

	Current	Δ from YD	Δ from 7D Avg
Nat Gas Prompt	\$ 1.70	▼ \$ (0.01)	▼ \$ (0.02)

	Current	Δ from YD	Δ from 7D Avg
WTI Prompt	\$ 31.96	▼ \$ (1.96)	▲ \$ 0.5

	Current	Δ from YD	Δ from 7D Avg
Brent Prompt	\$ 34.30	▼ \$ (1.76)	▲ \$ 0.2

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- [Supply – Demand Trends](#)
- [Nat Gas Options Volume and Open Interest](#)
- [Nat Gas Futures Open Interest](#)
- [Price Summary](#)

### 00z GWDD Change

Cooler Change

Warmer Change

ECMWF Ensemble 00z	1-5 Day	6-10 Day	11-15 Day	Total
12 Hr Chg	1.3	1.9	0.9	4.0
24 Hr Chg	-0.3	-0.7	-1.1	-2.2

GFS Ensemble 00z	1-5 Day	6-10 Day	11-15 Day	Total
12 Hr Chg	1.7	0.7	1.4	3.8
24 Hr Chg	2.6	5.2	-3.1	4.7

	Current	Δ from YD	Δ from 7D Avg
US Dry Production	82.7	▼ -0.01	▼ -0.86

	Current	Δ from YD	Δ from 7D Avg
US Power Burns	27.0	▲ 0.40	▲ 0.54

	Current	Δ from YD	Δ from 7D Avg
US ResComm	9.6	▼ -1.96	▼ -1.36

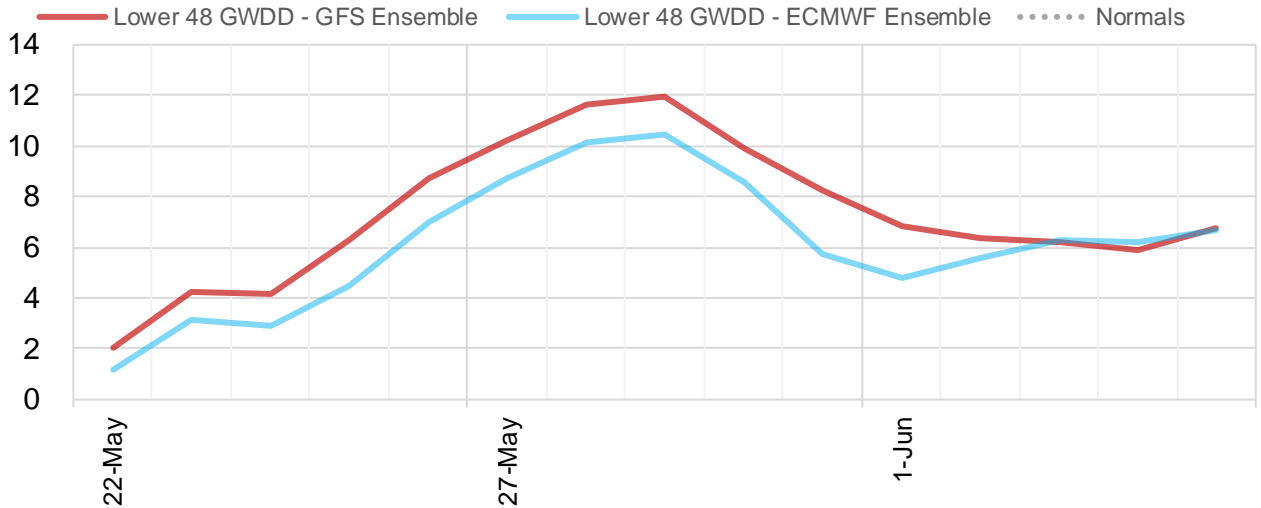
	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	3.7	▼ -0.53	▼ -0.38

	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	5.8	▼ -0.07	▼ -0.47

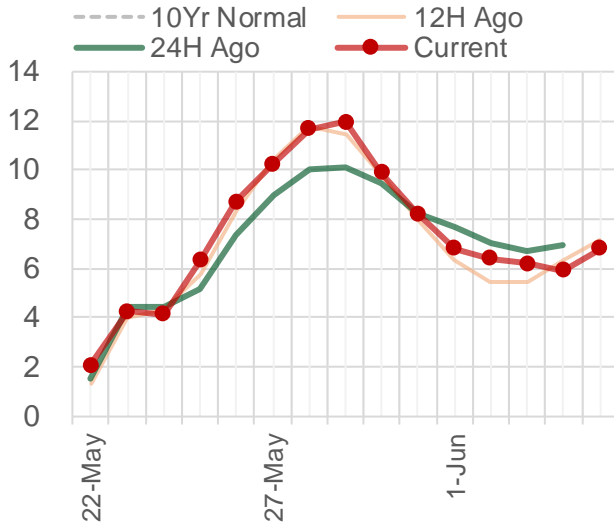
	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	5.4	▼ -0.22	▲ 0.32

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

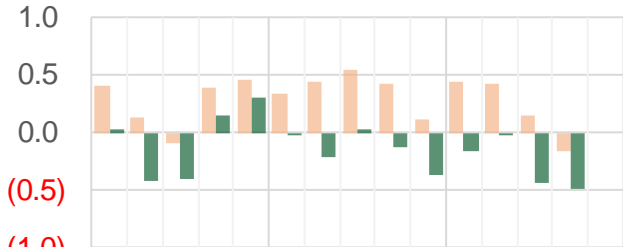
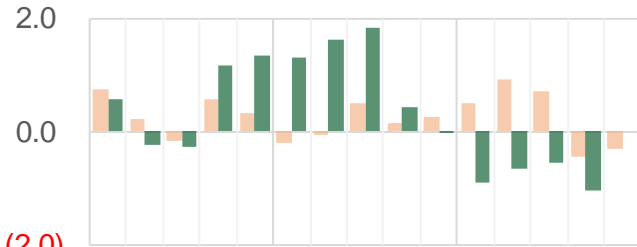
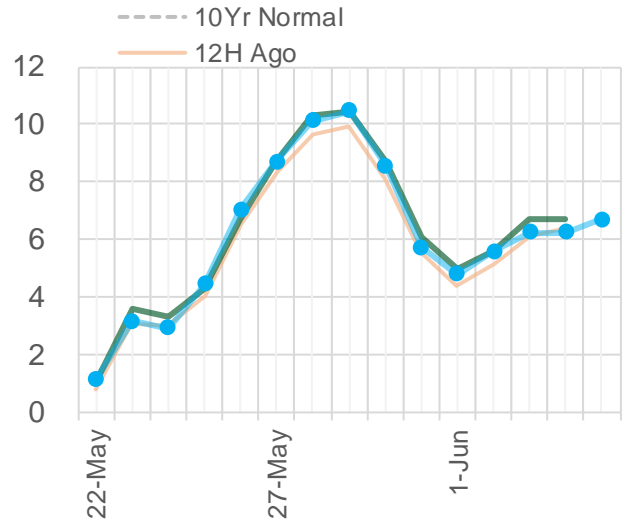
Lower 48 TDD Forecast



Lower 48 GWDD - GFS Ensemble



Lower 48 GWDD - ECMWF Ensemble



Source: WSI, Bloomberg

### Lower 48 Component Models

#### Daily Balances

	16-May	17-May	18-May	19-May	20-May	21-May	22-May	DoD	vs. 7D
<b>Lower 48 Dry Production</b>	<b>84.1</b>	<b>83.6</b>	<b>83.5</b>	<b>83.0</b>	<b>82.3</b>	<b>82.7</b>	<b>82.7</b>	▼ 0.0	▼ -0.5
<b>Canadian Imports</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.1</b>	<b>4.2</b>	<b>4.2</b>	<b>3.7</b>	▼ -0.5	▼ -0.4
L48 Power	26.7	26.3	26.8	26.0	25.6	26.7	27.0	▲ 0.4	▲ 0.7
L48 Residential & Commercial	9.2	10.2	11.3	12.2	13.3	11.5	9.6	▼ -2.0	▼ -1.7
L48 Industrial	17.4	17.9	18.3	18.5	18.5	18.5	18.3	▼ -0.2	▲ 0.1
L48 Lease and Plant Fuel	4.7	4.7	4.7	4.6	4.6	4.6	4.6	▼ 0.0	▼ 0.0
L48 Pipeline Distribution	1.8	1.8	1.9	1.9	1.9	1.9	1.8	▼ -0.1	▼ -0.1
<b>L48 Regional Gas Consumption</b>	<b>59.8</b>	<b>60.9</b>	<b>63.0</b>	<b>63.3</b>	<b>63.9</b>	<b>63.2</b>	<b>61.3</b>	▼ -1.8	▼ -1.0
<b>Net LNG Exports</b>	<b>6.5</b>	<b>6.4</b>	<b>6.4</b>	<b>6.2</b>	<b>6.0</b>	<b>5.9</b>	<b>5.8</b>	▼ -0.1	▼ -0.4
<b>Total Mexican Exports</b>	<b>4.6</b>	<b>4.6</b>	<b>4.9</b>	<b>5.6</b>	<b>5.5</b>	<b>5.6</b>	<b>5.4</b>	▼ -0.2	▲ 0.2
<b>Implied Daily Storage Activity</b>	<b>17.3</b>	<b>15.7</b>	<b>13.3</b>	<b>12.0</b>	<b>11.0</b>	<b>12.3</b>	<b>13.9</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

#### EIA Storage Week Balances

	17-Apr	24-Apr	1-May	8-May	15-May	22-May	WoW	vs. 4W
<b>Lower 48 Dry Production</b>	<b>91.4</b>	<b>90.8</b>	<b>89.7</b>	<b>86.5</b>	<b>86.1</b>	<b>83.5</b>	▼ -2.6	▼ -4.8
<b>Canadian Imports</b>	<b>4.4</b>	<b>3.9</b>	<b>3.4</b>	<b>3.6</b>	<b>4.0</b>	<b>4.1</b>	▲ 0.1	▲ 0.4
L48 Power	25.5	24.9	24.5	24.5	24.8	26.5	▲ 1.7	▲ 1.9
L48 Residential & Commercial	26.1	22.7	17.0	14.7	19.5	10.9	▼ -8.6	▼ -7.6
L48 Industrial	18.7	18.3	18.3	18.0	16.5	18.0	▲ 1.5	▲ 0.2
L48 Lease and Plant Fuel	5.2	5.1	5.1	4.8	4.8	4.7	▼ -0.1	▼ -0.3
L48 Pipeline Distribution	2.5	2.3	2.0	1.9	2.2	1.9	▼ -0.3	▼ -0.3
<b>L48 Regional Gas Consumption</b>	<b>77.9</b>	<b>73.3</b>	<b>66.9</b>	<b>64.0</b>	<b>67.9</b>	<b>61.9</b>	▼ -5.9	▼ -6.1
<b>Net LNG Exports</b>	<b>8.6</b>	<b>8.1</b>	<b>7.5</b>	<b>7.7</b>	<b>6.9</b>	<b>6.3</b>	▼ -0.7	▼ -1.3
<b>Total Mexican Exports</b>	<b>4.8</b>	<b>5.0</b>	<b>4.8</b>	<b>4.7</b>	<b>4.7</b>	<b>5.0</b>	▲ 0.3	▲ 0.2
<b>Implied Daily Storage Activity</b>	<b>4.5</b>	<b>8.3</b>	<b>13.8</b>	<b>13.7</b>	<b>10.6</b>	<b>14.4</b>	<b>3.8</b>	
<b>EIA Reported Daily Storage Activity</b>	<b>6.1</b>	<b>10.0</b>	<b>15.6</b>	<b>14.7</b>	<b>11.6</b>			
<b>Daily Model Error</b>	<b>-1.7</b>	<b>-1.7</b>	<b>-1.8</b>	<b>-1.0</b>	<b>-1.0</b>			

#### Monthly Balances

	2Yr Ago May-18	LY May-19	Jan-20	Feb-20	Mar-20	Apr-20	MTD May-20	MoM	vs. LY
<b>Lower 48 Dry Production</b>	<b>81.2</b>	<b>89.1</b>	<b>92.6</b>	<b>91.9</b>	<b>91.8</b>	<b>91.0</b>	<b>85.3</b>	▼ -5.7	▼ -3.9
<b>Canadian Imports</b>	<b>5.8</b>	<b>4.7</b>	<b>4.8</b>	<b>5.3</b>	<b>4.1</b>	<b>3.9</b>	<b>3.9</b>	▼ 0.0	▼ -0.8
L48 Power	27.3	26.9	30.0	29.9	27.4	25.3	25.3	▲ 0.0	▼ -1.6
L48 Residential & Commercial	10.6	12.8	41.4	40.5	27.9	21.8	14.8	▼ -7.0	▲ 2.1
L48 Industrial	21.7	22.8	24.1	24.7	22.2	18.7	17.5	▼ -1.2	▼ -5.2
L48 Lease and Plant Fuel	4.6	4.9	5.1	5.1	5.2	5.1	4.8	▼ -0.4	▼ -0.2
L48 Pipeline Distribution	1.6	1.8	3.0	3.0	2.4	2.3	2.0	▼ -0.3	▲ 0.2
<b>L48 Regional Gas Consumption</b>	<b>65.8</b>	<b>69.1</b>	<b>103.6</b>	<b>103.2</b>	<b>85.1</b>	<b>73.2</b>	<b>64.4</b>	▼ -8.8	▼ -4.7
<b>Net LNG Exports</b>	<b>3.1</b>	<b>5.6</b>	<b>8.3</b>	<b>8.5</b>	<b>8.5</b>	<b>8.2</b>	<b>6.9</b>	▼ -1.3	▲ 1.3
<b>Total Mexican Exports</b>	<b>4.4</b>	<b>5.1</b>	<b>5.2</b>	<b>5.3</b>	<b>5.6</b>	<b>4.9</b>	<b>4.8</b>	▼ -0.1	▼ -0.2
<b>Implied Daily Storage Activity</b>	<b>13.6</b>	<b>13.9</b>	<b>-19.7</b>	<b>-19.8</b>	<b>-3.3</b>	<b>8.5</b>	<b>12.9</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 22-May

	Daily Raw Storage	Daily Adjustment Factor	Daily Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	14.1	1.4	15.5	108
East	2.3	2.8	5.2	36
Midwest	3.7	0.8	4.5	32
Mountain	3.0	-1.7	1.3	9
South Central	2.7	0.1	2.8	19
Pacific	2.3	-0.6	1.7	12

\*Adjustment Factor is calculated based on historical regional deltas

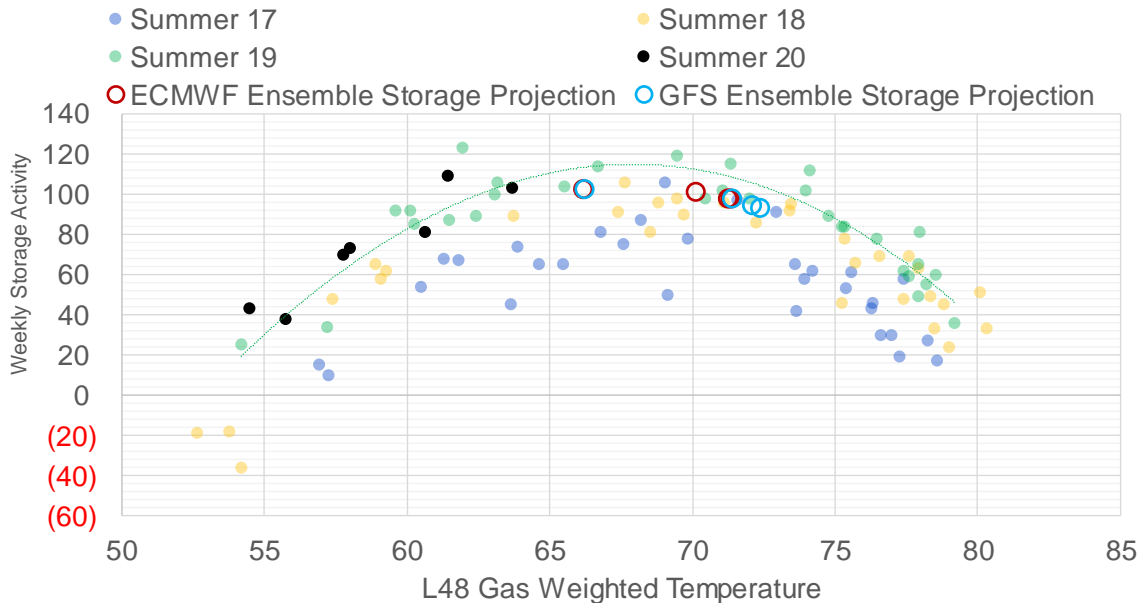
U.S. underground natural gas storage facilities by type (July 2015)



### Weather Model Storage Projection

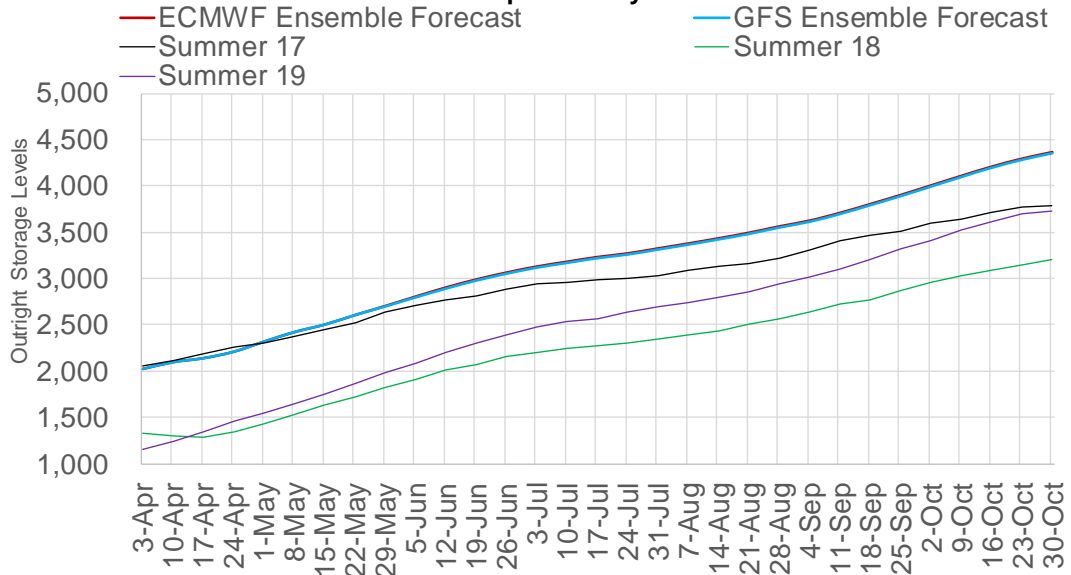
Week Ending	Week Storage Projection
22-May	103
29-May	96
5-Jun	100
12-Jun	96

### Weather Storage Model - Next 4 Week Forecast



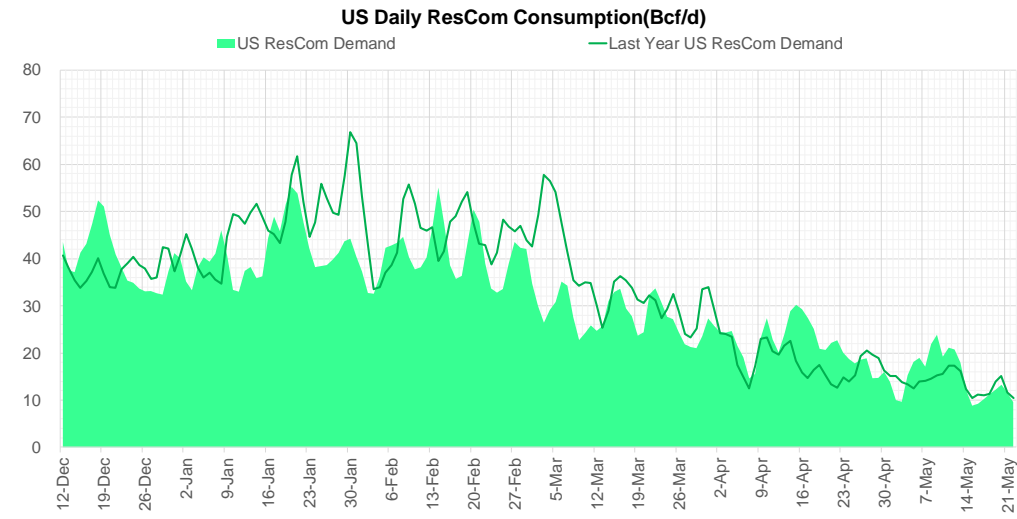
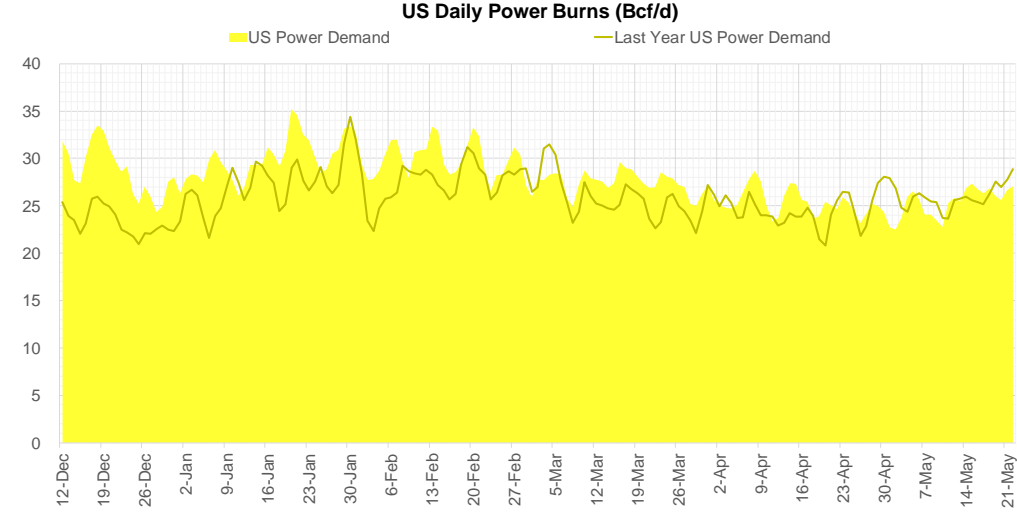
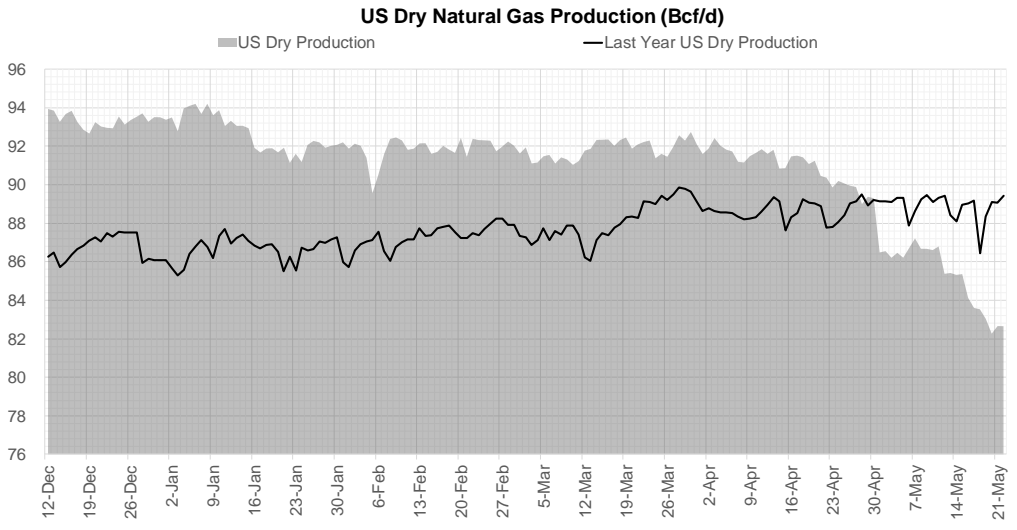
### Weather Based End of Winter Projection (Bcf)

10Y normals past 15 day forecast window



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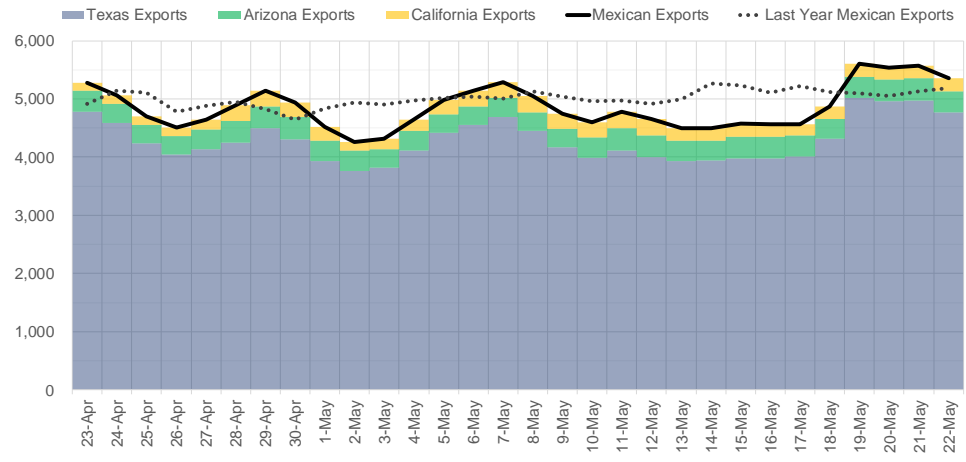
## Supply – Demand Trends



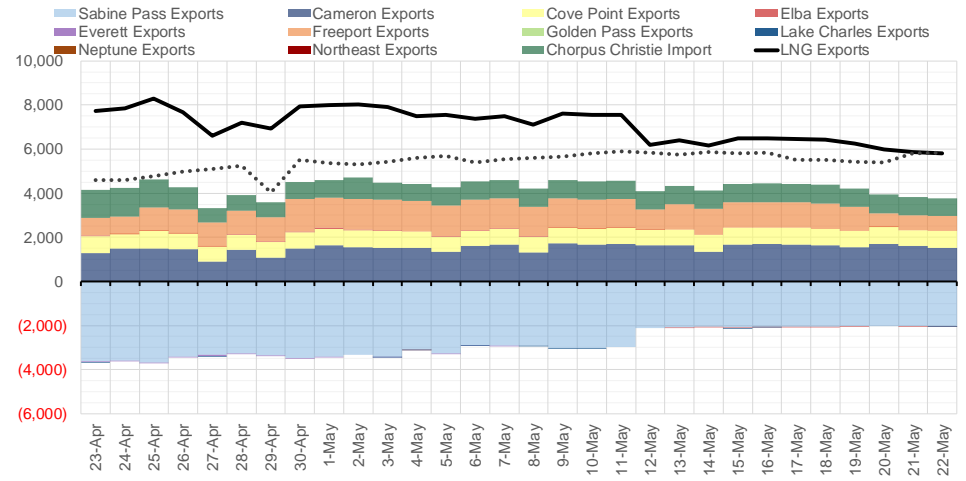
Source: Bloomberg

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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
6	2020	P	1.60	7086	6	2020	P	1.25	39906
6	2020	P	1.70	6030	10	2020	C	3.00	38825
6	2020	P	1.40	4735	6	2020	C	2.50	37255
7	2020	P	1.50	4108	10	2020	P	1.50	35928
7	2020	P	1.40	3940	6	2020	P	1.50	35064
8	2020	P	1.25	3338	6	2020	C	2.25	34679
10	2020	P	1.50	3227	3	2021	P	2.00	33093
8	2020	P	1.40	3154	10	2020	C	2.75	31184
6	2020	P	1.50	2803	7	2020	P	1.50	30923
7	2020	P	1.75	2602	6	2020	C	2.00	30025
6	2020	C	1.75	2561	10	2020	P	1.60	29869
6	2020	C	1.80	2493	10	2020	P	2.00	28696
6	2020	P	1.65	2351	6	2020	P	1.75	28611
7	2020	C	1.85	2338	7	2020	C	3.00	26139
6	2020	C	2.00	2323	6	2020	P	2.00	25370
10	2020	C	2.75	2295	9	2020	C	2.50	25301
6	2020	P	1.90	2228	7	2020	P	1.75	24566
5	2021	C	3.25	2200	7	2020	C	2.50	23516
10	2020	C	2.20	2160	10	2020	C	2.50	22613
11	2020	C	2.50	2154	9	2020	P	1.50	22260
7	2020	C	2.50	2071	10	2020	P	1.25	21533
8	2020	C	2.50	1959	9	2020	C	2.75	21443
7	2020	C	2.25	1928	6	2020	C	3.00	21358
6	2020	C	1.90	1901	7	2020	P	2.00	20767
7	2020	C	2.75	1844	6	2020	P	1.60	20425
10	2020	C	2.40	1754	10	2020	P	1.75	19760
6	2020	P	1.55	1463	1	2021	C	3.00	19622
7	2020	P	1.25	1448	7	2020	C	2.25	19362
6	2020	P	1.80	1426	6	2020	P	1.70	19211
8	2020	P	1.90	1317	8	2020	C	3.00	18920
6	2020	C	2.25	1220	1	2021	C	3.50	18867
7	2020	P	1.60	1208	7	2020	C	2.75	18713
10	2020	P	1.60	1203	8	2020	P	1.50	18327
7	2020	C	2.00	1151	7	2020	C	2.30	18264
9	2020	C	2.00	1102	10	2020	P	2.10	17892
10	2020	C	2.50	1101	11	2020	C	4.00	17814
5	2021	C	2.75	1100	9	2020	C	3.00	17439
7	2020	P	1.65	1070	10	2020	C	3.25	17417
6	2020	C	1.85	1046	8	2020	C	2.50	17257
9	2020	C	2.70	1020	10	2020	C	2.25	16795
11	2020	C	4.00	1001	6	2020	P	1.00	16758
12	2020	C	3.25	950	6	2020	P	1.40	16588
12	2020	C	4.00	950	4	2021	C	3.00	16319
6	2020	P	1.75	879	9	2020	C	2.25	15674
10	2020	P	2.00	863	8	2020	C	2.75	15265
6	2020	P	1.35	854	7	2020	P	1.25	15044
10	2020	P	1.90	816	6	2020	C	2.75	14552
7	2020	P	1.80	708	3	2021	C	3.00	14398
6	2020	C	1.70	675	3	2021	C	3.50	14243
					10	2020	P	1	14239

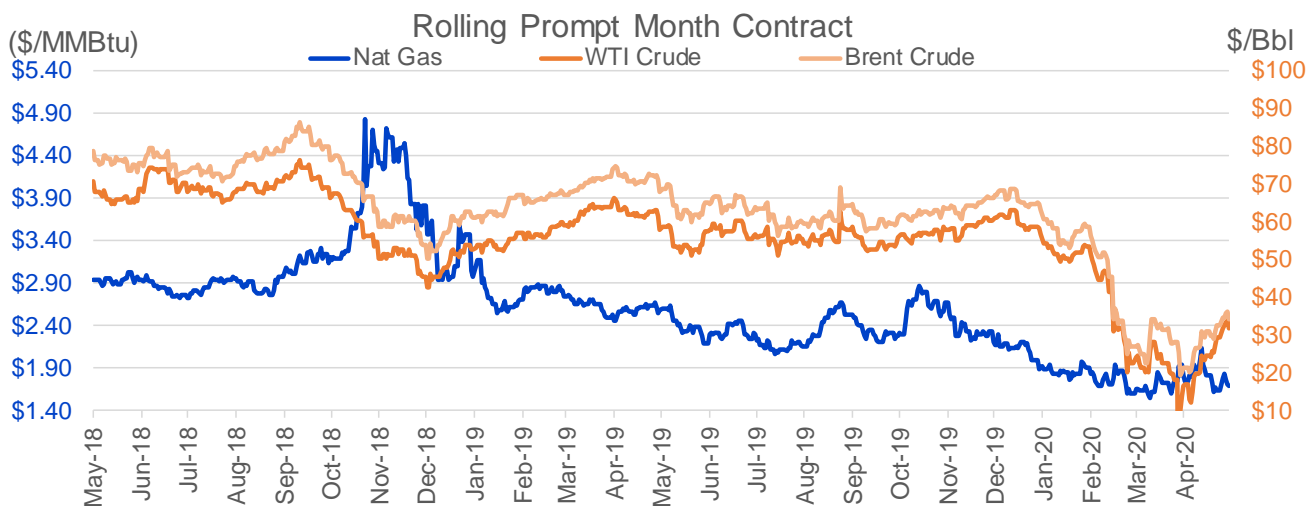
Source: CME, Nasdaq, ICE

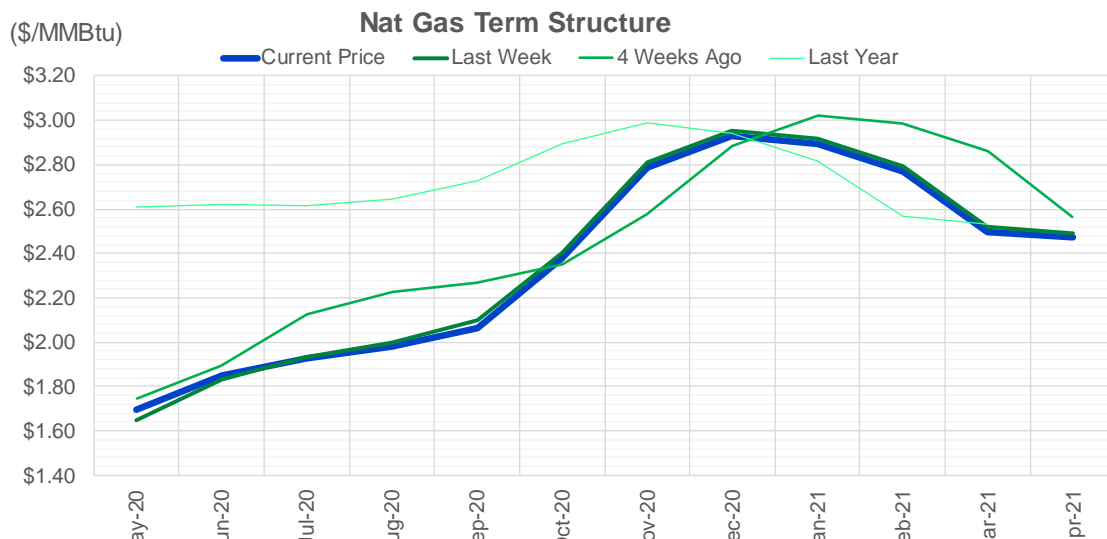


## Nat Gas Futures Open Interest CME, ICE and Nasdaq Combined

CME Henry Hub Futures (10,000 MMBtu)			ICE Henry Hub Futures Contract Equivalent (10,000 MM)			NASDAQ Henry Hub Futures (10,000 MMBtu)					
	Current	Prior	Daily Change		Current	Prior	Daily Change		Current	Prior	Daily Change
JUN 20	27990	35819	-7829	JUN 20	64760	68997	-4236.5	JUN 20	81	81	0
JUL 20	352985	337877	15108	JUL 20	82235	82324	-88.75	JUL 20	80	80	0
AUG 20	72658	70263	2395	AUG 20	68773	67574	1198.75	AUG 20	280	280	0
SEP 20	144988	141055	3933	SEP 20	65560	65316	243.75	SEP 20	81	81	0
OCT 20	101923	101555	368	OCT 20	74976	74282	693.5	OCT 20	760	760	0
NOV 20	44279	44350	-71	NOV 20	59447	58496	951	NOV 20	631	631	0
DEC 20	58262	59302	-1040	DEC 20	57331	57130	200.75	DEC 20	132	132	0
JAN 21	94414	92460	1954	JAN 21	68901	69534	-633	JAN 21	151	151	0
FEB 21	34675	34307	368	FEB 21	43289	43121	167.75	FEB 21	23	23	0
MAR 21	62672	60745	1927	MAR 21	58319	58265	54	MAR 21	1101	1101	0
APR 21	70425	69591	834	APR 21	51148	51753	-604.25	APR 21	775	775	0
MAY 21	26034	26559	-525	MAY 21	44592	44581	10.75	MAY 21	41	41	0
JUN 21	16656	16995	-339	JUN 21	41078	40713	365.5	JUN 21	40	40	0
JUL 21	12077	11981	96	JUL 21	42793	42480	313.25	JUL 21	41	41	0
AUG 21	10263	10238	25	AUG 21	43088	43022	66.25	AUG 21	41	41	0
SEP 21	11612	11549	63	SEP 21	40660	40412	247.75	SEP 21	40	40	0
OCT 21	23919	23875	44	OCT 21	52114	51870	244.25	OCT 21	326	326	0
NOV 21	16507	16125	382	NOV 21	35725	35434	290.5	NOV 21	405	405	0
DEC 21	13367	13120	247	DEC 21	36261	36199	62	DEC 21	5	5	0
JAN 22	11603	11596	7	JAN 22	27433	27437	-4.5	JAN 22	36	36	0
FEB 22	6186	6067	119	FEB 22	24284	24278	5.75	FEB 22	33	33	0
MAR 22	13542	13477	65	MAR 22	26488	26382	106.25	MAR 22	900	900	0
APR 22	10945	10965	-20	APR 22	22606	22535	70.5	APR 22	1035	1035	0
MAY 22	4341	4504	-163	MAY 22	20809	20838	-29	MAY 22	36	36	0
JUN 22	2051	2051	0	JUN 22	20322	20269	52.5	JUN 22	35	35	0
JUL 22	1801	1801	0	JUL 22	21072	21072	0	JUL 22	36	36	0
AUG 22	1255	1255	0	AUG 22	20314	20299	15.5	AUG 22	36	36	0
SEP 22	1320	1320	0	SEP 22	20215	20200	15	SEP 22	35	35	0
OCT 22	1890	1890	0	OCT 22	22765	22779	-13.75	OCT 22	479	479	0
NOV 22	1357	1357	0	NOV 22	18540	18487	52.5	NOV 22	35	35	0

Source: CME, Nasdaq, ICE





	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21
<b>Current Price</b>	<b>\$1.699</b>	<b>\$1.849</b>	<b>\$1.925</b>	<b>\$1.978</b>	<b>\$2.061</b>	<b>\$2.375</b>	<b>\$2.788</b>	<b>\$2.930</b>	<b>\$2.895</b>	<b>\$2.771</b>	<b>\$2.499</b>	<b>\$2.473</b>
Last Week	\$1.646	\$1.833	\$1.935	\$2.000	\$2.098	\$2.402	\$2.808	\$2.955	\$2.915	\$2.793	\$2.519	\$2.492
vs. Last Week	\$0.053	\$0.016	-\$0.010	-\$0.022	-\$0.037	-\$0.027	-\$0.020	-\$0.025	-\$0.020	-\$0.022	-\$0.020	-\$0.019
4 Weeks Ago	\$1.746	\$1.895	\$2.128	\$2.224	\$2.268	\$2.350	\$2.574	\$2.883	\$3.022	\$2.987	\$2.862	\$2.562
vs. 4 Weeks Ago	-\$0.047	-\$0.046	-\$0.203	-\$0.246	-\$0.207	\$0.025	\$0.214	\$0.047	-\$0.127	-\$0.216	-\$0.363	-\$0.089
Last Year	\$2.598	\$2.611	\$2.621	\$2.615	\$2.647	\$2.726	\$2.894	\$2.987	\$2.942	\$2.817	\$2.569	\$2.535
vs. Last Year	-\$0.899	-\$0.762	-\$0.696	-\$0.637	-\$0.586	-\$0.351	-\$0.106	-\$0.057	-\$0.047	-\$0.046	-\$0.070	-\$0.062

	Units	Cash Settled	Prompt Settle	Cash to Prompt
AGT Citygate	\$/MMBtu	1.75	1.37	-0.38
TETCO M3	\$/MMBtu	1.43	1.23	-0.20
FGT Zone 3	\$/MMBtu	1.44	1.66	0.22
Zone 6 NY	\$/MMBtu	1.44	1.30	-0.14
Chicago Citygate	\$/MMBtu	1.75	1.61	-0.14
Michcon	\$/MMBtu	1.72	1.61	-0.11
Columbia TCO Pool	\$/MMBtu	1.68	1.38	-0.30
Ventura	\$/MMBtu	1.65	1.59	-0.06
Rockies/Opal	\$/MMBtu	1.60	1.47	-0.13
El Paso Permian Basin	\$/MMBtu	1.69	1.41	-0.28
Socal Citygate	\$/MMBtu	1.88	1.66	-0.22
Malin	\$/MMBtu	1.68	1.53	-0.15
Houston Ship Channel	\$/MMBtu	1.86	1.60	-0.26
Henry Hub Cash	\$/MMBtu	1.91	1.54	-0.37
AECO Cash	C\$/GJ	1.55	1.39	-0.16
Station2 Cash	C\$/GJ	1.52	1.47	-0.05
Dawn Cash	C\$/GJ	1.72	1.61	-0.11

Source: CME, Bloomberg

	Units	Current Price	vs. Last Week	vs. 4 Weeks		vs. Last Year
				Ago		
NatGas Jan/Apr	\$/MMBtu	-0.52	▲ 0.000	▲ 0.000	▼ -0.135	
NatGas Mar/Apr	\$/MMBtu	0.187	▲ 0.000	▲ 0.000	▼ -0.051	
NatGas Oct/Nov	\$/MMBtu	0.29	▼ -0.006	▲ 0.067	▲ 0.233	
NatGas Oct/Jan	\$/MMBtu	0.80	▼ -0.020	▲ 0.129	▲ 0.498	
WTI Crude	\$/Bbl	33.49	▲ 8.200	▲ 19.710	▼ -27.930	
Brent Crude	\$/Bbl	35.75	▲ 6.560	▲ 15.380	▼ -35.240	
Fuel Oil, NY Harbour 1%	\$/Bbl	98.03	▲ 0.000	▲ 0.000	▲ 0.000	
Heating Oil	cents/Gallon	99.06	▲ 15.920	▲ 25.950	▼ -105.850	
Propane, Mt. Bel	cents/Gallon	0.41	▲ 0.028	▲ 0.082	▼ -0.171	
Ethane, Mt. Bel	cents/Gallon	0.22	▲ 0.009	▲ 0.095	▼ -0.004	
Coal, PRB	\$/MTon	12.30	▲ 0.000	▲ 0.000	▼ -0.050	
Coal, ILB	\$/MTon	31.05	▲ 0.000	▲ 0.000	▼ -10.000	