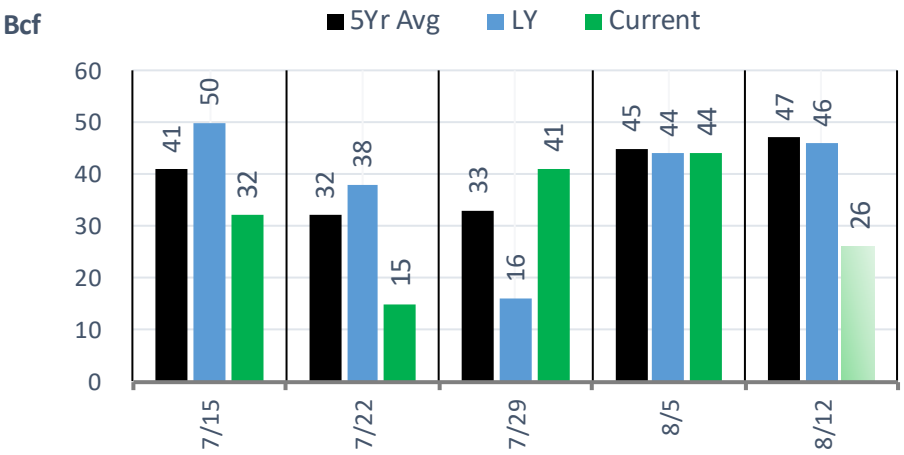
So what will the Biden administration do? Everything possible to cap domestic inflation and save Europe, or otherwise?

The full BTU Analytics piece is worth the read: https://btuanalytics.com/natural-gas-pricing/epa-rule-change-could-have-wide-ranging-consequences-for-natural-gas-markets/

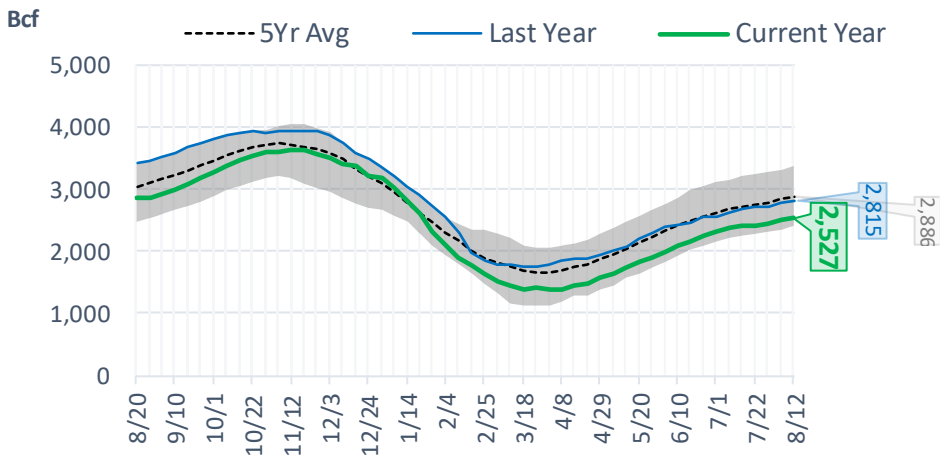
Market Report

EIA Storage Report

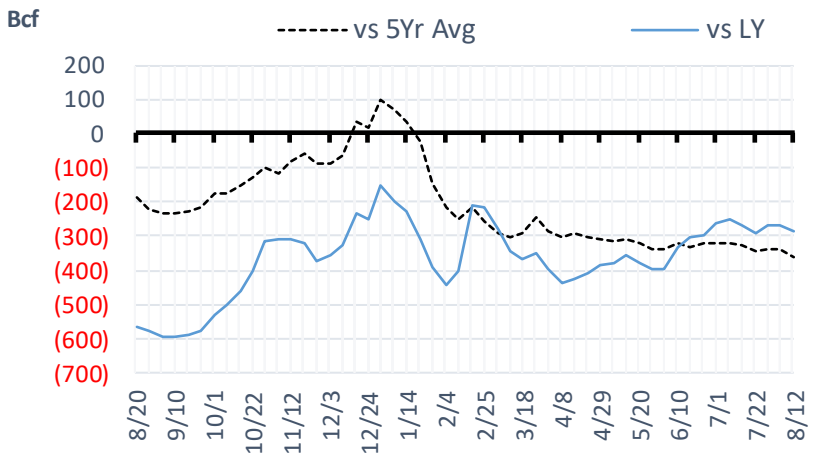
Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels



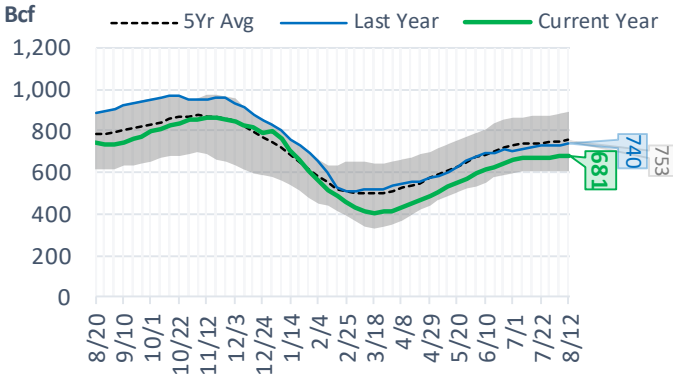
Total Lower 48 LY Surplus/Deficit



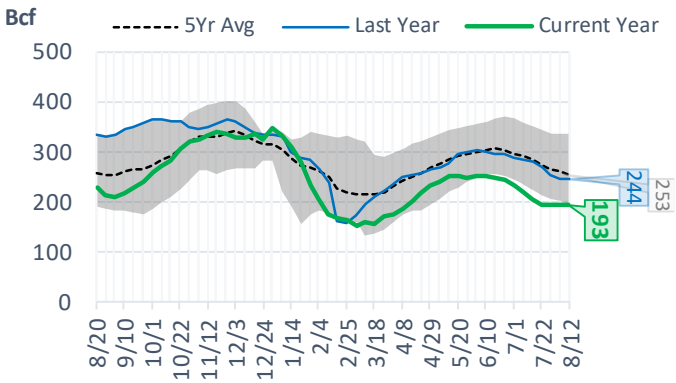
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 12-Aug	Week - 1 5-Aug	Week - 2 29-Jul	Week - 3 22-Jul	Week - 4 15-Jul	Week - 5 8-Jul
Total Lower 48 Storage Level	**2527**	2501	2457	2416	2401	2369
Weekly Change	**+26**	+44	+41	+15	+32	+58
vs LY	**-288**	-268	-268	-293	-270	-252
vs 5Yr Avg	**-359**	-338	-337	-345	-328	-319
S. Central Salt Storage Level	**193**	193	195	195	206	221
Weekly Change	**0**	-2	0	-11	-15	-12
vs LY	**-51**	-54	-58	-75	-74	-62
vs 5Yr Avg	**-60**	-66	-68	-77	-77	-71
S. Central NonSalt Storage Level	**681**	681	671	667	669	669
Weekly Change	**0**	+10	+4	-2	0	+12
vs LY	**-59**	-50	-55	-61	-52	-42
vs 5Yr Avg	**-72**	-68	-73	-76	-71	-66
Midwest Storage Level	**663**	663	643	625	608	586
Weekly Change	**0**	+20	+18	+17	+22	+24
vs LY	**-99**	-75	-74	-74	-72	-73
vs 5Yr Avg	**-95**	-69	-66	-65	-63	-64
East Storage Level	**564**	564	549	532	521	501
Weekly Change	**0**	+15	+17	+11	+20	+19
vs LY	**-79**	-61	-52	-48	-38	-39
vs 5Yr Avg	**-103**	-83	-77	-74	-66	-67
Mountain Storage Level	**148**	148	147	144	144	143
Weekly Change	**0**	+1	+3	0	+1	+5
vs LY	**-40**	-37	-37	-40	-39	-37
vs 5Yr Avg	**-35**	-33	-31	-31	-28	-26
Pacific Storage Level	**252**	252	253	253	253	249
Weekly Change	**0**	-1	0	0	+4	+9
vs LY	**+12**	+11	+9	+7	+6	0
vs 5Yr Avg	**-20**	-20	-20	-22	-23	-27

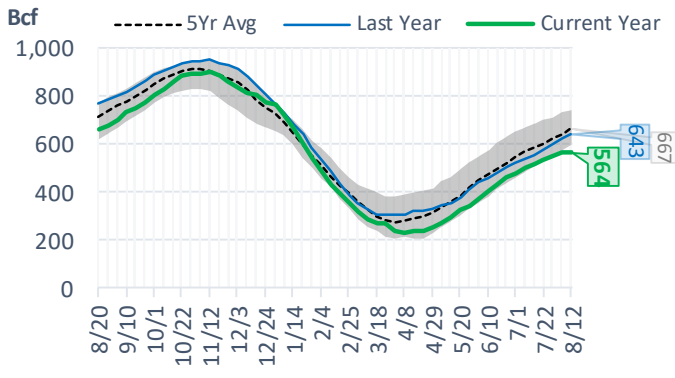
NonSalt Storage Levels



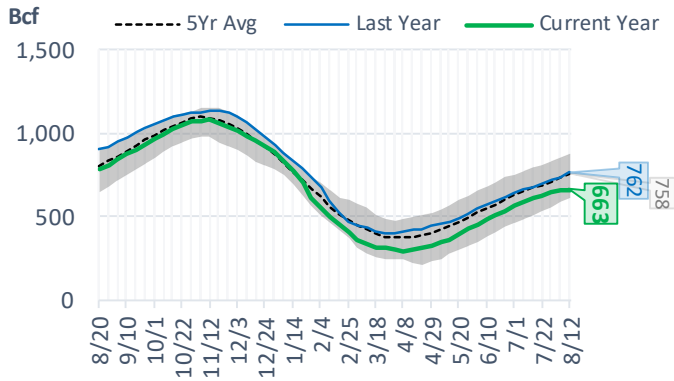
Salt Storage Levels



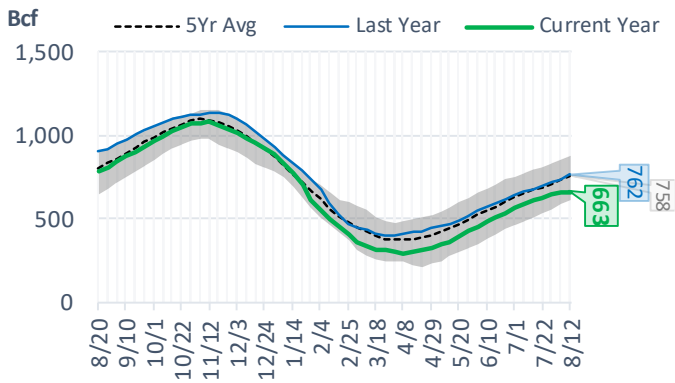
East Storage Levels



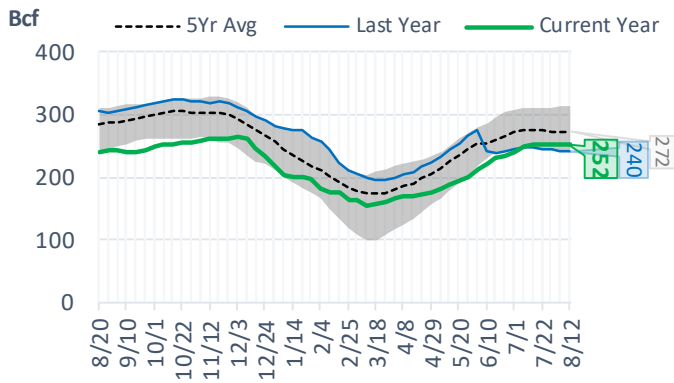
Midwest Storage Levels



Midwest Storage Levels



Pacific Storage Levels



EIA Storage Week Balances

	8-Jul	15-Jul	22-Jul	29-Jul	5-Aug	12-Aug	WoW	vs. 4W
Lower 48 Dry Production	**97.0**	**96.3**	**96.9**	**97.3**	**98.5**	**98.4**	**-0.2**	**1.1**
Canadian Imports	**5.6**	**6.0**	**6.2**	**5.9**	**5.7**	**5.3**	**-0.3**	**-0.6**
L48 Power	41.0	42.9	45.5	44.7	44.0	45.5	1.5	1.3
L48 Residential & Commercial	8.4	8.4	8.7	8.6	8.3	8.4	0.1	-0.1
L48 Industrial	20.1	20.5	21.0	19.3	20.5	20.3	-0.2	0.0
L48 Lease and Plant Fuel	5.3	5.2	5.3	5.3	5.4	5.4	0.0	0.1
L48 Pipeline Distribution	2.6	2.7	2.9	2.8	2.8	2.9	0.1	0.1
L48 Regional Gas Consumption	**77.4**	**79.7**	**83.3**	**80.7**	**80.9**	**82.5**	**1.5**	**1.3**
Net LNG Exports	**11.2**	**11.1**	**10.8**	**10.7**	**10.9**	**10.9**	**-0.1**	**0.0**
Total Mexican Exports	**6.9**	**7.0**	**7.1**	**6.9**	**6.9**	**7.0**	**0.1**	**0.0**
Implied Daily Storage Activity	**7.2**	**4.5**	**1.9**	**4.8**	**5.5**	**3.4**	**-2.1**	
EIA Reported Daily Storage Activity	**8.3**	**4.6**	**2.1**	**5.9**	**6.3**			
Daily Model Error	**-1.1**	**-0.1**	**-0.3**	**-1.0**	**-0.8**			

Monthly Balances

	2Yr Ago Aug-20	LY Aug-21	Apr-22	May-22	Jun-22	Jul-22	MTD Aug-22	MoM	vs. LY
Lower 48 Dry Production	**88.8**	**93.8**	**94.9**	**95.8**	**97.0**	**97.1**	**98.4**	**1.3**	**4.6**
Canadian Imports	**4.9**	**5.1**	**5.8**	**5.1**	**5.7**	**5.9**	**5.5**	**-0.4**	**0.3**
L48 Power	41.0	40.4	25.1	29.7	36.8	43.4	45.5	2.1	5.1
L48 Residential & Commercial	7.7	7.9	22.3	12.4	9.0	8.5	8.4	0.0	0.5
L48 Industrial	20.8	21.0	20.1	19.8	20.6	20.2	20.4	0.2	-0.6
L48 Lease and Plant Fuel	4.8	5.1	5.2	5.3	5.2	5.3	5.4	0.1	0.2
L48 Pipeline Distribution	2.5	2.6	2.6	2.4	2.5	2.8	2.9	0.1	0.3
L48 Regional Gas Consumption	**76.9**	**77.0**	**75.3**	**69.6**	**74.2**	**80.1**	**82.5**	**2.4**	**5.6**
Net LNG Exports	**4.0**	**10.5**	**12.3**	**12.5**	**11.2**	**10.9**	**10.9**	**0.0**	**0.4**
Total Mexican Exports	**6.0**	**6.9**	**6.7**	**7.0**	**7.1**	**7.0**	**7.0**	**0.0**	**0.1**
Implied Daily Storage Activity	**6.7**	**4.6**	**6.4**	**11.9**	**10.2**	**4.9**	**3.4**		
EIA Reported Daily Storage Activity									
Daily Model Error									

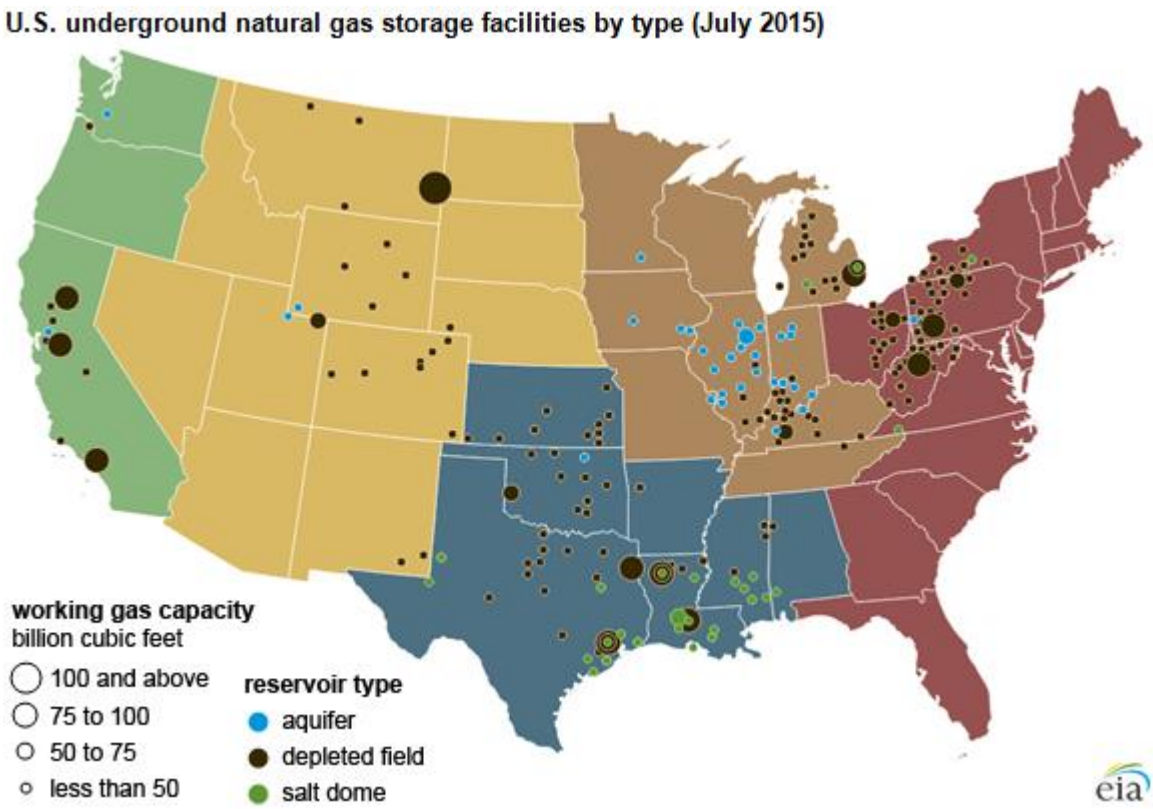
Source: Bloomberg, analytix.ai

Regional S/D Models Storage Projection

Week Ending 12-Aug

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	4.1	-0.3	3.8	26
East	-0.8	2.1	1.2	9
Midwest	4.0	-0.7	3.3	23
Mountain	4.5	-4.3	0.2	1
South Central	-3.8	3.4	-0.4	-3
Pacific	0.2	-0.7	-0.5	-4

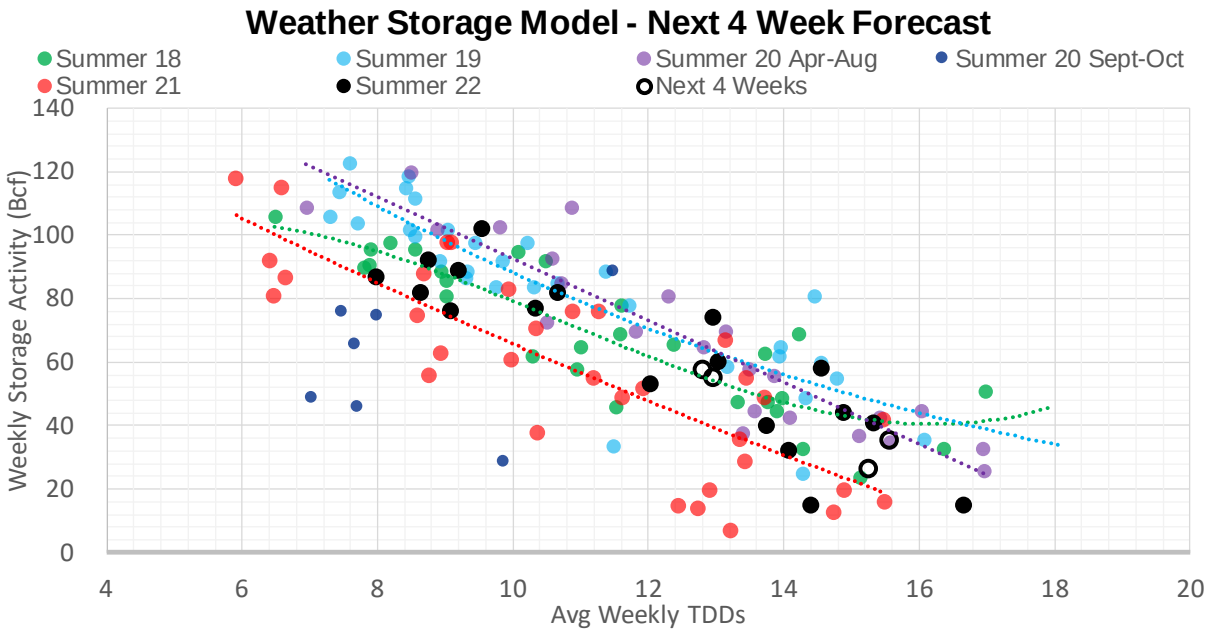
*Adjustment Factor is calcuated based on historical regional deltas



Weather Model Storage Projection

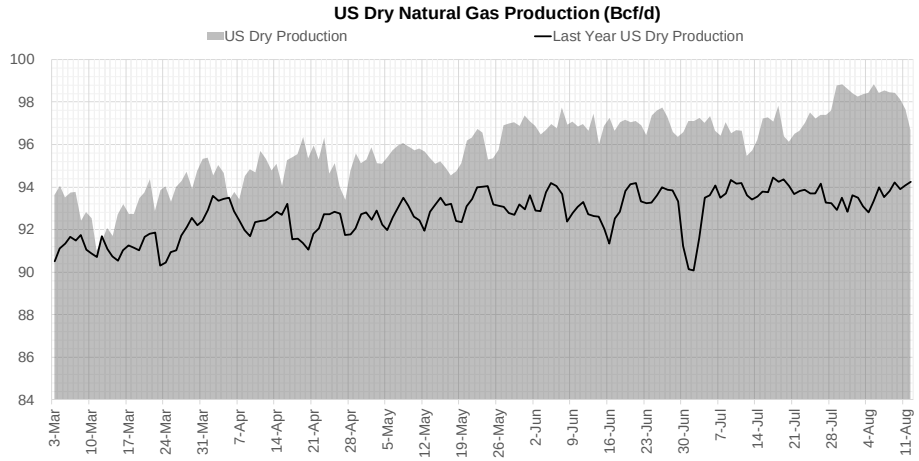
Next report and beyond

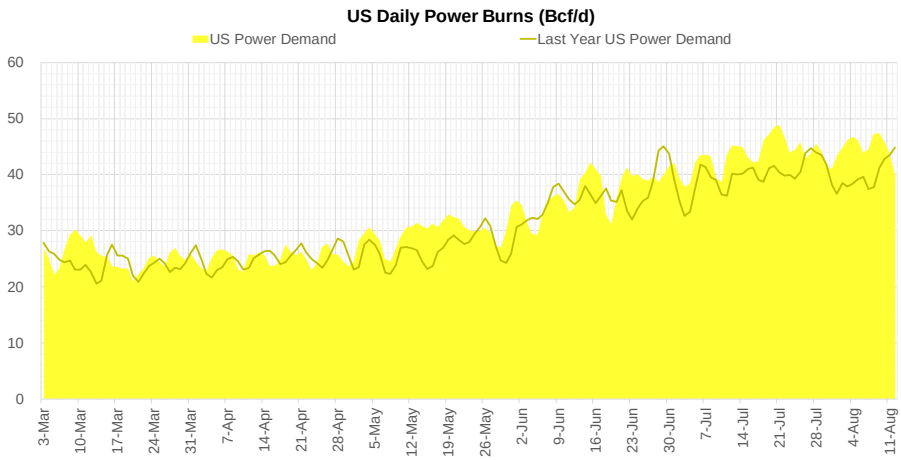
Week Ending	GWDDs	Week Storage Projection
12-Aug	15.3	26
19-Aug	13.0	55
26-Aug	15.6	35
02-Sep	12.8	57

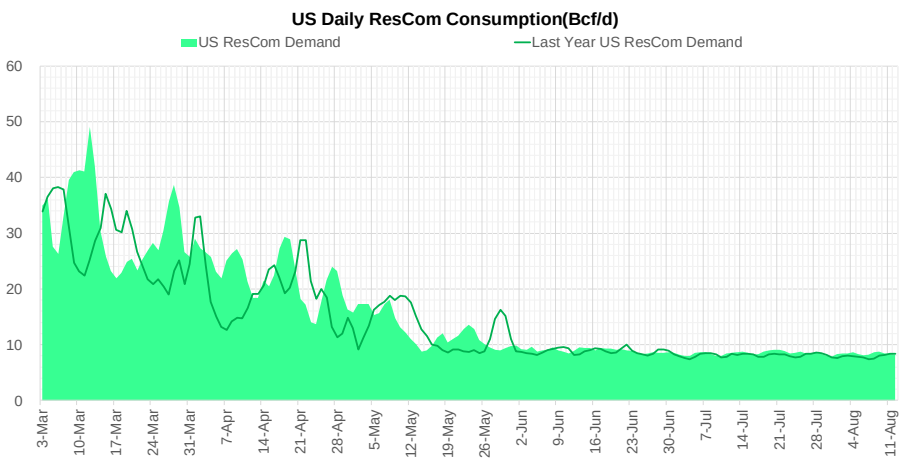


Note: this is not our official end of season forecast. This chart signifies where storage levels end with 10-year normal weather and current market tightness relative to last year

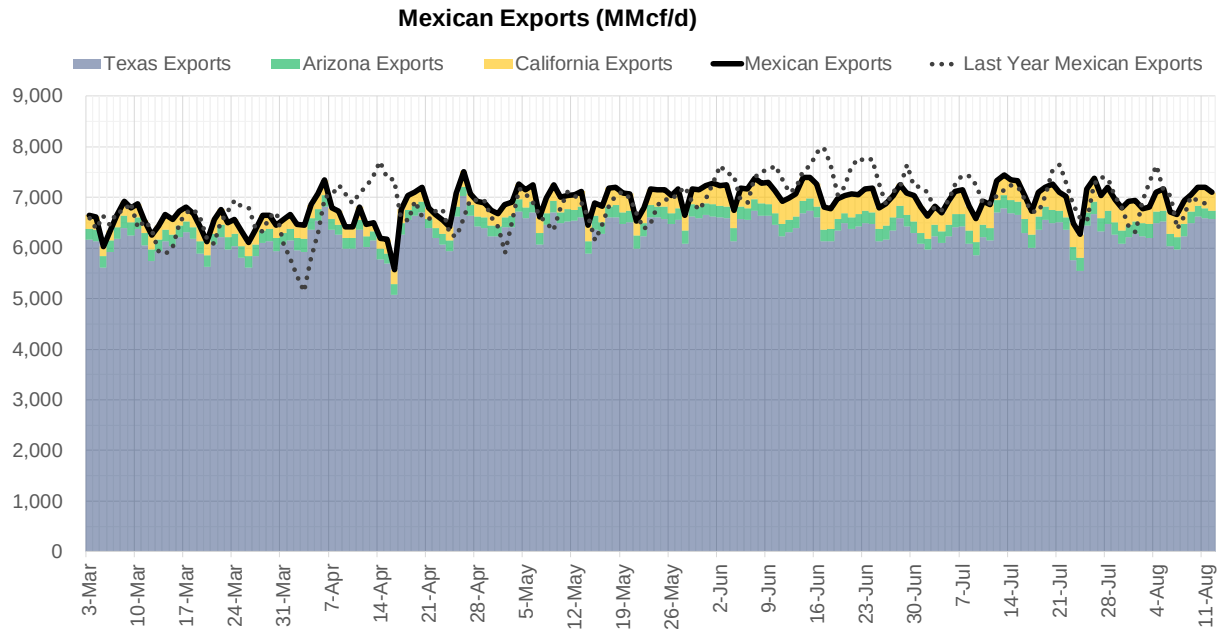
Supply – Demand Trends

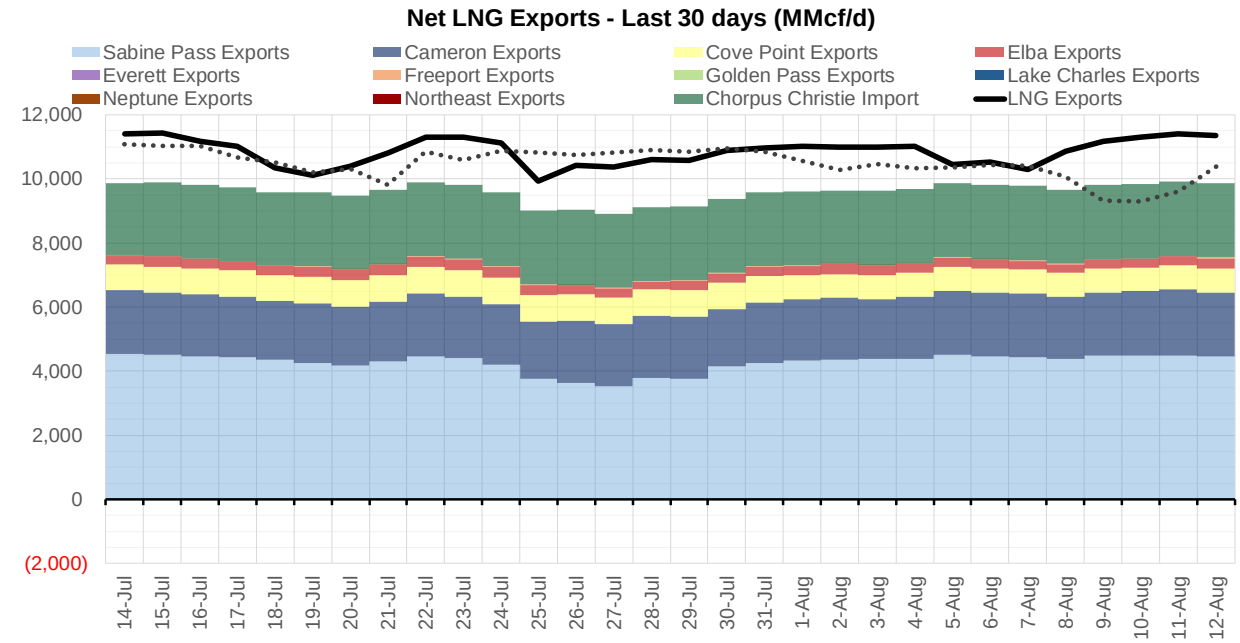






Source: Bloomberg





Source: Bloomberg

Nat Gas Options Volume and Open Interest

CME and ICE data combined

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL
9	2022	C	10.00	10170
9	2022	C	9.00	6534
9	2022	C	12.00	5595
9	2022	P	7.00	5530
9	2022	C	11.00	4904
9	2022	P	7.50	4587
10	2022	C	11.00	4092
10	2022	C	10.00	3720
10	2022	P	6.00	3711
10	2022	C	12.00	3703
9	2022	C	9.50	3590
9	2022	P	8.00	3096
10	2022	C	14.00	3037
11	2022	C	9.00	2789
10	2022	P	7.00	2739
9	2022	P	6.00	2349
11	2022	P	7.00	2248
10	2022	P	5.00	2083
9	2022	C	10.50	2001
11	2022	P	6.50	1785
3	2023	C	20.00	1685
3	2023	C	15.00	1490
10	2022	P	7.50	1451
11	2022	P	4.50	1201
10	2022	C	8.50	1143
9	2022	C	8.50	1102
10	2022	C	9.00	1082
10	2022	C	15.00	1005
9	2022	P	6.75	976
1	2023	C	15.00	965
11	2022	P	6.00	955
10	2022	P	5.50	948
10	2022	P	6.50	945
2	2023	C	15.00	944
1	2023	P	8.00	910
1	2023	P	7.00	901
10	2022	C	9.50	881
9	2022	C	13.00	861
11	2022	C	11.00	860
1	2023	C	20.00	853
10	2022	P	5.05	851
12	2022	P	4.50	851
12	2022	P	5.50	850
2	2023	P	6.25	800
2	2023	C	20.00	780
11	2022	C	10.00	724
9	2022	C	8.70	712
12	2022	P	3.50	701
9	2022	C	9.75	640

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
10	2022	P	3.00	36594
10	2022	C	6.00	36016
10	2022	P	6.00	28569
10	2022	P	2.50	28111
10	2022	P	5.00	25446
9	2022	C	6.00	24369
10	2022	C	5.00	23268
3	2023	C	10.00	22992
10	2022	P	3.50	22634
10	2022	P	4.00	21470
9	2022	C	10.00	21355
5	2023	P	2.00	20747
9	2022	P	4.00	20465
10	2022	C	10.00	20460
9	2022	C	7.00	19572
9	2022	P	6.00	19476
11	2022	P	4.00	19284
10	2022	C	12.00	19121
10	2022	C	8.00	18744
12	2022	P	5.00	18594
9	2022	C	9.00	18590
12	2022	C	5.00	18218
3	2023	P	3.00	17912
1	2023	C	10.00	17283
10	2022	P	2.00	16759
9	2022	P	3.00	16612
10	2023	P	2.50	16600
4	2023	P	3.00	16084
9	2022	C	4.00	15970
2	2023	C	10.00	15857
3	2023	C	20.00	15499
9	2022	P	2.50	15478
10	2022	P	3.25	15350
10	2022	C	7.00	15089
10	2023	P	2.00	14980
9	2022	P	2.75	14887
9	2022	P	7.00	14885
10	2023	P	3.00	14880
11	2022	C	8.00	14791
9	2022	P	5.00	14463
2	2023	C	9.00	14160
9	2022	P	3.50	14015
12	2022	C	6.00	13987
9	2022	P	6.50	13964
9	2022	C	9.50	13866
3	2023	P	4.00	13734
11	2022	C	10.00	13698
4	2023	P	2.75	13645
12	2022	C	10.00	13633
10	2022	C	4	13309

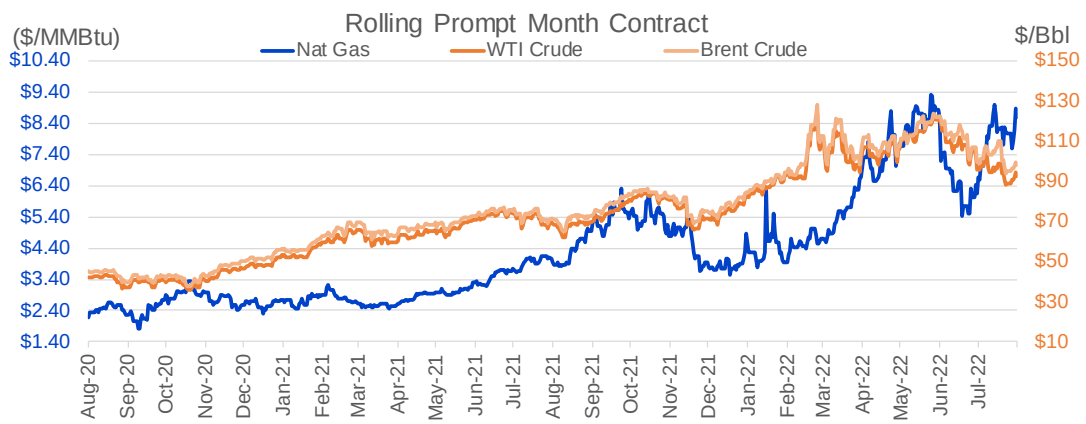
Source: CME, ICE

Nat Gas Futures Open Interest

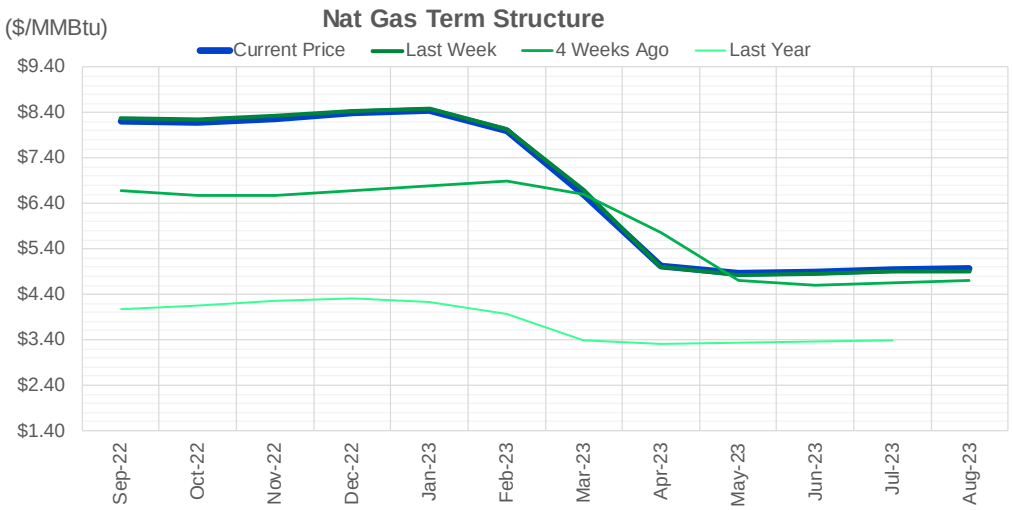
CME and ICE data combined

CME Henry Hub Futures (10,000 MMBtu)				ICE Henry Hub Futures Contract Equivalent (10,000 MM			
	Current	Prior	Daily Change		Current	Prior	Daily Change
SEP 22	73227	89874	-16647	SEP 22	81556	81250	306
OCT 22	100823	95385	5438	OCT 22	78843	77424	1419
NOV 22	116439	105769	10670	NOV 22	63494	64019	-525
DEC 22	63384	61757	1627	DEC 22	66918	66257	661
JAN 23	80636	78709	1927	JAN 23	66122	65535	587
FEB 23	36823	36770	53	FEB 23	61516	61024	492
MAR 23	53816	53932	-116	MAR 23	54032	53943	89
APR 23	69260	69856	-596	APR 23	55740	54018	1722
MAY 23	72818	71644	1174	MAY 23	54303	53251	1052
JUN 23	23456	23422	34	JUN 23	47691	46734	957
JUL 23	24148	23418	730	JUL 23	46278	44912	1366
AUG 23	19732	19470	262	AUG 23	45328	43984	1345
SEP 23	19490	19400	90	SEP 23	44706	43158	1548
OCT 23	47797	47745	52	OCT 23	51501	50070	1431
NOV 23	13198	13055	143	NOV 23	44975	44920	55
DEC 23	12556	12422	134	DEC 23	41023	40974	49
JAN 24	17919	17909	10	JAN 24	40008	39891	117
FEB 24	7858	7742	116	FEB 24	30332	30259	72
MAR 24	17644	17647	-3	MAR 24	34957	34940	17
APR 24	14024	14006	18	APR 24	28523	28442	81
MAY 24	6909	6864	45	MAY 24	27169	27102	68
JUN 24	2607	2534	73	JUN 24	24180	24113	67
JUL 24	2450	2419	31	JUL 24	23832	23763	69
AUG 24	3349	3333	16	AUG 24	23720	23652	69
SEP 24	1960	1920	40	SEP 24	23661	23594	67
OCT 24	8534	8514	20	OCT 24	26894	26846	48
NOV 24	4832	4782	50	NOV 24	24743	24941	-198
DEC 24	7730	7673	57	DEC 24	28023	27970	53
JAN 25	16053	16003	50	JAN 25	21011	20901	111
FEB 25	992	892	100	FEB 25	14235	14006	229

Source: CME, ICE



Market Report



	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23
Current Price	**$8.202**	**$8.193**	**$8.272**	**$8.389**	**$8.449**	**$7.997**	**$6.605**	**$5.015**	**$4.854**	**$4.901**	**$4.947**	**$4.960**
Last Week	$8.266	$8.262	$8.331	$8.429	$8.490	$8.035	$6.692	$5.002	$4.812	$4.853	$4.897	$4.911
vs. Last Week	-$0.064	-$0.069	-$0.059	-$0.040	-$0.041	-$0.038	-$0.087	$0.013	$0.042	$0.048	$0.050	$0.049
4 Weeks Ago	$6.689	$6.589	$6.574	$6.677	$6.789	$6.883	$6.604	$5.764	$4.702	$4.592	$4.647	$4.703
vs. 4 Weeks Ago	$1.513	$1.604	$1.698	$1.712	$1.660	$1.114	$0.001	-$0.749	$0.152	$0.309	$0.300	$0.257
Last Year	$4.059	$4.071	$4.143	$4.256	$4.319	$4.237	$3.967	$3.385	$3.309	$3.338	$3.371	$3.378
vs. Last Year	$4.143	$4.122	$4.129	$4.133	$4.130	$3.760	$2.638	$1.630	$1.545	$1.563	$1.576	$1.582

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	$/MMBtu	2.224	▲ 0.000	▲ 0.000	▲ 1.893
NatGas Oct21/Nov21	$/MMBtu	0.361	▲ 0.000	▲ 0.000	▲ 0.288
NatGas Oct21/Jan22	$/MMBtu	-1.817	▲ 0.000	▲ 0.000	▼ -2.077
NatGas Apr22/Oct22	$/MMBtu	3.527	▲ 0.749	▲ 2.359	▲ 3.520
WTI Crude	$/Bbl	94.34	▲ 5.800	▼ -1.440	▲ 25.250
Brent Crude	$/Bbl	99.60	▲ 5.480	▲ 0.500	▲ 28.290
Fuel Oil, NY Harbour 1%	$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	348.40	▲ 14.680	▼ -16.540	▲ 138.010
Propane, Mt. Bel	cents/Gallon	1.09	▲ 0.007	▼ -0.047	▼ -0.030
Ethane, Mt. Bel	cents/Gallon	0.59	▲ 0.027	▲ 0.056	▲ 0.254
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

8/12/2022

Baker Hughes

Location	Week	+/-	Week	+/-	Year
Land	742	-4	746	257	485
Inland Waters	3	1	2	1	2
Offshore	18	2	16	4	14
United States Total	763	-1	764	262	501
Gulf Of Mexico	16	2	14	3	13
Canada	201	-2	203	37	164
North America	964	-3	967	299	665
U.S. Breakout Information	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Oil	601	3	598	203	398
Gas	160	-1	161	58	102
Miscellaneous	2	-3	5	1	1
Directional	39	2	37	12	27
Horizontal	693	-5	698	237	456
Vertical	31	2	29	13	18
Canada Breakout	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Oil	137	-3	140	37	100
Gas	64	1	63	1	63
Miscellaneous	0	0	0	-1	1
Major State Variances	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Alaska	9	-1	10	5	4
California	7	0	7	1	6
Colorado	21	0	21	10	11
Louisiana	64	2	62	17	47
New Mexico	104	0	104	24	80
North Dakota	37	0	37	16	21
Ohio	11	0	11	0	11
Oklahoma	65	1	64	35	30
Pennsylvania	23	-2	25	4	19
Texas	372	-1	373	140	232
Utah	12	0	12	2	10
West Virginia	13	1	12	3	10
Wyoming	20	0	20	4	16
Major Basin Variances	**This Week**	**+/-**	**Last Week**	**+/-**	**Year Ago**
Ardmore Woodford	1	-2	3	-2	3
Arkoma Woodford	6	-1	7	5	1
Barnett	3	-1	4	3	0
Cana Woodford	25	2	23	7	18
DJ-Niobrara	17	0	17	5	12
Eagle Ford	72	0	72	36	36
Granite Wash	7	0	7	3	4
Haynesville	69	0	69	23	46
Marcellus	35	-3	38	6	29
Mississippian	1	0	1	1	0
Permian	346	-1	347	100	246
Utica	12	1	11	1	11
Williston	39	0	39	16	23