

This week we start by looking for evidence of any consumer-led demand destruction after reading a great [Bloomberg article](#) suggesting that 20M US homes are behind on their energy bills – that's 1 in 6 Americans.

According to the National Energy Assistance Directors Association (Neada), the surge in power bills has resulted in billions of dollars of unpaid bills across the country. The article cited a few examples. California's PG&E Corp said there had been a 40% jump in the number of residential customers behind on payments since February 2020, while New Jersey's Public Service Enterprise Group (PSEG) reported a 30% rise in customers that were 90 days behind on payment in since March.

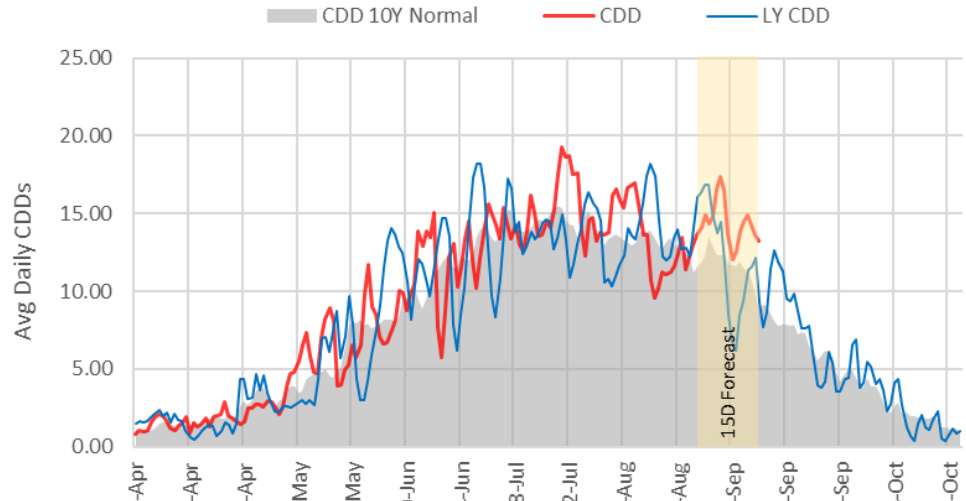
We have heard that customers are readjusting their power usage lower and now this article confirms customers are being turned off by their local utilities. With the staggering number of customers that could be impacted, we wanted to check to see if this was showing up in the data.

Below is a series of 3 charts that show US summer CDDs and power demand:

- 1) Average daily pwCDDs compared to LY and the 10Y Normal.
- 2) Cumulative summer pwCDDs compared to LY and the 10Y Normal
- 3) Weekday pwCDDs vs US aggregate power load for this summer and last

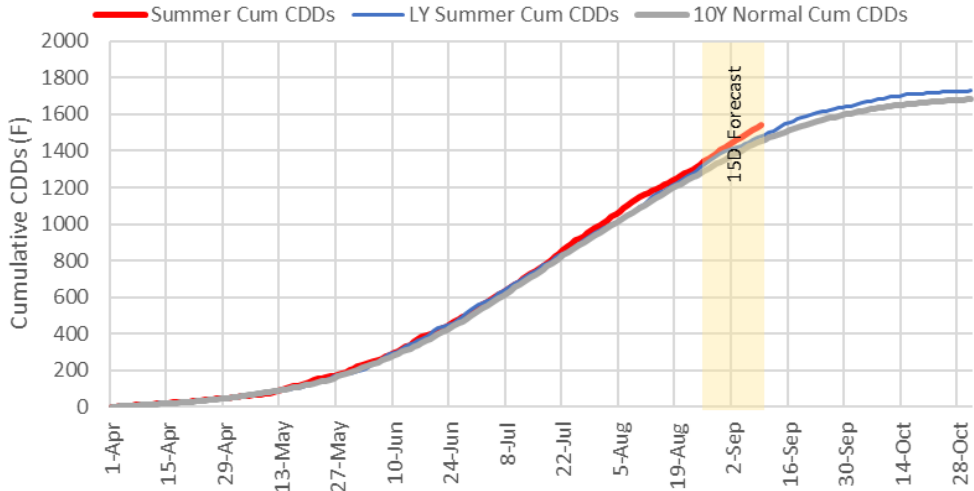
US Summer CDDs

ANALYTIX.AI



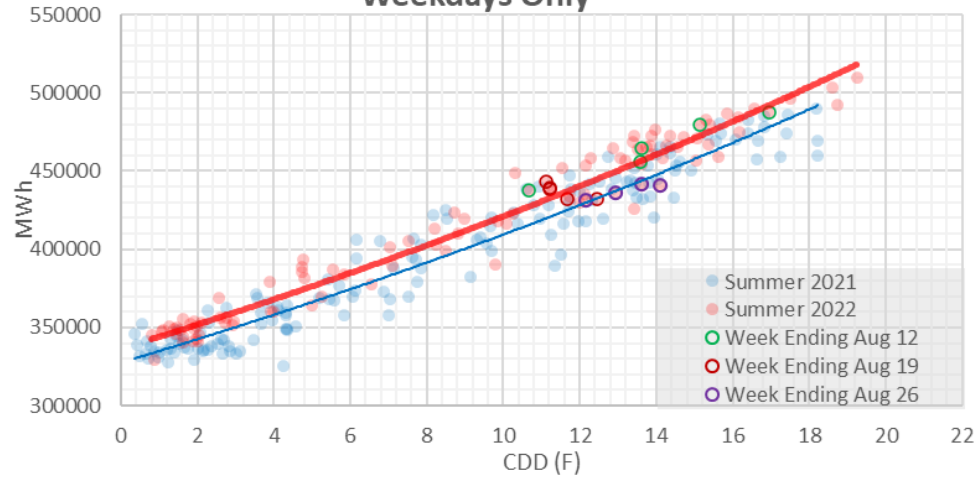
US Cumulative Summer CDDs

ANALYTIX.AI



US CDDs vs Avg Daily Power Load Weekdays Only

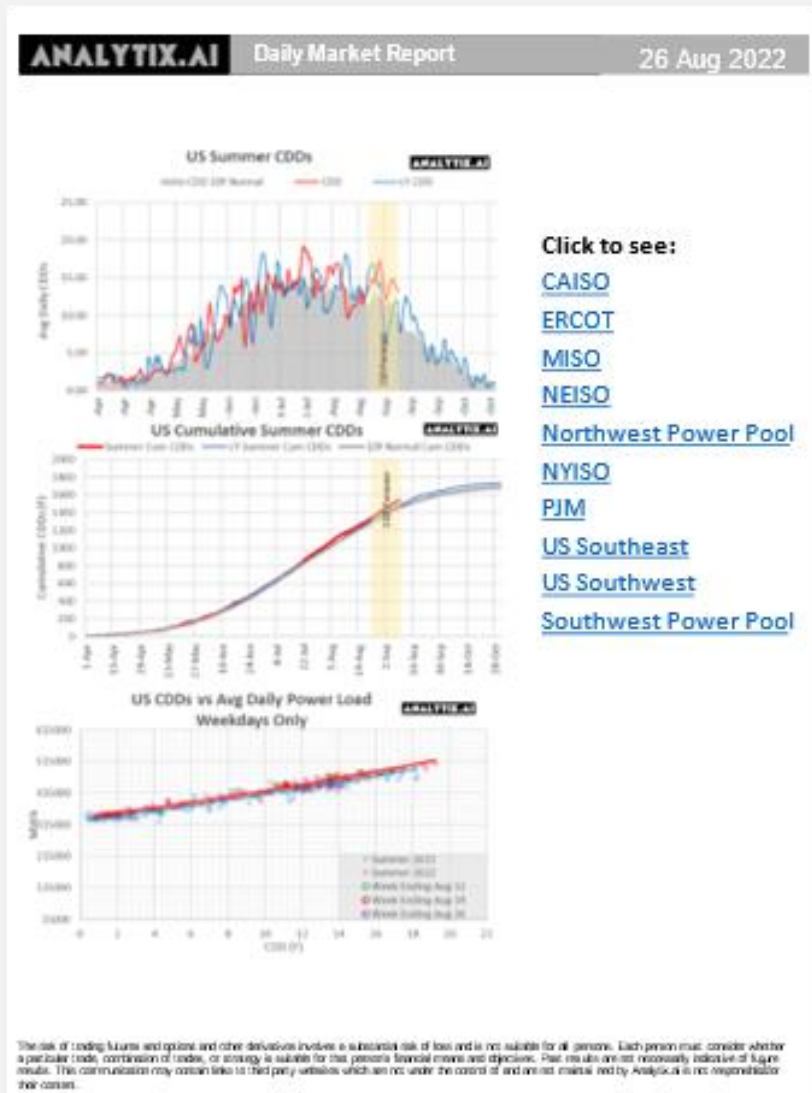
ANALYTIX.AI



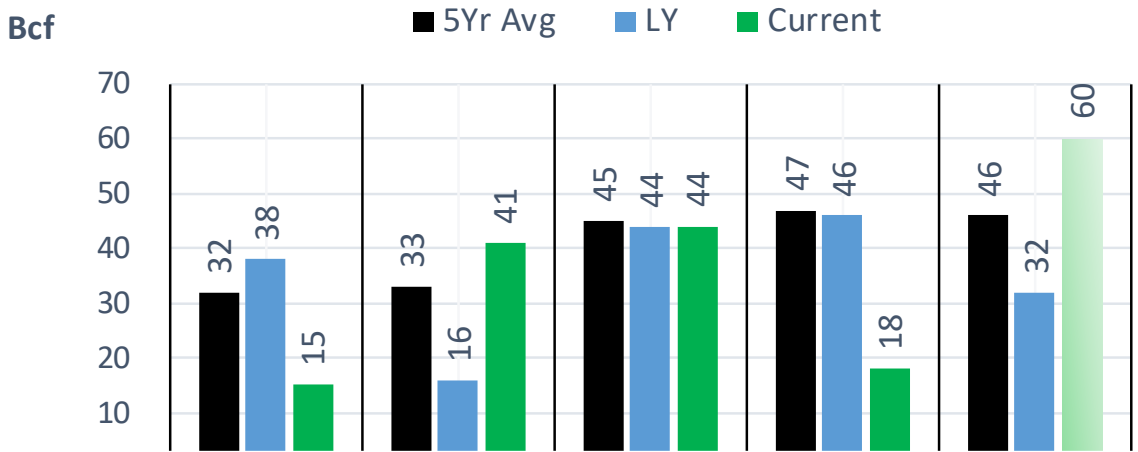
The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are 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.

Our conclusion: There is not enough convincing evidence that demand has been altered relative to past years. Based on the summer-wide data, the extreme power bills and power cut-offs do not look like they have impacted power consumption considerably. That being said, the last week had lower power usage than expected. This could be the result of holidays before the start of school or maybe it is the first signs of a delayed response due to power bills just coming in for July. If the latter, this can be quite bearish.

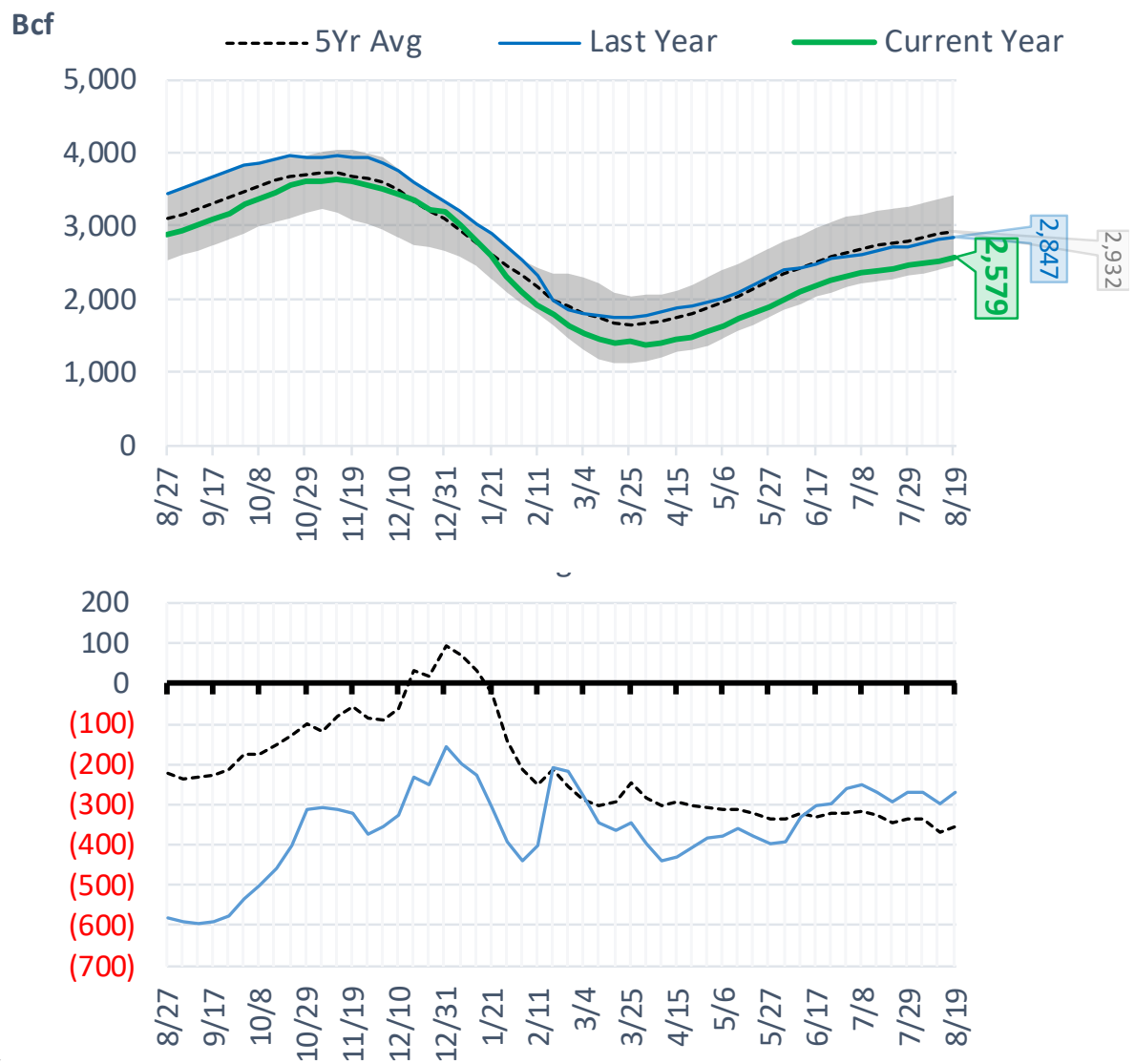
We build out the 3 series chart for all major power markets, and the data shows some interesting results. Shoot me an email at het@analytix.ai if you have any further questions.



Total Lower 48 YoY Weekly Change



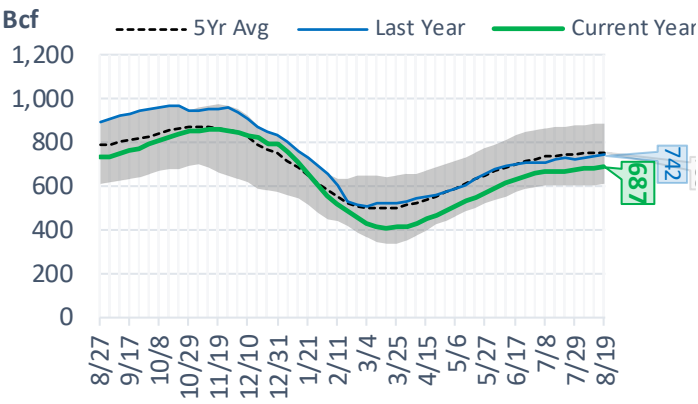
Total Lower 48 Storage Levels



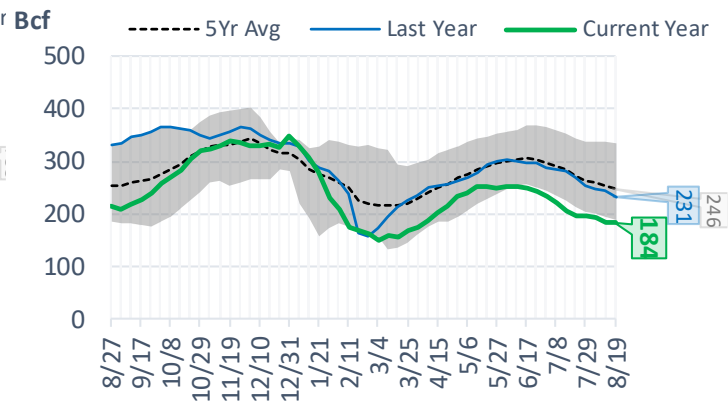
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 19-Aug	Week - 1 12-Aug	Week - 2 5-Aug	Week - 3 29-Jul	Week - 4 22-Jul	Week - 5 15-Jul
Total Lower 48 Storage Level	2579	2519	2501	2457	2416	2401
Weekly Change	+60	+18	+44	+41	+15	+32
vs LY	-268	-296	-268	-268	-293	-270
vs 5Yr Avg	-353	-367	-338	-337	-345	-328
S. Central Salt Storage Level	184	185	193	195	195	206
Weekly Change	-1	-8	-2	0	-11	-15
vs LY	-47	-59	-54	-58	-75	-74
vs 5Yr Avg	-62	-68	-66	-68	-77	-77
S. Central NonSalt Storage Level	687	681	681	671	667	669
Weekly Change	+6	0	+10	+4	-2	0
vs LY	-55	-59	-50	-55	-61	-52
vs 5Yr Avg	-68	-72	-68	-73	-76	-71
Midwest Storage Level	714	684	663	643	625	608
Weekly Change	+30	+21	+20	+18	+17	+22
vs LY	-72	-78	-75	-74	-74	-72
vs 5Yr Avg	-71	-74	-69	-66	-65	-63
East Storage Level	598	571	564	549	532	521
Weekly Change	+27	+7	+15	+17	+11	+20
vs LY	-61	-72	-61	-52	-48	-38
vs 5Yr Avg	-91	-96	-83	-77	-74	-66
Mountain Storage Level	153	151	148	147	144	144
Weekly Change	+2	+3	+1	+3	0	+1
vs LY	-35	-37	-37	-37	-40	-39
vs 5Yr Avg	-33	-32	-33	-31	-31	-28
Pacific Storage Level	243	248	252	253	253	253
Weekly Change	-5	-4	-1	0	0	+4
vs LY	+2	+8	+11	+9	+7	+6
vs 5Yr Avg	-29	-24	-20	-20	-22	-23

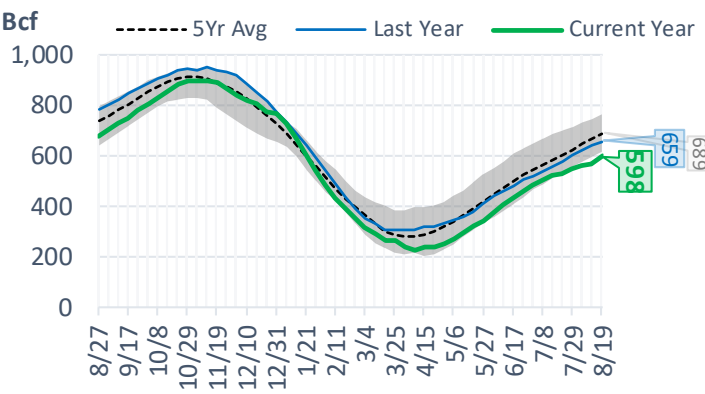
NonSalt Storage Levels



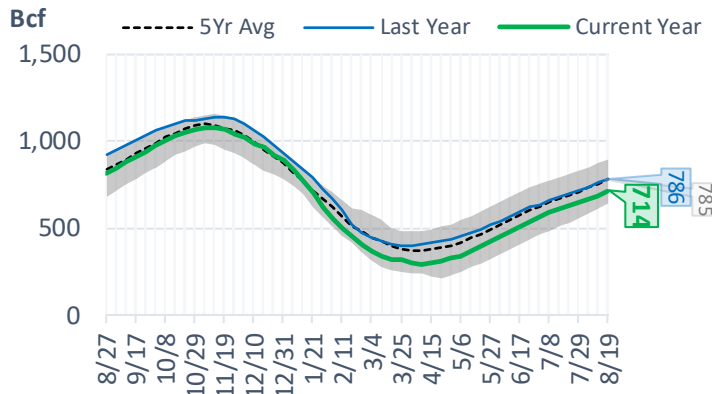
Salt Storage Levels



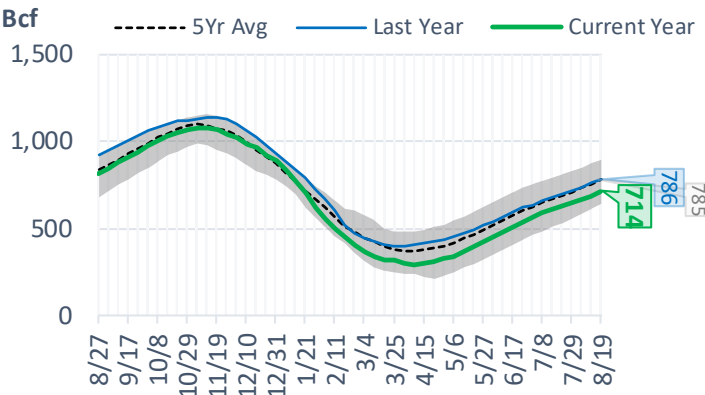
East Storage Levels



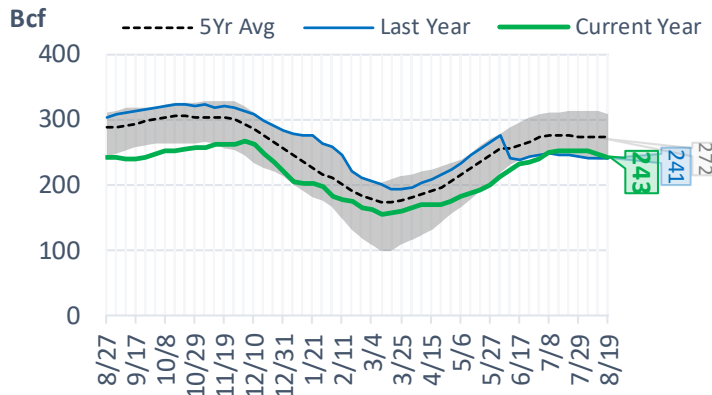
Midwest Storage Levels



Midwest Storage Levels



Pacific Storage Levels



EIA Storage Week Balances

	22-Jul	29-Jul	5-Aug	12-Aug	19-Aug	26-Aug	WoW	vs. 4W
Lower 48 Dry Production	97.4	97.7	99.1	98.5	98.1	98.7	▲ 0.6	▲ 0.4
Canadian Imports	6.2	5.9	5.7	5.4	4.8	5.4	▲ 0.6	▼ 0.0
L48 Power	45.5	44.8	44.4	45.7	39.7	41.3	▲ 1.7	▼ -2.3
L48 Residential & Commercial	8.7	8.6	8.3	8.4	7.9	8.1	▲ 0.2	▼ -0.2
L48 Industrial	21.0	19.4	20.6	21.5	21.7	21.3	▼ -0.4	▲ 0.5
L48 Lease and Plant Fuel	5.3	5.3	5.4	5.4	5.3	5.4	▲ 0.0	▲ 0.0
L48 Pipeline Distribution	2.9	2.8	2.8	2.9	2.5	2.6	▲ 0.1	▼ -0.1
L48 Regional Gas Consumption	83.3	80.9	81.5	83.8	77.1	78.7	▲ 1.6	▼ -2.1
Net LNG Exports	10.8	10.7	10.9	10.9	10.9	11.1	▲ 0.2	▲ 0.2
Total Mexican Exports	7.1	6.9	6.9	7.0	6.9	6.8	▼ -0.2	▼ -0.2
Implied Daily Storage Activity	2.3	5.1	5.4	2.2	7.9	7.6	-0.4	
EIA Reported Daily Storage Activity	2.1	5.9	6.3	2.6	8.6			
Daily Model Error	0.2	-0.8	-0.9	-0.3	-0.6			

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	88.9	93.9	95.1	96.0	97.1	97.4	98.5	▲ 1.1	▲ 4.6
Canadian Imports	4.9	5.1	5.8	5.1	5.7	5.9	5.3	▼ -0.6	▲ 0.1
L48 Power	41.0	40.4	25.1	29.7	36.8	43.4	42.8	▼ -0.7	▲ 2.4
L48 Residential & Commercial	7.7	7.9	22.3	12.4	9.0	8.5	8.2	▼ -0.3	▲ 0.3
L48 Industrial	20.8	21.0	20.1	19.8	20.6	20.3	21.4	▲ 1.1	▲ 0.4
L48 Lease and Plant Fuel	4.8	5.1	5.2	5.3	5.2	5.3	5.4	▲ 0.1	▲ 0.3
L48 Pipeline Distribution	2.5	2.6	2.6	2.4	2.5	2.8	2.7	▼ -0.1	▲ 0.1
L48 Regional Gas Consumption	76.9	77.0	75.3	69.6	74.2	80.2	80.4	▲ 0.2	▲ 3.4
Net LNG Exports	4.0	10.5	12.3	12.5	11.2	10.9	11.0	▲ 0.0	▲ 0.5
Total Mexican Exports	6.0	6.9	6.7	7.0	7.1	7.0	6.9	▼ -0.1	▲ 0.0
Implied Daily Storage Activity	6.8	4.7	6.6	12.0	10.3	5.2	5.5		
EIA Reported Daily Storage Activity									
Daily Model Error									

Source: Bloomberg, analytix.ai

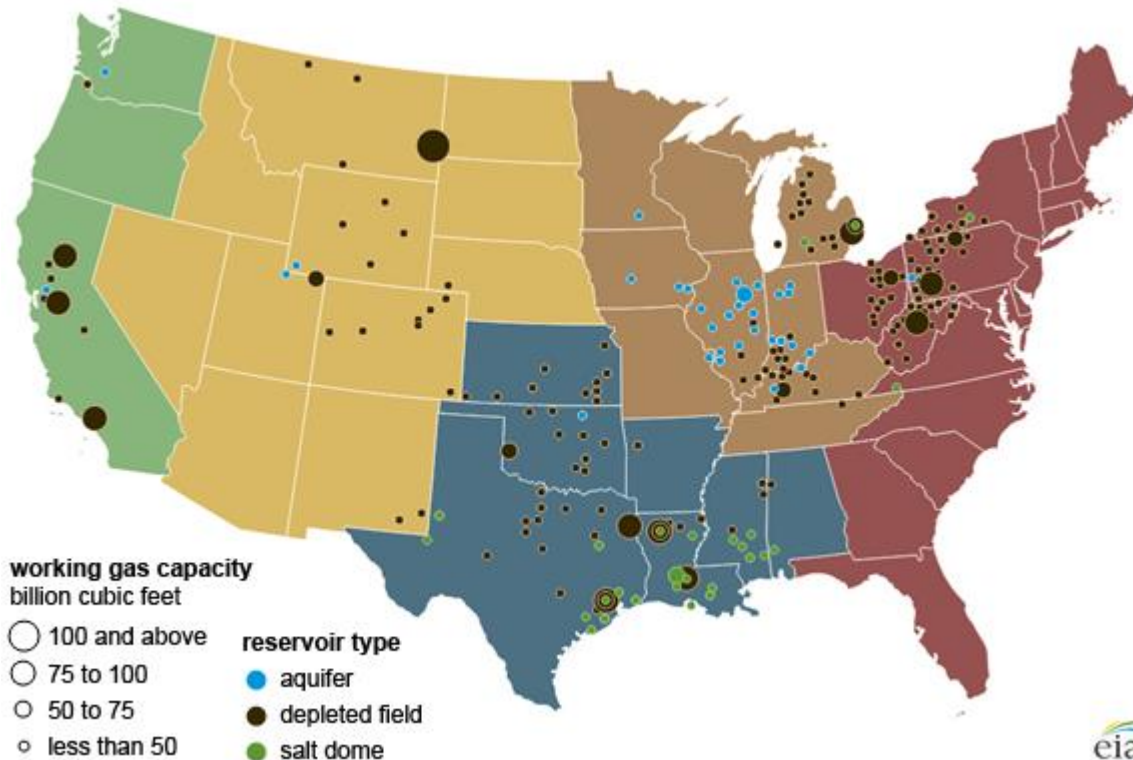
Regional S/D Models Storage Projection

Week Ending 26-Aug

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	7.8	-0.2	7.6	53
East	0.3	2.0	2.3	16
Midwest	4.9	-0.7	4.1	29
Mountain	4.6	-4.1	0.5	3
South Central	-2.2	3.2	1.0	7
Pacific	0.2	-0.5	-0.3	-2

*Adjustment Factor is calculated based on historical regional deltas

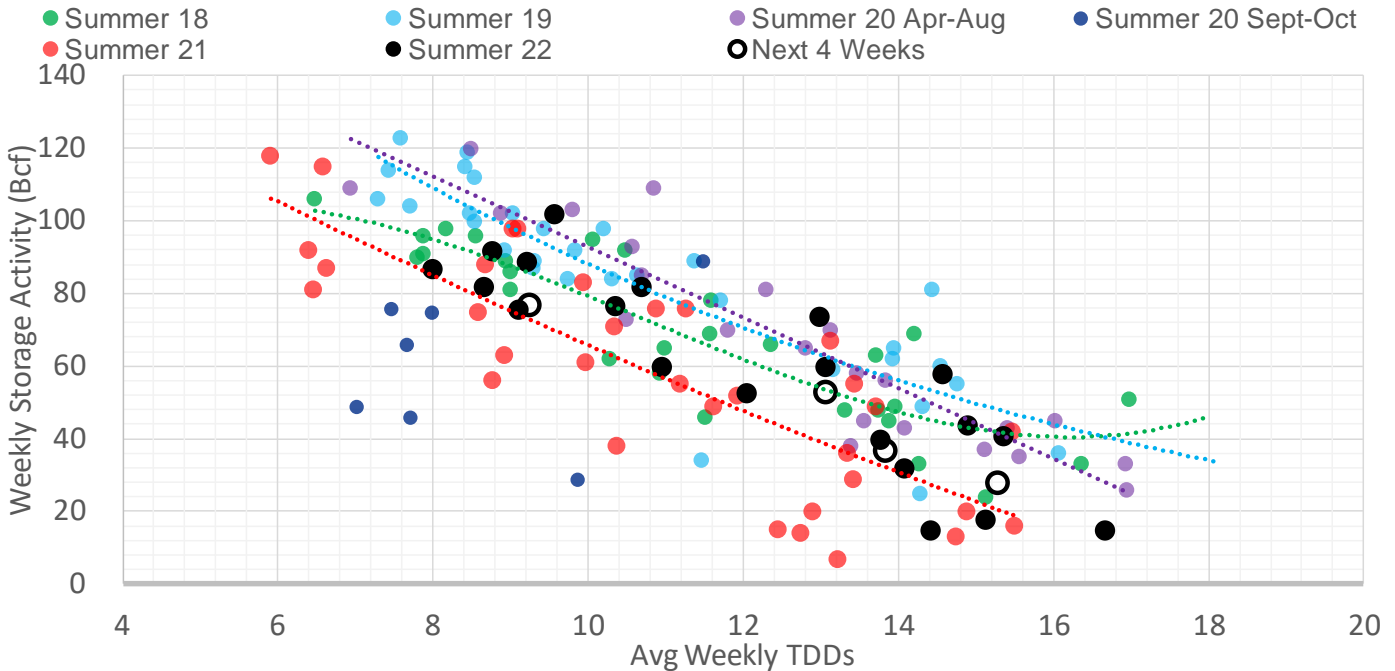
U.S. underground natural gas storage facilities by type (July 2015)



Weather Model Storage Projection

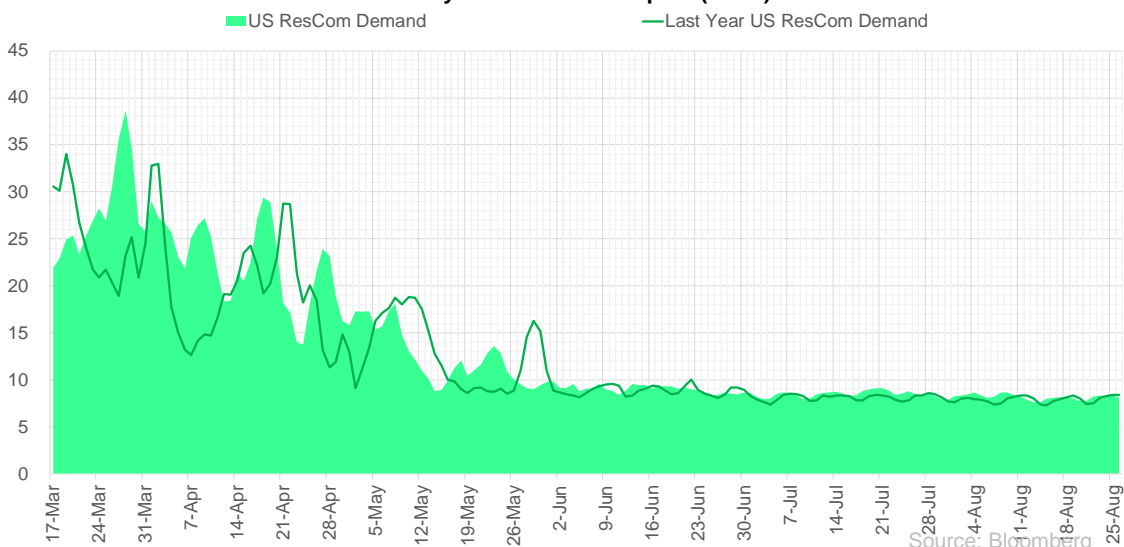
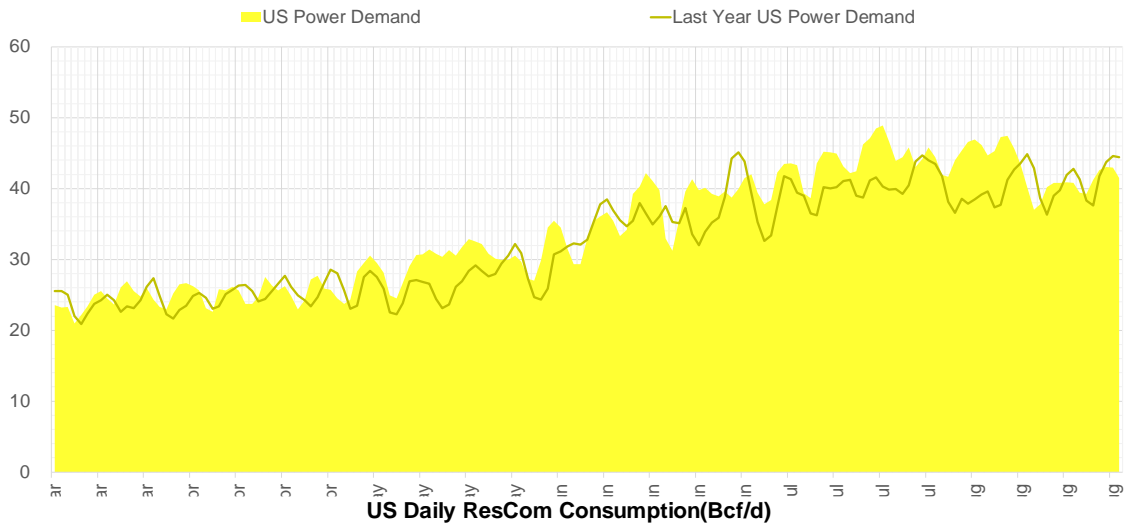
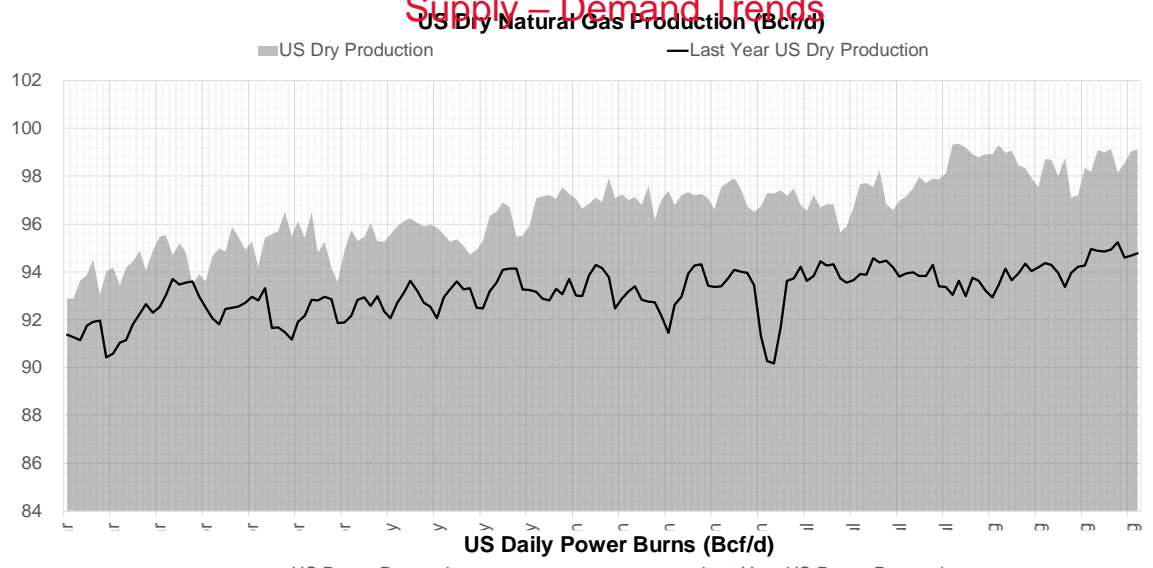
Next report and beyond		
Week Ending	GWDDs	Week Storage Projection
26-Aug	13.1	53
02-Sep	15.3	28
09-Sep	13.8	37
16-Sep	9.2	77

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

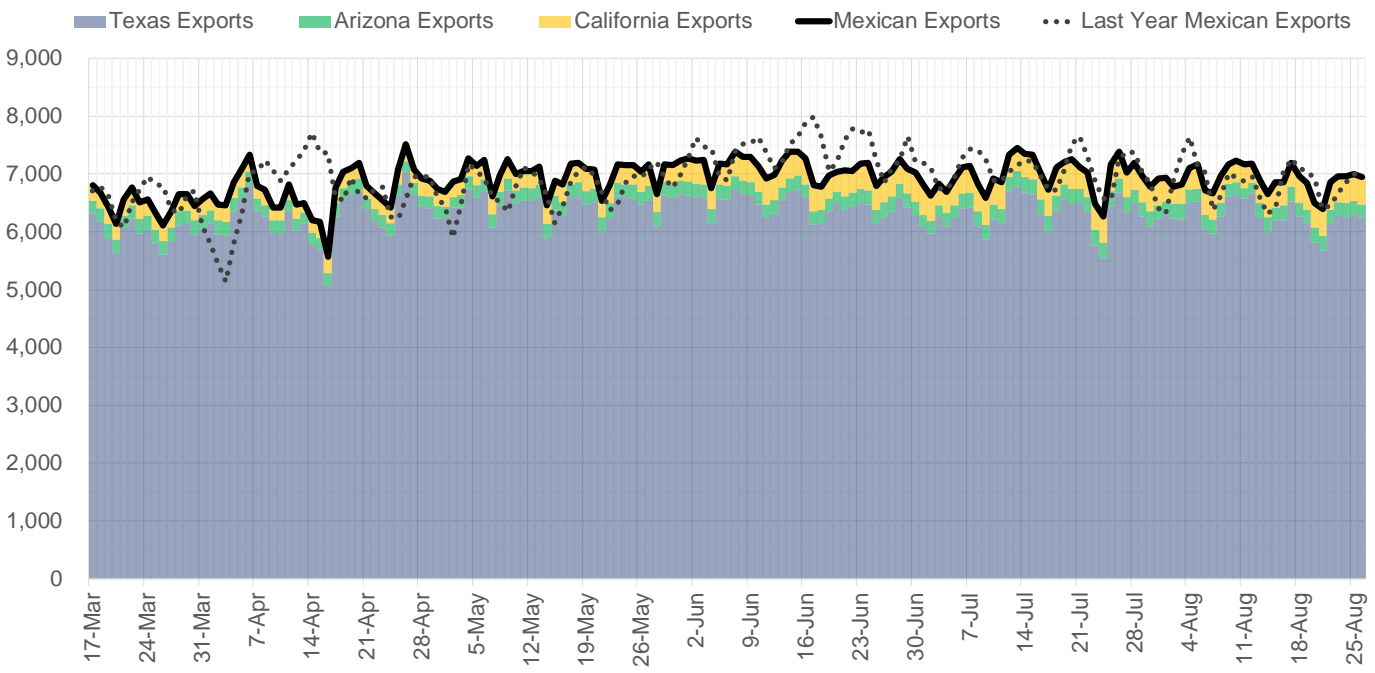
Supply – Demand Trends



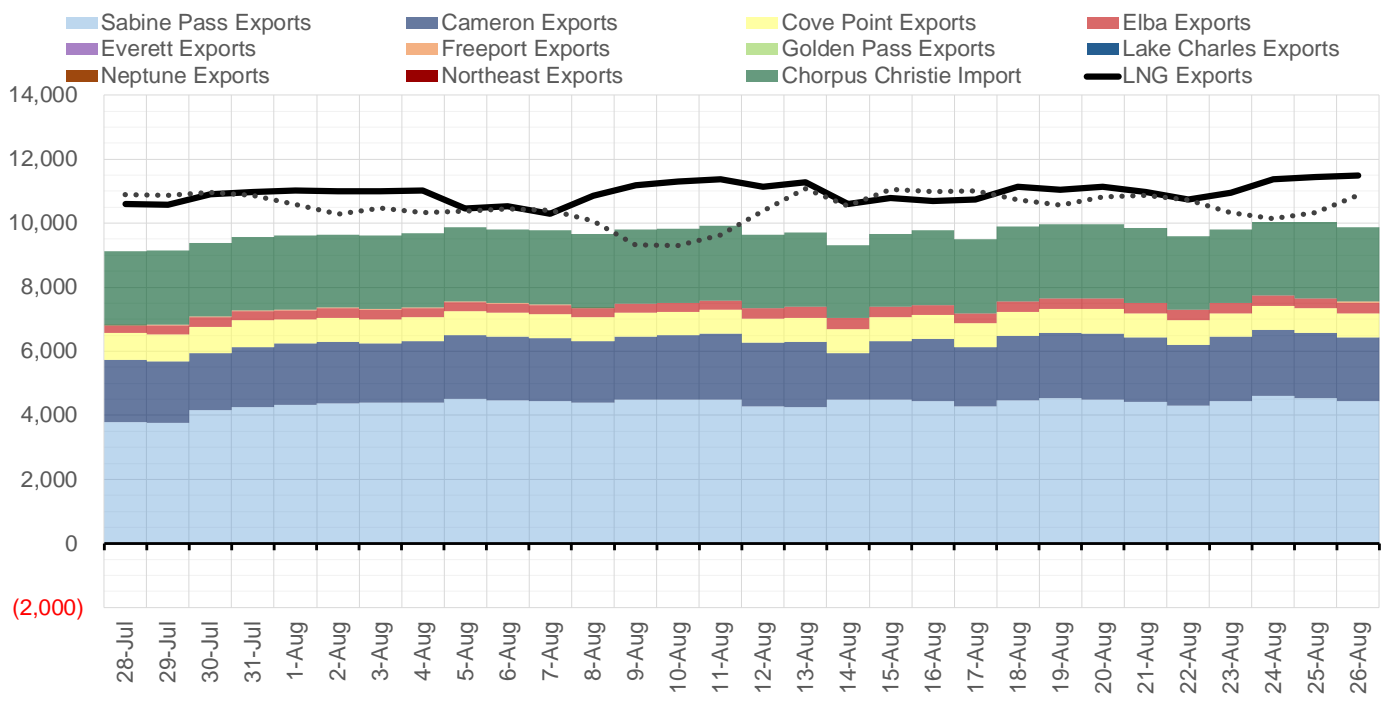
Source: Bloomberg

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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 and ICE data combined

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
11	2022	C	20.00	3641	10	2022	P	3.00	36667
11	2022	C	18.00	3636	10	2022	C	6.00	36011
10	2022	P	6.00	3621	10	2022	P	6.00	34322
9	2022	C	10.00	3378	10	2022	P	5.00	31271
11	2022	P	6.00	3202	10	2022	P	2.50	28111
9	2022	C	9.50	2599	9	2022	C	6.00	24363
9	2022	P	9.00	2394	10	2022	C	5.00	23273
10	2022	C	12.00	2235	10	2022	P	3.50	22249
10	2022	P	7.00	1800	3	2023	C	10.00	22003
2	2023	C	20.00	1770	10	2022	C	10.00	21616
2	2023	C	22.00	1750	10	2022	P	4.00	21252
12	2022	P	6.00	1700	10	2022	C	12.00	21104
11	2022	P	6.50	1636	5	2023	P	2.00	20997
10	2022	P	6.50	1533	12	2022	P	5.00	20871
10	2022	P	8.00	1525	9	2022	P	6.00	20520
10	2022	C	10.00	1469	9	2022	P	4.00	20463
4	2023	P	3.00	1450	9	2022	C	10.00	19993
5	2023	P	3.00	1450	11	2022	P	4.00	19821
6	2023	P	3.00	1450	9	2022	C	7.00	19521
7	2023	P	3.00	1450	12	2022	C	5.00	18218
8	2023	P	3.00	1450	3	2023	P	3.00	18152
9	2023	P	3.00	1450	10	2023	P	2.50	17350
10	2023	P	3.00	1450	10	2022	C	8.00	16974
12	2022	P	5.00	1400	10	2022	P	5.50	16775
11	2022	C	15.00	1270	10	2022	P	2.00	16759
9	2022	C	9.75	1213	4	2023	P	3.00	16659
9	2022	C	10.50	1182	9	2022	P	3.00	16612
11	2022	P	4.00	1075	2	2023	C	10.00	16253
4	2023	P	4.00	1025	9	2022	C	4.00	15969
5	2023	P	4.00	1025	3	2023	C	20.00	15862
6	2023	P	4.00	1025	9	2023	C	10.00	15769
7	2023	P	4.00	1025	9	2022	C	9.00	15579
8	2023	P	4.00	1025	10	2023	P	3.00	15578
9	2023	P	4.00	1025	9	2022	P	2.50	15478
10	2023	P	4.00	1025	10	2022	P	3.25	15350
1	2023	C	20.00	1020	9	2022	P	7.00	15290
9	2022	P	8.50	1013	10	2023	P	2.00	15280
12	2022	C	5.00	1000	10	2022	C	7.00	15090
1	2023	C	30.00	1000	9	2022	P	2.75	14887
12	2022	P	6.50	990	11	2022	C	12.00	14836
9	2022	P	9.25	972	9	2022	P	5.00	14472
10	2022	C	15.00	960	9	2022	C	12.00	14429
9	2022	P	8.75	932	1	2023	P	5.00	14308
3	2023	C	15.00	915	9	2022	P	3.50	14015
10	2022	P	7.50	889	12	2022	C	6.00	13981
10	2022	P	5.50	854	10	2022	C	11.00	13836
3	2023	C	11.00	766	11	2022	C	10.00	13748
3	2023	P	5.00	703	4	2023	P	2.75	13720
9	2022	P	9.30	693	10	2022	C	9.00	13695
					6	2023	P	3	13685

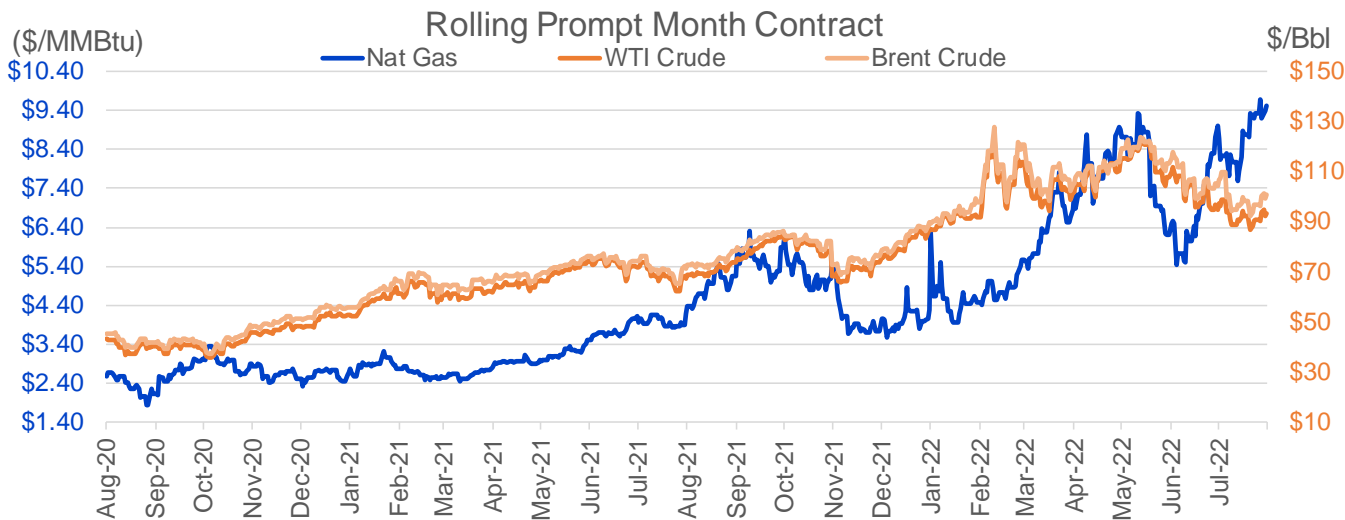
Source: CME, ICE

Nat Gas Futures Open Interest

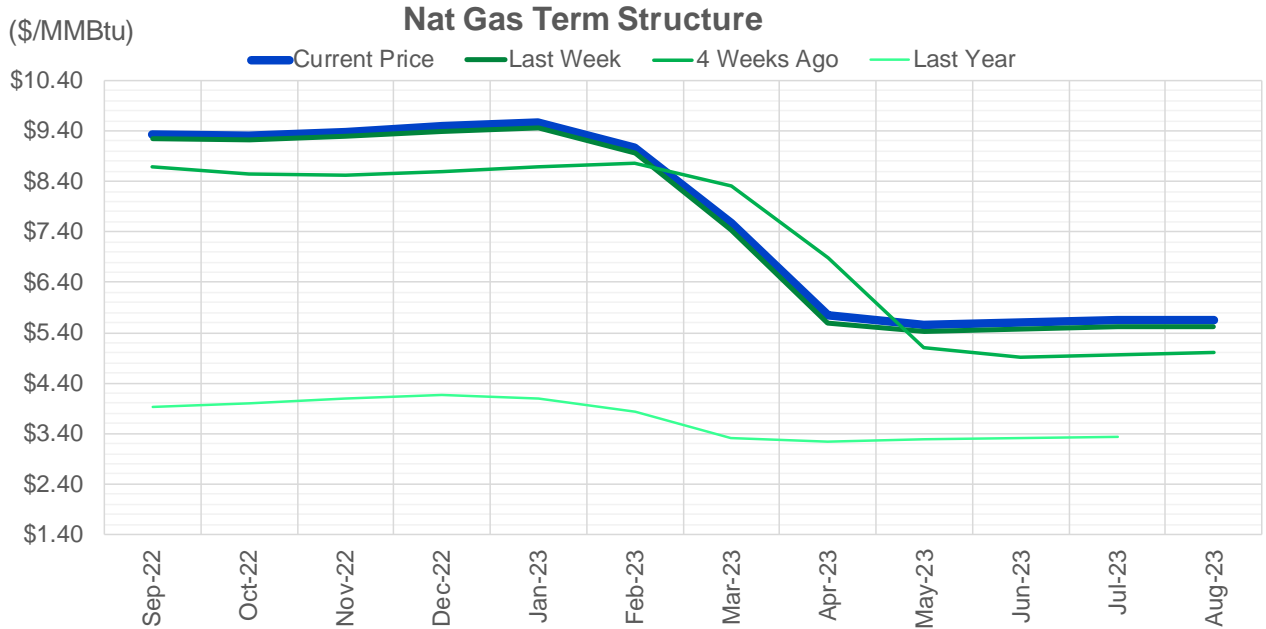
CME and ICE data combined

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	10798	14800	-4002	SEP 22	81931	81930	1
OCT 22	117318	118264	-946	OCT 22	81347	81935	-589
NOV 22	125438	125318	120	NOV 22	68707	67737	970
DEC 22	70176	69600	576	DEC 22	68146	67768	378
JAN 23	85023	84679	344	JAN 23	67598	67234	365
FEB 23	36923	37153	-230	FEB 23	62673	62464	210
MAR 23	59250	58968	282	MAR 23	55650	55223	428
APR 23	73197	72791	406	APR 23	57094	56836	259
MAY 23	75182	74107	1075	MAY 23	55794	55766	28
JUN 23	23646	23515	131	JUN 23	47242	47090	152
JUL 23	25189	25252	-63	JUL 23	46603	46447	156
AUG 23	18569	18629	-60	AUG 23	45520	45256	264
SEP 23	21076	20915	161	SEP 23	44499	44258	240
OCT 23	53070	52524	546	OCT 23	52109	52131	-22
NOV 23	14073	14015	58	NOV 23	45854	45736	118
DEC 23	12549	12523	26	DEC 23	41540	41431	108
JAN 24	19755	19573	182	JAN 24	40325	40442	-117
FEB 24	8039	8035	4	FEB 24	31409	31198	211
MAR 24	18162	18277	-115	MAR 24	35790	35786	4
APR 24	14357	14652	-295	APR 24	28642	28527	116
MAY 24	7240	7225	15	MAY 24	27586	27451	135
JUN 24	2733	2683	50	JUN 24	24753	24595	158
JUL 24	2499	2516	-17	JUL 24	24676	24513	163
AUG 24	3321	3320	1	AUG 24	24240	24077	163
SEP 24	2023	2008	15	SEP 24	24168	24011	158
OCT 24	8965	8947	18	OCT 24	27727	27534	193
NOV 24	4949	4953	-4	NOV 24	25321	25147	175
DEC 24	8092	8076	16	DEC 24	28612	28434	178
JAN 25	16617	16619	-2	JAN 25	21917	21845	72
FEB 25	987	986	1	FEB 25	14607	14509	98

Source: CME, ICE



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	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	\$9.330	\$9.300	\$9.369	\$9.504	\$9.570	\$9.079	\$7.578	\$5.740	\$5.551	\$5.596	\$5.642	\$5.653
Last Week	\$9.244	\$9.228	\$9.297	\$9.401	\$9.465	\$8.951	\$7.448	\$5.593	\$5.416	\$5.463	\$5.512	\$5.524
vs. Last Week	\$0.086	\$0.072	\$0.072	\$0.103	\$0.105	\$0.128	\$0.130	\$0.147	\$0.135	\$0.133	\$0.130	\$0.129
4 Weeks Ago	\$8.687	\$8.554	\$8.526	\$8.603	\$8.695	\$8.760	\$8.302	\$6.892	\$5.099	\$4.920	\$4.968	\$5.020
vs. 4 Weeks Ago	\$0.643	\$0.746	\$0.843	\$0.901	\$0.875	\$0.319	-\$0.724	-\$1.152	\$0.452	\$0.676	\$0.674	\$0.633
Last Year	\$3.897	\$3.925	\$3.995	\$4.105	\$4.166	\$4.089	\$3.836	\$3.320	\$3.251	\$3.281	\$3.315	\$3.323
vs. Last Year	\$5.433	\$5.375	\$5.374	\$5.399	\$5.404	\$4.990	\$3.742	\$2.420	\$2.300	\$2.315	\$2.327	\$2.330

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224	▲ 0.000	▲ 0.000	▲ 1.630
NatGas Oct21/Nov21	\$/MMBtu	0.361	▲ 0.000	▲ 0.000	▲ 0.311
NatGas Oct21/Jan22	\$/MMBtu	-1.817	▲ 0.000	▲ 0.000	▼ -2.025
NatGas Apr22/Oct22	\$/MMBtu	4.008	▲ 0.174	▲ 1.226	▲ 4.007
WTI Crude	\$/Bbl	92.52	▲ 2.020	▼ -3.900	▲ 25.100
Brent Crude	\$/Bbl	99.34	▲ 2.750	▼ -7.800	▲ 28.270
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	394.91	▲ 29.940	▲ 26.280	▲ 186.590
Propane, Mt. Bel	cents/Gallon	1.09	▲ 0.005	▼ -0.052	▼ -0.018
Ethane, Mt. Bel	cents/Gallon	0.61	▲ 0.001	▲ 0.031	▲ 0.272
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 
8/26/2022						
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago	
Oil	605	4	601	195	410	
Gas	158	-1	159	61	97	
Miscellaneous	2	0	2	1	1	
Directional	40	1	39	12	28	
Horizontal	694	0	694	235	459	
Vertical	31	2	29	10	21	
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago	
Oil	136	-1	137	51	85	
Gas	65	1	64	3	62	
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago	
Ardmore Woodford	3	2	1	-1	4	
Arkoma Woodford	6	0	6	5	1	
Barnett	3	0	3	3	0	
Cana Woodford	22	-2	24	4	18	
DJ-Niobrara	17	0	17	5	12	
Eagle Ford	70	-2	72	35	35	
Granite Wash	7	0	7	2	5	
Haynesville	70	1	69	25	45	
Marcellus	35	0	35	7	28	
Mississippian	1	0	1	1	0	
Permian	348	3	345	99	249	
Utica	12	0	12	0	12	
Williston	39	0	39	16	23	