This week, we begin by examining the status of Europe right now. Almost two months earlier than expected, domestic storage volumes have managed to reach the target levels on the European continent despite:

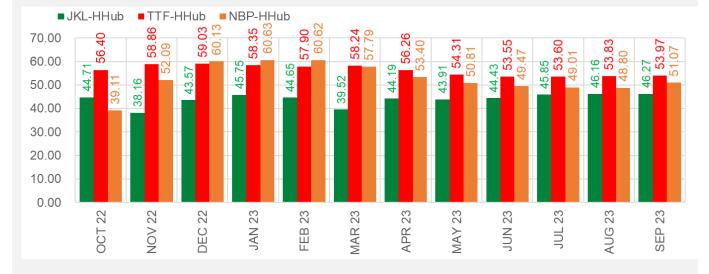
- 1) A mainland summer that was warmer than usual
- 2) Unpredictable Russian supply
- 3) Lower than anticipated US LNG export quantities due to the Freeport outage

The majority of European nations have succeeded in raising storage levels above those of last year, as seen in the table below.

European Natural Gas Storage Levels					
	Level (TWh)	Capacity (TWh)	% Utilization		
Country	09/07/2022	09/07/2022	09/07/2022	YoY	vs. 5Yr Avg
Europe	920.7	1112.5	83%	13%	1%
Germany	212.8	244.8	87%	26%	5%
Italy	163.4	193.4	84%	1%	-6%
Netherlands Gas Storage (T	112.9	139.0	81%	31%	2%
France	123.7	131.5	94%	8%	9%
Austria	66.3	95.5	69%	21%	-5%
Hungary	44.6	67.7	66%	-15%	-13%
Slovakia	29.1	36.0	81%	18%	5%
Czech Republic Gas Storage	36.2	43.8	83%	8%	-5%
Poland	36.2	36.4	99%	6%	6%
Spain	30.2	35.3	86%	13%	8%
Romania	25.1	32.8	77%	11%	6%
Latvia	12.1	24.1	50%	-36%	33%
United Kingdom Gas Storage	10.0	9.7	100%	12%	18%
Denmark	8.7	9.2	94%	21%	9%
Belgium	7.9	8.7	91%	12%	12%
Bulgaria	3.8	5.8	65%	5%	-12%
Croatia	3.9	4.8	81%	-1%	-6%
Portugal	3.9	3.6	100%	34%	21%
Ireland	1.6	1.8	87%	87%	87%
Sweden	0.1	0.1	91%	84%	50%
Non-EU					
Ukraine	91.1	324.1	28%	-14%	-25%

The natural gas prices in Europe hit a record level this summer in order to draw in every last LNG molecule while also discouraging industrial and power burns for cooling loads. Prior to NordStream 1's extended shutdown in August, the front month TTF contract traded at above \$100/MMBtu. It eventually settled at \$64.52/Btu on Friday. Through next summer, TTF and NBP are trading at a significant premium, which should position the US for strong LNG terminal utilization.

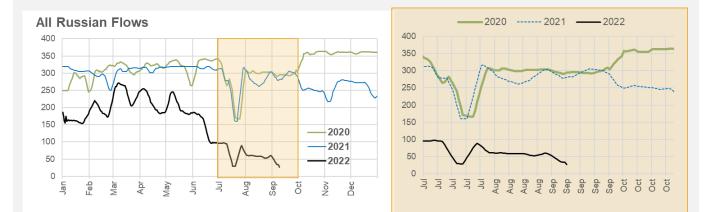
Market Report



On Friday at closing, these were the forward worldwide spreads.

NERG

Storage appears to be in good form, but one of the problems Europe is currently experiencing is the lack of assurance surrounding Russian flows over the winter. The lack of reliable supplies could have severe effects on gas balances, even with current healthy storage levels. The Russian flow rate is currently less than 15% of what we would consider normal, and the future is bleak because there is no clear timetable for the restart of Nordstream 1 after Gazprom attributed the lower flow rate to technical maintenance problems.



Europe will probably need to continue operating with lower levels of gas consumption because of supply uncertainties. ICIS published a solid article on this topic last month, and now that NS1 is probably out of the picture, the narrative is even more crucial. Here is one of the main takeaways:

Our modelling shows that if European gas demand were not forced lower – either by market forces or by policy interventions – European storage would totally deplete by the end of March, even if Russian pipe flows remained, albeit at a low level. While stocks will have been able to climb to 80% capacity by 1 November, an aggressive draw-down through the first quarter of 2023 would have knock-on effects for spring and the rest of 2023.

The clear risk this would also pose if Russian gas flows were cut below 115mcm/day would also be significantly detrimental to the market and highlight a 'do-nothing' response in terms of demand curtailment as clearly unacceptable.



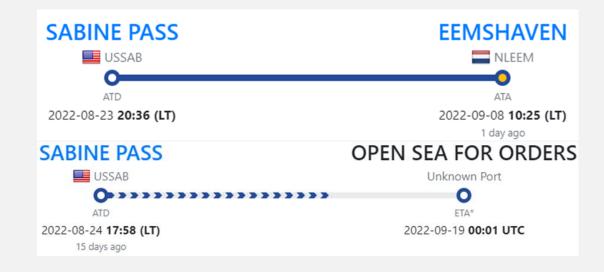
Source: ICIS (See the full report here)

Additionally, Europe is rushing to put new LNG infrastructure online to make up for the declining Russian flows while also restarting coal power units to preserve gas. The first of two floating terminals that will begin operation this year looks to have gone online last week. The first LNG terminal since the invasion of Ukraine will be at the Gasunie's Eemshaven terminal in the Netherlands. The Exmar S188 and the Golar Igloo are the two floating storage and regasification units (FSRUs) that will make up this new terminal in the port of Eemshaven. Last week, the Golar Igloo arrived. Together, the two units will enable imports of up to 8 Bcm/year, with the Czech Republic, which depends heavily on Russian gas, contracting for a third of this capacity.



ENERGY

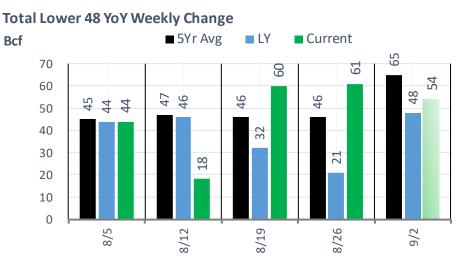
One tanker from Sabine has already arrived (Sept 8th), and another is on its way (Sept 19th). There is no red tape in today's climate, so things are moving quickly!



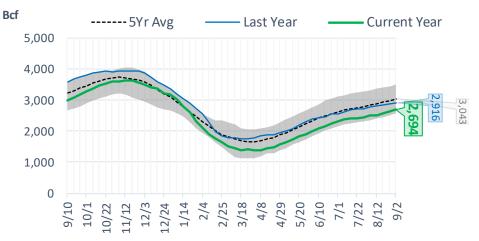
Overall, with over 25 additional FSRUs anticipated to be installed over the next several years, it appears that the EU will be able to end its reliance on Russian natural gas.

Market Report

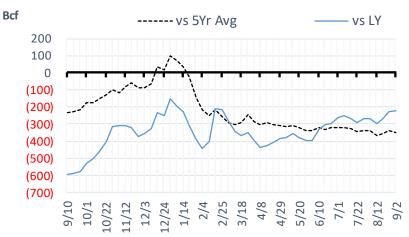
EIA Storage Report



Total Lower 48 Storage Levels

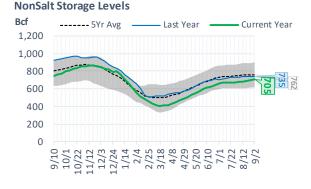


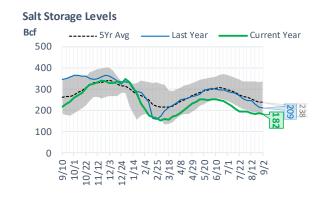
Total Lower 48 LY Surplus/Deficit

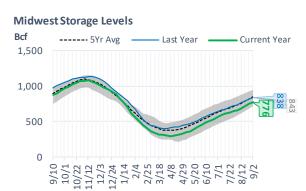


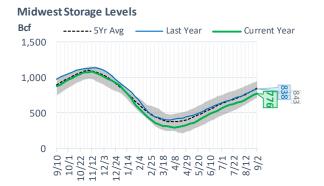
Natural Gas Storage Stats - Last 5 Weeks

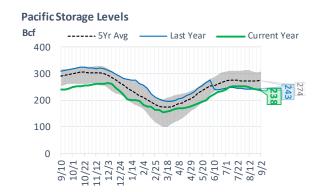
	Current	Week - 1	Week - 2	Week - 3	Week - 4	Week - 5
Week Ending	2-Sep	26-Aug	19-Aug	12-Aug	5-Aug	29-Jul
Total Lower 48 Storage Level	2694	2640	2579	2519	2501	2457
Weekly Change	+54	+61	+60	+18	+44	+41
vs LY	-222	-228	-268	-296	-268	-268
vs 5Yr Avg	-349	-338	-353	-367	-338	-337
S. Central Salt Storage Level	182	185	184	185	193	195
Weekly Change	-3	+1	-1	-8	-2	0
vs LY	-27	-31	-47	-59	-54	-58
vs 5Yr Avg	-56	-54	-62	-68	-66	-68
S. Central NonSalt Storage Level	705	696	687	681	681	671
Weekly Change	+9	+9	+6	0	+10	+4
vs LY	-30	-39	-55	-59	-50	-55
vs 5Yr Avg	-57	-60	-68	-72	-68	-73
Midwest Storage Level	776	747	714	684	663	643
Weekly Change	+29	+33	+30	+21	+20	+18
vs LY	-62	-62	-72	-78	-75	-74
vs 5Yr Avg	-67	-64	-71	-74	-69	-66
East Storage Level	635	614	598	571	564	549
Weekly Change	+21	+16	+27	+7	+15	+17
vs LY	-64	-62	-61	-72	-61	-52
vs 5Yr Avg	-100	-97	-91	-96	-83	-77
Mountain Storage Level	159	157	153	151	148	147
Weekly Change	+2	+4	+2	+3	+1	+3
vs LY	-32	-33	-35	-37	-37	-37
vs 5Yr Avg	-32	-31	-33	-32	-33	-31
Pacific Storage Level	238	241	243	248	252	253
Weekly Change	-3	-2	-5	-4	-1	0
vs LY	-5	-2	+2	+8	+11	+9
vs 5Yr Avg	-36	-32	-29	-24	-20	-20











EIA Storage Week Balances

	5-Aug	12-Aug	19-Aug	26-Aug	2-Sep	9-Sep	WoW	vs. 4W
Lower 48 Dry Production	98.8	98.3	97.9	98.7	99.8	100.6	0.7	1.9
Canadian Imports	5.7	5.4	4.8	5.4	5.7	5.8	0.1	0.5
L48 Power	44.1	45.5	39.6	41.2	42.0	40.4	▼-1.6	▼-1.7
L48 Residential & Commercial	8.6	8.6	8.1	8.2	8.2	7.9	V -0.3	- 0.4
L48 Industrial	20.4	21.2	21.3	21.1	22.3	21.3	T -1.0	V -0.2
L48 Lease and Plant Fuel	5.4	5.3	5.3	5.4	5.4	5.4	0 .0	a 0.1
L48 Pipeline Distribution	2.8	2.9	2.5	2.6	2.7	2.7	▼ 0.0	• 0.0
L48 Regional Gas Consumption	81.3	83.5	76.8	78.5	80.6	77.7	-2.9	▼ -2.2
Net LNG Exports	10.9	10.9	10.9	11.1	10.9	11.3	0.5	0.4
Total Mexican Exports	6.9	7.0	7.0	6.9	6.9	6.5	▼ -0.3	T -0.4
Implied Daily Storage Activity EIA Reported Daily Storage Activity Daily Model Error	5.4 6.3 -0.9	2.3 2.6 -0.3	8.0 8.6 -0.6	7.6 8.7 -1.1	7.2 7.7 -0.5	10.9	3.6	

Monthly Balances

	2Yr Ago	LY					MTD		
	Sep-20	Sep-21	May-22	Jun-22	Jul-22	Aug-22	Sep-22	MoM	vs. LY
Lower 48 Dry Production	88.9	93.6	95.8	96.5	97.2	98.6	100.5	1.8	6.9
Canadian Imports	3.8	5.1	5.1	5.7	5.9	5.4	5.8	0.5	0.7
L48 Power	34.4	33.1	29.8	38.0	43.7	42.5	40.6	- 1.9	A 7.5
L48 Residential & Commercial	8.9	8.7	12.4	9.1	9.0	8.3	7.9	v -0.4	V -0.8
L48 Industrial	19.9	20.2	19.7	18.7	19.5	21.4	21.4	0.0	▲ 1.1
L48 Lease and Plant Fuel	4.8	5.1	5.3	5.3	5.3	5.4	5.4	A 0.1	0.4
L48 Pipeline Distribution	2.4	2.3	2.4	2.5	2.8	2.7	2.7	▼ 0.0	0.4
L48 Regional Gas Consumption	70.4	69.5	69.5	73.7	80.2	80.3	78.0	-2.2	8.5
Net LNG Exports	5.9	10.3	12.5	11.2	10.9	11.0	11.2	0.2	0.8
Total Mexican Exports	6.1	6.7	7.0	7.1	7.0	6.9	6.6	▼ -0.4	T -0.1
Implied Daily Storage Activity EIA Reported Daily Storage Activity	10.3	12.1	11.9	10.2	5.0	5.8	10.5		
Daily Model Error					0.2				
						0	Dia and		

Source: Bloomberg, analytix.ai

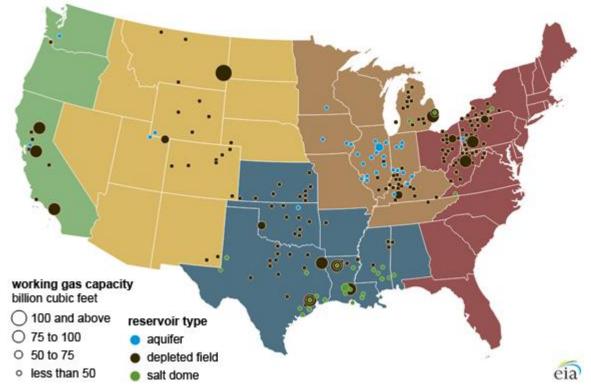


Regional S/D Models Storage Projection

Week Ending	9-Sep			
	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	11.9	-0.1	11.8	83
East	2.4	1.9	4.3	30
Midwest	4.4	-0.1	4.4	31
Mountain	4.9	-4.1	0.8	5
South Central	0.2	2.9	3.1	22
Pacific	0.0	-0.7	-0.7	-5

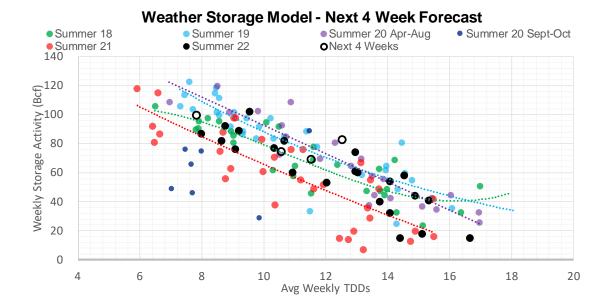
*Adjustment Factor is calcuated based on historical regional deltas

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



Weather Model Storage Projection

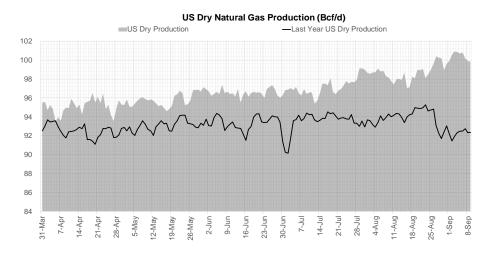
Next report and beyond		
Week Ending	GWDDs	Week Storage Projection
09-Sep	12.5	83
16-Sep	10.6	74
23-Sep	11.6	69
30-Sep	7.9	99



Note: this is not our official end of season forecast. This chart signifies where storage levels end with 10-year normal weather and current market tightness relative to last year

ENERGY

Supply – Demand Trends



US Power Demand Last Year US Power Demand 60 50 40 30 20 10 0 31-Mar 7-Apr 21-Apr 12-May 2-Jun 9-Jun 16-Jun 23-Jun 30-Jun 7-Jul 14-Jul 21-Jul 28-Jul 4-Aug 1-Aug 18-Aug 8-Sep 14-Apr 28-Apr 25-Aug 1-Sep 5-May 19-May 26-Mav

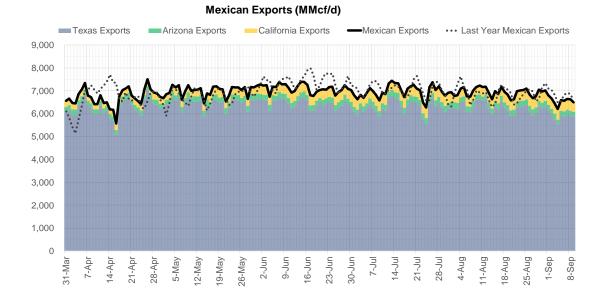
US Daily Power Burns (Bcf/d)

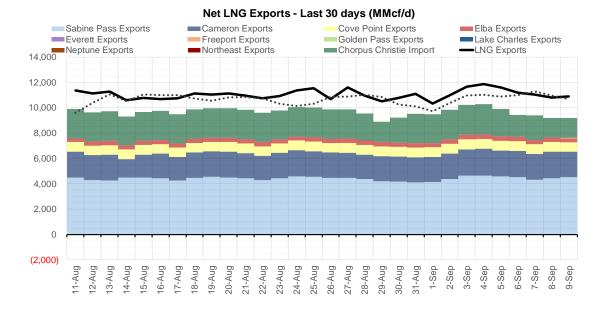
-Last Year US ResCom Demand US ResCom Demand 35 30 25 20 15 10 5 0 31-Mar 7-Apr 9-Jun 16-Jun 23-Jun 30-Jun 1nL-7 14-Jul 21-Jul 28-Jul 4-Aug 1-Aug 1-Sep 8-Sep 14-Apr 2-Jun 8-Aug 25-Aug 21-Api 28-Api 5-May 12-Mav 19-Mav 26-Mav

US Daily ResCom Consumption(Bcf/d)

Source: Bloomberg







Source: Bloomberg



Nat Gas Options Volume and Open Interest CME and ICE data combined

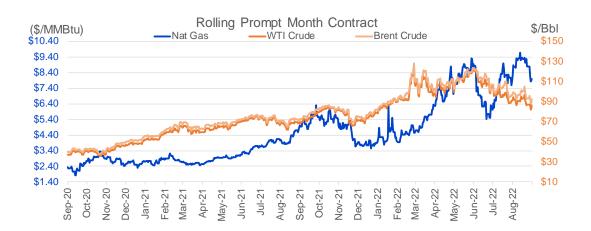
CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STR⊮E	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
10	2022	С	9.00	5578	10	2022	Р	3.00	36676
10	2022	С	10.00	4172	10	2022	С	6.00	36015
11	2022	С	12.00	3650	10	2022	Р	6.00	34074
10	2022	Р	7.00	2760	10	2022	Р	5.00	30160
10	2022	Р	7.50	2738	10	2022	Р	2.50	28006
11	2022	С	10.10	2530	10	2022	С	12.00	23970
11	2022	С	10.15	2528	10	2022	С	5.00	23269
10	2022	С	11.00	2395	12	2022	Р	5.00	23118
10	2022	Р	8.00	2201	3	2023	С	10.00	22882
11	2022	С	12.05	2000	10	2022	С	10.00	22658
11	2022	Р	4.00	2000	10	2022	Р	3.50	22294
11	2022	Р	5.00	1963	5	2023	Р	2.00	22077
10	2022	С	8.50	1895	11	2022	Р	4.00	21577
11	2022	Р	6.00	1831	10	2022	Р	4.00	21422
12	2022	Р	5.50	1556	4	2023	Р	3.50	19691
10	2022	С	8.00	1523	4	2023	Р	3.00	19611
1	2023	Р	5.00	1475	10	2023	Р	3.00	18843
10	2022	С	16.00	1380	10	2022	Р	7.00	18662
10	2022	С	12.50	1268	12	2022	С	5.00	18218
4	2023	P	4.00	1265	5	2023	Р	3.50	18090
5	2023	Р	4.00	1225	10	2022	Р	5.50	18087
6	2023	Р	4.00	1225	3	2023	Р	3.00	18067
7	2023	Р	4.00	1225	3	2023	С	20.00	17902
8	2023	Р	4.00	1225	10	2022	P	8.00	17770
9	2023	Р	4.00	1225	7	2023	Р	3.50	17765
10	2023	P	4.00	1225	8	2023	Р	3.50	17765
1	2023	С	20.00	1217	9	2023	Р	3.50	17765
11	2022	C	8.00	1216	11	2022	Р	5.00	17732
10	2022	P	6.00	1209	10	2023	P	3.50	17665
3	2023	Р	5.00	1180	10	2022	C P	8.00	17527
4	2023	P	3.00	1175	6	2023	P	3.50	17515
5	2023	Р	3.00	1175	10	2023	P C	2.50	17275
6	2023	P	3.00	1175	1	2023	P	10.00	17253
7	2023	Р	3.00	1175	10 11	2022 2022	P	2.00 6.00	16759 16486
8	2023	Р	3.00	1175	12	2022	F C	4.00	16194
9	2023	Р	3.00	1175	6	2022	P	3.00	15995
10	2023	Р	3.00	1175	5	2023	P	3.00	15973
2	2023	P	5.00	1150	5 12	2023	P	4.00	15973
11	2022	С	10.00	1119	12	2022	P	4.00	15961
1	2023	C	9.00	1095	10	2023	C	4.00	15755
10	2022	P	5.00	1077	10	2022	P	2.00	15560
11	2022	Р	8.00	1033	7	2023	P	3.00	15400
11	2022	C	18.00	1002	, 1	2023	P	5.00	15244
11	2022	P	3.00	1002	2	2023	C	10.00	15239
12	2022	P	4.00	1002	8	2023	P	3.00	15200
12	2022	P	3.25	1000	9	2023	P	3.00	15200
10	2022	C	9.50	973	10	2023	P	3.25	15196
3	2023	P	4.00	950	10	2022	c	12.50	15191
4	2023	P	3.25	850	10	2022	C	7	15042

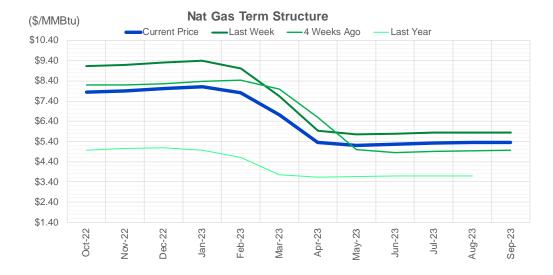
Source: CME, ICE

Nat Gas Futures Open Interest

	CIVIE and ICE data combined											
CME Henry	Hub Futures (10			ICE Henry H			alent (10,000 MM					
	Current	Prior	Daily Change		Current	Prior	Daily Change					
OCT 22	100039	105950	-5911	OCT 22	78045	79802	-1757					
NOV 22	126678	127720	-1042	NOV 22	72022	72314	-292					
DEC 22	66962	67981	-1019	DEC 22	67098	67235	-137					
JAN 23	87746	87159	587	JAN 23	66796	66779	18					
FEB 23	41406	41021	385	FEB 23	65322	65175	147					
MAR 23	68714	66842	1872	MAR 23	56707	57160	-453					
APR 23	73935	72387	1548	APR 23	52910	53091	-182					
MAY 23	78222	78270	-48	MAY 23	52681	52620	62					
JUN 23	24729	24658	71	JUN 23	45449	45215	234					
JUL 23	25021	25048	-27	JUL 23	44541	44306	235					
AUG 23	20021	20173	-152	AUG 23	43341	43238	103					
SEP 23	23386	23310	76	SEP 23	42922	42703	219					
OCT 23	53599	54060	-461	OCT 23	50903	50833	70					
NOV 23	16462	16186	276	NOV 23	46634	46633	1					
DEC 23	13257	12873	384	DEC 23	40491	40570	-80					
JAN 24	19946	20023	-77	JAN 24	40066	40186	-120					
FEB 24	8805	8787	18	FEB 24	31115	31070	45					
MAR 24	18681	18649	32	MAR 24	36262	36225	37					
APR 24	14835	14699	136	APR 24	28631	28535	96					
MAY 24	7416	7427	-11	MAY 24	27505	27398	107					
JUN 24	2949	2937	12	JUN 24	24887	24799	89					
JUL 24	3410	3408	2	JUL 24	24613	24515	98					
AUG 24	3422	3430	-8	AUG 24	24350	24252	98					
SEP 24	2190	2107	83	SEP 24	24151	24055	96					
OCT 24	8636	8716	-80	OCT 24	27590	27469	121					
NOV 24	4878	4879	-1	NOV 24	25127	25118	9					
DEC 24	8181	8182	-1	DEC 24	28496	28464	32					
JAN 25	17650	17629	21	JAN 25	23097	23130	-33					
FEB 25	1554	1507	47	FEB 25	15269	15279	-10					
MAR 25	5151	5131	20	MAR 25	17228	17248	-20					

Source: CME, ICE





	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23
Current Price	\$7.842	\$7.901	\$8.035	\$8.115	\$7.818	\$6.705	\$5.352	\$5.219	\$5.278	\$5.340	\$5.357	\$5.345
Last Week	\$9.127	\$9.189	\$9.326	\$9.396	\$9.013	\$7.660	\$5.925	\$5.753	\$5.798	\$5.846	\$5.858	\$5.842
vs. Last Week	-\$1.285	-\$1.288	-\$1.291	-\$1.281	-\$1.195	-\$0.955	-\$0.573	-\$0.534	-\$0.520	-\$0.506	-\$0.501	-\$0.497
4 Weeks Ago	\$8.202	\$8.193	\$8.272	\$8.389	\$8.449	\$7.997	\$6.605	\$5.015	\$4.854	\$4.901	\$4.947	\$4.960
vs. 4 Weeks Ago	-\$0.360	-\$0.292	-\$0.237	-\$0.274	-\$0.631	-\$1.292	-\$1.253	\$0.204	\$0.424	\$0.439	\$0.410	\$0.385
Last Year	\$4.914	\$4.962	\$5.046	\$5.103	\$4.985	\$4.609	\$3.761	\$3.641	\$3.667	\$3.698	\$3.706	\$3.691
vs. Last Year	\$2.928	\$2.939	\$2.989	\$3.012	\$2.833	\$2.096	\$1.591	\$1.578	\$1.611	\$1.642	\$1.651	\$1.654

					V	s. 4 Weeks		
	Units	Current Price	vs.	Last Week		Ago	vs	. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224		0.000		0.000		0.810
NatGas Oct21/Nov21	\$/MMBtu	0.361		0.000		0.000		0.320
NatGas Oct21/Jan22	\$/MMBtu	-1.817		0.000		0.000		-2.002
NatGas Apr22/Oct22	\$/MMBtu	2.579		-1.347	▼	-0.948		2.620
WTICrude	\$/Bbl	83.54		-3.070	▼	-10.800		15.400
Brent Crude	\$/Bbl	89.15		-3.210	▼	-10.450		17.700
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18		0.000		0.000		0.000
Heating Oil	cents/Gallon	354.01		-2.110		5.610		142.640
Propane, Mt. Bel	cents/Gallon	1.05		-0.037	▼	-0.047		-0.157
Ethane, Mt. Bel	cents/Gallon	0.52		-0.057	▼	-0.075		0.144
Coal, PRB	\$/MTon	12.30		0.000		0.000		0.000
Coal, PRB	\$/MMBtu	0.70						

Source: CME, Bloomberg



Baker Hughes Rig Counts

		Baker	Hughes ≽		
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	591	-5	596	190	401
Gas	166	4	162	65	101
Miscellaneous	2	0	2	1	1
Directional	43	4	39	27	16
Horizontal	692	-3	695	231	461
Vertical	24	-2	26	-2	26
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago
Oil	140	-3	143	53	87
Gas	65	0	65	9	56
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago
Ardmore Woodford	4	0	4	2	2
Arkoma Woodford	7	0	7	6	1
Barnett	3	0	3	3	0
Cana Woodford	21	0	21	3	18
DJ-Niobrara	17	0	17	5	12
Eagle Ford	71	0	71	37	34
Granite Wash	7	0	7	3	4
Haynesville	71	0	71	23	48
Marcellus	35	0	35	9	26
Mississippian	2	1	1	1	1
Permian	340	-2	342	86	254
Utica	12	0	12	0	12
Williston	41	0	41	18	23