

17 August 2021



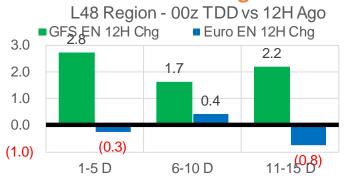
	С	urrent	Δ from YD	_	m 7D vg
WTI Prompt	\$	66.80	\$ (0.49)	~ \$	(1.7)

	_	Current	Δ from YD	Δ from 7D			
	Current	ם ווטוו דם	Avg				
Brent	\$	69.15	\$ (0.36)	- \$	(1.5)		
Prompt			, ,		. ,		

Page Menu

Short-term Weather Model Outlooks
Lower 48 Component Models
Regional S/D Models Storage Projection
Weather Model Storage Projection
Supply – Demand Trends
Nat Gas Options Volume and Open Interest
Nat Gas Futures Open Interest
Price Summary

Vs. 12H Ago



Vs. 24H Ago

L48 Region - 00z TDD vs 24H Ago GFS EN 24H Chg ■ Euro EN 24H Chg 4.0 2.1 2.0 0.7 0.0 (2.0)(0.9)(1.3)(1.9)(2.6)(4.0)1-5 D 6-10 D 11-15 D

	Current	Δ from YD	Δ from 7D Avg
US Dry Production	89.7	▼ -1.24	▼ -2.49

	Current	Δ from YD	Δ from 7D Avg
US ResComm	7.6	▼ -0.04	J

	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	10.9	-0.08	0.49

	Current	Δ from YD	Δ from 7D Avg
US Power Burns	37.4	▼ -1.30	▼ -3.32

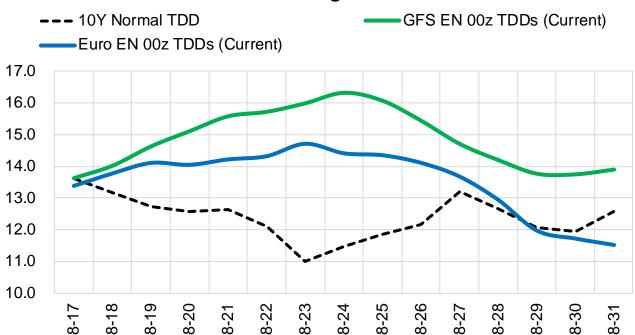
	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	4.6	▼ -0.18	▼ -0.52

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	5.5	▲ 0.09	▼ -1.02

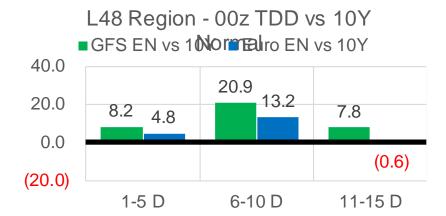


Short-term Weather Model Outlooks (00z)

L48 Region



Vs. 10Y Normal



Source: WSI, Bloomberg



Lower 48 Component Models

Daily Balances

	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug	DoD	vs. 7D
Lower 48 Dry Production	92.7	92.7	92.6	92.2	91.6	90.9	89.7	▼-1.2	▼ -2.4
Canadian Imports	5.5	5.7	5.3	4.8	4.6	4.8	4.6	▼-0.2	▼ -0.5
L48 Power	43.4	44.0	41.7	37.8	36.4	38.7	37.4	▼ -1.3	▼-3.0
L48 Residential & Commercial	8.2	8.1	7.8	7.1	7.1	7.6	7.6	▼ 0.0	▼ -0.1
L48 Industrial	20.4	20.6	20.9	21.1	21.4	21.5	21.3	▼ -0.2	0.4
L48 Lease and Plant Fuel	5.1	5.1	5.1	5.1	5.1	5.0	5.0	▼ -0.1	▼ -0.1
L48 Pipeline Distribution	2.5	2.5	2.4	2.2	2.1	2.2	2.2	▼-0.1	▼ -0.1
L48 Regional Gas Consumption	79.6	80.4	78.0	73.2	72.1	75.1	73.4	▼-1.6	▼ -3.0
Net LNG Delivered	9.62	10.39	11.08	10.53	11.06	11.00	10.91	▼ -0.1	0.3
Total Mexican Exports	6.9	7.0	6.7	6.4	6.2	5.4	5.5	0.1	▼ -0.9
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	2.1	0.7	2.2	6.8	6.9	4.3	4.5		

EIA Storage Week Balances

	9-Jul	16-Jul	23-Jul	30-Jul	6-Aug	13-Aug	WoW	vs. 4W
Lower 48 Dry Production	91.9	92.5	92.6	92.6	92.0	92.5	0.5	0.1
Canadian Imports	5.1	5.2	4.9	5.5	5.1	5.2	0.1	▲ 0.0
L48 Power	37.2	38.7	39.7	42.2	38.5	41.2	2.7	1.4
L48 Residential & Commercial	8.2	8.4	8.4	8.3	7.9	7.7	▼ -0.1	▼-0.5
L48 Industrial	19.5	19.6	19.6	20.7	20.4	20.3	▼ -0.2	0.2
L48 Lease and Plant Fuel	5.1	5.1	5.1	5.1	5.1	5.1	0.0	▼ 0.0
L48 Pipeline Distribution	2.1	2.2	2.3	2.4	2.2	2.4	0.1	0.1
L48 Regional Gas Consumption	72.1	74.1	75.2	78.7	74.1	76.7	2.6	1.2
Net LNG Exports	11.0	10.8	10.5	10.8	10.6	9.9	▼-0.6	▼-0.7
Total Mexican Exports	7.1	7.1	7.1	7.0	6.9	6.9	▼ -0.1	▼-0.2
Implied Daily Storage Activity	6.8	5.6	4.6	1.7	5.5	4.2	-1.3	
EIA Reported Daily Storage Activity	7.9	7.0	5.1	1.9	7.0			
Daily Model Error	-1.1	-1.4	-0.5	-0.2	-1.5			

Monthly Balances									
•	2Yr Ago	LY					MTD		
	Aug-18	Aug-18	Apr-21	May-21	Jun-21	Jul-21	Aug-21	MoM	vs. LY
Lower 48 Dry Production	85.0	85.0	92.3	92.7	93.0	92.3	92.0	▼ -0.4	6.9
Canadian Imports	5.0	5.0	4.6	4.5	4.8	5.2	5.0	▼ -0.2	▼ 0.0
L48 Power	38.1	38.1	24.9	26.7	35.3	39.4	39.4	▼ 0.0	1.3
L48 Residential & Commercial	7.8	7.8	19.5	13.2	8.8	8.3	7.7	▼ -0.6	▼-0.1
L48 Industrial	21.6	21.6	21.2	20.3	20.9	19.9	20.6	0.7	▼ -1.0
L48 Lease and Plant Fuel	4.7	4.7	5.1	5.1	5.1	5.1	5.1	▼ 0.0	0.4
L48 Pipeline Distribution	2.2	2.2	2.3	2.1	2.2	2.3	2.3	0.0	0.1
L48 Regional Gas Consumption	74.4	74.4	73.0	67.2	72.2	75.1	75.1	0.0	0.7
Net LNG Exports	3.3	3.3	11.5	10.8	10.2	10.8	10.4	▼-0.4	7.0
Total Mexican Exports	4.9	4.9	6.7	6.8	7.4	7.0	6.7	▼-0.4	1.7
Implied Daily Storage Activity EIA Reported Daily Storage Activity	7.4	7.4	5.7	12.4	8.0	4.6	4.9		
Daily Model Error									



Daily Average Generation Data

Nuclear Generation Daily Average - GWh (NRC)

	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	DoD	vs. 7D
NRC Nuclear Daily Output	91.9	92.2	92.6	92.7	92.7	92.7	92.7	0.0	0.2
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	13.0	12.7	12.3	12.2	12.2	12.2	12.2	0.0	-0.2
NRC % Nuclear Cap Utilization	93.4	93.7	94.2	94.3	94.3	94.3	94.3	0.0	0.2

Wind Generation Daily Average - MWh (EIA)

	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	DoD	vs. 7D
CALI Wind	1912	1903	2561	3629	4191	2822	2623	-199	-214
TEXAS Wind	18829	19443	16463	14046	7789	4346	2507	-1840	-10980
US Wind	49061	52778	54647	48561	26370	22914	27068	4154	-15321

Generation Daily Average - MWh (EIA)

	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	DoD	vs. 7D
US Wind	49061	52778	54647	48561	26370	22914	27068	4154	-15321
US Solar	14425	13445	13051	13804	13377	11366	11932	566	-1313
US Petroleum	4187	5382	4803	5516	5347	3817	3268	-549	-1574
US Other	9693	10340	10353	10185	10342	9383	8957	-426	-1093
US Coal	142603	149372	149499	150898	152667	140750	128425	-12325	-19207
US Nuke	94652	94812	95168	95067	95166	94844	94943	99	-9
US Hydro	25293	27469	29190	30033	31082	27408	24827	-2580	-3585
US Gas	205820	219917	223405	228724	230902	206041	184034	-22006	-35100

See National Wind and Nuclear daily charts



Storage Week Average Generation Data

Nuclear Generation Weekly Average - GWh (NRC)

	9-Jul	16-Jul	23-Jul	30-Jul	6-Aug	13-Aug	WoW	WoW Bcf/d Impact
NRC Nuclear Daily Output	89.5	90.7	90.7	89.3	90.7	91.5	0.8	-0.1
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	0.0	
NRC Nuclear Outage	15.4	14.2	14.2	15.6	14.2	13.3	-0.8	
NRC % Nuclear Cap Utilization	0.1	0.1	0.1	0.1	0.1	0.1	0.0	

Wind Generation Weekly Average - MWh (EIA)

	9-Jul	16-Jul	23-Jul	30-Jul	6-Aug	13-Aug	WoW	WoW Bcf/d Impact
CALI Wind	2604	3004	2064	1905	2237	2507	271	0.0
TEXAS Wind	3739	10817	7162	7913	5180	16319	11139	-1.9
US Wind	25696	36364	26446	29735	22376	49671	27295	-4.6

Generation Weekly Average - MWh (EIA)

	9-Jul	16-Jul	23-Jul	30-Jul	6-Aug	13-Aug	WoW	WoW Bcf/d Impact
US Wind	25696	36364	26446	29735	22376	49671	27295	-4.6
US Solar	14165	14486	14023	13977	14129	14082	-47	0.0
US Petroleum	4035	4282	3892	4729	4074	4647	573	-0.1
US Other	9159	9555	9336	9281	9058	9835	777	-0.1
US Coal	131313	131514	137620	146400	134732	140137	5405	-0.9
US Nuke	92359	93735	93488	92226	93269	94282	1012	-0.2
US Hydro	30129	30422	30191	29204	27732	26806	-926	0.2
US Gas	194605	199737	210464	224376	204525	207142	2617	

See National Wind and Nuclear daily charts



Monthly Average Generation Data

Nuclear Generation Monthly	Nuclear Generation Monthly Average - GWh (NRC)										
	2Yr Ago	2Yr Ago LY									
	Same 30 days	Same 30 days	May-21	Jun-21	Jul-21	Aug-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY		
NRC Nuclear Daily Output	94.2	90.7	81.8	88.7	90.0	91.6	90.9	1.6	0.2		
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	10.7	14.2	23.1	16.2	14.9	13.2	14.0	-1.6	-0.2		
NRC % Nuclear Cap Utilization	95.7	92.2	83.2	90.2	91.5	93.2	92.4	1.7	0.2		

Wind Generation Monthly Average - MWh (EIA)

	2Yr Ago	LY				MTD			
	Same 30 days	Same 30 days	May-21	Jun-21	Jul-21	Aug-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
CALI Wind	2119	2468	3402	2913	2338	2621	2345	282	-123
TEXAS Wind	8185	8831	12259	9675	7217	9316	8217	2099	-613
US Wind	25870	29936	46081	37299	29104	34286	31467	5182	1531

Generation Monthly Average - MWh (EIA)

Scheration monthly Average	2Yr Ago	LY				MTD			
	Same 30 days	Same 30 days	May-21	Jun-21	Jul-21	Aug-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
US Wind	25870	29936	46081	37299	29104	34286	31467	▼-2818.7	1531
US Solar	9191	11613	14488	14564	14195	13502	13682	180.1	2069
US Petroleum	5181	4421	3012	4150	4233	4217	4339	122	▼ -82
US Other	9255	9969	7439	8162	9324	9452	9367	-85	▼ -602
US Coal	128001	122196	86419	121357	137224	136418	139486	3068	17290
US Nuke	100472	92814	85517	92175	92897	94274	93520	-754	~ 706
US Hydro	33154	29948	30677	32577	29936	26971	28125	1154	▼ -1824
US Gas	218850	225656	139478	188815	207789	202341	209917	867	▼-15739
US Total	531202	526252	413542	499468	524884	521680	530038	4552	3787



See National Wind and Nuclear daily charts



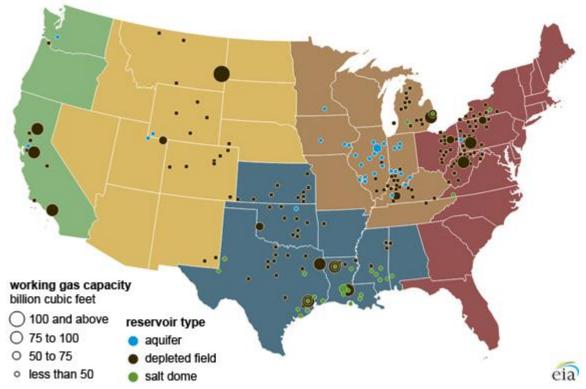
Regional S/D Models Storage Projection

Week Ending 13-Aug

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	3.9	1.3	5.1	36
East	1.2	1.4	2.6	18
Midwest	3.5	-0.2	3.3	23
Mountain	4.2	-4.2	0.0	0
South Central	-5.1	4.5	-0.5	-4
Pacific	0.0	-0.2	-0.2	-1

^{*}Adjustment Factor is calcuated based on historical regional deltas

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



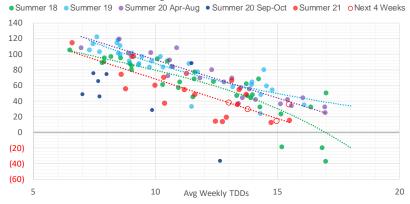


Weather Model Storage Projection

Next report and beyond

Week Ending	GWDDs	Week Storage Projection
13-Aug	15.5	36
20-Aug	13.8	29
27-Aug	15.0	14
03-Sep	13.0	38

Weather Storage Model - Next 4 Week Forecast



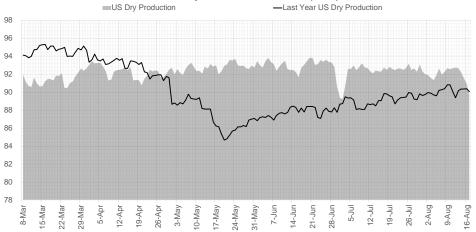
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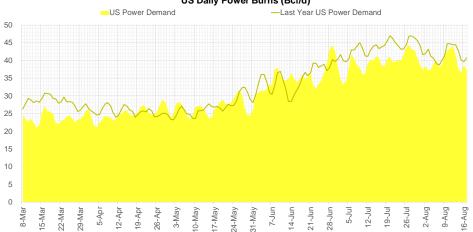


Supply - Demand Trends

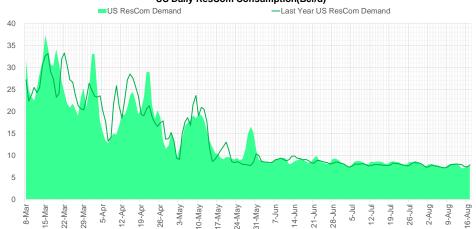
US Dry Natural Gas Production (Bcf/d)



US Daily Power Burns (Bcf/d)



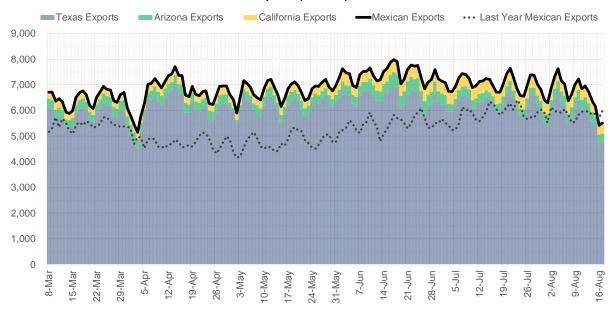
US Daily ResCom Consumption(Bcf/d)



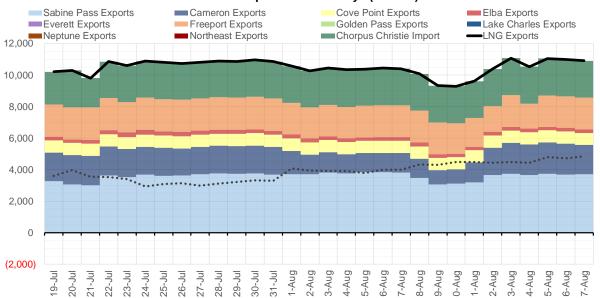
Source: Bloomberg



Mexican Exports (MMcf/d)



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



Source: Bloomberg



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

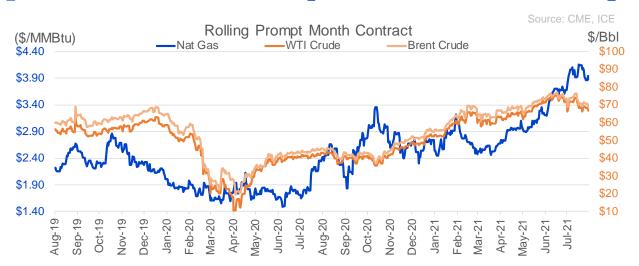
	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE	C	CONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE OI
MONTH	YEAR			VOL		MONTH	YEAR			
10	2021	Р	3.50	9623		10	2021	С	4.50	42673
10	2021	С	4.50	7201		12	2021	Р	2.75	41620
9	2021	Р	3.75	6961		10	2021	С	4.00	40791
9	2021	С	4.25	5377		12	2021	Р	2.50	38656
9	2021	С	4.00	4364		10	2021	С	5.00	37797
10	2021	С	4.25	3750		10	2021	Р	3.50	35206
10	2021	С	5.00	3729		10	2021	С	3.50	33004
10	2021	С	4.00	3480		9	2021	С	4.00	31875
9	2021	Р	3.80	3364		10	2021	Р	2.50	30044
10	2021	Р	3.25	2480		10	2021	Р	2.00	28650
9	2021	С	4.20	2474		10	2021	Р	3.00	28559
9	2021	Р	3.50	2454		10	2021	С	3.25	28230
10	2021	Р	3.75	2391		9	2021	С	4.25	27321
12	2021	Р	3.50	2301		10	2021	Р	2.75	27063
2	2022	Р	3.50	2235		9	2021	С	5.00	26562
2	2022	Р	3.75	2200		12	2021	Р	3.00	24898
9	2021	C	4.10	2191		10	2021	С	6.00	24499
11	2021	Ċ	4.50	2169		10	2021	С	4.25	23900
10	2021	Č	4.20	2140		9	2021	Р	2.50	23385
9	2021	č	4.50	2032		11	2021	Р	3.00	22744
10	2021	P	3.00	2027		9	2021	С	3.50	22610
9	2021	P	3.90	1992		9	2021	Р	3.00	22432
9	2021	P	3.85	1972		12	2021	С	4.00	22092
9		P				11	2021	С	4.00	21941
9	2021 2021	P P	4.00 3.70	1866 1710		9	2021	С	4.50	20892
		P P				9	2021	Р	2.00	20427
9	2021		3.95	1462		9	2021	С	4.75	20409
10	2021	С	4.75	1282		9	2021	Р	3.25	20099
11	2021	С	5.00	1115		9	2021	Р	3.50	20010
2	2022	P	2.50	1100		10	2021	Р	2.25	19900
9	2021	С	3.90	1043		4	2022	С	3.00	19810
10	2021	P	3.60	1020		9	2021	С	3.25	18994
1	2022	Р	2.50	1000		10	2021	С	3.00	18502
3	2022	Р	2.50	1000		11	2021	С	5.00	18107
3	2023	Р	2.75	1000		10	2021	Р	3.25	17082
4	2023	Р	2.75	1000		10	2021	С	3.75	16814
9	2021	Р	3.60	938		1	2022	С	5.00	16249
11	2021	Р	3.50	937		9	2021	Р	2.75	15816
9	2021	Р	3.45	932		9	2021	Р	4.00	15542
10	2021	Р	3.05	774		3	2022	С	5.00	15533
9	2021	С	5.00	742		2	2022	С	5.00	15276
1	2022	Р	3.50	737		11	2021	С	3.75	15026
12	2021	С	4.25	718		1	2022	C	4.00	14782
12	2021	С	4.50	700		3	2022	C	3.00	14448
11	2021	С	4.00	692		11	2021	P	2.50	14398
12	2021	Р	2.75	650		3	2022	P	2.50	13969
1	2022	Р	3.00	650		12	2021	Р	2.00	13889
11	2021	С	4.75	602		3	2022	C	8.00	13875
3	2022	Р	3.00	584		9	2021	P	2.60	13814
9	2021	C	4.30	553		3	2022			
						-	- 	Source	: CME, ICE	



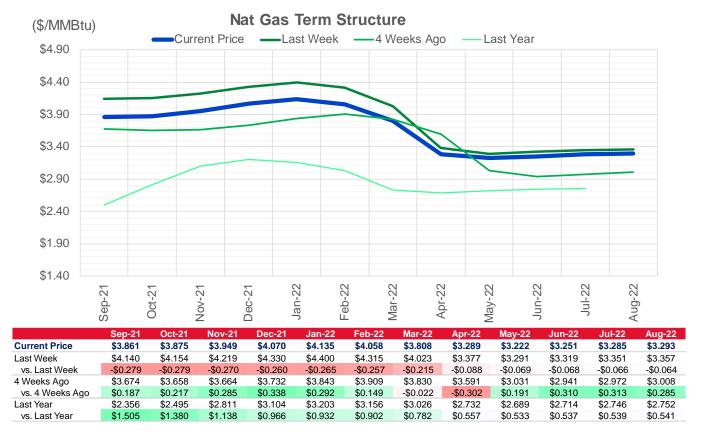
Nat Gas Futures Open Interest

CME, and ICE Combined

OMETH	CME Henry Hub Futures (10,000 MMBtu) ICE Henry Hub Futures Contract Equivalent (10,000 MM											
CME Henry				ICE Henry I			· · · · · ·					
	Current	Prior	Daily Change		Current	Prior	Daily Change					
SEP 21	114412	122136	-7724	SEP 21	83707	82934	773					
OCT 21	213048	209083	3965	OCT 21	106604	106255	349					
NOV 21	189712	187563	2149	NOV 21	69952	70024	-73					
DEC 21	83472	80922	2550	DEC 21	76678	76587	91					
JAN 22	137627	137719	-92	JAN 22	78411	78444	-34					
FEB 22	56192	55889	303	FEB 22	70991	70990	2					
MAR 22	103061	101691	1370	MAR 22	74566	74361	205					
APR 22	112879	111752	1127	APR 22	70884	70854	30					
MAY 22	99821	99235	586	MAY 22	70175	69403	772					
JUN 22	30957	30749	208	JUN 22	54925	54858	67					
JUL 22	26483	26426	57	JUL 22	55461	55210	251					
AUG 22	25334	25184	150	AUG 22	56007	55916	90					
SEP 22	26635	26011	624	SEP 22	55775	55678	97					
OCT 22	67167	67222	-55	OCT 22	63136	62613	523					
NOV 22	27778	27375	403	NOV 22	49020	48745	275					
DEC 22	24482	24343	139	DEC 22	52499	52304	195					
JAN 23	17398	17360	38	JAN 23	33393	33245	148					
FEB 23	6131	6160	-29	FEB 23	27984	27864	120					
MAR 23	9078	8841	237	MAR 23	29806	29644	162					
APR 23	10850	11013	-163	APR 23	24640	24557	83					
MAY 23	6342	6312	30	MAY 23	25595	25509	86					
JUN 23	4768	4672	96	JUN 23	23730	23674	56					
JUL 23	3853	3838	15	JUL 23	23846	23820	27					
AUG 23	3473	3474	-1	AUG 23	23711	23653	58					
SEP 23	3880	3868	12	SEP 23	23169	23143	26					
OCT 23	4672	4647	25	OCT 23	24795	24755	40					
NOV 23	1404	1392	12	NOV 23	24920	24889	31					
DEC 23	1850	1850	0	DEC 23	23594	23586	8					
JAN 24	984	984	0	JAN 24	13128	12989	140					
FEB 24	873	873	0	FEB 24	11302	11273	29					







		Cash	Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	3.80	3.32	-0.48
TETCO M3	\$/MMBtu	3.68	3.06	-0.62
FGT Zone 3	\$/MMBtu	3.71	4.12	0.41
Zone 6 NY	\$/MMBtu	3.71	3.01	-0.70
Chicago Citygate	\$/MMBtu	3.75	3.90	0.15
Michcon	\$/MMBtu	3.77	3.86	0.09
Columbia TCO Pool	\$/MMBtu	3.64	3.23	-0.41
Ventura	\$/MMBtu	3.67	3.85	0.18
Rockies/Opal	\$/MMBtu	3.65	3.78	0.13
El Paso Permian Basin	\$/MMBtu	3.60	3.83	0.23
Socal Citygate	\$/MMBtu	7.50	5.26	-2.24
Malin	\$/MMBtu	4.12	4.16	0.04
Houston Ship Channel	\$/MMBtu	3.92	4.02	0.10
Henry Hub Cash	\$/MMBtu	3.93	3.83	-0.11
AECO Cash	C\$/GJ	1.92	2.82	0.90
Station2 Cash	C\$/GJ	2.00	4.05	2.05
Dawn Cash	C\$/GJ	3.77	3.84	0.07

Source: CME, Bloomberg



		vs. 4 Weeks						
	Units	Current Price	vs.	Last Week		Ago	VS	s. Last Year
NatGas Jul21/Oct21	\$/MMBtu	0.343	•	-0.115		0.209		0.325
NatGas Oct21/Nov21	\$/MMBtu	0.073		0.005		0.012		0.023
NatGas Oct21/Jan22	\$/MMBtu	0.250		0.007		0.026		-0.026
NatGas Apr22/Oct22	\$/MMBtu	0.005		0.008		0.016		-0.042
WTI Crude	\$/Bbl	67.29		0.810		0.870		24.400
Brent Crude	\$/Bbl	69.51		0.470		0.890		24.140
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	204.83		0.620		6.310		80.920
Propane, Mt. Bel	cents/Gallon	1.12		0.040		0.049		0.620
Ethane, Mt. Bel	cents/Gallon	0.34		0.000		0.032		0.100
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

