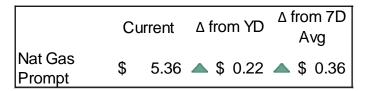


# **Market Report**

# 27 September 2021



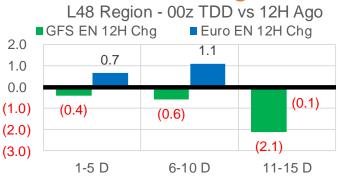
	Currei	nt Δ from Y	Δ from 7D Avg
WTI Prompt	\$ 75.	02 📤 \$ 1.0	04 📤 \$ 2.4

	_	urrant	Λfı	ro	~ VD	Δ from 7D			
	C	Current ∆ from YD		Avg					
Brent Prompt	\$	79.19		\$	1.10	<b>\$</b>	2.6		

#### 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

1.0

0.0

(1.0)

(2.0)

L48 Region - 00z TDD vs 24H Ago

Euro EN 24H Chg

(0.1)

(1.4)

(1.1)

(1.7)

1-5 D

6-10 D

11-15 D

	Current	Δ from YD	Δ from 7D Avg
US Dry Production	91.6	<b>▼</b> -1.58	<b>▼</b> -1.12

	Current	Δ from YD	Δ from 7D Avg
US ResComm	7.3	<b>-</b> 0.36	<b>▼</b> -1.39

	Current	Δ from YD	Δ from 7D Avg		
Net LNG Exports	10.6	<b>0.15</b>	<b>a</b> 0.51		

	Current	Δ from YD	Δ from 7D Avg		
US Power Burns	29.2	<b>1.13</b>	<b>▼</b> -1.58		

	Current	Δf	rom YD	Δfı	rom 7D Avg
Canadian Imports	5.8		0.16		0.33

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	6.4	<b>a</b> 0.07	<b>▼</b> -0.35



7.0

6.5

6.0

5.5

5.0

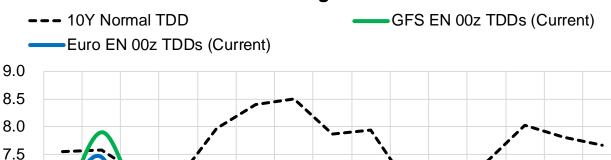
9-28

9-27

9-29

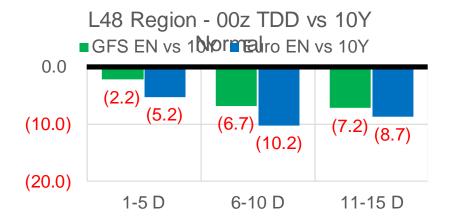
## Short-term Weather Model Outlooks (00z)

## L48 Region



## 9-30 10-1 10-3 10-6 10-6 10-9 10-10

## Vs. 10Y Normal



Source: WSI, Bloomberg



# **Market Report**

# Lower 48 Component Models

#### **Daily Balances**

	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	DoD	vs.7D
Lower 48 Dry Production	92.7	92.0	92.5	92.4	92.9	93.1	91.6	▼-1.6	▼-1.0
Canadian Imports	5.2	5.5	5.6	5.7	5.6	5.6	5.8	<b>0.2</b>	▲ 0.2
L48 Power	33.4	32.3	30.5	29.0	27.8	28.0	29.2	<b>1.1</b>	▼-1.0
L48 Residential & Commercial	8.2	9.5	10.2	8.8	8.9	7.7	7.3	<b>-</b> 0.4	<b>▼</b> -1.6
L48 Industrial	20.6	21.0	21.5	21.8	22.1	22.1	22.0	▼-0.1	<b>0.5</b>
L48 Lease and Plant Fuel	5.1	5.1	5.1	5.1	5.1	5.1	5.0	▼-0.1	▼ -0.1
L48 Pipeline Distribution	2.1	2.1	2.1	1.9	1.9	1.8	1.9	<b>0.0</b>	▼ -0.1
L48 Regional Gas Consumption	69.4	70.0	69.4	66.7	65.8	64.8	65.5	<b>0.6</b>	▼ -2.2
Net LNG Delivered	9.82	10.24	9.47	10.60	10.80	10.48	10.63	<b>0.2</b>	<b>0.4</b>
Total Mexican Exports	7.0	7.1	6.8	6.6	6.3	6.3	6.4	<b>0.1</b>	▼ -0.3
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	11.7	10.1	12.4	14.3	15.6	17.2	14.9		

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

	20-Aug	27-Aug	3-Sep	10-Sep	17-Sep	24-Sep	WoW	vs. 4W
Lower 48 Dry Production	92.4	93.0	90.8	91.2	91.6	92.7	<b>1.1</b>	<b>1.1</b>
Canadian Imports	5.0	5.3	5.0	4.8	5.2	5.2	▲ 0.0	▲ 0.1
L48 Power	39.7	41.9	38.1	33.7	35.0	33.2	▼-1.8	<b>▼</b> -4.0
L48 Residential & Commercial	7.6	7.8	7.5	7.1	7.3	8.2	<b>0.9</b>	<b>a</b> 0.8
L48 Industrial	20.9	20.9	18.8	19.6	21.0	20.7	▼ -0.2	<b>0.7</b>
L48 Lease and Plant Fuel	5.1	5.1	5.0	5.0	5.0	5.1	<b>0.1</b>	<b>0.1</b>
L48 Pipeline Distribution	2.3	2.4	2.2	2.1	2.2	2.1	▼ 0.0	<b>▼</b> -0.1
L48 Regional Gas Consumption	75.6	78.2	71.6	67.5	70.4	69.3	▼-1.1	▼ -2.6
Net LNG Exports	10.9	10.6	10.5	11.0	10.2	9.9	▼ -0.3	▼-0.6
Total Mexican Exports	6.8	6.8	7.0	6.7	6.6	6.8	<b>▲</b> 0.2	▲ 0.0
Implied Daily Storage Activity	4.2	2.8	6.7	10.9	9.5	11.8	2.3	
EIA Reported Daily Storage Activity	4.1	2.9	7.4	11.9	10.9			
Daily Model Error	0.1	-0.1	-0.7	-1.0	-1.4			

Monthly Balances									
•	2Yr Ago	LY					MTD		
	Sep-19	Sep-20	May-21	Jun-21	Jul-21	Aug-21	Sep-21	MoM	vs. LY
Lower 48 Dry Production	94.4	89.1	93.1	93.4	92.4	92.2	91.9	▼ -0.3	<b>2.7</b>
Canadian Imports	4.7	3.8	4.5	4.8	5.2	5.1	5.1	▼ 0.0	<b>1.3</b>
L48 Power	36.3	34.4	26.8	35.9	39.6	40.2	33.2	<b>▼</b> -7.0	<b>▼</b> -1.2
L48 Residential & Commercial	8.2	8.8	12.8	8.9	8.6	7.7	7.6	▼ -0.1	<b>▼</b> -1.2
L48 Industrial	22.5	20.3	20.8	20.6	19.6	20.1	20.5	<b>0.4</b>	<b>0.2</b>
L48 Lease and Plant Fuel	5.1	4.9	5.1	5.1	5.1	5.1	5.1	▼ 0.0	<b>0.2</b>
L48 Pipeline Distribution	2.2	2.2	2.1	2.2	2.3	2.3	2.1	▼ -0.2	<b>▼</b> -0.1
L48 Regional Gas Consumption	74.5	70.6	67.6	72.7	75.1	75.4	68.4	▼ -7.0	▼-2.2
Net LNG Exports	6.2	5.9	10.8	10.2	10.8	10.5	10.4	▼ -0.1	<b>4.4</b>
Total Mexican Exports	5.3	6.1	6.8	7.4	7.1	6.9	6.7	▼ -0.2	<b>0.6</b>
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	13.2	10.2	12.4	8.0	4.6	4.5	11.5		



# **Daily** Average Generation Data

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

	19-Sep	20-Sep	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	DoD	vs. 7D
NRC Nuclear Daily Output	85.4	85.8	86.2	86.6	86.5	86.5	86.5	0.0	0.3
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	19.5	19.0	18.7	18.3	18.4	18.4	18.4	0.0	-0.3
NRC % Nuclear Cap Utilization	86.8	87.3	87.6	88.1	88.0	87.9	87.9	0.0	0.3

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

	19-Sep	20-Sep	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	DoD	vs. 7D
CALI Wind	3843	1687	681	1454	1560	828	1682	854	7
TEXAS Wind	6921	14461	15903	5860	11025	10189	7123	-3066	-3603
US Wind	47333	57480	49488	33230	44897	45990	34443	-11547	-11960

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

	19-Sep	20-Sep	21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	DoD	vs. 7D
US Wind	47333	57480	49488	33230	44897	45990	34443	-11547	-11960
US Solar	12764	12291	10389	12552	11856	12102	13118	1015	1125
US Petroleum	2542	3067	2632	2491	2171	1711	1835	124	-601
US Other	9132	8907	8667	8885	8467	8344	8178	-165	-555
US Coal	106136	109686	109937	107259	96633	91842	90534	-1308	-13049
US Nuke	87773	88563	89207	89642	89850	89617	89000	-617	-108
US Hydro	22632	25578	26636	26671	26711	27103	24960	-2143	-928
US Gas	168756	176790	173146	171981	154958	143514	135201	-8313	-29656

See National Wind and Nuclear daily charts



# **Storage Week** Average Generation Data

	<b>Nuclear</b>	Generation	Weekly	Average -	<b>GWh</b>	(NRC)
--	----------------	------------	--------	-----------	------------	-------

	20-Aug	27-Aug	3-Sep	10-Sep	17-Sep	24-Sep	WoW	WoW Bcf/d Impact
NRC Nuclear Daily Output	92.4	91.9	90.2	90.3	86.7	85.9	-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	12.5	12.9	14.7	14.6	18.2	19.0	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)

	20-Aug	27-Aug	3-Sep	10-Sep	17-Sep	24-Sep	WoW	WoW Bcf/d Impact
CALI Wind	3210	2052	2247	1236	2083	1936	-148	0.0
TEXAS Wind	7171	12600	7534	7327	9541	9780	239	0.0
US Wind	29243	41912	35441	30659	42355	43173	819	-0.1
					11695.5			
					38%			

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

	20-Aug	27-Aug	3-Sep	10-Sep	17-Sep	24-Sep	WoW	WoW Bcf/d Impact
US Wind	29243	41912	35441	30659	42355	43173	819	-0.1
US Solar	12828	14536	13410	14316	14116	11974	-2143	0.4
US Petroleum	4466	5323	3135	2072	2470	2594	124	0.0
US Other	10104	10131	9766	8934	9277	8976	-301	0.1
US Coal	138055	136177	136318	116993	115066	109063	-6003	1.1
US Nuke	95157	94358	92365	93162	89489	88714	-775	0.1
US Hydro	28988	30621	28181	26944	24140	25333	1193	-0.2
US Gas	212121	216025	205503	181094	182107	174684	-7423	1.3

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	89.9	89.2	88.7	90.1	91.5	87.6	87.9	-3.9	-1.3		
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	15.0	15.7	16.2	14.8	13.4	17.2	17.0	3.9	1.3		
NRC % Nuclear Cap Utilization	91.4	90.7	90.2	91.6	93.0	89.1	89.3	-3.9	-1.4		

#### 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	2211	1528	2881	2338	2442	1822	1875	-619	347	
TEXAS Wind	7726	7147	9509	7217	9901	8926	8518	-975	1371	
US Wind	31396	31737	36864	29217	35830	38917	37726	3088	5989	

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

Concration months, 7ttorago	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	31396	31737	36864	29217	35830	38917	37726	▼-1191.0	<b>5989</b>
US Solar	8276	9310	14577	14195	13846	13393	13296	<b>-</b> 96.9	<b>3987</b>
US Petroleum	4391	2959	4155	4233	4484	2289	2330	<b>4</b> 1	<b>▼</b> -629
US Other	8071	8460	8205	9327	9929	8933	9052	<b>119</b>	<b>592</b>
US Coal	115866	98447	122034	137228	137655	111149	114136	<b>2987</b>	<b>15689</b>
US Nuke	96502	92138	92180	92911	94062	90432	90591	<b>160</b>	<b>▼</b> -1547
US Hydro	27129	26311	32566	29941	28532	25710	25846	<b>135</b>	<b>▼</b> -465
US Gas	192112	179782	189395	207823	210824	173102	177142	<b>2155</b>	<b>▼</b> -2640
US Total	485437	449266	500268	524889	534996	464222	470348	<b>5500</b>	<b>21082</b>



See National Wind and Nuclear daily charts



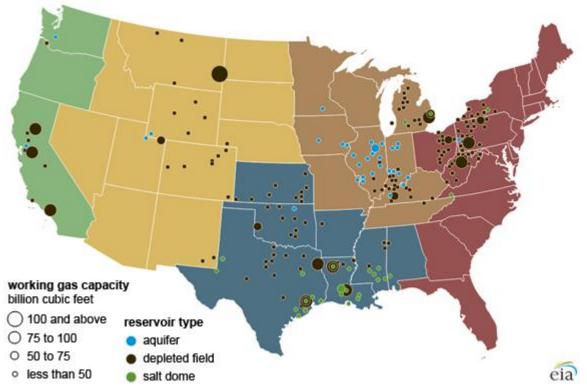
# Regional S/D Models Storage Projection

Week Ending 24-Sep

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	11.5	1.3	12.8	89
East	3.0	0.7	3.7	26
Midwest	5.1	-0.7	4.4	31
Mountain	3.8	-3.6	0.2	2
South Central	-1.1	5.3	4.2	29
Pacific	0.7	-0.4	0.2	2

<sup>\*</sup>Adjustment Factor is calcuated based on historical regional deltas

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



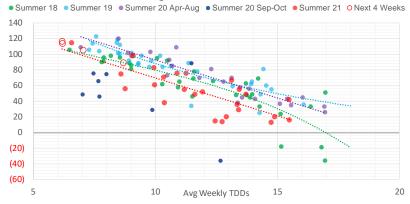


# Weather Model Storage Projection

# Next report and beyond

Week Ending	GWDDs	Week Storage Projection
24-Sep	8.7	89
01-Oct	6.2	114
08-Oct	6.2	117
15-Oct	7.0	106

#### Weather Storage Model - Next 4 Week Forecast



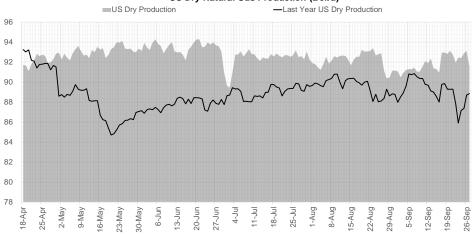
Go to larger image



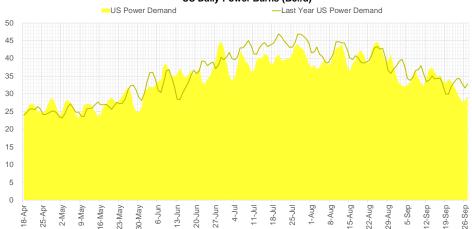


### Supply - Demand Trends

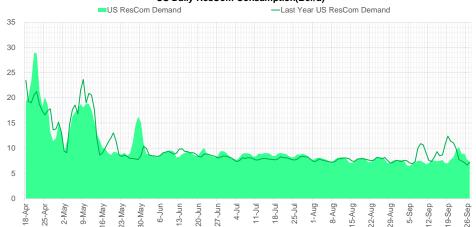
#### US Dry Natural Gas Production (Bcf/d)



#### US Daily Power Burns (Bcf/d)



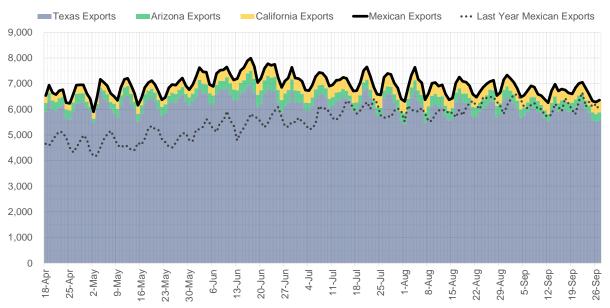
#### US Daily ResCom Consumption(Bcf/d)



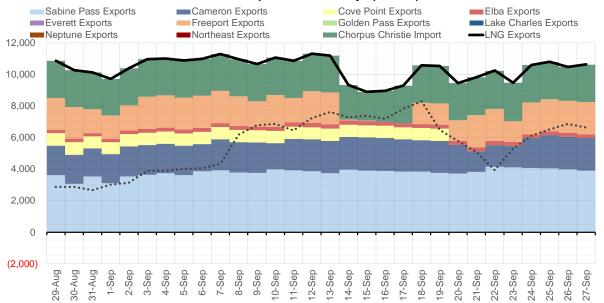
Source: Bloomberg



#### Mexican Exports (MMcf/d)







Source: Bloomberg



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

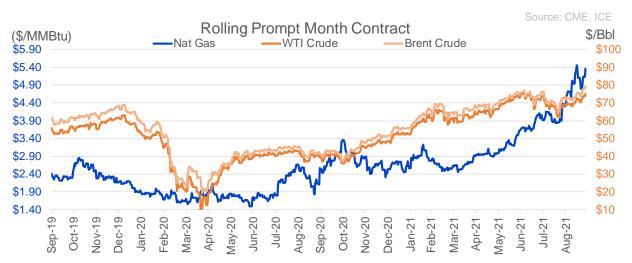
	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE	O	CONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE OI
MONTH	YEAR	1 0 1/0/122	01111112	VOL		MONTH	YEAR	1 01/0/122	OTTAIL	0011021111201
10	2021	Р	5.00	5752		10	2021	С	5.00	53697
10	2021	C	5.25	5073		10	2021	C	6.00	48830
10	2021	Č	6.00	4816		12	2021	Р	2.75	42009
12	2021	P	3.50	4214		10	2021	Р	3.50	41998
10	2021	C	5.50	3167		10	2021	С	4.00	41711
11	2021	P	4.00	3055		10	2021	С	4.50	39074
12	2021	Р	4.00	2774		12	2021	Р	2.50	38547
10	2021	C	5.00	2708		10	2021	С	3.50	32999
10	2021	C	5.10	2433		10	2021	С	4.25	32763
3	2022	C	9.00	2335		10	2021	Р	3.00	31755
12	2021	C	10.00	2294		11	2021	Р	3.00	30130
11	2021	P	5.00	2214		10	2021	Р	2.50	29993
3	2022	C	8.00	2142		10	2021	Р	2.00	28650
11	2021	P	4.50	2047		10	2021	Р	4.00	28601
10	2021	C	5.20	1869		10	2021	С	3.25	28188
11	2021	Č	5.50	1868		10	2021	Р	2.75	26887
10	2021	Č	5.30	1817		3	2022	С	10.00	26787
10	2021	P	4.90	1804		12	2021	Р	3.00	26620
11	2021	P	4.25	1760		11	2021	Р	4.00	25064
3	2022	P	3.75	1725		3	2022	С	8.00	24461
11	2022	P	4.75	1690		10	2021	Р	4.25	23838
2	2022	P	3.30	1600		11	2021	С	4.00	23311
12	2022	C	7.00	1512		12	2021	Р	4.00	22688
12 11		C				10	2021	Р	4.50	22618
	2021		4.75	1500		12	2021	С	4.00	22596
10	2021	C P	5.15	1499		10	2021	Р	3.75	22037
1	2022		3.50	1476		11	2021	С	7.00	21805
2	2022	С	7.00	1461		3	2022	Р	3.50	21492
2	2022	С	6.00	1323		11	2021	Р	3.50	21294
1	2022	P	4.20	1254		3	2022	С	5.00	20030
1	2022	P	3.30	1250		11	2021	С	6.00	19834
3	2022	P	3.00	1250		10	2021	Р	2.25	19784
10	2021	P	4.95	1190		4	2022	С	3.00	19760
3	2022	C	10.00	1134		10	2021	С	3.00	18486
10	2021	P	4.75	1116		2	2022	Р	3.50	18426
1	2022	P	4.00	1106		10	2021	С	5.50	18109
11	2021	С	7.00	1054		1	2022	С	5.00	17967
10	2021	С	5.05	1038		10	2021	Р	3.25	17940
11	2021	С	6.25	1006		12	2021	С	6.00	17494
10	2021	Р	4.00	1004		2	2022	С	5.00	17063
2	2022	Р	4.15	1000		1	2022	Р	3.50	16872
12	2021	С	4.50	950		10	2021	С	3.75	16780
2	2022	Р	3.50	950		3	2022	Р	2.50	16638
11	2021	Р	3.75	948		3	2022	С	4.00	16441
2	2022	С	10.00	945		11	2021	С	5.00	16382
10	2021	Р	5.05	939		10	2021	С	5.25	16375
3	2022	Р	2.75	915		12	2021	С	7.00	15818
12	2021	С	5.50	880		2	2022	С	4.00	15301
3	2022	С	15.00	866		11	2021	С	4.50	15135
11	2021	С	5.75	827		4	2022	P	2.5	14982
								Source	: CME, ICE	



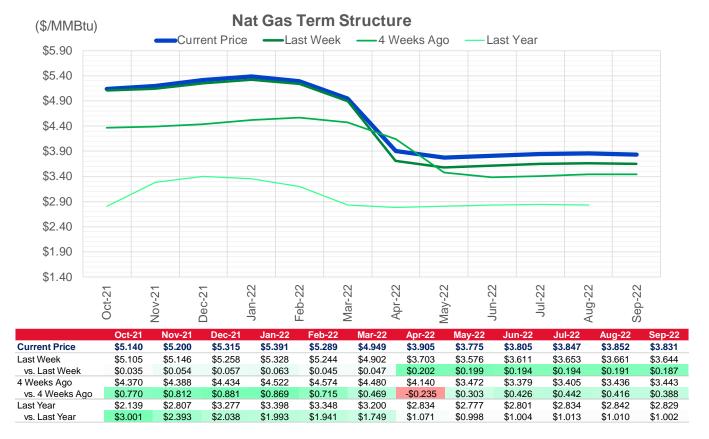
# Nat Gas Futures Open Interest

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	20047	27388	-7341	OCT 21	88636	91968	-3332
NOV 21	277377	279998	-2621	NOV 21	84976	82756	2220
DEC 21	93213	94343	-1130	DEC 21	76275	75920	355
JAN 22	163122	162093	1029	JAN 22	94687	95363	-676
FEB 22	58143	58397	-254	FEB 22	69606	69938	-332
MAR 22	125222	123834	1388	MAR 22	74024	74627	-603
APR 22	119131	118970	161	APR 22	72737	72754	-17
MAY 22	117808	118204	-396	MAY 22	69906	69881	26
JUN 22	41308	40682	626	JUN 22	53989	53824	165
JUL 22	37875	37803	72	JUL 22	56048	55915	133
AUG 22	32189	32006	183	AUG 22	54768	54991	-223
SEP 22	33808	34381	-573	SEP 22	55266	55202	64
OCT 22	87621	87667	-46	OCT 22	61922	61764	158
NOV 22	32320	32297	23	NOV 22	48158	48033	125
DEC 22	26279	25911	368	DEC 22	51434	51298	136
JAN 23	23178	23025	153	JAN 23	37819	37294	525
FEB 23	9497	9480	17	FEB 23	31005	30767	238
MAR 23	12310	12312	-2	MAR 23	32646	32382	264
APR 23	12705	12265	440	APR 23	31167	30430	737
MAY 23	6688	6730	-42	MAY 23	30388	30126	263
JUN 23	6114	6129	-15	JUN 23	28241	27957	284
JUL 23	4194	4199	-5	JUL 23	28426	28125	301
AUG 23	3224	3218	6	AUG 23	28170	27908	262
SEP 23	4608	4599	9	SEP 23	27509	27218	291
OCT 23	5686	5685	1	OCT 23	29750	29488	262
NOV 23	2224	2124	100	NOV 23	28679	27981	698
DEC 23	2254	2142	112	DEC 23	27541	27430	111
JAN 24	1490	1430	60	JAN 24	15099	14987	112
FEB 24	1078	1089	-11	FEB 24	12740	12501	239
MAR 24	3344	3342	2	MAR 24	17394	17197	197







		Cash	Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	4.25	4.77	0.52
TETCO M3	\$/MMBtu	4.00	3.91	-0.09
FGT Zone 3	\$/MMBtu	3.95	5.18	1.23
Zone 6 NY	\$/MMBtu	3.95	3.74	-0.21
Chicago Citygate	\$/MMBtu	4.48	4.92	0.44
Michcon	\$/MMBtu	4.52	4.85	0.33
Columbia TCO Pool	\$/MMBtu	4.10	4.04	-0.06
Ventura	\$/MMBtu	4.80	4.84	0.04
Rockies/Opal	\$/MMBtu	5.16	4.81	-0.34
El Paso Permian Basin	\$/MMBtu	4.30	4.77	0.47
Socal Citygate	\$/MMBtu	6.01	6.04	0.03
Malin	\$/MMBtu	5.40	5.35	-0.05
Houston Ship Channel	\$/MMBtu	4.95	5.11	0.16
Henry Hub Cash	\$/MMBtu	5.03	4.87	-0.17
AECO Cash	C\$/GJ	2.03 3.12		1.09
Station2 Cash	C\$/GJ	0.75	5.63	4.88
Dawn Cash	C\$/GJ	4.40	4.79	0.39

Source: CME, Bloomberg



						4 10/2 - 1		
					VS	s. 4 Weeks		
	Units	<b>Current Price</b>	VS.	<b>Last Week</b>		Ago	VS	s. Last Year
NatGas Jul21/Oct21	\$/MMBtu	1.523		0.035		0.752		1.499
NatGas Oct21/Nov21	\$/MMBtu	0.060		0.019		0.014		0.006
NatGas Oct21/Jan22	\$/MMBtu	0.251		0.028		0.065		-0.043
NatGas Apr22/Oct22	\$/MMBtu	-0.046		-0.015		-0.033		-0.059
WTI Crude	\$/Bbl	73.98		2.010		5.240		33.730
Brent Crude	\$/Bbl	78.09		2.750		5.390		36.170
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	226.71		5.800		15.790		114.090
Propane, Mt. Bel	cents/Gallon	1.28		0.001		0.163		0.782
Ethane, Mt. Bel	cents/Gallon	0.38		0.000		0.049		0.186
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**

