

### **Market Report**

#### 15 October 2021

	Cı	urrent	Δ from YD	Δ from 7D Avg
Nat Gas Prompt	\$	5.61	<b>\$</b> (0.08)	<b>\$</b> 0.06

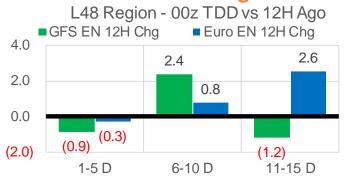
	С	urrent	Δ fro	m YD	Δ fron Αν	n 7D ⁄g
WTI Prompt	\$	82.10	<b>\$</b>	0.79	<b>\$</b>	2.0

	C	ırront	Λf	Δ from YD			Δ from 7D			
	Current	ΔΙ	101	טו וו	Avg					
Brent Prompt	\$	84.93		\$	0.93	<b>\$</b>	1.9			

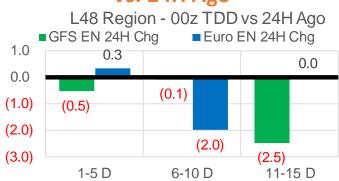
#### Page Menu

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 7D Avg		
US Dry Production	92.6	<b>0.40</b>	<b>a</b> 0.22		

	Current		Δ from 7D Avg		
US ResComm	10.8	<b>0.07</b>	<b>1.31</b>		

	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	11.2	<b>-</b> 0.05	<b>a</b> 0.48

	Current		Δ from 7D Avg		
US Power Burns	31.1	<b>▼</b> -1.93	<b>▼</b> -0.38		

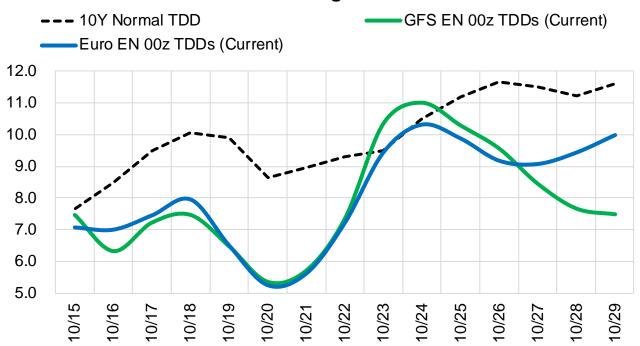
	Current	Δ from YD	Δ from 7D Avg		
Canadian Imports	5.3	<b>a</b> 0.05	<b>0.37</b>		

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	7.0	▼ -0.23	<b>a</b> 0.37

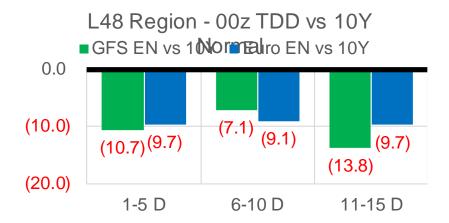


#### Short-term Weather Model Outlooks (00z)

#### L48 Region



#### Vs. 10Y Normal



Source: WSI, Bloomberg



## **Market Report**

#### Lower 48 Component Models

#### **Daily Balances**

	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct	14-Oct	15-Oct	DoD	vs. 7D
Lower 48 Dry Production	92.8	92.8	92.6	91.8	91.7	92.2	92.6	<b>0.4</b>	▲ 0.2
Canadian Imports	4.9	5.0	4.9	4.8	4.7	5.3	5.3	▲ 0.0	<b>0.4</b>
L48 Power	30.0	30.4	31.5	30.9	31.3	33.0	31.1	<b>▼</b> -1.9	▼-0.1
L48 Residential & Commercial	8.3	8.4	9.5	10.7	10.7	10.8	10.8	<b>0.1</b>	<b>1.1</b>
L48 Industrial	20.7	20.4	20.2	19.8	19.3	18.7	18.0	▼ -0.6	<b>▼</b> -1.8
L48 Lease and Plant Fuel	5.1	5.1	5.0	5.0	5.0	5.0	5.0	▼ 0.0	▼ 0.0
L48 Pipeline Distribution	2.0	2.1	2.2	2.2	2.2	2.3	2.2	<b>▼</b> -0.1	<b>0.1</b>
L48 Regional Gas Consumption	66.1	66.3	68.4	68.6	68.4	69.8	67.2	<b>▼ -2.6</b>	▼-0.8
Net LNG Delivered	10.71	10.37	10.22	10.75	10.79	11.20	11.15	▼-0.1	<b>0.5</b>
Total Mexican Exports	6.2	6.2	6.4	6.7	7.0	7.2	7.0	▼-0.2	<b>0.4</b>
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	14.7	14.9	12.5	10.5	10.2	9.2	12.6		

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

	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	15-Oct	WoW	vs. 4W
Lower 48 Dry Production	91.3	91.9	92.9	93.2	92.8	92.3	▼-0.4	▼-0.3
Canadian Imports	4.8	5.0	5.2	5.7	5.3	4.9	▼-0.4	▼-0.4
L48 Power	33.8	35.1	33.2	30.2	32.7	31.4	<b>▼</b> -1.3	<b>▼</b> -1.3
L48 Residential & Commercial	6.9	7.2	8.1	8.4	8.1	9.5	<b>1.4</b>	<b>1.6</b>
L48 Industrial	19.5	20.7	20.6	20.1	22.8	20.1	<b>▼</b> -2.7	<b>▼</b> -1.0
L48 Lease and Plant Fuel	5.0	5.0	5.1	5.1	5.1	5.0	▼ 0.0	▼ 0.0
L48 Pipeline Distribution	2.2	2.3	2.3	2.1	2.2	2.2	<b>0.0</b>	▼ 0.0
L48 Regional Gas Consumption	67.4	70.2	69.2	65.9	70.8	68.3	▼ -2.6	▼-0.8
Net LNG Exports	11.0	10.2	9.9	10.3	9.9	10.7	<b>8.0</b>	<b>0.6</b>
Total Mexican Exports	6.7	6.6	6.8	6.7	6.5	6.6	<b>▲ 0.1</b>	▼-0.1
Implied Daily Storage Activity	10.9	9.8	12.1	16.0	10.8	11.7	1.0	
EIA Reported Daily Storage Activity	11.9	10.9	12.6	16.9	11.6			
Daily Model Error	-0.9	-1.0	-0.4	-0.9	-0.8			

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	92.5	<b>0.3</b>	<b>4.2</b>
Canadian Imports	4.6	4.3	4.9	5.2	5.1	5.1	5.1	▼ 0.0	<b>0.9</b>
L48 Power	30.3	30.8	35.9	39.4	40.2	33.1	32.0	▼-1.1	<b>1.2</b>
L48 Residential & Commercial	15.3	15.3	8.8	8.1	7.7	7.6	9.0	<b>1.3</b>	<b>▼</b> -6.3
L48 Industrial	23.5	22.6	20.5	20.8	20.3	20.1	21.2	<b>1.1</b>	<b>▼</b> -1.4
L48 Lease and Plant Fuel	5.1	4.8	5.0	5.1	5.0	5.0	5.0	<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	▼ 0.0	▼-0.3
L48 Regional Gas Consumption	76.6	75.9	72.7	76.0	75.7	68.1	69.4	<b>1.3</b>	<b>▼</b> -6.5
Net LNG Exports	6.7	8.0	10.2	10.8	10.5	10.3	10.4	▲ 0.0	<b>2.3</b>
Total Mexican Exports	5.4	6.0	7.4	7.1	6.9	6.7	6.6	▼ -0.1	<b>0.6</b>
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	11.1	2.7	7.8	4.6	4.5	12.1	11.3		



## **Daily** Average Generation Data

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

	7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct	DoD	vs. 7D
NRC Nuclear Daily Output	80.9	80.2	74.8	76.0	76.7	75.9	75.9	0.0	-1.5
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	24.0	24.7	30.1	28.9	28.2	29.0	29.0	0.0	1.5
NRC % Nuclear Cap Utilization	82.2	81.5	76.0	77.3	78.0	77.2	77.2	0.0	-1.5

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

	7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct	DoD	vs. 7D
CALI Wind	1931	3402	2766	1700	3903	2794	1106	-1688	-1643
TEXAS Wind	12342	16198	18293	20964	10073	21150	13680	-7470	-2823
US Wind	34210	37562	60053	63091	44491	56956	51697	-5259	2303

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

	7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct	DoD	vs. 7D
US Wind	34210	37562	60053	63091	44491	56956	51697	-5259	2303
US Solar	9179	8522	9837	10479	10382	8638	10376	1738	870
US Petroleum	3541	3549	2368	2684	3104	3191	3542	351	469
US Other	12067	11981	11724	11827	12105	12018	11894	-123	-59
US Coal	98959	97722	84373	83087	92217	88611	86198	-2413	-4630
US Nuke	81401	80235	75536	76472	76799	76459	76904	445	-913
US Hydro	26594	27309	23069	22870	25313	26069	24493	-1576	-711
US Gas	176893	173667	148187	143378	163580	159208	168864	9656	8045

See National Wind and Nuclear daily charts



## **Storage Week** Average Generation Data

	Nuclea	r Generation	Weekly	Average -	<b>GWh</b>	(NRC)
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	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	15-Oct	WoW	WoW Bcf/d Impact
NRC Nuclear Daily Output	90.3	86.7	85.9	85.1	82.1	76.5	-5.6	1.0
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	0.0	
NRC Nuclear Outage	14.6	18.2	19.0	19.8	22.7	28.3	5.6	
NRC % Nuclear Cap Utilization	0.1	0.1	0.1	0.1	0.1	0.1	0.0	

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

	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	15-Oct	WoW	WoW Bcf/d Impact
CALI Wind	1236	2083	1936	2467	1099	2397	1298	-0.2
TEXAS Wind	7327	9541	9780	10364	4890	16291	11401	-2.1
US Wind	30662	42378	43250	43452	20468	52221	31753	-5.7
					-22983.6			
					-53%			

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

	10-Sep	17-Sep	24-Sep	1-Oct	8-Oct	15-Oct	WoW	WoW Bcf/d Impact
US Wind	30662	42378	43250	43452	20468	52221	31753	-5.7
US Solar	14254	14057	12185	12957	11258	9802	-1456	0.3
US Petroleum	2072	2470	2594	2712	3901	3140	-761	0.1
US Other	8932	9273	9121	8709	10937	11920	984	-0.2
US Coal	116993	115066	109063	94776	100713	88344	-12370	2.2
US Nuke	93162	89490	88789	88402	83696	77044	-6652	1.2
US Hydro	26944	24138	25340	25279	24517	24802	286	-0.1
US Gas	181094	182116	175354	153814	176678	160821	-15857	2.9

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	83.7	82.5	90.1	91.5	87.2	79.1	82.3	-8.1	-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	21.2	22.4	14.8	13.4	17.7	25.8	22.5	8.1	0.2
NRC % Nuclear Cap Utilization	85.1	83.9	91.6	93.0	88.7	80.5	83.7	-8.2	-0.2

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

	2Yr Ago	LY				MTD			
	Same 30 s 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	1753	1503	2338	2442	2020	1705	1974	-315	472
TEXAS Wind	9269	8175	7217	9901	9400	10797	10366	1397	2191
US Wind	36789	37314	29217	35830	40216	37368	40466	-2848	3153

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

, , ,	2Yr Ago	ĹY				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	36789	37314	29217	35830	40216	37368	40466	▲ 3098.3	<b>3153</b>
US Solar	8675	9172	14140	13787	13379	10520	11555	<b>1</b> 035.2	<b>2383</b>
US Petroleum	4143	2632	4233	4484	2452	3522	3074	<b>-448</b>	<b>442</b>
US Other	8278	8002	9326	9928	9008	11460	10198	<b>▼</b> -1262	<b>2195</b>
US Coal	102612	74995	137228	137655	110033	93973	98384	<b>4411</b>	<b>23389</b>
US Nuke	90013	85757	92911	94062	90146	80139	84368	<b>4229</b>	<b>▼</b> -1389
US Hydro	24017	25293	29941	28532	25639	24648	24950	<b>3</b> 01	▼ -344
US Gas	171060	167799	207823	210824	173536	168757	167301	<b>11366</b>	<b>-497</b>
US Total	446109	410951	524834	534937	464619	430701	440502	<b>19633</b>	<b>29551</b>



See National Wind and Nuclear daily charts



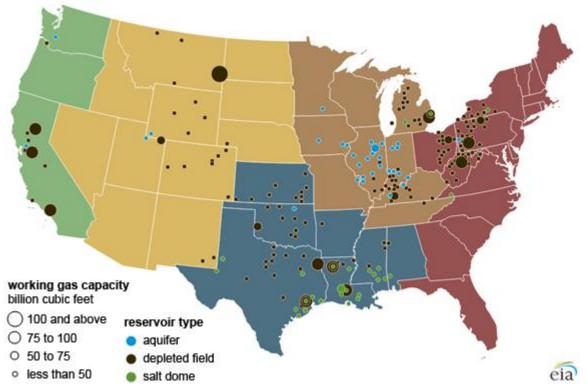
#### Regional S/D Models Storage Projection

Week Ending 15-Oct

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	11.4	1.2	12.6	88
East	4.1	0.5	4.7	33
Midwest	4.3	-0.6	3.8	26
Mountain	3.1	-3.1	-0.1	-1
South Central	-0.6	4.8	4.2	29
Pacific	0.5	-0.4	0.0	0

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

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



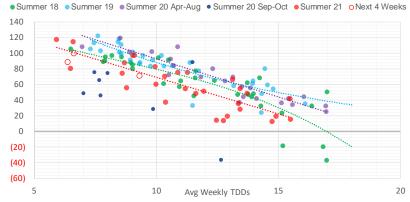


#### Weather Model Storage Projection

# Next report and beyond

Week Ending	GWDDs	Week Storage Projection
15-Oct	6.4	88
22-Oct	6.6	100
29-Oct	9.3	71
05-Nov	#N/A	#N/A

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



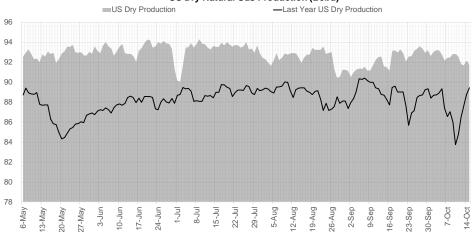
Go to larger image



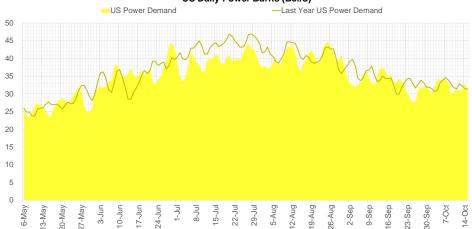


#### Supply - Demand Trends

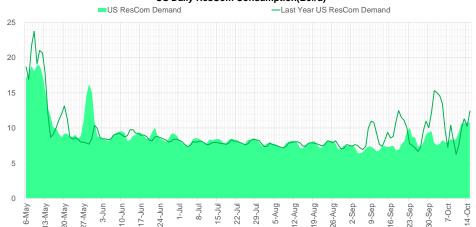
#### US Dry Natural Gas Production (Bcf/d)



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



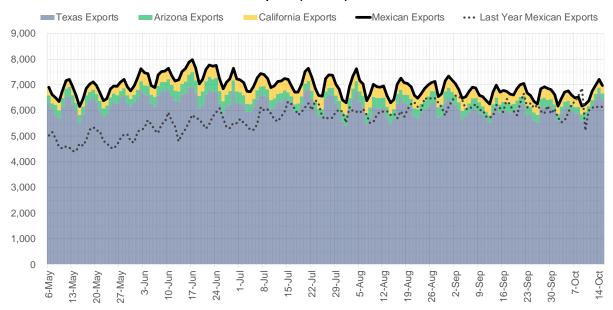
#### US Daily ResCom Consumption(Bcf/d)



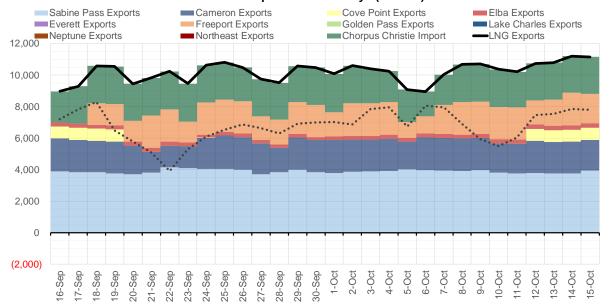
Source: Bloomberg



#### Mexican Exports (MMcf/d)



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



Source: Bloomberg



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

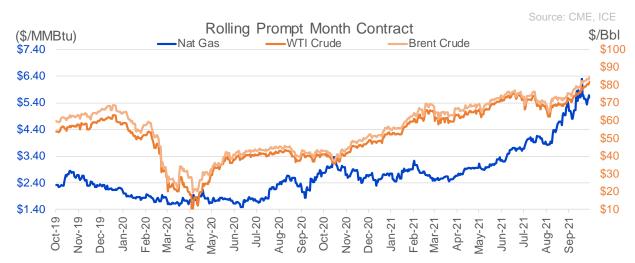
CONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE	(	CONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE OI
MONTH	YEAR	PU1/CALL	SIRINE	VOL		MONTH	YEAR	PUT/CALL	SIRINE	COMOLATIVE OF
11	2021	Р	5.00	7545		12	2021	Р	2.75	47042
11	2021	P	4.75	5024		12	2021	Р	2.50	38608
12	2021	P	2.75	4850		12	2021	Р	3.00	34442
11	2021	Ċ	6.00	4542		12	2021	Р	4.00	33174
11	2021	P	5.25	4438		3	2022	C	10.00	30181
11	2021	P	5.50	4130		11	2021	P	3.00	30167
11	2021	P	4.50	3400		11	2021	P	5.00	28296
12	2021	P	3.50	3181		12	2021	Р	3.50	26836
12	2021	P	4.00	2976		11	2021	С	7.00	25498
11	2021	Ċ	7.00	2731		11	2021	P	4.00	24217
11	2021	Č	6.50	2509		3	2022	С	8.00	23824
12	2021	P	5.00	2430		11	2021	Р	4.50	23161
1	2021	C	12.00			12	2021	С	4.00	22526
12		C	12.00	2151 2011		3	2022	C	5.00	22301
	2021	P				11	2021	Ċ	6.00	21850
1	2022		4.25	2005		11	2021	P	3.50	20162
12	2021	С	2.00	2000		11	2021	C	4.00	20144
12	2021	P	2.00	2000		4	2022	Ċ	3.00	19760
12	2021	P	12.00	2000		1	2022	P	3.50	18813
1	2022	С	2.00	2000		3	2022	Р	2.50	18279
1	2022	Р	2.00	2000		2	2022	Р	3.50	17999
1	2022	Р	12.00	2000		1	2022	C	5.00	17938
3	2022	Р	4.50	2000		3	2022	P	3.50	17905
11	2021	С	6.25	1998		12	2022	Ċ	6.00	17730
11	2021	С	5.60	1883		1	2022	Č	6.00	16930
1	2022	С	5.90	1851		2	2022	c	5.00	16764
11	2021	С	9.00	1703		3	2022	P	4.00	16514
12	2021	С	9.00	1656		12	2022	c	7.00	15845
11	2021	С	5.75	1615		3	2022	Č	4.00	15746
3	2022	С	10.00	1511		11	2021	Č	5.00	15721
11	2021	Р	4.00	1496		4	2022	Č	5.00	15003
11	2021	Р	5.75	1419		11	2022	Č	4.50	14899
2	2022	Р	3.50	1385		12	2021	P	2.00	14877
11	2021	С	7.50	1300		12	2021	C	5.00	14872
11	2021	Р	5.10	1254		1	2022	P	4.00	14809
11	2021	Р	4.25	1238		4	2022	P	2.50	14590
11	2021	С	6.75	1218		11	2022	P	2.50	14488
1	2022	С	6.00	1205		11	2021	C	3.75	14479
1	2022	P	4.00	1204		1	2022	Č	4.00	14478
12	2021	Р	4.50	1169		11	2021	Č	5.50	14445
3	2022	P	3.00	1151		11	2021	P	3.25	14216
3	2022	P	3.50	1045		12	2021	C	8.00	14107
1	2022	C	8.00	1042		11	2021	P	4.75	13992
2	2022	P	3.75	1035		3	2021	C	7.00	13655
12	2021	P	2.50	1004		3	2022	C	9.00	13326
12	2021	P	3.00	1004		3 1	2022	P	9.00 2.75	13326
11	2021	C	6.45	996		3	2022	P P	2.75 5.00	13307
3	2021	P	5.50	900		3 11	2022	C	5.00 4.25	13292
2	2022	C	8.00	891		2	2021	C	4.25 6.00	13262
12	2022	C	6.00	866		∠ 12	2022	C	5.25	13262
12	2021	C	0.00	000		IΖ	2022	Source	: CME, ICE	13243



#### Nat Gas Futures Open Interest

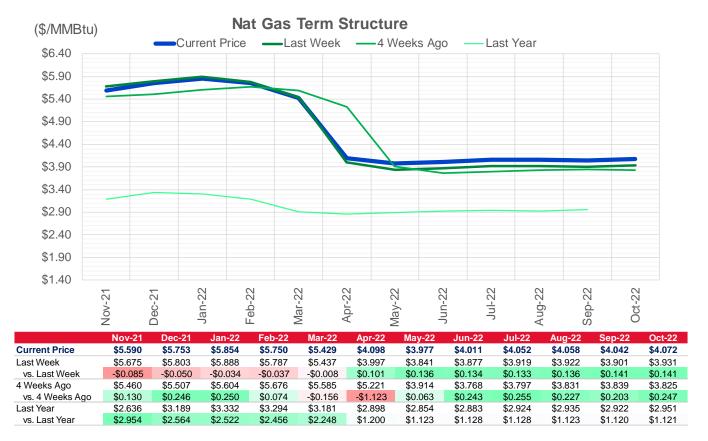
CME, and ICE Combined

CME Henry Hub Futures (10,000 MMBtu)  ICE Henry Hub Futures Contract Equivalent (10,000 M						alent (10,000 MM	
	Current	Prior	Daily Change		Current	Prior	Daily Change
NOV 21	102844	112637	-9793	NOV 21	88102	87983	119
DEC 21	145372	138003	7369	DEC 21	86275	85312	963
JAN 22	227524	225608	1916	JAN 22	91765	91511	255
FEB 22	68762	67268	1494	FEB 22	68974	68881	93
MAR 22	146548	144185	2363	MAR 22	74675	74535	140
APR 22	116310	117271	-961	APR 22	75394	75279	115
MAY 22	110445	109799	646	MAY 22	70315	70851	-536
JUN 22	38953	38564	389	JUN 22	54087	54499	-412
JUL 22	40456	40366	90	JUL 22	56494	56634	-140
AUG 22	29893	29816	77	AUG 22	55423	55984	-561
SEP 22	33485	34599	-1114	SEP 22	56257	56771	-514
OCT 22	82680	82598	82	OCT 22	62310	62729	-419
NOV 22	33759	33902	-143	NOV 22	48664	48495	169
DEC 22	25729	25475	254	DEC 22	51962	51757	205
JAN 23	28734	28430	304	JAN 23	38888	38801	87
FEB 23	10792	10735	57	FEB 23	32125	31996	129
MAR 23	14302	14428	-126	MAR 23	33721	33635	86
APR 23	13197	13350	-153	APR 23	33503	33696	-193
MAY 23	8553	7320	1233	MAY 23	33208	32863	345
JUN 23	7052	6748	304	JUN 23	29902	29784	118
JUL 23	4687	4655	32	JUL 23	30094	30002	91
AUG 23	4117	4115	2	AUG 23	29968	29877	91
SEP 23	4291	4302	-11	SEP 23	29122	29027	95
OCT 23	6008	5905	103	OCT 23	32431	32022	409
NOV 23	3018	3000	18	NOV 23	30444	30318	126
DEC 23	3939	3672	267	DEC 23	27964	27834	130
JAN 24	1369	1370	-1	JAN 24	15942	15765	177
FEB 24	1202	1200	2	FEB 24	13509	13444	65
MAR 24	4233	4025	208	MAR 24	18147	18170	-24
APR 24	3431	3419	12	APR 24	12582	12531	51





## **Market Report**



		Cash	Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	5.85	8.65	2.80
TETCO M3	\$/MMBtu	5.18	5.55	0.37
FGT Zone 3	\$/MMBtu	4.89	5.89	1.00
Zone 6 NY	\$/MMBtu	4.89	5.69	0.79
Chicago Citygate	\$/MMBtu	5.60	5.64	0.04
Michcon	\$/MMBtu	5.63	5.49	-0.14
Columbia TCO Pool	\$/MMBtu	5.10	5.16	0.06
Ventura	\$/MMBtu	5.06	5.88	0.82
Rockies/Opal	\$/MMBtu	5.60	5.62	0.02
El Paso Permian Basin	\$/MMBtu	5.25	5.44	0.19
Socal Citygate	\$/MMBtu	5.81	6.21	0.40
Malin	\$/MMBtu	5.70	6.11	0.41
Houston Ship Channel	\$/MMBtu	5.62	5.65	0.03
Henry Hub Cash	\$/MMBtu	5.43	5.56	0.13
AECO Cash	C\$/GJ	4.59	4.14	-0.45
Station2 Cash	C\$/GJ	0.26	6.78	6.52
Dawn Cash	C\$/GJ	5.58	5.58	0.00

Source: CME, Bloomberg



					V	s. 4 Weeks		
	Units	<b>Current Price</b>	vs.	Last Week		Ago	VS	s. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224		0.000		0.506		2.199
NatGas Oct21/Nov21	\$/MMBtu	-0.154		0.010		-0.201		-0.211
NatGas Oct21/Jan22	\$/MMBtu	0.095		0.026		-0.134		-0.189
NatGas Apr22/Oct22	\$/MMBtu	-0.031		0.030		0.015		-0.038
WTI Crude	\$/Bbl	81.31		3.010		8.700		40.350
Brent Crude	\$/Bbl	84.00		2.050		8.330		40.840
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	256.14		10.180		35.040		137.270
Propane, Mt. Bel	cents/Gallon	1.47		-0.003		0.193		0.940
Ethane, Mt. Bel	cents/Gallon	0.44		0.008		0.052		0.231
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

