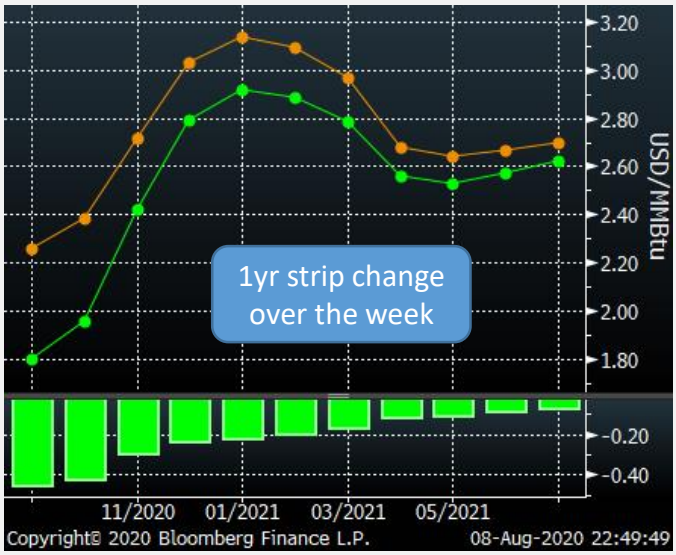
Market Report

09 Aug 2020

Last week on Monday, the Sept contract posted the largest single-day gain in the last year and a half. The gains continued throughout the week with a net gain of 0.40. The Sept contract closed out at 2.255.

Monday was the first trading day of August, and lots of moving fundamental pieces over the weekend ignited a rally, that seemed to continue as shorts ran for cover.

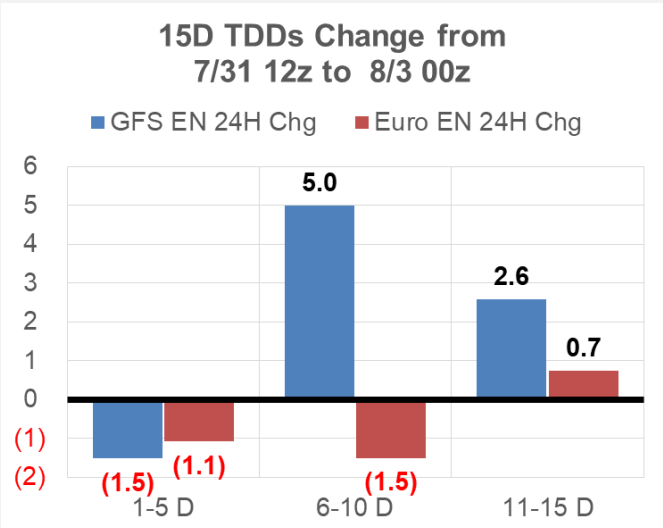


What fundamentally changed to trigger the rally?

1) No recovery in oil and rigs, and once again dropping dry gas production numbers. Production specifically dropped in the Gulf region despite WTI prices recovering, which is leading to the belief that a recovery of associated gas this year is questionable at these price levels.

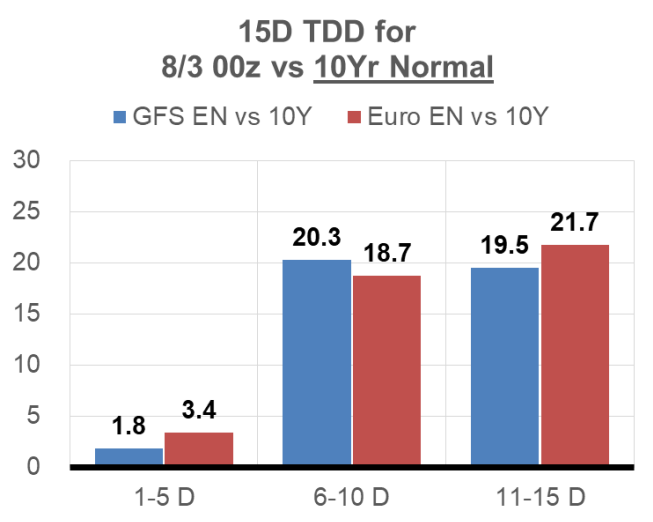
2) More hot weather past the first week of August.

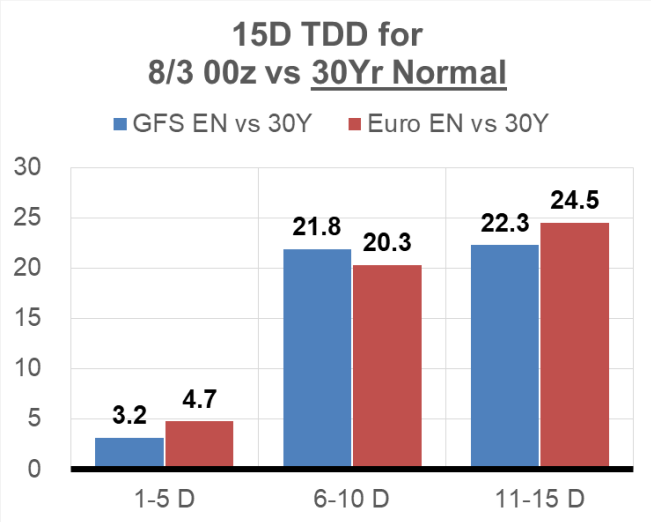
The GFS Ensemble came in with more heat past the first week of August. To the right is the chart comparing the weather outlook on Monday morning (8/1 00z run) vs Friday afternoon runs (7/31 12z run). As can be seen, the GFS showed a big change pointing to above normal burns similar to July.



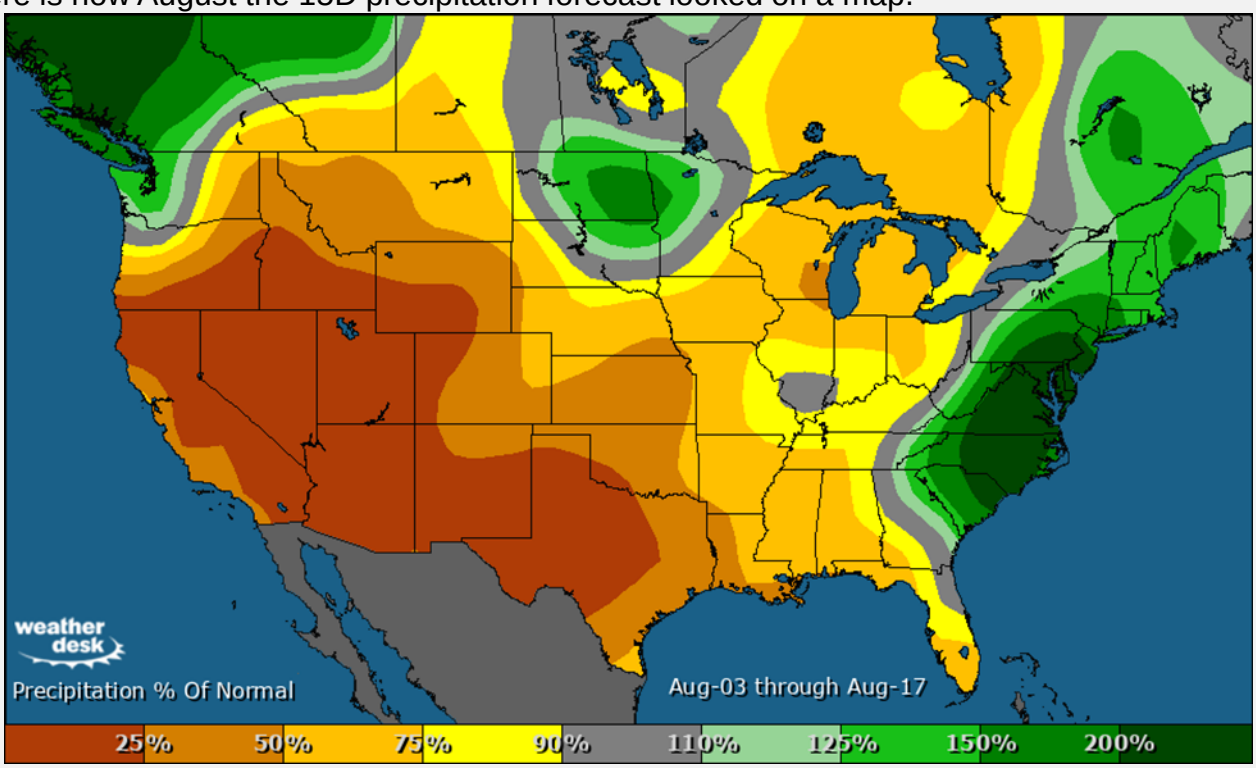
With that forecast, the heat continued to show above normal temps beyond - similar to every day in July. If it was not for TS Isiais, then we would even have the first week of August above the normal levels.

As of the 8/3 00z forecast, below are charts to show how extremely how the forecast looked in comparison to the 10Y and 30Y normal.

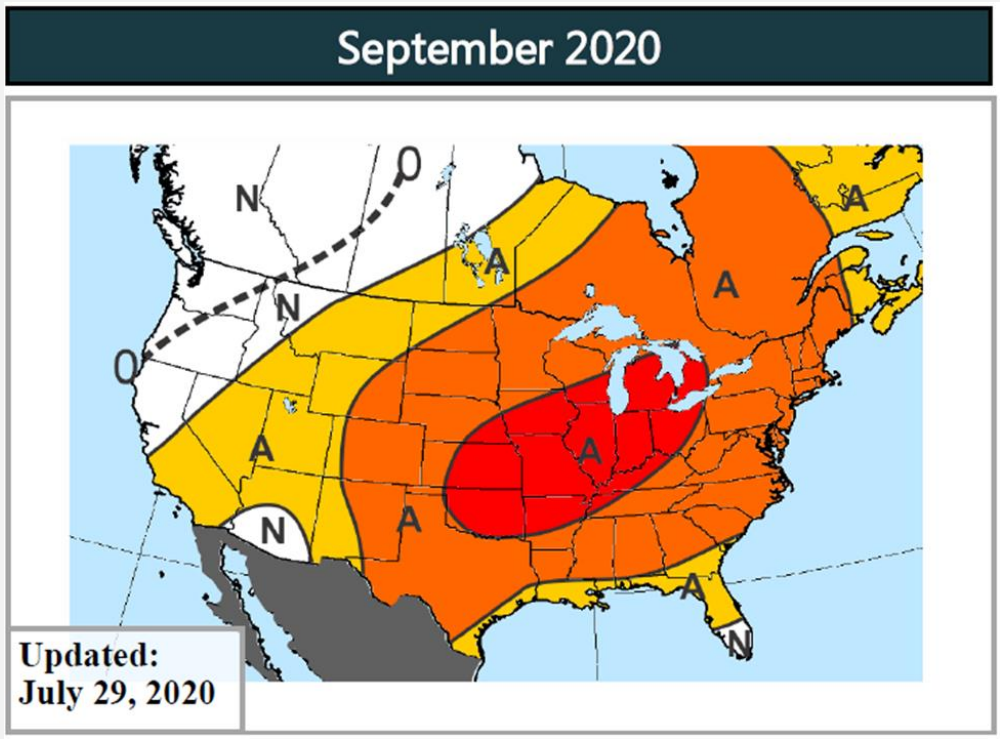




Here is how August the 15D precipitation forecast looked on a map.

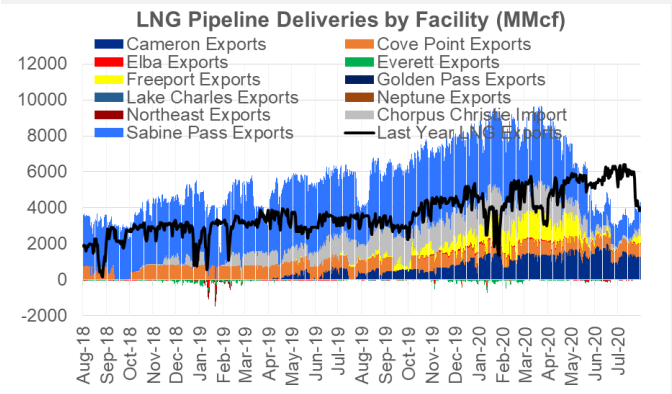


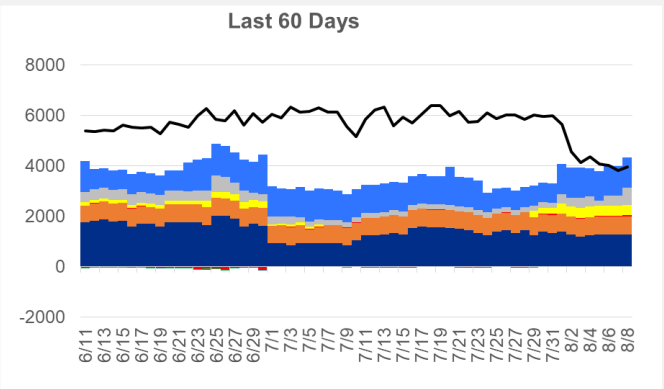
Here is how September as of July 29th. The outlook has not changed according to Maxar Weather on Friday. So still some heat that will lead to increased power burns.



3) The last piece and probably the most important is the increase in natural gas deliveries to the US LNG facilities. The average LNG deliveries in July were 3.26 Bcf/d, which equates to less than one tanker leaving US shores each day after accounting for onsite gas usage. This showed severe underutilization of the capacity.

For August, the deliveries have averaged 4.0 Bcf/d so far. A step higher in the right direction to help ease the massive storage surplus.





Using our back of the envelop calculations, this level suggest 38 cargos being cancelled for August, or 6 more than July. This number is likely higher, because there have been LNG capacity additions since March that we are not accounting for.

	Daily	Monthly
	Bcf/d	Bcf
March average US LNG Gas Deliveries	8.5	263.5
August average US LNG Gas Deliveries	4.0	120
Diff	4.5	143.5

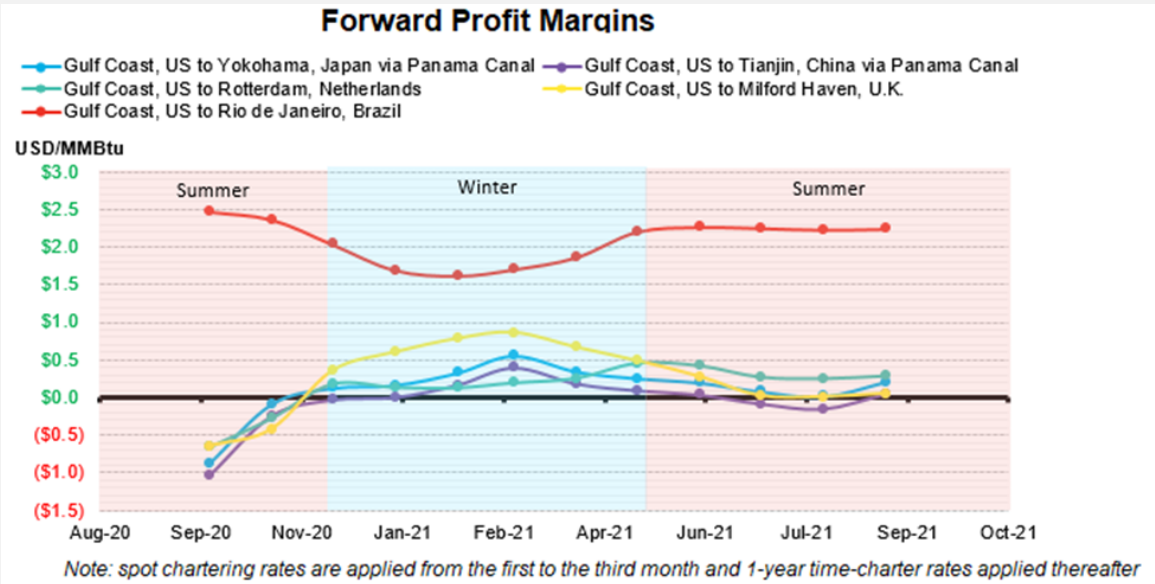
Stripping out natgas usage at plant (12%)
Gas availabe for export

	Daily	Monthly
	Bcf/d	Bcf
March average US LNG Export	7.48	232
August average US LNG Export	3.52	106
Diff	3.96	126

LNG tanker volume	3.3 Bcf	
Estimated March LNG cargos	70	(232/3.3)
Estimated June LNG cargos	32	(106/3.3)
Total Cargos cancelled	**38**	

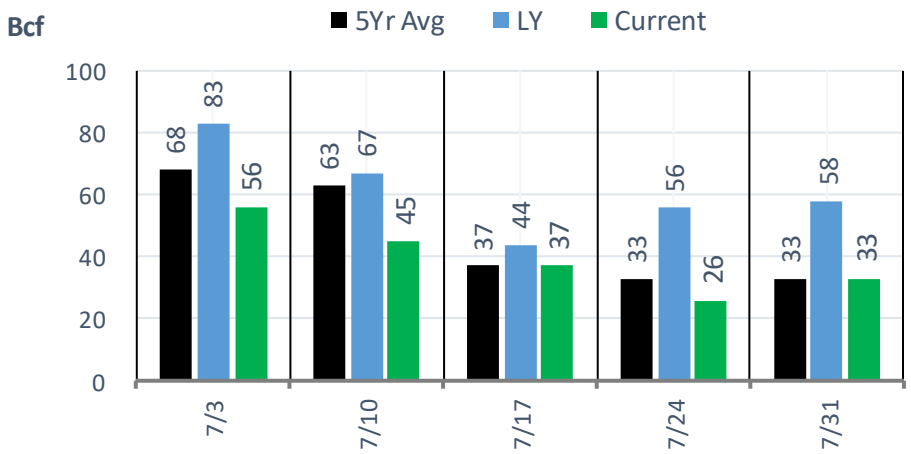
Regardless of how prices moved, no one of the three factors above was exciting on its own. Its only when you combine the increased LNG, the potential increased burns due to heat and production drops that you make a dent to the end of season storage levels.

The last piece we will touch on is the forward outlook for LNG. We ran the BNEF LNG Shipping calculator to better understand when LNG could return to more normal levels. September still shows cargos out-of-the-money, but in October certain European ports (the ones that trade at a premium to TTF), and Asian ports become interesting.

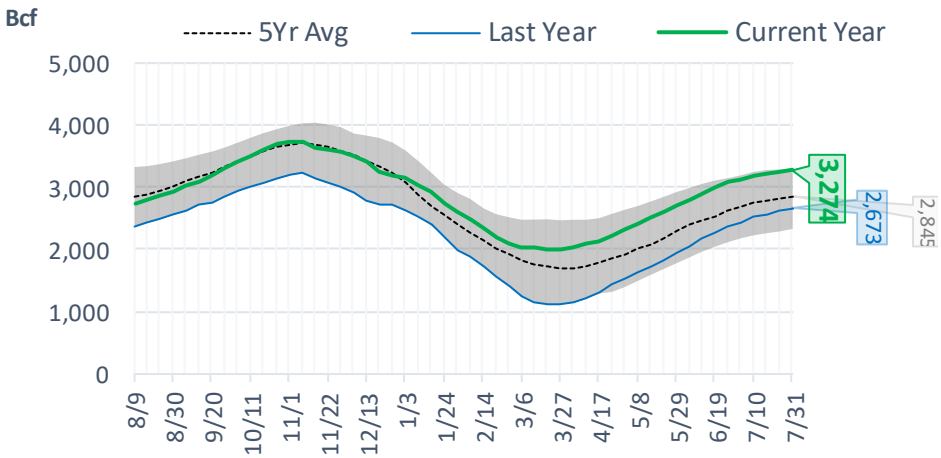


EIA Storage Report

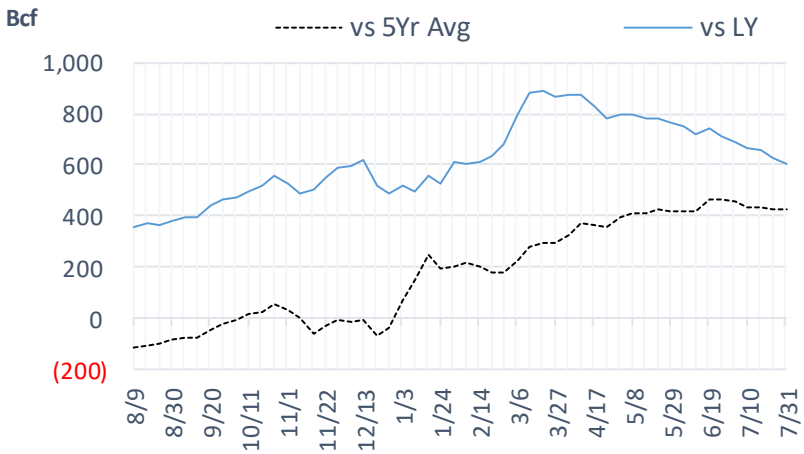
Total Lower 48 YoY Weekly Change



Total Lower 48 Storage Levels



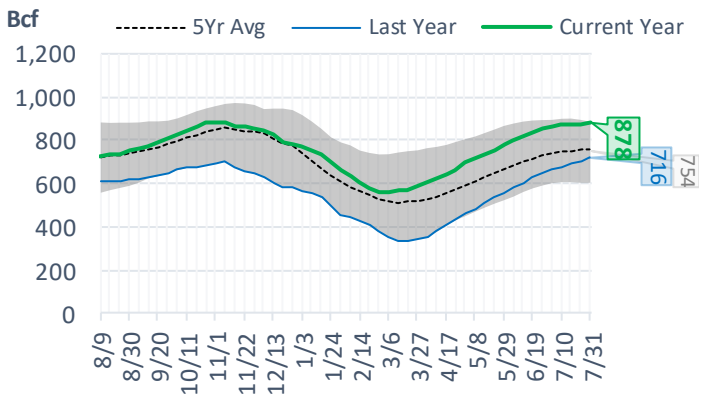
Total Lower 48 LY Surplus/Deficit



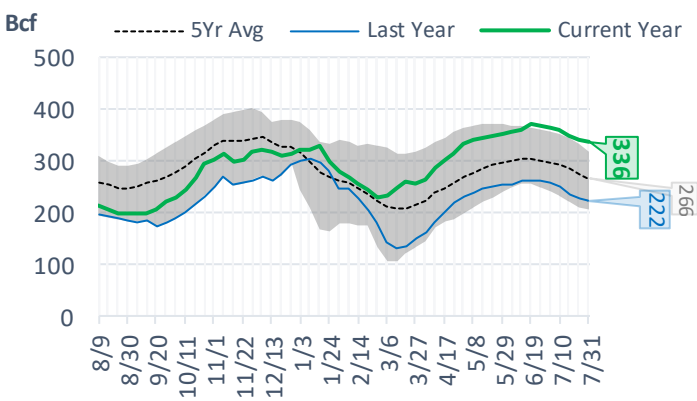
Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 31-Jul	Week - 1 24-Jul	Week - 2 17-Jul	Week - 3 10-Jul	Week - 4 3-Jul	Week - 5 26-Jun
Total Lower 48 Storage Level	**3274**	3241	3215	3178	3133	3077
Weekly Change	**+33**	+26	+37	+45	+56	+65
vs LY	**+601**	+626	+656	+663	+685	+712
vs 5Yr Avg	**+429**	+429	+436	+436	+454	+466
S. Central Salt Storage Level	**336**	339	349	359	364	368
Weekly Change	**-3**	-10	-10	-5	-4	-4
vs LY	**+114**	+112	+115	+110	+106	+108
vs 5Yr Avg	**+70**	+65	+65	+66	+68	+69
S. Central NonSalt Storage Level	**878**	872	872	869	862	854
Weekly Change	**+6**	0	+3	+7	+8	+14
vs LY	**+162**	+169	+183	+190	+199	+211
vs 5Yr Avg	**+124**	+118	+120	+121	+124	+128
Midwest Storage Level	**830**	815	799	780	761	740
Weekly Change	**+15**	+16	+19	+19	+21	+24
vs LY	**+136**	+146	+156	+162	+172	+181
vs 5Yr Avg	**+123**	+128	+132	+133	+138	+144
East Storage Level	**718**	706	693	672	657	639
Weekly Change	**+12**	+13	+21	+15	+18	+20
vs LY	**+110**	+115	+122	+116	+118	+121
vs 5Yr Avg	**+73**	+80	+86	+84	+91	+98
Mountain Storage Level	**202**	196	190	186	180	173
Weekly Change	**+6**	+6	+4	+6	+7	+8
vs LY	**+42**	+41	+40	+41	+42	+41
vs 5Yr Avg	**+23**	+20	+16	+15	+14	+11
Pacific Storage Level	**311**	313	311	312	310	304
Weekly Change	**-2**	+2	-1	+2	+6	+5
vs LY	**+40**	+43	+41	+45	+49	+52

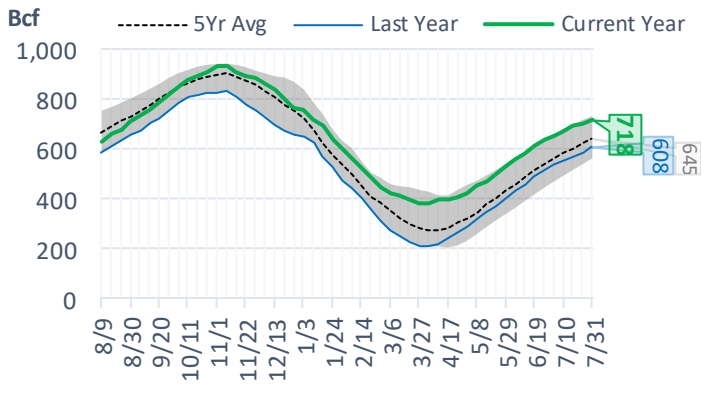
NonSalt Storage Levels



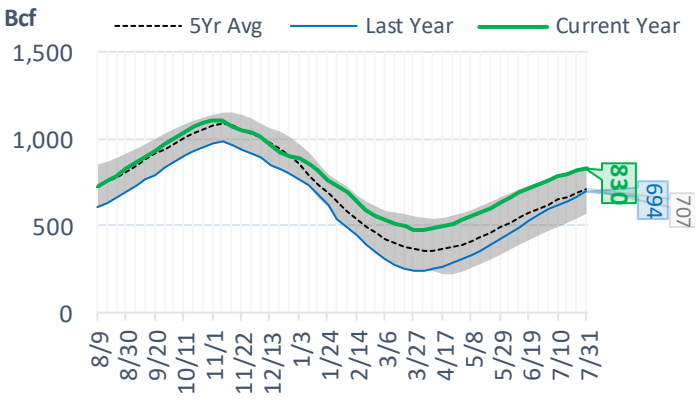
Salt Storage Levels



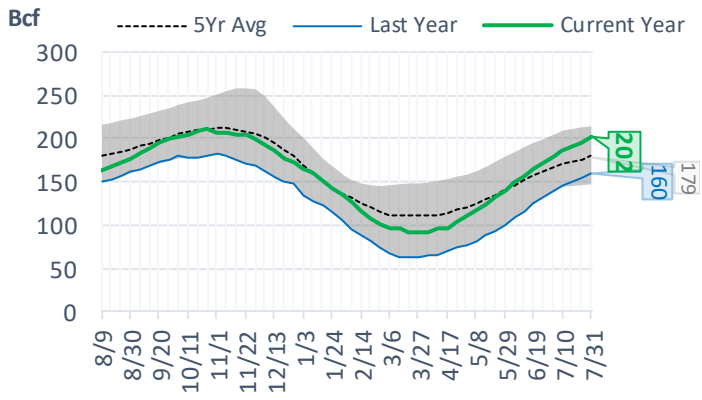
East Storage Levels



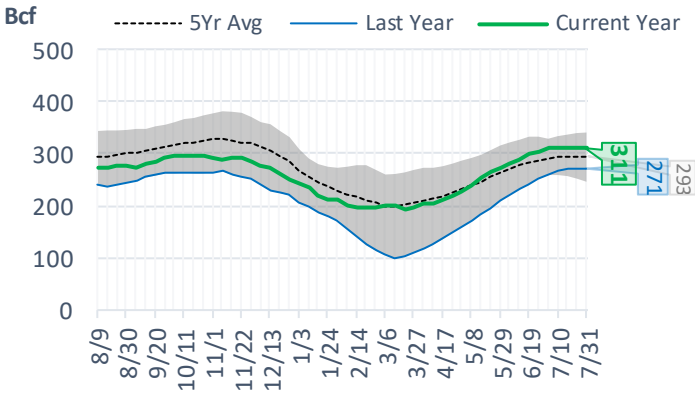
Midwest Storage Levels



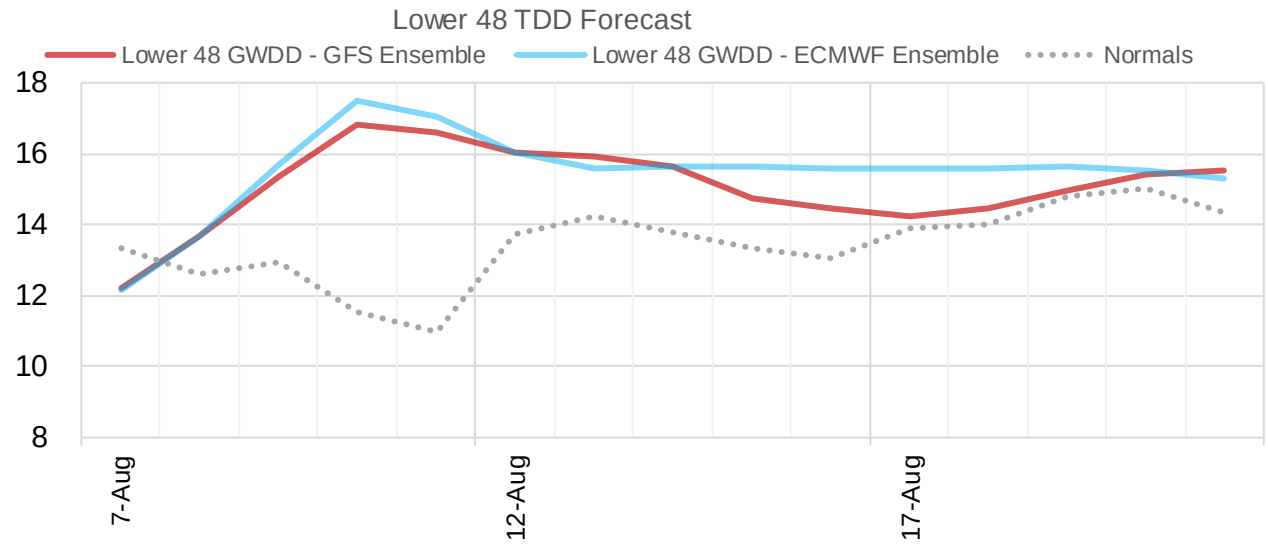
Mountain Storage Levels

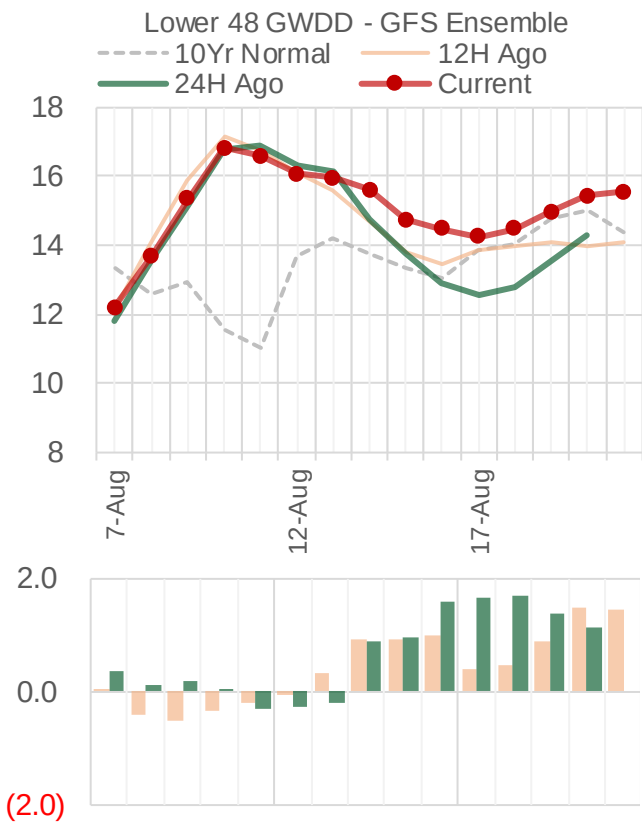


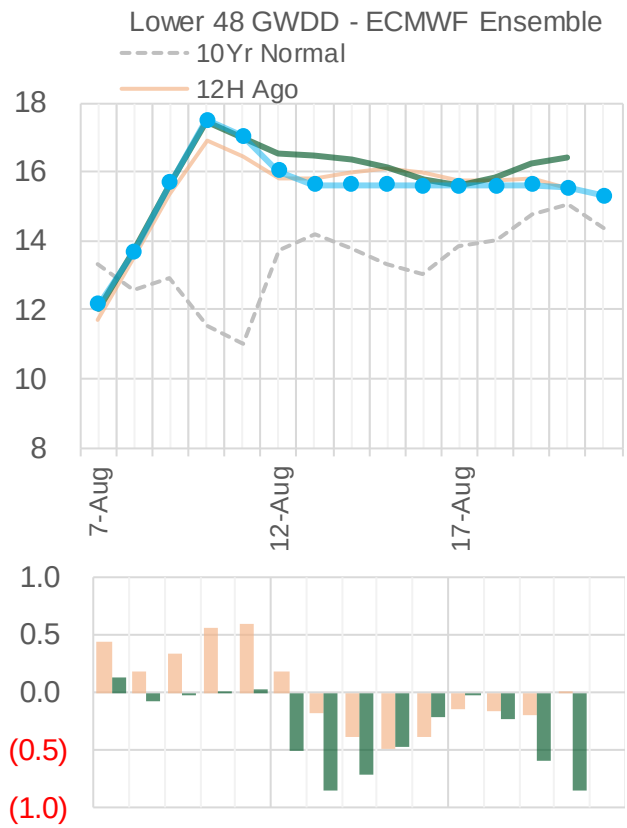
Pacific Storage Levels



Current Short-term Weather Model Outlooks (00z)







Source: WSI , Bloomberg

EIA Storage Week Balances

	3-Jul	10-Jul	17-Jul	24-Jul	31-Jul	7-Aug	WoW	vs. 4W
Lower 48 Dry Production	**85.3**	**85.7**	**85.6**	**86.3**	**86.3**	**86.3**	▼ **0.0**	▲ **0.3**
Canadian Imports	**4.1**	**4.3**	**4.5**	**4.4**	**4.5**	**4.6**	▲ **0.1**	▲ **0.2**
L48 Power	38.5	41.8	42.9	45.5	45.6	40.8	▼ -4.7	▼ -3.1
L48 Residential & Commercial	8.2	7.9	7.9	8.1	8.1	7.7	▼ -0.5	▼ -0.3
L48 Industrial	19.0	18.3	17.8	17.2	17.0	18.2	▲ 1.2	▲ 0.6
L48 Lease and Plant Fuel	4.8	4.8	4.8	4.8	4.8	4.8	▼ 0.0	▼ 0.0
L48 Pipeline Distribution	2.2	2.3	2.3	2.4	2.4	2.2	▼ -0.2	▼ -0.1
L48 Regional Gas Consumption	**72.7**	**75.0**	**75.8**	**78.0**	**78.0**	**73.7**	▼ **-4.3**	▼ **-3.0**
Net LNG Exports	**4.0**	**3.0**	**3.3**	**3.6**	**3.1**	**3.9**	▲ **0.7**	▲ **0.6**
Total Mexican Exports	**5.8**	**5.9**	**6.2**	**6.4**	**6.2**	**6.2**	▲ **0.0**	▲ **0.0**
Implied Daily Storage Activity	**6.9**	**6.0**	**4.8**	**2.7**	**3.5**	**7.1**	**3.7**	
EIA Reported Daily Storage Activity	**8.0**	**6.4**	**5.3**	**3.7**	**4.7**			
Daily Model Error	**-1.1**	**-0.4**	**-0.5**	**-1.0**	**-1.2**			

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**	▲ **0.3**	▼ **-6.2**
Canadian Imports	**5.0**	**4.4**	**3.9**	**3.9**	**4.0**	**4.4**	**4.6**	▲ **0.2**	▲ **0.2**
L48 Power	38.2	41.0	25.5	26.9	34.4	43.7	39.8	▼ -3.9	▼ -1.2
L48 Residential & Commercial	7.8	7.8	20.4	13.0	8.6	8.0	7.6	▼ -0.4	▼ -0.3
L48 Industrial	20.2	21.9	20.7	18.8	18.4	17.7	19.0	▲ 1.3	▼ -2.9
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	2.2	▼ -0.2	▼ -0.1
L48 Regional Gas Consumption	**73.0**	**78.1**	**73.8**	**65.4**	**68.3**	**76.5**	**73.4**	▼ **-3.1**	▼ **-4.8**
Net LNG Exports	**3.3**	**5.2**	**8.2**	**6.7**	**4.0**	**3.3**	**4.0**	▲ **0.7**	▼ **-1.2**
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	**7.0**	**8.1**	**8.7**	**12.9**	**10.8**	**4.4**	**7.4**		
EIA Reported Daily Storage Activity									
Daily Model Error									

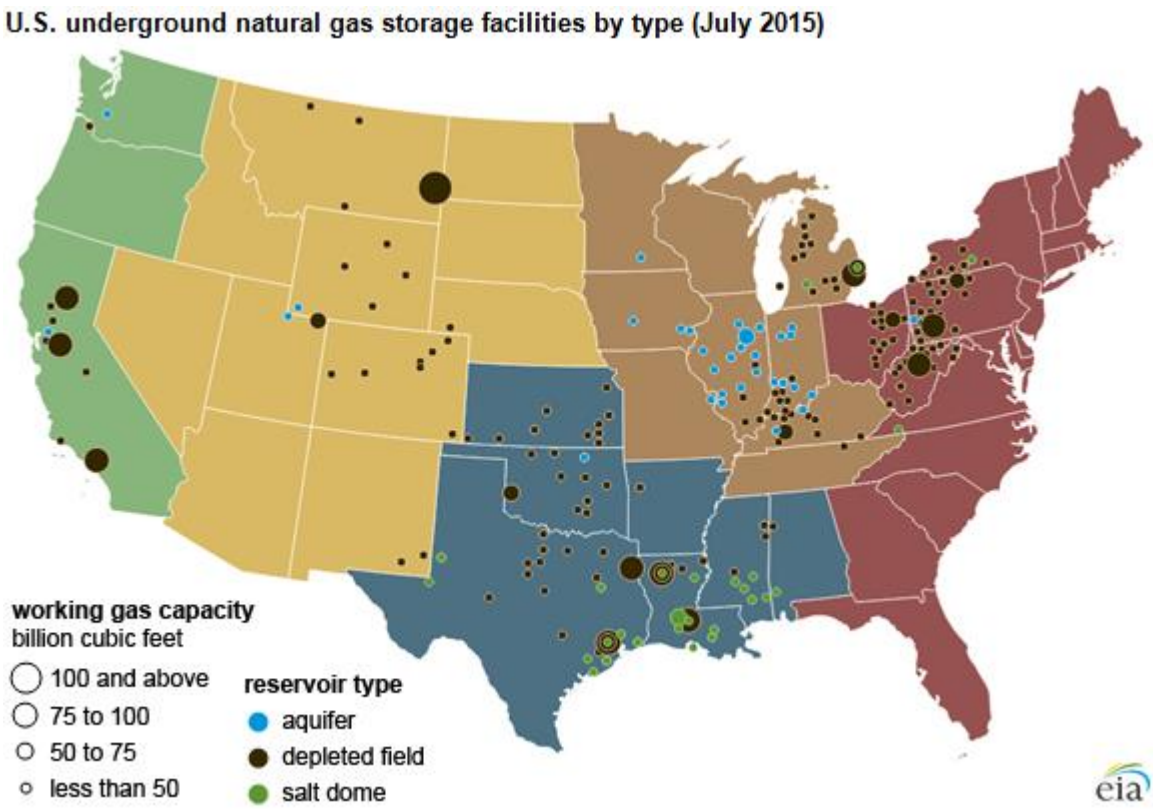
Source: Bloomberg, analytix.ai

Regional S/D Models Storage Projection

Week Ending 7-Aug

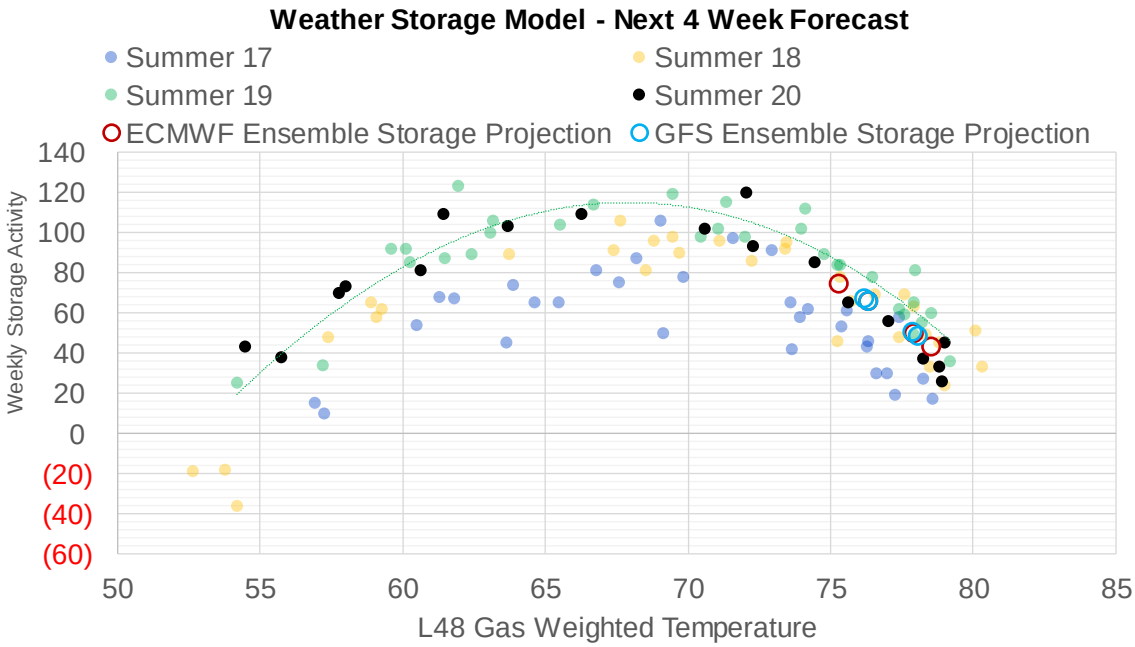
	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	6.9	1.4	8.2	58
East	0.5	2.8	3.3	23
Midwest	3.3	-0.3	3.0	21
Mountain	3.1	-2.2	1.0	7
South Central	-1.1	1.8	0.7	5
Pacific	1.0	-0.7	0.3	2

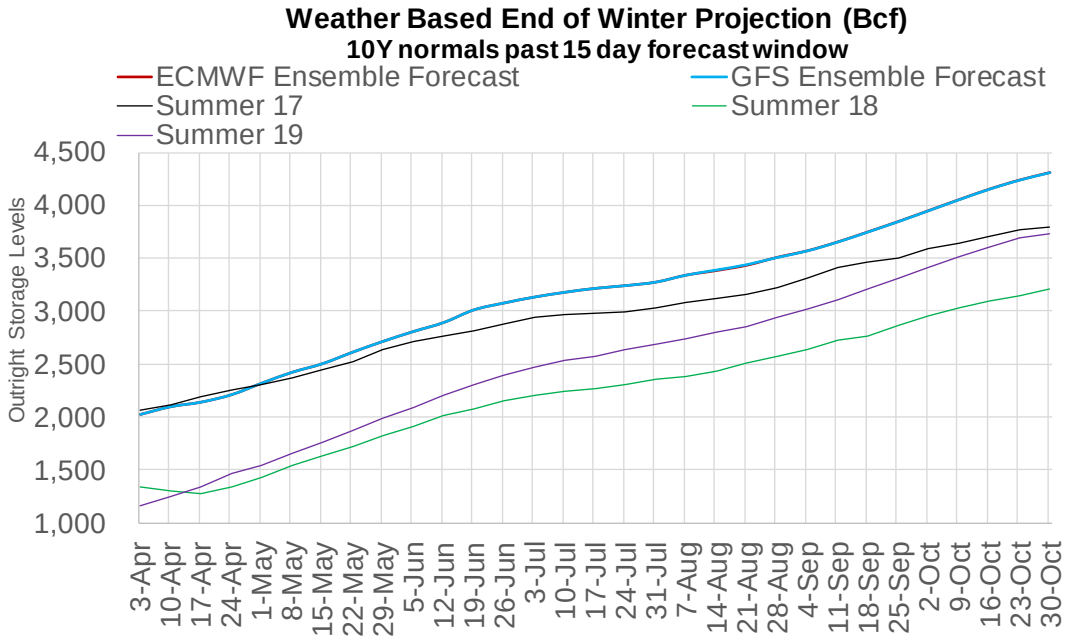
*Adjustment Factor is calcuated based on historical regional deltas



Weather Model Storage Projection

Next report and beyond	
Week Ending	Week Storage Projection
14-Aug	46
21-Aug	50
28-Aug	71





Weather Model Storage Projection to End of Season

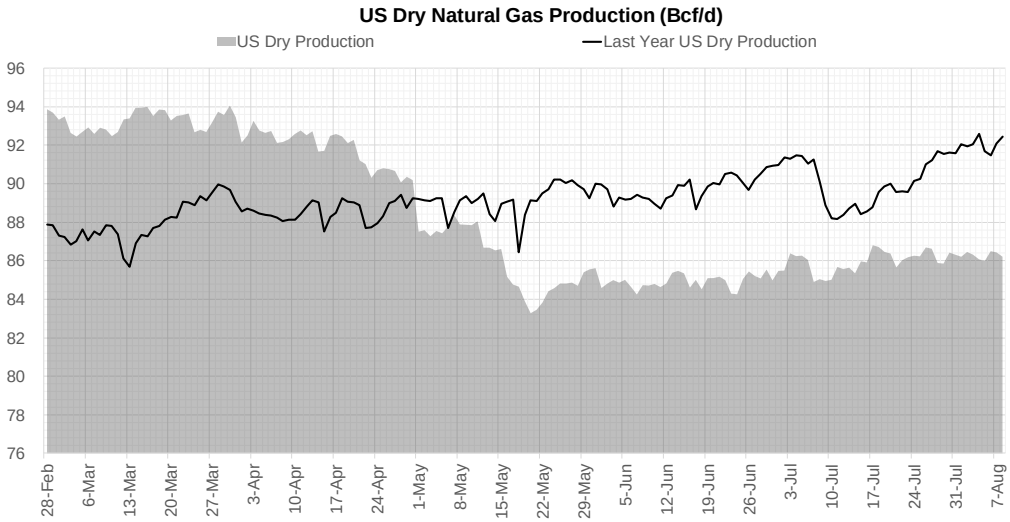
L48 Storage Trajectory from Weather Model

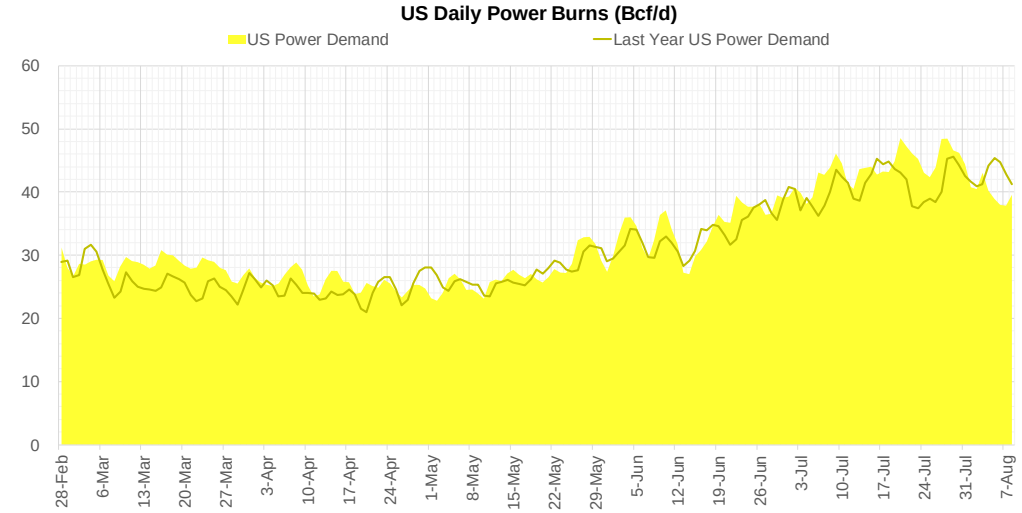
Forecast Storage Levels

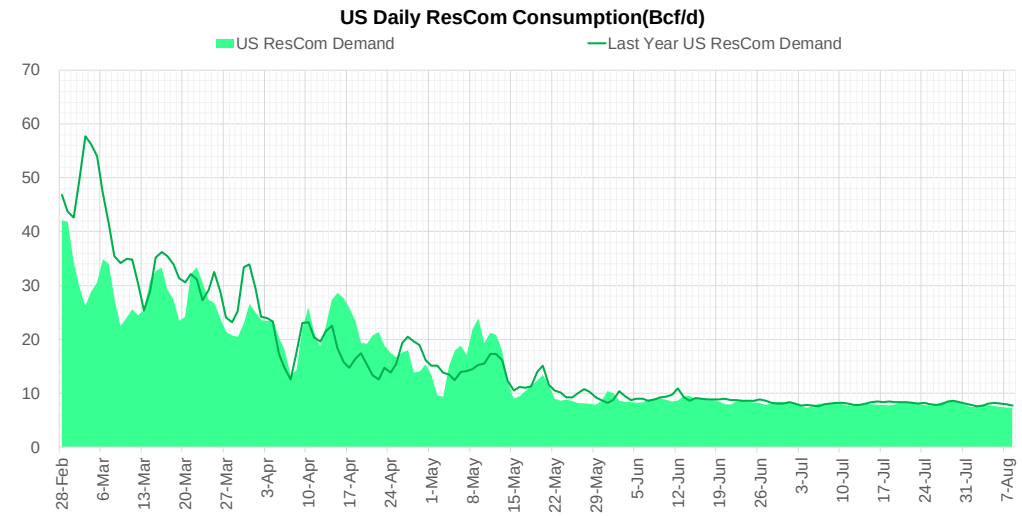
	Report Storage Level	vs. LY	vs 5Yr Avg	Reported Chg	Estimate Chg *	LY Chg	vs. LY	5Yr Avg Chg	vs. 5Yr
3-Apr-20	2024	876	324	38		25	13	6	32
10-Apr-20	2097	876	370	73		73	0	27	46
17-Apr-20	2140	827	364	43		92	(49)	49	(6)
24-Apr-20	2210	783	360	70		114	(44)	74	(4)
1-May-20	2319	796	395	109		96	13	74	35
8-May-20	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					66	51	15	44	22
14-Aug-20					46	56	(10)	44	2
21-Aug-20					50	60	(10)	49	1
28-Aug-20					71	77	(6)	66	5
4-Sep-20					62	80	(18)	68	(6)
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
			2323	**2596**	**(273)**	**2024**	**299**		

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

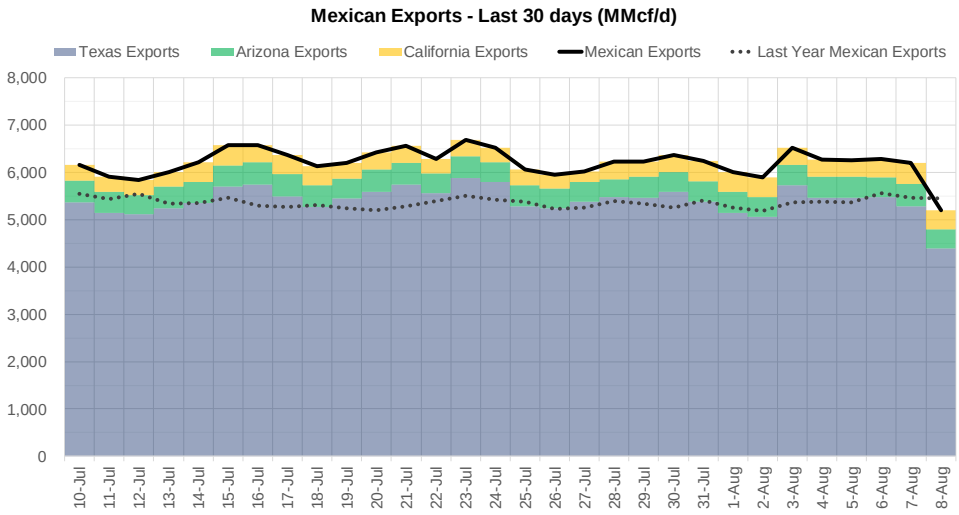
Supply – Demand Trends

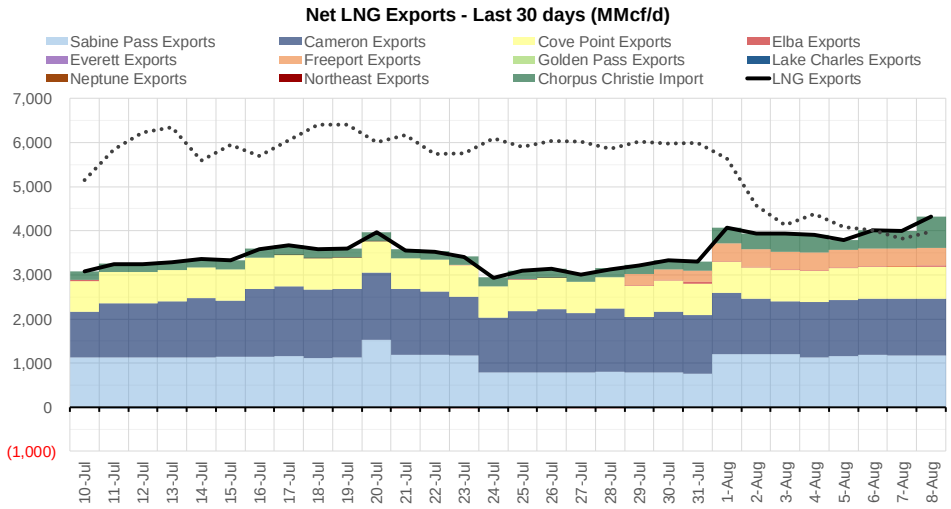






Source: Bloomberg





Source: Bloomberg

Nat Gas Options Volume and Open Interest

CME, ICE and Nasdaq Combined

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL
9	2020	C	2.50	8270
9	2020	P	2.00	8035
10	2020	P	2.00	7583
1	2021	P	2.25	4515
10	2020	P	1.50	4309
9	2020	P	1.90	3982
10	2020	P	1.80	3360
9	2020	P	2.10	3116
2	2021	C	4.00	3060
10	2020	C	2.75	3016
9	2020	C	2.75	2955
10	2020	P	2.20	2852
9	2020	P	1.75	2726
9	2020	P	1.85	2619
10	2020	C	3.00	2588
10	2020	P	1.70	2456
1	2021	P	2.75	2359
9	2020	C	2.40	2293
9	2020	C	2.25	2175
9	2020	P	1.95	2170
10	2020	C	2.40	2097
9	2020	C	2.30	2032
10	2020	C	2.50	1828
11	2020	C	3.50	1801
11	2020	C	3.00	1757
12	2020	C	3.50	1750
10	2020	C	3.25	1715
10	2020	P	1.75	1691
9	2020	C	3.00	1652
1	2021	C	7.00	1300
11	2020	C	2.75	1255
12	2020	P	1.50	1202
9	2020	P	1.60	1098
11	2020	C	3.20	1084
9	2020	C	2.85	1076
10	2020	C	2.10	1028
2	2021	C	3.25	1002
2	2021	C	3.00	1001
11	2020	C	3.05	1000
2	2021	C	5.00	1000
3	2021	C	6.00	1000
9	2020	P	2.05	986
9	2020	P	2.15	917
3	2021	P	2.00	880
1	2021	C	3.50	836
9	2020	C	2.60	806
11	2020	P	2.30	756
12	2020	C	3.75	756
11	2020	P	2.25	742

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
10	2020	P	1.50	48727
10	2020	C	2.75	47815
9	2020	C	2.50	45422
10	2020	C	2.50	39008
3	2021	P	2.00	36646
10	2020	P	2.00	34570
10	2020	P	1.60	34318
10	2020	C	3.00	31002
10	2020	P	1.25	28790
9	2020	P	1.50	27172
10	2020	P	1.75	25769
10	2020	P	1.00	24752
3	2021	C	6.00	24504
9	2020	P	1.75	24326
9	2020	P	1.00	24289
9	2020	C	3.00	23286
9	2020	C	2.00	22956
9	2020	P	1.20	22887
3	2021	C	3.00	22674
10	2020	C	2.10	21909
9	2020	P	1.30	19459
9	2020	P	1.25	19236
3	2021	C	3.50	19121
10	2020	P	1.30	19107
10	2020	P	2.10	19004
10	2020	C	2.00	18587
12	2020	P	2.00	18544
9	2020	P	2.00	18504
1	2021	C	3.50	18504
9	2020	C	2.25	18460
1	2021	C	4.50	18324
12	2020	P	1.50	17854
1	2021	C	3.00	17405
10	2020	C	2.40	17369
9	2020	C	2.75	16991
10	2020	C	2.25	16861
10	2020	C	3.25	16494
11	2020	P	1.75	15950
11	2020	C	3.00	15790
10	2020	P	1.80	15771
4	2021	C	3.00	15012
11	2020	C	3.50	14801
11	2020	C	2.75	14147
1	2021	C	3.75	13927
10	2020	C	3.50	13663
9	2020	C	3.25	12896
4	2021	P	2.00	12824
10	2020	C	2.20	12763
10	2021	C	3.00	12700
1	2021	P	2.5	12593

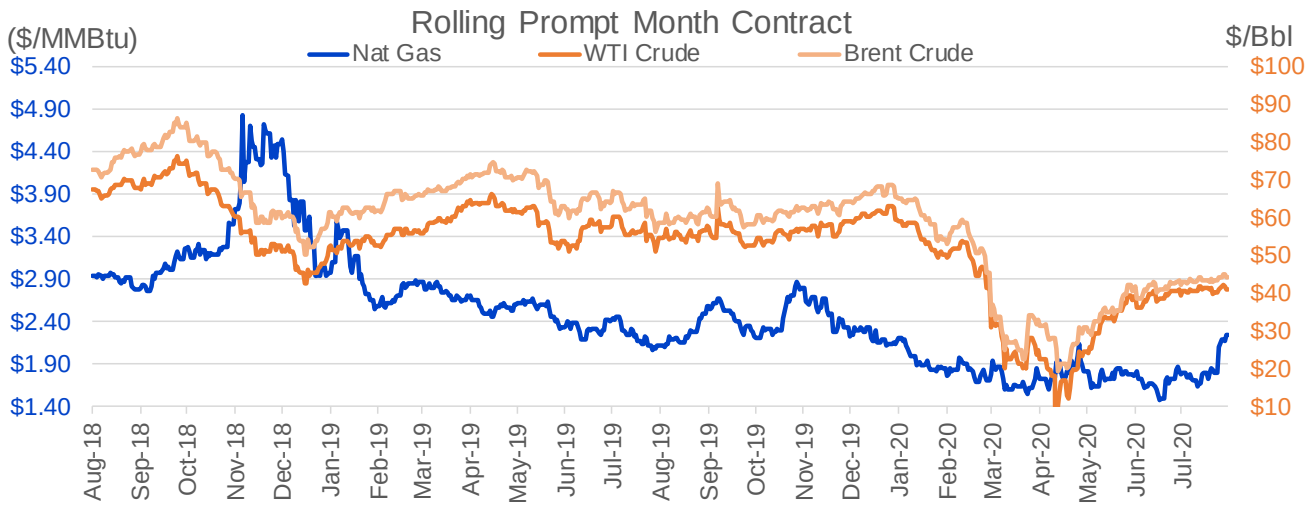
Source: CME, Nasdaq, ICE

Nat Gas Futures Open Interest

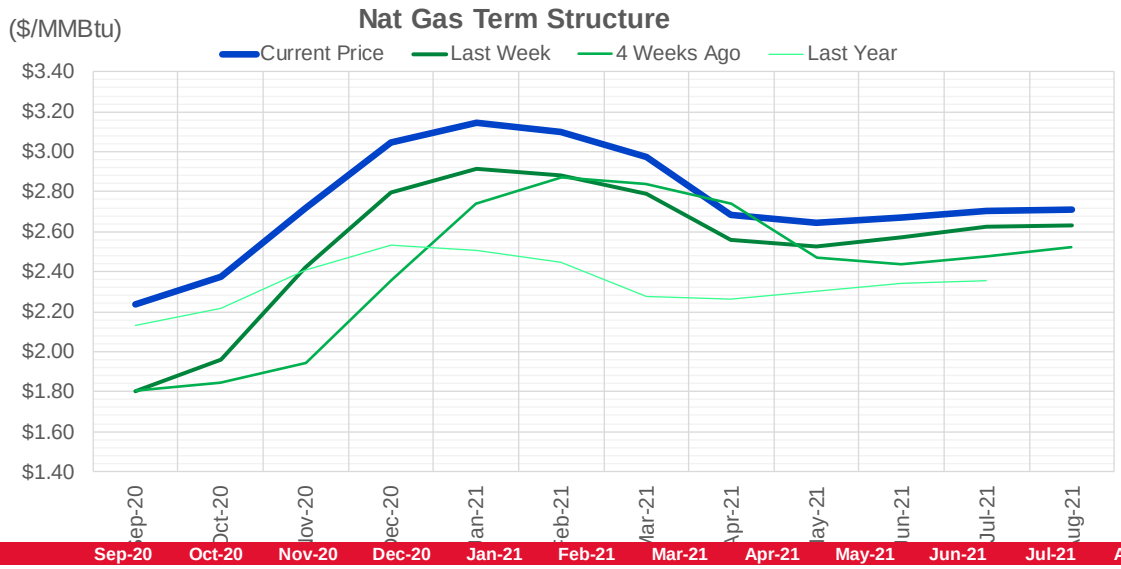
CME, ICE and Nasdaq Combined

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
SEP 20	318551	322933	-4382	SEP 20	74640	72471	2169.25
OCT 20	142573	139554	3019	OCT 20	80524	80654	-129.75
NOV 20	105899	106921	-1022	NOV 20	67835	67819	16
DEC 20	90336	87848	2488	DEC 20	69082	67862	1220.5
JAN 21	126428	127528	-1100	JAN 21	87078	87038	40.5
FEB 21	39956	39826	130	FEB 21	53336	53013	323.75
MAR 21	83523	83698	-175	MAR 21	68536	68467	69
APR 21	79033	78784	249	APR 21	58455	58541	-85.75
MAY 21	41416	39930	1486	MAY 21	49019	48813	206
JUN 21	23037	22941	96	JUN 21	47819	47892	-72.5
JUL 21	18542	18314	228	JUL 21	48970	48986	-15.5
AUG 21	16378	15747	631	AUG 21	47466	48018	-552
SEP 21	19046	18352	694	SEP 21	46222	46083	139
OCT 21	50252	48672	1580	OCT 21	67927	67721	206
NOV 21	23607	23714	-107	NOV 21	39607	39427	180.75
DEC 21	16466	16473	-7	DEC 21	41437	41280	157.25
JAN 22	18436	18032	404	JAN 22	34155	33836	319.25
FEB 22	10570	10621	-51	FEB 22	29414	29173	240.5
MAR 22	15453	15210	243	MAR 22	31624	31443	180.75
APR 22	16104	16014	90	APR 22	30640	30452	187.5
MAY 22	5455	5406	49	MAY 22	23413	23426	-13
JUN 22	2820	2823	-3	JUN 22	23490	23415	75
JUL 22	2120	2119	1	JUL 22	23214	23145	68.75
AUG 22	1743	1723	20	AUG 22	23217	23141	76.5
SEP 22	2240	2246	-6	SEP 22	22703	22628	75
OCT 22	2645	2562	83	OCT 22	24321	24252	68.75
NOV 22	1944	1989	-45	NOV 22	21716	21633	82.5
DEC 22	1947	1941	6	DEC 22	22501	22417	84.25
JAN 23	2628	2635	-7	JAN 23	11932	11899	33
FEB 23	676	666	10	FEB 23	10826	10812	14

Source: CME, ICE



Market Report



	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21
Current Price	**$2.238**	**$2.376**	**$2.720**	**$3.044**	**$3.147**	**$3.098**	**$2.973**	**$2.685**	**$2.647**	**$2.674**	**$2.707**	**$2.712**
Last Week	$1.799	$1.957	$2.418	$2.793	$2.915	$2.884	$2.788	$2.556	$2.529	$2.572	$2.622	$2.634
vs. Last Week	$0.439	$0.419	$0.302	$0.251	$0.232	$0.214	$0.185	$0.129	$0.118	$0.102	$0.085	$0.078
4 Weeks Ago	$1.805	$1.847	$1.943	$2.355	$2.741	$2.869	$2.836	$2.737	$2.470	$2.437	$2.475	$2.522
vs. 4 Weeks Ago	$0.433	$0.529	$0.777	$0.689	$0.406	$0.229	$0.137	-$0.052	$0.177	$0.237	$0.232	$0.190
Last Year	$2.119	$2.133	$2.214	$2.406	$2.530	$2.506	$2.445	$2.277	$2.263	$2.301	$2.343	$2.354
vs. Last Year	$0.119	$0.243	$0.506	$0.638	$0.617	$0.592	$0.528	$0.408	$0.384	$0.373	$0.364	$0.358

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jan/Apr	$/MMBtu	-0.46	-0.103	-0.063	-0.084
NatGas Mar/Apr	$/MMBtu	-0.288	-0.056	-0.555	-0.535
NatGas Oct/Nov	$/MMBtu	0.34	-0.117	-0.068	0.279
NatGas Oct/Jan	$/MMBtu	0.77	-0.187	-0.155	0.426
WTI Crude	$/Bbl	41.22	0.950	0.670	-13.280
Brent Crude	$/Bbl	44.40	1.100	1.160	-14.130
Fuel Oil, NY Harbour 1%	$/Bbl	98.03	0.000	0.000	0.000
Heating Oil	cents/Gallon	121.99	0.280	-2.130	-58.810
Propane, Mt. Bel	cents/Gallon	0.50	0.009	0.020	0.085
Ethane, Mt. Bel	cents/Gallon	0.23	0.011	0.008	0.076
Coal, PRB	$/MTon	12.30	0.000	0.000	0.100
Coal, ILB	$/MTon	31.05	0.000	0.000	-7.500

Source: CME, Bloomberg

Baker Hughes Rig Counts

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

Baker Hughes rig count

Baker Hughes

Rotary Rig Count

8/7/20

U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	176	-4	180	-588	764
Gas	69	0	69	-100	169
Miscellaneous	2	0	2	1	1
Directional	24	2	22	-41	65
Horizontal	211	-5	216	-606	817
Vertical	12	-1	13	-40	52

Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago
Ardmore Woodford	1	0	1	-4	5
Arkoma Woodford	0	0	0	-3	3
Barnett	0	0	0	-1	1
Cana Woodford	6	0	6	-39	45
DJ-Niobrara	4	0	4	-25	29
Eagle Ford	11	-1	12	-55	66
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	122	-2	124	-322	444
Utica	6	0	6	-9	15
Williston	11	0	11	-36	47