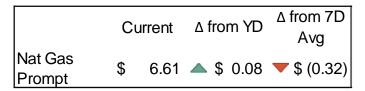


25 April 2022



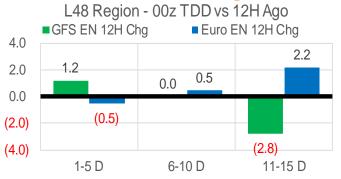
	С	urrent	Δ from YD	Δ from 7D				
\	Ū	G. 1 O 1 10		A	vg			
WTI Prompt	\$	96.80	\$ (5.27)	* \$	(6.6)			

	Current	Δ from YD	∆ fro	m 7D
	Current		A	vg
Brent	\$ 101 2Q	\$ (5.36)	* \$	(6.6)
Prompt	ψ 101.23	Ψ (3.30)	ΨΨ	(0.0)

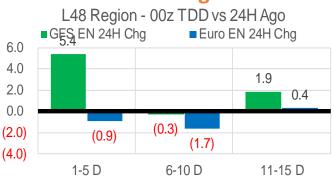
Page Menu

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	96.2	0.43	▼ -0.75

	Current	Δ from YD	Δ from 7D Avg
US Power Burns	26.8	a 0.75	0.12

	Current	Δ from YD	Δ from 7D Avg
US ResComm	15.4	2.51	▼ -4.31

	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	5.5	▼ -0.21	▼ -0.17

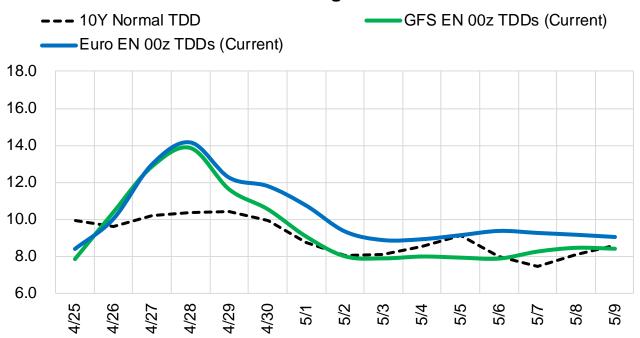
	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	12.2	0.30	- 0.04

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	6.5	0.18	- 0.30

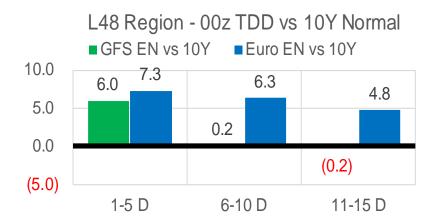


Short-term Weather Model Outlooks (00z)

L48 Region



Vs. 10Y Normal



Source: WSI, Bloomberg



Lower 48 Component Models

Daily Balances

	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	DoD	vs. 7D
Lower 48 Dry Production	97.6	96.5	97.5	97.0	97.4	95.8	96.2	0.4	▼ -0.7
Canadian Imports	5.9	6.0	5.3	5.5	5.3	5.7	5.5	▼-0.2	▼ -0.1
L48 Power	27.5	27.1	27.0	25.4	24.9	26.0	26.8	0.7	0.5
L48 Residential & Commercial	27.7	22.9	17.1	16.1	12.8	12.9	15.4	2.5	-2.9
L48 Industrial	21.7	21.3	21.0	21.4	21.1	21.6	21.9	0.3	0.5
L48 Lease and Plant Fuel	5.3	5.3	5.3	5.3	5.3	5.2	5.2	0.0	▼ -0.1
L48 Pipeline Distribution	3.0	2.8	2.4	2.3	2.1	2.1	2.3	0.2	▼ -0.1
L48 Regional Gas Consumption	85.2	79.3	72.8	70.5	66.3	67.9	71.6	3.7	▼ -2.0
Net LNG Delivered	12.73	12.37	11.98	11.92	12.56	11.86	12.15	0.3	▼ -0.1
Total Mexican Exports	7.1	7.3	6.9	6.8	6.4	6.3	6.5	0.2	▼ -0.3
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	-1.6	3.5	11.2	13.3	17.4	15.4	11.5		

EIA Storage Week Balances

	18-Mar	25-Mar	1-Apr	8-Apr	15-Apr	22-Apr	WoW	vs. 4W
Lower 48 Dry Production	93.9	95.4	96.1	96.0	96.5	96.7	▲ 0.2	0.7
Canadian Imports	5.2	4.8	5.7	5.8	5.6	5.8	0.3	0.4
L48 Power	27.3	25.6	26.9	26.7	26.7	26.8	▲ 0.0	0.3
L48 Residential & Commercial	31.5	23.5	29.7	24.3	21.6	23.3	1.7	▼ -1.4
L48 Industrial	20.7	20.8	22.5	21.8	20.5	21.1	0.7	▼ -0.3
L48 Lease and Plant Fuel	5.1	5.2	5.2	5.2	5.3	5.3	0.0	0.0
L48 Pipeline Distribution	3.1	2.6	2.9	2.8	2.7	2.8	0.1	0.0
L48 Regional Gas Consumption	87.7	77.5	87.3	80.8	76.7	79.2	2.6	▼-1.3
Net LNG Exports	12.9	13.0	13.1	12.4	12.5	12.1	▼ -0.3	▼-0.6
Total Mexican Exports	6.6	6.5	6.4	6.8	6.6	6.7	▲ 0.1	△ 0.1
Implied Daily Storage Activity	-7.9	3.2	-5.0	1.7	6.4	4.5	-1.8	
EIA Reported Daily Storage Activity	-7.3	3.7	-4.7	2.1	7.6			
Daily Model Error	-0.7	-0.5	-0.3	-0.4	-1.2			

Monthly Balances									
•	2Yr Ago	LY					MTD		
	Apr-20	Apr-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	MoM	vs. LY
Lower 48 Dry Production	92.7	92.5	96.1	93.6	93.6	95.1	96.5	1.4	4.0
Canadian Imports	4.0	4.7	4.8	6.7	6.6	5.2	5.7	0.5	1.0
L48 Power	25.6	25.0	28.7	31.4	29.0	26.9	26.6	▼-0.4	1.5
L48 Residential & Commercial	20.5	19.6	33.9	48.6	42.7	29.6	21.9	-7.6	2.4
L48 Industrial	20.4	21.4	22.5	25.5	25.3	21.7	21.2	▼-0.5	▼ -0.2
L48 Lease and Plant Fuel	5.0	5.0	5.3	5.1	5.1	5.2	5.3	0.1	0.2
L48 Pipeline Distribution	2.4	2.5	3.2	3.8	3.4	2.9	2.7	▼-0.3	0.2
L48 Regional Gas Consumption	74.0	73.5	93.6	114.4	105.5	86.3	77.6	▼ -8.7	4.1
Net LNG Exports	8.2	11.5	12.1	12.4	12.4	12.9	12.3	▼ -0.5	▲ 0.8
Total Mexican Exports	4.8	6.7	6.2	6.3	6.2	6.5	6.6	0.1	▼-0.1
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	9.7	5.5	-11.0	-32.8	-23.8	-5.4	5.6		



Daily Average Generation Data

Nuclear Generation Daily Average - GWh (NRC)

	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	DoD	vs. 7D
NRC Nuclear Daily Output	72.1	72.3	72.2	72.8	73.1	73.3	73.3	0.0	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	32.8	32.6	32.7	32.1	31.8	31.5	31.5	0.0	-0.7
NRC % Nuclear Cap Utilization	73.3	73.5	73.4	74.0	74.3	74.6	74.6	0.0	0.7

Wind Generation Daily Average - MWh (EIA)

	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	DoD	vs. 7D
CALI Wind	2700	3337	4230	3822	3521	4097	2605	-1491	-1012
TEXAS Wind	6807	13553	20931	18570	20882	23539	23539	0	6159
US Wind	41720	55342	72785	67563	65112	78521	79445	923	15937

Generation Daily Average - MWh (EIA)

	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr	DoD	vs. 7D
US Wind	41720	55342	72785	67563	65112	78521	79445	923	15937
US Solar	16120	14330	14218	16727	15162	13801	15947	2146	887
US Petroleum	937	1041	1000	1022	1006	961	943	-18	-52
US Other	7029	7632	7587	7386	7495	7329	7440	110	30
US Coal	77110	81279	78659	76825	79747	75594	69653	-5941	-8549
US Nuke	76472	76154	76561	76944	77186	77313	75973	-1339	-799
US Hydro	25777	28784	27906	28094	26176	25921	23898	-2023	-3212
US Gas	127556	146784	133170	135884	135448	126931	111267	-15664	-23029

See National Wind and Nuclear daily charts



Storage Week Average Generation Data

Theorem Control Trooms, Attorney											
	18-Mar	25-Mar	1-Apr	8-Apr	15-Apr	22-Apr	WoW	WoW Bcf/d Impact			
NRC Nuclear Daily Output	80.9	80.9	79.3	75.0	71.9	72.3	0.4	-0.1			
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	0.0				
NRC Nuclear Outage	23.9	24.0	25.5	29.9	32.9	32.6	-0.4				
NRC % Nuclear Cap Utilization	82.3	82.3	80.7	76.3	73.2	73.5	0.4				

Wind Generation Weekly Average - MWh (EIA)

Nuclear Generation Weekly Average - GWh (NRC)

	18-Mar	25-Mar	1-Apr	8-Apr	15-Apr	22-Apr	WoW	WoW Bcf/d Impact
CALI Wind	2297	2037	2643	2611	3434	3613	179	0.0
TEXAS Wind	17742	16108	14530	14468	16530	15612	-918	0.2
US Wind	63171	62107	61695	60009	66367	61075	-5293	1.0
							-8%	
						-0.1		

Generation Weekly Average - MWh (EIA)

						est.		
	18-Mar	25-Mar	1-Apr	8-Apr	15-Apr	22-Apr	WoW	WoW Bcf/d Impact
US Wind	63171	62107	61695	60009	66367	61075	-5293	1.0
US Solar	13919	13805	15451	15518	16118	15348	-770	0.1
US Petroleum	961	864	1048	1015	964	984	19	0.0
US Other	7120	7745	7481	7183	7154	7397	243	0.0
US Coal	86035	72503	77743	77514	77087	77998	911	-0.2
US Nuke	84775	84027	83506	78807	75674	76478	804	-0.1
US Hydro	34883	33229	33463	32524	29414	27299	-2115	0.4
US Gas	137079	124817	134886	134633	134338	132493	-1844	-0.3

See National Wind and Nuclear daily charts



Monthly Average Generation Data

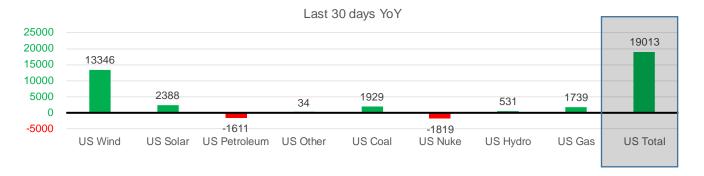
Nuclear Generation Monthly Average - GWh (NRC)									
	2Yr Ago LY					MTD			
	Same 30 days	Same 30 days	Jan-22	Feb-22	Mar-22	Apr-22	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
NRC Nuclear Daily Output	78.6	75.9	90.2	87.6	81.3	73.1	74.1	-8.2	-1.8
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	104.9	0.0	0.0
NRC Nuclear Outage	26.3	28.9	14.7	17.3	23.6	31.8	30.8	8.2	1.8
NRC % Nuclear Cap Utilization	79.9	77.2	91.7	89.0	82.7	74.4	75.3	-8.3	-1.9

Wind Generation Monthly Average - MWh (EIA)

	2Yr Ago LY MTD								
	Same 30 days	Same 30 days	Jan-22	Feb-22	Mar-22	Apr-22	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
CALI Wind	2270	2913	1244	1559	2250	3181	3165	931	253
TEXAS Wind	9914	12425	11355	12294	14837	16817	16812	1980	4387
US Wind	40189	51984	51045	56539	58520	65160	65330	6640	13346

Generation Monthly Average - MWh (EIA)

•	2Yr Ago	LY				MTD			
	Same 30 days	Same 30 days	Jan-22	Feb-22	Mar-22	Apr-22	Last 30 days	MoM (MTD vs LY)	Last 30 days YoY
US Wind	40189	51984	51045	56539	58520	65160	65330	169.3	13346
US Solar	9253	13074	9541	12188	14053	15621	15462	- 159.0	2388
US Petroleum	2906	2610	5021	3451	1335	981	999	18	▼ -1611
US Other	7410	7267	8792	8839	7187	7272	7300	2 9	34
US Coal	56792	74871	117971	106588	82291	76510	76800	290	1929
US Nuke	82531	79745	95259	92280	85157	76878	77926	1048	▼ -1819
US Hydro	30855	29133	34040	32213	33927	28891	29664	773	531
US Gas	138763	130116	164024	152058	135583	130839	131855	2169	1739
US Total	367008	388493	485878	464684	419867	404455	407506	4168	19013



See National Wind and Nuclear daily charts



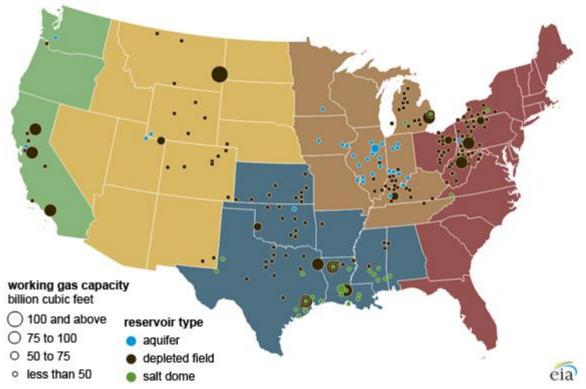
Regional S/D Models Storage Projection

Week Ending 22-Apr

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	5.0	0.3	5.3	37
East	-1.6	1.6	0.0	0
Midwest	1.2	-0.6	0.6	4
Mountain	3.6	-3.5	0.1	1
South Central	1.9	2.4	4.3	30
Pacific	-0.1	0.3	0.2	1

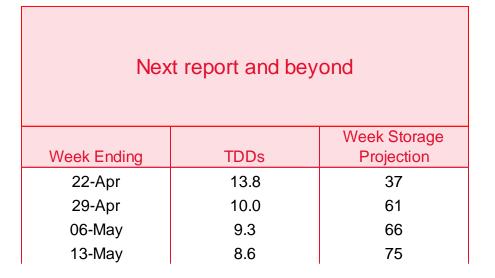
^{*}Adjustment Factor is calcuated based on historical regional deltas

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

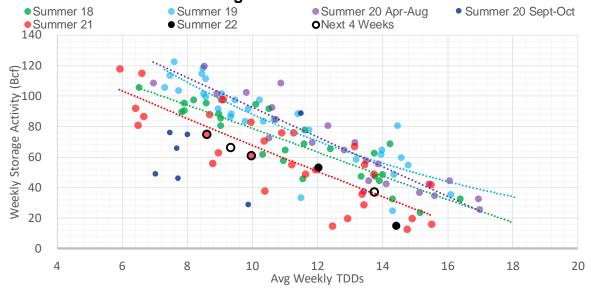




Weather Model Storage Projection



Weather Storage Model - Next 4 Week Forecast



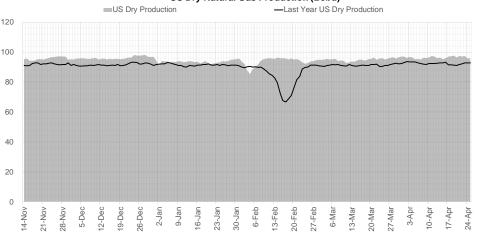
Go to larger image



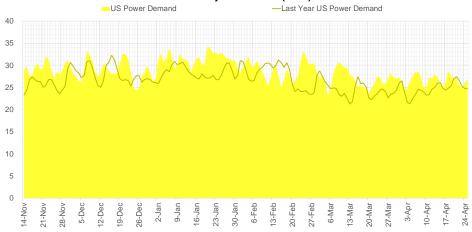


Supply - Demand Trends

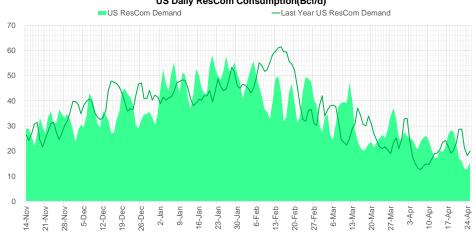
US Dry Natural Gas Production (Bcf/d)



US Daily Power Burns (Bcf/d)



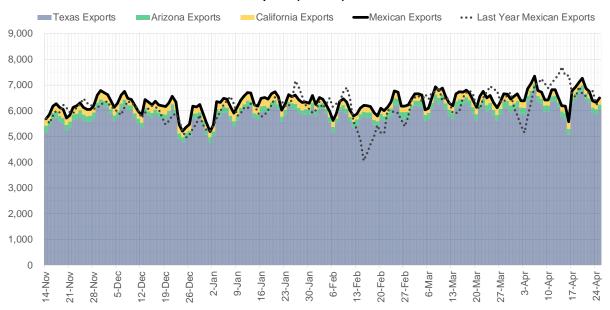
US Daily ResCom Consumption(Bcf/d)



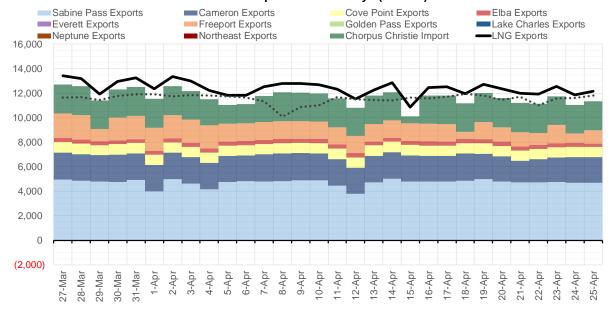
Source: Bloomberg



Mexican Exports (MMcf/d)



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



Source: Bloomberg



Nat Gas Options Volume and Open Interest CME and ICE Combined

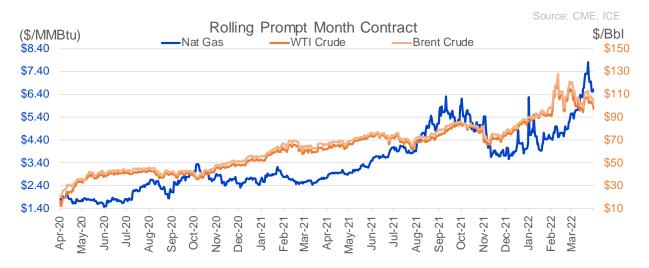
	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE	CONTRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE OI
MONTH	YEAR	1 0 1/0/122	OTTURE	VOL	MONTH	YEAR	1 01/0/122	OTT.	COMOL TIVE OF
5	2022	Р	6.00	6705	8	2022	С	10.00	48864
7	2022	C	7.50	5145	8	2022	Č	10.50	41503
5	2022	P	6.25	4613	10	2022	С	6.00	34958
5	2022	C	7.00	3767	5	2022	Р	4.00	25938
8	2022	C	7.50	3683	6	2022	С	6.00	25579
6	2022	C	7.00	3547	10	2022	С	5.00	25550
8	2022	P	4.00	3203	9	2022	С	6.00	23730
6	2022	C	7.50	3184	7	2022	С	8.00	22902
7	2022	C	8.00	3076	5	2022	Р	3.00	22811
5	2022	P	6.50	2776	10	2022	Р	3.00	21367
6	2022	P	6.00	2765	8	2022	С	6.00	21346
9	2022	C	7.50	2700	5	2022	С	5.00	21285
10	2022	Ċ	7.50	2533	5	2022	С	6.00	21034
7	2022	Ċ	9.00	2500	6	2022	Р	4.00	19926
10	2022	P	5.00	2456	5	2022	Р	2.50	19874
5	2022	Р	6.30	2420	5	2022	С	7.00	19265
7	2022	Ċ	7.25	2354	6	2022	С	7.00	19136
, 5	2022	Č	8.00	2303	5	2022	С	8.00	18560
6	2022	P	5.00	2256	12	2022	С	5.00	18421
8	2022	C	6.00	2251	10	2022	Р	3.50	18391
6	2022	P	5.50	2196	7	2022	С	6.00	18233
7		C			8	2022	С	7.00	18183
7 10	2022	P	7.00	2131	9	2022	С	10.00	18110
	2022	•	3.50	2070	9	2022	С	7.00	17920
5	2022	С	7.25	2047	6	2022	С	5.00	17862
6	2022	P	6.50	1981	6	2022	С	10.00	17646
5	2022	P	5.75	1950	7	2022	Р	3.25	17644
10	2022	P	4.00	1900	5	2022	Р	2.75	17585
8	2022	С	9.00	1849	10	2022	Р	2.50	17436
11	2022	С	10.00	1846	7	2022	С	7.00	17374
6	2022	Р	4.50	1834	5	2022	Р	3.50	17295
10	2022	Р	3.25	1830	6	2022	Р	3.00	17223
6	2022	Р	5.75	1828	5	2022	Р	4.50	17044
6	2022	С	8.00	1817	5	2022	Р	3.75	16402
8	2022	С	7.00	1801	10	2022	Р	4.00	16388
10	2022	С	10.00	1774	5	2022	Р	5.00	16381
11	2022	С	9.00	1746	7	2022	С	10.00	16195
10	2022	С	7.00	1686	6	2022	Р	3.50	16077
9	2022	С	7.00	1615	1	2023	С	10.00	15559
9	2022	Р	5.00	1522	2	2023	Ċ	10.00	15394
6	2022	С	9.00	1501	9	2022	P	2.50	15291
10	2022	С	9.00	1500	5	2022	С	9.00	15056
6	2022	С	10.00	1443	6	2022	P	4.75	15023
10	2022	С	6.00	1425	6	2022	P	5.50	14982
8	2022	С	8.00	1402	7	2022	P	3.50	14935
5	2022	Р	6.75	1401	9	2022	P	2.75	14933
6	2022	С	6.00	1385	10	2022	P	2.00	14764
8	2022	C	10.00	1310	7	2022	P	3.00	14509
8	2022	C	12.00	1305	10	2022	C	7.00	14484
9	2022	C	6.00	1305	8	2022			14375
					-	-	Source	: CME, ICE	



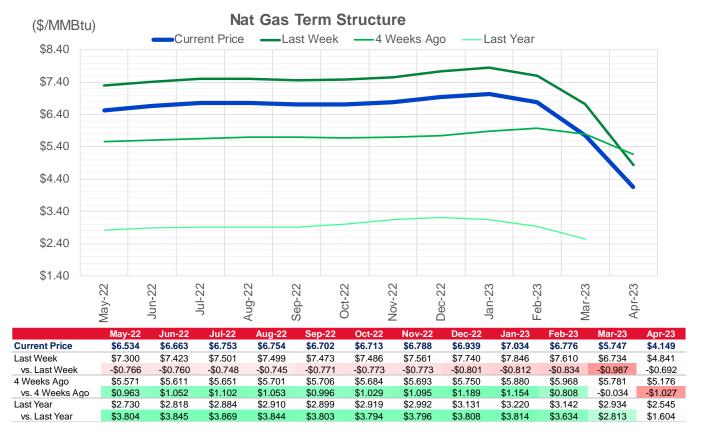
Nat Gas Futures Open Interest

CME and ICE Combined

CME Henry I	Hub Futures (10	Futures Co	ontract Equiva	lent (10,000 MM			
	Current	Prior	Daily Change		Current	Prior	Daily Change
MAY 22	20132	29929	-9797	MAY 22	77723	80050	-2327
JUN 22	132349	129785	2564	JUN 22	71646	73703	-2057
JUL 22	164673	162028	2645	JUL 22	75053	76689	-1637
AUG 22	56483	53922	2561	AUG 22	62105	62329	-224
SEP 22	83264	81171	2093	#N/A Reques	66648	66595	54
OCT 22	94765	92337	2428	#N/A Reques	75453	75198	256
NOV 22	44207	42283	1924	#N/A Reques	57604	56245	1359
DEC 22	47584	47484	100	DEC 22	61052	60992	60
JAN 23	61685	61124	561	#N/A Reques	63513	66569	-3057
FEB 23	22939	22297	642	FEB 23	49120	47870	1250
MAR 23	39264	40294	-1030	#N/A Reques	52490	53238	-749
APR 23	56638	56124	514	APR 23	51462	51693	-231
MAY 23	56352	54823	1529	#N/A Reques	46914	47535	-621
JUN 23	23560	23144	416	JUN 23	43338	43961	-623
JUL 23	18137	17846	291	JUL 23	42867	43483	-617
AUG 23	13991	14792	-801	#N/A Reques	42695	43275	-580
SEP 23	17980	17732	248	SEP 23	42341	42925	-584
OCT 23	35354	37038	-1684	OCT 23	49255	50080	-825
NOV 23	12530	12397	133	NOV 23	42274	42347	-73
DEC 23	15059	15072	-13	DEC 23	38447	38415	32
JAN 24	22823	23114	-291	#N/A Reques	37428	37423	5
FEB 24	5546	5515	31	FEB 24	25108	25137	-29
MAR 24	15250	15135	115	MAR 24	29769	29783	-14
APR 24	10810	10745	65	#N/A Reques	24094	24125	-30
MAY 24	6140	6124	16	MAY 24	24212	24227	-16
JUN 24	1836	1794	42	JUN 24	21417	21463	-45
JUL 24	1912	1887	25	JUL 24	21573	21573	0
AUG 24	3111	3077	34	AUG 24	22580	22572	8
SEP 24	1420	1386	34	#N/A Reques	21177	21322	-145
OCT 24	6893	6759	134	OCT 24	23113	23289	-176







		Cash	Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	5.94	6.83	0.89
TETCO M3	\$/MMBtu	5.72	6.70	0.98
FGT Zone 3	\$/MMBtu	5.65	7.33	1.68
Zone 6 NY	\$/MMBtu	5.65	6.63	0.98
Chicago Citygate	\$/MMBtu	6.38	7.05	0.67
Michcon	\$/MMBtu	6.54	7.06	0.52
Columbia TCO Pool	\$/MMBtu	5.94	6.73	0.79
Ventura	\$/MMBtu	6.10	6.98	0.88
Rockies/Opal	\$/MMBtu	6.50	6.77	0.28
El Paso Permian Basin	\$/MMBtu	5.73	6.31	0.58
Socal Citygate	\$/MMBtu	6.50	6.88	0.38
Malin	\$/MMBtu	6.27	6.84	0.57
Houston Ship Channel	\$/MMBtu	6.18	7.14	0.96
Henry Hub Cash	\$/MMBtu	6.59	6.99	0.40
AECO Cash	C\$/GJ	5.15	5.53	0.38
Station2 Cash	C\$/GJ	5.16	6.63	1.47
Dawn Cash	C\$/GJ	6.57	7.13	0.56

Source: CME, Bloomberg

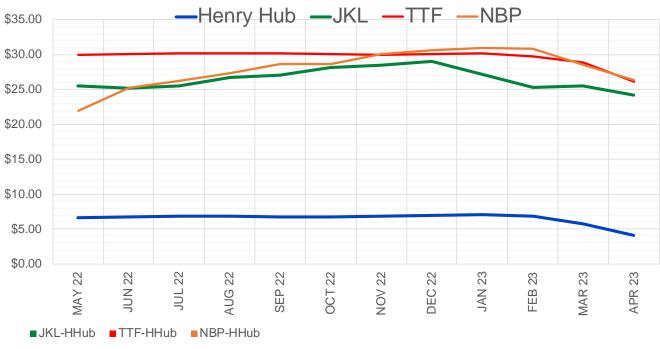




			vs. 4 Weeks					
	Units	Current Price	vs.	Last Week	•	Ago	VS	s. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224		0.000		0.000		2.189
NatGas Oct21/Nov21	\$/MMBtu	0.361		0.000		0.000		0.288
NatGas Oct21/Jan22	\$/MMBtu	-1.817		0.000		0.000		-2.118
NatGas Apr22/Oct22	\$/MMBtu	1.377		-0.773		1.255		1.344
WTI Crude	\$/Bbl	102.07		-4.880	~	-11.830		39.930
Brent Crude	\$/Bbl	106.65		-5.050	•	-14.000		40.540
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	393.86		8.380		-17.600		206.510
Propane, Mt. Bel	cents/Gallon	1.31		-0.034	•	-0.143		0.498
Ethane, Mt. Bel	cents/Gallon	0.50		-0.007		0.070		0.265
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						



Nat Gas Term Structure (\$MMBTU)





	MAY 22	JUN 22	JUL 22	AUG 22	SEP 22	OCT 22	NOV 22	DEC 22	JAN 23	FEB 23	MAR 23	APR 23
Henry Hub	\$6.611	\$6.740	\$6.807	\$6.805	\$6.758	\$6.761	\$6.841	\$6.982	\$7.079	\$6.794	\$5.740	\$4.101
JKL	\$25.495	\$25.160	\$25.535	\$26.740	\$27.090	\$28.170	\$28.505	\$29.070	\$27.215	\$25.315	\$25.515	\$24.180
JKL-HHub	\$18.884	\$18.420	\$18.728	\$19.935	\$20.332	\$21.409	\$21.664	\$22.088	\$20.136	\$18.521	\$19.775	\$20.079
TTF	\$29.994	\$30.143	\$30.166	\$30.210	\$30.177	\$30.133	\$29.987	\$30.102	\$30.183	\$29.782	\$28.901	\$26.115
TTF-HHub	\$23.383	\$23.403	\$23.359	\$23.405	\$23.419	\$23.372	\$23.146	\$23.120	\$23.104	\$22.988	\$23.161	\$22.014
NBP	\$22.008	\$25.219	\$26.258	\$27.355	\$28.723	\$28.708	\$30.098	\$30.683	\$30.976	\$30.826	\$28.526	\$26.385
NBP-HHub	\$15.397	\$18.479	\$19.451	\$20.550	\$21.965	\$21.947	\$23.257	\$23.701	\$23.897	\$24.032	\$22.786	\$22.284





