

	Current	Δ from YD	Δ from 7D Avg
Nat Gas Prompt	\$ 2.19	▼ \$ (0.06)	▲ \$ 0.16

	Current	Δ from YD	Δ from 7D Avg
WTI Prompt	\$ 39.99	▼ \$ (0.32)	▼ \$ (0.4)

	Current	Δ from YD	Δ from 7D Avg
Brent Prompt	\$ 41.78	▼ \$ (0.16)	▼ \$ (0.6)

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### 00z GWDD Change

Cooler Change

Warmer Change

ECMWF Ensemble 00z	1-5 Day	6-10 Day	11-15 Day	Total
12 Hr Chg	-0.6	0.4	-2.7	-2.9
24 Hr Chg	-1.4	1.6	-3.3	-3.1

GFS Ensemble 00z	1-5 Day	6-10 Day	11-15 Day	Total
12 Hr Chg	0.5	0.3	-1.4	-0.5
24 Hr Chg	0.3	-2.8	-1.7	-4.2

	Current	Δ from YD	Δ from 7D Avg
US Dry Production	84.5	▼ -0.34	▼ -1.66

	Current	Δ from YD	Δ from 7D Avg
US Power Burns	33.9	▲ 1.58	▲ 3.33

	Current	Δ from YD	Δ from 7D Avg
US ResComm	8.1	▲ 0.13	▼ -2.29

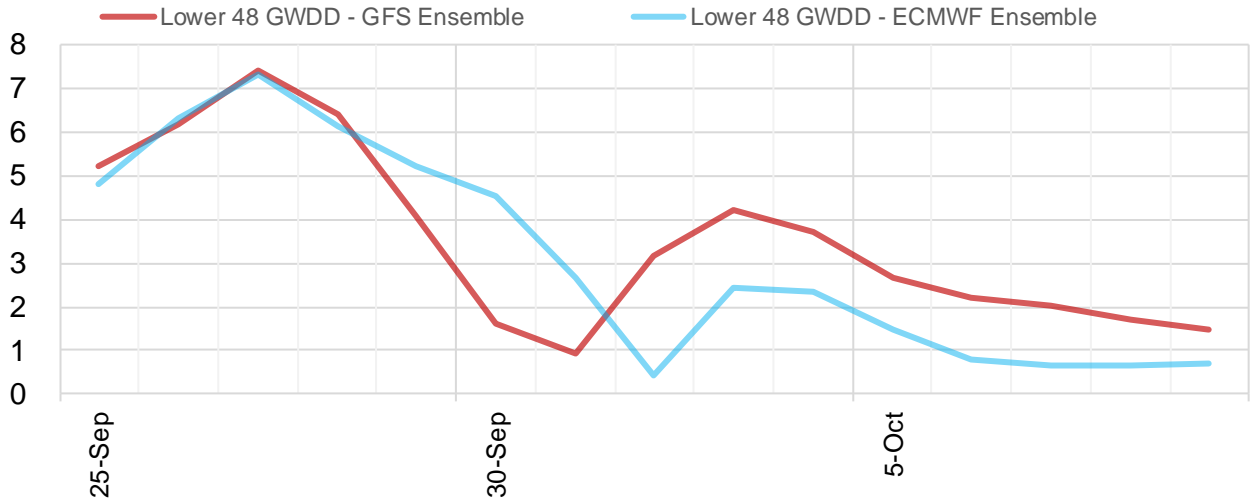
	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	3.7	▼ -0.17	▲ 0.02

	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	6.5	▲ 0.36	▲ 0.61

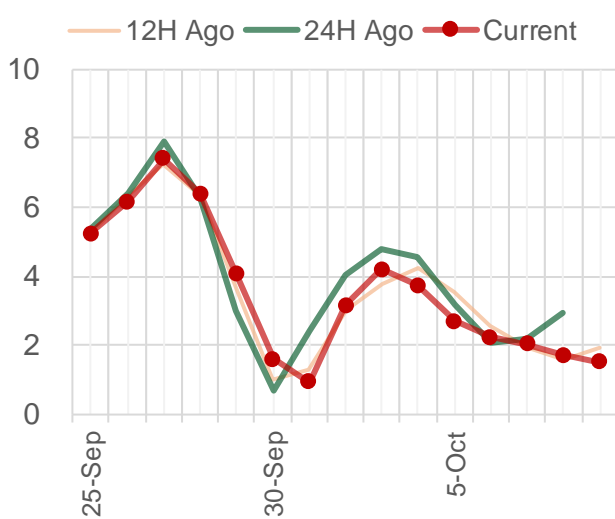
	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	6.5	▲ 0.14	▲ 0.02

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

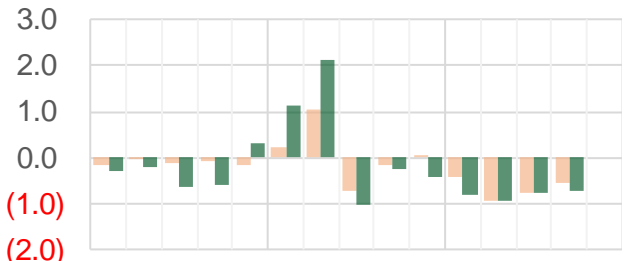
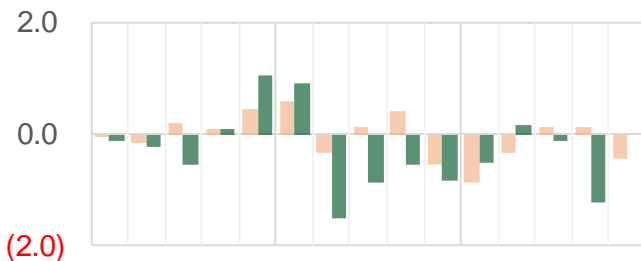
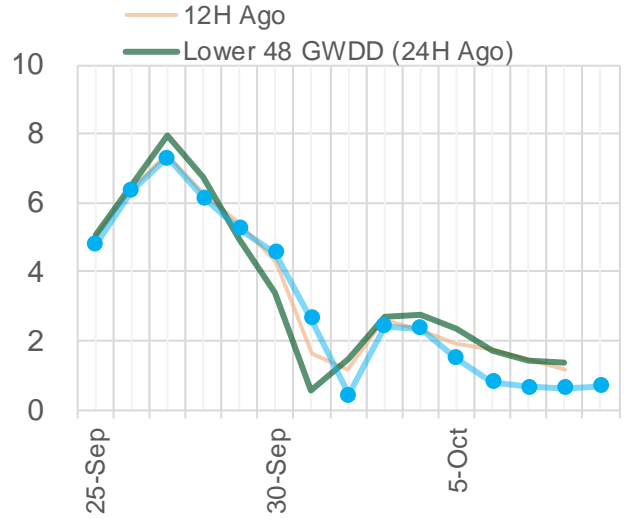
Lower 48 TDD Forecast



Lower 48 GWDD - GFS Ensemble



Lower 48 GWDD - ECMWF Ensemble



Source: WSI, Bloomberg

## Lower 48 Component Models

### Daily Balances

	19-Sep	20-Sep	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	DoD	vs. 7D
<b>Lower 48 Dry Production</b>	<b>87.2</b>	<b>87.1</b>	<b>87.0</b>	<b>85.6</b>	<b>83.7</b>	<b>84.9</b>	<b>84.5</b>	▼ -0.3	▼ -1.4
<b>Canadian Imports</b>	<b>3.5</b>	<b>3.5</b>	<b>3.6</b>	<b>3.4</b>	<b>3.6</b>	<b>3.8</b>	<b>3.7</b>	▼ -0.2	▲ 0.1
L48 Power	28.5	27.8	30.1	31.3	32.5	32.3	33.9	▲ 1.6	▲ 3.5
L48 Residential & Commercial	12.5	11.5	11.2	10.2	8.1	7.9	8.1	▲ 0.1	▼ -2.2
L48 Industrial	19.7	19.3	19.1	18.8	18.5	18.3	18.0	▼ -0.2	▼ -0.9
L48 Lease and Plant Fuel	4.9	4.9	4.9	4.8	4.7	4.7	4.7	▼ 0.0	▼ -0.1
L48 Pipeline Distribution	1.9	1.9	2.0	2.0	1.9	1.9	2.0	▲ 0.1	▲ 0.1
<b>L48 Regional Gas Consumption</b>	<b>67.5</b>	<b>65.3</b>	<b>67.3</b>	<b>67.0</b>	<b>65.6</b>	<b>65.2</b>	<b>66.7</b>	▲ 1.5	▲ 0.4
<b>Net LNG Exports</b>	<b>6.5</b>	<b>5.8</b>	<b>5.1</b>	<b>3.9</b>	<b>5.3</b>	<b>6.1</b>	<b>6.5</b>	▲ 0.4	▲ 1.0
<b>Total Mexican Exports</b>	<b>6.3</b>	<b>6.0</b>	<b>6.3</b>	<b>6.7</b>	<b>6.6</b>	<b>6.3</b>	<b>6.5</b>	▲ 0.1	▲ 0.1
<b>Implied Daily Storage Activity</b>	<b>10.4</b>	<b>13.5</b>	<b>11.9</b>	<b>11.3</b>	<b>9.8</b>	<b>11.1</b>	<b>8.6</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

### EIA Storage Week Balances

	14-Aug	21-Aug	28-Aug	4-Sep	11-Sep	18-Sep	WoW	vs. 4W
<b>Lower 48 Dry Production</b>	<b>87.4</b>	<b>87.2</b>	<b>86.0</b>	<b>86.3</b>	<b>88.3</b>	<b>87.1</b>	▼ -1.2	▲ 0.1
<b>Canadian Imports</b>	<b>4.9</b>	<b>4.7</b>	<b>5.2</b>	<b>4.4</b>	<b>3.8</b>	<b>3.8</b>	▼ 0.0	▼ -0.7
L48 Power	42.8	40.0	41.6	37.3	35.2	33.2	▼ -1.9	▼ -5.3
L48 Residential & Commercial	8.1	8.2	8.3	7.8	8.8	8.5	▼ -0.3	▲ 0.2
L48 Industrial	19.1	20.4	19.6	19.6	18.8	20.4	▲ 1.6	▲ 0.8
L48 Lease and Plant Fuel	4.9	4.8	4.8	4.8	4.9	4.9	▼ -0.1	▲ 0.0
L48 Pipeline Distribution	2.3	2.2	2.3	2.1	2.1	2.0	▼ -0.1	▼ -0.2
<b>L48 Regional Gas Consumption</b>	<b>77.2</b>	<b>75.6</b>	<b>76.6</b>	<b>71.6</b>	<b>69.8</b>	<b>68.9</b>	▼ -0.9	▼ -4.5
<b>Net LNG Exports</b>	<b>4.4</b>	<b>4.7</b>	<b>3.9</b>	<b>3.0</b>	<b>5.2</b>	<b>7.3</b>	▲ 2.1	▲ 3.1
<b>Total Mexican Exports</b>	<b>6.0</b>	<b>6.2</b>	<b>6.6</b>	<b>6.5</b>	<b>6.4</b>	<b>6.2</b>	▼ -0.1	▼ -0.2
<b>Implied Daily Storage Activity</b>	<b>4.7</b>	<b>5.3</b>	<b>4.1</b>	<b>9.5</b>	<b>10.8</b>	<b>8.5</b>	-2.4	
<b>EIA Reported Daily Storage Activity</b>	<b>6.1</b>	<b>6.4</b>	<b>5.0</b>	<b>10.0</b>	<b>12.7</b>			
<b>Daily Model Error</b>	<b>-1.5</b>	<b>-1.1</b>	<b>-0.9</b>	<b>-0.5</b>	<b>-1.9</b>			

### Monthly Balances

	2Yr Ago Sep-18	LY Sep-19	May-20	Jun-20	Jul-20	Aug-20	MTD Sep-20	MoM	vs. LY
<b>Lower 48 Dry Production</b>	<b>85.2</b>	<b>93.5</b>	<b>85.8</b>	<b>85.1</b>	<b>86.6</b>	<b>86.8</b>	<b>87.0</b>	▲ 0.1	▼ -6.5
<b>Canadian Imports</b>	<b>4.5</b>	<b>4.7</b>	<b>3.9</b>	<b>4.0</b>	<b>4.4</b>	<b>4.8</b>	<b>3.8</b>	▼ -1.1	▼ -0.9
L48 Power	34.3	36.4	26.9	34.8	43.9	40.6	33.7	▼ -6.9	▼ -2.7
L48 Residential & Commercial	8.5	8.3	12.9	9.0	8.6	8.1	9.0	▲ 0.9	▲ 0.7
L48 Industrial	21.6	22.2	18.9	18.4	17.8	19.6	19.4	▼ -0.2	▼ -2.9
L48 Lease and Plant Fuel	4.8	5.2	4.8	4.9	4.9	4.8	4.8	▲ 0.0	▼ -0.4
L48 Pipeline Distribution	2.0	2.1	1.9	2.0	2.4	2.2	2.0	▼ -0.2	▼ -0.1
<b>L48 Regional Gas Consumption</b>	<b>71.2</b>	<b>74.3</b>	<b>65.5</b>	<b>69.1</b>	<b>77.5</b>	<b>75.3</b>	<b>68.9</b>	▼ -6.4	▼ -5.3
<b>Net LNG Exports</b>	<b>3.1</b>	<b>6.2</b>	<b>6.7</b>	<b>4.0</b>	<b>3.3</b>	<b>4.0</b>	<b>5.8</b>	▲ 1.7	▼ -0.4
<b>Total Mexican Exports</b>	<b>5.1</b>	<b>5.4</b>	<b>4.9</b>	<b>5.7</b>	<b>6.1</b>	<b>6.3</b>	<b>6.4</b>	▲ 0.1	▲ 1.0
<b>Implied Daily Storage Activity</b>	<b>10.3</b>	<b>12.4</b>	<b>12.6</b>	<b>10.2</b>	<b>4.1</b>	<b>6.1</b>	<b>9.7</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

Source: Bloomberg, analytix.ai

## Regional S/D Models Storage Projection

Week Ending 18-Sep

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	8.2	1.6	9.9	69
East	1.8	1.5	3.3	23
Midwest	3.4	0.4	3.7	26
Mountain	3.7	-2.7	0.9	6
South Central	-1.4	3.0	1.6	11
Pacific	0.8	-0.5	0.3	2

\*Adjustment Factor is calculated based on historical regional deltas

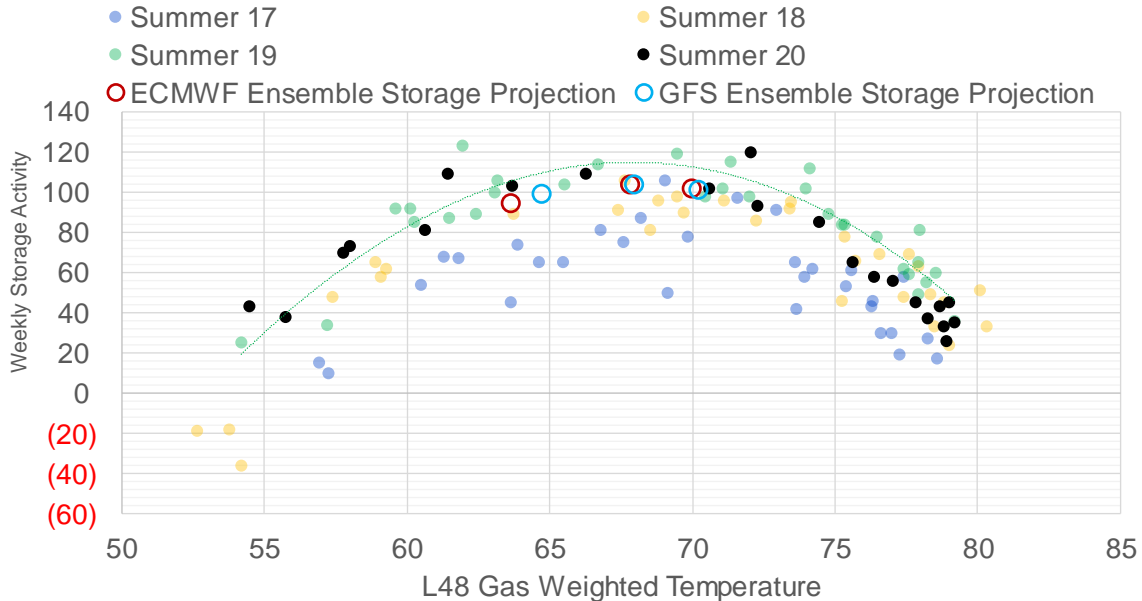
U.S. underground natural gas storage facilities by type (July 2015)



## Weather Model Storage Projection

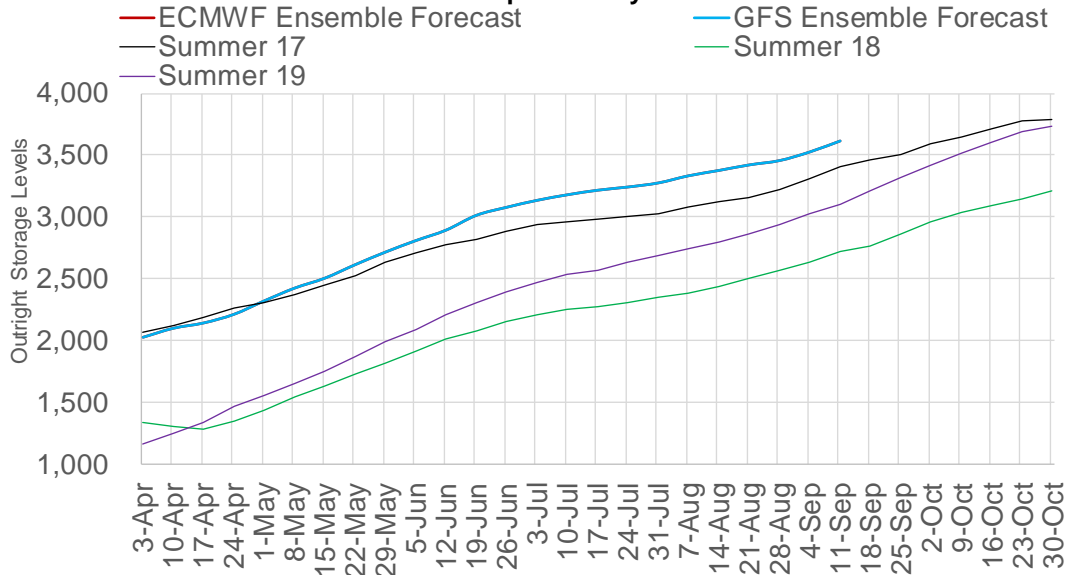
Next report and beyond	
Week Ending	Week Storage Projection
25-Sep	104
2-Oct	102
9-Oct	97

### Weather Storage Model - Next 4 Week Forecast



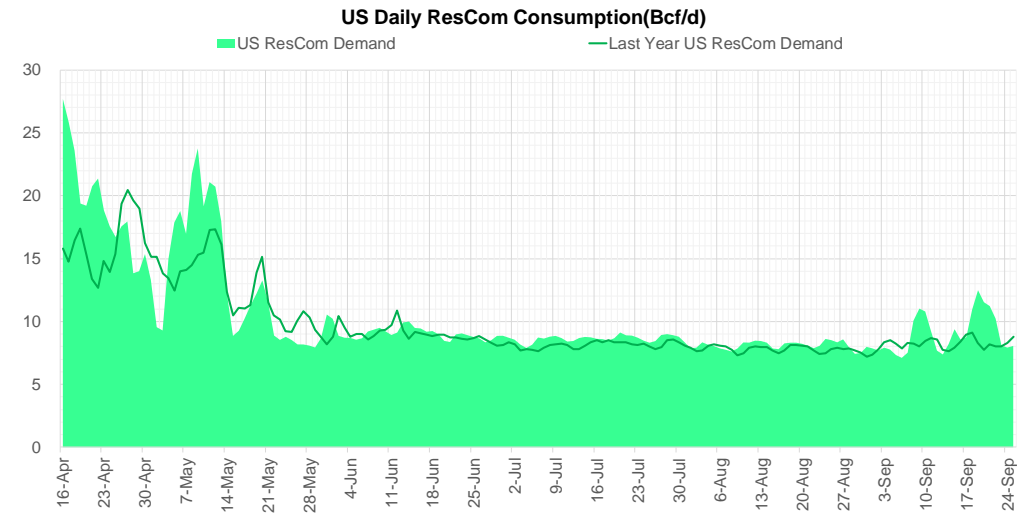
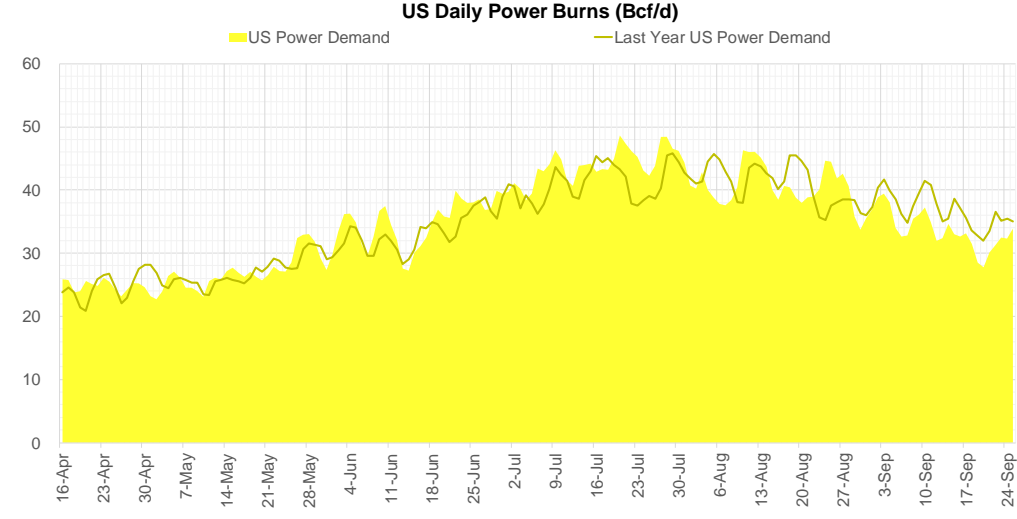
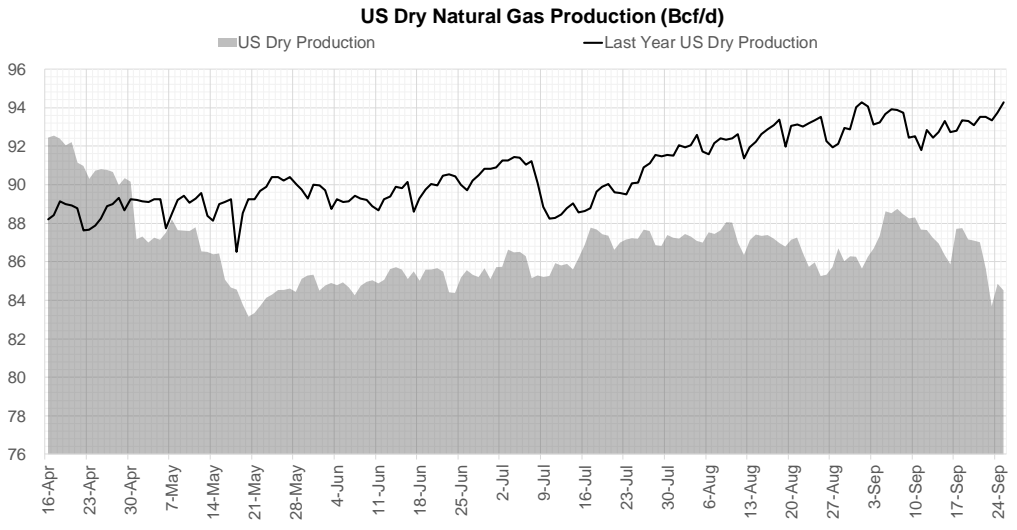
### Weather Based End of Winter Projection (Bcf)

10Y normals past 15 day forecast window



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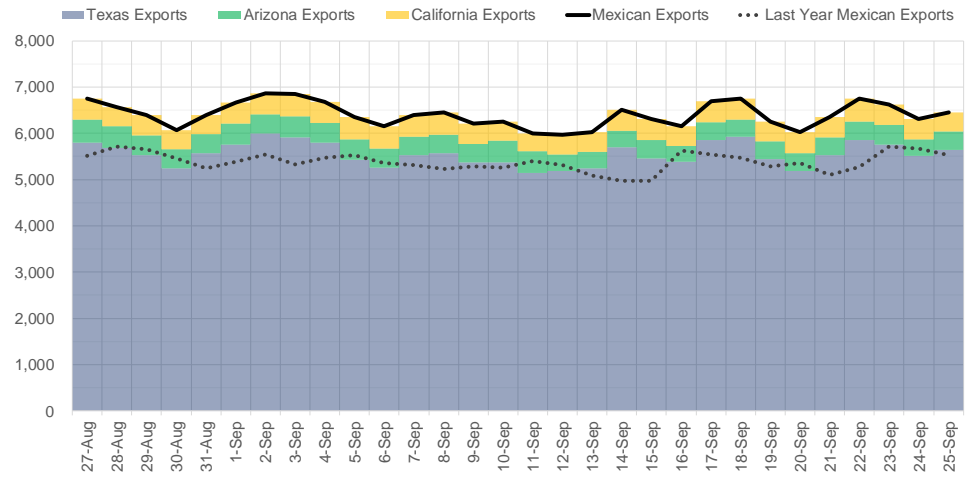
## Supply – Demand Trends



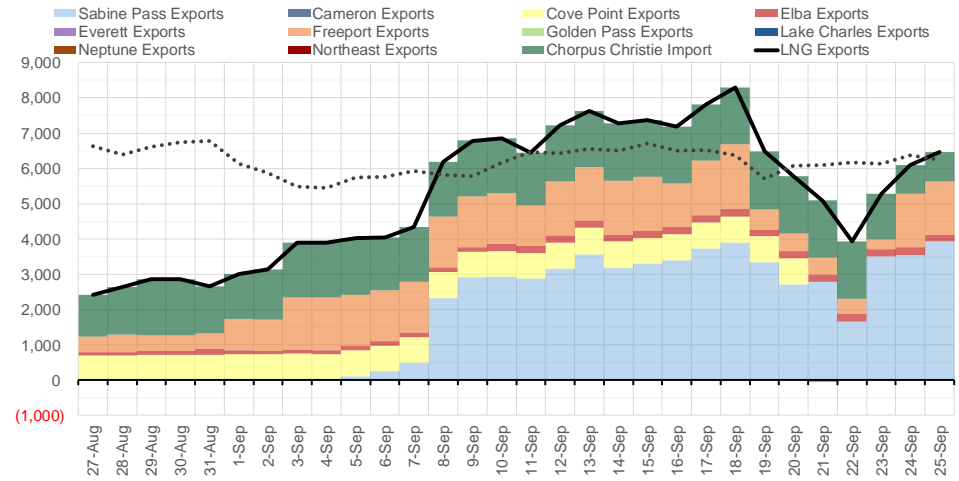
Source: Bloomberg

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**Mexican Exports - Last 30 days (MMcf/d)**



**Net LNG Exports - Last 30 days (MMcf/d)**



Source: Bloomberg

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## 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	P	2.00	10743	10	2020	C	2.75	50073
10	2020	C	2.25	8994	10	2020	C	3.00	48326
10	2020	P	2.10	7935	10	2020	P	2.00	45878
10	2020	C	2.50	5723	10	2020	P	1.50	42161
12	2020	C	4.00	5335	10	2020	P	1.75	38187
10	2020	P	1.90	5273	10	2020	P	2.25	37291
11	2020	C	3.50	5016	10	2020	C	2.50	35614
10	2020	C	2.15	4513	10	2020	P	1.60	35553
11	2020	C	4.00	4431	3	2021	P	2.00	33152
10	2020	C	2.30	4368	4	2021	C	5.00	32747
11	2020	P	2.25	3927	11	2020	C	3.50	28908
10	2020	C	2.40	3925	11	2020	C	5.00	28051
10	2020	P	2.15	3850	3	2021	C	3.25	27403
10	2020	C	2.35	3760	11	2020	P	2.00	27250
10	2020	P	2.05	3670	10	2020	P	1.25	27111
10	2020	C	2.10	3620	3	2021	C	4.00	26960
10	2020	C	2.20	3514	10	2020	C	2.25	25420
11	2020	P	2.00	3382	11	2020	P	2.25	24677
11	2020	C	3.25	3140	12	2020	P	2.00	24629
10	2020	P	2.20	2966	10	2020	P	1.80	23961
11	2020	C	3.00	2578	10	2020	P	2.10	23954
1	2021	C	5.00	2562	1	2021	C	3.50	23577
10	2020	P	2.25	2341	3	2021	C	6.00	23510
1	2021	C	3.50	2298	10	2020	C	3.25	23427
3	2021	P	2.25	2208	10	2020	C	2.00	23393
11	2020	C	3.75	2025	10	2020	P	1.90	23199
1	2021	P	3.00	1850	1	2021	C	4.50	23176
2	2021	P	2.25	1825	12	2020	P	2.50	22700
3	2021	C	4.00	1805	10	2020	P	1.00	22550
11	2020	C	2.90	1788	3	2021	C	3.00	22161
1	2021	C	3.00	1780	10	2020	C	2.10	22076
1	2021	P	2.25	1701	10	2020	P	2.20	22014
10	2020	C	2.60	1664	10	2020	P	1.30	20777
5	2021	C	3.25	1575	1	2021	C	5.00	20406
1	2021	C	3.25	1568	11	2020	C	3.00	19630
10	2020	P	1.75	1520	3	2021	C	3.50	19584
1	2021	C	3.75	1503	10	2020	C	2.80	19238
1	2021	P	2.00	1350	10	2020	C	3.50	18823
11	2020	P	2.50	1332	11	2020	C	3.25	18274
12	2020	C	3.25	1251	10	2020	P	1.85	18096
10	2020	P	1.85	1189	11	2020	P	2.50	18055
12	2020	P	2.50	1153	10	2020	C	2.40	17828
11	2020	P	2.30	1147	10	2020	C	2.60	17718
11	2020	C	3.40	1130	2	2021	C	5.00	17247
12	2020	C	5.00	1036	1	2021	C	3.00	16884
10	2020	P	1.80	1033	1	2021	C	3.75	16303
10	2020	P	1.95	1001	12	2020	C	4.00	16190
1	2022	C	4.00	1000	1	2021	P	2.50	16123
11	2020	C	4.90	928	10	2020	C	2.15	16026
					10	2020	P	1.7	15942.25

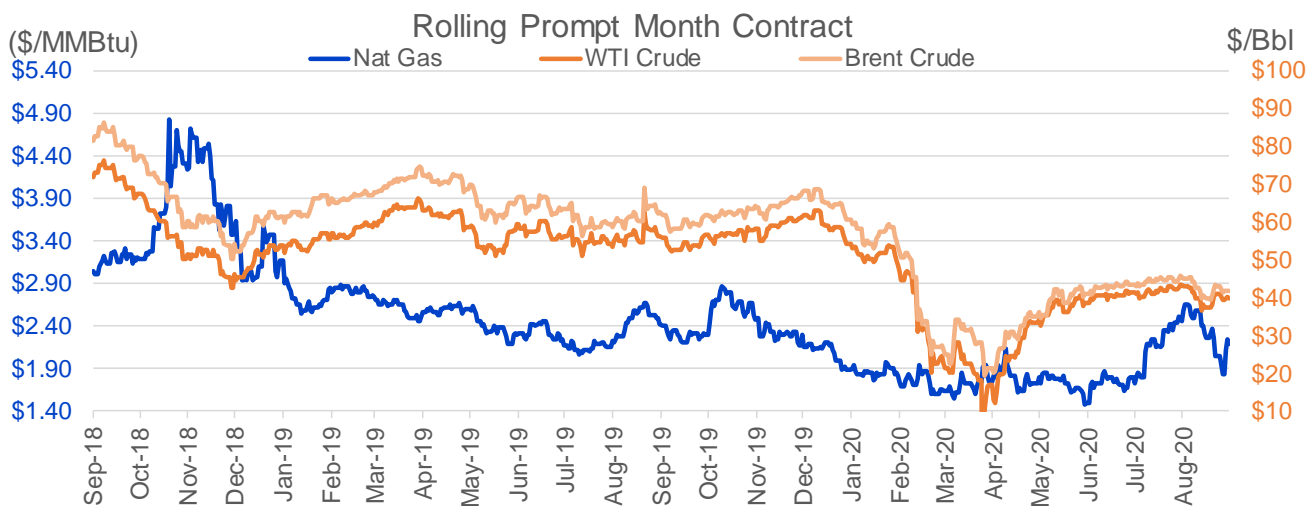
Source: CME, Nasdaq, ICE

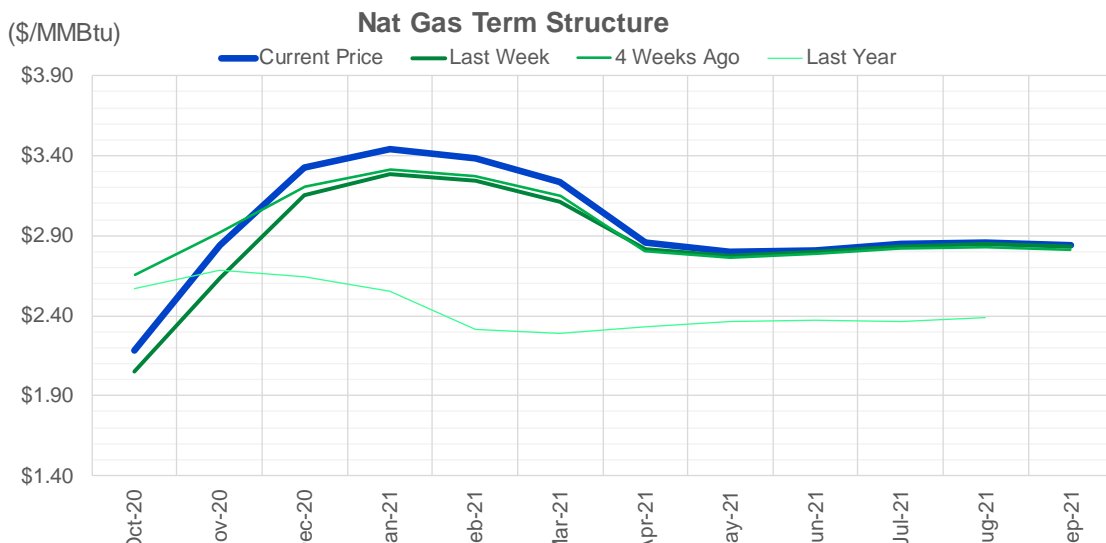


## Nat Gas Futures Open Interest CME, and ICE Combined

CME Henry Hub Futures (10,000 MMBtu)				ICE Henry Hub Futures Contract Equivalent (10,000 MMBtu)			
	Current	Prior	Daily Change	FOR JUNE 26	Current	Prior	Daily Change
OCT 20	13565	20304	-6739	OCT 20	72427	73817	-1390
NOV 20	286024	290923	-4899	NOV 20	82662	83553	-890.75
DEC 20	137085	138272	-1187	DEC 20	77303	77259	44
JAN 21	144402	146920	-2518	JAN 21	87568	87906	-337.25
FEB 21	60070	59001	1069	FEB 21	60617	59893	724.5
MAR 21	120284	120703	-419	MAR 21	79610	80236	-626
APR 21	80429	80945	-516	APR 21	64669	65507	-837.75
MAY 21	47798	44677	3121	MAY 21	57457	56741	715.75
JUN 21	31065	29699	1366	JUN 21	52718	52377	341.25
JUL 21	20111	20380	-269	JUL 21	55179	54898	280.25
AUG 21	25181	24591	590	AUG 21	55268	54610	657.5
SEP 21	32442	31593	849	SEP 21	51856	51486	370.25
OCT 21	75916	75003	913	OCT 21	77884	77294	590
NOV 21	28332	28185	147	NOV 21	44641	44451	189.25
DEC 21	25171	25329	-158	DEC 21	44267	43889	378
JAN 22	25732	26556	-824	JAN 22	37756	37481	275.5
FEB 22	14452	14225	227	FEB 22	32438	32387	50.5
MAR 22	18881	18984	-103	MAR 22	34595	34534	61
APR 22	23081	23050	31	APR 22	35673	35502	171
MAY 22	6818	6821	-3	MAY 22	25480	25310	169.75
JUN 22	3857	3856	1	JUN 22	24103	23922	180.5
JUL 22	3392	3303	89	JUL 22	25520	25333	187.25
AUG 22	2264	2181	83	AUG 22	24452	24260	192.5
SEP 22	2188	2151	37	SEP 22	23455	23264	190.25
OCT 22	3555	3521	34	OCT 22	25388	25136	252
NOV 22	2662	2662	0	NOV 22	22891	22772	118.5
DEC 22	2820	2670	150	DEC 22	25004	24837	166.75
JAN 23	2822	2812	10	JAN 23	12665	12647	18.5
FEB 23	885	875	10	FEB 23	12062	12038	24
MAR 23	911	911	0	MAR 23	12143	12015	128.75

Source: CME, ICE





	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21
<b>Current Price</b>	<b>\$2.185</b>	<b>\$2.838</b>	<b>\$3.327</b>	<b>\$3.441</b>	<b>\$3.386</b>	<b>\$3.232</b>	<b>\$2.857</b>	<b>\$2.798</b>	<b>\$2.811</b>	<b>\$2.848</b>	<b>\$2.857</b>	<b>\$2.841</b>
Last Week	\$2.048	\$2.633	\$3.154	\$3.285	\$3.242	\$3.116	\$2.813	\$2.771	\$2.798	\$2.834	\$2.845	\$2.833
vs. Last Week	\$0.137	\$0.205	\$0.173	\$0.156	\$0.144	\$0.116	\$0.044	\$0.027	\$0.013	\$0.014	\$0.012	\$0.008
4 Weeks Ago	\$2.657	\$2.916	\$3.208	\$3.316	\$3.271	\$3.146	\$2.807	\$2.761	\$2.786	\$2.818	\$2.826	\$2.813
vs. 4 Weeks Ago	-\$0.472	-\$0.078	\$0.119	\$0.125	\$0.115	\$0.086	\$0.050	\$0.037	\$0.025	\$0.030	\$0.031	\$0.028
Last Year	\$2.404	\$2.565	\$2.681	\$2.646	\$2.552	\$2.312	\$2.289	\$2.326	\$2.366	\$2.374	\$2.359	\$2.388
vs. Last Year	-\$0.219	\$0.273	\$0.646	\$0.795	\$0.834	\$0.920	\$0.568	\$0.472	\$0.445	\$0.474	\$0.498	\$0.453

	Units	Cash Settled	Prompt Settle	Cash to Prompt
AGT Citygate	\$/MMBtu	1.65	1.53	-0.12
TETCO M3	\$/MMBtu	1.00	0.96	-0.04
FGT Zone 3	\$/MMBtu	1.36	2.09	0.73
Zone 6 NY	\$/MMBtu	1.36	0.89	-0.47
Chicago Citygate	\$/MMBtu	1.89	1.83	-0.07
Michcon	\$/MMBtu	1.76	1.79	0.03
Columbia TCO Pool	\$/MMBtu	1.34	1.33	-0.01
Ventura	\$/MMBtu	1.87	1.80	-0.07
Rockies/Opal	\$/MMBtu	2.16	1.73	-0.43
El Paso Permian Basin	\$/MMBtu	1.44	1.38	-0.06
Socal Citygate	\$/MMBtu	3.00	1.98	-1.02
Malin	\$/MMBtu	2.45	1.97	-0.48
Houston Ship Channel	\$/MMBtu	1.98	2.07	0.09
Henry Hub Cash	\$/MMBtu	1.93	1.83	-0.10
AECO Cash	C\$/GJ	1.81	1.59	-0.22
Station2 Cash	C\$/GJ	1.82	2.05	0.23
Dawn Cash	C\$/GJ	1.88	1.72	-0.16

Source: CME, Bloomberg

	Units	Current Price	vs. Last Week	vs. 4 Weeks		vs. Last Year
				Ago		
NatGas Jan/Apr	\$/MMBtu	-0.58	▼ -0.112	▼ -0.075	▼ -0.158	
NatGas Mar/Apr	\$/MMBtu	-0.375	▼ -0.072	▼ -0.714	▼ -0.642	
NatGas Oct/Nov	\$/MMBtu	0.65	▲ 0.068	▲ 0.394	▲ 0.587	
NatGas Oct/Jan	\$/MMBtu	1.26	▲ 0.019	▲ 0.597	▲ 0.909	
WTI Crude	\$/Bbl	39.99	▼ -1.120	▼ -2.980	▼ -15.920	
Brent Crude	\$/Bbl	41.78	▼ -1.370	▼ -3.270	▼ -20.130	
Fuel Oil, NY Harbour 1%	\$/Bbl	98.03	▲ 0.000	▲ 0.000	▲ 0.000	
Heating Oil	cents/Gallon	111.44	▼ -4.460	▼ -10.180	▼ -82.720	
Propane, Mt. Bel	cents/Gallon	0.49	▼ -0.004	▼ -0.013	▲ 0.043	
Ethane, Mt. Bel	cents/Gallon	0.20	▲ 0.002	▼ -0.041	▼ -0.012	
Coal, PRB	\$/MTon	12.30	▲ 0.000	▲ 0.000	▲ 0.100	
Coal, ILB	\$/MTon	31.05	▲ 0.000	▲ 0.000	▼ -4.500	