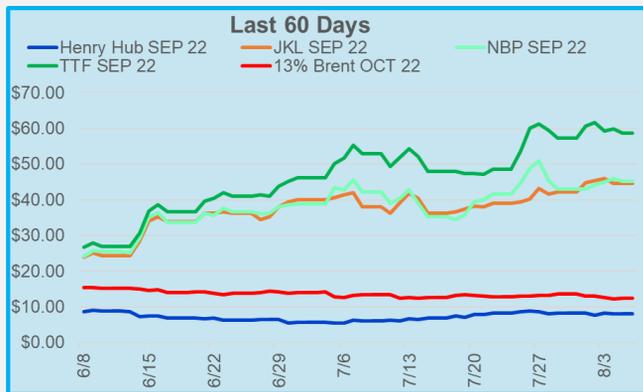
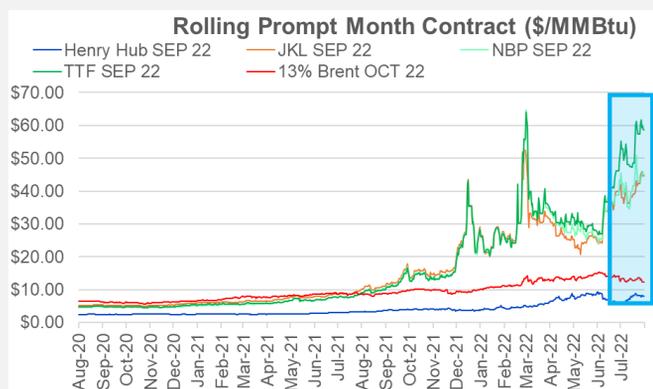


This week we start by looking at the critical position Europe has been in with the drop in Russian flows. At the top line, European storage levels have hit 71% as of August 5th which is right in line with the 5Yr average. Below we will outline the change in supply from domestic production, imports, and LNG sendout.

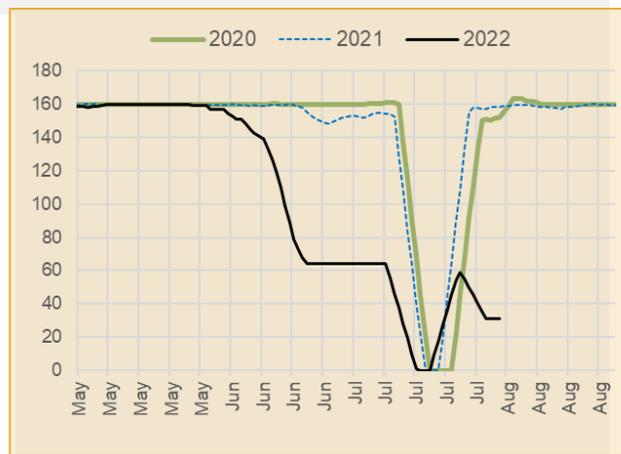
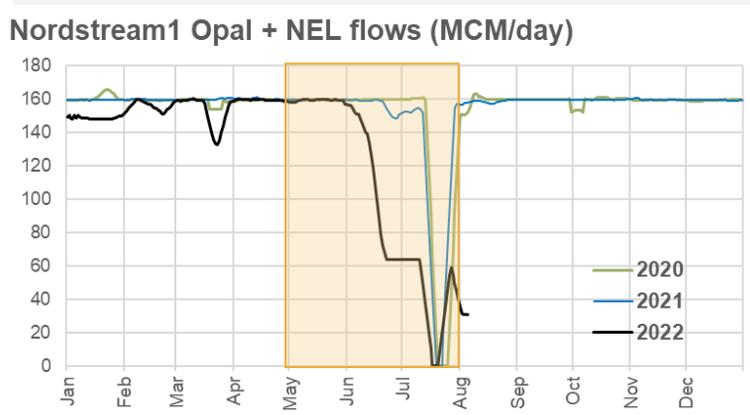
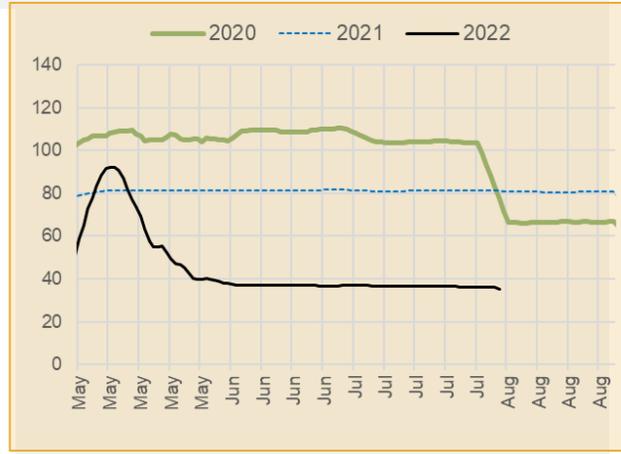
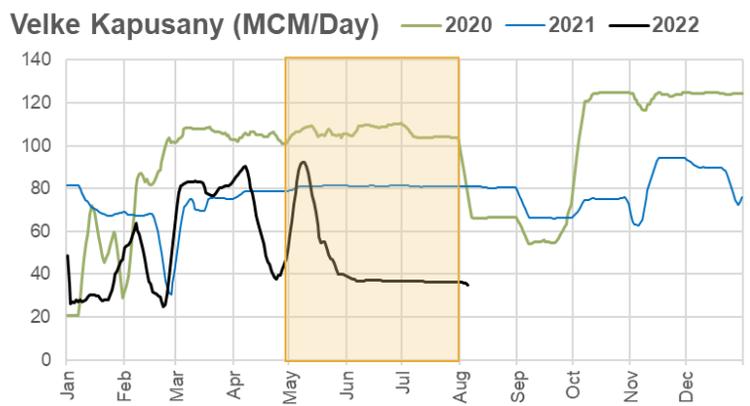
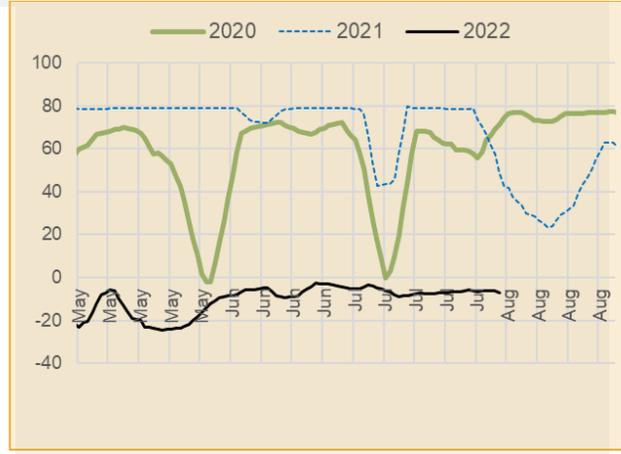
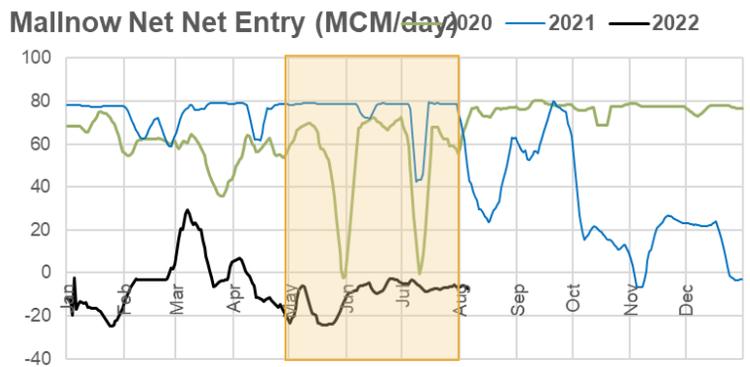
European Natural Gas Storage Levels					
Country	Level (TWh)	Capacity (TWh)	% Utilization		
	08/05/2022	08/05/2022	08/05/2022	YoY	vs. 5Yr Avg
Europe	789.6	1111.0	71%	12%	0%
Germany	173.3	242.9	71%	20%	0%
Italy	143.3	193.4	74%	-1%	-8%
Netherlands Gas Storage (T	96.4	141.5	68%	29%	0%
France	107.6	131.6	82%	14%	10%
Austria	52.4	95.5	55%	18%	-10%
Hungary	36.5	67.7	54%	-21%	-15%
Slovakia	25.2	36.0	70%	14%	5%
Czech Republic Gas Storage	34.9	43.8	80%	22%	3%
Poland	36.1	36.4	99%	16%	17%
Spain	27.7	35.3	79%	7%	5%
Romania	19.9	32.8	61%	10%	2%
Latvia	11.7	21.8	54%	54%	54%
United Kingdom Gas Storage	10.0	9.7	100%	62%	38%
Denmark	8.3	9.2	89%	26%	15%
Belgium	6.8	8.7	78%	16%	10%
Bulgaria	2.9	5.8	51%	5%	-16%
Croatia	2.7	4.8	57%	-11%	-15%
Portugal	3.8	3.6	100%	29%	26%
Ireland	1.6	1.8	87%	87%	87%
Sweden	0.1	0.1	91%	84%	54%
Non-EU					
Ukraine	79.2	325.4	24%	-14%	-22%

To keep the markets balanced we have observed an extreme price response in European markets, and it seems to be working so far. As seen in the chart below, TTF summer prices have traded at a continuous premium to Asian markets to attract every last LNG molecule and simultaneously reduce natural gas consumption.



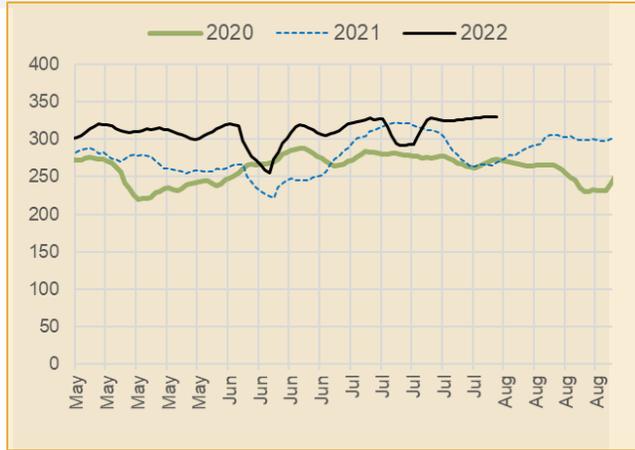
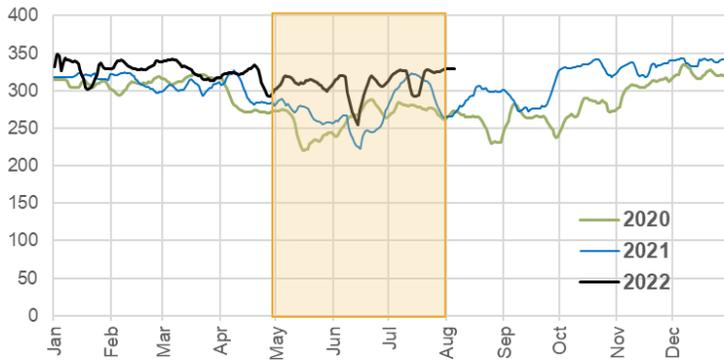
From the consumption side, we see mainly a response from the industrial load with little to no impact on the power or LDC sector. The following series of charts put together the story needed to keep storage levels at the 5Yr average.

## Russian Natural gas imports: (The 3 main inflows from Russian come via Mallnow, Velke Kapusany, and Nordstream)



## Major Non-Russian Natural gas imports:

### Norway Import (MCM/day)



### Algeria Import (MCM/day)

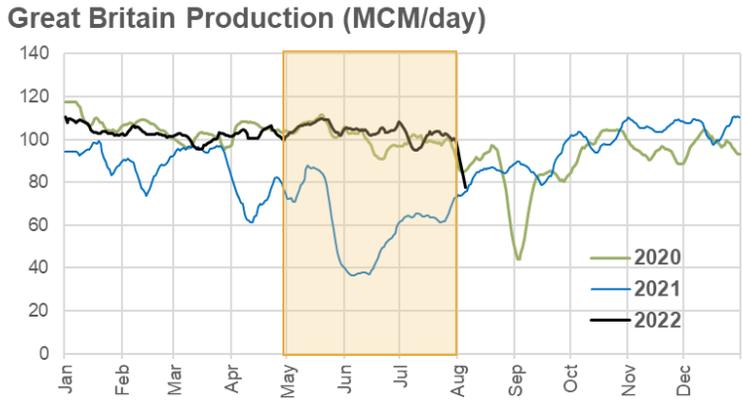
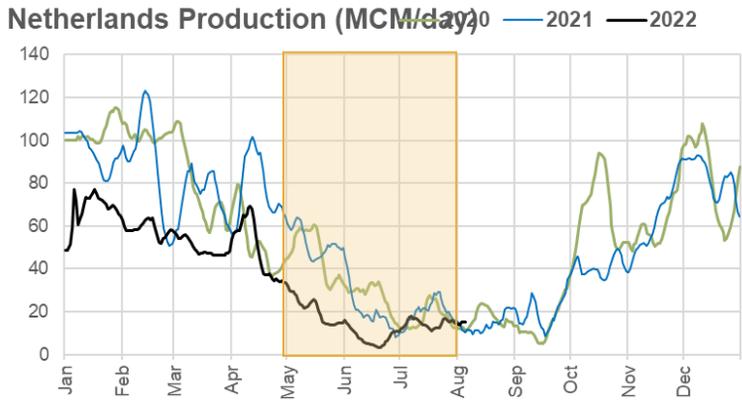


## Total LNG Imports:

### European LNG Imports

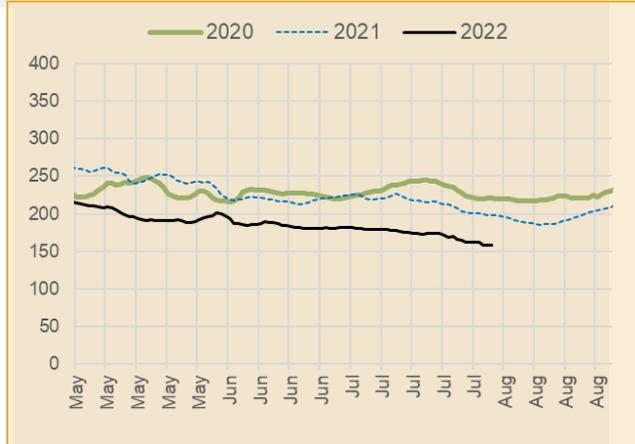
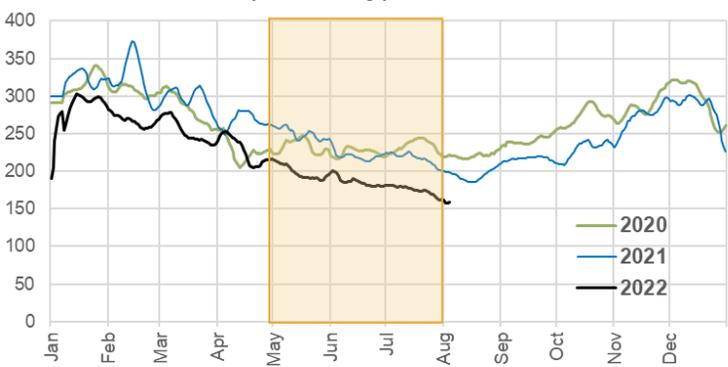


## Domestic Production:

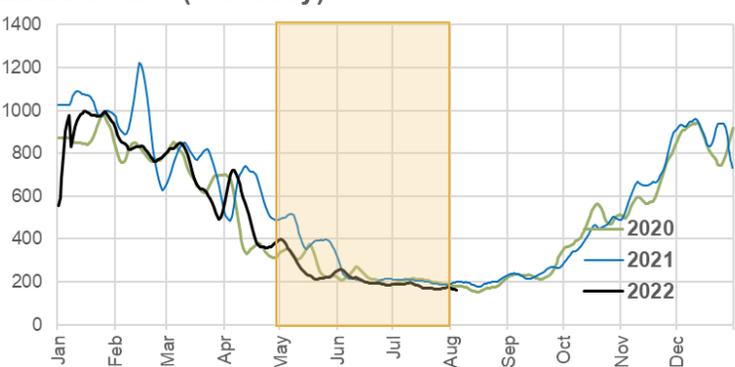


## European Continent Natgas Consumption:

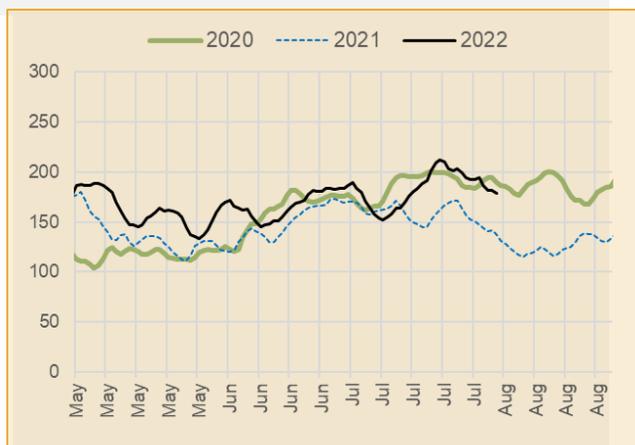
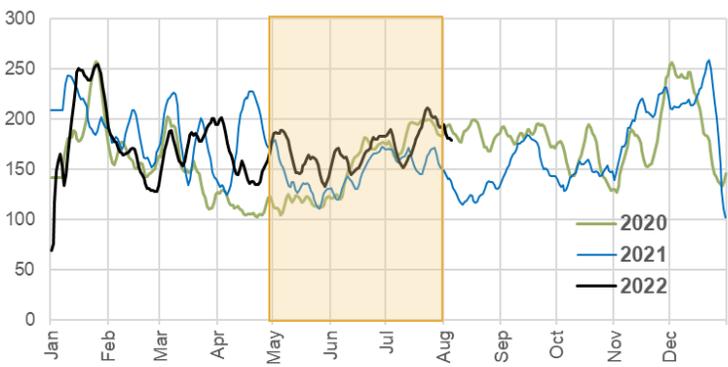
### Industrial Demand (MCM/day)



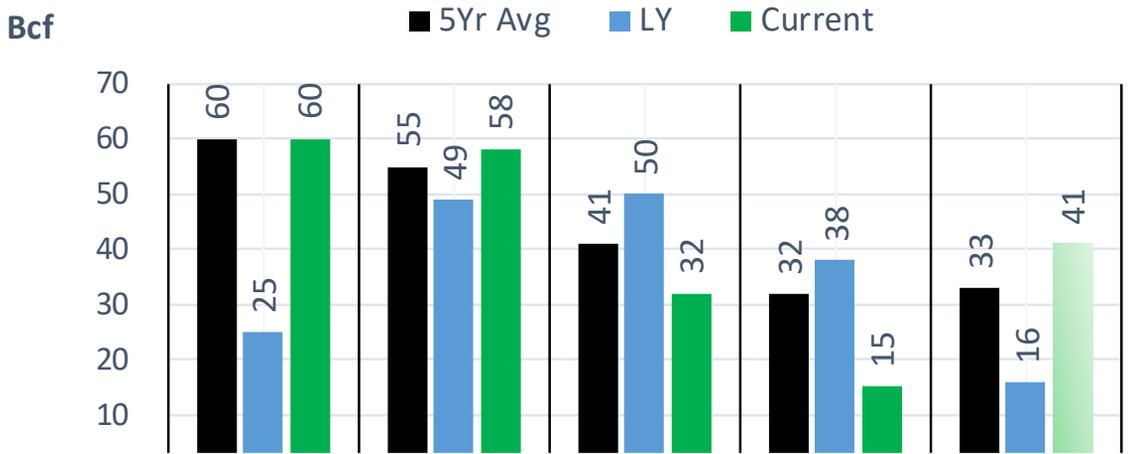
### LDZ Demand (MCM/day)



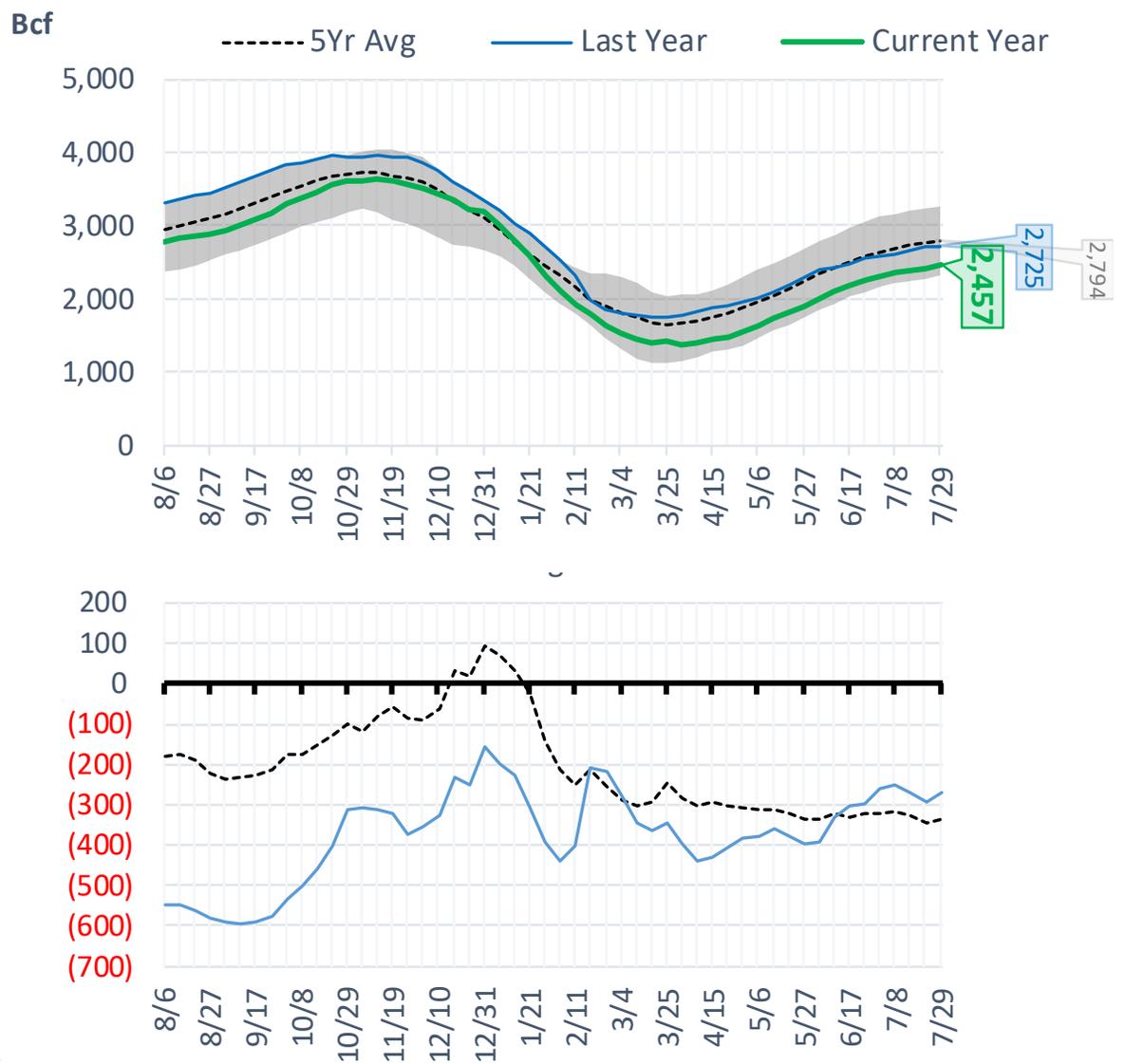
### Power Demand (MCM/day)



## Total Lower 48 YoY Weekly Change



## Total Lower 48 Storage Levels

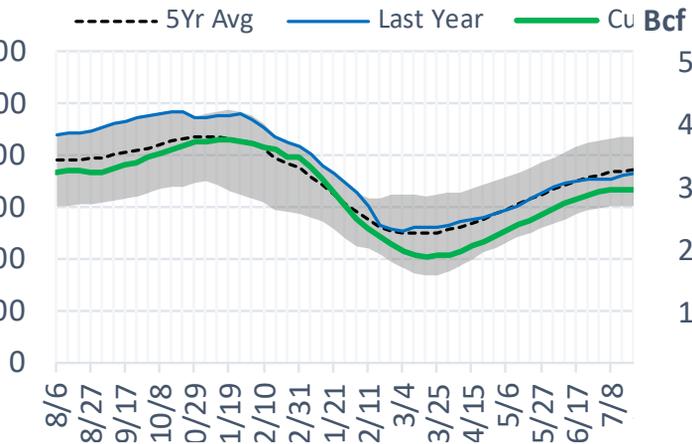


The risk person

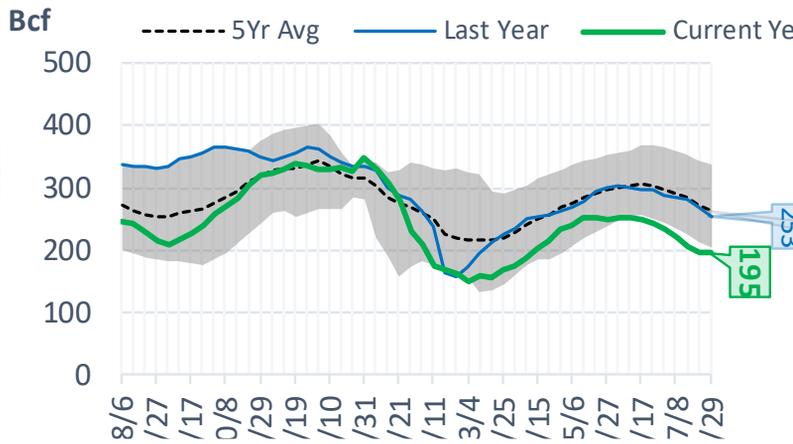
## Natural Gas Storage Stats - Last 5 Weeks

Week Ending	Current 29-Jul	Week - 1 22-Jul	Week - 2 15-Jul	Week - 3 8-Jul	Week - 4 1-Jul	Week - 5 24-Jun
<b>Total Lower 48 Storage Level</b>	<b>2457</b>	2416	2401	2369	2311	2251
<b>Weekly Change</b>	<b>+41</b>	+15	+32	+58	+60	+82
<b>vs LY</b>	<b>-268</b>	-293	-270	-252	-261	-296
<b>vs 5Yr Avg</b>	<b>-337</b>	-345	-328	-319	-322	-322
<b>S. Central Salt Storage Level</b>	<b>195</b>	195	206	221	233	242
<b>Weekly Change</b>	<b>0</b>	-11	-15	-12	-9	-6
<b>vs LY</b>	<b>-58</b>	-75	-74	-62	-54	-54
<b>vs 5Yr Avg</b>	<b>-68</b>	-77	-77	-71	-64	-61
<b>S. Central NonSalt Storage Level</b>	<b>671</b>	667	669	669	657	644
<b>Weekly Change</b>	<b>+4</b>	-2	0	+12	+13	+16
<b>vs LY</b>	<b>-55</b>	-61	-52	-42	-49	-63
<b>vs 5Yr Avg</b>	<b>-73</b>	-76	-71	-66	-69	-72
<b>Midwest Storage Level</b>	<b>643</b>	625	608	586	562	535
<b>Weekly Change</b>	<b>+18</b>	+17	+22	+24	+27	+29
<b>vs LY</b>	<b>-74</b>	-74	-72	-73	-74	-84
<b>vs 5Yr Avg</b>	<b>-66</b>	-65	-63	-64	-65	-68
<b>East Storage Level</b>	<b>549</b>	532	521	501	482	461
<b>Weekly Change</b>	<b>+17</b>	+11	+20	+19	+21	+31
<b>vs LY</b>	<b>-52</b>	-48	-38	-39	-38	-48
<b>vs 5Yr Avg</b>	<b>-77</b>	-74	-66	-67	-66	-65
<b>Mountain Storage Level</b>	<b>147</b>	144	144	143	138	134
<b>Weekly Change</b>	<b>+3</b>	0	+1	+5	+4	+6
<b>vs LY</b>	<b>-37</b>	-40	-39	-37	-38	-38
<b>vs 5Yr Avg</b>	<b>-31</b>	-31	-28	-26	-26	-24
<b>Pacific Storage Level</b>	<b>253</b>	253	253	249	240	235
<b>Weekly Change</b>	<b>0</b>	0	+4	+9	+5	+4
<b>vs LY</b>	<b>+9</b>	+7	+6	0	-6	-8
<b>vs 5Yr Avg</b>	<b>-20</b>	-22	-23	-27	-32	-31

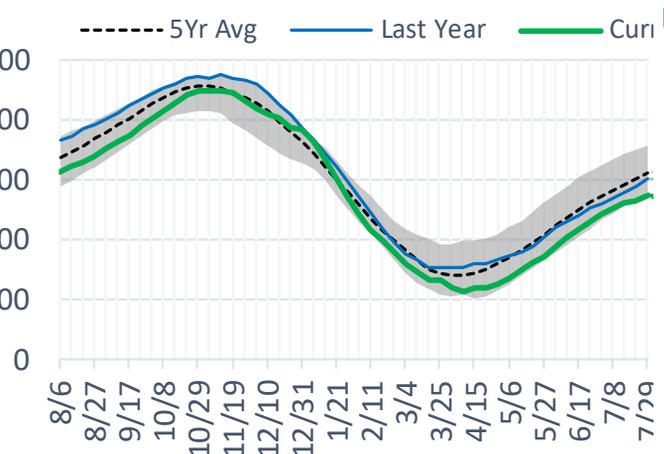
## Salt Storage Levels



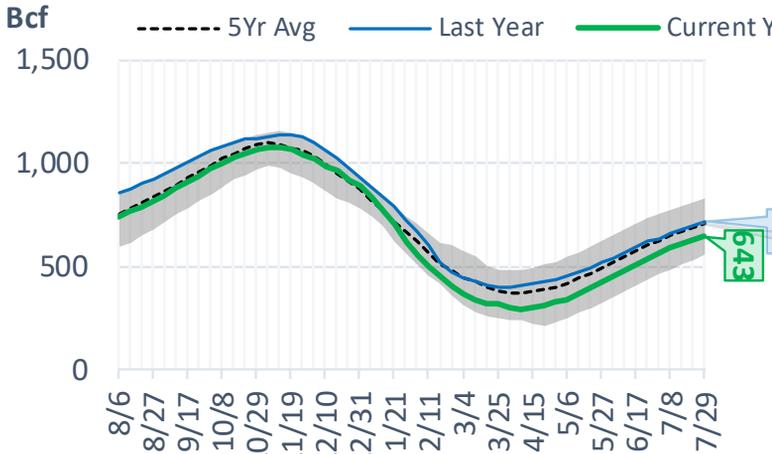
## Salt Storage Levels



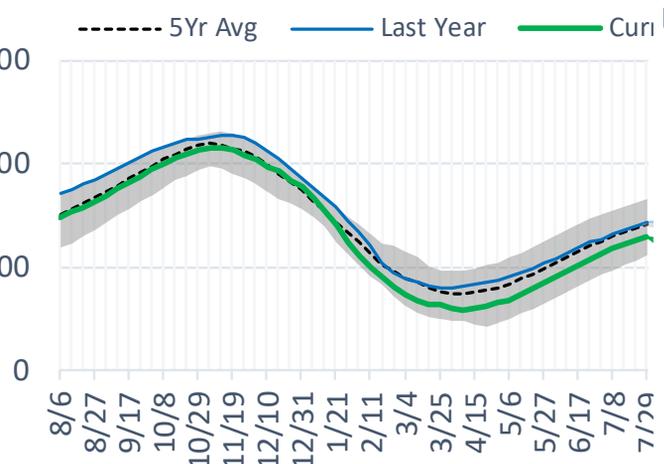
## Midwest Storage Levels



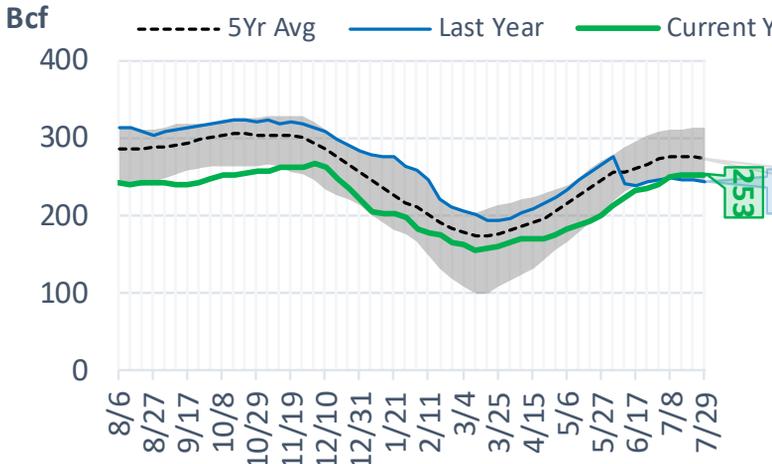
## Midwest Storage Levels



## West Storage Levels



## Pacific Storage Levels



The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

## EIA Storage Week Balances

	1-Jul	8-Jul	15-Jul	22-Jul	29-Jul	5-Aug	WoW	vs. 4W
<b>Lower 48 Dry Production</b>	<b>97.1</b>	<b>97.0</b>	<b>96.3</b>	<b>96.9</b>	<b>97.2</b>	<b>97.7</b>	▲ 0.5	▲ 0.8
<b>Canadian Imports</b>	<b>5.7</b>	<b>5.6</b>	<b>6.0</b>	<b>6.2</b>	<b>5.9</b>	<b>5.6</b>	▼ -0.3	▼ -0.3
L48 Power	39.7	41.0	42.9	45.5	44.7	43.9	▼ -0.8	▲ 0.4
L48 Residential & Commercial	8.5	8.4	8.4	8.7	8.6	8.3	▼ -0.3	▼ -0.2
L48 Industrial	20.3	20.1	20.5	21.0	19.4	20.7	▲ 1.3	▲ 0.4
L48 Lease and Plant Fuel	5.3	5.3	5.2	5.3	5.3	5.3	▲ 0.0	▲ 0.1
L48 Pipeline Distribution	2.6	2.6	2.7	2.9	2.8	2.8	▼ -0.1	▲ 0.0
<b>L48 Regional Gas Consumption</b>	<b>76.3</b>	<b>77.4</b>	<b>79.7</b>	<b>83.3</b>	<b>80.8</b>	<b>80.9</b>	▲ 0.2	▲ 0.7
<b>Net LNG Exports</b>	<b>10.6</b>	<b>11.2</b>	<b>11.1</b>	<b>10.8</b>	<b>10.7</b>	<b>10.9</b>	▲ 0.2	▼ 0.0
<b>Total Mexican Exports</b>	<b>7.0</b>	<b>6.9</b>	<b>7.0</b>	<b>7.1</b>	<b>6.9</b>	<b>7.0</b>	▲ 0.0	▼ 0.0
<b>Implied Daily Storage Activity</b>	<b>8.8</b>	<b>7.2</b>	<b>4.5</b>	<b>1.9</b>	<b>4.7</b>	<b>4.4</b>	<b>-0.3</b>	
<b>EIA Reported Daily Storage Activity</b>	<b>8.6</b>	<b>8.3</b>	<b>4.6</b>	<b>2.1</b>	<b>5.9</b>			
<b>Daily Model Error</b>	<b>0.2</b>	<b>-1.1</b>	<b>0.0</b>	<b>-0.2</b>	<b>-1.2</b>			

## Monthly Balances

	2Yr Ago Aug-20	LY Aug-21	Apr-22	May-22	Jun-22	Jul-22	MTD Aug-22	MoM	vs. LY
<b>Lower 48 Dry Production</b>	<b>88.8</b>	<b>93.8</b>	<b>94.9</b>	<b>95.8</b>	<b>97.0</b>	<b>97.0</b>	<b>97.0</b>	▼ -0.1	▲ 3.2
<b>Canadian Imports</b>	<b>4.9</b>	<b>5.1</b>	<b>5.8</b>	<b>5.1</b>	<b>5.7</b>	<b>5.9</b>	<b>5.6</b>	▼ -0.3	▲ 0.5
L48 Power	41.0	40.4	25.1	29.7	36.8	43.4	45.1	▲ 1.7	▲ 4.8
L48 Residential & Commercial	7.7	7.9	22.3	12.4	9.0	8.5	8.4	▼ 0.0	▲ 0.6
L48 Industrial	20.8	21.0	20.1	19.8	20.6	20.3	21.8	▲ 1.5	▲ 0.8
L48 Lease and Plant Fuel	4.8	5.1	5.2	5.3	5.2	5.3	5.3	▲ 0.0	▲ 0.2
L48 Pipeline Distribution	2.5	2.6	2.6	2.4	2.5	2.8	2.9	▲ 0.1	▲ 0.3
<b>L48 Regional Gas Consumption</b>	<b>76.9</b>	<b>77.0</b>	<b>75.3</b>	<b>69.6</b>	<b>74.2</b>	<b>80.2</b>	<b>83.5</b>	▲ 3.3	▲ 6.5
<b>Net LNG Exports</b>	<b>4.0</b>	<b>10.5</b>	<b>12.3</b>	<b>12.5</b>	<b>11.2</b>	<b>10.9</b>	<b>11.0</b>	▲ 0.1	▲ 0.6
<b>Total Mexican Exports</b>	<b>6.0</b>	<b>6.9</b>	<b>6.7</b>	<b>7.0</b>	<b>7.1</b>	<b>7.0</b>	<b>6.6</b>	▼ -0.5	▼ -0.3
<b>Implied Daily Storage Activity</b>	<b>6.7</b>	<b>4.6</b>	<b>6.4</b>	<b>11.9</b>	<b>10.2</b>	<b>4.8</b>	<b>1.5</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

Source: Bloomberg, analytix.ai

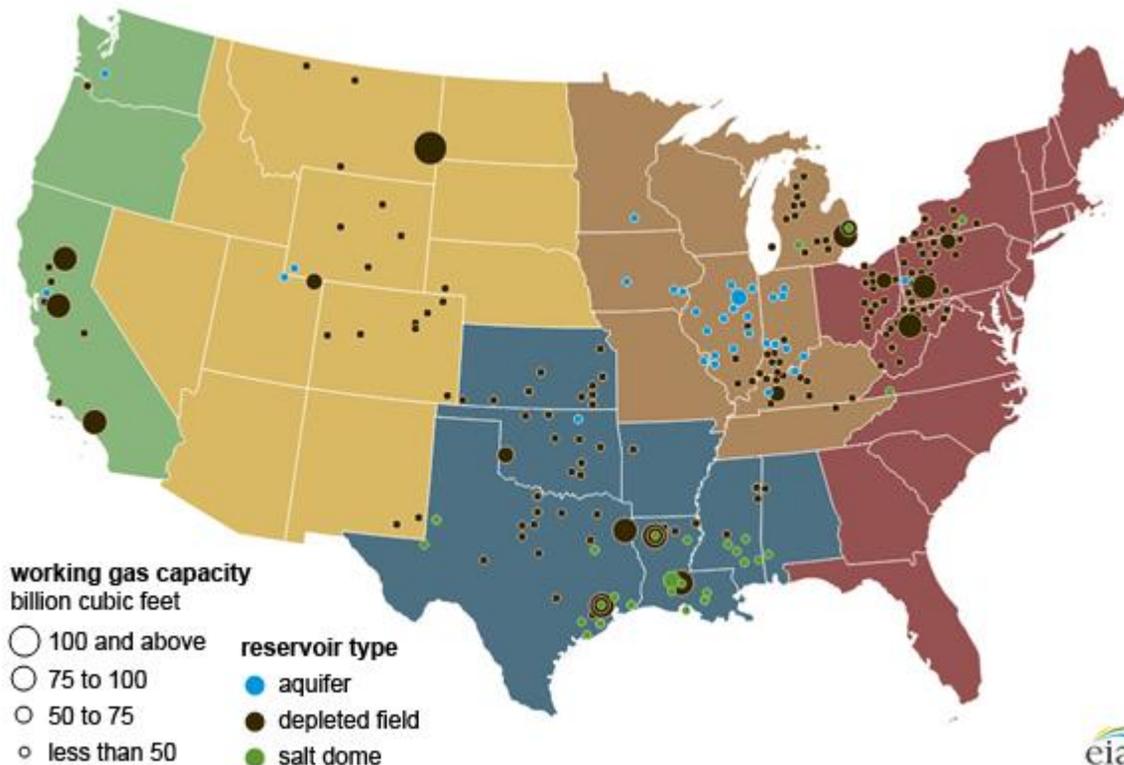
## Regional S/D Models Storage Projection

Week Ending 5-Aug

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	5.5	-0.3	5.2	37
East	0.4	2.5	2.9	20
Midwest	3.9	-0.6	3.2	23
Mountain	4.6	-4.2	0.4	3
South Central	-3.7	2.9	-0.8	-6
Pacific	0.5	-0.9	-0.5	-3

\*Adjustment Factor is calculated based on historical regional deltas

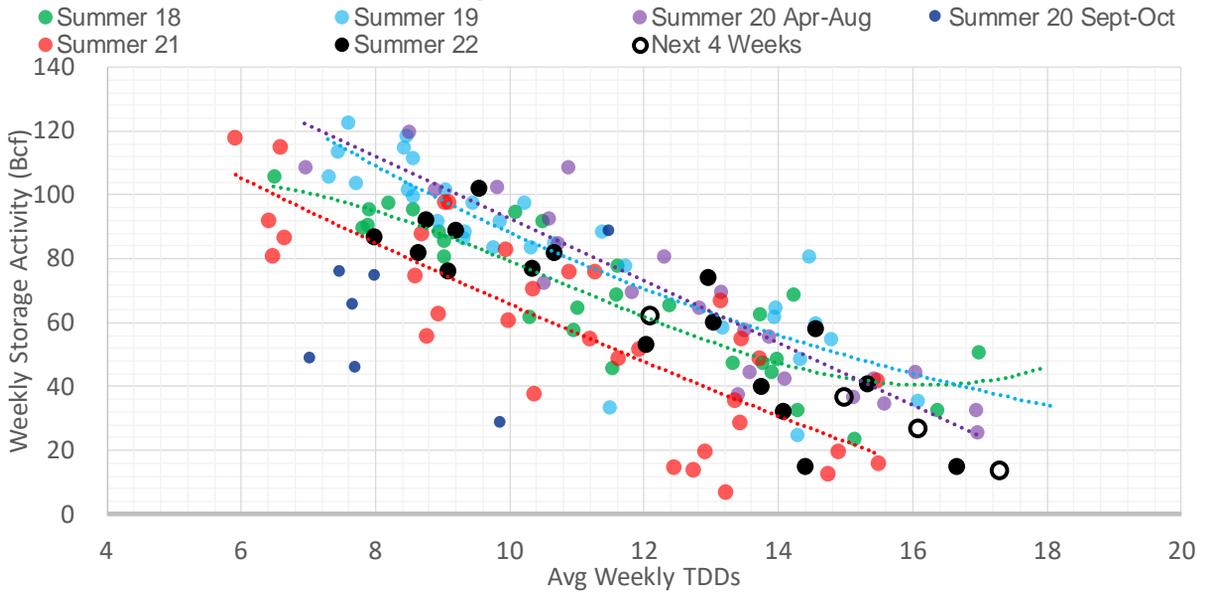
U.S. underground natural gas storage facilities by type (July 2015)



## Weather Model Storage Projection

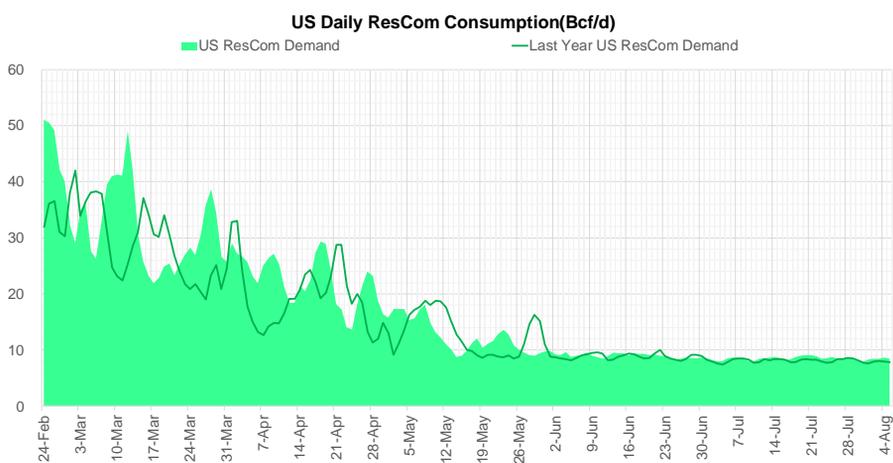
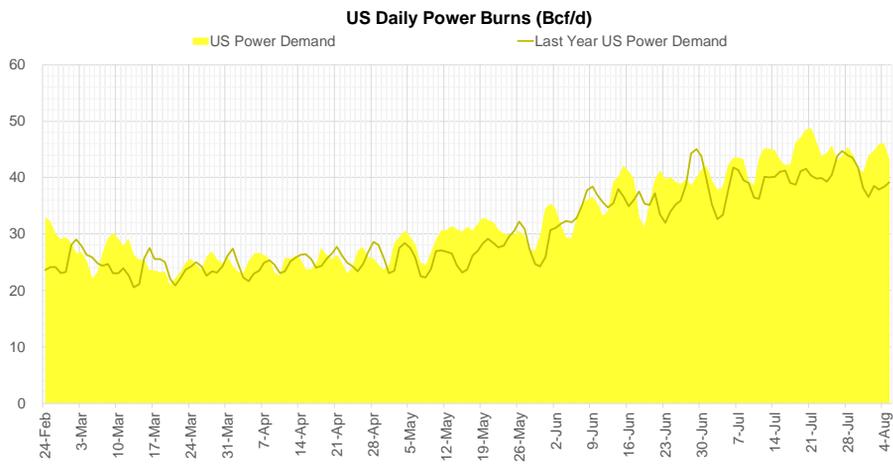
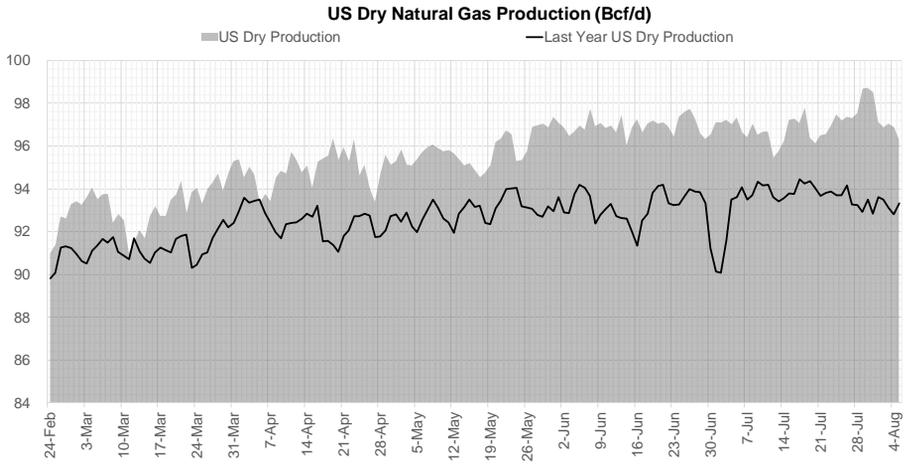
Next report and beyond		
Week Ending	GWDDs	Week Storage Projection
05-Aug	15.0	37
12-Aug	17.3	14
19-Aug	16.1	27
26-Aug	12.1	62

### Weather Storage Model - Next 4 Week Forecast



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

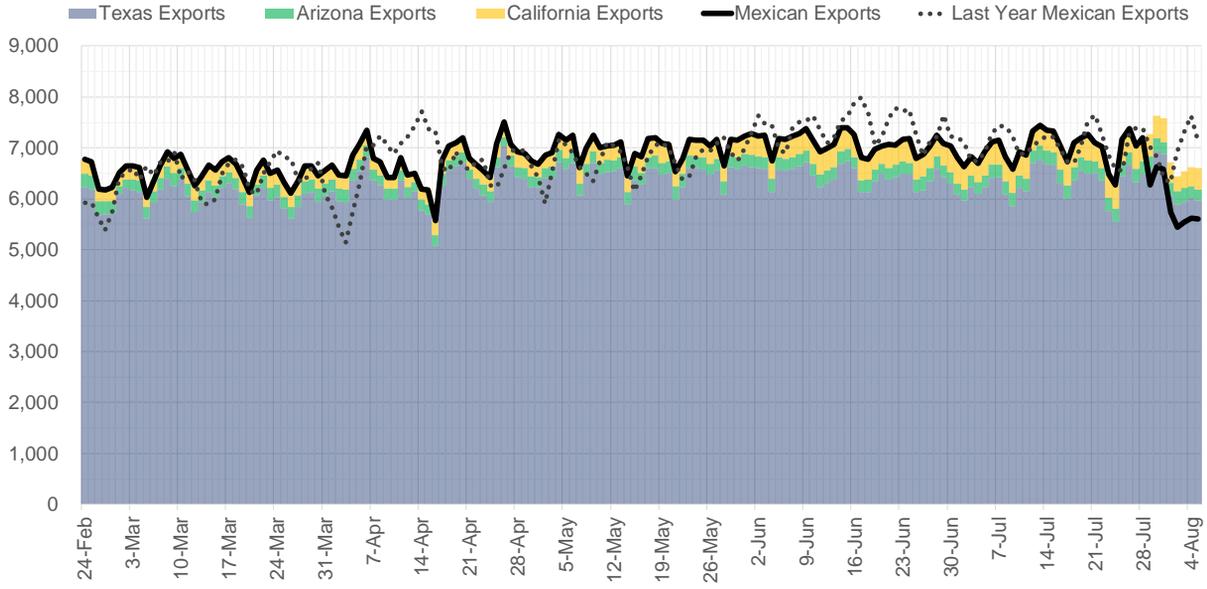
## Supply – Demand Trends



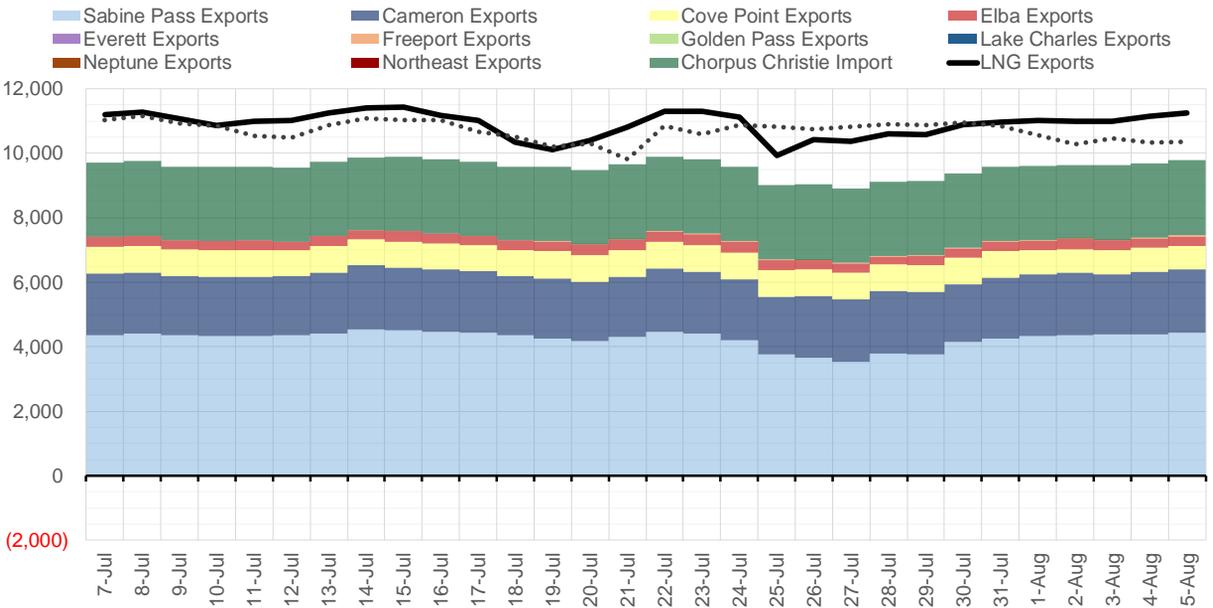
Source: Bloomberg

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

## Mexican Exports (MMcf/d)



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



Source: Bloomberg

The risk of trading futures and options and other derivatives involves a substantial risk of loss and is not suitable for all persons. Each person must consider whether a particular trade, combination of trades, or strategy is suitable for that person's financial means and objectives. Past results are not necessarily indicative of future results. This communication may contain links to third party websites which are not under the control of and are not maintained by ION Energy Group, and ION Energy Group is not responsible for their content.

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

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
10	2022	C	12.00	7614	10	2022	C	6.00	36014
10	2022	C	12.50	6843	10	2022	P	3.00	35778
10	2022	P	6.00	3223	10	2022	P	2.50	28111
11	2022	P	6.00	2912	10	2022	P	6.00	25698
9	2022	C	10.00	2652	9	2022	C	6.00	24361
9	2022	P	6.50	2616	10	2022	P	5.00	23729
11	2022	P	5.00	2550	10	2022	C	5.00	23268
10	2022	P	5.00	2459	3	2023	C	10.00	22289
10	2022	P	5.50	2438	10	2022	P	3.50	21522
9	2022	C	9.00	2377	10	2022	P	4.00	20893
10	2022	C	11.00	2376	5	2023	P	2.00	20777
10	2022	C	14.00	2267	9	2022	P	4.00	20268
9	2022	C	11.00	2210	9	2022	C	7.00	19548
9	2022	P	7.50	2188	9	2022	C	10.00	19261
9	2022	P	6.00	2083	10	2022	C	10.00	18702
9	2022	C	9.50	1962	11	2022	P	4.00	18332
9	2022	C	15.00	1896	12	2022	C	5.00	18218
9	2022	P	6.25	1778	9	2022	C	9.00	18140
11	2022	C	12.00	1775	12	2022	P	5.00	18001
12	2022	P	6.25	1663	3	2023	P	3.00	17962
9	2022	C	12.00	1605	1	2023	C	10.00	17607
10	2022	P	6.25	1500	9	2022	P	6.00	17074
11	2022	P	6.25	1500	10	2022	P	2.00	16681
11	2022	C	12.10	1460	9	2022	P	3.00	16633
11	2022	P	5.50	1414	9	2022	P	5.00	16619
9	2022	C	8.50	1390	10	2022	C	8.00	16310
10	2022	P	4.50	1269	2	2023	C	10.00	16292
12	2022	P	5.50	1268	9	2022	C	4.00	15970
10	2022	C	15.00	1184	4	2023	P	3.00	15884
11	2022	P	4.50	1151	10	2023	P	2.50	15725
12	2022	P	6.00	1105	9	2022	P	2.50	15477
12	2022	P	7.50	1100	10	2022	P	3.25	15350
9	2022	C	10.50	1050	10	2023	P	2.00	15185
10	2022	P	7.50	1001	10	2022	C	7.00	15111
10	2022	P	5.60	1000	9	2022	P	2.75	14887
1	2023	C	15.00	1000	3	2023	C	20.00	14749
1	2023	P	8.00	1000	9	2022	C	9.50	14609
10	2022	C	9.00	968	10	2023	P	3.00	14435
10	2022	P	7.00	960	12	2022	C	6.00	13987
11	2022	P	7.50	959	4	2023	P	2.75	13695
10	2022	P	4.00	955	11	2022	C	8.00	13343
9	2022	P	7.00	900	9	2022	P	3.50	13312
9	2022	C	9.25	846	10	2022	C	4.00	13309
9	2022	P	8.00	807	10	2022	P	2.75	13286
11	2022	C	11.00	763	9	2022	C	3.00	13225
11	2022	P	7.00	725	2	2023	C	9.00	13220
11	2022	C	10.00	701	10	2022	C	3.00	13214
9	2022	P	6.75	687	1	2023	P	4.00	13113
11	2022	C	20.00	615	11	2022	C	10.00	13004
					1	2023	P	5	13000

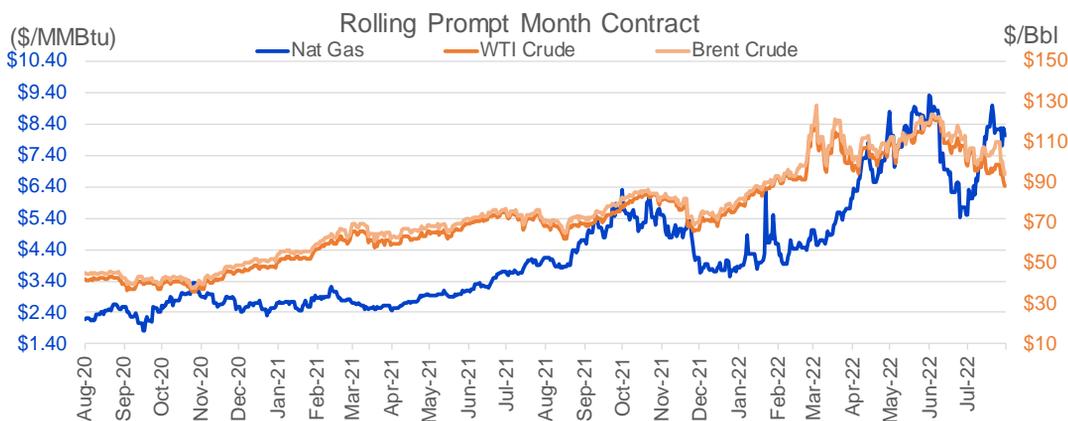
Source: CME, ICE

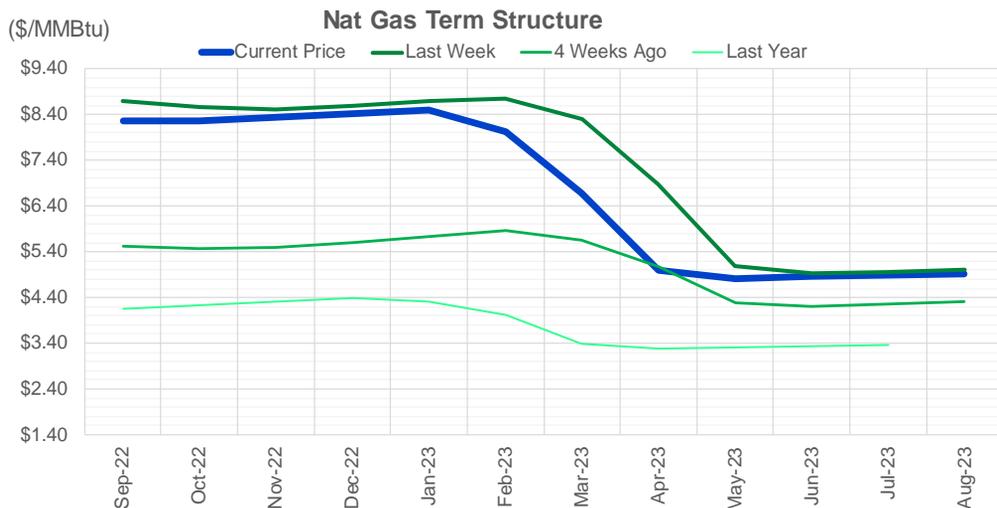
## Nat Gas Futures Open Interest

CME and ICE data 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
SEP 22	151328	155148	-3820	SEP 22	83384	83007	377
OCT 22	96093	95841	252	OCT 22	75333	75030	303
NOV 22	85140	84578	562	NOV 22	62932	62727	205
DEC 22	57247	56077	1170	DEC 22	65325	65188	137
JAN 23	73524	73958	-434	JAN 23	65291	65458	-167
FEB 23	35983	35346	637	FEB 23	58715	58488	227
MAR 23	52220	51111	1109	MAR 23	53121	52767	354
APR 23	69288	70008	-720	APR 23	53783	53838	-55
MAY 23	67638	67304	334	MAY 23	52770	52377	393
JUN 23	22951	23191	-240	JUN 23	46490	46443	48
JUL 23	22978	22333	645	JUL 23	44758	44757	2
AUG 23	19469	19479	-10	AUG 23	43813	43803	10
SEP 23	17550	17698	-148	SEP 23	42964	43019	-54
OCT 23	47009	47275	-266	OCT 23	49899	50161	-262
NOV 23	12935	13093	-158	NOV 23	44925	44811	114
DEC 23	11726	11721	5	DEC 23	40735	40645	90
JAN 24	17291	17512	-221	JAN 24	39848	39677	170
FEB 24	7885	7873	12	FEB 24	30170	30205	-35
MAR 24	17178	17102	76	MAR 24	34754	34692	62
APR 24	13830	13627	203	APR 24	28276	28227	49
MAY 24	6771	6774	-3	MAY 24	26922	26868	53
JUN 24	2480	2527	-47	JUN 24	23910	23848	62
JUL 24	2309	2296	13	JUL 24	23606	23545	62
AUG 24	3252	3252	0	AUG 24	23527	23464	63
SEP 24	1826	1826	0	SEP 24	23437	23377	60
OCT 24	8536	8737	-201	OCT 24	26785	26643	142
NOV 24	4733	4732	1	NOV 24	24913	24907	6
DEC 24	7557	7556	1	DEC 24	27931	27913	18
JAN 25	15992	15988	4	JAN 25	20695	20635	61
FEB 25	870	868	2	FEB 25	13968	13890	78

Source: CME, ICE





	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23
<b>Current Price</b>	<b>\$8.266</b>	<b>\$8.262</b>	<b>\$8.331</b>	<b>\$8.429</b>	<b>\$8.490</b>	<b>\$8.035</b>	<b>\$6.692</b>	<b>\$5.002</b>	<b>\$4.812</b>	<b>\$4.853</b>	<b>\$4.897</b>	<b>\$4.911</b>
Last Week	\$8.687	\$8.554	\$8.526	\$8.603	\$8.695	\$8.760	\$8.302	\$6.892	\$5.099	\$4.920	\$4.968	\$5.020
vs. Last Week	-\$0.421	-\$0.292	-\$0.195	-\$0.174	-\$0.205	-\$0.725	-\$1.610	-\$1.890	-\$0.287	-\$0.067	-\$0.071	-\$0.109
4 Weeks Ago	\$5.510	\$5.482	\$5.493	\$5.605	\$5.740	\$5.853	\$5.660	\$5.082	\$4.275	\$4.196	\$4.256	\$4.316
vs. 4 Weeks Ago	\$2.756	\$2.780	\$2.838	\$2.824	\$2.750	\$2.182	\$1.032	-\$0.080	\$0.537	\$0.657	\$0.641	\$0.595
Last Year	\$4.158	\$4.163	\$4.221	\$4.320	\$4.386	\$4.298	\$4.025	\$3.381	\$3.285	\$3.313	\$3.348	\$3.355
vs. Last Year	\$4.108	\$4.099	\$4.110	\$4.109	\$4.104	\$3.737	\$2.667	\$1.621	\$1.527	\$1.540	\$1.549	\$1.556

	Units	Current Price	vs. Last Week	vs. 4 Weeks Ago	vs. Last Year
NatGas Jul21/Oct21	\$/MMBtu	2.224	▲ 0.000	▲ 0.000	▲ 1.693
NatGas Oct21/Nov21	\$/MMBtu	0.361	▲ 0.000	▲ 0.000	▲ 0.299
NatGas Oct21/Jan22	\$/MMBtu	-1.817	▲ 0.000	▲ 0.000	▼ -2.052
NatGas Apr22/Oct22	\$/MMBtu	2.778	▼ -0.004	▲ 1.861	▲ 2.799
WTI Crude	\$/Bbl	88.54	▼ -7.880	▼ -14.190	▲ 19.450
Brent Crude	\$/Bbl	94.12	▼ -13.020	▼ -10.530	▲ 22.830
Fuel Oil, NY Harbour 1%	\$/Bbl	97.18	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	333.72	▼ -34.910	▼ -33.670	▲ 123.120
Propane, Mt. Bel	cents/Gallon	1.08	▼ -0.059	▼ -0.097	▼ -0.005
Ethane, Mt. Bel	cents/Gallon	0.57	▼ -0.010	▲ 0.075	▲ 0.223
Coal, PRB	\$/MTon	12.30	▲ 0.000	▲ 0.000	▲ 0.000
Coal, PRB	\$/MMBtu	0.70			

Source: CME, Bloomberg

## Baker Hughes Rig Counts

Rotary Rig Count					
8/5/2022					
Baker Hughes 					
U.S. Breakout Information	This Week	+/-	Last Week	+/-	Year Ago
Oil	598	-7	605	211	387
Gas	161	4	157	58	103
Miscellaneous	5	0	5	4	1
Directional	37	-1	38	10	27
Horizontal	698	1	697	249	449
Vertical	29	-3	32	14	15
Canada Breakout	This Week	+/-	Last Week	+/-	Year Ago
Oil	140	3	137	45	95
Gas	63	-4	67	3	60
Miscellaneous	0	0	0	-1	1
Major Basin Variances	This Week	+/-	Last Week	+/-	Year Ago
Ardmore Woodford	3	1	2	0	3
Arkoma Woodford	7	0	7	6	1
Barnett	4	0	4	4	0
Cana Woodford	23	-1	24	6	17
DJ-Niobrara	17	1	16	5	12
Eagle Ford	72	0	72	40	32
Granite Wash	7	1	6	3	4
Haynesville	69	0	69	22	47
Marcellus	38	0	38	9	29
Mississippian	1	0	1	1	0
Permian	347	-4	351	104	243
Utica	11	0	11	0	11
Williston	39	1	38	20	19