

	Cı	urrent	Δ fro	m YD	Δ from 7D Ava		
Nat Gas Prompt	\$	8.25	\$	0.29		0.57	

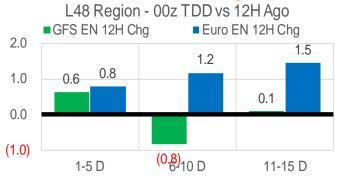
	Current	Δ from YD	Δ fron Av	
WTI Prompt	\$ 114.86	\$ 0.66	\$	6.7

	Curront	Δ from YD	Δ from 7D		
	Current		Avg		
Brent Prompt	\$ 115.12	\$ 0.88	\$ 5.0	6	
Prompt	Ψ 110.12	_ φ σ.σσ	_ ψ σ.	_	

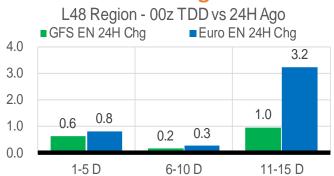
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Short-term Weather Model Outlooks
Lower 48 Component Models
Regional S/D Models Storage Projection
Weather Model Storage Projection
Supply – Demand Trends
Nat Gas Options Volume and Open Interest
Nat Gas Futures Open Interest
Price Summary

Vs. 12H Ago



Vs. 24H Ago



	Current	Δ from YD	Δ from 7D Avg
US Dry Production	94.2	- 0.93	▼ -1.35

Δ from YD	Δ from 7D Avg		Current	Δ from YD	Δ from 7D Avg
▼ -0.93	▼ -1.35	US Power Burns	29.5	-0.41	▼ -0.14

	Current	Δ from YD	Δ from 7D Avg
US ResComm	10.6	1.08	a 0.37

	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	4.5	▼ -0.18	▼ -0.43

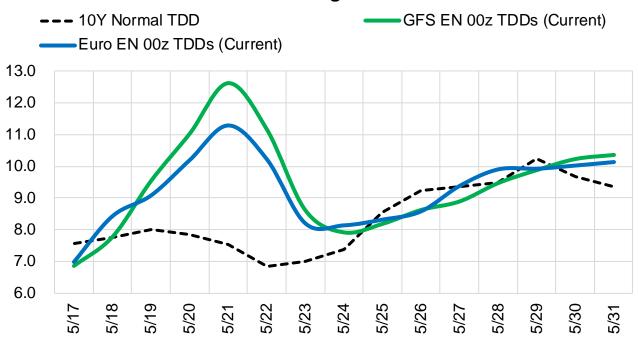
	Current	Δ from YD	Δ from 7D Avg	
Net LNG Exports	12.4	0.19	a 0.39	

	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	6.8	- 0.09	▼ -0.16

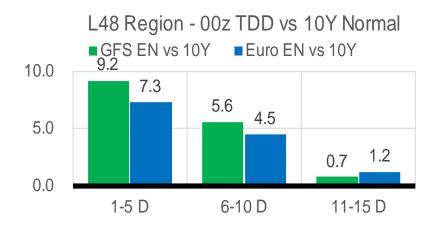


Short-term Weather Model Outlooks (00z)

L48 Region



Vs. 10Y Normal



Source: WSI, Bloomberg



Lower 48 Component Models

Daily Balances

	11-May	12-May	13-May	14-May	15-May	16-May	17-May	DoD	vs. 7D
Lower 48 Dry Production	96.0	96.0	95.7	95.2	94.8	95.2	94.2	▼-0.9	▼ -1.3
Canadian Imports	4.9	5.2	5.1	4.9	4.8	4.7	4.5	▼-0.2	▼ -0.4
L48 Power	29.9	29.9	30.4	30.0	29.3	29.9	29.5	▼-0.4	- 0.4
L48 Residential & Commercial	11.8	10.7	9.8	8.5	8.6	9.5	10.6	1.1	8.0
L48 Industrial	21.2	21.5	21.6	21.8	21.9	21.8	21.7	▼-0.2	0.0
L48 Lease and Plant Fuel	5.2	5.2	5.2	5.2	5.1	5.2	5.1	▼-0.1	▼ -0.1
L48 Pipeline Distribution	2.4	2.3	2.3	2.2	2.2	2.2	2.3	0.0	0.0
L48 Regional Gas Consumption	70.4	69.6	69.2	67.6	67.0	68.7	69.1	0.4	0.4
Net LNG Delivered	12.31	11.87	11.81	11.83	11.67	12.23	12.43	0.2	a 0.5
Total Mexican Exports	7.1	7.0	7.1	6.9	6.3	6.9	6.8	▼-0.1	▼ -0.1
Implied Daily Storage Activity EIA Reported Daily Storage Activity	11.2	12.7	12.6	13.7	14.6	12.1	10.4		
Daily Model Error									

EIA Storage Week Balances

	8-Apr	15-Apr	22-Apr	29-Apr	6-May	13-May	WoW	vs. 4W
Lower 48 Dry Production	95.8	96.4	96.7	95.8	95.8	96.1	0.3	▼-0.1
Canadian Imports	5.8	5.6	5.8	6.1	5.9	5.2	▼-0.8	▼-0.7
L48 Power	25.0	24.6	25.1	25.0	26.4	26.9	0.4	1.6
L48 Residential & Commercial	25.2	22.4	24.1	18.5	16.5	14.2	▼ -2.3	▼ -6.2
L48 Industrial	22.5	21.7	21.8	21.9	21.5	21.3	▼ -0.2	- 0.4
L48 Lease and Plant Fuel	5.2	5.3	5.3	5.2	5.2	5.2	0.0	▼ 0.0
L48 Pipeline Distribution	2.8	2.6	2.7	2.4	2.4	2.3	▼ -0.1	▼ -0.2
L48 Regional Gas Consumption	80.7	76.5	79.0	73.0	72.1	69.9	▼ -2.2	▼ -5.3
Net LNG Exports	12.4	12.5	12.1	12.2	12.2	12.2	▲ 0.0	▼ 0.0
Total Mexican Exports	6.8	6.6	6.7	6.9	6.9	7.1	△ 0.1	0.3
Implied Daily Storage Activity	1.7	6.5	4.7	9.8	10.6	12.1	1.5	
EIA Reported Daily Storage Activity	2.1	7.6	5.7	11.0	10.9			
Daily Model Error	-0.4	-1.1	-1.0	-1.2	-0.3			

•	2Yr Ago	LY					MTD		
	May-20	May-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	MoM	vs. LY
Lower 48 Dry Production	87.0	93.0	93.4	92.7	95.0	96.2	95.8	▼-0.4	2.8
Canadian Imports	3.9	4.5	6.7	6.6	5.2	5.8	5.3	▼ -0.5	8.0
L48 Power	26.9	26.5	31.5	28.9	25.6	24.8	27.9	3.1	1.4
L48 Residential & Commercial	12.8	12.8	49.1	44.4	30.7	22.2	13.6	▼-8.6	8.0
L48 Industrial	19.4	20.9	24.7	22.5	21.8	21.9	21.5	▼-0.4	0.6
L48 Lease and Plant Fuel	4.7	5.0	5.1	5.1	5.2	5.2	5.2	▼ -0.1	0.2
L48 Pipeline Distribution	2.2	2.2	3.8	3.6	2.9	2.6	2.4	▼-0.2	0.1
L48 Regional Gas Consumption	65.9	67.5	114.3	104.4	86.2	76.8	70.5	▼ -6.3	3.0
Net LNG Exports	6.7	10.8	12.4	12.4	12.9	12.3	12.1	▼-0.1	1.3
Total Mexican Exports	4.8	6.8	6.3	6.2	6.5	6.7	7.0	0.2	0.2
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	13.6	12.4	-32.9	-23.7	-5.4	6.2	11.5		

Source: Bloomberg, analytix.ai



Daily Average Generation Data

Nuclear Generation Daily Average - GWh (NRC)

	9-May	10-May	11-May	12-May	13 -M ay	14-May	15-May	DoD	vs. 7D
NRC Nuclear Daily Output	79.2	79.9	80.4	81.0	81.3	79.6	81.0	1.5	8.0
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	25.7	24.9	24.5	23.9	23.5	25.3	23.8	-1.5	-0.8
NRC % Nuclear Cap Utilization	80.5	81.3	81.7	82.4	82.7	80.9	82.4	1.5	0.8

Wind Generation Daily Average - MWh (EIA)

	9-May	10-May	11 -M ay	12 -M ay	13 -M ay	14-May	15-May	DoD	vs. 7D
CALI Wind	3997	3684	3767	2800	2413	1662	3103	1440	49
TEXAS Wind	21168	20896	18474	19001	12388	11449	15517	4068	-1713
US Wind	81201	65666	61454	68832	47704	35389	44607	9219	-15434

Generation Daily Average - MWh (EIA)

	9-May	10-May	11-May	12-May	13-May	14-May	15-May	DoD	vs. 7D
US Wind	81201	65666	61454	68832	47704	35389	44607	9219	-15434
US Solar	18103	17690	16718	16402	18239	18710	18173	-537	529
US Petroleum	248	282	386	268	357	265	249	-16	-52
US Other	7061	7409	7790	8112	8224	7400	7129	-271	-537
US Coal	76009	84621	85465	83318	85557	86495	85391	-1104	1814
US Nuke	83649	84062	84471	84722	84133	83587	84942	1354	838
US Hydro	27833	31633	32624	33198	33294	31008	30931	-77	-667
US Gas	136633	154001	168496	166557	178406	175675	162735	-12940	-560

See National Wind and Nuclear daily charts

Source: Bloomberg, analytix.ai



US Gas

Storage Week Average Generation Data

Nuclear Generation Weekly	Average - G	Wh (NRC	;)							
	8-Apr	15-Apr	22-Apr	29-Apr	6-May	13-May	WoW	WoW Bcf/d Impact		
NRC Nuclear Daily Output	75.0	71.9	72.3	73.5	76.7	79.3	2.7	-0.5		
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	0.0			
NRC Nuclear Outage	29.9	32.9	32.6	31.4	28.2	25.5	-2.7			
NRC % Nuclear Cap Utilization	76.3	73.2	73.5	74.8	78.0	80.7	2.7			
Wind Generation Weekly Average - MWh (EIA)										
								WoW		
	8-Apr	15-Apr	22-Apr	29-Apr	6-May	13-May	WoW	Bcf/d Impact		
CALI Wind	2611	3434	3613	3153	2929	3983	1055	-0.2		
TEXAS Wind	14468	16530	15612	18327	16902	17705	802	-0.1		
US Wind	59878	66240	61570	66986	57243	64974	7731	-1.4		
							14%			
						0.0				
Generation Weekly Average	- MWh (EIA	.)								
,	•	•				est.				
								WoW		
	8-Apr	15-Apr	22-Apr	29-Apr	6-May	13-May	WoW	Bcf/d		
								Impact		
US Wind	59878	66240	61570	66986	57243	64974	7731	-1.4		
US Solar	15518	16118	15897	16968	16920	17364	443	-0.1		
US Petroleum	1015	964	984	992	931	341	-590	0.1		
US Other	7183	7154	7544	7717	7528	7512	-16	0.0		
US Coal	77514	77087	79575	77533	78898	81273	2375	-0.4		
US Nuke	78807	75674	76478	77438	80545	83391	2846	-0.5		
US Hydro	32524	29415	28355	26722	26824	28933	2109	-0.4		

See National Wind and Nuclear daily charts

134338

134633

133401

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Source: Bloomberg, analytix.ai

Monthly Average Generation Data

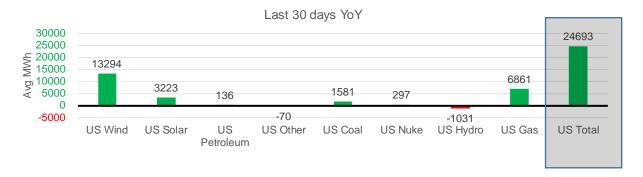
Nuclear Generation Monthly Average - GWh (NRC)										
	2Yr Ago	LY								
	Same 30 days	Same 30 days	Feb-22	Mar-22	Apr-22	May-22	Last 30 days	Last 30 days YoY		
NRC Nuclear Daily Output	80.1	76.9	87.3	81.3	73.3	79.3	76.8	-0.1		
NRC Nuclear Max Capacity	104.9	104.9	104.9	104.9	104.9	104.9	104.9	0.0		
NRC Nuclear Outage	24.8	28.0	17.5	23.6	31.6	25.5	28.1	0.1		
NRC % Nuclear Cap Utilization	81.4	78.1	88.8	82.7	74.5	80.7	78.1	-0.1		

Wind Generation Monthly Average - MWh (EIA)

	2Yr Ago	LY				MTD		
	Same 30 days	Same 30 days	Feb-22	Mar-22	Apr-22	May-22	Last 30 days	Last 30 days YoY
CALI Wind	2846	3220	1495	2250	3186	3286	3292	71
TEXAS Wind	10897	12191	11750	14837	16311	16346	17162	4971
US Wind	40741	46878	54543	58528	64183	54687	60172	13294

Generation Monthly Average - MWh (EIA)

, , ,	2Yr Ago	LY				MTD		
	Same 30 days	Same 30 days	Feb-22	Mar-22	Apr-22	May-22	Last 30 days	Last 30 days YoY
US Wind	40741	46878	54543	58528	64183	54687	60172	13294
US Solar	11172	13909	12442	14058	16208	17455	17132	3223
US Petroleum	734	573	1331	985	985	495	710	136
US Other	7962	7645	8632	7206	7386	7524	7575	▼ -70
US Coal	56154	79021	105631	82291	77545	82649	80602	1581
US Nuke	84175	80337	92027	85256	77217	83080	80633	297
US Hydro	35037	29389	32284	33959	29023	29166	28357	▼ -1031
US Gas	135439	139023	153733	137232	133068	155557	145884	6861
US Total	370070	397030	461069	419842	406185	431364	421723	24693



See National Wind and Nuclear daily charts

Source: Bloomberg, analytix.ai



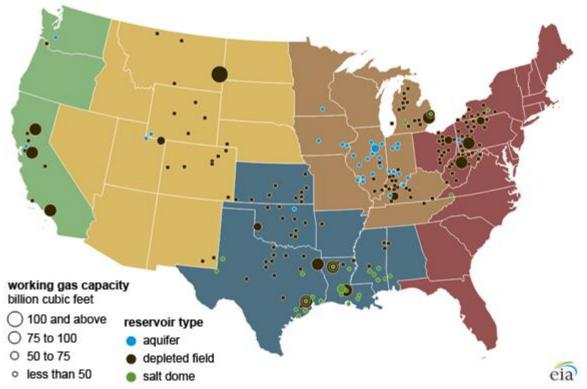
Regional S/D Models Storage Projection

Week Ending 13-May

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	12.7	0.2	13.0	91
East	0.4	2.5	2.9	21
Midwest	4.6	-0.5	4.1	29
Mountain	4.8	-3.4	1.4	10
South Central	1.8	2.3	4.2	29
Pacific	1.0	-0.7	0.4	3

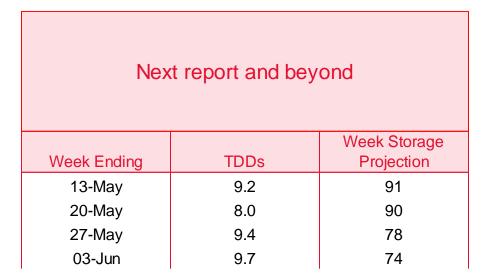
^{*}Adjustment Factor is calcuated based on historical regional deltas

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

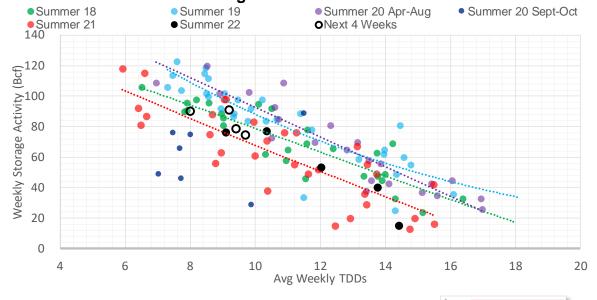




Weather Model Storage Projection



Weather Storage Model - Next 4 Week Forecast



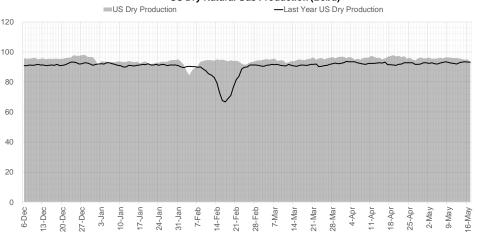
Go to larger image



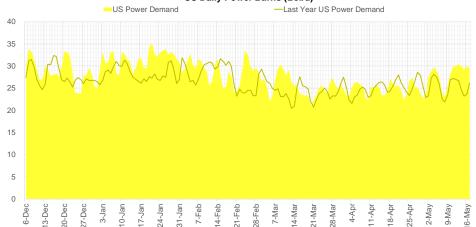


Supply - Demand Trends

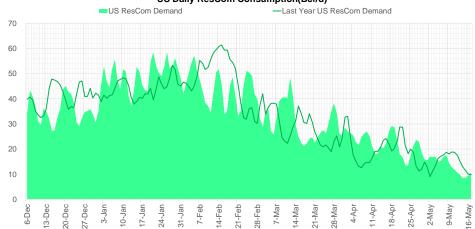
US Dry Natural Gas Production (Bcf/d)



US Daily Power Burns (Bcf/d)



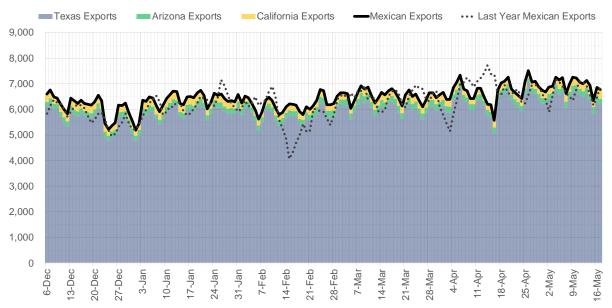
US Daily ResCom Consumption(Bcf/d)



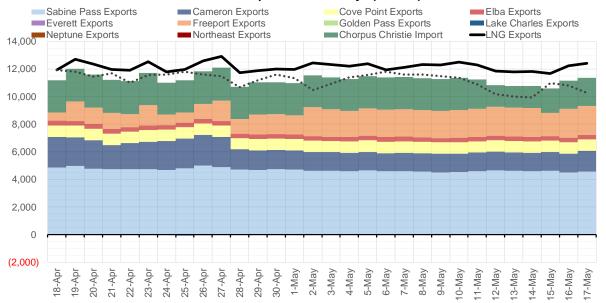
Source: Bloomberg



Mexican Exports (MMcf/d)







Source: Bloomberg



Nat Gas Options Volume and Open Interest CME and ICE Combined

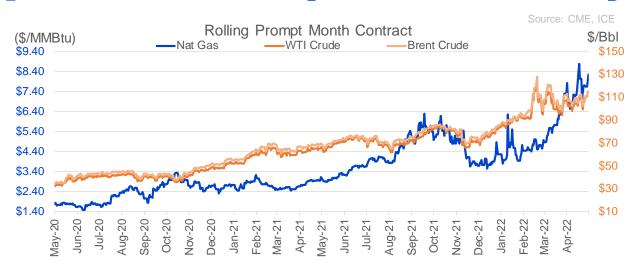
	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE		ITRACT	CONTRACT	PUT/CALL	STRIKE	CUMULATIVE OI
MONTH	YEAR			VOL	IVI	HTMC	YEAR			
6	2022	С	9.00	6562		8	2022	С	10.00	50901
6	2022	С	12.00	5936		8	2022	С	10.50	41548
7	2022	Р	7.00	4653		10	2022	С	6.00	35195
8	2022	С	8.00	3050		6	2022	С	6.00	25039
7	2022	Р	7.25	3015		10	2022	С	5.00	24289
6	2022	Р	7.00	2965		9	2022	С	6.00	23680
8	2022	С	8.10	2551		10	2022	Р	3.00	21067
6	2022	С	10.00	2388		10	2022	Р	3.50	20919
7	2022	Р	6.00	2364		7	2022	С	8.00	20171
6	2022	С	9.50	1459		10	2022	Р	2.50	19730
6	2022	Р	6.00	1394		6	2022	C	7.00	19709
6	2022	С	8.00	1320		6	2022	С	10.00	19686
7	2022	С	10.00	1202		6	2022	Р	4.00	19539
6	2022	С	10.50	990		8	2022	С	6.00	19501
7	2022	С	8.00	984		7	2022	С	6.00	18954
8	2022	С	10.00	948		10	2022	Р	6.00	18945
3	2023	C	5.00	905		6	2022	С	9.00	18578
3	2023	C	6.00	905		6	2022	Р	6.00	18315
7	2022	Ċ	12.00	856		12	2022	С	5.00	18221
8	2022	Ċ	9.00	828		8	2022	С	7.00	18113
10	2022	Ċ	7.00	800		9	2022	С	7.00	18099
12	2022	P	5.00	750		6	2022	С	12.00	18073
6	2022	P	7.25	731		6	2022	С	5.00	17647
6	2022	P	8.00	730		9	2022	С	10.00	17581
10	2022	C	10.00	658		6	2022	Р	7.00	17542
10	2022	C	12.00	608		10	2022	Р	2.00	17420
6	2022	C	6.50	602		7	2022	Р	3.25	17344
7	2022		9.00	571		6	2022	Р	5.50	17292
		С				10	2022	Р	4.00	17239
8	2022	С	12.00	559		6	2022	Р	3.00	17223
7	2022	С	11.00	556		7	2022	С	7.00	17169
10	2022	С	7.10	550		6	2022	Р	4.75	17117
10	2022	P	6.00	550		7	2022	С	10.00	16530
6	2022	С	11.00	537		1	2023	С	10.00	16049
6	2022	С	8.75	519		6	2022	Р	3.50	15958
6	2022	С	9.75	519		5	2023	Р	2.00	15761
7	2022	С	8.10	515		6	2022	Р	5.00	15740
6	2022	С	8.50	505		11	2022	Р	4.00	15571
6	2022	С	8.25	501		2	2023	С	10.00	15499
7	2022	С	6.50	500		7	2022	С	9.00	15480
8	2022	С	6.50	500		9	2022	Р	2.50	15291
8	2022	С	9.10	500		7	2022	Р	3.50	14978
9	2022	С	6.50	500		9	2022	Р	2.75	14933
10	2022	С	6.50	500		10	2022	Р	3.25	14717
12	2022	Р	3.50	500		9	2022	Р	3.00	14716
12	2022	Р	6.00	500		7	2022	Р	3.00	14641
6	2022	Р	6.75	475		8	2022	Р	3.00	14603
8	2022	С	15.00	455		8	2022	С	9.00	14584
6	2022	С	7.00	453		10	2022	С	8.00	14528
6	2022	С	20.00	450		8	2022	C	e: CME, ICE	14424
								Source	E: CME, ICE	



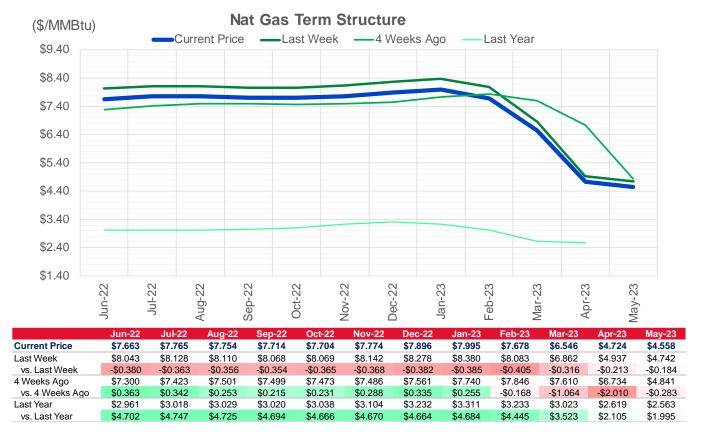
Nat Gas Futures Open Interest

CME and ICE Combined

CME Henry H	Hub Futures (1	0,000 MMBt	u)	ICE Henry H	Hub Futures Con	tract Equiva	alent (10,000 MM
	Current	Prior	Daily Change		Current	Prior	Daily Change
JUN 22	56222	60473	-4251	JUN 22	85152	82401	2751
JUL 22	199169	193773	5396	JUL 22	76790	76609	181
AUG 22	60206	59916	290	AUG 22	58954	59340	-387
SEP 22	86965	85796	1169	SEP 22	64170	64378	-208
OCT 22	96041	95659	382	OCT 22	76973	77087	-114
NOV 22	51939	52148	-209	NOV 22	58186	58524	-338
DEC 22	49459	48568	891	DEC 22	62462	62443	19
JAN 23	62496	62591	-95	JAN 23	66230	66276	-47
FEB 23	27773	27333	440	FEB 23	56007	56412	-405
MAR 23	38803	38971	-168	MAR 23	55164	55245	-81
APR 23	58188	58473	-285	APR 23	53452	53667	-215
MAY 23	61554	61468	86	MAY 23	52664	52856	-192
JUN 23	25465	24950	515	JUN 23	45070	45232	-163
JUL 23	21065	21151	-86	JUL 23	43989	44175	-186
AUG 23	13503	13493	10	AUG 23	43693	43887	-194
SEP 23	18017	18090	-73	SEP 23	42930	43124	-195
OCT 23	33447	33056	391	OCT 23	50342	50489	-147
NOV 23	12813	12894	-81	NOV 23	43902	44217	-315
DEC 23	14233	13974	259	DEC 23	40169	40245	-75
JAN 24	20550	20315	235	JAN 24	39221	38887	334
FEB 24	5842	5848	-6	FEB 24	26334	26129	205
MAR 24	14337	14435	-98	MAR 24	30738	30405	334
APR 24	11881	11896	-15	APR 24	26369	26292	77
MAY 24	6379	6363	16	MAY 24	25683	25624	59
JUN 24	1803	1801	2	JUN 24	22050	22033	17
JUL 24	1985	1993	-8	JUL 24	22192	22133	59
AUG 24	2962	2962	0	AUG 24	22300	22241	59
SEP 24	1367	1367	0	SEP 24	21678	21621	57
OCT 24	6703	6708	-5	OCT 24	24207	24005	202
NOV 24	4683	4678	5	NOV 24	22521	22474	47







		Cash	Prompt	Cash to
	Units	Settled	Settle	Prompt
AGT Citygate	\$/MMBtu	8.10	6.67	-1.43
TETCO M3	\$/MMBtu	7.61	6.35	-1.26
FGT Zone 3	\$/MMBtu	7.78	7.12	-0.67
Zone 6 NY	\$/MMBtu	7.78	6.28	-1.50
Chicago Citygate	\$/MMBtu	7.80	6.82	-0.98
Michcon	\$/MMBtu	7.85	6.79	-1.07
Columbia TCO Pool	\$/MMBtu	7.50	6.37	-1.13
Ventura	\$/MMBtu	8.03	6.70	-1.33
Rockies/Opal	\$/MMBtu	7.32	6.59	-0.72
El Paso Permian Basin	\$/MMBtu	7.15	6.24	-0.91
Socal Citygate	\$/MMBtu	7.98	7.07	-0.92
Malin	\$/MMBtu	7.53	6.79	-0.74
Houston Ship Channel	\$/MMBtu	7.93	6.99	-0.94
Henry Hub Cash	\$/MMBtu	7.99	6.74	-1.25
AECO Cash	C\$/GJ	6.33	4.71	-1.62
Station2 Cash	C\$/GJ	5.84	6.47	0.63
Dawn Cash	C\$/GJ	7.88	6.81	-1.07

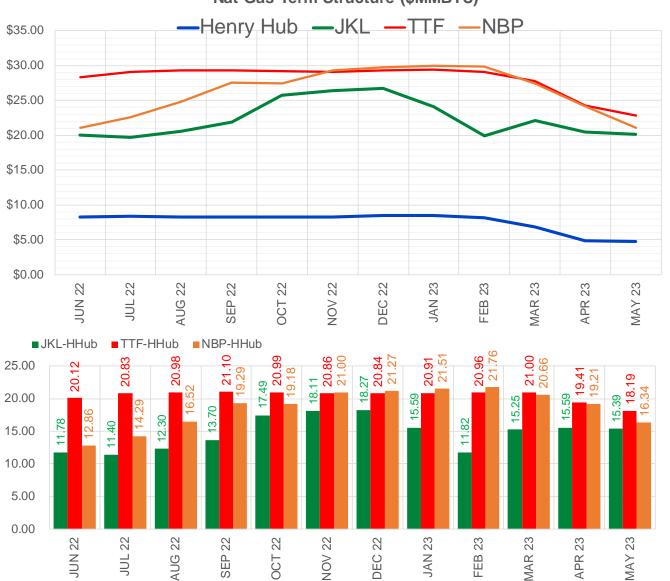
Source: CME, Bloomberg



					VS	s. 4 Weeks		
	Units	Current Price	vs.	Last Week		Ago	VS	. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224		0.000		0.000		2.219
NatGas Oct21/Nov21	\$/MMBtu	0.361		0.000		0.000		0.306
NatGas Oct21/Jan22	\$/MMBtu	-1.817		0.000		0.000		-2.064
NatGas Apr22/Oct22	\$/MMBtu	2.648		0.932		-0.029		2.633
WTI Crude	\$/Bbl	114.20		11.110		5.990		47.930
Brent Crude	\$/Bbl	114.24		8.300		1.080		44.780
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	390.75		7.260		1.670		184.710
Propane, Mt. Bel	cents/Gallon	1.25		0.005		-0.098		0.432
Ethane, Mt. Bel	cents/Gallon	0.59		0.027		0.059		0.322
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						

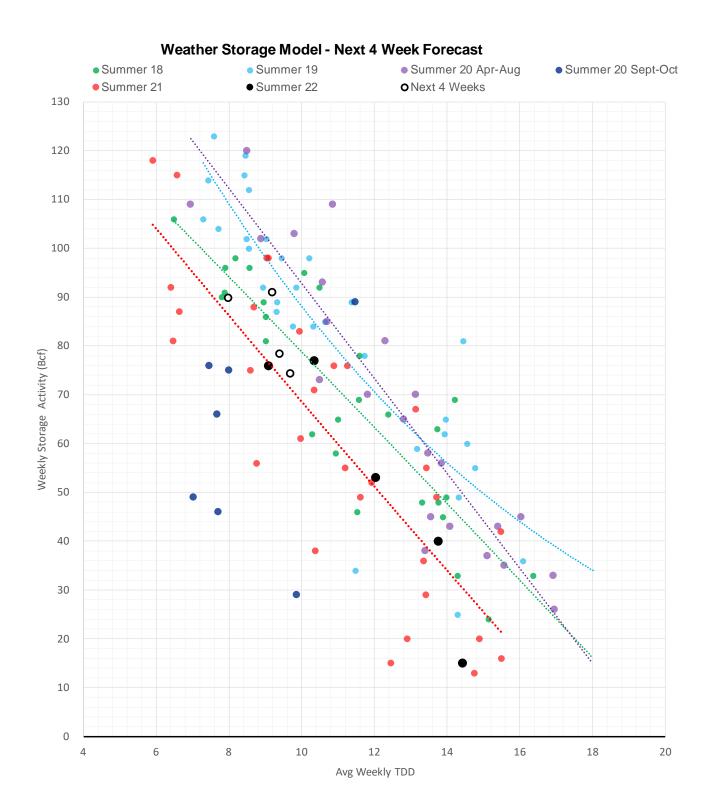


Nat Gas Term Structure (\$MMBTU)



	JUN 22	JUL 22	AUG 22	SEP 22	OCT 22	NOV 22	DEC 22	JAN 23	FEB 23	MAR 23	APR 23	MAY 23
Henry Hub	\$8.247	\$8.333	\$8.322	\$8.253	\$8.265	\$8.298	\$8.461	\$8.496	\$8.156	\$6.832	\$4.910	\$4.705
JKL	\$20.025	\$19.730	\$20.620	\$21.950	\$25.755	\$26.405	\$26.735	\$24.090	\$19.975	\$22.085	\$20.495	\$20.095
JKL-HHub	\$11.778	\$11.397	\$12.298	\$13.697	\$17.490	\$18.107	\$18.274	\$15.594	\$11.819	\$15.253	\$15.585	\$15.390
TTF	\$28.366	\$29.166	\$29.301	\$29.356	\$29.252	\$29.158	\$29.305	\$29.408	\$29.111	\$27.827	\$24.316	\$22.894
TTF-HHub	\$20.119	\$20.833	\$20.979	\$21.103	\$20.987	\$20.860	\$20.844	\$20.912	\$20.955	\$20.995	\$19.406	\$18.189
NBP	\$21.108	\$22.620	\$24.845	\$27.543	\$27.440	\$29.301	\$29.728	\$30.007	\$29.920	\$27.495	\$24.115	\$21.048
NBP-HHub	\$12.861	\$14.287	\$16.523	\$19.290	\$19.175	\$21.003	\$21.267	\$21.511	\$21.764	\$20.663	\$19.205	\$16.343







Weather Storage Model for Summer 2021 & 2022

