

Highlights

- The month of October had weather that was 29 percent colder–than–normal October winter weather.
- Residential propane prices averaged 17 percent higher than the 2019/2020 heating season.
- Propane stocks were at 379,000 barrels at the beginning of the heating season (October 2020). The 379,000–barrel level was close to the upper boundary of the five–year range.
- Propane stocks ended the season (March 2021) below the five–year range.
- Residential heating oil prices averaged 11 percent lower than the 2019/2020 winter season.
- Distillate fuel stocks started the heating season (October 2020) at 553,000 barrels, which was below the five–year average and five–year range.
- Distillate fuel stocks ended the season (March 2021) equivalent to the barrels at the start of the season. The stocks were below the five–year average and below the five–year range with 556,000 barrels.

In October 2020, the Governor of Nebraska received notification from the U.S. Department of Energy's Energy Information Administration (EIA) that the Midwest's propane/propylene stocks had been below the five–year average for more than three consecutive weeks based on the latest EIA data.

Winter Recap

Although many factors were at play during the 2020/2021 winter heating season, there were three major issues that affected the supply and prices of heating oil and propane in the Midwest Region:

- On October 28, 2020, in accordance with the *Reliable Home Heating Act of 2014* (RHHA), Governor Ricketts was notified by Linda Capuano, Administrator of the U.S. Energy Information Administration (EIA), it had been determined that stocks of propane/propylene had been lower than the five-year average in the Midwest for the fourth week in a row. Higher prices resulted from lower stocks in the impacted states.
 - The RHHA requires EIA to notify governors of affected states when regional stocks of residential heating fuels (heating oil, natural gas, and propane) are lower than the most recent five-year average for more than three consecutive weeks. Because states use different sulfur specifications for heating oil, EIA uses total distillate fuel inventories to meet the requirements of the RHHA for heating oil.
- The severe winter storm (Winter Storm Uri) and a southward shift in the polar vortex which produced extremely cold temperatures in the central and midwestern United States from February 14 to 17, 2021. The severe cold increased demand of heating fuels, increased prices, and lowered stocks.
- The continuation of the pandemic which kept demand relatively high in the residential sector.

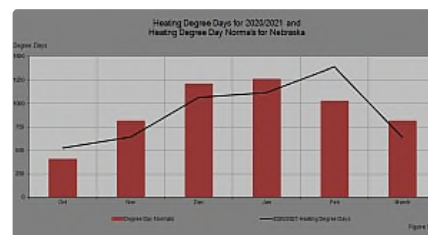


Fig 1: Heating Degree Days

The 2020/2021 winter heating season, as a whole, saw warmer–than–normal winter weather. Looking at individual months, October and February had colder–than–normal winter weather as reflected by Figure 1. In fact, February was very cold due to the Winter Storm Uri. The month was 35.8 percent colder than a February with normal winter weather in Nebraska.

The traditional heating season for both heating oil and propane is October through March. From October through March, Nebraska normally has 5520 heating degree days. For this period during the 2020/2021 winter season, Nebraska had 5384 heating degree days which indicates that the weather was 2.5 percent warmer than normal. In Figure 1, the bars represent the heating degree day results of normal winter weather for each month in Nebraska. The line represents the heating degree day results of the actual weather that the 2020/2021 winter season experienced. The lower the number of heating degree days, the warmer the weather, and the fewer days that Nebraskans had to heat their homes. October and February were colder than normal but the rest of the months show that they were warmer than normal.

As a result of the tight supply of propane/propylene in the Midwest Region, the average price of propane was 17 percent higher than last season. Propane prices are subject to both the volatility of the oil markets and natural gas production. Heating oil prices continue to be highly dependent on crude oil market movements. Heating oil prices were 11 percent lower than last winter's heating season due to the price of crude oil.

Purpose of Survey

The Nebraska Department of Environment and Energy (NDEE) collects residential prices of No. 2 heating oil and consumer-grade propane during the heating season (October to March) for the State Heating Oil and Propane Program (SHOPP). It is the only USDOE EIA survey that collects propane prices. The data are used by NDEE to monitor the prices of propane and heating oil during the winter season in an effort to maintain awareness of any price or supply irregularities that may be developing. The data is also used by policymakers, industry analysts, and consumers.

In December 2018, Congress endorsed a suite of major bipartisan data reforms for improved accessibility and protection for the data that government collects. The president enacted the provisions into law in January 2019. The USDOE EIA notified NDEE that anyone having access to the SHOPP survey and its results would need certification under the Confidential Information Protection and Statistical Efficiency Act (CIPSEA) each year. Nebraska staff were certified before the 2020/2021 heating season.

Residential Propane

[Figure 2 shows Nebraska's average retail propane price each week during the 2020/2021 heating season.](#)

Fig 2: Average Retail Propane Price

The price of propane is closely tied to the prices of crude oil and

natural gas. Normal winter weather can also put extra pressure on propane prices during a high-demand winter season since there are no readily available sources of increased supply except for imports. Canadian propane supply is always reviewed due to the panhandle of Nebraska relying on Canadian imports. Exports are also a cause for concern for many although, according to EIA, there is more propane than needed for domestic use. EIA data for the beginning of the winter season (October 2020) showed that October's export of propane and propylene was 1,207,000 barrels/day. This was 3 percent higher than October's exports in 2019 (1,168,000 barrels/day).

The average home heating charge price for delivery of consumer-grade propane, excluding taxes and cash discounts, in Nebraska for the 2020/2021 heating season was \$1.37 per gallon. This was a 17-percent increase from last season's average price at \$1.17.

For the 2020/2021 season, the average retail price of propane started at \$1.09 per gallon. The average price was relatively stable but steadily increasing from October through the first week in January. The second week in January saw a ten-cent jump in price. The third week saw another 14-cent jump in price. From that week through the first week in February, prices were stable. For the second week in February, the price rose seven cents and proceeded to jump each week until the price reached \$2.05 per gallon the last week in February. The price then dropped until the fourth week in March and finished the heating season in the fifth week of March at \$1.57 cents per gallon. This price was 48 cents higher than the price at the beginning of the heating season. Prices reported on the survey each week were dependent upon when a retailer bought a load of propane from their supplier. After buying a load of propane, the retail price would reflect the wholesale price paid. (See [Figure 2.](#))

The average propane price began the 2020/2021 heating season at \$1.09, two cents higher than the price of \$1.07 at the beginning of the last heating season. As shown in Figure 3, the average propane prices in the 2020/2021 season were relatively stable within the five-year range until January when the price started jumping until the price was above the five-year range and reached \$2.05 at the end of February. The price remained above the the five-year average, the five-year range, and last year's prices through March.

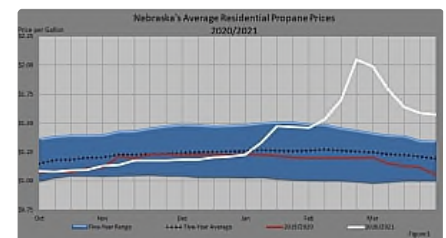


Fig 3: Retail Propane Price Comparisons

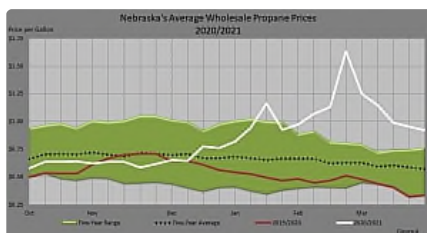


Fig 4: Wholesale Propane Price Comparison

The average wholesale propane price began the 2020/2021 heating season at 58 cents, which was eight cents higher than the price of 50 cents at the beginning of the last heating season. Average wholesale propane prices rose from October through mid-December and then jumped until reaching \$1.64 at the end of February. From there the price dropped 71 cents to the end of the heating season finishing at 92 cents per gallon. The price of 92 cents was 34 cents (59 percent) higher than the price at the beginning of the heating season (58 cents). As Figure 4 shows, the average price of wholesale propane stayed in the five-year range until mid-January, dropping back in for the last week of January, and then staying above the five-year range for the rest of the heating season. The average wholesale price was above last season's wholesale price until November, fell under last season's wholesale price until December and then stayed above the rest of the season. The wholesale price was under the five-year average until the third week of December when the price jumped above the five-year average and remained above for the rest of the season.

A comparison of average retail propane prices versus average wholesale propane prices in Figure 5 shows that retail prices during the 2020/2021 heating season ranged from a low of \$1.08 to a high of \$2.05, while wholesale prices ranged from a low of \$0.58 to a high of \$1.64. Retail prices are higher than wholesale prices since wholesale prices are a major component in retail prices. Retail prices also parallel wholesale prices due to this. Both retail and wholesale prices were relatively stable to mid-January and then more volatile until the end of the season. Both prices had a wide range between the high and low of the heating season. A wide range indicates volatility.

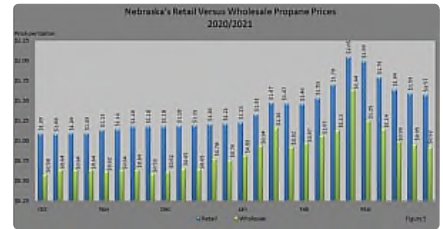


Fig 5: Avg Retail vs. Wholesale Propane Price Comparison

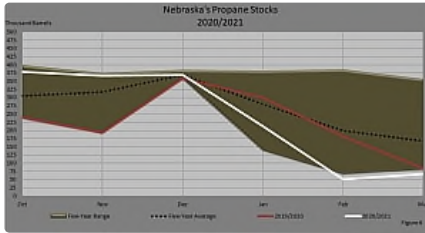


Fig 6: Retail Propane Stock Comparisons

According to EIA, Nebraska's total inventory of propane was 379,000 barrels at the beginning of the heating season in October 2020, which was 139,000 barrels (58 percent) above propane stocks one year earlier. Stocks started the season at the upper boundary of the five-year range but had dropped below by February and March. Stocks were above the five-year average until December when stocks fell below the five-year average. (Figure 6)

Residential Heating Oil

The [price of heating oil](#), being a petroleum product, is closely tied to the price of crude oil. Normal winter weather can also put extra pressure on heating oil prices during a high-demand winter season.

The average home heating charge price for delivery of No. 2 heating oil, excluding taxes and cash discounts, in Nebraska for the 2020/2021 heating season was \$2.00 per gallon. The season's average price fell 24 cents or 11 percent from last season's average of \$2.24.

Figure 7 shows that the average retail price of heating oil started the 2020/2021 season at \$1.62 per gallon. The price steadily increased from October through the third week of March. From then on, the price fell slightly for two weeks until the end of the heating season. The price finished at \$2.48 per gallon which was 86 cents (53 percent) higher than the price at the beginning of the season (\$1.62).

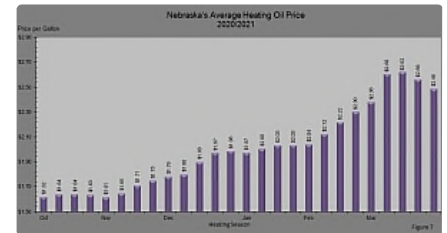


Fig 7: Average Retail Heating Oil Price

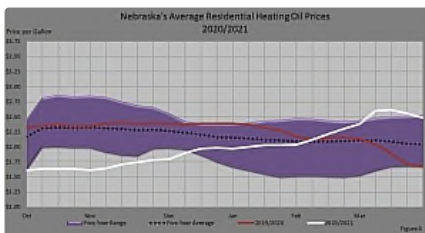


Fig 8: Retail Heating Oil Price Comparisons

The average heating oil price began the 2020/2021 heating season at 1.62 per gallon, 71 cents (30 percent) lower than the price of \$2.33 at the beginning of the last heating season. Average heating oil prices steadily increased from October through the third week of March, which was the majority of the season. The price then declined steadily for two weeks ending the heating season.

As Figure 8 shows, the average price of heating oil took a sizable drop from last year's price and the five-year average at the beginning of the heating season increasing until it crossed last year's price and the five-year average during the second week in February and stayed above both prices the rest of the season. The average price started below the five-year range until mid-December staying in the five-year range until the second week of March, rising above but then falling, to the upper boundary of the five-year range.

The average wholesale heating oil price began the 2020/2021 heating season below the five-year range and remained stable but steadily increasing until the second week of March when the price jumped above the five-year range to \$2.47. Through the end of March, the wholesale price declined and spent the last two weeks of the season at the upper boundary of the five-year range. As Figure 9 shows, average wholesale prices were below last year's prices and the five-year average until the prices caught up at the end of January and went above last year's prices and the five-year averages for the rest of the season. From the beginning of January, prices fell with a slight increase through February. The average price of wholesale heating oil started the heating season at \$1.22, which was 77 cents (39 percent) lower than the price of \$1.99 at the beginning of the last heating season. By the end of the heating season, Nebraska's average wholesale heating oil price was \$1.99, which was 77 cents (63 percent) higher than the price at the beginning of the heating season.

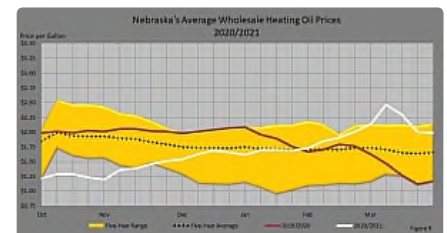


Fig 9: Wholesale Retail Heating Oil Price Comparisons

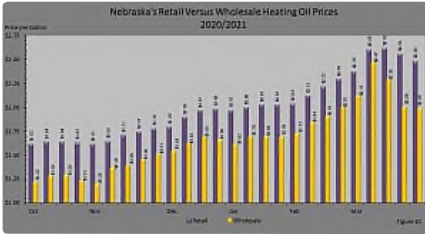


Fig 10: Retail vs. Wholesale Heating Oil Price Comparison

A comparison of retail heating oil prices and wholesale heating oil prices in Figure 10 shows that, during the 2020/2021 heating season, retail prices ranged from a low of \$1.61 to a high of \$2.62, while wholesale prices ranged from a low of \$1.20 to a high of \$2.47. Retail prices are higher than wholesale prices since wholesale prices are one component of retail prices. Retail prices also parallel wholesale prices due to this.

Figure 11 shows distillate stocks in Nebraska. Distillate stocks were in the range of 535,000 barrels to 846,000 barrels throughout the heating season. Stocks started the season below the five-year range, increasing from bottom to top of the five-year range in December but then decreasing back under the five-year range by March. Last season's stock levels and the five-year average were pretty much unattainable staying above this season's stock levels throughout the season.

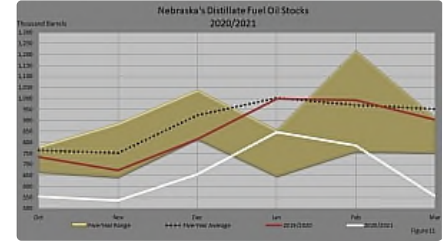


Fig 11: Distillate Stocks

Sources: *Heating Oil and Propane Update* <https://www.eia.gov/petroleum/heatingoilpropane/>. Energy Information Administration, Washington, DC.

Average Residential Propane Prices in Nebraska <https://neo.ne.gov/programs/stats/inf/86.html> and *Average Residential Heating Oil Prices in Nebraska* <https://neo.ne.gov/programs/stats/inf/87.html>. Nebraska Department of Environment and Energy, Lincoln, NE.

This report was completed September, 2021.