

Energy Market Watch

November 28, 2022

Market Commentary

Storage & Inventory

Natural Gas

Electricity

Trend Analysis

Market Commentary

Week of November 25, 2022

Natural gas advances on the first storage withdrawal of the season.

Electric and Natural Gas Market Drivers

Bullish – Market influences driving prices higher:

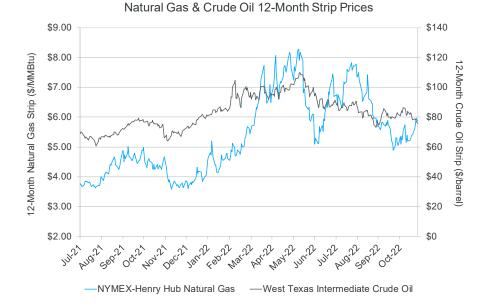
- ♠ Geopolitics
- Natural Gas Storage Report
- Natural Gas Production
- ♣ U.S. Dollar
- Economics

Bearish – Market influences driving prices lower:

Crude Oil

■ \\\\\\

Weather Forecast



Monday 11/21

The Dec-2022 NYMEX natural gas contract bounced 47.3 cents higher to \$6.776 per MMBtu on thin volumes during the holiday-shortened week and after wellhead freeze-offs due to cold temperatures reduced production by 2 Bcf per day. The Dec-2022 WTI crude oil contract closed and expired 35 cents lower at \$79.73 per barrel on demand concerns after China strengthened their coronavirus restrictions to combat the recent surge in cases. Equity markets dipped lower as investors turned a bit cautious on reports one railroad union rejected the proposed labor contract.

Tuesday 11/22

Natural gas inched 0.3 cents higher to \$6.779 even after updated weather forecasts trended a little warmer for the first week of December, which lowered heating demand expectations. The new prompt Jan-2023 WTl crude oil contract climbed 91 cents higher to \$80.95 after Saudi Arabia denied reports OPEC was planning to increase output and said the 2 million barrel per day cut would extend through 2023. Equities jumped higher as investors digested a batch of strong corporate earnings releases and positioned ahead of another round released after the bell.

Wednesday 11/23

Natural gas settled 52.9 cents higher at \$7.308 after the EIA reported an 80 Bcf withdrawal from storage, which widened the deficit compared to the 5-year average to 39 Bcf. Crude oil tumbled \$3.01 lower to end the session at \$77.94 on reports European Union ambassadors were considering setting a price cap on Russian oil exports between \$65 and \$70 per barrel. Equity markets pushed higher after new home sales jumped 7.5% during October, while initial jobless claims increased to 240,000.

Thursday 11/24

Markets were closed in observance of Thanksgiving Day.

Friday 11/25

When trading resumed, natural gas fell 28.4 cents to close at

\$7.024 as weather forecasts were bearish for heating demand in the major consuming regions for the first week of December. Crude shed \$1.66 to settle at \$76.28 as traders kept a close eye on China's response to rising coronavirus cases and the potential impact to oil imports. Equity markets were mostly higher on the day as investors cheered strong consumer spending on Black Friday.

Looking Ahead

With storage near normal levels, changes in the weather forecast will heavily influence the price of natural gas early in the withdrawal season.

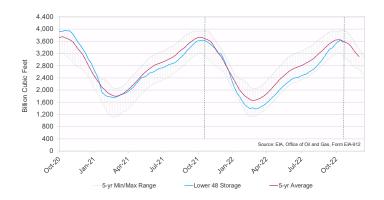
Market Commentary Storage & Inventory Natural Gas Electricity Trend Analysis November 28, 2022

Storage and Inventory

	Last Week Comparison				Historical Comparison				
	11/18/2022	11/11/2022	Change (incr/decr)		Same Period Last Year (11/18/2021)	Stocks over/ under Last Year	Same Period 5-Year Ave. (2017-2021)	Stocks over/ under 5-Yr Avg.	
Natural Gas in Storage (Bcf)	3,564	3,644	-80.0	•	-2.2%	3,626	-62.0	3,603	-39.0
Crude Oil Inventories (mbpd)	431.7	435.4	-3.7	•	-0.9%	434.0	-2.4	n/a	n/a

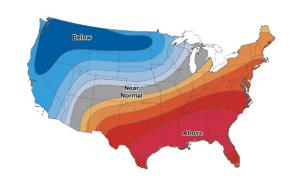
Working Gas in Underground Storage November 18, 2022

Note: The shaded area represents the range between the maximum and minimum values over the past 5 years. The blue line is the historic current level for the date on the x axis and the purple line is the 5-year average.



6-10 Day Weather Forecast November 27, 2022

The short-term weather forecast is calling for abovenormal temperatures to stretch from the Northeast to the Desert Southwest, with below-normal temperatures from the North Central to the West.



Natural Gas

UNITED STATES	Historical Comparison (US\$/MMBtu)					
NYMEX Contract:	11/25/2022	Last Week 11/18/2022	Last Month 10/25/2022	Last Year 11/26/2021		
Henry Hub Spot	\$6.570	7.70%	27.08 %	33.27 %		
Prompt Month: Dec 2022	\$7.024	1 1.44%	25.14 %	28.95 %		
12 Mth Strip (Dec22-Nov23)	\$5.859	8.44 %	10.38%	2 5.27%		
Winter Strip (Dec22-Mar23)	\$6.978	1 0.74%	1 4.12%	3 0.85%		
Summer Strip (Apr23-Oct23)	\$5.258	▲ 7.19%	9.47%	2 1.32%		
Next Winter Strip (Nov23-Mar24)	\$5.761	▲ 5.38%	▲ 6.91%	2 8.18%		
Cal '24 (Jan24-Dec24)	\$4.771	1.05%	▲ 3.36%	4 5.08%		

CANADA *Pricing in Canadian Dollars. Curre		Historical Comparison *(CAD\$/GJ)				
AECO:	11/25/2022	Last Week 11/18/2022	Last Month 10/25/2022	Last Year 11/26/2021		
Spot Price	\$5.353	3.04%	40.43%	9.26%		
Prompt Month: Dec 2022	\$4.613	• 0.95%	7.82%	6.88%		
12 Mth Strip (Dec22-Nov23)	\$3.701	1.08 %	2.12 %	12.01 %		

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Electricity

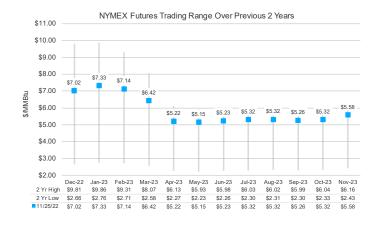
UNITED STATES	Current	Historical Comparison (US\$/MWh)					
Wholesale Electricity Prices:	11/25/2022	Last Week 11/18/2022		Last Month 10/25/2022		Last Year 11/26/2021	
ERCOT (Hub Avg.) - ATC							
Monthly Real-Time Avg: November 2022	\$37.02	•	13.77%	•	-16.55%	•	-7.92%
Prompt Month: Dec 2022	\$54.99	•	9.63%	•	28.59%	•	20.37%
12 Mth Strip (Dec22-Nov23)	\$59.54	•	3.14%	•	9.33%	•	21.18%
NY ISO (Zone J) - ATC							
Monthly Real-Time Avg: November 2022	\$58.98	•	27.86%	•	7.68%	•	9.75%
Prompt Month: Dec 2022	\$125.88	•	12.69%	•	99.11%	•	39.22%
12 Mth Strip (Dec22-Nov23)	\$97.17	•	14.74%	•	18.47%	•	43.37%
PJM (Western Hub) - ATC							
Monthly Real-Time Avg: November 2022	\$50.64	•	4.68%	•	-14.37%	•	-27.00%
Prompt Month: Dec 2022	\$88.48	•	-1.13%	•	38.34%	•	13.23%
12 Mth Strip (Dec22-Nov23)	\$76.06	•	3.82%	•	7.68%	•	33.91%
ISO-NE (SE MASS) - ATC							
Monthly Real-Time Avg: November 2022	\$67.95	•	42.48%	•	25.56%	•	27.59%
Prompt Month: Dec 2022	\$176.57	•	18.17%	•	138.90%	•	61.80%
12 Mth Strip (Dec22-Nov23)	\$115.85	•	13.77%	•	15.77%	•	47.68%
MISO (Indiana Hub) - ATC							
Monthly Real-Time Avg: November 2022	\$53.03	•	4.47%	•	-15.72%	•	-17.96%
Prompt Month: Dec 2022	\$83.42	•	1.71%	•	33.07%	•	8.44%
12 Mth Strip (Dec22-Nov23)	\$73.71	•	3.56%	•	5.97%	•	32.54%
PG&E (NP15 West) - ATC							
Monthly Real-Time Avg: November 2022	\$87.63	•	1.01%	•	18.98%	•	62.35%
Prompt Month: Dec 2022	\$129.75	•	36.49%	•	69.43%	•	63.81%
12 Mth Strip (Dec22-Nov23)	\$95.68	•	8.50%	•	14.95%	•	33.76%
CANADA *Pricing in Canadian Dollars.	Current	Historical Comparison *(CAD\$/MWh)					
Wholesale Electricity Prices:	11/25/2022	Last Week 11/18/2022		Last Month 10/25/2022		Last Year 11/26/2021	
AESO (Ave.) - ATC							
Rolling 30-Day Average	\$163.75	•	1.09%	*	-16.01%	•	66.38%
IESO (Ave.) - ATC							
Rolling 30-Day Average HOEP	\$33.76	•	0.89%	•	-21.13%	•	-5.52%

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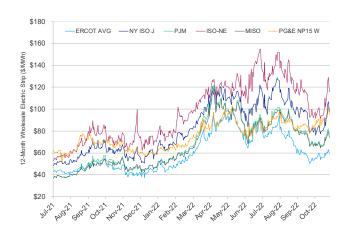
NYMEX Futures Trading Range

This graph represents the futures trading range of each NYMEX natural gas contract over the past two years. The high and the low for each month have been provided below, along with the current forward prices as of the market close on Nov. 25, 2022.



Electric ATC 12 Month Rolling Strips

This graph shows the historic trading range of the electric around-the-clock (ATC) 12-month rolling strip by Independent System Operator (ISO) region as of the market close on Nov. 25, 2022.



12-Month Rolling Strip

This chart presents the correlation between NYMEX natural gas and electricity's 12-month rolling forward pricing over the past two years.

12-Month Rolling Strip	ERCOT HZ	NY ISO J	РЈМ	ISO-NE	MISO	PG&E NP15
NYMEX Correlation	98.1%	98.0%	98.0%	95.5%	97.8%	93.6%

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