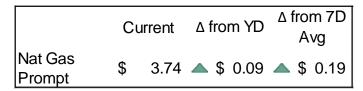


## 1 July 2021



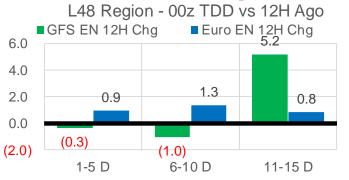
	С	urrent	Δ fro	m YD	Δ from 7D Avg		
WTI Prompt	\$	75.27	<b>\$</b>	1.80	<b>\$</b>	1.7	

	0	urrent	۸ fro	m VD	∆ fro	om 7D	
	C	unent	Δ 110	טו ווו	Avg		
Brent Promp	t \$	76.06	<b>\$</b>	0.93	<b>\$</b>	0.5	

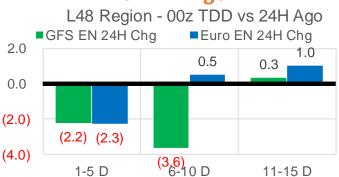
#### Page Menu

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	86.6	<b>▼</b> -3.36	<b>▼</b> -5.68

	Current	Δ from YD	Δ from 7D Avg
US Power Burns	38.0	<b>▼</b> -4.49	<b>▼</b> -1.17

	Current	Δ from YD	Δ from 7D Avg
US ResComm	8.3	<b>-</b> 0.51	<b>▼</b> -0.02

	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	4.4	<b>▼</b> -1.01	<b>-</b> 0.56

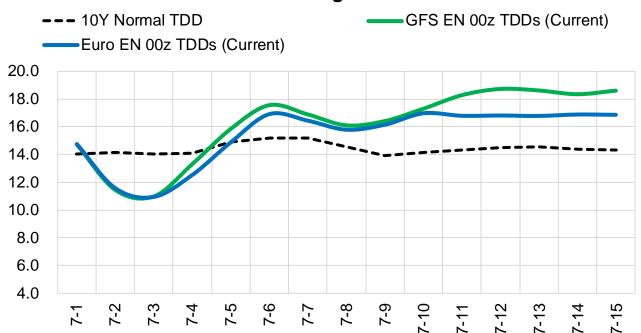
	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	10.4	<b>-</b> 0.75	<b>-</b> 0.75

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	7.3	<b>-</b> 0.06	<b>-</b> 0.03

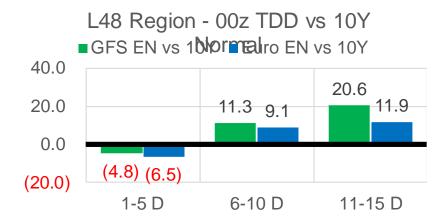


## Short-term Weather Model Outlooks (00z)

## L48 Region



## Vs. 10Y Normal



Source: WSI, Bloomberg



## Lower 48 Component Models

### **Daily Balances**

	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul	DoD	vs.7D
Lower 48 Dry Production	92.7	93.0	92.7	92.4	92.0	89.9	86.6	▼-3.4	▼ -5.6
Canadian Imports	4.4	4.7	4.9	5.3	6.0	5.5	4.4	▼-1.0	▼ -0.7
L48 Power	34.6	36.8	39.1	43.1	44.3	42.4	38.0	▼-4.5	▼ -2.1
L48 Residential & Commercial	7.8	7.6	8.1	8.8	9.0	8.8	8.3	▼-0.5	▼ -0.1
L48 Industrial	20.3	20.5	20.7	20.7	20.7	20.2	19.5	▼-0.8	▼-1.1
L48 Lease and Plant Fuel	5.1	5.1	5.1	5.1	5.1	5.0	4.8	<b>▼</b> -0.2	▼ -0.3
L48 Pipeline Distribution	2.1	2.2	2.3	2.6	2.6	2.5	2.2	▼-0.3	<b>▼</b> -0.2
L48 Regional Gas Consumption	70.0	72.2	75.3	80.2	81.7	79.0	72.7	▼-6.3	▼ -3.7
Net LNG Delivered	11.27	11.28	11.28	11.30	10.78	11.17	10.42	▼ -0.7	▼ -0.8
Total Mexican Exports	7.3	6.8	7.0	7.2	7.6	7.4	7.3	▼ -0.1	<b>▲ 0.1</b>
Implied Daily Storage Activity EIA Reported Daily Storage Activity	8.6	7.3	4.0	-0.9	-2.1	-2.1	0.6		
Daily Model Error									

### **EIA Storage Week Balances**

	21-May	28-May	4-Jun	11-Jun	18-Jun	25-Jun	WoW	vs. 4W
Lower 48 Dry Production	91.4	92.1	92.0	92.3	91.7	92.7	<b>1.0</b>	<b>0.6</b>
Canadian Imports	4.6	4.5	3.9	4.8	5.1	4.7	▼ -0.5	▲ 0.1
L48 Power	26.5	29.5	27.8	34.4	34.8	34.6	▼-0.3	<b>2.9</b>
L48 Residential & Commercial	10.9	9.7	11.9	8.5	8.3	8.4	<b>0.1</b>	<b>▼</b> -1.2
L48 Industrial	19.3	19.5	17.6	21.1	22.4	20.1	<b>▼</b> -2.4	<b>▼</b> -0.1
L48 Lease and Plant Fuel	5.0	5.1	5.1	5.1	5.1	5.1	<b>0.1</b>	<b>0.1</b>
L48 Pipeline Distribution	1.9	2.0	2.0	2.1	2.1	2.1	▼ 0.0	<b>0.1</b>
L48 Regional Gas Consumption	63.6	65.8	64.4	71.3	72.7	70.2	▼ -2.4	<b>1.7</b>
Net LNG Exports	10.4	10.5	11.0	9.4	9.6	10.3	<b>0.7</b>	<b>0.1</b>
Total Mexican Exports	6.8	6.7	7.2	7.3	7.5	7.6	<b>▲ 0.1</b>	<b>0.4</b>
Implied Daily Storage Activity	15.2	13.6	13.3	9.1	7.1	9.2	2.2	
EIA Reported Daily Storage Activity	16.4	14.0	14.0	2.3	7.9			
Daily Model Error	-1.2	-0.4	-0.7	6.8	-0.8			

Monthly Balances									
•	2Yr Ago	LY					MTD		
	Jul-19	Jul-20	Feb-21	Mar-21	Apr-21	May-21	Jun-21	MoM	vs. LY
Lower 48 Dry Production	91.9	89.1	84.9	91.5	92.3	91.7	92.6	<b>0.9</b>	<b>3.5</b>
Canadian Imports	5.0	4.4	6.3	4.8	4.7	4.5	3.8	▼ -0.7	▼-0.6
L48 Power	40.8	43.6	27.8	24.3	25.1	27.0	30.5	<b>3.5</b>	▼-13.1
L48 Residential & Commercial	8.0	7.9	46.9	29.3	19.7	13.3	8.8	<b>▼</b> -4.5	<b>0.9</b>
L48 Industrial	21.6	20.4	21.2	19.4	21.1	18.7	17.0	▼-1.8	<b>▼</b> -3.4
L48 Lease and Plant Fuel	5.0	4.9	4.7	5.0	5.1	5.0	5.1	<b>0.1</b>	<b>0.2</b>
L48 Pipeline Distribution	2.3	2.4	3.3	2.5	2.3	2.1	1.9	▼ -0.1	▼ -0.5
L48 Regional Gas Consumption	77.8	79.4	103.8	80.6	73.3	66.2	63.4	▼ -2.8	▼-16.0
Net LNG Exports	6.0	3.3	8.6	11.1	11.5	10.8	11.1	<b>0.3</b>	<b>7.9</b>
Total Mexican Exports	5.3	5.9	5.8	6.5	6.7	6.8	7.3	<b>0.5</b>	<b>1.4</b>
Implied Daily Storage Activity	7.9	5.0	-27.0	-2.0	5.5	12.4	14.5		
EIA Reported Daily Storage Activity Daily Model Error									



## **Daily** Average Generation Data

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

	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul	DoD	vs. 7D
NRC Nuclear Daily Output	89.4	88.6	88.3	89.5	89.5	89.5	89.5	0.0	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	15.4	16.3	16.6	15.4	15.4	15.3	15.3	0.0	-0.4
NRC % Nuclear Cap Utilization	90.9	90.1	89.8	91.0	91.0	91.0	91.0	0.0	0.4

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

	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul	DoD	vs. 7D
CAISO Wind	5085	4583	4583	4583	4583	4583	4583	0	-84
ERCOT	23451	16048	6453	6832	6682	5992	5043	-949	-5867
Genscape US Wind	49628	43189	22389	15462	12297	12297	12297	0	-13580

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

	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul	DoD	vs. 7D
Genscape US Wind	49628	43189	22389	15462	12297	12297	12297	0	-13580
Genscape US Solar	20328	23019	22784	24053	25964	25964	25964	0	2278
Genscape US Other	4996	4449	4463	4850	4913	4913	4913	0	149
Genscape US Coal	122665	120372	127857	136460	142044	142044	142044	0	10137
Genscape US Nuke	93542	92726	92393	93576	93584	93584	93584	0	350
Genscape US Hydro	24454	24359	23913	24310	24411	24411	24411	0	102
Genscape US Gas	202114	212112	229590	262114	254337	254337	254337	0	18570

See National Wind and Nuclear daily charts



## **Storage Week** Average Generation Data

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

	21-May	28-May	4-Jun	11-Jun	18-Jun	25-Jun	WoW	WoW Bcf/d Impact
NRC Nuclear Daily Output	81.7	86.7	89.2	88.6	86.7	89.9	3.2	-0.5
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	0.0	
NRC Nuclear Outage	23.2	18.1	15.7	16.3	18.1	15.0	-3.2	
NRC % Nuclear Cap Utilization	0.1	0.1	0.1	0.1	0.1	0.1	0.0	

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

	21-May	28-May	4-Jun	11-Jun	18-Jun	25-Jun	WoW	WoW Bcf/d Impact
CAISO Wind	4429	4045	4012	4607	3723	3254	-470	0.1
ERCOT	15638	18210	9217	17072	10749	16549	5800	-1.0
Genscape US Wind	44217	54606	29242	43337	32707	50972	18265	-3.1

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

	21-May	28-May	4-Jun	11-Jun	18-Jun	25-Jun	WoW	WoW Bcf/d Impact
Genscape US Wind	44217	54606	29242	43337	32707	50972	18265	-3.1
Genscape US Solar	12784	13553	15426	15643	7817	12070	4253	-0.7
Genscape US Other	5356	5615	5443	5942	5201	4746	-455	0.1
Genscape US Coal	87761	101192	91844	118938	120230	118888	-1342	0.2
Genscape US Nuke	85515	90607	93111	92667	90822	93987	3164	-0.5
Genscape US Hydro	28694	27300	28202	32469	29459	30022	562	-0.1
Genscape US Gas	155670	176363	167948	212241	210769	202074	-8695	1.5

See National Wind and Nuclear daily charts



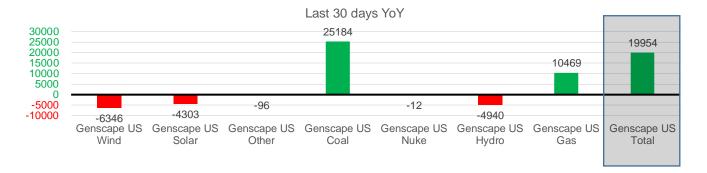
## **Monthly** Average Generation Data

Nuclear Generation Monthly Average - GWh (NRC)											
	2Yr Ago	LY				MTD					
	Same 30 days	Same 30 days	Mar-21	Apr-21	May-21	Jun-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY		
NRC Nuclear Daily Output	92.7	90.4	81.7	75.8	81.8	89.9	88.7	8.1	-1.7		
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	12.2	14.5	23.2	29.0	23.1	15.0	16.2	-8.1	1.7		
NRC % Nuclear Cap Utilization	94.3	91.9	83.1	77.1	83.2	91.4	90.2	8.3	-1.7		

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

	2Yr Ago			MID					
	Same 30 days	Same 30 days	Mar-21	Apr-21	May-21	Jun-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
CAISO Wind	3401	3307	2727	3973	3984	2701	4057	-1283	750
ERCOT	10293	13828	15759	14043	15379	2960	13064	-12419	-764
Genscape US Wind	31528	43036	51455	50826	46211	12412	36690	-33799	-6346

Generation Monthly Average - MWh (Genscape)  2Yr Ago LY MTD										
	Same 30 days	Same 30 days	Mar-21	Apr-21	May-21	Jun-21	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY	
Genscape US Wind	31528	43036	51455	50826	46211	12412	36690	<b>2</b> 4278.0	▼ -6346	
Genscape US Solar	20674	18965	7925	11423	15499	12996	14662	<b>1666</b>	<b>▼</b> -4303	
Genscape US Other	5211	5276	4163	4515	5256	4852	5180	<b>328</b>	▼ -96	
Genscape US Coal	109315	96265	80386	73809	87336	96040	121449	<b>25409</b>	<b>25184</b>	
Genscape US Nuke	95374	92804	85633	79828	85659	93926	92792	<b>▼</b> -1135	<b>▼</b> -12	
Genscape US Hydro	34802	34104	27693	27391	27514	29635	29165	<b>-470</b>	<b>▼</b> -4940	
Genscape US Gas	192926	203622	144642	153342	160888	185110	214091	<b>75551</b>	<b>10469</b>	
Genscape US Total	489830	494074	401897	401133	428362	434970	514028	<b>▲126823</b>	<b>19954</b>	



See National Wind and Nuclear daily charts



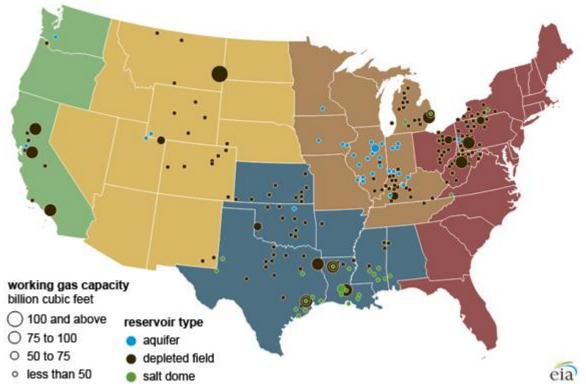
## Regional S/D Models Storage Projection

Week Ending 25-Jun

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	8.9	1.0	9.9	69
East	2.4	1.2	3.6	25
Midwest	4.2	-0.3	4.0	28
Mountain	4.9	-4.0	0.9	6
South Central	-3.1	4.0	0.9	6
Pacific	0.4	0.1	0.5	4

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

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



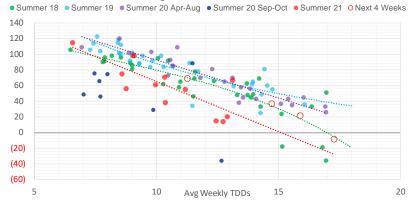


## Weather Model Storage Projection

Next report
and beyond

Week Ending	GWDDs	Week Storage Projection
25-Jun	11.3	69
02-Jul	15.9	22
09-Jul	14.7	37
16-Jul	17.3	-8

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



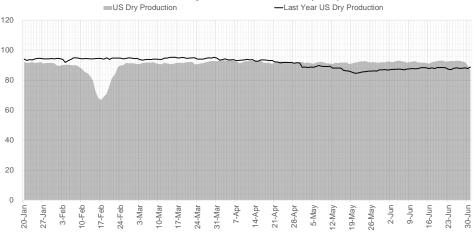
Go to larger image



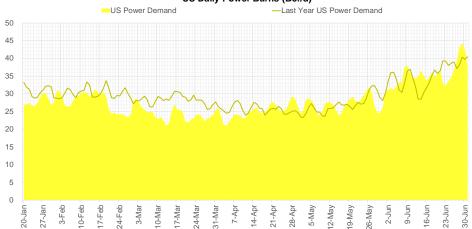


## Supply - Demand Trends

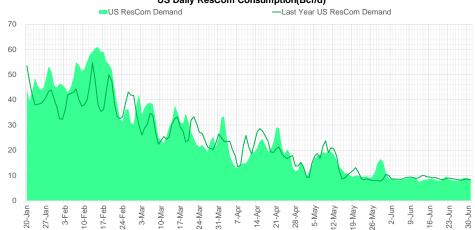
#### US Dry Natural Gas Production (Bcf/d)



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



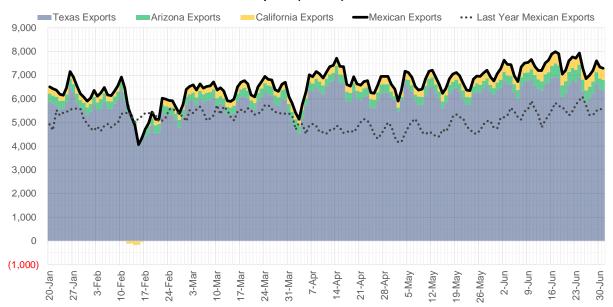
#### US Daily ResCom Consumption(Bcf/d)



Source: Bloomberg



#### Mexican Exports (MMcf/d)



#### Net LNG Exports - Last 30 days (MMcf/d) Sabine Pass Exports Cameron Exports Cove Point Exports Elba Exports Everett Exports Freeport Exports Golden Pass Exports ■Lake Charles Exports Northeast Exports Chorpus Christie Import LNG Exports ■Neptune Exports 12,000 10,000 8,000 6,000 4,000 2,000 0 (2,000)17-Jun

Source: Bloomberg





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

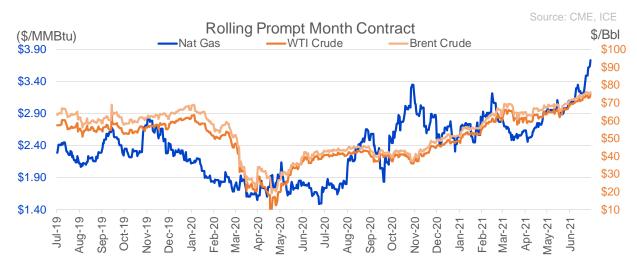
	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE	С	ONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE OI
MONTH	YEAR	1 01/0/122	011112	VOL		MONTH	YEAR	1 01/0/122	OTTAIL	0011021111201
8	2021	С	4.00	11303		10	2021	С	4.00	45041
8	2021	P	3.00	7757		8	2021	C	4.00	44337
8	2021	P	3.25	6837		8	2021	С	3.50	41401
8	2021	C	5.00	6806		9	2021	С	4.00	36955
8	2021	Ċ	4.50	6342		10	2021	С	3.50	33615
10	2021	C	4.00	5552		10	2021	С	5.00	32627
10	2021	C	4.50	5005		10	2021	Р	2.50	30410
9	2021	Ċ	4.00	4629		8	2021	Р	3.00	30107
8	2021	C	3.75	4610		8	2021	Р	2.50	29351
9	2021	C	4.25	4384		10	2021	С	3.25	28365
8	2021	P	3.50	4326		8	2021	С	3.75	27070
11	2021	С	4.00	4233		10	2021	Р	2.75	26539
12	2021	Ċ	4.00	3951		10	2021	Р	2.00	24786
8	2021	P	3.20	3746		9	2021	С	3.50	24253
8	2021	P	3.40	3609		11	2021	С	4.00	24250
8	2021	C	4.25	3559		8	2021	С	3.25	24102
11	2021	Ċ	4.75	3500		9	2021	Р	2.50	23776
10	2021	P	3.50	3182		8	2021	Р	2.90	21965
9	2021	Ċ	4.50	3127		10	2021	Р	3.00	21884
8	2021	C	4.35	2873		12	2021	С	4.00	21796
9	2021	C	5.00	2616		10	2021	С	4.50	20997
8	2021	C	4.55	2504		9	2021	Р	2.00	20423
8 10		C				8	2021	Р	2.00	19664
	2021	C	5.00	2428		4	2022	С	3.00	19560
10	2021		4.25	1889		8	2021	Р	2.25	19478
9	2021	P	3.50	1826		9	2021	С	3.25	19141
12	2021	С	6.00	1550		10	2021	Р	2.25	18854
12	2021	С	5.00	1530		8	2021	Р	2.75	18548
10	2021	С	3.50	1526		10	2021	С	3.00	18500
10	2021	P	3.00	1480		8	2021	Р	3.25	18174
10	2021	Р	3.25	1427		10	2021	С	6.00	16697
8	2021	С	3.65	1228		10	2021	С	3.75	15970
10	2021	С	6.00	1215		8	2021	С	3.00	15830
11	2021	С	4.50	1081		9	2021	Р	3.00	15618
8	2021	С	4.20	1042		8	2021	С	4.50	15391
10	2021	С	5.50	1032		8	2021	С	3.30	15333
8	2021	С	4.75	1005		3	2022	С	4.00	15326
9	2021	Р	1.50	1000		11	2021	С	3.75	14655
9	2021	Р	3.35	1000		1	2022	С	4.00	14533
12	2021	Р	3.15	1000		3	2022	С	3.00	14448
3	2022	С	8.00	1000		11	2021	Р	2.50	14092
4	2022	С	5.00	1000		9	2021	С	4.25	14088
9	2021	С	3.75	974		3	2022	С	5.00	14023
1	2022	Р	3.00	953		12	2021	P	2.00	13884
11	2021	Р	3.00	908		9	2021	Р	1.90	13832
9	2021	С	5.50	850		2	2022	С	4.00	13830
10	2021	Р	2.50	820		9	2021	P	2.75	13714
9	2021	С	3.50	792		5	2022	C	3.00	13450
1	2022	C	6.00	776		12	2021	Ċ	5.00	13417
9	2021	C	3.65	756		6	2022			
								Source	: CME, ICE	



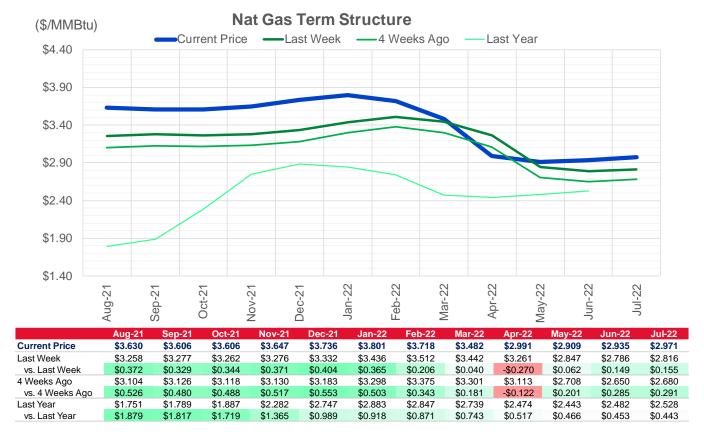
## Nat Gas Futures Open Interest

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
AUG 21	214633	214612	21	AUG 21	97827	98461	-634
SEP 21	223092	216473	6619	SEP 21	86920	86200	720
OCT 21	166072	163944	2128	OCT 21	101481	100713	769
NOV 21	98751	97580	1171	NOV 21	71829	72151	-322
DEC 21	68484	67722	762	DEC 21	69642	68932	710
JAN 22	112231	105727	6504	JAN 22	81521	80683	838
FEB 22	41894	41306	588	FEB 22	65582	65244	338
MAR 22	88689	87713	976	MAR 22	68627	67085	1542
APR 22	85781	82816	2965	APR 22	61893	62232	-339
MAY 22	70235	66764	3471	MAY 22	61823	60957	866
JUN 22	27545	27348	197	JUN 22	53598	53220	378
JUL 22	21781	20733	1048	JUL 22	52470	52048	422
AUG 22	20294	20023	271	AUG 22	53242	52867	375
SEP 22	19506	18791	715	SEP 22	52986	52613	373
OCT 22	55556	53285	2271	OCT 22	57605	57308	298
NOV 22	23802	23174	628	NOV 22	46119	45853	266
DEC 22	17750	17294	456	DEC 22	49009	48727	282
JAN 23	11584	11520	64	JAN 23	27916	27776	140
FEB 23	4026	3968	58	FEB 23	24683	24784	-101
MAR 23	7556	7747	-191	MAR 23	27504	27456	48
APR 23	8337	8481	-144	APR 23	21989	21972	17
MAY 23	4694	4811	-117	MAY 23	22310	22310	0
JUN 23	1588	1569	19	JUN 23	20822	20837	-15
JUL 23	2271	2247	24	JUL 23	20716	20732	-16
AUG 23	1299	1302	-3	AUG 23	20685	20701	-16
SEP 23	1740	1741	-1	SEP 23	20333	20340	-7
OCT 23	2282	2281	1	OCT 23	21669	21665	4
NOV 23	1076	1076	0	NOV 23	19847	19817	30
DEC 23	1134	1137	-3	DEC 23	20234	20191	43
JAN 24	792	791	1	JAN 24	12527	12563	-35







			Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	4.25	2.95	-1.30
TETCO M3	\$/MMBtu	2.93	2.86	-0.07
FGT Zone 3	\$/MMBtu	3.18	3.39	0.21
Zone 6 NY	\$/MMBtu	3.18	2.83	-0.36
Chicago Citygate	\$/MMBtu	3.53	3.22	-0.31
Michcon	\$/MMBtu	3.52	3.16	-0.36
Columbia TCO Pool	\$/MMBtu	3.03	2.77	-0.26
Ventura	\$/MMBtu	3.58	3.14	-0.45
Rockies/Opal	\$/MMBtu	3.59	3.19	-0.40
El Paso Permian Basin	\$/MMBtu	3.52	3.25	-0.27
Socal Citygate	\$/MMBtu	5.46	5.46 4.83	
Malin	\$/MMBtu	3.52	3.69	0.17
Houston Ship Channel	\$/MMBtu	3.69	3.37	-0.32
Henry Hub Cash	\$/MMBtu	3.72	3.16	-0.56
AECO Cash	C\$/GJ	3.45	2.67	-0.78
Station2 Cash	C\$/GJ	3.27	3.66	0.39
Dawn Cash	C\$/GJ	3.56 3.16		-0.40

Source: CME, Bloomberg





					VS	vs. 4 Weeks			
	Units	<b>Current Price</b>	vs.	<b>Last Week</b>		Ago	VS	. Last Year	
NatGas Jul21/Oct21	\$/MMBtu	0.002		-0.008	•	-0.025		-0.020	
NatGas Oct21/Nov21	\$/MMBtu	0.039	•	-0.012	•	-0.018		-0.009	
NatGas Oct21/Jan22	\$/MMBtu	0.188		-0.034	•	-0.070		-0.092	
NatGas Apr22/Oct22	\$/MMBtu	-0.004		-0.025	•	-0.030		-0.049	
WTI Crude	\$/Bbl	73.47		0.390		4.640		33.650	
Brent Crude	\$/Bbl	75.13		-0.060		3.780		33.100	
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000	
Heating Oil	cents/Gallon	212.87		-3.070		2.160		92.910	
Propane, Mt. Bel	cents/Gallon	0.97		0.006		0.053		0.507	
Ethane, Mt. Bel	cents/Gallon	0.28		0.002		0.010		0.074	
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

