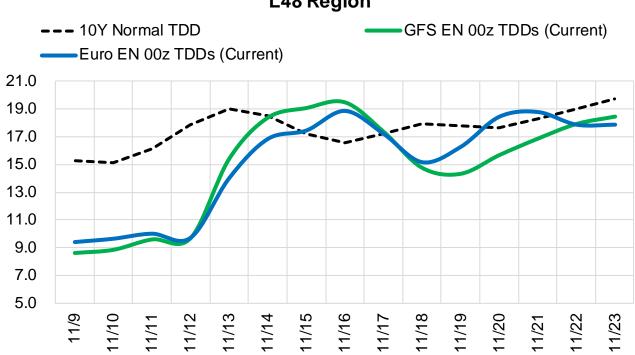


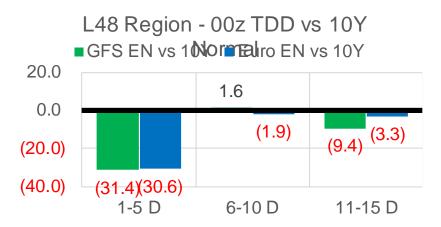


## Short-term Weather Model Outlooks (00z)



### L48 Region

## Vs. 10Y Normal



Source: WSI, Bloomberg

# **Market Report**

## 9 November 2021

#### **Daily Balances**

	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	DoD	vs. 7D
Lower 48 Dry Production	94.9	95.5	95.2	96.7	95.7	96.2	95.5	<b>-0.6</b>	▼ -0.2
Canadian Imports	5.6	5.5	5.3	5.5	5.5	5.7	5.0	<b>-0.8</b>	<b>T-0.6</b>
L48 Power	32.5	32.5	29.1	26.5	25.8	26.9	27.8	<b>a</b> 0.9	▼-1.1
L48 Residential & Commercial	30.2	30.7	29.4	26.9	24.0	21.2	19.8	<b>T</b> -1.4	<b>T</b> -7.3
L48 Industrial	22.9	22.8	22.6	21.9	21.5	21.2	21.0	<b>V</b> -0.3	▼ -1.2
L48 Lease and Plant Fuel	5.2	5.2	5.2	5.3	5.2	5.2	5.2	▼ -0.1	▼ -0.1
L48 Pipeline Distribution	3.3	3.4	3.1	2.8	2.7	2.6	2.5	▼ 0.0	<b>T</b> -0.4
L48 Regional Gas Consumption	94.1	94.6	89.4	83.4	79.2	77.1	76.2	<b>-0.9</b>	▼-10.1
Net LNG Delivered	10.03	10.68	10.14	11.38	11.62	11.39	11.16	<b>-0.2</b>	<b>0.3</b>
Total Mexican Exports	6.4	6.3	6.1	6.1	5.9	6.2	6.4	<b>0.2</b>	<b>0.2</b>
Implied Daily Storage Activity EIA Reported Daily Storage Activity	-10.0	-10.6	-5.1	1.2	4.5	7.2	6.7		

Lower 48 Component Models

Daily Model Error

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

	1-Oct	8-Oct	15-Oct	22-Oct	29-Oct	5-Nov	WoW	vs. 4W
Lower 48 Dry Production	93.8	93.3	93.0	92.8	94.0	94.9	<b>0.9</b>	<b>1.7</b>
Canadian Imports	5.7	5.3	5.0	5.6	5.6	5.5	<b>▼ -0.1</b>	<b>0.1</b>
L48 Power	30.3	32.9	31.7	29.0	29.0	29.5	<b>0</b> .4	<b>T</b> -1.2
L48 Residential & Commercial	8.4	8.1	9.5	13.9	17.7	24.1	<b>6</b> .4	<b>11.8</b>
L48 Industrial	20.6	22.3	19.9	18.8	18.9	21.6	<b>2</b> .7	<b>1</b> .7
L48 Lease and Plant Fuel	5.1	5.1	5.1	5.1	5.1	5.2	<b>0.0</b>	<b>a</b> 0.1
L48 Pipeline Distribution	2.1	2.2	2.2	2.3	2.5	2.9	<b>0</b> .4	<b>a</b> 0.6
L48 Regional Gas Consumption	66.5	70.6	68.4	69.1	73.2	83.2	<b>10.0</b>	<b>12.9</b>
Net LNG Exports	10.3	9.9	10.7	10.8	10.8	10.9	<b>0.1</b>	<b>0.3</b>
Total Mexican Exports	6.7	6.6	6.6	6.6	6.9	6.1	▼ -0.8	<b>T</b> -0.6
Implied Daily Storage Activity EIA Reported Daily Storage Activity	16.0 16.9	11.6 11.6	12.2 13.1	12.0 12.4	8.7 9.0	0.3	-8.4	
Daily Model Error	-0.8	0.0	-0.9	-0.5	-0.3			

#### **Monthly Balances**

	2Yr Ago	LY					MTD		
	Nov-19	Nov-20	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	МоМ	vs. LY
Lower 48 Dry Production	96.2	91.1	93.6	94.1	93.0	93.4	95.4	<b>1.9</b>	<b>4.3</b>
Canadian Imports	4.5	4.6	5.2	5.1	5.1	5.4	5.4	<b>0.0</b>	<b>0.8</b>
L48 Power	27.5	25.7	39.4	40.1	33.1	30.3	29.1	▼-1.2	<b>3</b> .4
L48 Residential & Commercial	32.8	24.4	8.1	7.8	7.7	12.9	26.1	<b>1</b> 3.2	<b>1</b> .7
L48 Industrial	24.9	22.5	21.2	21.7	20.8	20.0	22.0	<b>2</b> .0	<b>V</b> -0.4
L48 Lease and Plant Fuel	5.2	5.0	5.1	5.1	5.1	5.1	5.2	<b>0.1</b>	<b>a</b> 0.2
L48 Pipeline Distribution	3.0	2.7	2.5	2.6	2.2	2.3	2.9	<b>0.6</b>	<b>a</b> 0.3
L48 Regional Gas Consumption	93.5	80.2	76.3	77.3	68.9	70.6	85.3	<b>14.7</b>	<b>5.1</b>
Net LNG Exports	7.2	10.1	10.8	10.5	10.3	10.6	11.0	<b>0.4</b>	<b>0.8</b>
Total Mexican Exports	5.2	6.1	7.1	6.9	6.7	6.6	6.0	<b>-0.6</b>	<b>T-0.1</b>
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	-5.1	-0.7	4.6	4.5	12.1	11.0	-1.5		

Source: Bloomberg, analytix.ai

# **Daily** Average Generation Data

#### Nuclear Generation Daily Average - GWh (NRC)

ENERGY

	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	DoD	vs. 7D
NRC Nuclear Daily Output	71.6	72.1	73.4	74.9	76.0	77.4	78.8	1.4	4.6
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	104.9	0.0	0.0
NRC Nuclear Outage	33.3	32.8	31.5	29.9	28.9	27.5	26.1	-1.4	-4.6
NRC % Nuclear Cap Utilization	72.8	73.3	74.6	76.2	77.3	78.7	80.2	1.4	4.7

#### Wind Generation Daily Average - MWh (EIA)

	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	DoD	vs.7D
CALI Wind	2224	1586	362	2356	893	2071	3302	1232	1721
TEXAS Wind	6448	7823	7268	4582	7879	9903	15300	5396	7983
US Wind	32678	24572	17608	27034	41243	46358	59864	13506	28282

#### Generation Daily Average - MWh (EIA)

	1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	DoD	vs.7D
US Wind	32678	24572	17608	27034	41243	46358	59864	13506	28282
US Solar	8937	8400	8966	8478	9436	9901	9752	-149	732
US Petroleum	3517	3943	4211	3793	3573	2434	1810	-624	-1768
US Other	8684	9463	9998	10656	10142	8545	8203	-341	-1378
US Coal	80478	85342	89168	87398	83039	76863	70963	-5900	-12751
US Nuke	75126	75975	77899	79304	80587	81804	81486	-318	3037
US Hydro	27430	27766	27328	26709	25852	22592	21419	-1173	-4861
US Gas	162172	174879	183421	180948	168719	148137	127287	-20850	-42426

# See National Wind and Nuclear daily charts

Source: Bloomberg, analytix.ai

# Storage Week Average Generation Data

### Nuclear Generation Weekly Average - GWh (NRC)

	1-Oct	8-Oct	15-Oct	22-Oct	29-Oct	5-Nov	WoW	WoW Bcf/d Impact
NRC Nuclear Daily Output	85.1	82.1	76.5	73.6	71.6	72.2	0.6	-0.1
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	0.0	
NRC Nuclear Outage	19.8	22.7	28.3	31.2	33.3	32.7	-0.6	
NRC % Nuclear Cap Utilization	0.1	0.1	0.1	0.1	0.1	0.1	0.0	

### Wind Generation Weekly Average - MWh (EIA)

	1-Oct	8-Oct	15-Oct	22-Oct	29-Oct	5-Nov	WoW	WoW Bcf/d Impact
CALI Wind	2467	1099	2400	1270	2314	1669	-645	0.1
TEXAS Wind	10364	4890	15396	10729	15462	8472	-6990	1.3
US Wind	43478	20468	49922	43721	49870	32100	-17770	3.2
					6149.0			
					14%			

### Generation Weekly Average - MWh (EIA)

								WoW
	1-Oct	8-Oct	15-Oct	22-Oct	29-Oct	5-Nov	WoW	Bcf/d
								Impact
US Wind	43478	20468	49922	43721	49870	32100	-17770	3.2
US Solar	12957	11295	10530	12209	10138	9708	-430	0.1
US Petroleum	2712	3901	3224	3092	2815	3517	702	-0.1
US Other	8709	10972	12221	12109	10196	9196	-1000	0.2
US Coal	94792	100713	89841	74011	73355	77386	4030	-0.7
US Nuke	88402	83696	77046	73748	73713	75510	1797	-0.3
US Hydro	25370	24552	24701	23105	23540	25526	1986	-0.4
US Gas	153813	176848	162707	150057	152802	158551	5749	-1.0

# See National Wind and Nuclear daily charts

Source: Bloomberg, analytix.ai

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.

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# Monthly Average Generation Data

#### Nuclear Generation Monthly Average - GWh (NRC)

	2Yr Ago	LY				MTD			
	Same 30 days	Same 30 days	Aug-21	Sep-21	Oct-21	Nov-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
NRC Nuclear Daily Output	79.9	75.9	91.5	87.2	75.5	76.2	74.0	0.7	-1.9
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	104.9	0.0	0.0
NRC Nuclear Outage	25.0	29.0	13.4	17.7	29.4	28.7	30.9	-0.7	1.9
NRC % Nuclear Cap Utilization	81.2	77.1	93.0	88.7	76.8	77.4	75.2	0.7	-1.9

#### Wind Generation Monthly Average - MWh (EIA)

	2Yr Ago	LY				MTD			
	Same 30 days	Same 30 days	Aug-21	Sep-21	Oct-21	Nov-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
CALI Wind	933	1254	2442	2020	1765	2155	1952	390	699
TEXAS Wind	8773	10696	9901	9400	11565	9978	11955	-1587	1258
US Wind	35165	43218	35830	40222	40990	41010	44526	20	1308

#### **Generation Monthly Average - MWh (EIA)**

	2Yr Ago	LY				MTD			
	Same 30 days	Same 30 days	Aug-21	Sep-21	Oct-21	Nov-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
US Wind	35165	43218	35830	40222	40990	41010	44526	▲ 3516.5	<b>1308</b>
US Solar	6796	7761	13787	13379	11044	9264	10550	<b>A</b> 1286.1	<b>2789</b>
US Petroleum	3139	2431	4484	2452	3238	2989	3046	<b>5</b> 7	<b>615</b>
US Other	8331	8711	9928	9008	11099	9122	10433	<b>A</b> 1311	<b>A</b> 1722
US Coal	87966	84990	137655	110037	82734	79464	76992	▼ -2472	▼ -7998
US Nuke	86318	79360	94062	90146	76700	79461	75824	▼ -3637	▼ -3536
US Hydro	24710	26441	28532	25661	23895	24659	23917	<b>-742</b>	<b>V</b> -2523
US Gas	148772	148671	210824	173536	158237	155571	153401	💌 -681	<b>4730</b>
US Total	401692	401756	534937	464627	410684	402667	401881	<b>-4878</b>	<b>A</b> 125



## See National Wind and Nuclear daily charts

Source: Bloomberg, analytix.ai

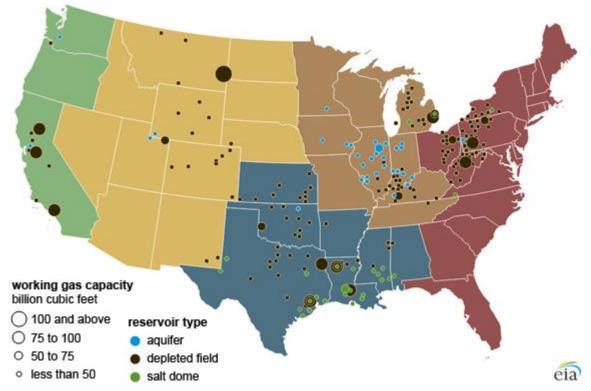


## Regional S/D Models Storage Projection

Week Ending	5-Nov			
			Daily	
			Average	Weekly
		Daily	Storage	Adjusted
	Daily Raw	Adjustment	Activity	Storage
	Storage	Factor	(Adjusted) *	Activity
<u>L</u> 48	0.0	0.6	0.7	5
East	-0.5	-0.1	-0.6	-4
Midwest	-0.9	0.6	-0.3	-2
Mountain	3.1	-3.2	-0.1	-1
South Central	-2.0	3.7	1.6	11
Pacific	0.4	-0.3	0.1	1

\*Adjustment Factor is calcuated based on historical regional deltas

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

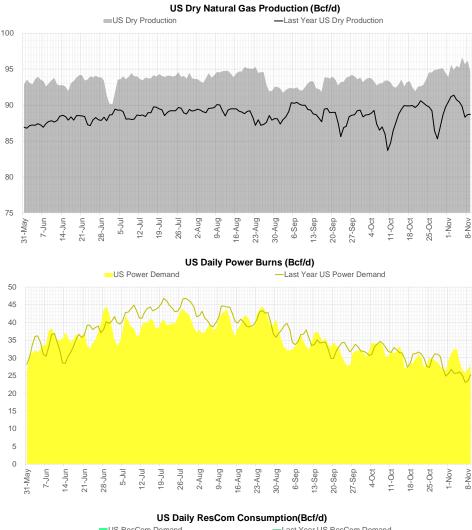


## Weather Model Storage Projection

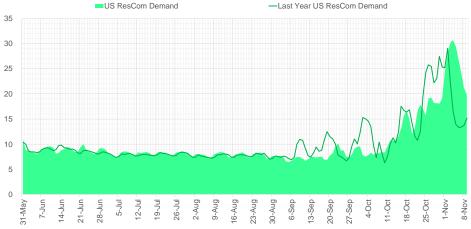
Next report and beyond		
Week Ending	GWDDs	Week Storage Projection
05-Nov	13.2	5
12-Nov	11	40
19-Nov	16	0
26-Nov	18	-32

Weather Storage Model - Next 4 Week Forecast



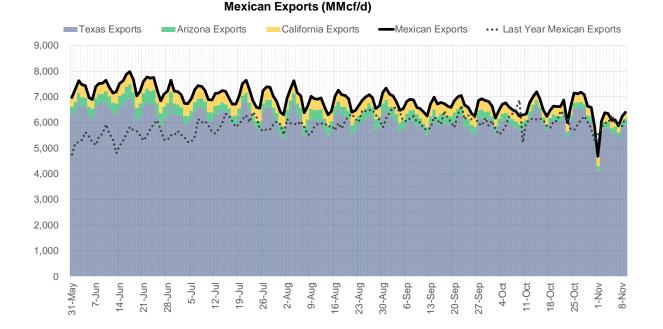


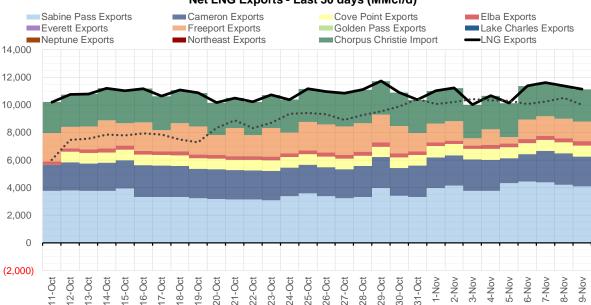
Supply – Demand Trends



Source: Bloomberg







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

Source: Bloomberg

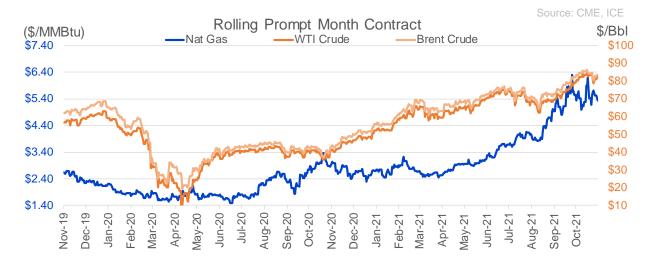


### Nat Gas Options Volume and Open Interest CME, ICE and Nasdaq Combined

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
							_		
12	2021	С	6.50	7118	12	2021	Р	2.75	54603
12	2021	С	7.00	6613	12	2021	Р	4.00	47342
12	2021	С	7.50	3870	12	2021	Р	3.00	40242
12	2021	С	9.00	3669	12	2021	Р	2.50	39420
12	2021	С	6.00	3561	12	2021	P	3.50	34538
12	2021	Р	5.00	2860	3	2022	C P	10.00	32823
1	2022	С	7.50	2239	12	2021	P C	4.25	24987
12	2021	Р	4.50	2191	3 1	2022 2022		8.00 6.00	24973 24422
3	2022	С	7.50	2172	12		C C		
12	2021	С	15.00	2153	12	2021 2021	P	6.00 5.00	23843 23541
2	2022	С	7.50	2110	12	2021	P	3.00	23541
12	2021	Р	4.75	2092	3	2022	F C	5.00	23136
12	2021	Р	4.25	1365		2022	P		
12	2021	С	8.50	1207	1 12			2.75 4.00	22915 22526
3	2022	С	8.00	1191	12	2021	C C	4.00 7.00	
1	2022	С	6.50	1156	3	2021 2022	P	3.00	21946
3	2022	С	10.00	1156					21067
12	2021	Р	4.00	1084	12	2021	С	8.00	19710
2	2022	С	10.00	1055	4 1	2022	С	3.00	19710
1	2022	С	8.50	1043		2022	С	7.00	19091
3	2022	С	6.50	1003	3	2022	Р	2.50	18788
2	2022	С	6.50	1002	1	2022	Р	4.00	18609
2	2022	С	8.50	1000	3	2022	P	3.50	18475
3	2022	С	8.50	1000	1	2022	С	5.00	18056
12	2021	С	8.00	953	1	2022	Р	3.50	17947
1	2022	Р	3.50	853	3	2022	Р	4.00	17545
1	2022	С	10.00	819	2	2022	С	5.00	16863
12	2021	C	5.50	760	12	2021	P P	2.00	16834
1	2022	P	4.00	726	12	2021		4.50	16579
1	2022	C	6.00	719	12	2022	С	5.00	15782
1	2022	P	3.75	678	3	2022	С	4.00	15631
3	2022	C	15.00	671	4	2022	Р	2.50	15464
1	2022	c	7.00	665	2	2022	P	3.50	15305
12	2021	c	10.00	580	4	2022	С	5.00	14950
4	2022	P	2.50	550	1	2022	С	8.00	14554
5	2022	P	2.50	550	2	2022	P	4.00	14532
6	2022	P	2.50	550	1	2022	С	4.00	14433
7	2022	P	2.50	550	3	2022	С	7.00	14173
8	2022	P	2.50	550	12	2021	С	7.50	14073
9	2022	P	2.50	550	5	2022	С	3.00	13733
10	2022	P	2.50	550	3	2022	С	6.00	13723
12	2022	C	2.30 5.70	521	1	2022	С	10.00	13627
12	2021	c	5.70 7.25	521	12	2021	С	15.00	13526
3	2021	c	25.00	500	3	2022	P	5.00	13463
3		c			6	2022	С	3.00	13438
3 5	2022		30.00	500	12	2022	С	4.50	13367
	2022	C C	6.00	500	1	2022	P	3.25	13279
6	2022		6.00	500	12	2022	С	5.25	13263
7	2022	C	6.00	500	7	2022	С	3.00	13230
8	2022	С	6.00	500	8	2022	Source	e: CME, ICE	13226

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

Civile, and ICE Combined							
CME Henry Hub Futures (10,000 MMBtu) ICE Henry Hub Futures Contract Equivalent (10,000 M							
	Current	Prior	Daily Change		Current	Prior	Daily Change
DEC 21	117688	131943	-14255	DEC 21	91493	91287	206
JAN 22	222784	224147	-1363	JAN 22	86452	85649	802
FEB 22	74877	75110	-233	FEB 22	69940	70023	-83
MAR 22	164185	163148	1037	MAR 22	79233	80188	-955
APR 22	117799	117109	690	APR 22	77879	78251	-373
MAY 22	130502	129054	1448	MAY 22	71725	71567	158
JUN 22	44394	44714	-320	JUN 22	55771	55599	172
JUL 22	39374	38760	614	JUL 22	57844	57909	-65
AUG 22	31440	31763	-323	AUG 22	56494	56545	-52
SEP 22	36088	35675	413	SEP 22	57347	57326	21
OCT 22	86657	86104	553	OCT 22	62805	62751	54
NOV 22	35467	35180	287	NOV 22	49272	49202	70
DEC 22	27852	28088	-236	DEC 22	52038	51960	77
JAN 23	31556	31660	-104	JAN 23	40423	40374	50
FEB 23	11358	11358	0	FEB 23	33457	33389	69
MAR 23	19847	19519	328	MAR 23	36312	36250	62
APR 23	15978	15851	127	APR 23	37084	37109	-25
MAY 23	9939	9828	111	MAY 23	35576	35616	-41
JUN 23	8005	7594	411	JUN 23	31701	31725	-24
JUL 23	5570	5598	-28	JUL 23	31762	31795	-33
AUG 23	4215	4235	-20	AUG 23	32732	32766	-33
SEP 23	5573	5610	-37	SEP 23	30900	30845	55
OCT 23	10341	10342	-1	OCT 23	34454	34606	-152
NOV 23	4553	4483	70	NOV 23	34037	34047	-10
DEC 23	8147	8080	67	DEC 23	31554	30822	732
JAN 24	4764	4763	1	JAN 24	19539	19480	59
FEB 24	1443	1442	1	FEB 24	15032	14969	63
MAR 24	8905	8905	0	MAR 24	19848	19767	81
APR 24	5612	5607	5	APR 24	14329	14174	155
MAY 24	1832	1832	0	MAY 24	14973	14813	160



vs. 4 Weeks Ago

vs. Last Year

Last Year

-\$0.049

\$2.888

\$2.628

-\$0.084

\$3.031

\$2.595

-\$0.312

\$3.005

\$2.489

-\$0.540

\$2.933

\$2.228

-\$1.268

\$2.807

\$1.295

\$0.000

\$2.793

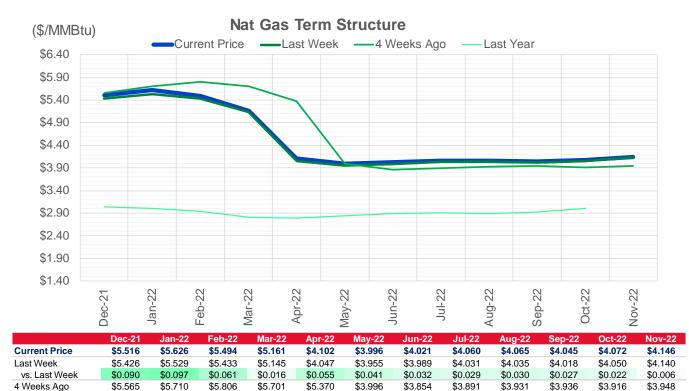
\$1.203

\$0.167

\$2.834

\$1.187

# **Market Report**



		Cash	Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	5.00	12.99	7.99
TETCO M3	\$/MMBtu	4.64	6.69	2.05
FGT Zone 3	\$/MMBtu	4.60	5.36	0.76
Zone 6 NY	\$/MMBtu	4.60	6.86	2.26
Chicago Citygate	\$/MMBtu	5.19	5.52	0.33
Michcon	\$/MMBtu	5.28	4.95	-0.33
Columbia TCO Pool	\$/MMBtu	4.63	4.71	0.08
Ventura	\$/MMBtu	5.08	5.77	0.69
Rockies/Opal	\$/MMBtu	5.15	5.29	0.14
El Paso Permian Basin	\$/MMBtu	4.64	5.32	0.68
Socal Citygate	\$/MMBtu	7.04	6.93	-0.11
Malin	\$/MMBtu	5.57	6.10	0.53
Houston Ship Channel	\$/MMBtu	4.94	5.38	0.44
Henry Hub Cash	\$/MMBtu	5.37	5.07	-0.30
AECO Cash	C\$/GJ	4.34	4.38	0.04
Station2 Cash	C\$/GJ	4.20	6.66	2.46
Dawn Cash	C\$/GJ	5.25	5.14	-0.11

Source: CME, Bloomberg

\$0.134

\$2.900

\$1.165

\$0.169

\$2.885

\$1.175

\$0.156

\$2.928

\$1.144

\$0.109

\$2.889

\$1.156

\$0.198

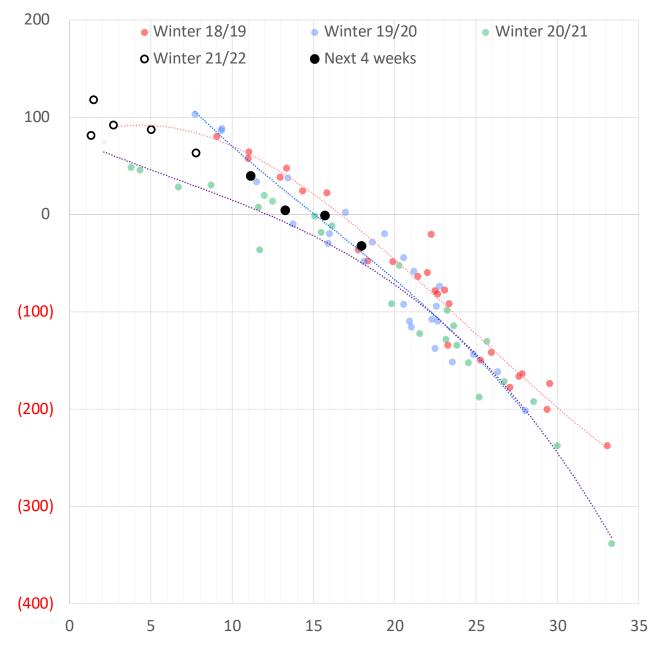
\$3.008

\$1.138



					VS	. 4 Weeks		
	Units	<b>Current Price</b>	vs.	Last Week		Ago	vs	. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224		0.000		0.000		2.181
NatGas Oct21/Nov21	\$/MMBtu	0.361		0.000		0.857		0.288
NatGas Oct21/Jan22	\$/MMBtu	-0.336		0.200		-0.092	▼	-0.644
NatGas Apr22/Oct22	\$/MMBtu	-0.020		-0.022		-0.002	▼	-0.058
WTI Crude	\$/Bbl	81.93		-2.120		1.410		41.640
Brent Crude	\$/Bbl	83.43	$\bullet$	-1.280		-0.220		41.030
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	246.71	$\mathbf{\nabla}$	-3.600	$\mathbf{\nabla}$	-4.790		125.040
Propane, Mt. Bel	cents/Gallon	1.39		-0.035		-0.087		0.828
Ethane, Mt. Bel	cents/Gallon	0.43		0.008		-0.003		0.210
Coal, PRB	\$/MTon	12.30		0.000		0.000		0.000
Coal, PRB	\$/MMBtu	0.70						
Coal, ILB	\$/MTon	31.05		0.000		0.000		0.000
Coal, ILB	\$/MMBtu	1.32						

### Weather Storage Model - Next 4 Week Forecast



# **Market Report**

ENERGY

## 9 November 2021

