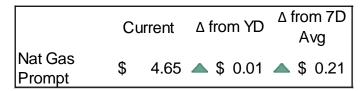


Market Report

3 September 2021



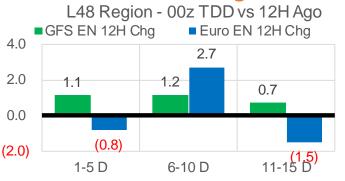
	Cu	rrent	Δfro	om YD	Δ fror Α\	n 7D /g
WTI Prompt	\$	70.24	^ \$	0.25	\$	1.3

	Cur	ront	Λ fro	m VD	∆ fror	n 7D
	Current	ΔΙΙΟ	טו וווע	Avg		
Brent Prompt	\$ 7	73.48	\$	0.45	\$	0.7

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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 ■ Euro EN 24H Chg ■GFS EN 24H Chg 4.0 2.0 0.0 (0.5)(2.0)(1.4)(1.7)(4.0)(3.8)(6.0)1-5 D 6-10 D 11-15 D

	Current	Δ from YD	Δ from 7D Avg
US Dry Production	89.7	- 0.60	▼ -1.07

	Current	Δ from YD	Δ from 7D Avg
US ResComm	7.7	- 0.05	a 0.20

	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	10.9	a 0.48	▲ 0.39

	Current	Δ from YD	Δ from 7D Avg
US Power Burns	33.2	a 0.25	▼ -4.72

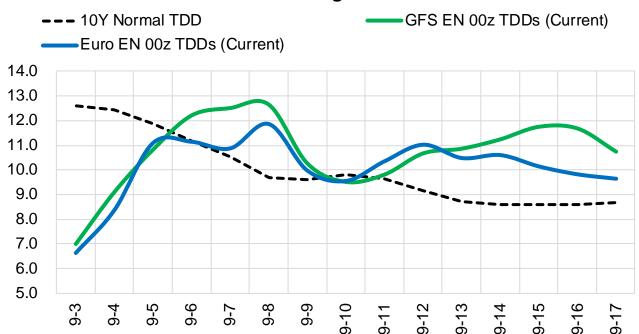
	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	4.3	▼ -0.15	- 0.66

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	7.1	0.14	0.15

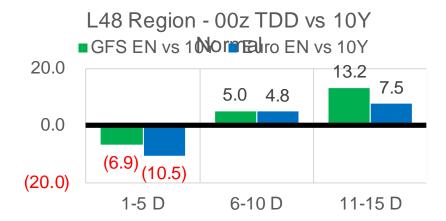


Short-term Weather Model Outlooks (00z)

L48 Region



Vs. 10Y Normal



Source: WSI, Bloomberg



Market Report

Lower 48 Component Models

Daily Balances

	28-Aug	29-Aug	30-Aug	31-Aug	1-Sep	2-Sep	3-Sep	DoD	vs.7D
Lower 48 Dry Production	90.3	90.5	91.2	91.1	91.0	90.3	89.7	▼ -0.6	▼-1.0
Canadian Imports	4.9	5.0	5.3	5.1	4.7	4.5	4.3	▼-0.2	▼ -0.6
L48 Power	39.0	39.2	40.9	37.5	34.7	33.0	33.2	0.2	▼ -4.1
L48 Residential & Commercial	7.0	7.1	7.6	7.4	7.6	7.7	7.7	▼ 0.0	a 0.3
L48 Industrial	20.6	20.2	19.8	19.6	19.2	19.0	18.9	▼-0.1	▼ -0.8
L48 Lease and Plant Fuel	5.0	5.0	5.0	5.0	5.0	5.0	4.9	▼ 0.0	▼ -0.1
L48 Pipeline Distribution	2.2	2.2	2.4	2.2	2.2	2.1	2.1	0.0	▼ -0.1
L48 Regional Gas Consumption	73.8	73.8	75.7	71.8	68.6	66.8	66.9	0.1	▼ -4.9
Net LNG Delivered	11.03	10.87	10.27	10.12	9.73	10.39	10.86	0.5	0.5
Total Mexican Exports	6.6	6.4	7.2	7.2	7.2	7.0	7.1	0.1	▲ 0.2
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	3.8	4.4	3.3	7.1	10.2	10.7	9.2		

EIA Storage Week Balances

	30-Jul	6-Aug	13-Aug	20-Aug	27-Aug	3-Sep	WoW	vs. 4W
Lower 48 Dry Production	92.6	91.9	92.4	92.4	93.0	90.8	▼ -2.2	▼-1.6
Canadian Imports	5.5	5.0	5.2	5.0	5.3	5.0	▼ -0.3	▼-0.2
L48 Power	42.1	38.3	41.1	39.7	41.9	38.0	▼-3.9	▼ -2.3
L48 Residential & Commercial	8.6	8.0	7.8	7.6	7.8	7.5	▼ -0.3	▼-0.3
L48 Industrial	20.5	20.1	19.2	20.9	21.1	19.9	▼ -1.2	- 0.4
L48 Lease and Plant Fuel	5.1	5.1	5.1	5.1	5.1	5.0	▼ -0.1	▼ -0.1
L48 Pipeline Distribution	2.4	2.2	2.4	2.3	2.4	2.2	▼ -0.2	▼ -0.1
L48 Regional Gas Consumption	78.6	73.7	75.6	75.6	78.3	72.6	▼ -5.7	▼-3.2
Net LNG Exports	10.8	10.6	9.9	10.9	10.6	10.5	▼ -0.1	▼ 0.0
Total Mexican Exports	7.0	6.9	6.8	6.8	6.8	7.0	0.2	0.1
Implied Daily Storage Activity	1.7	5.7	5.2	4.2	2.6	5.8	3.2	
EIA Reported Daily Storage Activity	1.9	7.0	6.6	4.1	2.9			
Daily Model Error	-0.1	-1.3	-1.4	0.0	-0.2			

Monthly Balances									
•	2Yr Ago	LY					MTD		
	Sep-18	Sep-18	May-21	Jun-21	Jul-21	Aug-21	Sep-21	MoM	vs. LY
Lower 48 Dry Production	86.6	86.6	93.1	93.4	92.4	92.2	90.3	▼-1.8	3.7
Canadian Imports	4.5	4.5	4.5	4.8	5.2	5.1	4.5	▼ -0.6	▲ 0.0
L48 Power	34.3	34.3	26.8	35.9	39.6	40.2	33.6	▼ -6.5	▼-0.7
L48 Residential & Commercial	8.5	8.5	12.8	8.9	8.6	7.7	7.7	▼ 0.0	▼-0.8
L48 Industrial	22.6	22.6	20.8	20.6	19.6	20.3	19.0	▼ -1.3	▼ -3.6
L48 Lease and Plant Fuel	4.8	4.8	5.1	5.1	5.1	5.1	5.0	▼ -0.1	0.2
L48 Pipeline Distribution	2.1	2.1	2.1	2.2	2.3	2.3	2.1	▼ -0.2	0.0
L48 Regional Gas Consumption	72.3	72.3	67.6	72.7	75.1	75.6	67.4	▼ -8.2	▼-4.9
Net LNG Exports	3.1	3.1	10.8	10.2	10.8	10.5	10.3	▼ -0.1	7.2
Total Mexican Exports	5.0	5.0	6.8	7.4	7.0	6.9	7.1	▲ 0.2	2.1
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	10.7	10.7	12.4	8.0	4.6	4.3	10.0		



Daily Average Generation Data

Nuclear Generation Daily Average - GWh (NRC)

	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	1-Sep	DoD	vs. 7D
NRC Nuclear Daily Output	91.9	91.0	90.2	90.6	89.3	90.1	90.1	0.0	-0.5
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	13.9	14.6	14.3	15.6	14.8	14.8	0.0	0.5
NRC % Nuclear Cap Utilization	93.5	92.5	91.8	92.1	90.8	91.6	91.6	0.0	-0.5

Wind Generation Daily Average - MWh (EIA)

	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	1-Sep	DoD	vs. 7D
CALI Wind	2486	1308	833	1443	2598	3005	3937	933	1992
TEXAS Wind US Wind	6565 36897	6618 37959	8681 40900	4821 28774	3359 20762	6351 31085	11690 44245	5339 13160	5624 11516

Generation Daily Average - MWh (EIA)

	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	1-Sep	DoD	vs. 7D
US Wind	36897	37959	40900	28774	20762	31085	44245	13160	11516
US Solar	14500	14271	14358	12981	12370	11119	11855	736	-1412
US Petroleum	6412	5341	3872	3117	2666	2316	2314	-2	-1640
US Other	10190	9820	9689	9410	10148	10058	8947	-1111	-938
US Coal	144353	145284	136089	136235	146802	139611	129963	-9648	-11432
US Nuke	94318	92900	92092	91978	91825	92283	92622	340	57
US Hydro	31530	30341	28440	26393	26763	27951	28926	975	356
US Gas	238362	229831	207657	205089	226570	207547	186160	-21387	-33016

See National Wind and Nuclear daily charts



Storage Week Average Generation Data

Nucl	ear C	eneration	Wee	ekly .	Averag	je -	GW h	(NRC)	
------	-------	-----------	-----	--------	--------	------	-------------	-------	--

	30-Jul	6-Aug	13-Aug	20-Aug	27-Aug	3-Sep	WoW	WoW Bcf/d Impact
NRC Nuclear Daily Output	89.3	90.6	91.5	92.4	91.9	90.2	-1.7	0.3
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	0.0	
NRC Nuclear Outage	15.6	14.3	13.3	12.5	13.0	14.7	1.7	
NRC % Nuclear Cap Utilization	0.1	0.1	0.1	0.1	0.1	0.1	0.0	

Wind Generation Weekly Average - MWh (EIA)

	30-Jul	6-Aug	13-Aug	20-Aug	27-Aug	3-Sep	WoW	Bcf/d Impact
CALI Wind	1905	2237	2507	3210	2052	2437	385	-0.1
TEXAS Wind	7913	5180	16319	7171	12600	7601	-4998	0.9
US Wind	29738	22379	49586	29141	41810	35424	-6385	1.1
					12668.4 43%			

Generation Weekly Average - MWh (EIA)

	30-Jul	6-Aug	13-Aug	20-Aug	27-Aug	3-Sep	WoW	WoW Bcf/d Impact
US Wind	29738	22379	49586	29141	41810	35424	-6385	1.1
US Solar	13978	14131	14383	12828	14462	12687	-1776	0.3
US Petroleum	4729	4074	4712	4466	5323	3134	-2189	0.4
US Other	9289	9070	10070	10104	10095	9574	-521	0.1
US Coal	146407	134740	140524	138052	136168	137707	1539	-0.3
US Nuke	92266	93328	94302	95157	94358	92332	-2026	0.4
US Hydro	29215	27752	27035	28988	30618	28249	-2369	0.4
US Gas	224459	204634	208281	212106	215927	207002	-8925	1.6

See National Wind and Nuclear daily charts



Monthly Average Generation Data

Nuclear Generation Monthly Average - GWh (NRC)										
	2Yr Ago LY					MTD				
	Same 30 days	Same 30 days	Jun-21	Jul-21	Aug-21	Sep-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY	
NRC Nuclear Daily Output	94.5	90.7	88.7	90.0	91.5	90.0	91.4	-1.5	0.7	
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	10.4	14.1	16.2	14.9	13.4	14.9	13.5	1.5	-0.7	
NRC % Nuclear Cap Utilization	96.1	92.3	90.2	91.5	93.0	91.5	92.9	-1.5	0.7	

Wind Generation Monthly Average - MWh (EIA)

	2Yr Ago	LY				MTD				
	Same 30 days	Same 30 days	Jun-21	Jul-21	Aug-21	Sep-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY	
CALI Wind	2225	2014	2881	2338	2442	3937	2620	1496	606	
TEXAS Wind	8063	9049	9509	7217	9901	11690	10770	1789	1721	
US Wind	26499	31819	36827	29106	35740	44245	38645	8506	6826	

Generation Monthly Average - MWh (EIA)

, , ,	2Yr Ago	LY				MTD			
	Same 30 days	Same 30 days	Jun-21	Jul-21	Aug-21	Sep-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
US Wind	26499	31819	36827	29106	35740	44245	38645	▼-5599.8	6826
US Solar	8971	10537	14578	14195	13782	11855	13567	1712.1	3029
US Petroleum	4796	3848	4155	4233	4484	2314	4334	2020	487
US Other	9116	9678	8208	9327	9881	8947	9893	4 946	215
US Coal	121689	124844	122034	137228	137637	129963	137634	~ 7670	12789
US Nuke	100899	92983	92180	92911	94062	92622	93979	1357	996
US Hydro	31164	29352	32565	29941	28528	28926	28703	▼ -223	▼ -649
US Gas	214693	215242	189395	207814	210716	186160	209930	7883	▼ -5312
US Total	519338	518098	500272	524889	534773	504927	536619	21365	18521



See National Wind and Nuclear daily charts



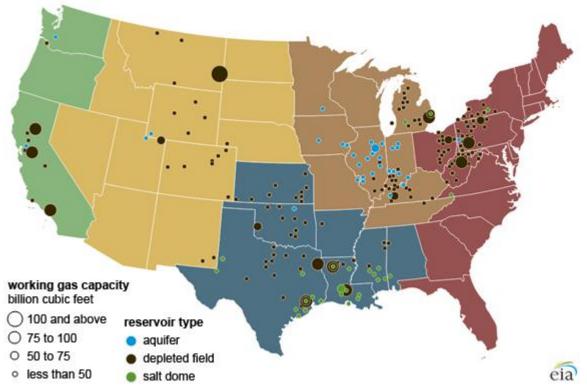
Regional S/D Models Storage Projection

Week Ending 3-Sep

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	5.5	0.9	6.3	44
East	2.1	1.1	3.1	22
Midwest	4.3	-0.2	4.1	29
Mountain	3.3	-3.4	-0.1	-1
South Central	-4.6	3.7	-0.8	-6
Pacific	0.4	-0.3	0.0	0

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

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



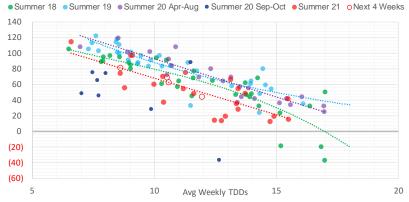


Weather Model Storage Projection

Next report and beyond

Week Ending	GWDDs	Week Storage Projection
03-Sep	12.0	44
10-Sep	10.5	69
17-Sep	10.6	63
24-Sep	8.6	81

Weather Storage Model - Next 4 Week Forecast



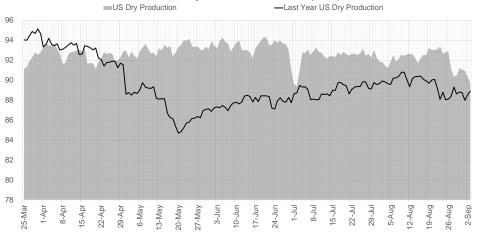
Go to larger image



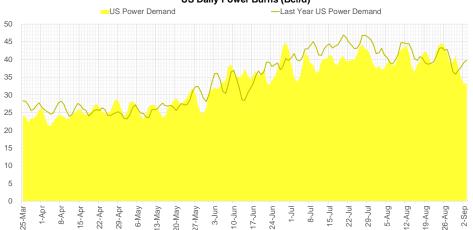


Supply - Demand Trends

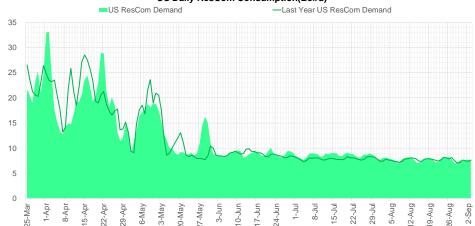
US Dry Natural Gas Production (Bcf/d)



US Daily Power Burns (Bcf/d)



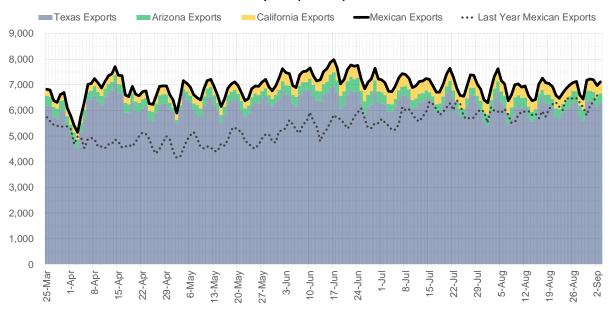
US Daily ResCom Consumption(Bcf/d)



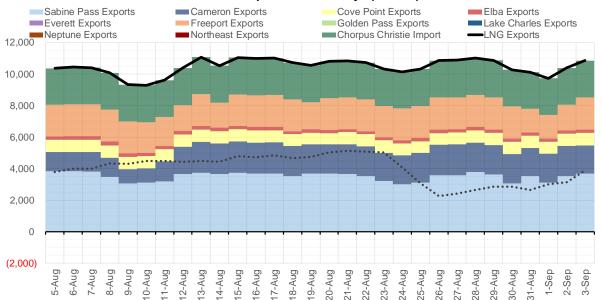
Source: Bloomberg



Mexican Exports (MMcf/d)







Source: Bloomberg



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

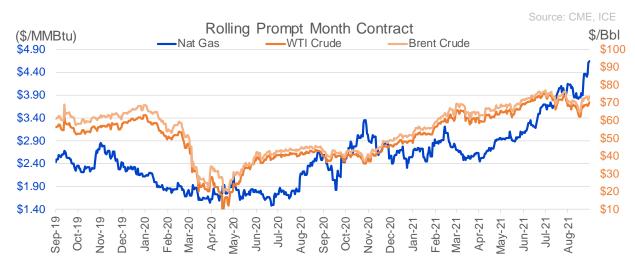
CONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE	ONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE OI
MONTH	YEAR	FUI/CALL	STRIKE	VOL	MONTH	YEAR	FUI/CALL	STRIKE	COMOLATIVE OF
10	2021	С	5.00	9793	10	2021	С	5.00	54271
10	2021	c	5.50	8952	10	2021	Č	4.00	43375
10	2021	Č	6.00	4905	10	2021	P	3.50	42497
10	2021	Č	4.75	4681	12	2021	Р	2.75	42059
11	2021	P	4.00	4481	10	2021	C	4.50	41077
10	2021	P	4.00	4019	12	2021	P	2.50	38552
11	2021	Ċ	7.00	3730	10	2021	C	3.50	32999
10	2021	Č	5.75	3730 3721	10	2021	C	4.25	32037
11	2021	Č	4.75	3669	10	2021	P	3.00	31767
3	2022	Č	10.00	3266	11	2021	Р	3.00	30694
10	2021	P	4.25	3213	10	2021	Р	2.50	29995
10	2021	P	4.50	2913	10	2021	Р	2.00	28650
10	2021	C	5.25	2798	10	2021	С	3.25	28194
3	2021	C	6.00	2790 2771	10	2021	P	2.75	26887
		P			10	2021	C	6.00	25882
11	2021		3.50	2728	12	2021	P	3.00	24617
10	2021	С	3.90	2562	10	2021	P	3.75	23841
1	2022	P	3.25	2553	11	2021	C	4.00	23281
10	2021	С	4.90	2048	10	2021	P	4.00	23104
1	2022	P	2.75	2000	12	2021	C	4.00	22646
11	2021	С	4.60	1990	11	2021	P	3.50	20069
12	2021	P	4.00	1855	10	2021	P	2.25	19900
11	2021	С	6.00	1799	4	2022	C	3.00	19760
10	2021	С	5.10	1789	11	2021	Ċ	5.00	19603
10	2021	Р	3.75	1720	10	2021	Č	3.00	18494
2	2022	Р	3.50	1587	11	2021	P	4.00	18368
1	2022	Р	4.00	1584	10	2021	P	3.25	17958
11	2021	Р	3.75	1537	3	2022	C	5.00	17528
11	2021	С	5.10	1520	1	2022	Č	5.00	17235
10	2021	С	4.65	1518	3	2022	P	2.50	17199
10	2021	Р	4.60	1505	10	2021	C	3.75	16981
11	2021	Р	4.50	1497	2	2022	C	5.00	16475
1	2022	Р	3.50	1488	12	2021	P	4.00	16077
11	2021	С	7.50	1464	2	2022	C	4.00	15828
4	2022	С	6.00	1400	3	2022	C	10.00	15826
11	2021	С	5.00	1398	1	2022	C	6.00	15785
2	2022	Р	4.00	1369	3	2022	Ċ	4.00	15774
12	2021	С	6.00	1343	3	2022	Č	8.00	15527
5	2022	С	6.00	1300	11	2021	C	7.00	15225
11	2021	С	5.75	1296	11	2021	C	4.50	15222
10	2021	С	5.15	1239	10	2021	C	5.50	15037
12	2021	С	9.00	1201	1	2022	C	4.00	14503
11	2021	С	5.50	1153	11	2021	P	2.50	14486
10	2021	Р	4.40	1090	11	2021	С	3.75	14481
10	2021	С	5.40	1058	4	2022	P	2.50	14479
3	2022	Р	3.50	1035	3	2022	C	3.00	14448
11	2021	Р	3.25	1004	10	2021	Ċ	5.25	14101
10	2021	С	4.50	1001	12	2021	P	2.00	13889
3	2022	C	4.60	1000	11	2021	C	4.25	13578
3	2022	C	5.50	1000	10	2021	С	4.35	13401
							Source	: CME, ICE	



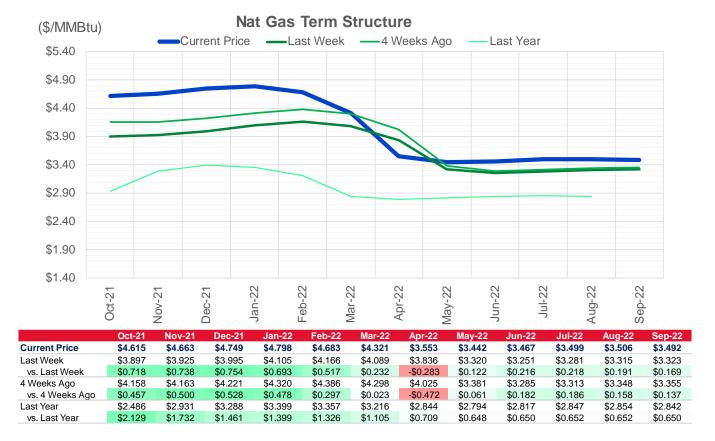
Nat Gas Futures Open Interest

CME, and ICE Combined

CME Henry Hub Futures (10,000 MMBtu) ICE Henry Hub Futures Contract Equivalent (10,000 MM							
	Current	Prior	Daily Change		Current	Prior	Daily Change
OCT 21	235526	244057	-8531	OCT 21	107699	108716	-1018
NOV 21	207215	202377	4838	NOV 21	74621	73606	1015
DEC 21	90319	91850	-1531	DEC 21	76800	76938	-138
JAN 22	148912	147411	1501	JAN 22	87169	83623	3546
FEB 22	56564	55980	584	FEB 22	67388	66943	445
MAR 22	114633	113678	955	MAR 22	71420	71626	-206
APR 22	118413	118255	158	APR 22	67380	67282	99
MAY 22	111918	111096	822	MAY 22	67463	67284	178
JUN 22	36211	35251	960	JUN 22	51107	51062	45
JUL 22	29101	29471	-370	JUL 22	52360	52383	-23
AUG 22	30172	30345	-173	AUG 22	52344	52368	-24
SEP 22	33460	33085	375	SEP 22	52459	52385	74
OCT 22	83913	83607	306	OCT 22	60575	60611	-36
NOV 22	31413	31213	200	NOV 22	46437	46350	88
DEC 22	24762	24729	33	DEC 22	49512	49195	317
JAN 23	20218	19983	235	JAN 23	35514	35455	59
FEB 23	7886	7846	40	FEB 23	29748	29740	9
MAR 23	10162	9765	397	MAR 23	31793	31687	106
APR 23	10929	10277	652	APR 23	27577	27784	-207
MAY 23	6534	6289	245	MAY 23	28508	28539	-31
JUN 23	5230	5202	28	JUN 23	26566	26598	-32
JUL 23	4036	4009	27	JUL 23	26561	26516	45
AUG 23	3236	3229	7	AUG 23	26412	26422	-10
SEP 23	4177	4146	31	SEP 23	25720	25722	-2
OCT 23	5763	4875	888	OCT 23	27693	27718	-25
NOV 23	1956	1750	206	NOV 23	27756	27824	-69
DEC 23	1795	1766	29	DEC 23	24932	25073	-141
JAN 24	1117	1090	27	JAN 24	14052	13952	101
FEB 24	880	880	0	FEB 24	11802	11708	94
MAR 24	3308	3282	26	MAR 24	15738	15637	101







	Halla	Cash	Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	4.14	3.57	-0.57
TETCO M3	\$/MMBtu	3.88	3.36	-0.52
FGT Zone 3	\$/MMBtu	3.94	4.27	0.33
Zone 6 NY	\$/MMBtu	3.94	3.35	-0.59
Chicago Citygate	\$/MMBtu	4.51	4.05	-0.47
Michcon	\$/MMBtu	4.48	4.00	-0.48
Columbia TCO Pool	\$/MMBtu	3.91	3.47	-0.44
Ventura	\$/MMBtu	4.42	3.96	-0.46
Rockies/Opal	\$/MMBtu	4.65	3.89	-0.76
El Paso Permian Basin	\$/MMBtu	4.44	3.81	-0.63
Socal Citygate	\$/MMBtu	5.51	5.13	-0.38
Malin	\$/MMBtu	4.40	4.21	-0.20
Houston Ship Channel	\$/MMBtu	4.77	4.16	-0.61
Henry Hub Cash	\$/MMBtu	4.63	3.96	-0.67
AECO Cash	C\$/GJ	2.64	3.18	0.54
Station2 Cash	C\$/GJ	2.54	4.07	1.53
Dawn Cash	C\$/GJ	4.50	4.02	-0.48

Source: CME, Bloomberg



					VS	. 4 Weeks		
	Units	Current Price	vs.	Last Week		Ago	VS	s. Last Year
NatGas Jul21/Oct21	\$/MMBtu	1.024		0.430		0.493		1.006
NatGas Oct21/Nov21	\$/MMBtu	0.051		0.001	•	-0.011		0.003
NatGas Oct21/Jan22	\$/MMBtu	0.191		-0.017	•	-0.044		-0.085
NatGas Apr22/Oct22	\$/MMBtu	-0.030		-0.031	•	-0.009		-0.053
WTI Crude	\$/Bbl	69.99		2.570		0.900		28.620
Brent Crude	\$/Bbl	73.03		1.960		1.740		28.960
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	216.77		8.450		6.170		100.000
Propane, Mt. Bel	cents/Gallon	1.19		0.075		0.096		0.690
Ethane, Mt. Bel	cents/Gallon	0.36		0.025		0.017		0.169
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

