

Market Commentary

Week of March 10, 2023

Natural gas retreats on growing storage surplus.

Electric and Natural Gas Market Drivers

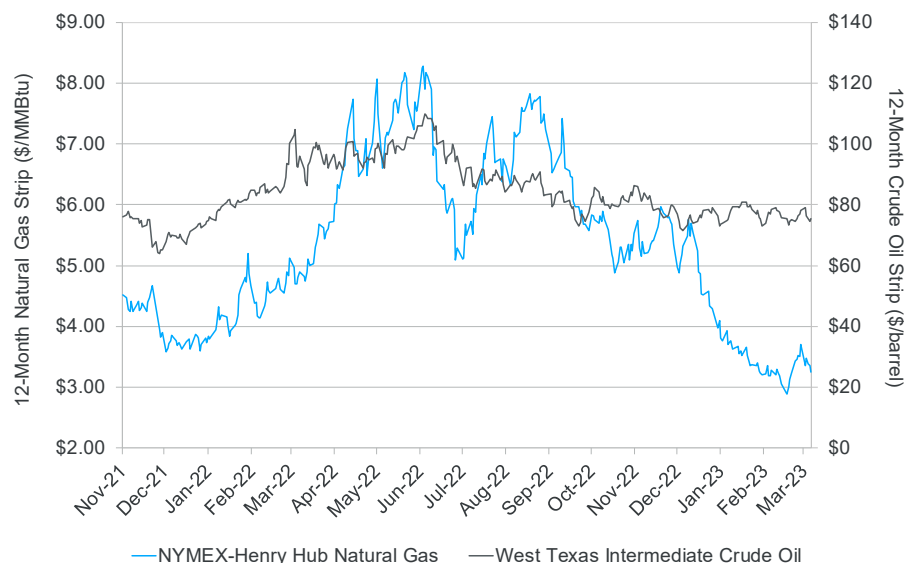
Bullish – Market influences driving prices higher:

- ▲ Geopolitics
- ▲ Natural Gas Production

Bearish – Market influences driving prices lower:

- ▼ U.S. Dollar
- ▼ Weather Forecast
- ▼ Natural Gas Storage Report
- ▼ Crude Oil
- ▼ Economics

Natural Gas & Crude Oil 12-Month Strip Prices



Monday 3/6

The Apr-2023 NYMEX natural gas contract tumbled 43.7 cents lower to \$2.572 per MMBtu after weather models downgraded the predicted cold for mid-March, which would likely maintain the healthy storage surplus heading into refill season. The Apr-2023 WTI crude oil contract climbed 78 cents higher to \$80.46 per barrel even after China lowered its forecast for economic growth this year to due to their lockdown policies. Equity markets were moderately higher as investors positioned ahead of Jerome Powell's testimony in front of Congress Tuesday.

Tuesday 3/7

Natural gas rebounded 11.5 cents to \$2.687 after finding support at the 20-day moving average with heating demand expectations

largely unchanged overnight.

Equities suffered major losses after Powell said the central bank would likely lift rates more than they expected to combat high inflation. Crude fell \$2.88 to \$77.58 on concerns rising interest rates would slow economic activity and reduce demand for the commodity.

Wednesday 3/8

Gas prices slid 13.6 cents lower \$2.551 ahead of the next day's storage report, which was expected to show a draw around 90 Bcf that would widen the surplus compared to last year and the 5-year average. Oil closed 92 cents lower at \$76.66 even after the EIA reported a 1.7-million-barrel decline in oil inventories. Equities were mixed on the day after Fed Chair Powell said the central bank was keeping its options open about future rate increases.

Thursday 3/9

Natural gas dipped 0.8 lower to \$2.543 after the EIA reported a below-normal 84 Bcf withdrawal from storage, which widened the surplus to the 5-year average to 359 Bcf. Crude oil extended recent losses as labor market and economic concerns overshadowed a weaker U.S. dollar. By day's end, the front-month contract settled 94 cents lower at \$75.72. Stocks traded in negative territory after the Labor Department reported a higher-than-expected 211,000 new claims for unemployment benefits.

Friday 3/10

Natural gas lost 11.3 cents to close at \$2.430 even after the Freeport LNG export facility received approval to start up its final train and resume full operations. Crude gained 96 cents to \$76.68 on reports OPEC and its producing allies pumped 80,000 barrels per day less in February than the month prior. Equities turned lower late in the session even after the Labor Department revealed a higher-than-expected 311,000 jobs were created during February.

Looking Ahead

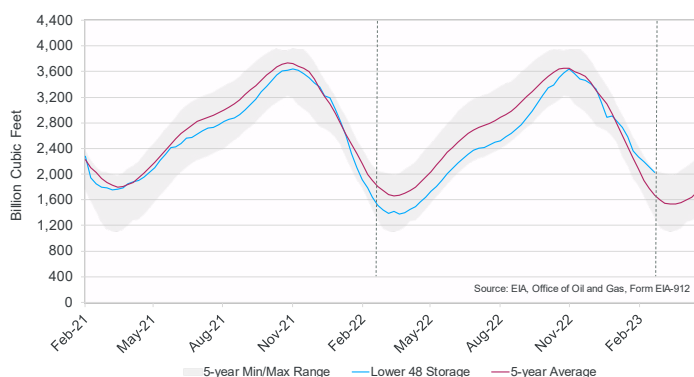
Energy prices will likely struggle to gain upside momentum unless weather forecasts advertise a colder pattern that will lead to stronger late-season heating demand.

Storage and Inventory

	Last Week Comparison			Historical Comparison			
	3/3/2023	2/24/2023	Change (incr/decr)	Same Period Last Year (3/3/2022)	Stocks over/ under Last Year	Same Period 5-Year Ave. (2018-2022)	Stocks over/ under 5-Yr Avg.
Natural Gas in Storage (Bcf)	2,030	2,114	-84.0 ▼ -4.0%	1,537	493.0	1,671	359.0
Crude Oil Inventories (mbpd)	478.5	480.2	-1.7 ▼ -0.3%	411.6	67.0	n/a	n/a

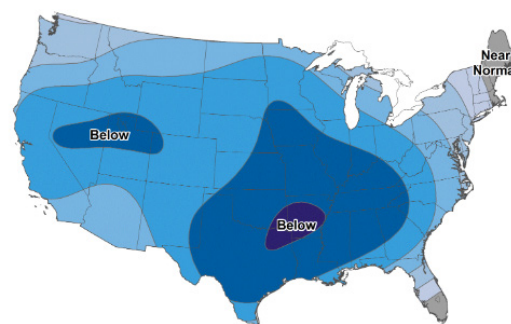
Working Gas in Underground Storage March 3, 2023

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 March 12, 2023

The short-term weather forecast is calling for below-normal temperatures to cover much of the country, with the highest probability of below-normal temperatures in the South.



Natural Gas

UNITED STATES		Current		Historical Comparison (US\$/MMBtu)		
NYMEX Contract:		3/10/2023		Last Week 3/3/2023	Last Month 2/10/2023	Last Year 3/10/2022
Henry Hub Spot	\$2.400		▼ -9.77%	▲ 1.27%	▼ -48.39%	
Prompt Month: Apr 2023	\$2.430		▼ -19.24%	▼ -3.34%	▼ -47.53%	
12 Mth Strip (Apr23-Mar24)	\$3.254		▼ -12.01%	▼ -0.70%	▼ -32.19%	
Summer Strip (Apr23-Oct23)	\$2.861		▼ -14.89%	▼ -4.42%	▼ -39.60%	
Winter Strip (Nov23-Mar24)	\$3.804		▼ -8.77%	▼ -2.60%	▼ -22.14%	
Next Summer Strip (Apr24-Oct24)	\$3.490		▼ -5.39%	▲ 3.84%	▼ -2.39%	
Cal '25 (Jan25-Dec25)	\$4.246		▲ 2.79%	▲ 9.57%	▲ 24.20%	

CANADA *Pricing in Canadian Dollars		Current		Historical Comparison *(CAD\$/GJ)		
AECO:		3/10/2023		Last Week 3/3/2023	Last Month 2/10/2023	Last Year 3/10/2022
Spot Price	\$3.101		▲ 1.03%	▼ -12.70%	▼ -31.93%	
Prompt Month: Apr 2023	\$1.853		▼ -24.42%	▼ -14.81%	▼ -47.38%	
12 Mth Strip (Apr23-Mar24)	\$2.163		▼ -17.00%	▼ -1.46%	▼ -39.85%	

Electricity

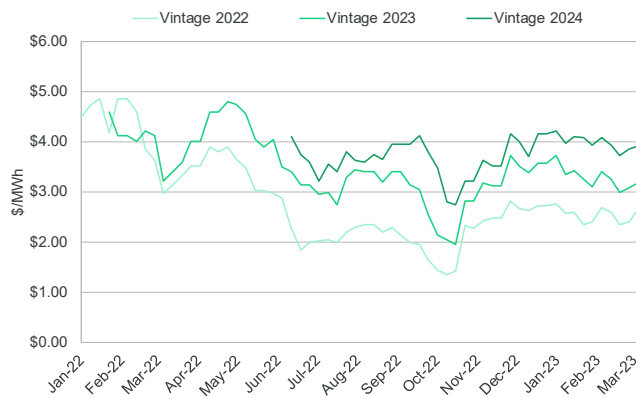
UNITED STATES	Current	Historical Comparison (US\$/MWh)			
Wholesale Electricity Prices:	3/10/2023	Last Week 3/3/2023	Last Month 2/10/2023	Last Year 3/10/2022	
ERCOT (Hub Avg.) - ATC					
Monthly Real-Time Avg: March 2023	\$25.33	▲ 11.81%	▲ 46.57%	▼ -20.05%	
Prompt Month: Apr 2023	\$27.40	▼ -8.67%	▼ -5.70%	▼ -41.68%	
12 Mth Strip (Apr23-Mar24)	\$43.05	▼ -4.21%	▲ 2.81%	▼ -13.77%	
NY ISO (Zone J) - ATC					
Monthly Real-Time Avg: March 2023	\$35.07	▼ -1.57%	▼ -51.87%	▼ -31.80%	
Prompt Month: Apr 2023	\$36.82	▼ -20.44%	▼ -20.51%	▼ -27.32%	
12 Mth Strip (Apr23-Mar24)	\$62.83	▼ -4.79%	▲ 4.36%	▼ -17.65%	
PJM (Western Hub) - ATC					
Monthly Real-Time Avg: March 2023	\$30.28	▼ -10.63%	▲ 10.90%	▼ -27.21%	
Prompt Month: Apr 2023	\$33.13	▼ -11.20%	▼ -8.35%	▼ -33.18%	
12 Mth Strip (Apr23-Mar24)	\$46.64	▼ -6.11%	▼ -0.42%	▼ -22.30%	
ISO-NE (SE MASS) - ATC					
Monthly Real-Time Avg: March 2023	\$37.76	▼ -16.38%	▼ -56.10%	▼ -45.37%	
Prompt Month: Apr 2023	\$41.50	▼ -18.87%	▼ -21.99%	▼ -18.66%	
12 Mth Strip (Apr23-Mar24)	\$70.08	▼ -5.24%	▲ 2.67%	▼ -24.46%	
MISO (Indiana Hub) - ATC					
Monthly Real-Time Avg: March 2023	\$30.95	▼ -8.70%	▲ 11.87%	▼ -29.18%	
Prompt Month: Apr 2023	\$35.31	▼ -12.12%	▼ -4.21%	▼ -29.80%	
12 Mth Strip (Apr23-Mar24)	\$46.84	▼ -6.30%	▲ 0.22%	▼ -20.13%	
PG&E (NP15 West) - ATC					
Monthly Real-Time Avg: March 2023	\$84.56	▲ 4.57%	▲ 35.03%	▲ 114.27%	
Prompt Month: Apr 2023	\$55.42	▼ -2.69%	▼ -4.17%	▲ 24.68%	
12 Mth Strip (Apr23-Mar24)	\$82.47	▲ 0.27%	▲ 9.61%	▲ 26.62%	
CANADA *Pricing in Canadian Dollars.	Current	Historical Comparison *(CAD\$/MWh)			
Wholesale Electricity Prices:	3/10/2023	Last Week 3/3/2023	Last Month 2/10/2023	Last Year 3/10/2022	
AESO (Ave.) - ATC					
Rolling 30-Day Average	\$165.46	▲ 31.07%	▲ 64.12%	▲ 56.21%	
IESO (Ave.) - ATC					
Rolling 30-Day Average HOEP	\$23.61	▲ 2.02%	▼ -14.59%	▼ -38.39%	

Renewables

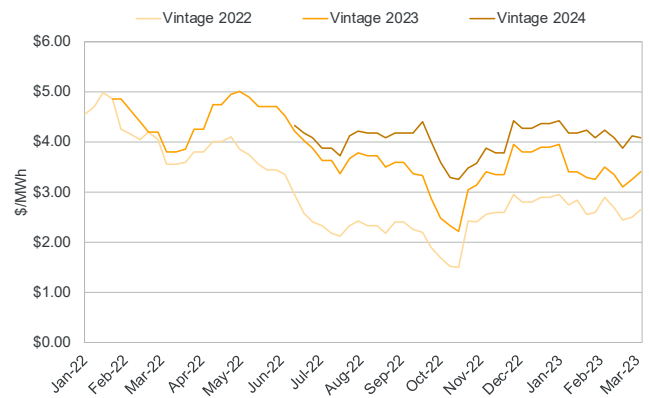
Industry Highlights

- The U.S. Department of Energy and the Environmental Protection Agency issued a joint agreement that outlines the framework for interagency cooperation on maintaining electric sector resource adequacy and reliability during the transition from fossil-fueled power plants. The EPA and DOE both play major roles in the creation of policy and the provision of funding and intend to consult regularly with FERC when carrying out activities laid out in the agreement. The agencies will meet on a semiannual basis to provide updates about policies, programs and activities pertaining to electric reliability, share information and analysis, and discuss ongoing monitoring and outreach activities. They will share information about modeling and analysis of electric power sector investments, operations, additions of new generating resources, changes in the utilization of existing generating resources and retirements of generating resources to identify any potential forthcoming reliability risks in advance.

Renewable GE National Wind REC Index
March 10, 2023



Renewable GE National Solar REC Index
March 10, 2023



Note: Renewable Energy Credits (RECs) are a market-based instrument that represents the property rights to the environmental, social, and other non-power attributes of renewable electricity generation. One REC is equal to one MWh of renewable energy generated and delivered to the grid. The various shades in the above charts refer to the vintage year the REC was produced.

Environmental Price Summary

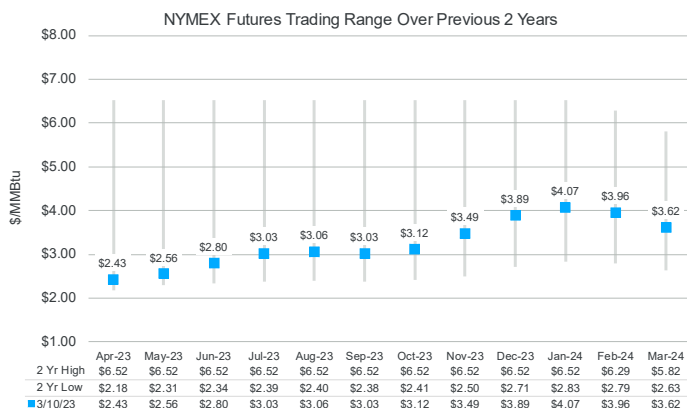
UNITED STATES		Historical Comparison (US\$/Credit)			
	Current				
Renewable Energy Credits	3/10/2023	Last Week 3/3/2023	Last Month 2/10/2023	Last Year 3/10/2022	
Connecticut Class I REC Index 2023	\$38.00	▲ 0.00%	▲ 0.00%	▲ 4.65%	
Maine Class I REC Index 2023	\$34.25	▲ 0.00%	▲ 3.38%	▲ 13.46%	
Maryland Tier I REC Index 2023	\$28.48	▲ 0.21%	▼ -2.93%	▲ 37.25%	
Massachusetts Class I REC Index 2023	\$38.00	▲ 0.00%	▲ 0.32%	▲ 5.01%	
New Jersey Class I REC Index 2023	\$28.65	▲ 0.60%	▼ -5.07%	▲ 38.16%	
Pennsylvania Tier I REC Index 2023	\$28.35	▲ 0.60%	▼ -4.48%	▲ 38.72%	
Texas Solar REC Index 2023	\$3.730	▲ 2.19%	▼ -6.75%	▼ -22.29%	
Texas Wind REC Index 2023	\$3.250	▲ 5.52%	▼ -4.13%	▼ -4.41%	

UNITED STATES		Historical Comparison (US\$/tonne or ton)			
	Current				
Carbon and RGGI Allowances	3/10/2023	Last Week 3/3/2023	Last Month 2/10/2023	Last Year 3/10/2022	
California Carbon Dec 2023 Vintage	\$31.21	▼ -0.03%	▲ 5.87%	▲ 12.96%	
RGGI CO2 Allowances Dec 2023 Vintage	\$13.20	▲ 0.38%	▲ 3.86%	▼ -2.58%	

Trend Analysis

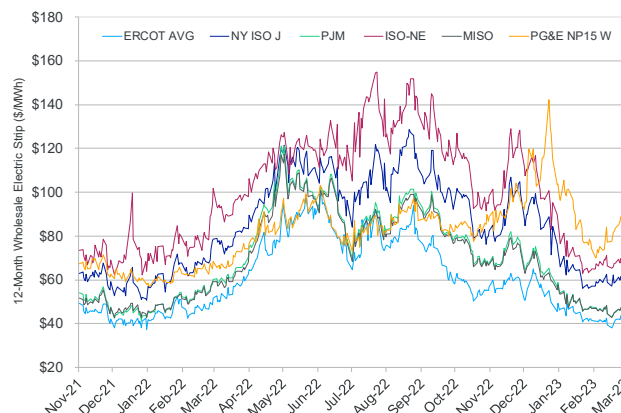
NYMEX Futures Trading Range

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 March 10, 2023.



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 March 10, 2023.



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	PJM	ISO-NE	MISO	PG&E NP15
NYMEX Correlation	96.8%	95.6%	96.5%	92.9%	96.2%	67.6%

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