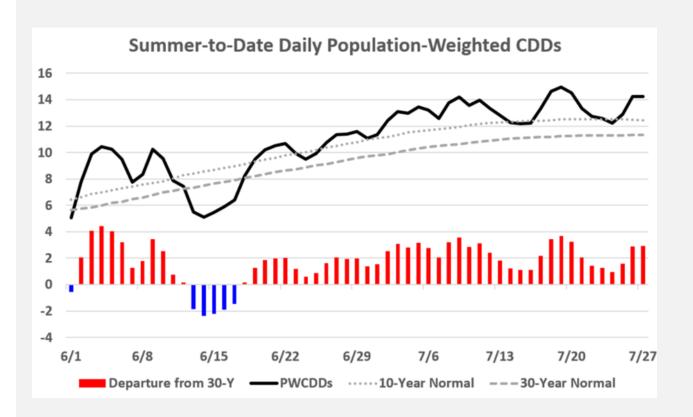


On Friday natgas saw another massive market rally. Prompt month rallied 0.174 to settle at 2.356. Heat and humidity along the East Coast early in the week, 100-degree temps driving power loads in California, lower Northeast production with TCO maintenance, and higher LNG deliveries this week seemed to trigger big moves in cash and finally in the futures prices.

All the moving pieces this week continue will stress injections for the balance of summer leading to a declining storage surplus. The coming week should be interesting, with traders incorporating this big price change into the supply and demand components.

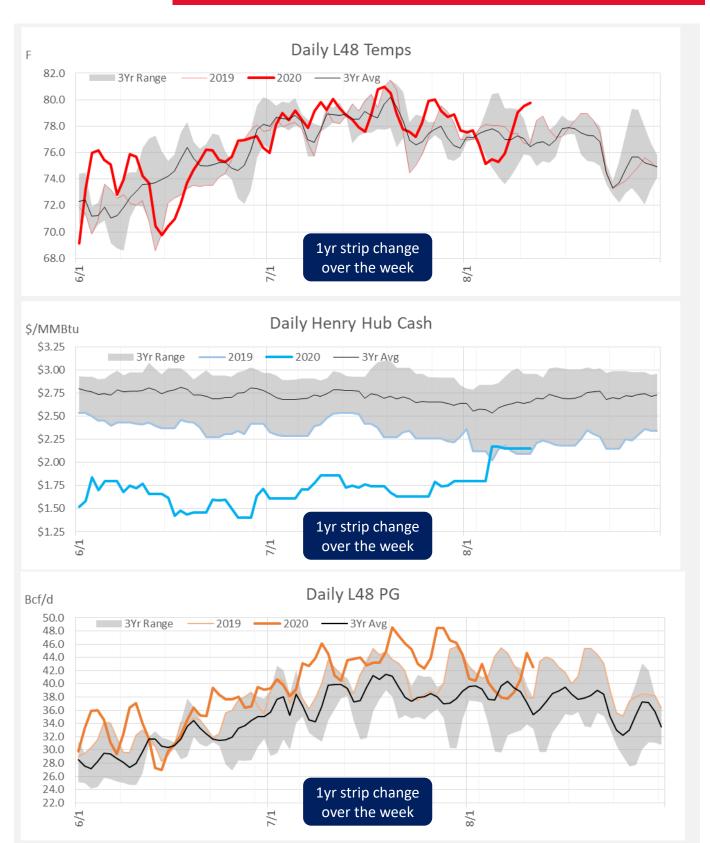
This weekend we turn out attention to power burns. In August, power burns are averaging 41.6 Bcf/d, down sharply from July. The July average was 43.7 Bcf/d, with a peak set on July 20th of 48.5 Bcf/d. July burns hit record levels as each day during the month hovered well above normals, and prices for prompt month stayed below \$2/MMbtu.



The power burn story of July can be summarized with the following three charts.

High temps + Low prices = high burns







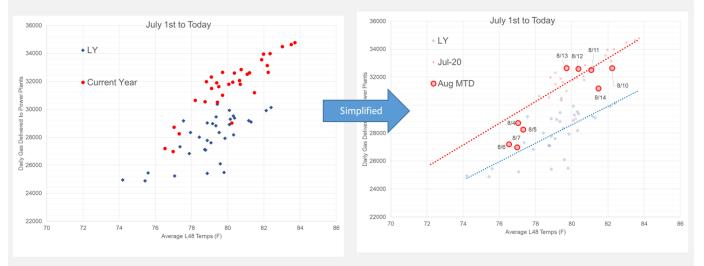
In August the story has been slight different. This month temperatures equivalent to ones seen last month have yielded lower power burns.

Surging cash and front month price starting on Aug 3rd has impacted burns significantly. Over the past week, cash prices at the Henry Hub have averaged \$2.05, up 35 cents or nearly 21% from a July average at \$1.69/MMBtu.

To show how the higher prices are leading to lower burns, we turn to the pipeline nomination data to see how gas deliveries to power generators have changed in August relative to July.

For this exercise, we aggregated the daily pipeline nomination data from across the L48 that has been tagged as a delivery to power plants and charted that against L48 gas-weighted temps. The nomination data gives us nearly a 65-70% sample of daily power burns.

In first half of the month, the sample power delivery data averaged 29.8 Bcf/d at an average temp of 79.5 degrees. At the exact same temperatures last month, power delivery data should have shown about ~31.0 Bcf/d.



Note: This chart only shows the week days

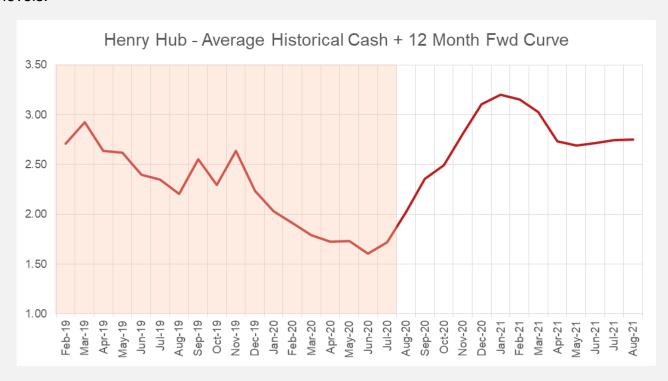
Ultimately, so far this month the lower burns have helped negate some of the additional LNG exports we have observed in August so far. That being said, with the move on Friday we can expect burns to be even lower adding to the end of season storage levels.



Looking into the winter we have a number of S/D forces to consider. In our opinion, power generation is the fourth most important after outright production levels, LNG export levels, and rescomm demand (winter temps).

With that in mind, power burns can still be used as a flexible component to keep things in check. We look at the Henry Hub prices as a proxy, but fully recognize that regional prices ultimately drive power burns.

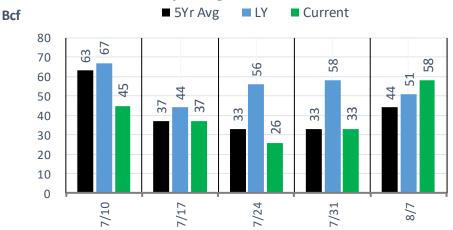
Entering the weekend, the winter futures strip averaged \$3.06/MMBtu - with 4 month above \$3/MMBtu. This is well above last year's average cash price \$2.12/MMBtu, telling us that traders are expecting tight winter conditions despite (potentially) entering the winter at record levels.



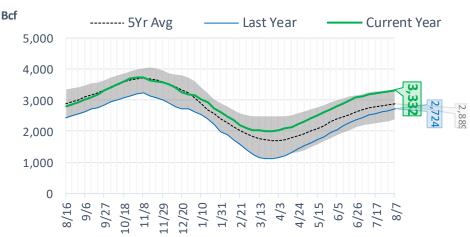


EIA Storage Report

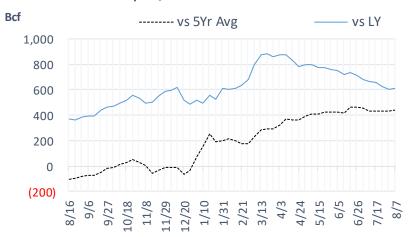
Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels



Total Lower 48 LY Surplus/Deficit



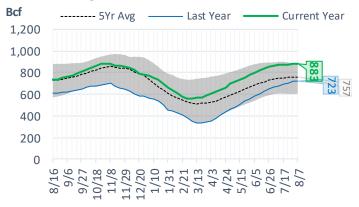


Natural Gas Storage Stats - Last 5 Weeks

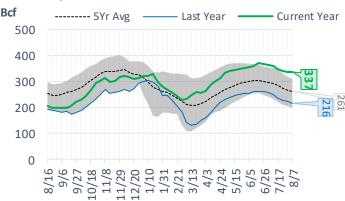
	Current	Week - 1	Week - 2	Week - 3	Week - 4	Week - 5
Week Ending	7-Aug	31-Jul	24-Jul	17-Jul	10-Jul	3-Jul
Total Lower 48 Storage Level	3332	3274	3241	3215	3178	3133
Weekly Change	+58	+33	+26	+37	+45	+56
vs LY	+608	+601	+626	+656	+663	+685
vs 5Yr Avg	+443	+429	+429	+436	+436	+454
S. Central Salt Storage Level	337	336	339	349	359	364
Weekly Change	+1	-3	-10	-10	-5	-4
vs LY	+121	+114	+112	+115	+110	+106
vs 5Yr Avg	+76	+70	+65	+65	+66	+68
S. Central NonSalt Storage Level	883	878	872	872	869	862
Weekly Change	+5	+6	0	+3	+7	+8
vs LY	+160	+162	+169	+183	+190	+199
vs 5Yr Avg	+126	+124	+118	+120	+121	+124
Midwest Storage Level	856	830	815	799	780	761
Weekly Change	+26	+15	+16	+19	+19	+21
vs LY	+135	+136	+146	+156	+162	+172
vs 5Yr Avg	+124	+123	+128	+132	+133	+138
East Storage Level	738	718	706	693	672	657
Weekly Change	+20	+12	+13	+21	+15	+18
vs LY	+110	+110	+115	+122	+116	+118
vs 5Yr Avg	+72	+73	+80	+86	+84	+91
Mountain Storage Level	206	202	196	190	186	180
Weekly Change	+4	+6	+6	+4	+6	+7
vs LY	+43	+42	+41	+40	+41	+42
vs 5Yr Avg	+25	+23	+20	+16	+15	+14
Pacific Storage Level	314	311	313	311	312	310
Weekly Change	+3	-2	+2	-1	+2	+6
vs LY	+42	+40	+43	+41	+45	+49



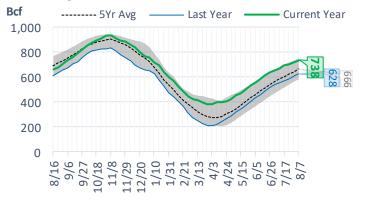
NonSalt Storage Levels



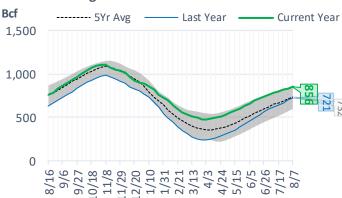
Salt Storage Levels



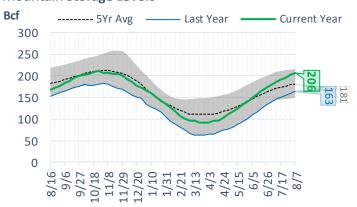
East Storage Levels



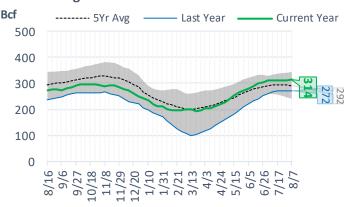
Midwest Storage Levels



Mountain Storage Levels

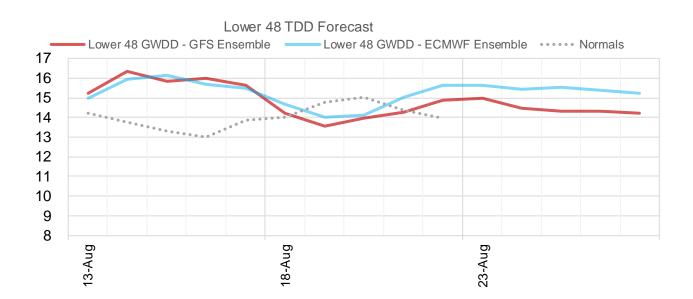


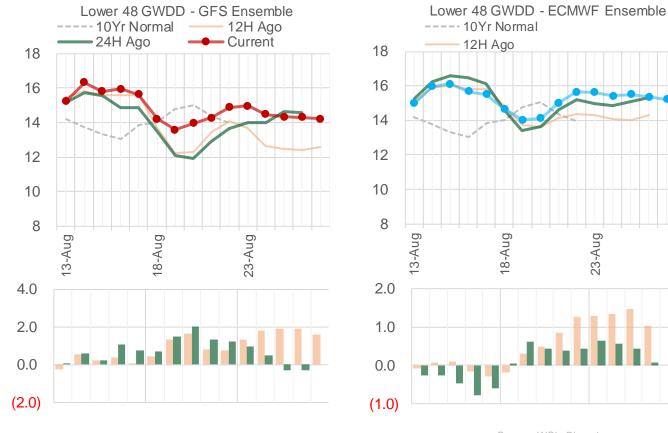
Pacific Storage Levels





Current Short-term Weather Model Outlooks (00z)





Source: WSI, Bloomberg



EIA Storage Week Balances								
	10-Jul	17-Jul	24-Jul	31-Jul	7-Aug	14-Aug	WoW	vs. 4W
Lower 48 Dry Production	85.7	85.6	86.3	86.3	86.3	86.4	△ 0.1	△ 0.2
Canadian Imports	4.1	4.6	4.4	4.4	4.8	4.9	△ 0.1	△ 0.4
L48 Power	41.8	42.9	45.5	45.6	40.8	42.9	2.1	▼ -0.7
L48 Residential & Commercial	7.9	7.9	8.1	8.2	7.7	7.8	0.1	▼ -0.2
L48 Industrial	18.3	17.9	17.2	17.0	18.1	18.7	0.6	1.2
L48 Lease and Plant Fuel	4.8	4.8	4.8	4.8	4.8	4.8	0.0	▼ 0.0
L48 Pipeline Distribution	2.3	2.3	2.4	2.4	2.2	2.3	0.1	▼ 0.0
L48 Regional Gas Consumption	75.0	75.8	78.0	77.9	73.7	76.6	2.9	0.2
Net LNG Exports	3.0	3.3	3.6	3.1	3.9	4.4	0.5	△ 0.9
Total Mexican Exports	5.9	6.2	6.4	6.2	6.1	6.0	▽ -0.1	▽ -0.2
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	5.9 6.4 -0.5	4.9 5.3 -0.4	2.8 3.7 -1.0	3.4 4.7 -1.3	7.4 8.3 -0.9	4.3	-3.1	

Monthly Balances									
	2Yr Ago Aug-18	LY Aug-19	Apr-20	May-20	Jun-20	Jul-20	MTD Aug-20	MoM	vs. LY
			•						
Lower 48 Dry Production	83.3	92.4	91.7	86.0	84.9	85.9	86.3	a 0.3	▼ -6.1
Canadian Imports	5.0	4.4	3.9	3.9	4.0	4.4	4.8	△ 0.4	△ 0.4
L48 Power	38.2	41.0	25.5	26.9	34.4	43.7	41.7	▼ -2.0	0.7
L48 Residential & Commercial	7.8	7.8	20.4	13.0	8.6	8.0	7.7	▼ -0.3	▼ -0.1
L48 Industrial	20.2	21.9	20.7	18.8	18.4	17.7	18.7	1.0	▼ -3.2
L48 Lease and Plant Fuel	4.7	5.1	5.1	4.8	4.8	4.8	4.8	▼ 0.0	▼ -0.3
L48 Pipeline Distribution	2.1	2.3	2.1	1.9	2.1	2.3	2.3	▼ -0.1	△ 0.0
L48 Regional Gas Consumption	73.0	78.1	73.8	65.4	68.3	76.5	75.2	▼ -1.4	▽ -3.0
Net LNG Exports	3.3	5.2	8.2	6.7	4.0	3.3	4.2	1.0	▽ -0.9
Total Mexican Exports	5.0	5.4	4.9	4.9	5.7	6.1	6.1	▽ -0.1	△ 0.7
Implied Daily Storage Activity EIA Reported Daily Storage Activity	7.0	8.1	8.7	12.9	10.8	4.4	5.7		
Daily Model Error									

Source: Bloomberg, analytix.ai

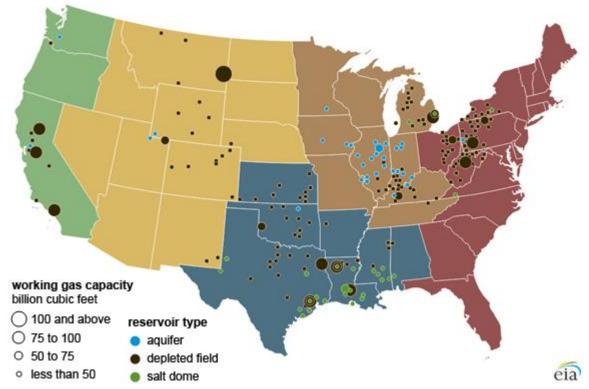
Regional S/D Models Storage Projection

Week Ending 14-Aug

			Daily	
			Average	Weekly
		Daily	Storage	Adjusted
	Daily Raw	Adjustment	Activity	Storage
	Storage	Factor	(Adjusted) *	Activity
L48	4.0	1.3	5.3	37
East	-0.2	2.4	2.1	15
Midwest	2.4	-0.1	2.3	16
Mountain	3.0	-2.4	0.6	4
South Central	-1.8	2.0	0.2	2
Pacific	0.6	-0.6	0.0	0

^{*}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	Projection							
21-Aug	42							
28-Aug	-Aug 57							
4-Sep	4-Sep 65							

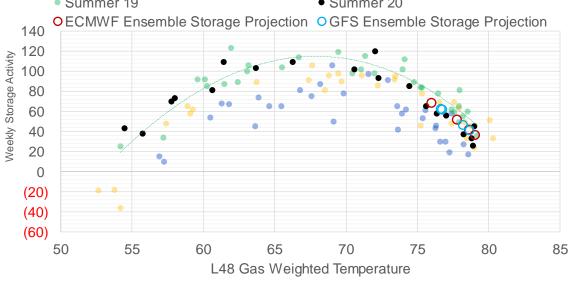
Weather Storage Model - Next 4 Week Forecast



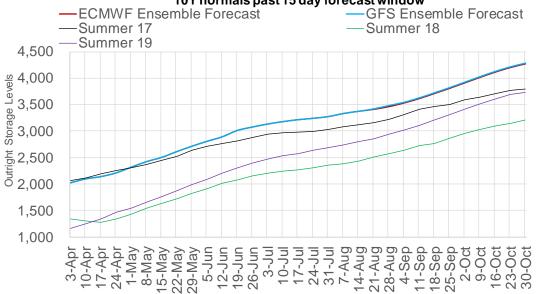
Summer 18

Summer 19

• Summer 20



Weather Based End of Winter Projection (Bcf) 10Y normals past 15 day forecast window





Weather Model Storage Projection to End of Season

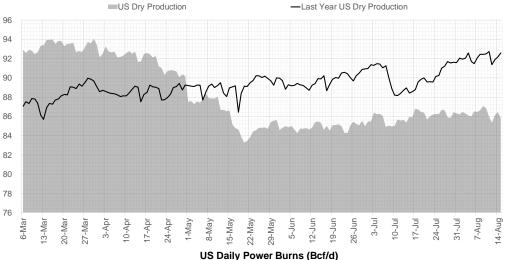
L48 Storage Trajectory from Weather Model					Forecast Storage Levels				
	· · · · · · · · · · · · · · · · · · ·				Estimate			5Yr Avg	
	Storage Level	vs. LY	Avg	Chg	Chg *	LY Chg	vs. LY	Chg	vs. 5Yr
3-Apr-20	2024	876	324	38		25	13	6	32
10-Apr-20	2097	876	370	73		73	0	27	46
17-Apr-20	2140	827	364	43		92	(49)	49	(6)
24-Apr-20	2210	783	360	70		114	(44)	74	(4)
1-May-20	2319	796	395	109		96	13	74	35
8-May-20	2422	799	413	103		100	3	85	18
15-May-20	2503	779	407	81		101	(20)	87	(6)
22-May-20	2612	778	423	109		110	(1)	93	16
29-May-20	2714	762	422	102		118	(16)	103	(1)
5-Jun-20	2807	748	421	93		107	(14)	94	(1)
12-Jun-20	2892	722	419	85		111	(26)	87	(2)
19-Jun-20	3012	739	466	120		103	17	73	47
26-Jun-20	3077	712	466	65		92	(27)	65	0
3-Jul-20	3133	685	454	56		83	(27)	68	(12)
10-Jul-20	3178	663	436	45		67	(22)	63	(18)
17-Jul-20	3215	656	436	37		44	(7)	37	0
24-Jul-20	3241	626	429	26		56	(30)	33	(7)
31-Jul-20	3274	601	429	33		58	(25)	33	0
7-Aug-20	3332	608	443	58		51	7	44	14
14-Aug-20					42	56	(14)	44	(2)
21-Aug-20					42	60	(18)	49	(7)
28-Aug-20					57	77	(20)	66	(9)
4-Sep-20					65	80	(15)	68	(3)
11-Sep-20					83	82	1	77	6
18-Sep-20					95	97	(2)	80	15
25-Sep-20					98	109	(11)	78	20
2-Oct-20					103	102	1	86	17
9-Oct-20					103	102	1	87	16
16-Oct-20					99	92	7	75	24
23-Oct-20					86	89	(3)	67	19
30-Oct-20					71	49	22	52	19
			2291	2596	(305)	2024	267		

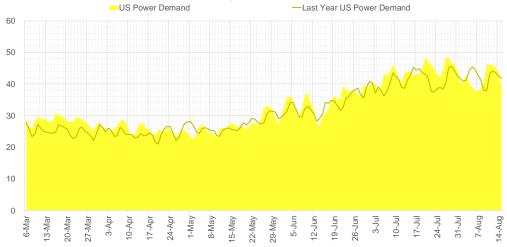
^{*} first 15D change is an average of the GFS Ensemble and ECMWF Ensemble



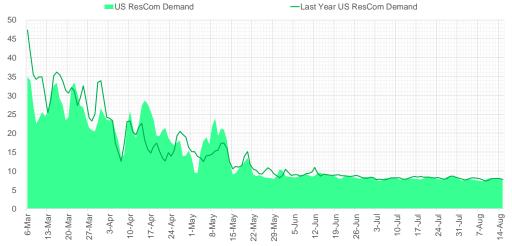
Supply - Demand Trends

US Dry Natural Gas Production (Bcf/d)





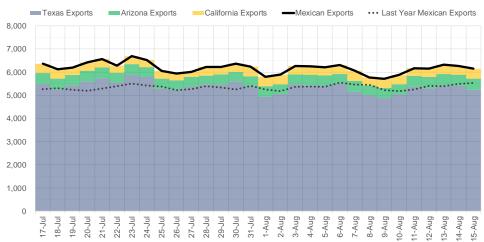
US Daily ResCom Consumption(Bcf/d)

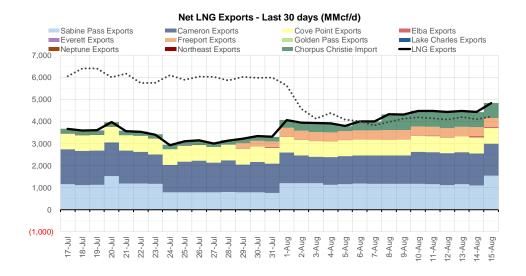


Source: Bloomberg



Mexican Exports - Last 30 days (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			
9	2020	Р	2.00	8865		9	9 2020	9 2020 C	9 2020 C 2.50
10	2020	P	1.50	4111		10			
9	2020	C	2.35	3825		10			
9	2020	P	1.90	3707		10			
9	2020	Ċ	2.50	3610		10			
9	2020	P	2.10	3280		3			
9	2020	C	2.10	2662		10			
9 10	2020	C	2.40	2403		10			
		P			10		2020		
10	2020	P P	2.00	2083	10		2020		
9	2020		1.75	2003	9		2020		
11	2020	С	3.50	2001	10		2020		
9	2020	P	1.85	1745	9		2020		
10	2020	С	3.25	1622	9		2020		
10	2020	C	2.15	1556	9		2020		
10	2020	С	2.65	1495	9		2020		
9	2020	Р	1.80	1399	9		2020		
9	2020	С	2.25	1375	9		2020		
10	2020	Р	1.70	1340	3				
9	2020	С	2.15	1327	3 10	2021 2020			
9	2020	Р	2.05	1322				C	
11	2020	Р	2.25	1208	10	2020			
9	2020	С	2.30	1163	3	2021		С	
10	2020	С	2.60	1144	9	2020		С	
9	2020	Č	2.65	1100	12	2020		P	
3	2021	Ċ	3.25	1100	9	2020		P	
1	2021	Ċ	3.25	1000	9	2020		P	
1	2021	Č	4.00	1000	10	2020		P	
9	2020	P	1.95	951	1	2021		C	
10	2020	P	2.30	910	10	2020		P	
11	2020	P	2.50	901	3	2021		С	
10	2020	P P	2.50 2.15	901 879	10	2020		С	
10		C			9	2020		С	
	2020		2.30	857	1	2021		С	
11	2020	P	2.00	854	11	2020		С	
12	2020	С	3.50	767	11	2020		С	
11	2020	С	3.00	752	10	2020		С	
1	2021	P	2.25	750	10	2020		С	C 2.40
2	2021	С	4.50	750	10	2020		Р	
10	2020	С	2.75	742	1	2021		С	C 3.00
9	2020	Р	2.15	693	12	2020		P	
10	2020	С	2.50	688	11	2020		C	
10	2020	С	2.35	554	4	2021		Ċ	
3	2021	С	2.75	550	1	2021		P	
3	2021	C	3.75	550	10	2020		C	
10	2020	P	1.00	549	9	2020		Č	
11	2020	C	2.80	533	1	2020		C	
4	2021	Ċ	3.25	530	2	2021		Č	
5	2021	Č	3.25	530	10	2021		P	
6	2021	C	3.25	530	9	2020		C	
6 7		C						C	
1	2021	Ü	3.25	530	10	2021		C	C 3

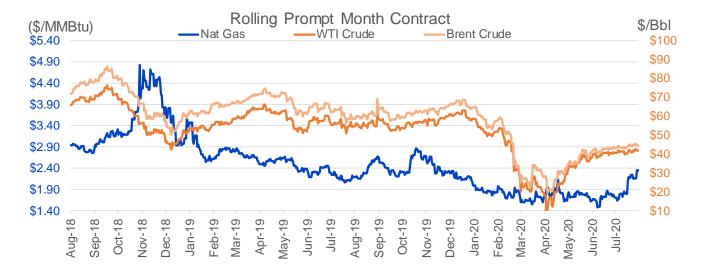
Source: CME, Nasdaq, ICE



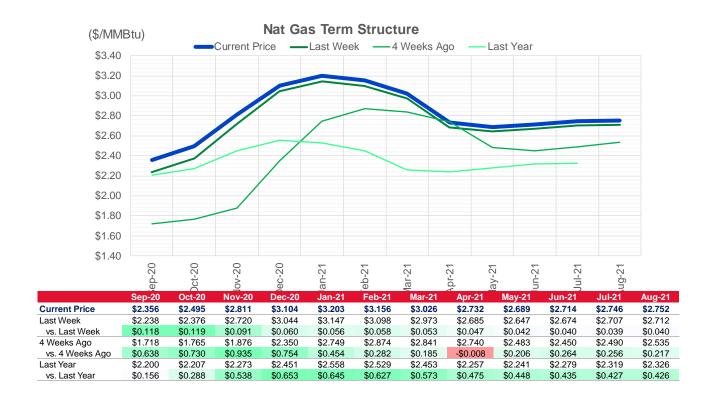
Nat Gas Futures Open Interest CME, ICE and Nasdaq Combined

CME Henry I	Hub Futures (1)	0,000 MMBtu	ı)	ICE Henry Hub	Futures C	ontract Equiva	lent (10,000 MM
	Current	Prior	Daily Change	FOR JUNÉ 26	Current	Prior	Daily Change
SEP 20	147584	174317	-26733	SEP 20	71939	72592	-653.5
OCT 20	201728	184775	16953	OCT 20	82770	82335	434.5
NOV 20	178329	157073	21256	NOV 20	69878	68973	905
DEC 20	92280	91438	842	DEC 20	71892	71712	179.75
JAN 21	125577	125895	-318	JAN 21	87836	87579	256.75
FEB 21	41586	41444	142	FEB 21	53104	53039	65.25
MAR 21	76433	78185	-1752	MAR 21	68356	69204	-847.25
APR 21	77881	77845	36	APR 21	60123	59885	238.25
MAY 21	44218	43896	322	MAY 21	49732	49826	-93.5
JUN 21	22895	23393	-498	JUN 21	47845	48038	-193
JUL 21	17339	17084	255	JUL 21	49761	49653	108.25
AUG 21	16657	16896	-239	AUG 21	48108	48080	28
SEP 21	20512	20116	396	SEP 21	46458	47093	-635.5
OCT 21	50861	50481	380	OCT 21	67693	67899	-205.5
NOV 21	24390	24099	291	NOV 21	40811	40315	496.5
DEC 21	18344	17739	605	DEC 21	41166	41812	-645.75
JAN 22	18998	18875	123	JAN 22	34670	34286	383.75
FEB 22	11165	11133	32	FEB 22	29201	29243	-41.75
MAR 22	16039	16253	-214	MAR 22	31743	31739	4
APR 22	17010	16572	438	APR 22	31150	30758	391.75
MAY 22	5434	5427	7	MAY 22	23317	23241	75.75
JUN 22	2816	2824	-8	JUN 22	23144	23037	106.5
JUL 22	2109	2115	-6	JUL 22	22783	22677	105.75
AUG 22	1739	1740	-1	AUG 22	23135	23025	109.75
SEP 22	2221	2226	-5	SEP 22	22294	22487	-193.5
OCT 22	2749	2780	-31	OCT 22	23950	23879	71
NOV 22	1970	1970	0	NOV 22	21507	21438	69
DEC 22	1948	1948	0	DEC 22	22265	22194	71
JAN 23	2629	2627	2	JAN 23	12276	12182	93.5
FEB 23	678	681	-3	FEB 23	11139	11006	133.25

Source: CME, ICE







					VS	s. 4 Weeks		
	Units	Current Price	vs.	Last Week		Ago	٧٤	s. Last Year
NatGas Jan/Apr	\$/MMBtu	-0.47	$\overline{}$	-0.009	$\overline{}$	-0.080	\neg	-0.078
NatGas Mar/Apr	\$/MMBtu	-0.294	$\overline{}$	-0.006	$\overline{}$	-0.551	$\overline{}$	-0.545
NatGas Oct/Nov	\$/MMBtu	0.32	$\overline{}$	-0.028	$\overline{}$	-0.158		0.254
NatGas Oct/Jan	\$/MMBtu	0.71	$\overline{}$	-0.063	$\overline{}$	-0.290		0.369
WTI Crude	\$/Bbl	42.01	_	0.790	_	1.420	$\overline{}$	-12.860
Brent Crude	\$/Bbl	44.80		0.400		1.660	$\overline{}$	-13.840
Fuel Oil, NY Harbour 1%	\$/Bbl	98.03	A	0.000	A	0.000		0.000
Heating Oil	cents/Gallon	123.67		1.680		1.760	$\overline{}$	-57.610
Propane, Mt. Bel	cents/Gallon	0.50	$\overline{}$	0.000	_	0.019		0.115
Ethane, Mt. Bel	cents/Gallon	0.24	A	0.010	A	0.020		0.092
Coal, PRB	\$/MTon	12.30	_	0.000	_	0.000		0.200
Coal, ILB	\$/MTon	31.05		0.000		0.000	$\overline{}$	-7.000

Source: CME, Bloomberg



Baker Hughes Rig Counts

Oil rigs decreased by -4, while nat gas increased by +1. The weekly changes for the major basins are listed below.

	Bakeı	Hughes 🤰							
U.S. Breakout Information	8/14/2020								
U.S. Breakout Illiorination	This Week	+/-	Last Week	+/-	Year Ago				
Oil	172	-4	176	-598	770				
Gas	70	1	69	-95	165				
Miscellaneous	2	0	2	- 9 3	0				
Iviiscenaneous	2	U	2	2	U				
Directional	24	0	24	-44	68				
Horizontal	207	-4	211	-608	815				
Vertical	13	1	12	-39	52				
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago				
Oil	19	6	13	-82	101				
Gas	35	1	34	-6	41				
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago				
Ardmore Woodford	0	-1	1	-5	5				
Arkoma Woodford	1	1	0	-2	3				
Barnett	0	0	0	-1	1				
Cana Woodford	6	0	6	-40	46				
DJ-Niobrara	4	0	4	-26	30				
Eagle Ford	11	0	11	-56	67				
Granite Wash	1	0	1	-3	4				
Haynesville	32	0	32	-18	50				
Marcellus	25	0	25	-31	56				
Mississippian	0	0	0	-2	2				
Permian	117	-5	122	-324	441				
Utica	6	0	6	-7	13				
Williston	11	0	11	-37	48				