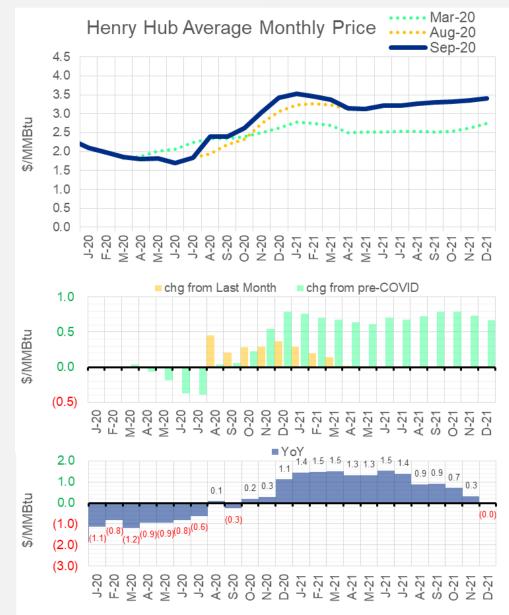
This week we review the latest <u>Short Term Energy Outlook (STEO)</u> issued by the EIA. There is lots of good data in the STEO report and most importantly it gives us an indication of what others in the market are seeing.

In today's piece, we will mainly drill into the month over month changes in the report, also the change from their pre-COVID forecast – March 2020.

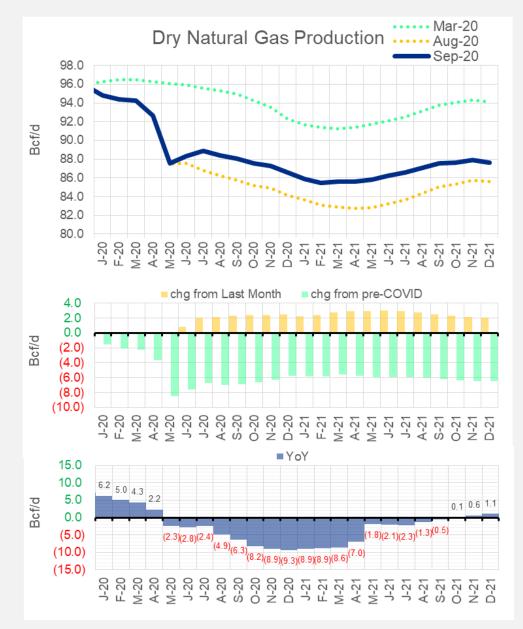
The EIA increased their outlook for prices through the winter. The winter strip is expected to \$3.37, with Jan averaging \$3.53. The winter strip is \$0.26 higher from last month's forecast. At this current price level, the winter strip is \$1.17 higher than last winter.



ENERGY

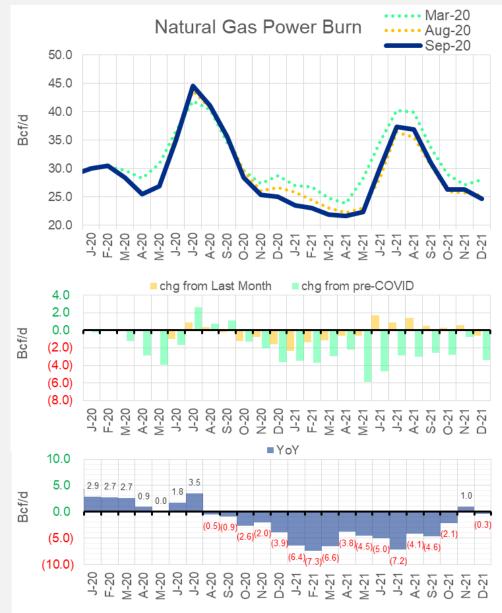
The EIA significantly jumped their production estimate for the rest of 2020, and 2021. This seems to be a combination of a higher price forecast this winter, and better well recoveries from newly drilled wells and available DUCs.

From Sept through Dec of this year, the EIA estimates production will continue to slowly decline and average 87.4 Bcf/d. Production bottoms out in Feb 2021, after which it levels out and then increases in the back half of 2021. The average 2021 production level is 86.6 Bcf, or 3.3 Bcf/d lower than the current estimated 2020 production level. This estimated level is 2.6 Bcf/d higher than the August forecast.



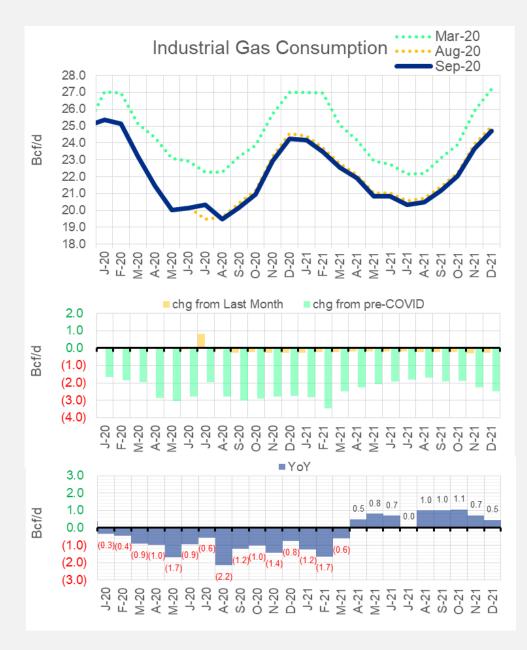
ENERGY

With higher prices in the forecast, the EIA has reduced its power burn expectation. The \$0.26 higher winter strip forecast has reduced burns by 1.4 Bcf/d. Next summer power burn expectations are also lower due to prices expected to be \$1.15 higher for the summer strip, and a more normal summer weather pattern. Average Summer 21 power burns are 29.3 Bcf/d, or 4.5 Bcf/d lower YoY.



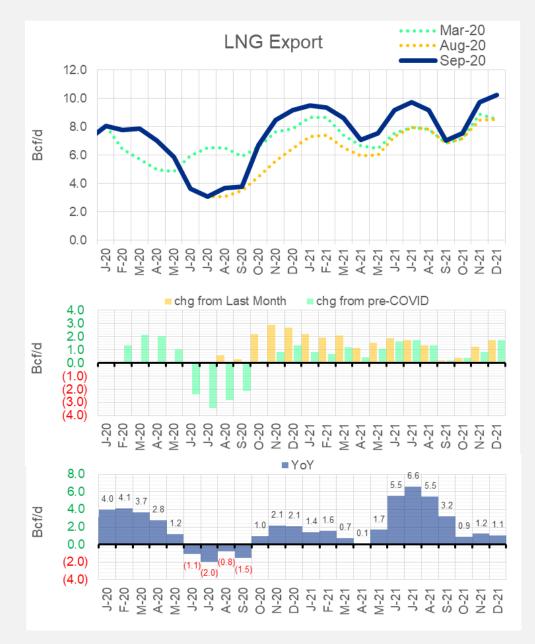
ENERGY

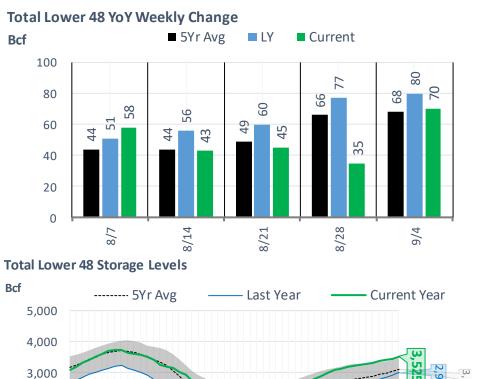
Industrial natural gas usage took a big hit in 2020 with COVID related lockdowns. The EIA data show the Summer 2020 industrial load to be 1.2 Bcf/d lower than Summer 2019. The overall industrial usage does not return to their pre-COVID (March 2020) case in their forecast period. For 2021, industrial usage is only slightly higher than the 2020 levels.



ENERGY

EIA shows massive recovery in LNG exports starting in Oct. They have increased their rest of year forecast considerably with more information around fewer cargo cancellations and widening global spreads. From Sept through Dec, they have increased their LNG export by 2.0 Bcf and increased their 2021 export level by 1.5 Bcf/d to 8.7 Bcf/d. It should be noted that this is only exports and does not include the feedgas that is used onsite.





10/25 11/15 12/6 12/27 2/7 2/7 2/2 5/1 5/1 5/1 5/1 7/3 7/3 8/14 8/14

## EIA Storage Report

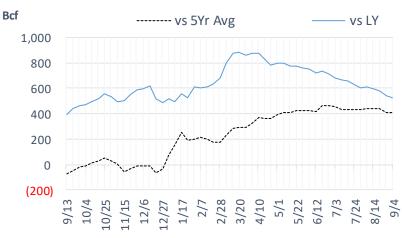


2,000

1,000

0

9/13 10/4



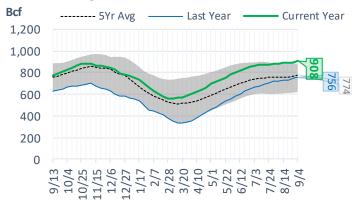
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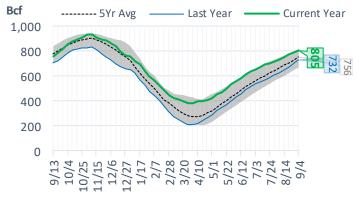
# Natural Gas Storage Stats - Last 5 Weeks

	Current	Week - 1	Week - 2	Week - 3	Week - 4	Week - 5
Week Ending	4-Sep	28-Aug	21-Aug	14-Aug	7-Aug	31-Jul
Total Lower 48 Storage Level	3525	3455	3420	3375	3332	3274
Weekly Change	+70	+35	+45	+43	+58	+33
vs LY	+528	+538	+580	+595	+608	+601
vs 5Yr Avg	+409	+407	+438	+442	+443	+429
S. Central Salt Storage Level	335	331	334	335	337	336
Weekly Change	+4	-3	-1	-2	+1	-3
vs LY	+137	+133	+133	+127	+121	+114
vs 5Yr Avg	+89	+87	+87	+82	+76	+70
S. Central NonSalt Storage Level	908	895	889	888	883	878
Weekly Change	+13	+6	+1	+5	+5	+6
vs LY	+152	+150	+155	+159	+160	+162
vs 5Yr Avg	+134	+127	+127	+130	+126	+124
Midwest Storage Level	953	924	904	880	856	830
Weekly Change	+29	+20	+24	+24	+26	+15
vs LY	+100	+108	+123	+129	+135	+136
vs 5Yr Avg	+104	+107	+121	+123	+124	+123
East Storage Level	805	789	775	750	738	718
Weekly Change	+16	+14	+25	+12	+20	+12
vs LY	+73	+84	+99	+97	+110	+110
vs 5Yr Avg	+49	+55	+66	+62	+72	+73
Mountain Storage Level	216	212	212	209	206	202
Weekly Change	+4	0	+3	+3	+4	+6
vs LY	+35	+36	+40	+42	+43	+42
vs 5Yr Avg	+22	+22	+25	+25	+25	+23
Pacific Storage Level	308	304	306	313	314	311
Weekly Change	+4	-2	-7	-1	+3	-2
vs LY	+33	+27	+29	+40	+42	+40

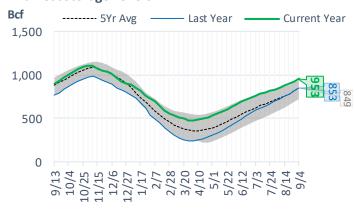
#### NonSalt Storage Levels



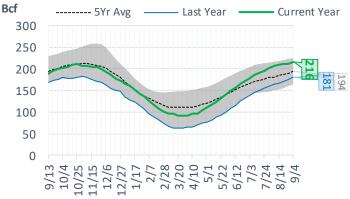
#### East Storage Levels



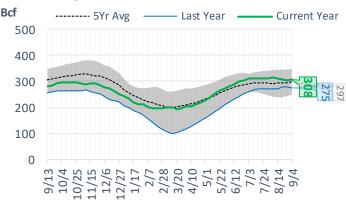
#### Midwest Storage Levels



#### Mountain Storage Levels

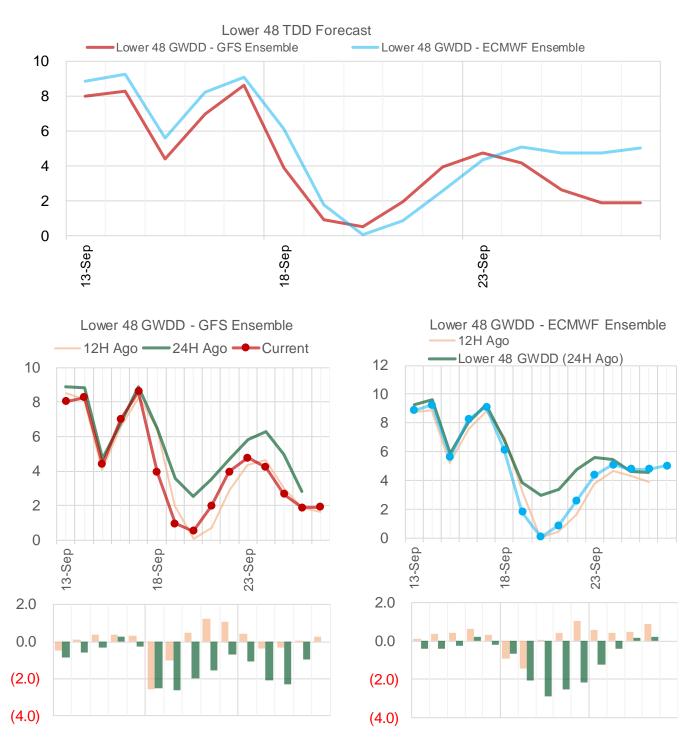


#### **Pacific Storage Levels**





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



Source: WSI , Bloomberg

#### **EIA Storage Week Balances**

	7-Aug	14-Aug	21-Aug	28-Aug	4-Sep	11-Sep	WoW	vs. 4W
Lower 48 Dry Production	87.3	87.4	87.2	86.0	86.3	88.3	<b>2.1</b>	<b>1.6</b>
Canadian Imports	4.6	5.0	4.7	5.2	4.4	3.8	▼ -0.6	▼ -1.0
L48 Power	40.7	42.9	40.0	41.6	37.2	35.1	▼ -2.1	▼ -5.3
L48 Residential & Commercial	8.1	8.1	8.2	8.3	7.8	8.8	🔺 1.0	<b>a</b> 0.7
L48 Industrial	18.8	19.0	20.4	19.6	19.5	19.9	<b>a</b> 0.4	<b>a</b> 0.2
L48 Lease and Plant Fuel	4.9	4.9	4.8	4.8	4.8	4.9	<b>A</b> 0.1	<b>a</b> 0.1
L48 Pipeline Distribution	2.2	2.3	2.2	2.3	2.1	2.1	▼ 0.0	▼ -0.2
L48 Regional Gas Consumption	74.7	77.2	75.6	76.6	71.4	70.8	▼ -0.6	▽ -4.4
Net LNG Exports	3.9	4.4	4.7	3.9	3.0	5.2	<b>2.1</b>	<b>1.2</b>
Total Mexican Exports	6.1	6.0	6.2	6.6	6.5	6.4	▼ -0.2	▲ 0.0
Implied Daily Storage Activity	7.2	4.8	5.3	4.1	9.7	9.8	0.1	
EIA Reported Daily Storage Activity	8.3	6.1	6.4	5.0	10.0			
Daily Model Error	-1.1	-1.3	-1.1	-0.9	-0.3			

#### **Monthly Balances**

	2Yr Ago	LY					MTD		
	Sep-18	Sep-19	May-20	Jun-20	Jul-20	Aug-20	Sep-20	МоМ	vs. LY
Lower 48 Dry Production	85.2	93.5	85.8	85.1	86.6	86.9	87.7	<b>a</b> 0.8	▼ -5.8
Canadian Imports	4.5	4.7	3.9	4.0	4.4	4.9	3.9	▼ -1.0	▼ -0.8
L48 Power	34.2	36.4	26.9	34.8	43.8	40.6	35.5	▼ -5.1	▼ -0.9
L48 Residential & Commercial	8.5	8.3	12.9	9.0	8.6	8.1	8.4	<b>a</b> 0.3	<b>A</b> 0.1
L48 Industrial	21.6	22.3	18.9	18.3	17.8	19.5	19.9	<b>a</b> 0.4	▼ -2.4
L48 Lease and Plant Fuel	4.8	5.2	4.8	4.9	4.9	4.8	4.9	<b>A</b> 0.1	▼ -0.3
L48 Pipeline Distribution	2.0	2.1	1.9	2.0	2.4	2.2	2.1	▼ -0.2	▼ 0.0
L48 Regional Gas Consumption	71.2	74.3	65.5	69.1	77.5	75.2	70.7	▼ -4.5	▼ -3.5
Net LNG Exports	3.1	6.2	6.7	4.0	3.3	4.0	5.2	▲ 1.1	▼ -1.0
Total Mexican Exports	5.1	5.4	4.9	5.7	6.1	6.3	6.4	<b>▲ 0.1</b>	<b>1.0</b>
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	10.3	12.4	12.6	10.2	4.1	6.2	9.2		

Source: Bloomberg, analytix.ai

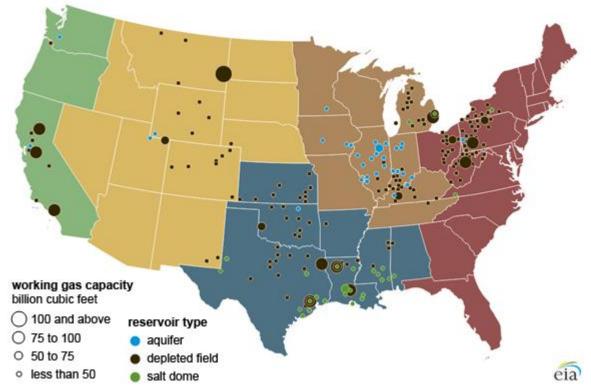


## **Regional S/D Models Storage Projection**

Week Ending	11-Sep			
			Daily	
			Average	Weekly
		Daily	Storage	Adjusted
	Daily Raw	Adjustment	Activity	Storage
	Storage	Factor	(Adjusted) *	Activity
L48	9.5	0.9	10.5	71
East	0.9	1.4	2.3	15
Midwest	3.6	0.3	4.0	27
Mountain	3.4	-2.9	0.5	3
South Central	0.8	2.6	3.4	24
Pacific	0.8	-0.5	0.2	2

\*Adjustment Factor is calcuated based on historical regional deltas

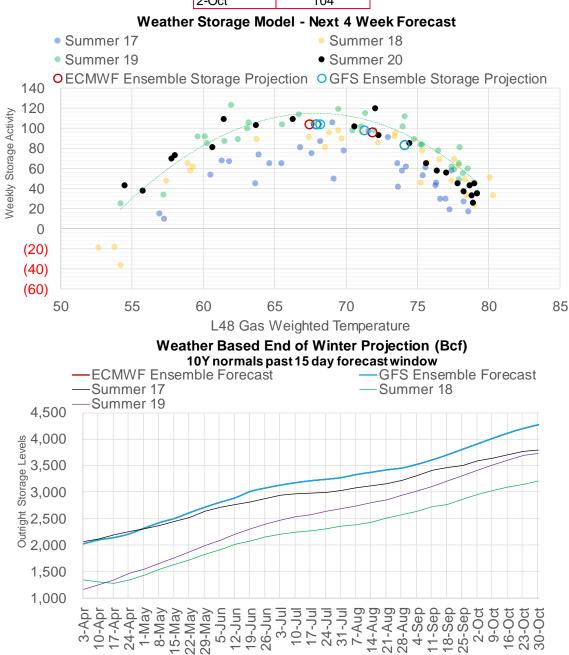
#### U.S. underground natural gas storage facilities by type (July 2015)





## Weather Model Storage Projection

Next report and beyond							
	Week Storage						
Week Ending	Projection						
18-Sep	97						
25-Sep	104						
2-Oct	104						



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## Weather Model Storage Projection to End of Season

L48 Storage Trajector	48 Storage Trajectory from Weather Model					Forecast Storage Levels				
	Report		vs 5Yr	Reported	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	3375	595	442	43		56	(13)	44	(1)	
21-Aug-20	3420	580	438	45		60	(15)	49	(4)	
28-Aug-20	3455	538	407	35		77	(42)	66	(31)	
4-Sep-20	3525	528	409	70		80	(10)	68	2	
11-Sep-20					83	82	1	77	6	
18-Sep-20					97	97	(0)	80	17	
25-Sep-20					104	109	(5)	78	26	
2-Oct-20					104	102	2	86	18	
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	
			2287	2596	(309)	2024	263			

\* first 15D change is an average of the GFS Ensemble and ECMWF Ensemble

# 

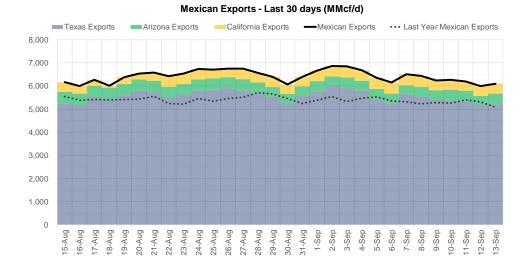
# **Market Report**

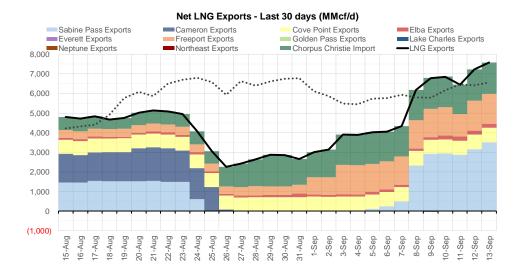
#### US Dry Natural Gas Production (Bcf/d) US Dry Production -Last Year US Dry Production 96 94 92 90 88 86 84 82 80 78 76 4-Apr 6-Jun 20-Jun 11-Apr 18-Apr 30-May 13-Jun 27-Jun 4-Jul 11-Jul 8-Aug 22-Aug 5-Sep 25-Apr 2-May 9-May 16-Mav 23-May 18-Jul 25-Jul 1-Aug 15-Aug 29-Aug 12-Sep US Daily Power Burns (Bcf/d) US Power Demand Last Year US Power Demand 60 50 40 30 20 10 0 27-Jun 8-Aug 11-Apr 11-Jul 18-Jul 25-Jul 22-Aug 29-Aug 5-Sep 12-Sep 4-Apr 18-Apr 25-Apr 2-May 9-May 6-Jun 13-Jun 20-Jun 4-Jul 1-Aug 16-May 15-Aug 23-May 30-Mav US Daily ResCom Consumption(Bcf/d) US ResCom Demand -Last Year US ResCom Demand 35 30 25 20 15 10 5 0 8-Aug 13-Jun 20-Jun 27-Jun 15-Aug Aug 12-Sep 4-Apr 11-Apr 18-Apr 25-Apr 2-May 9-May 23-May 1-Aug 29-Aug 5-Sep 6-Mav 6-Jun 4-Jul 11-Jul 18-Jul 25-Jul 30-May 22-1

Supply – Demand Trends

Source: Bloomberg

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Source: Bloomberg

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## 15



# 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
10	2020	Р	2.00	12486	10	2020	Р	2.00	48156
10	2020	С	2.75	9852	10	2020	С	3.00	46145
10	2020	Р	1.90	9701	10	2020	Р	1.50	44736
10	2020	С	3.00	7738	10	2020	С	2.75	41950
10	2020	С	2.50	7110	10	2020	Р	2.25	34749
10	2020	Р	2.25	6281	10	2020	Р	1.75	34257
10	2020	Р	2.10	5424	10	2020	Р	1.60	33782
11	2020	С	3.25	5070	3	2021	Р	2.00	32439
10	2020	Р	1.75	4506	10	2020	С	2.50	32300
11	2020	Р	2.25	4097	4	2021	С	5.00	30287
11	2020	С	4.50	4060	10	2020	Р	1.25	28897
10	2020	С	2.60	3735	3	2021	С	4.00	26656
10	2020	С	2.40	3629	3	2021	С	3.25	26418
11	2020	С	3.50	3395	11	2020	С	3.50	26100
10	2020	С	2.45	3038	10	2020	С	3.25	24398
11	2020	С	3.75	2891	10	2020	P P	1.00	24016
10	2020	Р	2.05	2484	11	2020	P	2.00	23883
10	2020	С	2.70	2300	10	2020		2.10	23618
10	2020	С	3.25	2052	1 12	2021 2020	C P	4.50 2.00	23165 23141
1	2021	С	4.00	2012	12	2020	P C	2.00	23141
1	2021	С	5.00	2004	1	2020	c	3.50	22306
10	2020	С	2.85	2000	10	2021	c	2.10	21984
10	2020	Р	2.40	1972	3	2020	c	3.00	21964
10	2020	Р	1.50	1723	10	2021	P	1.80	21656
10	2020	Р	2.20	1708	10	2020	P	2.20	20786
3	2021	С	4.00	1508	3	2020	C	6.00	20455
3	2021	С	4.50	1500	10	2020	P	1.90	20099
10	2020	Р	1.80	1483	3	2020	Ċ	3.50	19631
11	2020	Р	1.35	1311	10	2020	P	1.30	19439
10	2020	Р	2.15	1264	10	2020	C	3.50	19018
1	2021	С	3.75	1253	11	2020	P	2.25	18801
1	2021	С	3.50	1250	1	2021	C	3.75	18795
10	2020	Р	1.85	1166	10	2020	C	2.00	18663
11	2020	Р	2.10	1152	1	2021	C	5.00	18026
10	2020	С	2.65	1115	11	2020	P	2.50	17574
11	2020	Р	1.20	1038	2	2021	С	5.00	17295
10	2020	Р	1.60	1023	10	2020	С	2.25	17285
11	2020	Р	1.75	1018	1	2021	С	3.00	16783
1	2021	С	4.75	1000	11	2020	С	3.25	16624
3	2021	С	4.75	1000	11	2020	С	3.00	16246
3	2021	С	5.50	1000	10	2020	С	2.60	15826
10	2020	С	2.55	965	12	2020	Р	2.50	15341
10	2020	С	2.30	962	12	2020	С	4.00	15107
11	2020	Р	2.50	946	11	2020	С	2.75	14597
11	2020	Р	2.80	730	10	2020	Р	1.40	14494
11	2020	Р	1.50	718	11	2020	С	4.00	14466
11	2020	Р	2.30	708	10	2020	С	2.70	14420
11	2020	С	3.00	707	12	2020	С	3.75	14332
11	2020	Р	2.00	607	1	2021	Р	2.25	14329

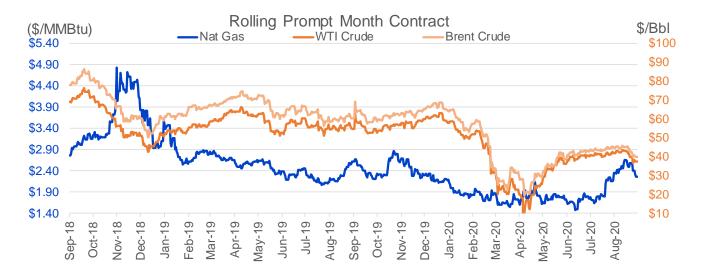
Source: CME, Nasdaq, ICE

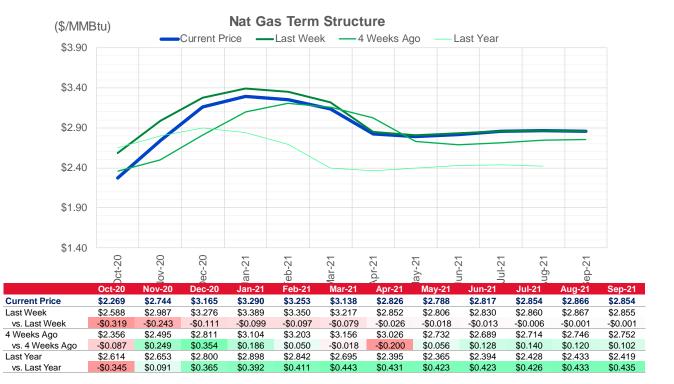


### Nat Gas Futures Open Interest CME, ICE and Nasdaq Combined

CME Henry H	ub Futures (1	0,000 MMBtu)		ICE Henry Hub	Futures Co	ntract Equiva	lent (10,000 MM
-	Current	Prior	Daily Change	FOR JUNE 26	Current	Prior	Daily Change
OCT 20	158989	173217	-14228	OCT 20	89433	90772	-1338.5
NOV 20	227222	218088	9134	NOV 20	81388	83046	-1657.75
DEC 20	105747	100439	5308	DEC 20	74094	74261	-167.25
JAN 21	133845	130664	3181	JAN 21	87245	86912	333.25
FEB 21	55361	54145	1216	FEB 21	58748	58636	112
MAR 21	108683	105987	2696	MAR 21	78068	77450	617.25
APR 21	77182	78590	-1408	APR 21	64073	63608	465.5
MAY 21	46737	46500	237	MAY 21	56325	56408	-83
JUN 21	29490	29316	174	JUN 21	50849	50661	188.75
JUL 21	20614	20357	257	JUL 21	53281	53087	193.25
AUG 21	22039	22010	29	AUG 21	53181	53021	159.25
SEP 21	27915	27752	163	SEP 21	49814	49529	284.5
OCT 21	67446	66978	468	OCT 21	74189	73739	449.25
NOV 21	27176	27183	-7	NOV 21	42669	42524	145
DEC 21	23914	24285	-371	DEC 21	42730	42744	-13.5
JAN 22	22063	22429	-366	JAN 22	36880	36873	7.25
FEB 22	12632	12581	51	FEB 22	32048	32024	24
MAR 22	17937	18027	-90	MAR 22	33850	33927	-76.5
APR 22	21151	21166	-15	APR 22	33811	33761	50
MAY 22	6088	6050	38	MAY 22	24693	24583	109.75
JUN 22	3621	3620	1	JUN 22	23944	23908	35.5
JUL 22	2983	2945	38	JUL 22	24994	24885	109.25
AUG 22	1946	1944	2	AUG 22	24282	24298	-15.25
SEP 22	2061	2059	2	SEP 22	23408	23373	35.5
OCT 22	3296	3295	1	OCT 22	24955	25023	-68
NOV 22	2373	2326	47	NOV 22	22063	22068	-5
DEC 22	2188	2223	-35	DEC 22	23180	23168	12
JAN 23	2873	2873	0	JAN 23	12437	12440	-2.75
FEB 23	858	858	0	FEB 23	11434	11437	-3.5
MAR 23	900	900	0	MAR 23	11897	11902	-5

Source: CME, ICE





					V	s. 4 Weeks		
	Units	<b>Current Price</b>	vs.	Last Week		Ago	v	s. Last Year
NatGas Jan/Apr	\$/MMBtu	-0.46		0.073		0.007	$\mathbf{\nabla}$	-0.014
NatGas Mar/Apr	\$/MMBtu	-0.312		0.053	$\mathbf{\nabla}$	-0.606	$\mathbf{\nabla}$	-0.583
NatGas Oct/Nov	\$/MMBtu	0.48		0.076		0.159		0.424
NatGas Oct/Jan	\$/MMBtu	1.02		0.220		0.313		0.702
WTI Crude	\$/Bbl	37.33	$\bigtriangledown$	-2.440	$\checkmark$	-4.680	$\checkmark$	-17.520
Brent Crude	\$/Bbl	39.83	$\mathbf{\nabla}$	-2.830	$\mathbf{\nabla}$	-4.970	$\mathbf{\nabla}$	-20.390
Fuel Oil, NY Harbour 1%	\$/Bbl	98.03		0.000		0.000		0.000
Heating Oil	cents/Gallon	108.96	$\bigtriangledown$	-6.190	$\mathbf{\nabla}$	-14.710	$\bigtriangledown$	-78.820
Propane, Mt. Bel	cents/Gallon	0.47	$\bigtriangledown$	-0.008	$\bigtriangledown$	-0.026		0.048
Ethane, Mt. Bel	cents/Gallon	0.21		0.013	$\mathbf{\nabla}$	-0.028	$\bigtriangledown$	-0.008
Coal, PRB	\$/MTon	12.30		0.000		0.000		0.150
Coal, ILB	\$/MTon	31.05		0.000		0.000	$\mathbf{\nabla}$	-4.500

Source: CME, Bloomberg



## **Baker Hughes Rig Counts**

Oil and Natural Gas rigs decreased by 1 each this week. The weekly changes for the major basins are listed below.

	Baker	Hughes ≽			
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	180	-1	181	-553	733
Gas	71	-1	72	-82	153
Miscellaneous	3	0	3	3	0
Directional	21	1	20	-36	57
Horizontal	214	-6	220	-562	776
Vertical	19	3	16	-34	53
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago
Oil	19	0	19	-74	93
Gas	33	0	33	-8	41
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago
Ardmore Woodford	0	0	0	-3	3
Arkoma Woodford	1	0	1	-3	4
Barnett	0	0	0	-4	4
Cana Woodford	6	0	6	-33	39
DJ-Niobrara	4	0	4	-18	22
Eagle Ford	9	0	9	-57	66
Granite Wash	1	0	1	-2	3
Haynesville	35	-1	36	-15	50
Marcellus	24	-2	26	-26	50
Mississippian	0	0	0	-2	2
Permian	124	-1	125	-295	419
Utica	5	0	5	-7	12
Williston	9	0	9	-46	55