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	Current	Δ from YD	Δ from 7D Avg
Nat Gas Prompt	\$ 2.75	▼ \$ (0.02)	▼ \$ (0.03)

	Current	Δ from YD	Δ from 7D Avg
WTI Prompt	\$ 40.89	▲ \$ 0.01	▲ \$ 0.3

	Current	Δ from YD	Δ from 7D Avg
Brent Prompt	\$ 42.91	▼ \$ (0.02)	▲ \$ 0.1

### 00z GWDD Change

Cooler Change

Warmer Change

ECMWF Ensemble 00z	1-5 Day	6-10 Day	11-15 Day	Total
12 Hr Chg	-0.4	1.2	0.4	1.2
24 Hr Chg	0.5	3.6	1.8	5.9

GFS Ensemble 00z	1-5 Day	6-10 Day	11-15 Day	Total
12 Hr Chg	-0.1	4.7	3.1	7.7
24 Hr Chg	0.0	6.5	5.9	12.4

	Current	Δ from YD	Δ from 7D Avg
US Dry Production	88.6	▼ -0.30	▲ 0.65

	Current	Δ from YD	Δ from 7D Avg
US Power Burns	28.6	▲ 2.17	▲ 0.09

	Current	Δ from YD	Δ from 7D Avg
US ResComm	18.3	▼ -0.21	▲ 2.59

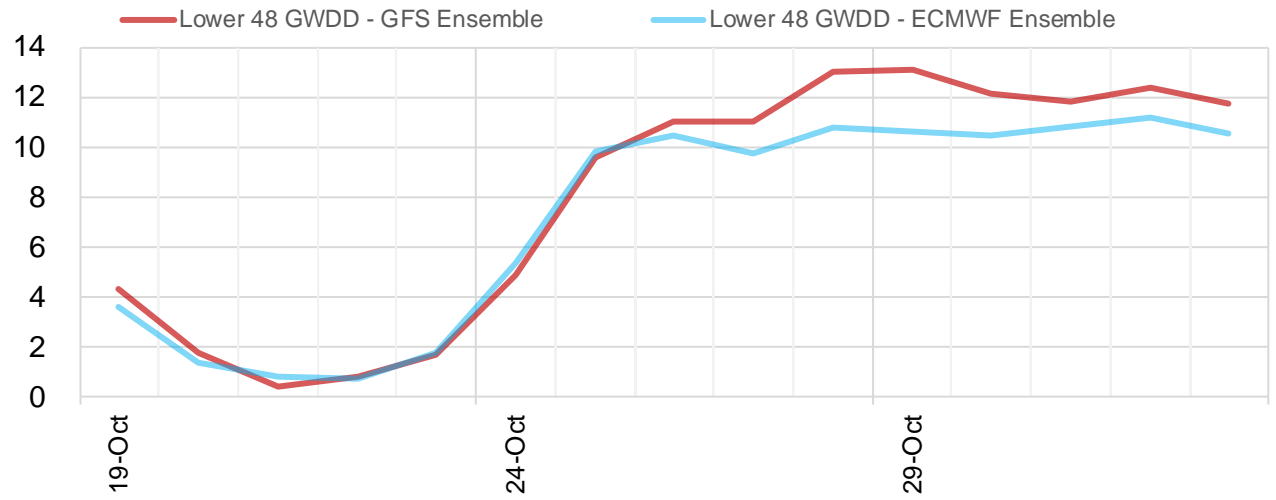
	Current	Δ from YD	Δ from 7D Avg
Canadian Imports	3.3	▲ 0.10	▼ -0.32

	Current	Δ from YD	Δ from 7D Avg
Net LNG Exports	7.9	▲ 0.44	▲ 0.23

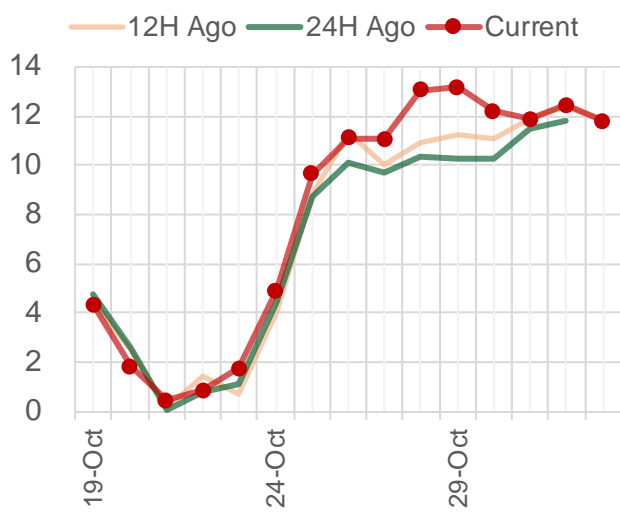
	Current	Δ from YD	Δ from 7D Avg
Mexican Exports	6.1	▲ 0.13	▼ -0.16

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

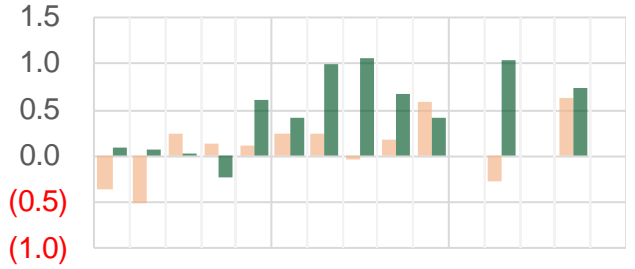
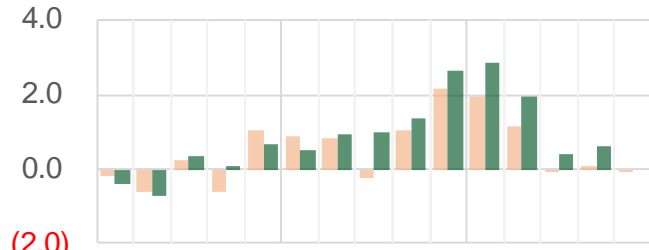
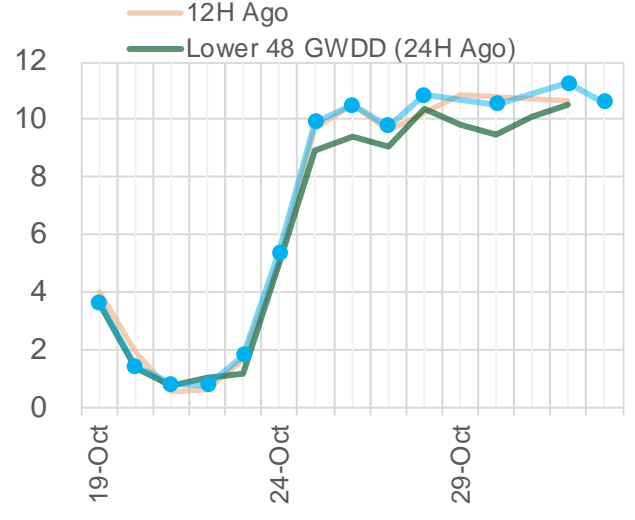
Lower 48 TDD Forecast



Lower 48 GWDD - GFS Ensemble



Lower 48 GWDD - ECMWF Ensemble



(2.0)

(0.5)  
(1.0)

Source: WSI, Bloomberg

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## Lower 48 Component Models

### Daily Balances

	13-Oct	14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	DoD	vs. 7D
<b>Lower 48 Dry Production</b>	<b>86.8</b>	<b>87.8</b>	<b>88.5</b>	<b>88.9</b>	<b>89.1</b>	<b>88.9</b>	<b>88.6</b>	▼-0.3	▲0.2
<b>Canadian Imports</b>	<b>4.2</b>	<b>3.7</b>	<b>3.8</b>	<b>3.3</b>	<b>3.3</b>	<b>3.3</b>	<b>3.3</b>	▲0.1	▼-0.2
L48 Power	30.4	29.3	29.6	27.8	25.0	26.5	28.6	▲2.2	▲0.5
L48 Residential & Commercial	13.5	12.5	14.7	19.9	18.9	18.5	18.3	▼-0.2	▲2.0
L48 Industrial	22.4	22.2	22.4	22.6	22.4	22.2	21.8	▼-0.4	▼-0.5
L48 Lease and Plant Fuel	4.8	4.8	4.9	4.9	4.9	4.9	4.9	▼0.0	▲0.0
L48 Pipeline Distribution	2.1	2.0	2.2	2.3	2.2	2.2	2.3	▲0.1	▲0.1
<b>L48 Regional Gas Consumption</b>	<b>73.2</b>	<b>70.9</b>	<b>73.7</b>	<b>77.5</b>	<b>73.4</b>	<b>74.3</b>	<b>75.9</b>	▲1.7	▲2.1
<b>Net LNG Delivered</b>	<b>7.54</b>	<b>7.86</b>	<b>7.80</b>	<b>7.95</b>	<b>7.86</b>	<b>7.50</b>	<b>7.94</b>	▲0.4	▲0.2
<b>Total Mexican Exports</b>	<b>6.4</b>	<b>6.4</b>	<b>6.3</b>	<b>6.4</b>	<b>6.2</b>	<b>6.0</b>	<b>6.1</b>	▲0.1	▼-0.2
<b>Implied Daily Storage Activity</b>	<b>3.8</b>	<b>6.3</b>	<b>4.5</b>	<b>0.5</b>	<b>4.9</b>	<b>4.4</b>	<b>1.9</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

### EIA Storage Week Balances

	11-Sep	18-Sep	25-Sep	2-Oct	9-Oct	16-Oct	WoW	vs. 4W
<b>Lower 48 Dry Production</b>	<b>89.0</b>	<b>87.8</b>	<b>86.9</b>	<b>87.2</b>	<b>87.2</b>	<b>85.8</b>	▼-1.4	▼-1.5
<b>Canadian Imports</b>	<b>3.8</b>	<b>3.8</b>	<b>3.6</b>	<b>3.9</b>	<b>4.5</b>	<b>4.0</b>	▼-0.5	▲0.1
L48 Power	35.3	33.5	30.8	30.7	30.7	30.0	▼-0.7	▼-1.4
L48 Residential & Commercial	8.4	8.0	9.9	9.5	13.6	11.5	▼-2.0	▲1.3
L48 Industrial	19.7	21.3	21.1	22.2	21.6	21.9	▲0.3	▲0.4
L48 Lease and Plant Fuel	4.9	4.8	4.8	4.8	4.8	4.7	▼-0.1	▼-0.1
L48 Pipeline Distribution	2.2	2.1	2.0	2.0	2.2	2.0	▼-0.1	▼0.0
<b>L48 Regional Gas Consumption</b>	<b>70.5</b>	<b>69.7</b>	<b>68.6</b>	<b>69.1</b>	<b>72.9</b>	<b>70.2</b>	▼-2.7	▲0.2
<b>Net LNG Exports</b>	<b>5.2</b>	<b>7.3</b>	<b>5.8</b>	<b>6.8</b>	<b>7.5</b>	<b>6.9</b>	▼-0.6	▲0.0
<b>Total Mexican Exports</b>	<b>6.4</b>	<b>6.2</b>	<b>6.4</b>	<b>6.3</b>	<b>6.2</b>	<b>6.2</b>	▲0.0	▼-0.1
<b>Implied Daily Storage Activity</b>	<b>10.8</b>	<b>8.3</b>	<b>9.6</b>	<b>8.9</b>	<b>5.1</b>	<b>6.5</b>	<b>1.3</b>	
<b>EIA Reported Daily Storage Activity</b>	<b>12.7</b>	<b>9.4</b>	<b>10.9</b>	<b>10.7</b>	<b>6.6</b>			
<b>Daily Model Error</b>	<b>-1.9</b>	<b>-1.1</b>	<b>-1.2</b>	<b>-1.8</b>	<b>-1.4</b>			

### Monthly Balances

	2Yr Ago Oct-18	LY Oct-19	Jun-20	Jul-20	Aug-20	Sep-20	MTD Oct-20	MoM	vs. LY
<b>Lower 48 Dry Production</b>	<b>86.7</b>	<b>95.0</b>	<b>86.6</b>	<b>87.8</b>	<b>87.7</b>	<b>87.6</b>	<b>87.0</b>	▼-0.6	▼-7.9
<b>Canadian Imports</b>	<b>4.7</b>	<b>4.6</b>	<b>4.0</b>	<b>4.4</b>	<b>4.9</b>	<b>3.8</b>	<b>4.0</b>	▲0.2	▼-0.6
L48 Power	28.8	30.8	35.0	43.8	40.7	33.2	29.7	▼-3.6	▼-1.1
L48 Residential & Commercial	16.1	15.2	8.8	8.0	7.7	8.7	13.9	▲5.2	▼-1.3
L48 Industrial	22.6	24.0	19.2	19.3	20.6	21.0	21.9	▲0.9	▼-2.1
L48 Lease and Plant Fuel	4.9	5.2	4.8	4.9	4.8	4.8	4.8	▼0.0	▼-0.4
L48 Pipeline Distribution	2.1	2.3	2.2	2.4	2.3	2.1	2.1	▲0.1	▼-0.1
<b>L48 Regional Gas Consumption</b>	<b>74.5</b>	<b>77.4</b>	<b>70.1</b>	<b>78.4</b>	<b>76.1</b>	<b>69.8</b>	<b>72.4</b>	▲2.6	▼-5.1
<b>Net LNG Exports</b>	<b>3.3</b>	<b>6.7</b>	<b>4.0</b>	<b>3.3</b>	<b>4.0</b>	<b>5.9</b>	<b>7.3</b>	▲1.4	▲0.6
<b>Total Mexican Exports</b>	<b>5.0</b>	<b>5.5</b>	<b>5.7</b>	<b>6.1</b>	<b>6.3</b>	<b>6.4</b>	<b>6.2</b>	▼-0.2	▲0.7
<b>Implied Daily Storage Activity</b>	<b>8.6</b>	<b>10.0</b>	<b>10.9</b>	<b>4.4</b>	<b>6.2</b>	<b>9.3</b>	<b>5.2</b>		
<b>EIA Reported Daily Storage Activity</b>									
<b>Daily Model Error</b>									

Source: Bloomberg, analytix.ai

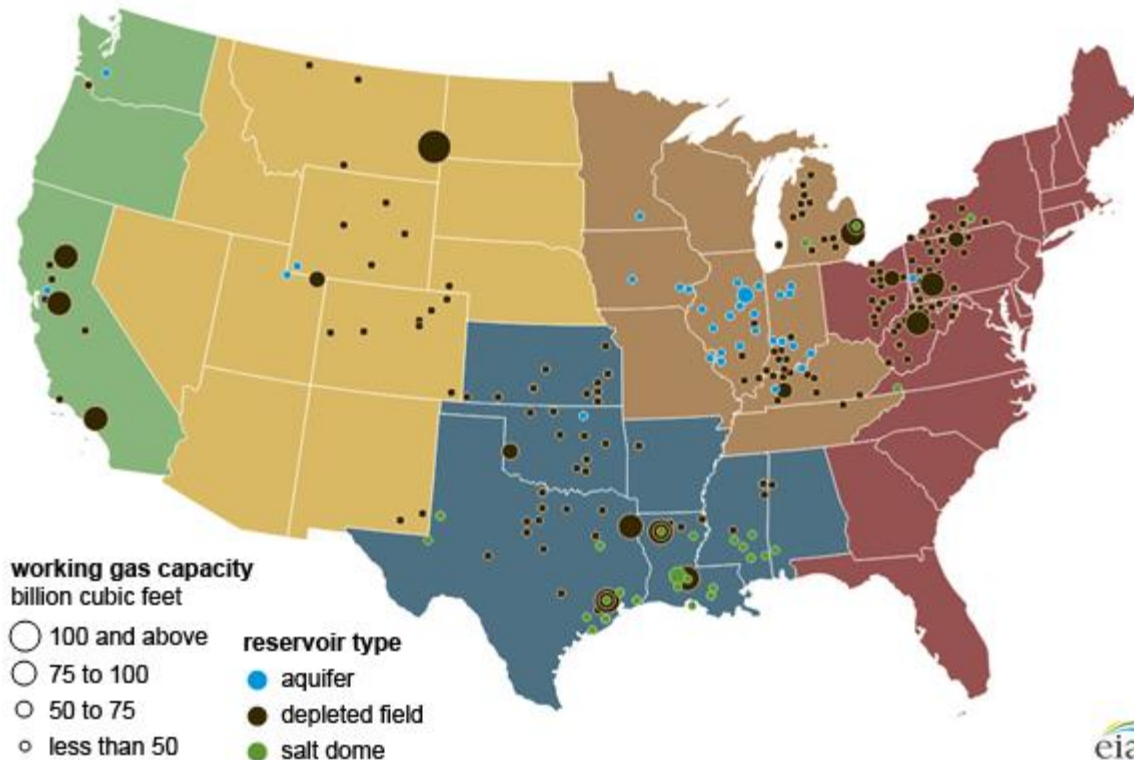
## Regional S/D Models Storage Projection

Week Ending 16-Oct

	Daily Raw Storage	Daily Adjustment Factor	Daily Average Storage Activity (Adjusted) *	Weekly Adjusted Storage Activity
L48	6.2	1.7	7.9	55
East	0.5	1.6	2.1	15
Midwest	3.2	1.2	4.4	31
Mountain	3.6	-3.2	0.4	3
South Central	-1.5	2.2	0.7	5
Pacific	0.4	-0.1	0.3	2

\*Adjustment Factor is calculated based on historical regional deltas

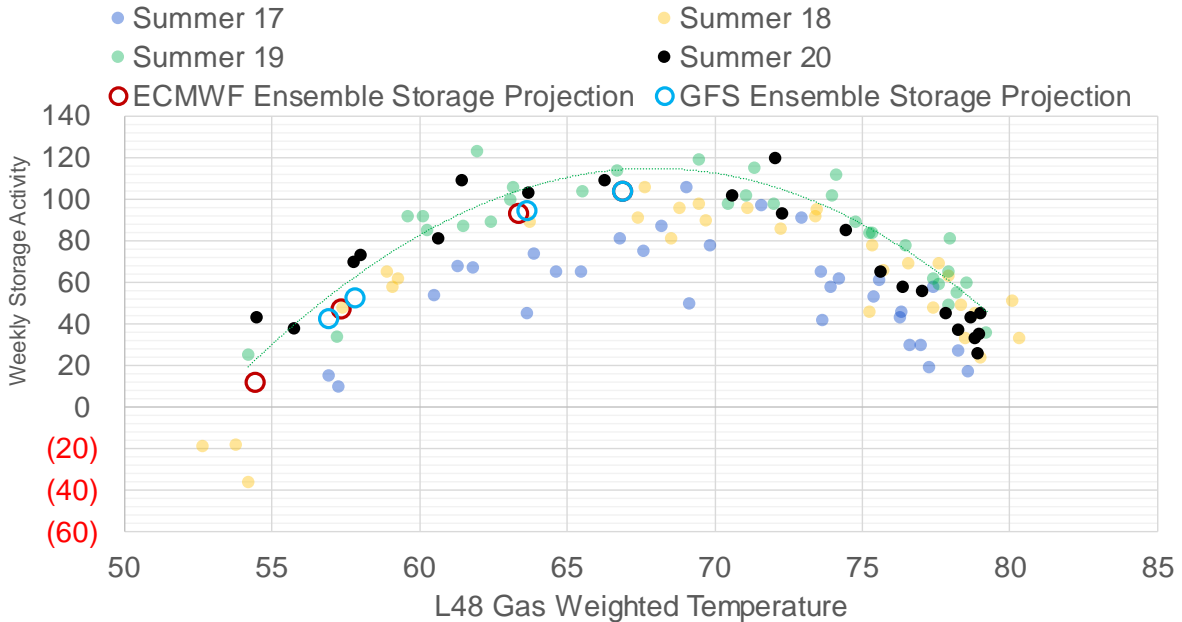
U.S. underground natural gas storage facilities by type (July 2015)



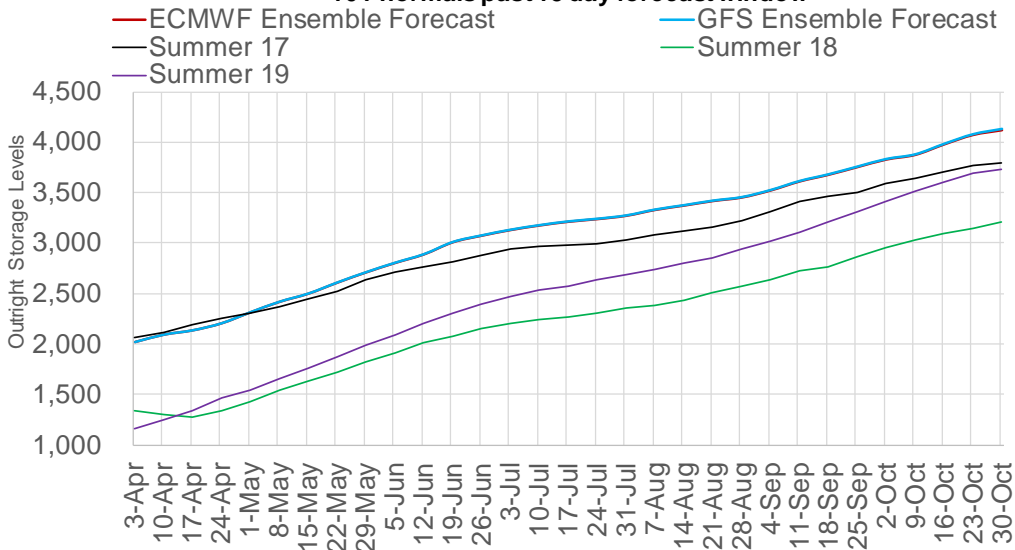
## Weather Model Storage Projection

Next report and beyond	
Week Ending	Week Storage Projection
23-Oct	94
30-Oct	50
06-Nov	27

### Weather Storage Model - Next 4 Week Forecast

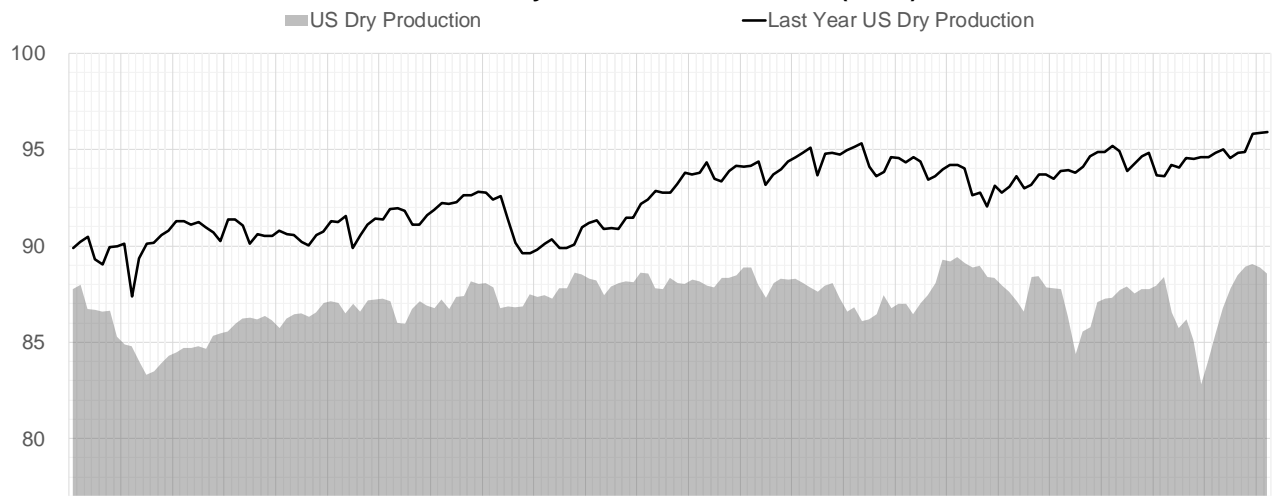


### Weather Based End of Winter Projection (Bcf) 10Y normals past 15 day forecast window

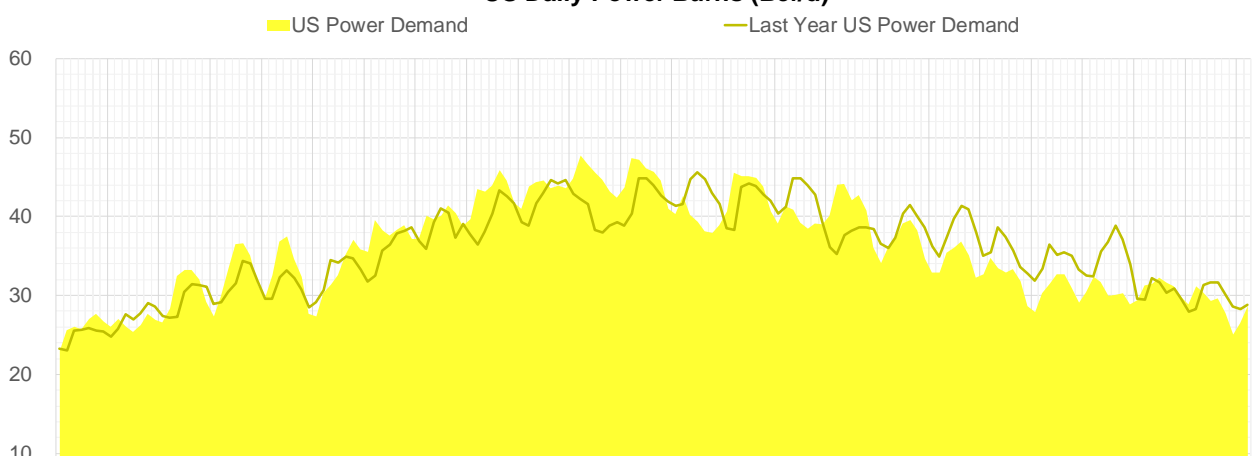


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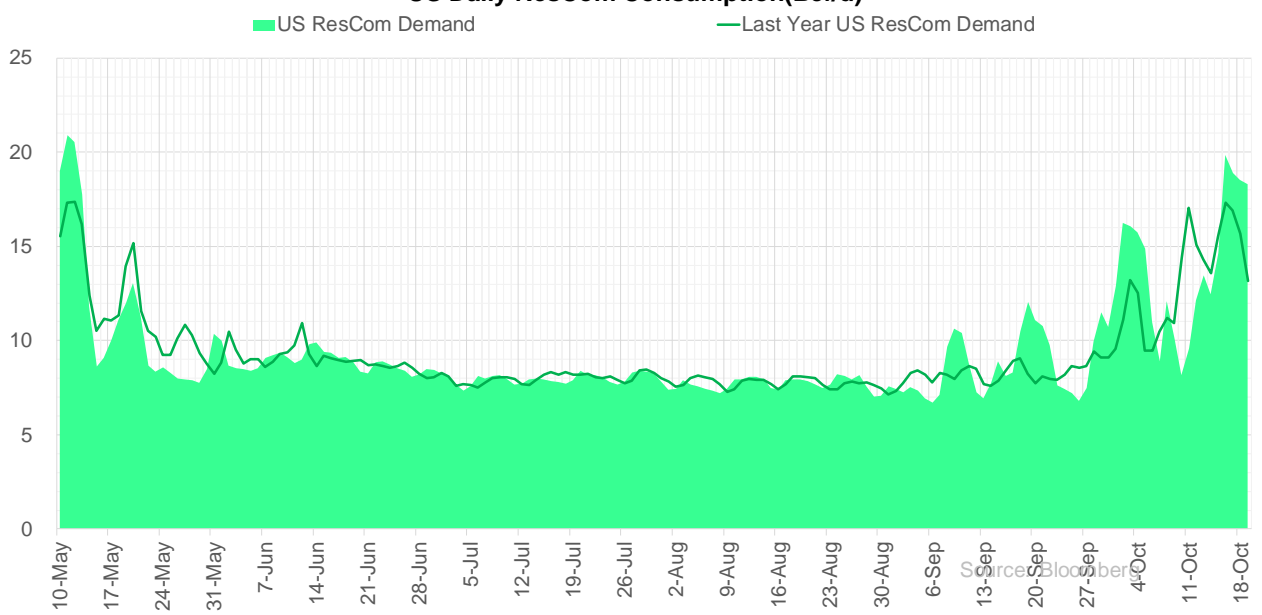
## Supply – Demand Trends US Dry Natural Gas Production (Bcf/d)



## US Daily Power Burns (Bcf/d)

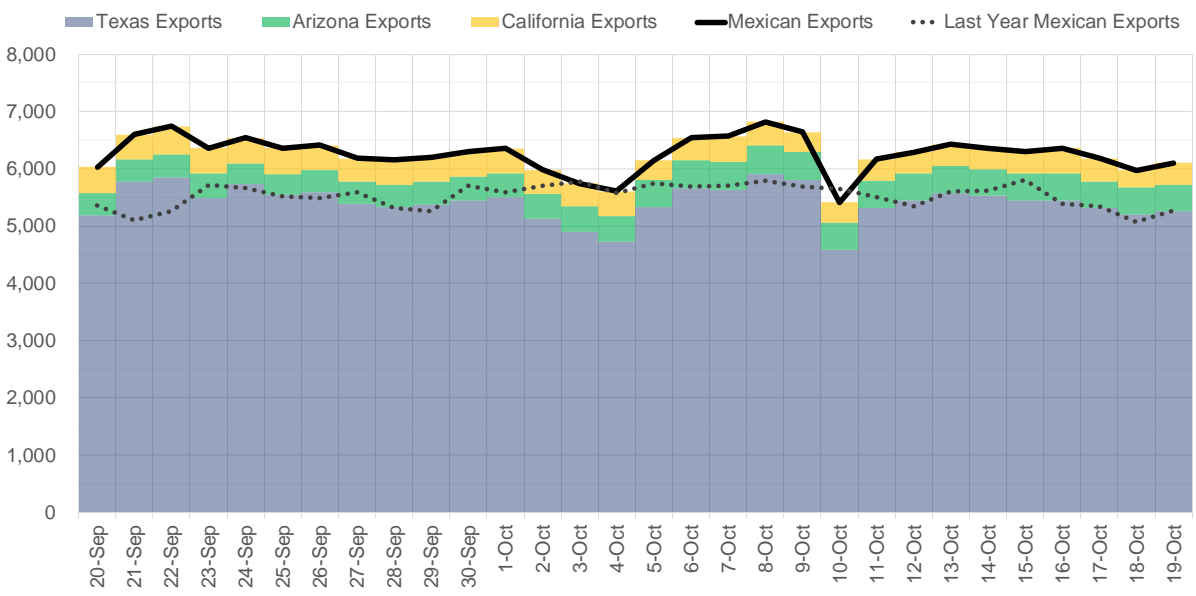


## US Daily ResCom Consumption (Bcf/d)

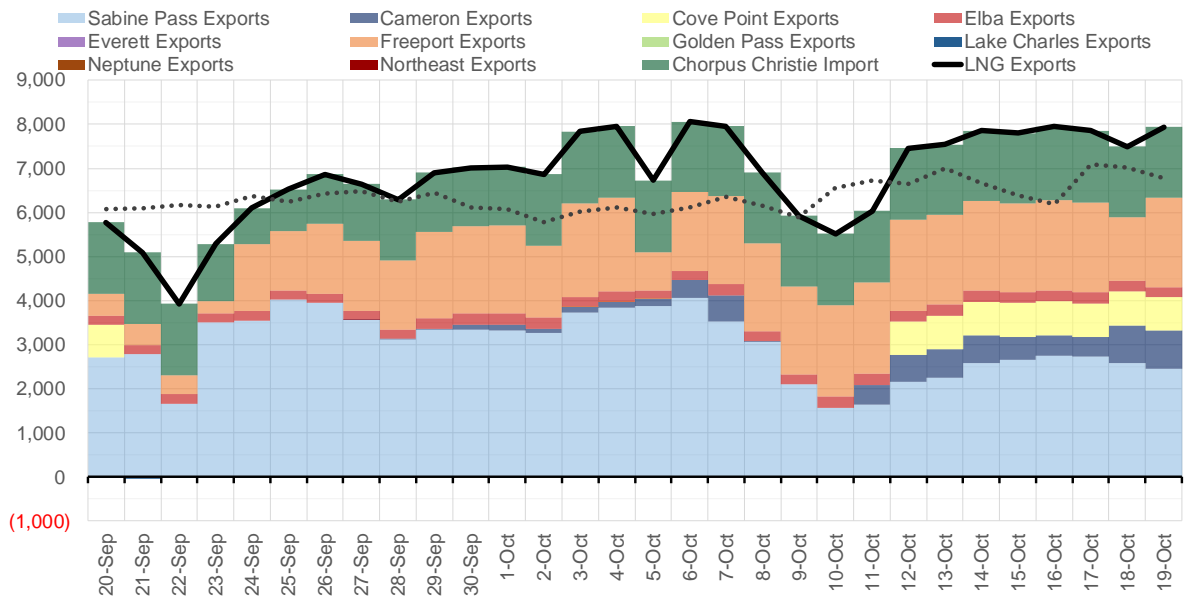


Source: S&P Global

### Mexican Exports - Last 30 days (MMcf/d)



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



Source: Bloomberg

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

CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE VOL	CONTRACT MONTH	CONTRACT YEAR	PUT/CALL	STRIKE	CUMULATIVE OI
11	2020	C	3.25	18055	11	2020	P	2.00	55073
11	2020	C	3.50	15282	3	2021	P	2.00	35322
11	2020	C	3.00	14586	11	2020	C	3.25	32545
10	2021	C	4.00	12650	12	2020	P	2.00	31233
10	2021	C	3.25	9150	3	2021	C	6.00	30976
11	2020	P	2.50	8410	11	2020	C	3.50	30850
11	2020	P	1.85	6122	3	2021	C	5.00	30597
11	2020	P	2.00	5941	1	2021	C	4.50	28844
11	2020	P	2.40	4970	3	2021	C	3.25	27170
3	2021	C	6.00	3827	12	2020	P	2.50	26910
2	2021	C	5.00	3483	4	2021	C	5.00	26770
11	2020	C	3.55	3400	1	2021	C	3.50	26070
11	2020	P	2.25	3187	3	2021	C	7.00	25903
10	2021	C	5.00	3150	3	2021	C	4.00	25882
11	2020	P	2.75	3062	11	2020	C	4.00	24507
12	2020	C	3.50	2961	11	2020	P	2.25	24006
12	2020	C	3.75	2808	11	2020	C	3.00	23164
1	2021	C	5.00	2804	12	2020	C	4.00	23139
11	2020	P	2.60	2562	2	2021	C	5.00	22407
4	2022	C	3.50	2500	11	2020	C	5.00	21903
4	2022	P	2.10	2500	11	2020	P	1.75	21662
4	2022	P	2.35	2500	1	2021	C	6.00	21111
12	2020	C	4.00	2469	3	2021	C	3.00	20826
12	2020	P	3.00	2376	3	2021	C	3.50	20047
11	2020	C	3.75	2353	1	2021	C	5.00	19584
11	2020	C	4.00	2305	12	2020	C	4.50	19479
1	2021	C	4.50	2251	4	2021	C	4.00	19307
12	2020	P	2.70	2248	1	2021	P	2.25	18835
2	2021	P	2.50	2150	12	2020	C	3.75	18673
1	2021	C	3.50	2100	11	2020	C	2.75	18410
11	2021	C	4.00	2100	1	2021	P	2.50	18043
11	2020	C	2.80	2057	2	2021	P	2.25	17589
1	2021	C	4.00	1953	1	2021	C	3.00	17187
3	2021	C	4.00	1845	2	2021	C	3.50	17127
11	2021	C	5.00	1800	12	2020	C	3.50	16879
11	2020	P	1.90	1753	1	2021	C	3.75	16632
11	2020	P	2.65	1732	2	2021	P	2.50	16463
11	2020	C	3.30	1678	11	2020	P	2.50	16366
1	2022	C	4.00	1650	11	2020	P	2.65	15008
12	2020	P	2.50	1585	3	2021	P	2.50	14964
3	2021	C	5.00	1562	12	2020	C	5.00	14713
3	2021	P	2.50	1520	8	2021	C	4.00	14482
11	2020	C	2.75	1516	12	2020	P	1.50	14450
12	2021	C	4.00	1400	1	2021	C	7.00	14297
1	2021	P	2.50	1383	4	2021	C	3.00	14285
11	2020	P	2.30	1280	4	2021	P	2.00	14097
11	2020	P	2.15	1227	2	2021	C	4.00	14083
2	2022	C	5.00	1200	5	2021	C	3.00	13856
11	2022	P	2.50	1200	11	2020	P	2.20	13500
					1	2021	C	4	13434

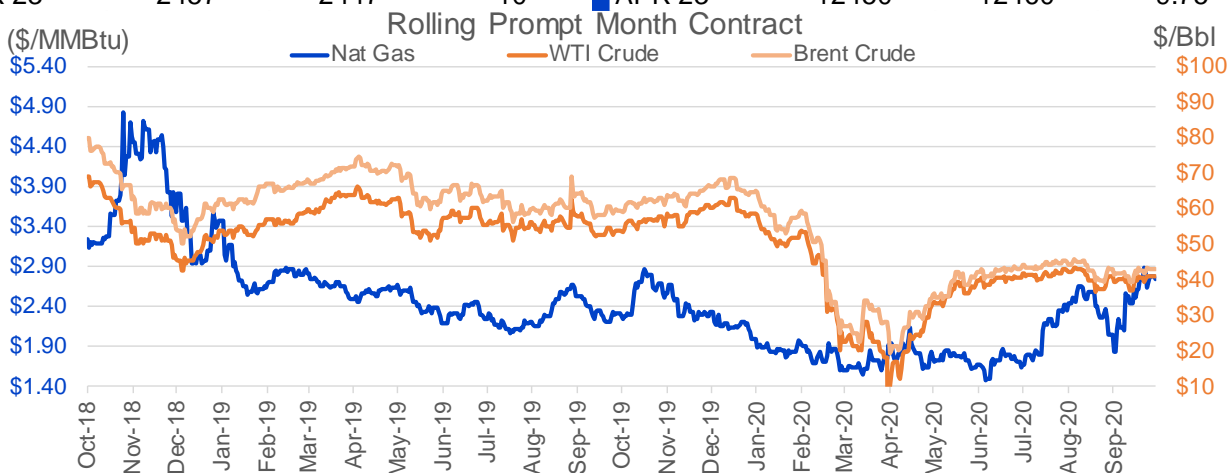
Source: CME, ICE



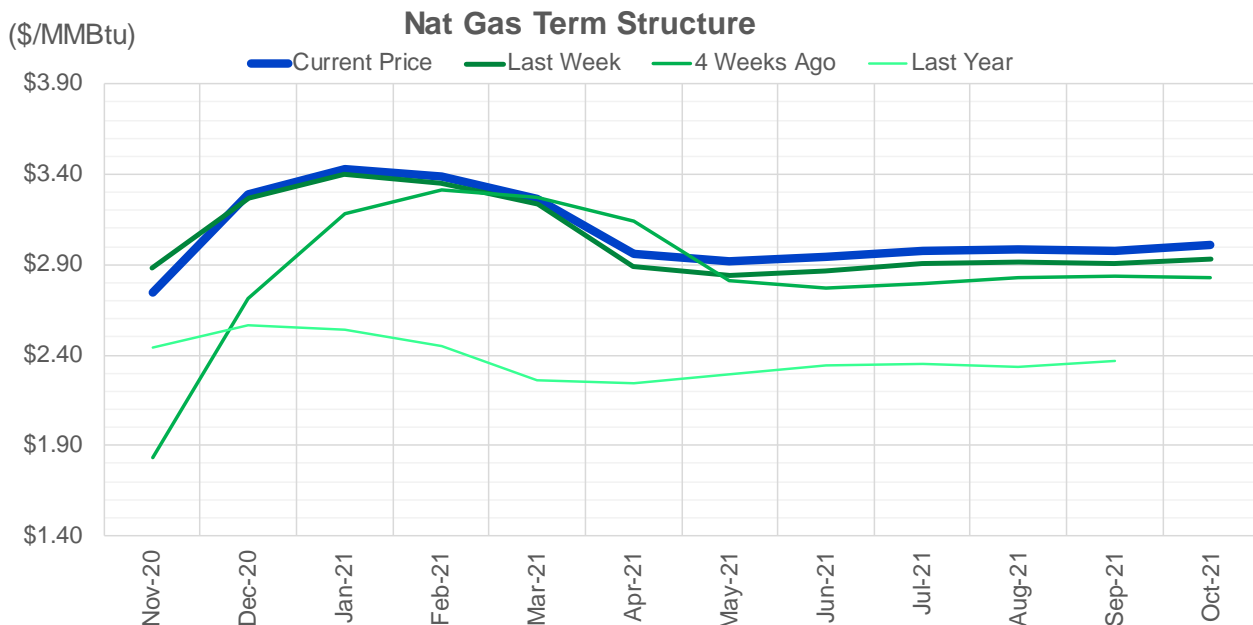
## Nat Gas Futures Open Interest

CME and ICE Combined

CME Henry Hub Futures (10,000 MMBtu)				ICE Henry Hub Futures Contract Equivalent (10,000 MM			
	Current	Prior	Daily Change	FOR JUNE 26	Current	Prior	Daily Change
NOV 20	87229	99806	-12577	NOV 20	71101	72702	-1601.75
DEC 20	169200	166634	2566	DEC 20	77022	75050	1972
JAN 21	203419	202938	481	JAN 21	89704	89727	-22.75
FEB 21	83483	82760	723	FEB 21	64429	64058	371
MAR 21	135445	135488	-43	MAR 21	84121	84393	-271.5
APR 21	85716	88717	-3001	APR 21	69376	70170	-793.5
MAY 21	46796	44533	2263	MAY 21	60814	60880	-65.75
JUN 21	33872	33023	849	JUN 21	55956	55555	400.75
JUL 21	26363	26111	252	JUL 21	58035	57561	473.5
AUG 21	26502	26552	-50	AUG 21	60408	60326	82
SEP 21	38050	37379	671	SEP 21	56119	55714	404.75
OCT 21	89345	87377	1968	OCT 21	74167	72456	1710.5
NOV 21	32943	32461	482	NOV 21	49925	48702	1223.25
DEC 21	27895	27449	446	DEC 21	46708	46370	338
JAN 22	30114	29111	1003	JAN 22	42801	42316	485.25
FEB 22	17319	16888	431	FEB 22	35031	34656	375.75
MAR 22	19295	19091	204	MAR 22	38077	37789	287.75
APR 22	21010	21653	-643	APR 22	36179	35905	274
MAY 22	9028	8320	708	MAY 22	28279	27984	294.5
JUN 22	4798	4795	3	JUN 22	27009	26791	217.5
JUL 22	4089	3873	216	JUL 22	28596	28370	226.5
AUG 22	2908	2724	184	AUG 22	27014	26760	254
SEP 22	2655	2533	122	SEP 22	26687	25960	727.25
OCT 22	3848	4018	-170	OCT 22	29388	28962	425.5
NOV 22	3549	3295	254	NOV 22	25006	24756	250
DEC 22	3503	3289	214	DEC 22	29116	28428	688
JAN 23	3004	3003	1	JAN 23	13974	13992	-18.25
FEB 23	908	908	0	FEB 23	13166	13182	-16
MAR 23	835	831	4	MAR 23	13501	13444	57
APR 23	2457	2447	10	APR 23	12450	12460	-9.75



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	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21
<b>Current Price</b>	<b>\$2.749</b>	<b>\$3.291</b>	<b>\$3.430</b>	<b>\$3.385</b>	<b>\$3.268</b>	<b>\$2.964</b>	<b>\$2.918</b>	<b>\$2.942</b>	<b>\$2.980</b>	<b>\$2.985</b>	<b>\$2.977</b>	<b>\$3.013</b>
Last Week	\$2.881	\$3.271	\$3.401	\$3.355	\$3.233	\$2.893	\$2.841	\$2.869	\$2.908	\$2.916	\$2.903	\$2.929
vs. Last Week	-\$0.132	\$0.020	\$0.029	\$0.030	\$0.035	\$0.071	\$0.077	\$0.073	\$0.072	\$0.069	\$0.074	\$0.084
4 Weeks Ago	\$1.835	\$2.710	\$3.186	\$3.317	\$3.272	\$3.138	\$2.814	\$2.770	\$2.794	\$2.829	\$2.840	\$2.828
vs. 4 Weeks Ago	\$0.914	\$0.581	\$0.244	\$0.068	-\$0.004	-\$0.174	\$0.104	\$0.172	\$0.186	\$0.156	\$0.137	\$0.185
Last Year	\$2.238	\$2.441	\$2.566	\$2.538	\$2.447	\$2.258	\$2.247	\$2.290	\$2.339	\$2.350	\$2.335	\$2.364
vs. Last Year	\$0.511	\$0.850	\$0.864	\$0.847	\$0.821	\$0.706	\$0.671	\$0.652	\$0.641	\$0.635	\$0.642	\$0.649

	Units	Cash Settled	Prompt Settle	Cash to Prompt
AGT Citygate	\$/MMBtu	1.85	3.64	1.79
TETCO M3	\$/MMBtu	1.45	2.50	1.05
FGT Zone 3	\$/MMBtu	1.30	2.86	1.56
Zone 6 NY	\$/MMBtu	1.30	2.66	1.36
Chicago Citygate	\$/MMBtu	2.14	2.68	0.54
Michcon	\$/MMBtu	1.96	2.62	0.66
Columbia TCO Pool	\$/MMBtu	1.78	2.42	0.64
Ventura	\$/MMBtu	2.20	2.68	0.48
Rockies/Opal	\$/MMBtu	1.47	2.60	1.13
El Paso Permian Basin	\$/MMBtu	-0.69	1.40	2.09
Socal Citygate	\$/MMBtu	3.84	3.25	-0.59
Malin	\$/MMBtu	2.16	3.21	1.05
Houston Ship Channel	\$/MMBtu	2.40	2.79	0.39
Henry Hub Cash	\$/MMBtu	2.16	2.62	0.46
AECO Cash	C\$/GJ	2.09	2.28	0.19
Station2 Cash	C\$/GJ	2.13	4.78	2.65
Dawn Cash	C\$/GJ	2.11	2.72	0.61

Source: CME, Bloomberg

	Units	Current Price	vs. Last Week	vs. 4 Weeks	
				Ago	vs. Last Year
NatGas Jan/Apr	\$/MMBtu	-0.47	▲ 0.042	▲ 0.037	▼ -0.022
NatGas Mar/Apr	\$/MMBtu	-0.304	▲ 0.036	▼ -0.628	▼ -0.584
NatGas Oct/Nov	\$/MMBtu	0.65	▼ -0.132	▼ -0.227	▲ 0.577
NatGas Oct/Jan	\$/MMBtu	1.33	▲ 0.029	▼ -0.153	▲ 0.965
WTI Crude	\$/Bbl	40.89	▲ 1.460	▲ 1.580	▼ -12.420
Brent Crude	\$/Bbl	42.91	▲ 1.190	▲ 1.470	▼ -16.050
Fuel Oil, NY Harbour 1%	\$/Bbl	98.03	▲ 0.000	▲ 0.000	▲ 0.000
Heating Oil	cents/Gallon	117.05	▲ 1.340	▲ 6.320	▼ -77.010
Propane, Mt. Bel	cents/Gallon	0.52	▲ 0.009	▲ 0.032	▲ 0.061
Ethane, Mt. Bel	cents/Gallon	0.21	▲ 0.008	▲ 0.019	▲ 0.028
Coal, PRB	\$/MTon	12.30	▲ 0.000	▲ 0.000	▲ 0.100
Coal, ILB	\$/MTon	31.05	▲ 0.000	▲ 0.000	▼ -4.500