

	Current	Δ from YD	Δ from 7D Avg
Nat Gas Prompt	\$ 2.46	▲ \$ 0.02	▼ \$ (0.04)

	Current	Δ from YD	Δ from 7D Avg
WTI Prompt	\$ 46.03	▲ \$ 0.51	▲ \$ 0.1

	Current	Δ from YD	Δ from 7D Avg
Brent Prompt	\$ 49.46	▲ \$ 0.60	▲ \$ 0.5

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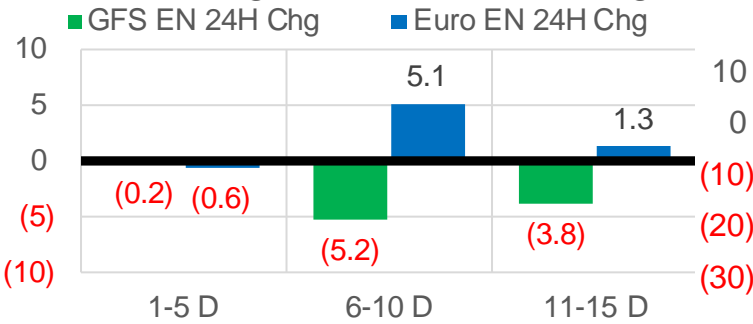
[Supply – Demand Trends](#)

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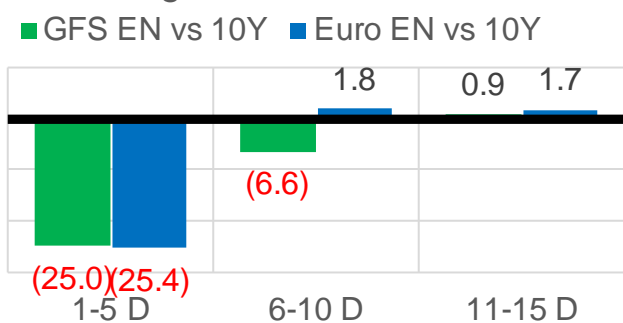
[Nat Gas Futures Open Interest](#)

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L48 Region - 00z TDD vs 24H Ago



L48 Region - 00z TDD vs 10Y N



	Current	Δ from YD	Δ from 7D Avg
US Dry Production	90.8	▼ -0.12	▼ -0.07

	Current	Δ from YD	Δ from 7D Avg
US Power Burns	27.6	▼ -1.32	▼ -0.73

	Current	Δ from YD	Δ from 7D Avg
US ResComm	32.5	▼ -2.70	▼ -5.52

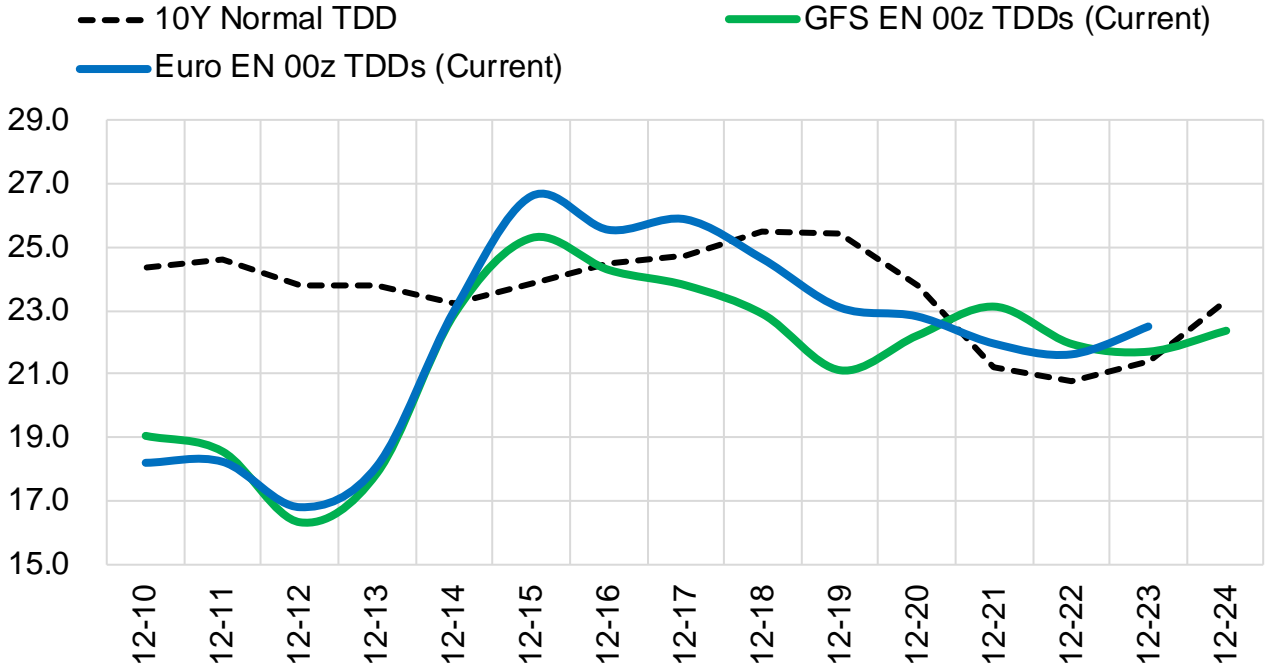
	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	5.5	▼ -0.18	▼ -0.58

	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	11.2	▼ -0.17	▲ 0.06

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	6.4	▼ -0.04	▲ 0.14

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

### L48 Region



Source: WSI , Bloomberg

## Lower 48 Component Models

### Daily Balances

	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec	10-Dec	DoD	vs. 7D
<b>Lower 48 Dry Production</b>	<b>90.6</b>	<b>90.7</b>	<b>90.7</b>	<b>90.8</b>	<b>91.1</b>	<b>90.9</b>	<b>90.8</b>	▼ -0.1	▼ 0.0
<b>Canadian Imports</b>	<b>5.7</b>	<b>5.9</b>	<b>6.2</b>	<b>6.5</b>	<b>6.0</b>	<b>5.6</b>	<b>5.5</b>	▼ -0.2	▼ -0.5
L48 Power	27.6	26.4	26.4	30.3	30.6	28.9	27.6	▼ -1.3	▼ -0.8
L48 Residential & Commercial	34.7	38.3	39.7	40.5	39.4	35.2	32.5	▼ -2.7	▼ -5.5
L48 Industrial	23.2	23.3	23.3	23.5	23.2	22.9	22.8	▼ -0.1	▼ -0.5
L48 Lease and Plant Fuel	5.0	5.0	5.0	5.0	5.1	5.0	5.0	▼ 0.0	▼ 0.0
L48 Pipeline Distribution	2.8	3.0	3.0	3.2	3.2	2.9	2.7	▼ -0.2	▼ -0.3
<b>L48 Regional Gas Consumption</b>	<b>93.5</b>	<b>96.1</b>	<b>97.5</b>	<b>102.5</b>	<b>101.4</b>	<b>94.9</b>	<b>90.6</b>	▼ -4.3	▼ -7.0
<b>Net LNG Delivered</b>	<b>11.28</b>	<b>11.48</b>	<b>11.15</b>	<b>10.99</b>	<b>11.22</b>	<b>11.37</b>	<b>11.20</b>	▼ -0.2	▼ 0.0
<b>Total Mexican Exports</b>	<b>6.3</b>	<b>6.1</b>	<b>6.0</b>	<b>6.2</b>	<b>6.5</b>	<b>6.5</b>	<b>6.4</b>	▼ 0.0	▲ 0.1
<b>Implied Daily Storage Activity</b>	<b>-14.8</b>	<b>-17.1</b>	<b>-17.7</b>	<b>-22.4</b>	<b>-21.9</b>	<b>-16.2</b>	<b>-12.0</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

### EIA Storage Week Balances

	30-Oct	6-Nov	13-Nov	20-Nov	27-Nov	4-Dec	WoW	vs. 4W
<b>Lower 48 Dry Production</b>	<b>87.4</b>	<b>89.6</b>	<b>88.2</b>	<b>90.9</b>	<b>91.6</b>	<b>91.6</b>	▼ -0.1	▲ 1.5
<b>Canadian Imports</b>	<b>4.8</b>	<b>4.9</b>	<b>3.9</b>	<b>5.1</b>	<b>4.5</b>	<b>5.3</b>	▲ 0.8	▲ 0.7
L48 Power	28.0	24.6	24.4	24.7	24.8	26.5	▲ 1.7	▲ 1.8
L48 Residential & Commercial	22.7	23.1	16.8	27.2	26.7	34.4	▲ 7.7	▲ 10.9
L48 Industrial	24.2	23.0	24.0	23.3	21.7	22.9	▲ 1.2	▼ -0.1
L48 Lease and Plant Fuel	4.8	4.9	4.9	5.0	5.1	5.1	▲ 0.0	▲ 0.1
L48 Pipeline Distribution	2.5	2.3	1.9	2.4	2.4	2.8	▲ 0.4	▲ 0.6
<b>L48 Regional Gas Consumption</b>	<b>82.1</b>	<b>78.0</b>	<b>72.0</b>	<b>82.6</b>	<b>80.6</b>	<b>91.6</b>	▲ 11.0	▲ 13.3
<b>Net LNG Exports</b>	<b>9.2</b>	<b>10.2</b>	<b>10.4</b>	<b>10.2</b>	<b>9.7</b>	<b>10.4</b>	▲ 0.7	▲ 0.3
<b>Total Mexican Exports</b>	<b>6.2</b>	<b>6.0</b>	<b>6.3</b>	<b>6.1</b>	<b>6.3</b>	<b>6.4</b>	▲ 0.0	▲ 0.2
<b>Implied Daily Storage Activity</b>	<b>-5.3</b>	<b>0.3</b>	<b>3.4</b>	<b>-2.9</b>	<b>-0.6</b>	<b>-11.5</b>	<b>-11.0</b>	
<b>EIA Reported Daily Storage Activity</b>	<b>-5.1</b>	<b>1.1</b>	<b>4.4</b>	<b>-2.6</b>	<b>-0.1</b>			
<b>Daily Model Error</b>	<b>-0.2</b>	<b>-0.8</b>	<b>-1.1</b>	<b>-0.3</b>	<b>-0.4</b>			

### Monthly Balances

	2Yr Ago Dec-18	LY Dec-19	Aug-20	Sep-20	Oct-20	Nov-20	MTD Dec-20	MoM	vs. LY
<b>Lower 48 Dry Production</b>	<b>87.5</b>	<b>95.1</b>	<b>88.6</b>	<b>87.8</b>	<b>87.5</b>	<b>90.4</b>	<b>91.0</b>	▲ 0.6	▼ -4.2
<b>Canadian Imports</b>	<b>4.8</b>	<b>4.5</b>	<b>4.9</b>	<b>3.8</b>	<b>4.3</b>	<b>4.6</b>	<b>5.9</b>	▲ 1.4	▲ 1.4
L48 Power	24.4	28.9	41.0	34.1	29.4	24.6	28.4	▲ 3.8	▼ -0.4
L48 Residential & Commercial	39.3	39.1	7.7	8.8	16.2	24.2	37.8	▲ 13.6	▼ -1.3
L48 Industrial	22.4	24.4	20.3	19.2	22.3	23.0	23.4	▲ 0.5	▼ -1.0
L48 Lease and Plant Fuel	4.9	5.3	4.9	4.9	4.8	5.0	5.0	▲ 0.1	▼ -0.2
L48 Pipeline Distribution	2.8	3.1	2.4	2.2	2.2	2.3	3.0	▲ 0.7	▼ -0.1
<b>L48 Regional Gas Consumption</b>	<b>93.9</b>	<b>100.7</b>	<b>76.3</b>	<b>69.1</b>	<b>74.9</b>	<b>79.1</b>	<b>97.7</b>	▲ 18.7	▼ -3.0
<b>Net LNG Exports</b>	<b>4.5</b>	<b>7.8</b>	<b>4.0</b>	<b>5.9</b>	<b>8.0</b>	<b>10.1</b>	<b>11.1</b>	▲ 0.9	▲ 3.3
<b>Total Mexican Exports</b>	<b>4.5</b>	<b>5.0</b>	<b>6.3</b>	<b>6.4</b>	<b>6.2</b>	<b>6.2</b>	<b>6.3</b>	▲ 0.1	▲ 1.4
<b>Implied Daily Storage Activity</b>	<b>-10.7</b>	<b>-13.9</b>	<b>6.8</b>	<b>10.2</b>	<b>2.7</b>	<b>-0.4</b>	<b>-18.2</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 4-Dec

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	-12.3	0.8	-10.8	-76
East	-4.0	2.0	-1.9	-13
Midwest	-4.6	0.0	-4.5	-31
Mountain	2.8	-3.5	-0.7	-5
South Central	-6.1	2.5	-3.3	-23
Pacific	-0.3	-0.2	-0.5	-3

\*Adjustment Factor is calculated based on historical regional deltas

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

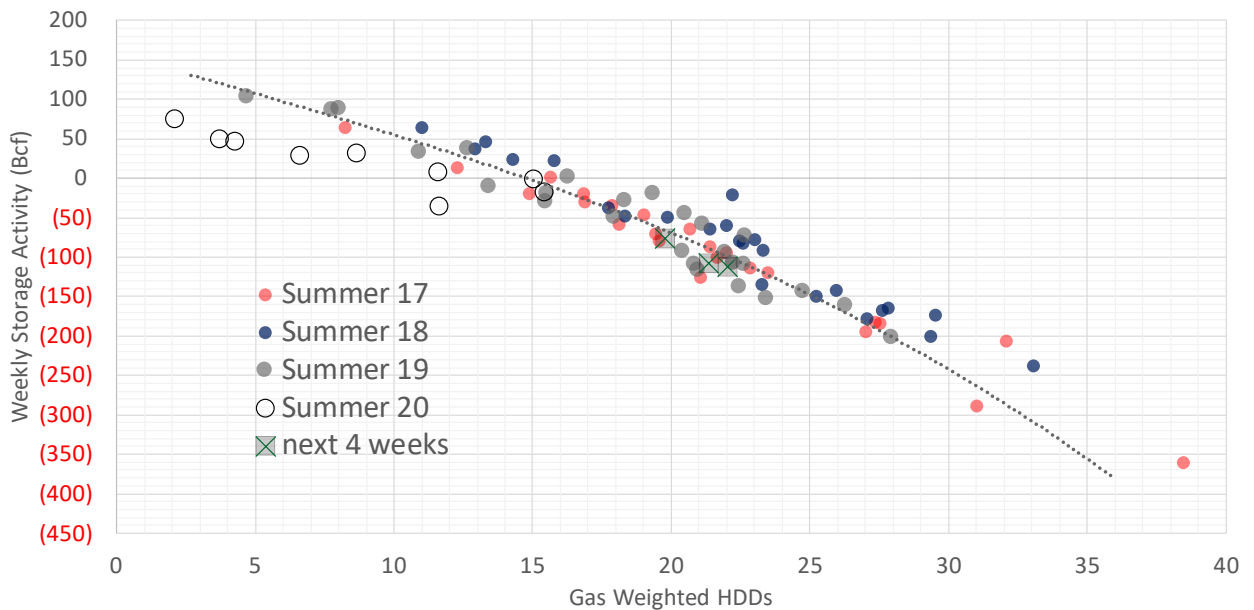


## Weather Model Storage Projection

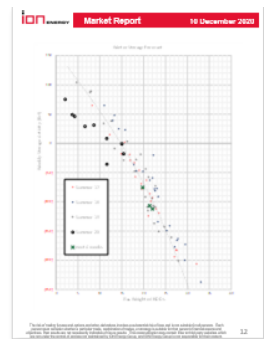
Next report  
and beyond

Week Ending	Temp	Week Storage Projection
04-Dec	19.8	-76
11-Dec	21.4	-107
18-Dec	22.0	-112
25-Dec	#N/A	#N/A

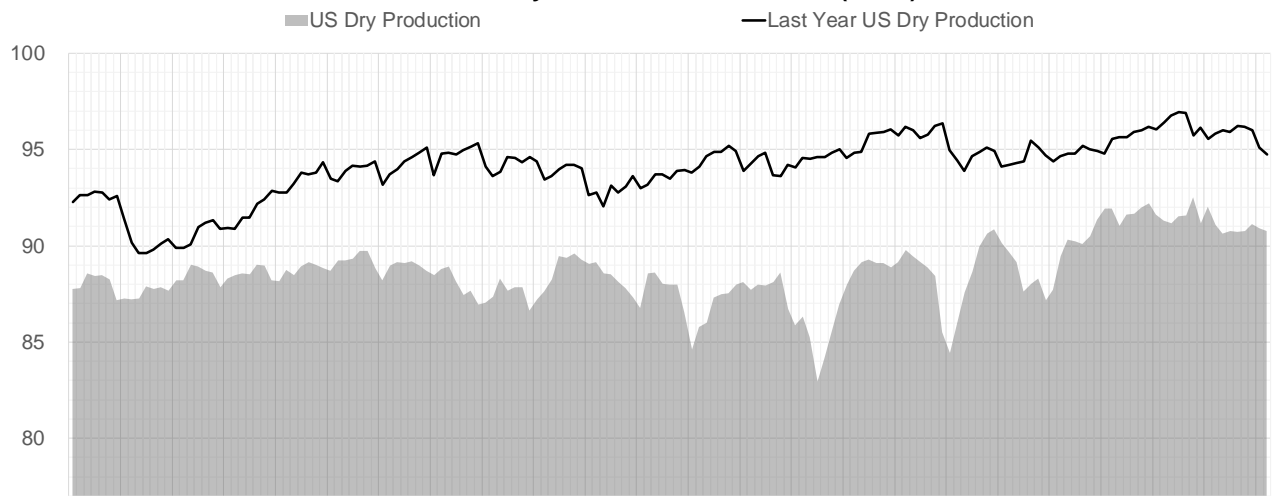
## Winter Storage Forecast



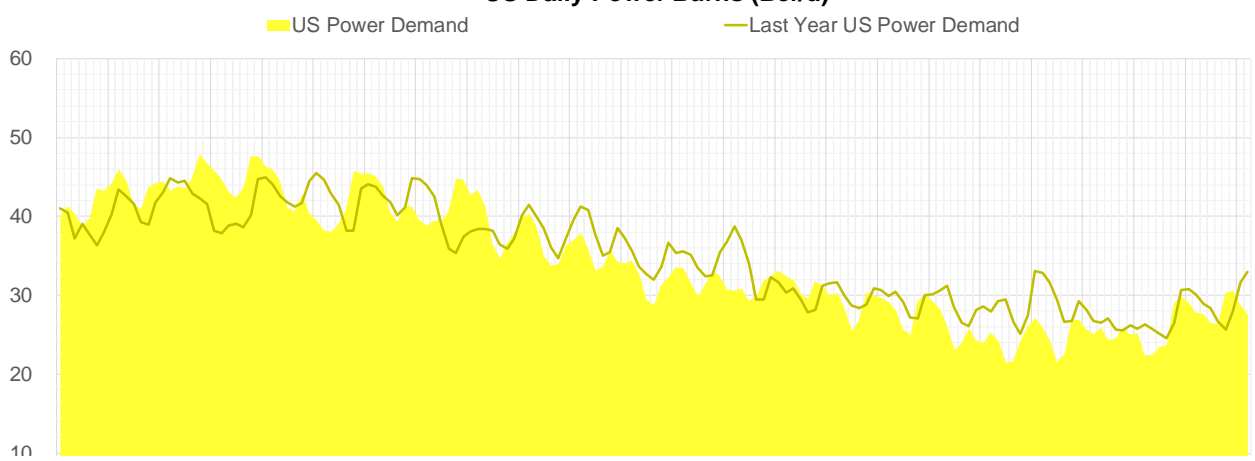
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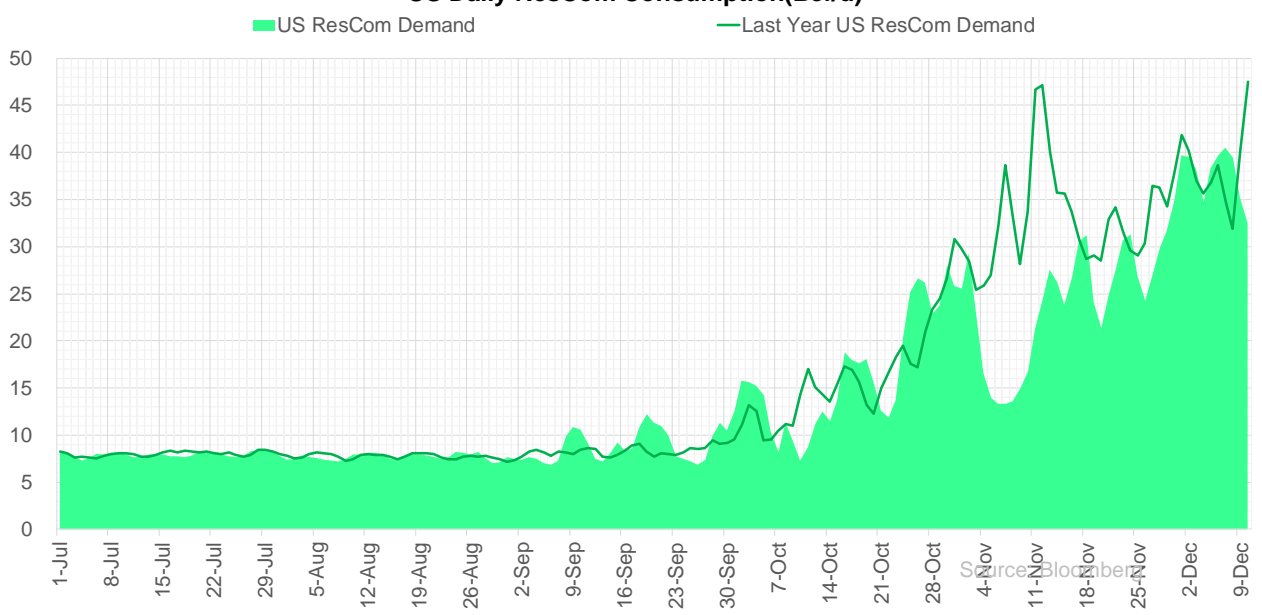
## Supply – Demand Trends US Dry Natural Gas Production (Bcf/d)



## US Daily Power Burns (Bcf/d)

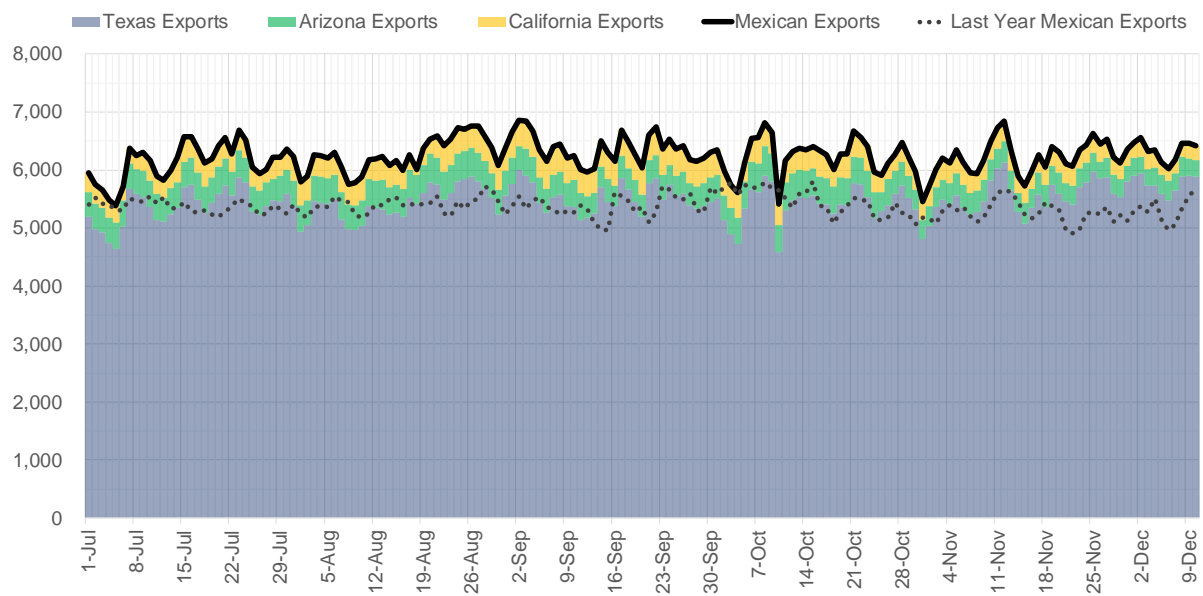


## US Daily ResCom Consumption (Bcf/d)

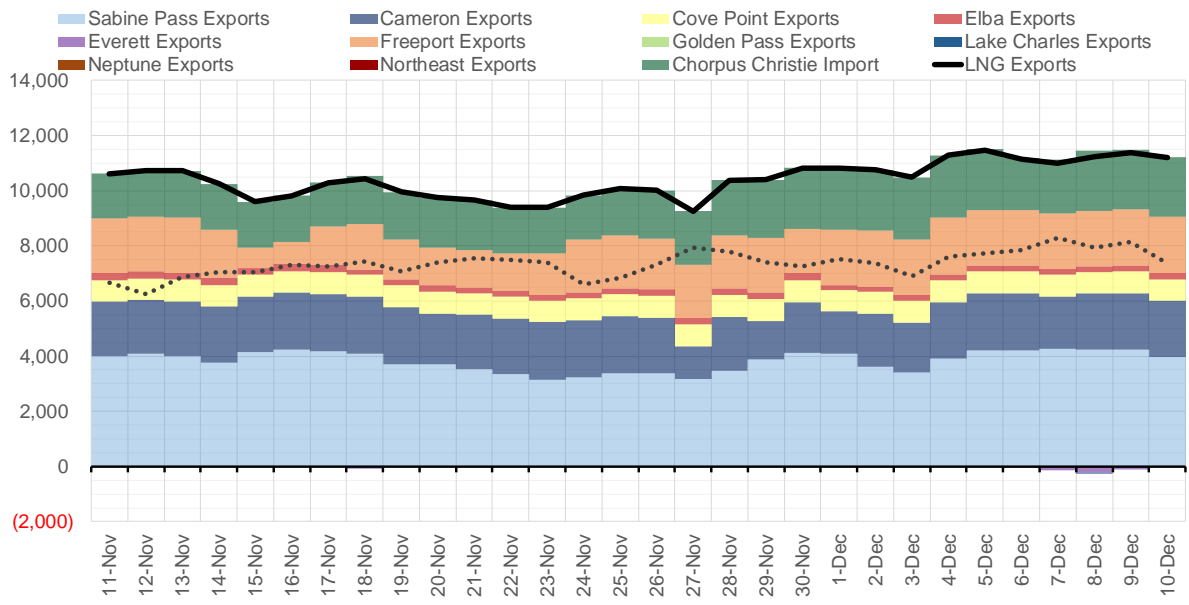


Source: Bloomberg

### Mexican Exports (MMcf/d)



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



Source: Bloomberg

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

## Nat Gas Options Volume and Open Interest CME, ICE and Nasdaq Combined

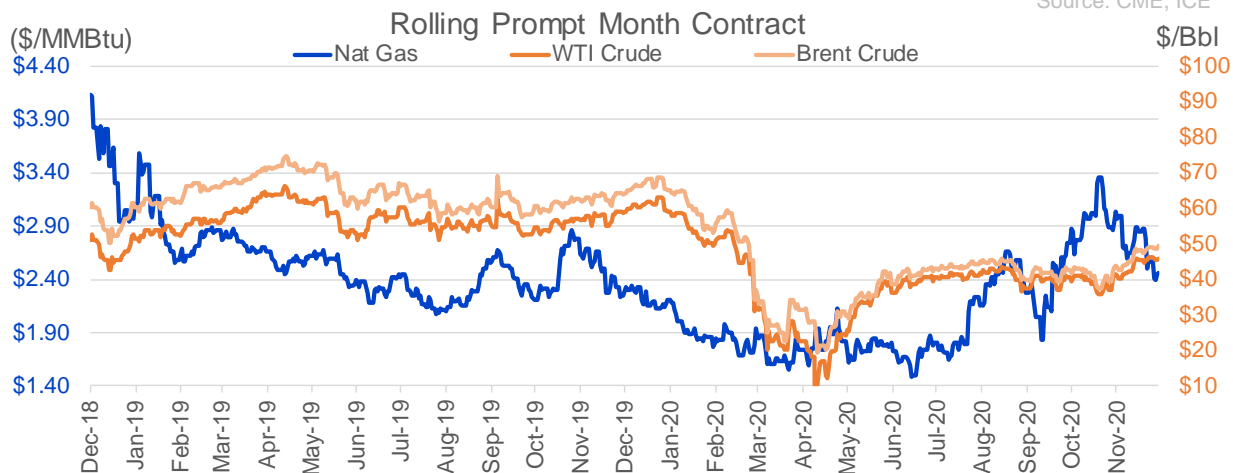
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
4	2021	C	3.25	12745	3	2021	P	2.00	41649
4	2021	C	3.50	10860	3	2021	C	5.00	37507
1	2021	C	3.00	8587	1	2021	C	3.50	37217
1	2021	C	3.25	6321	3	2021	C	6.00	35389
1	2021	P	2.00	5003	3	2021	C	4.00	33107
2	2021	C	3.50	4199	1	2021	P	2.50	32184
3	2021	C	3.50	4131	4	2021	C	3.50	30241
3	2021	C	3.00	3605	3	2021	C	3.00	28687
1	2021	P	2.25	3159	3	2021	C	3.25	28461
4	2021	C	3.00	2893	1	2021	C	4.50	27889
2	2021	C	3.00	2321	10	2021	C	4.00	27561
1	2021	C	2.75	2155	4	2021	C	4.00	27392
2	2021	C	4.00	2132	1	2021	C	3.00	25673
3	2021	C	4.00	2116	1	2021	C	4.00	25672
3	2021	P	1.50	2094	1	2021	C	5.00	25398
1	2021	P	2.10	2039	3	2021	C	4.50	25055
3	2021	P	1.00	2035	2	2021	P	2.25	24302
1	2021	C	2.70	1764	10	2021	C	3.25	23692
3	2021	C	2.60	1751	3	2021	C	3.50	22557
1	2021	C	3.50	1607	3	2021	P	2.50	22325
2	2021	P	2.25	1520	1	2021	C	3.75	22303
1	2021	P	2.50	1489	1	2021	P	2.25	22291
3	2021	C	3.25	1424	3	2021	C	7.00	21657
3	2021	C	2.70	1365	1	2021	C	6.00	21138
3	2021	P	2.00	1359	10	2021	C	5.00	19576
5	2021	C	3.00	1351	4	2021	C	3.00	19294
1	2021	P	2.40	1316	2	2021	C	4.00	19139
1	2021	C	2.55	1245	8	2021	C	4.00	19103
2	2021	P	2.00	1236	4	2021	C	2.75	19060
1	2021	C	2.60	1223	2	2021	P	2.50	18818
1	2021	C	2.50	1186	4	2021	C	5.00	18653
1	2021	C	3.05	1181	1	2021	P	2.00	18609
2	2021	C	2.50	1133	8	2021	P	2.25	18442
1	2021	P	2.20	1120	4	2021	C	3.25	18401
3	2021	C	2.50	1103	2	2021	C	3.50	18194
3	2021	C	4.50	1011	5	2021	C	3.00	17678
2	2021	P	2.50	1000	2	2021	C	5.00	17230
5	2021	C	2.50	1000	1	2021	C	3.25	16941
5	2021	P	2.50	1000	2	2021	C	3.00	16565
2	2021	P	2.55	989	1	2021	C	2.75	16388
2	2021	C	3.25	920	4	2021	P	2.00	15878
9	2021	C	3.50	915	5	2021	C	3.50	15378
4	2022	C	3.00	900	2	2021	P	2.00	15136
3	2021	C	3.75	864	1	2021	P	2.75	14814
3	2021	C	2.75	850	6	2021	C	4.00	14671
2	2021	P	1.75	847	10	2021	C	3.00	14246
5	2021	C	3.50	815	1	2021	P	3.00	14206
6	2021	C	3.50	815	2	2021	C	4.50	13980
7	2021	C	3.50	815	1	2021	C	7.00	13527
					5	2021	C	3.25	13298

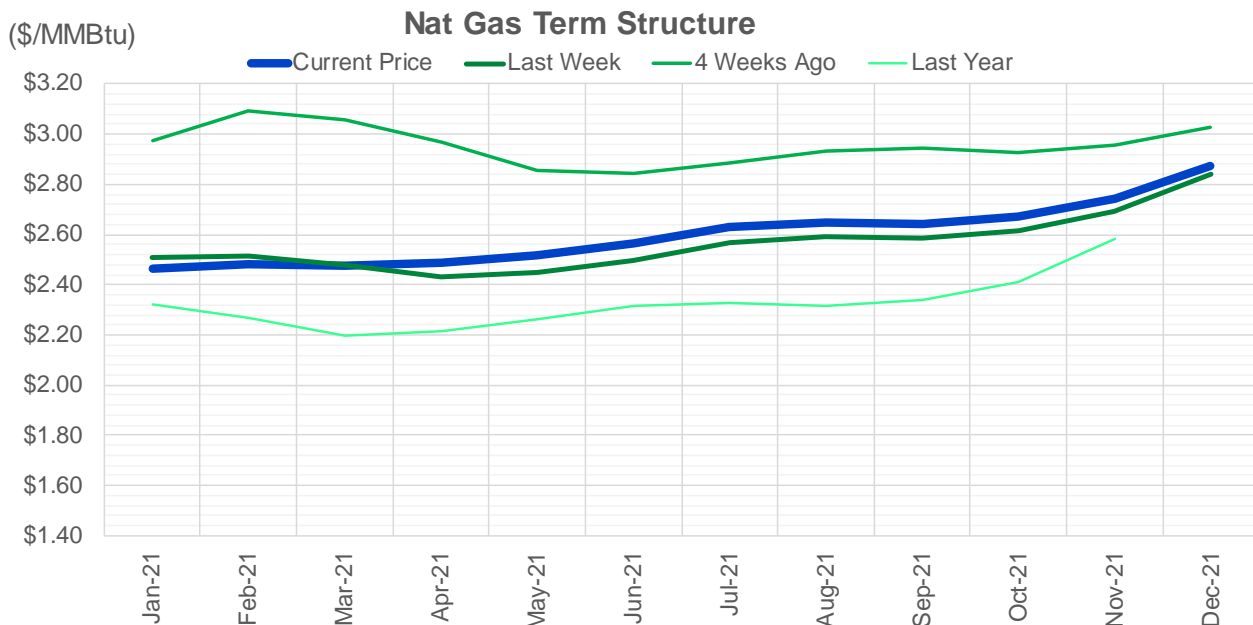
Source: CME, ICE



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

CME Henry Hub Futures (10,000 MMBtu)				ICE Henry Hub Futures Contract Equivalent (10,000 MM			
	Current	Prior	Daily Change	FOR JUNE 26	Current	Prior	Daily Change
JAN 21	196565	229386	-32821	JAN 21	93051	93615	-564
FEB 21	130729	116211	14518	FEB 21	72110	71297	813
MAR 21	203632	193640	9992	MAR 21	97664	96915	749.5
APR 21	94932	93453	1479	APR 21	80990	80527	462.75
MAY 21	61518	60850	668	MAY 21	73855	73581	274
JUN 21	38066	38156	-90	JUN 21	61878	61562	316.5
JUL 21	30389	30275	114	JUL 21	62962	62754	208.25
AUG 21	26706	26107	599	AUG 21	65387	65316	71
SEP 21	43288	42313	975	SEP 21	60329	60418	-88.75
OCT 21	90505	91429	-924	OCT 21	74682	74532	150.25
NOV 21	43735	43027	708	NOV 21	51074	50858	216
DEC 21	40555	38495	2060	DEC 21	50322	50287	34.75
JAN 22	39700	39242	458	JAN 22	48824	49228	-403.75
FEB 22	25667	25250	417	FEB 22	38596	38465	131.25
MAR 22	27530	27172	358	MAR 22	39910	39858	52.25
APR 22	24582	24802	-220	APR 22	39163	39113	49.75
MAY 22	12734	12895	-161	MAY 22	32726	32485	241
JUN 22	6445	6450	-5	JUN 22	31127	31051	76.25
JUL 22	5836	5847	-11	JUL 22	32788	32703	85.25
AUG 22	5089	5087	2	AUG 22	31807	31695	112.25
SEP 22	4789	4792	-3	SEP 22	31329	31257	71.75
OCT 22	8268	8255	13	OCT 22	37003	36916	86.25
NOV 22	6245	6221	24	NOV 22	31492	31555	-62.5
DEC 22	6762	6738	24	DEC 22	33983	33918	64.75
JAN 23	4517	4528	-11	JAN 23	15855	15813	42
FEB 23	1407	1347	60	FEB 23	14496	14455	40.5
MAR 23	2583	2585	-2	MAR 23	14084	14042	42
APR 23	2254	2264	-10	APR 23	13466	13422	44
MAY 23	644	651	-7	MAY 23	12536	12500	36.25
JUN 23	672	679	-7	JUN 23	12491	12475	15.25





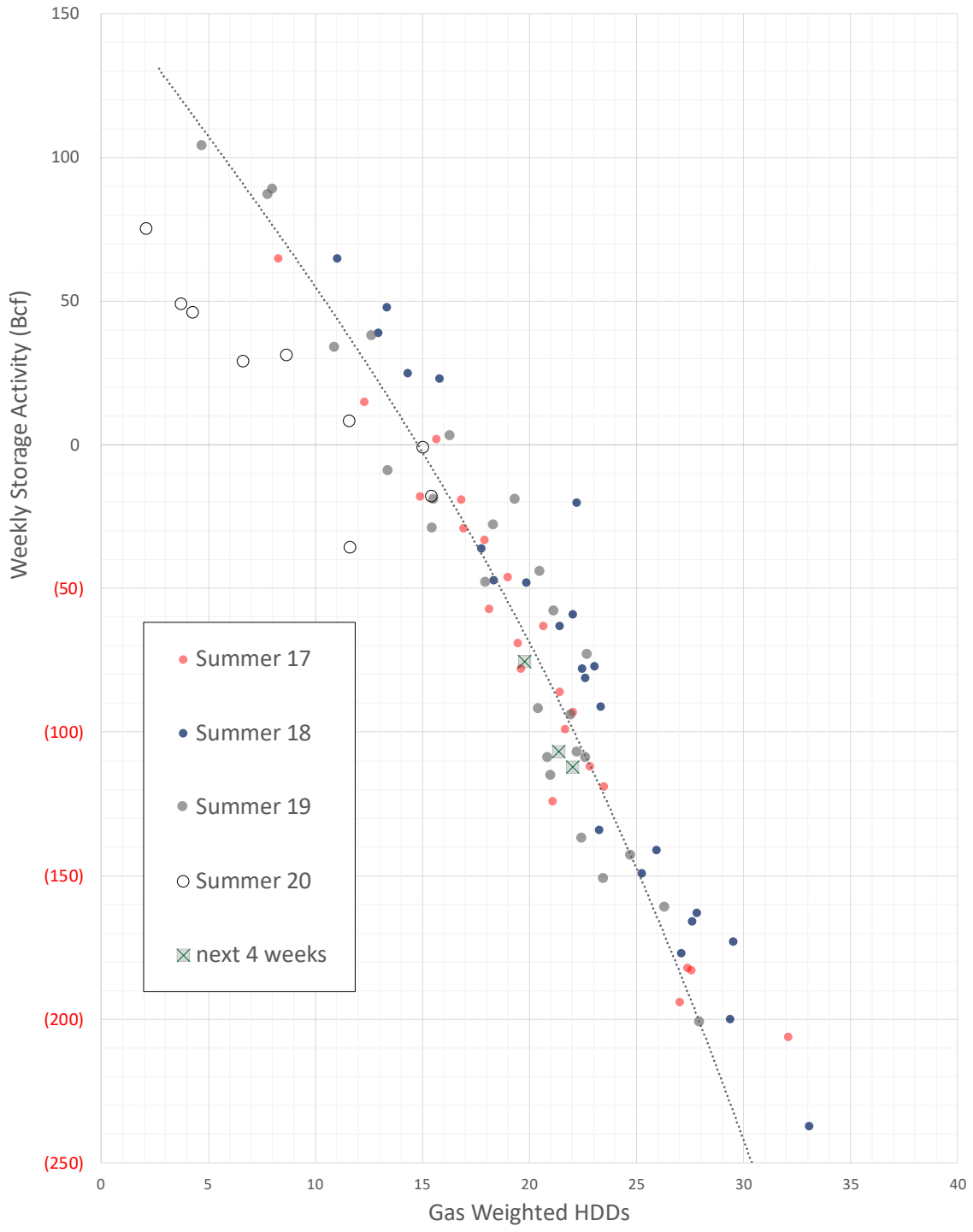
	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
<b>Current Price</b>	\$2.461	\$2.479	\$2.475	\$2.486	\$2.516	\$2.565	\$2.629	\$2.648	\$2.641	\$2.672	\$2.743	\$2.874
Last Week	\$2.507	\$2.515	\$2.476	\$2.434	\$2.449	\$2.499	\$2.565	\$2.593	\$2.588	\$2.614	\$2.693	\$2.840
vs. Last Week	-\$0.046	-\$0.036	-\$0.001	\$0.052	\$0.067	\$0.066	\$0.064	\$0.055	\$0.053	\$0.058	\$0.050	\$0.034
4 Weeks Ago	\$2.976	\$3.094	\$3.057	\$2.969	\$2.854	\$2.846	\$2.886	\$2.932	\$2.942	\$2.927	\$2.958	\$3.028
vs. 4 Weeks Ago	-\$0.515	-\$0.615	-\$0.582	-\$0.483	-\$0.338	-\$0.281	-\$0.257	-\$0.284	-\$0.301	-\$0.255	-\$0.215	-\$0.154
Last Year	\$2.328	\$2.320	\$2.271	\$2.200	\$2.214	\$2.263	\$2.315	\$2.327	\$2.313	\$2.340	\$2.413	\$2.583
vs. Last Year	\$0.133	\$0.159	\$0.204	\$0.286	\$0.302	\$0.302	\$0.314	\$0.321	\$0.328	\$0.332	\$0.330	\$0.291

	Units	Cash Settled	Prompt Settle	Cash to Prompt
AGT Citygate	\$/MMBtu	2.90	4.77	1.87
TETCO M3	\$/MMBtu	2.11	3.31	1.20
FGT Zone 3	\$/MMBtu	2.35	2.51	0.16
Zone 6 NY	\$/MMBtu	2.35	4.14	1.79
Chicago Citygate	\$/MMBtu	2.27	2.45	0.18
Michcon	\$/MMBtu	2.25	2.22	-0.04
Columbia TCO Pool	\$/MMBtu	2.03	2.00	-0.03
Ventura	\$/MMBtu	2.25	2.71	0.46
Rockies/Opal	\$/MMBtu	3.17	2.26	-0.91
El Paso Permian Basin	\$/MMBtu	2.22	2.26	0.04
Socal Citygate	\$/MMBtu	4.75	3.15	-1.60
Malin	\$/MMBtu	3.21	2.92	-0.29
Houston Ship Channel	\$/MMBtu	2.44	2.46	0.02
Henry Hub Cash	\$/MMBtu	2.45	2.30	-0.15
AECO Cash	C\$/GJ	1.91	1.82	-0.09
Station2 Cash	C\$/GJ	1.90	3.39	1.49
Dawn Cash	C\$/GJ	2.27	2.26	-0.01

Source: CME, Bloomberg

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jan21/Apr21	\$/MMBtu	0.025	▲ 0.098	▲ 0.265	▲ 0.416
NatGas Mar21/Apr21	\$/MMBtu	0.011	▲ 0.053	▼ -0.104	▼ -0.238
NatGas Oct21/Nov21	\$/MMBtu	0.071	▼ -0.008	▲ 0.001	▲ 0.002
NatGas Apr21/Oct21	\$/MMBtu	0.186	▲ 0.293	▲ 0.050	▼ -0.116
WTI Crude	\$/Bbl	46.03	▲ 0.390	▲ 4.910	▼ -13.150
Brent Crude	\$/Bbl	49.46	▲ 0.750	▲ 5.930	▼ -14.740
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	141.53	▲ 2.200	▲ 18.200	▼ -53.550
Propane, Mt. Bel	cents/Gallon	0.58	▼ -0.003	▲ 0.024	▲ 0.065
Ethane, Mt. Bel	cents/Gallon	0.19	▲ 0.006	▼ -0.032	▲ 0.023
Coal, PRB	\$/MTon	12.30	▲ 0.000	▲ 0.000	▲ 0.050
Coal, PRB	\$/MMBtu	0.70			
Coal, ILB	\$/MTon	31.05	▲ 0.000	▲ 0.000	▼ -4.000
Coal, ILB	\$/MMBtu	1.32			

### Winter Storage Forecast



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