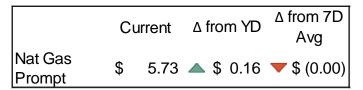


### 11 October 2021



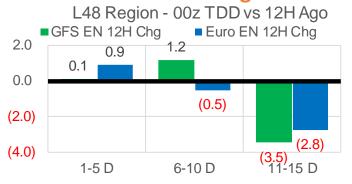
	С	urrent	Δ fro	m YD	Δ from 7D Avg		
WTI Prompt	\$	81.86	<b>\$</b>	2.51	<b>\$</b>	3.2	

	Current	Δ from YD	Δ fron Αν	
Brent Prompt	\$ 84.48	<b>\$</b> 2.09	<b>\$</b>	2.5

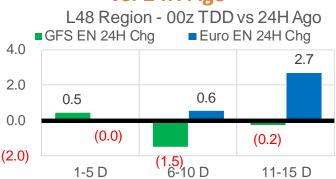
### Page Menu

**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



	Current	Δ from YD	Δ from 7D Avg
US Dry Production	1.8	<b>▼</b> -90.94	▼ -90.87

	Current	Δ from YD	Δ from 7D Avg		Current	Δ from YD	Δ from 7D Avg
S Dry roduction	1.8	<b>▼</b> -90.94	<b>▼</b> -90.87	US Power Burns	30.9	<b>0.46</b>	<b>▼</b> -1.81
							_

	Current	Δfı	om YD	Δ from 7D Avg		
US ResComm	9.7		1.11	1.46		

	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	4.7	▼ -0.24	<b>▼</b> -0.41

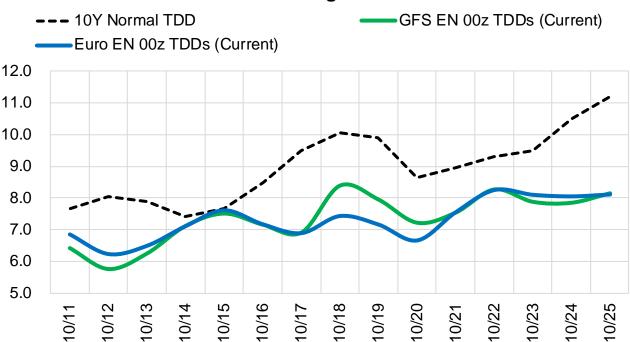
	Current	Δ from YD	Δ from 7D Avg		
Net LNG Exports	10.5	<b>▼</b> -0.02	<b>0.50</b>		

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	6.4	<b>0.12</b>	▼ -0.11

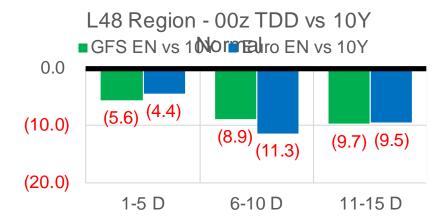


### Short-term Weather Model Outlooks (00z)

### L48 Region



### Vs. 10Y Normal



Source: WSI, Bloomberg



# Lower 48 Component Models

### **Daily Balances**

	5-Oct	6-Oct	7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	DoD	vs. 7D
Lower 48 Dry Production	92.9	92.3	92.4	92.5	92.7	92.7	1.8	-90.9	-90.8
Canadian Imports	5.2	5.0	5.0	4.9	4.9	4.9	4.7	-0.2	-0.4
L48 Power	33.8	33.7	33.9	32.9	30.0	30.4	30.9	0.5	-1.6
L48 Residential & Commercial	8.3	8.0	8.1	8.3	8.4	8.5	9.7	1.1	1.4
L48 Industrial	21.6	21.5	21.2	20.4	19.8	19.5	19.5	-0.1	-1.2
L48 Lease and Plant Fuel	5.1	5.0	5.0	5.0	5.1	5.1	5.0	0.0	0.0
L48 Pipeline Distribution	2.2	2.2	2.2	2.2	2.1	2.1	2.2	0.1	0.0
L48 Regional Gas Consumption	71.0	70.4	70.4	68.8	65.4	65.7	67.2	1.6	-1.4
Net LNG Delivered	9.07	8.95	10.03	10.67	10.70	10.54	10.53	0.0	0.5
Total Mexican Exports	6.7	6.5	6.6	6.5	6.2	6.3	6.4	0.1	-0.1
Implied Daily Storage Activity	11.3	11.4	10.4	11.4	15.5	15.2	-77.7		
EIA Reported Daily Storage Activity Daily Model Error									

### **EIA Storage Week Balances**

	3-Sep	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	WoW	vs. 4W
Lower 48 Dry Production	90.9	91.3	91.8	92.9	93.2	92.8	▼ -0.4	<b>0.6</b>
Canadian Imports	5.0	4.8	5.2	5.2	5.7	5.3	▼ -0.4	<b>△</b> 0.1
L48 Power	38.1	33.8	35.0	33.2	30.2	32.7	<b>2.5</b>	<b>▼</b> -0.4
L48 Residential & Commercial	7.4	6.9	7.2	8.0	8.4	8.2	▼-0.2	<b>0.5</b>
L48 Industrial	18.8	19.6	20.8	20.6	20.2	21.4	<b>1.2</b>	<b>1.1</b>
L48 Lease and Plant Fuel	5.0	5.0	5.0	5.1	5.1	5.1	▼ 0.0	<b>0.0</b>
L48 Pipeline Distribution	2.4	2.2	2.3	2.3	2.1	2.2	<b>0.1</b>	▼ 0.0
L48 Regional Gas Consumption	71.7	67.5	70.3	69.1	65.9	69.5	<b>3.5</b>	<b>1.3</b>
Net LNG Exports	10.5	11.0	10.2	9.9	10.3	9.9	▼ -0.4	▼-0.4
Total Mexican Exports	7.0	6.7	6.6	6.8	6.7	6.5	▼ -0.1	▼-0.2
Implied Daily Storage Activity	6.7	10.9	9.8	12.2	16.0	12.2	-3.7	
EIA Reported Daily Storage Activity	7.4	11.9	10.9	12.6	16.9			
Daily Model Error	-0.7	-1.0	-1.0	-0.4	-0.9			

Monthly Balances									
•	2Yr Ago	LY					MTD		
	Oct-19	Oct-20	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	MoM	vs. LY
Lower 48 Dry Production	95.1	88.3	93.3	93.3	92.4	92.2	84.3	▼ -7.8	▼ -4.0
Canadian Imports	4.6	4.3	4.9	5.2	5.1	5.2	5.1	▼ 0.0	▲ 0.9
L48 Power	30.3	30.8	35.9	39.4	40.2	33.1	32.1	▼-1.0	<b>1.3</b>
L48 Residential & Commercial	15.3	15.3	8.8	8.1	7.7	7.6	8.4	<b>0.7</b>	<b>-</b> 6.9
L48 Industrial	23.5	22.6	20.5	20.8	20.2	20.2	20.8	<b>0.6</b>	<b>▼</b> -1.8
L48 Lease and Plant Fuel	5.1	4.8	5.0	5.1	5.0	5.0	5.1	<b>0.0</b>	<b>0.2</b>
L48 Pipeline Distribution	2.4	2.5	2.4	2.5	2.5	2.2	2.2	▼ -0.1	▼-0.3
L48 Regional Gas Consumption	76.6	75.9	72.7	76.0	75.7	68.1	68.5	<b>0.3</b>	▼-7.4
Net LNG Exports	6.7	8.0	10.2	10.8	10.5	10.3	10.2	▼ -0.2	<b>2.2</b>
Total Mexican Exports	5.4	6.0	7.4	7.1	6.9	6.7	6.5	▼ -0.3	<b>0.5</b>
Implied Daily Storage Activity	11.1	2.7	7.8	4.6	4.5	12.2	4.4		
EIA Reported Daily Storage Activity Daily Model Error									



# **Daily** Average Generation Data

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

	3-Oct	4-Oct	5-Oct	6-Oct	7-Oct	8-Oct	9-Oct	DoD	vs. 7D
NRC Nuclear Daily Output	83.0	81.6	81.7	81.0	81.0	81.0	81.0	0.0	-0.6
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	21.9	23.3	23.2	23.9	23.9	23.9	23.9	0.0	0.6
NRC % Nuclear Cap Utilization	84.4	82.9	83.1	82.3	82.3	82.3	82.3	0.0	-0.6

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

	3-Oct	4-Oct	5-Oct	6-Oct	7-Oct	8-Oct	9-Oct	DoD	vs. 7D
CALI Wind	425	752	1812	2162	1931	3402	2766	-637	1018
TEXAS Wind	1553	2617	5609	6824	12342	16198	18293	2095	10769
US Wind	14192	12934	23782	31367	34210	37562	60053	22491	34379

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

	3-Oct	4-Oct	5-Oct	6-Oct	7-Oct	8-Oct	9-Oct	DoD	vs. 7D
US Wind	14192	12934	23782	31367	34210	37562	60053	22491	34379
US Solar	11969	10119	10176	10552	9122	8522	9832	1310	-245
US Petroleum	4016	4383	3362	3490	3541	3549	2368	-1181	-1356
US Other	9113	12076	11769	12108	12057	11981	11728	-253	211
US Coal	96694	103437	101665	98440	98959	97722	84373	-13349	-15113
US Nuke	85687	82373	81938	81560	81401	80235	75536	-4700	-6663
US Hydro	22506	25444	25294	24923	26594	27308	23069	-4239	-2276
US Gas	170494	193482	182974	175192	176861	173667	148187	-25480	-30592

See National Wind and Nuclear daily charts



# **Storage Week** Average Generation Data

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

	3-Sep	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	WoW	WoW Bcf/d Impact
NRC Nuclear Daily Output	90.2	90.3	86.7	85.9	85.1	82.1	-3.0	0.5
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	0.0	
NRC Nuclear Outage	14.7	14.6	18.2	19.0	19.8	22.7	3.0	
NRC % Nuclear Cap Utilization	0.1	0.1	0.1	0.1	0.1	0.1	0.0	

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

	3-Sep	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	WoW	Bcf/d Impact
CALI Wind	2247	1236	2083	1936	2467	1099	-1368	0.2
TEXAS Wind	7534	7327	9541	9780	10364	4890	-5473	1.0
US Wind	35459	30662	42378	43250	43452	20468	-22984	4.1
					201.4			
					0%			

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

	3-Sep	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	WoW	WoW Bcf/d Impact
US Wind	35459	30662	42378	43250	43452	20468	-22984	4.1
US Solar	13358	14254	14057	12185	12957	11099	-1858	0.3
US Petroleum	3135	2072	2470	2594	2712	3901	1189	-0.2
US Other	9764	8932	9273	9121	8709	10788	2080	-0.4
US Coal	136318	116993	115066	109063	94776	100713	5938	-1.1
US Nuke	92365	93162	89490	88789	88402	83696	-4706	8.0
US Hydro	28181	26944	24138	25340	25279	24511	-768	0.1
US Gas	205503	181094	182116	175354	153814	176911	23097	-4.2

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	Jul-21	Aug-21	Sep-21	Oct-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY	
NRC Nuclear Daily Output	85.1	84.6	90.1	91.5	87.2	81.7	84.2	-5.5	-0.4	
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	19.7	20.3	14.8	13.4	17.7	23.2	20.7	5.5	0.4	
NRC % Nuclear Cap Utilization	86.6	86.0	91.6	93.0	88.7	83.1	85.6	-5.6	-0.4	

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

	2Yr Ago	LY				MTD				
	Same 30 days	Same 30 days	Jul-21	Aug-21	Sep-21	Oct-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY	
CALI Wind	1881	1490	2338	2442	2020	1763	2043	-257	553	
TEXAS Wind	8905	7064	7217	9901	9400	9573	9593	174	2530	
US Wind	36343	33195	29217	35830	40216	32818	39056	-7398	5861	

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

- concentration and processing	2Yr Ago	LY				MTD			
	Same 30 days	Same 30 days	Jul-21	Aug-21	Sep-21	Oct-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
US Wind	36343	33195	29217	35830	40216	32818	39056	<b>6237.8</b>	<b>5861</b>
US Solar	8661	9073	14140	13787	13379	10519	12046	<b>1527.6</b>	<b>2974</b>
US Petroleum	4233	2742	4233	4484	2452	3451	2933	<b>▼</b> -518	<b>191</b>
US Other	8296	8114	9326	9928	9008	11153	9839	<b>▼</b> -1314	<b>1724</b>
US Coal	107900	78429	137228	137655	110033	95985	102502	<b>6517</b>	<b>24072</b>
US Nuke	91537	87818	92911	94062	90146	81156	85869	<b>4714</b>	<b>▼ -1948</b>
US Hydro	24554	25229	29941	28532	25639	24372	24725	<b>353</b>	<b>▼</b> -504
US Gas	175576	169228	207823	210824	173536	168782	170244	<b>17516</b>	<b>1016</b>
US Total	457947	413839	524834	534937	464619	427801	447282	<b>28794</b>	<b>33443</b>



See National Wind and Nuclear daily charts



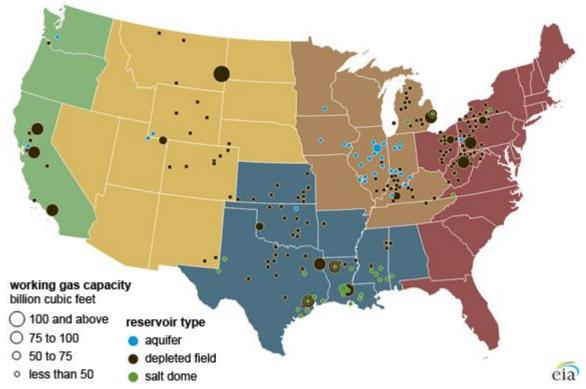
# Regional S/D Models Storage Projection

Week Ending 8-Oct

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	11.9	1.2	13.1	92
East	3.1	0.6	3.6	25
Midwest	4.4	-0.7	3.7	26
Mountain	3.8	-3.2	0.5	4
South Central	-0.3	5.2	4.9	34
Pacific	0.9	-0.5	0.4	3

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

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



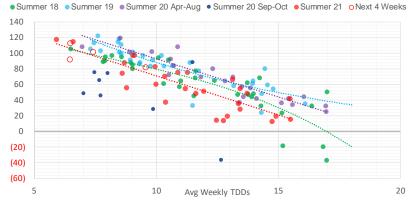


## Weather Model Storage Projection

# Next report and beyond

Week Ending	GWDDs	Week Storage Projection
08-Oct	6.5	92
15-Oct	6.5	113
22-Oct	7.4	101
29-Oct	9.6	82

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



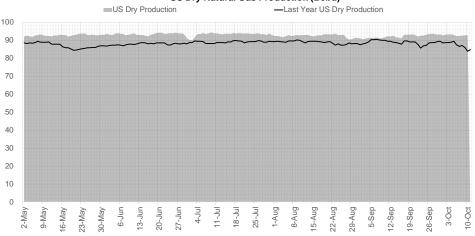
Go to larger image



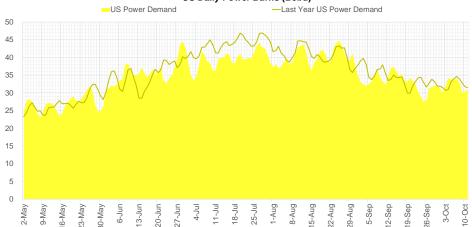


### Supply - Demand Trends

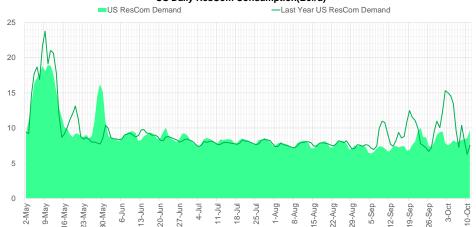
#### US Dry Natural Gas Production (Bcf/d)



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



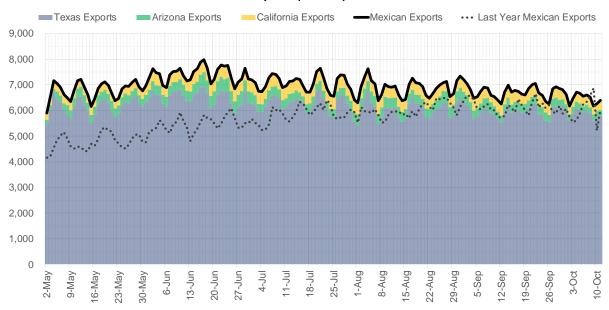
#### US Daily ResCom Consumption(Bcf/d)



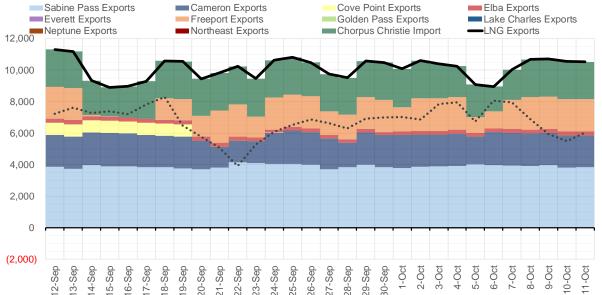
Source: Bloomberg



#### Mexican Exports (MMcf/d)







Source: Bloomberg



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

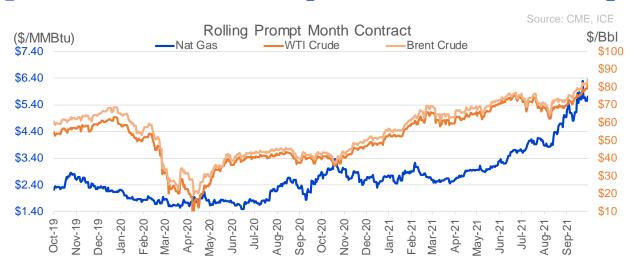
CONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE	(	CONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE OI
MONTH	YEAR	F U I/CALL	STRIKE	VOL		MONTH	YEAR	FUI/CALL	STRIKE	COMOLATIVE OF
3	2022	Р	3.00	3301		12	2021	Р	2.75	43912
11	2021	C	7.00	3096		12	2021	P	2.50	38567
12	2021	Ċ	15.00	2937		12	2021	Р	3.00	32186
11	2021	P	5.00	2801		12	2021	Р	4.00	31274
11	2021	C	8.00	2676		3	2022	С	10.00	31237
11	2021	P	4.00	2585		11	2021	Р	3.00	30167
11	2021	C	9.00	2540		11	2021	Р	4.00	27463
12	2021	P	5.00	2281		3	2022	С	8.00	26530
3	2022	Р	4.00	2270		11	2021	Р	4.50	25871
11	2021	С	6.00	1986		12	2021	Р	3.50	25611
11	2021	P	4.50	1945		11	2021	Р	5.00	25180
12	2021	Р	4.00	1867		11	2021	С	7.00	24048
11	2021	P	4.60	1693		3	2022	С	5.00	22926
11	2021	Р	4.25	1679		12	2021	С	4.00	22526
1	2022	Р	4.50	1522		11	2021	Р	3.50	20293
2	2022	Р	4.25	1450		11	2021	С	4.00	20146
6	2022	Р	3.50	1450		4	2022	С	3.00	19760
1	2022	Р	5.00	1418		11	2021	С	6.00	19159
2	2022	Р	3.25	1400		1	2022	P	3.50	18461
12	2021	С	10.00	1373		1	2022	C	5.00	18070
11	2021	Р	4.75	1363		3	2022	P	3.50	17917
12	2021	Р	4.50	1274		2	2022	P	3.50	17855
12	2021	С	8.00	1248		12	2021	С	6.00	17731
11	2021	С	6.50	1207		2	2022	С	5.00	17376
5	2022	Р	3.50	1200		3	2022	P P	2.50	16788
1	2022	Р	4.25	1072		3 12	2022 2021		4.00 7.00	16534
11	2021	С	8.50	1061		3		C C	4.00	16388
11	2021	С	10.00	1050		3 1	2022 2022	C	6.00	15831 15513
2	2022	С	5.00	1025		11	2022	C	5.00	15149
2	2022	С	6.00	1013		11	2021	C	4.50	14903
11	2021	С	5.00	1002		1	2022	C	4.00	14503
12	2021	С	5.00	1001		11	2022	P	2.50	14488
3	2022	С	5.00	1001		11	2021	Ċ	3.75	14479
11	2021	С	3.40	1000		4	2022	č	5.00	14474
12	2021	С	3.40	1000		12	2022	č	5.00	14372
1	2022	С	3.40	1000		4	2022	P	2.50	14225
1	2022	С	5.00	1000		11	2021	Р	3.25	14214
2	2022	С	3.40	1000		1	2022	Р	4.00	13945
3	2022	С	3.40	1000		12	2021	P	2.00	13885
1	2022	С	15.00	963		11	2021	C	5.50	13686
3	2022	С	10.00	950		3	2022	P	5.00	13619
3	2022	С	8.00	925		12	2021	C	8.00	13530
2	2022	С	8.00	920		2	2022	Ċ	6.00	13379
1	2022	С	8.00	902		11	2021	C	4.25	13282
11	2021	Р	5.10	901		12	2022	C	5.25	13241
1	2022	С	5.75	880		12	2022	C	4.50	13115
2	2022	С	5.75	880		5	2022	С	3.00	13110
12	2021	С	7.00	866		2	2022	С	4.00	12914
1	2022	С	6.00	864		12	2021	C	: CME, ICE	12872.5
								Source	: CIVIE, ICE	



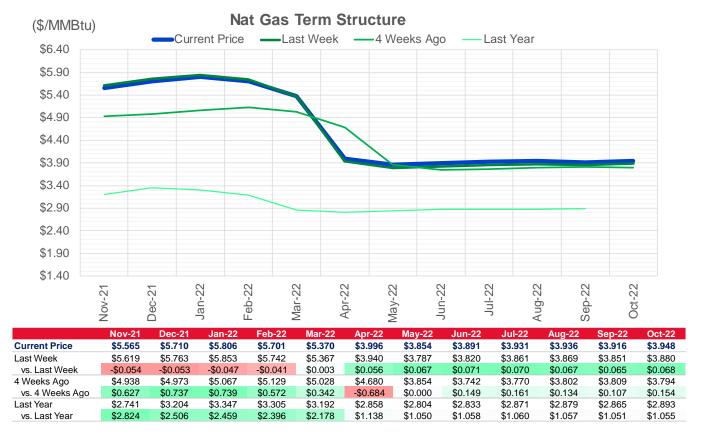
# Nat Gas Futures Open Interest

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	
NOV 21	188536	212659	-24123	NOV 21	86695	86329	366	
DEC 21	119610	117443	2167	DEC 21	84573	83469	1104	
JAN 22	188347	179419	8928	JAN 22	92954	93277	-324	
FEB 22	64300	62812	1488	FEB 22	69503	69613	-110	
MAR 22	137123	134929	2194	MAR 22	74732	74831	-99	
APR 22	119534	121303	-1769	APR 22	74485	74893	-409	
MAY 22	115732	118592	-2860	MAY 22	70479	70283	196	
JUN 22	42005	40452	1553	JUN 22	54810	54926	-116	
JUL 22	35843	33003	2840	JUL 22	56726	56819	-93	
AUG 22	30597	30404	193	AUG 22	56092	55964	128	
SEP 22	34639	34714	-75	SEP 22	56813	56862	-49	
OCT 22	81606	81984	-378	OCT 22	62806	62716	91	
NOV 22	30947	31429	-482	NOV 22	48380	48567	-187	
DEC 22	25863	25776	87	DEC 22	51725	51804	-79	
JAN 23	23393	23353	40	JAN 23	38309	38298	11	
FEB 23	10234	10252	-18	FEB 23	31671	31682	-11	
MAR 23	12841	12862	-21	MAR 23	33274	33170	104	
APR 23	12774	12807	-33	APR 23	33248	33359	-111	
MAY 23	7895	7857	38	MAY 23	32013	31937	76	
JUN 23	6553	6495	58	JUN 23	29750	29678	72	
JUL 23	4470	4326	144	JUL 23	29984	29909	75	
AUG 23	3877	3877	0	AUG 23	29790	29715	75	
SEP 23	4197	4198	-1	SEP 23	28910	28837	72	
OCT 23	5726	5675	51	OCT 23	32027	31902	125	
NOV 23	2780	2662	118	NOV 23	30290	30281	9	
DEC 23	2355	2317	38	DEC 23	28165	28206	-41	
JAN 24	1210	1212	-2	JAN 24	15693	15713	-21	
FEB 24	1181	1180	1	FEB 24	13373	13467	-95	
MAR 24	3376	3368	8	MAR 24	18181	18209	-28	
APR 24	3015	3007	8	APR 24	12404	12390	15	







		Cash	Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	5.34	8.77	3.43
TETCO M3	\$/MMBtu	4.29	5.22	0.93
FGT Zone 3	\$/MMBtu	4.32	5.69	1.37
Zone 6 NY	\$/MMBtu	4.32	5.45	1.13
Chicago Citygate	\$/MMBtu	5.15	5.42	0.27
Michcon	\$/MMBtu	5.16	5.30	0.14
Columbia TCO Pool	\$/MMBtu	4.52	4.90	0.38
Ventura	\$/MMBtu	5.06	5.67	0.61
Rockies/Opal	\$/MMBtu	5.12	5.38	0.26
El Paso Permian Basin	\$/MMBtu	5.01	5.22	0.21
Socal Citygate	\$/MMBtu	5.49	6.96	1.47
Malin	\$/MMBtu	5.12	6.27	1.15
Houston Ship Channel	\$/MMBtu	5.44	5.48	0.04
Henry Hub Cash	\$/MMBtu	5.69	5.33	-0.36
AECO Cash	C\$/GJ	4.08	3.71	-0.37
Station2 Cash	C\$/GJ	3.88	6.86	2.98
Dawn Cash	C\$/GJ	5.13	5.37	0.24

Source: CME, Bloomberg



					VS	s. 4 Weeks		
	Units	<b>Current Price</b>	vs.	Last Week		Ago	VS	s. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224		0.000		0.903		2.202
NatGas Oct21/Nov21	\$/MMBtu	-0.276	•	-0.054	•	-0.311	$\blacksquare$	-0.329
NatGas Oct21/Jan22	\$/MMBtu	-0.035		-0.047	•	-0.226		-0.316
NatGas Apr22/Oct22	\$/MMBtu	-0.048		0.012	•	-0.016		-0.054
WTI Crude	\$/Bbl	79.35		3.470		9.630		38.750
Brent Crude	\$/Bbl	82.39		3.110		9.470		39.540
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	247.37		9.100		32.770		128.040
Propane, Mt. Bel	cents/Gallon	1.46		-0.026		0.250		0.944
Ethane, Mt. Bel	cents/Gallon	0.44		0.012		0.065		0.241
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						





