



Nebraska Department of Environment and
Energy
245 Fallbrook Blvd

State of Nebraska

Heating Oil and Propane Program
2021/2022 Winter Heating Season

P.O. Box 98922|Lincoln, NE 68509

Phone [\(402\) 471-2186](tel:402-471-2186)|Fax (402) 471-2909

SHOPP Links

On this page

[SHOPP 2022 Highlights](#)

[USDOE/EIA Notifications](#)

[Winter Recap](#)

[Purpose of Survey](#)

[Residential Propane](#)

[Residential Heating Oil](#)

[Slide deck 2022 SHOPP charts](#)

[Sources](#)

Related links

Residential Propane

[Prices](#)

[Wholesale Prices](#)

[Stocks](#) <https://www.eia.gov/dnav/pet/pet_stoc_st_dc_SNE_mbbj_m.htm>

Residential Heating Oil

[Prices](#)

[Wholesale Prices](#)

[Stocks](#) <https://www.eia.gov/dnav/pet/pet_stoc_st_dc_SNE_mbbj_m.htm>

Degree Days

[Degree Days](#)

SHOPP 2022 Highlights

- The month of October had weather that was 21 percent warmer–than–normal October winter weather.
- Residential propane prices averaged 52 percent higher than the 2020/2021 heating season.
- Propane stocks were at 363,000 barrels at the beginning of the heating season (October 2021). The 363,000–barrel level was close to the upper boundary of the five–year range.
- Propane stocks ended the season (March 2022) below the five–year range, which was a record low in the last decade.
- Residential heating oil prices averaged 54 percent higher than the 2020/2021 winter season.
- Distillate fuel stocks started the heating season (October 2021) at 817,000 barrels, which was near the upper boundary of the five–year range.
- Distillate fuel stocks ended the season (March 2022) below the five–year range, which was a record low in the last decade.

[Slide deck of this year's charts](#)

USDOE/EIA Notifications

- In January 2022, the Governor of Nebraska received notification from the U.S. Department of Energy's Energy Information Administration (EIA) that the Midwest's distillate (including heating oil) stocks had been below the five-year average for more

than three consecutive weeks based on the latest EIA data.

- In April 2022, the Governor of Nebraska received notification from the U.S. Department of Energy's 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

This winter season consisted of high energy prices for propane and heating oil in Nebraska and low stocks of both fuels in the Midwest. Nebraska's propane and heating oil stocks fell to record lows by the end of winter. There was warmer-than-normal winter weather from October through December and normal winter weather from January through March.

Propane and heating oil are used for many things. Propane is used for home and water heating, cooking and refrigerating food, and clothes drying. Propane also heats livestock barns and watering tanks. Propane is used to dry crops when there's been too much precipitation during harvest. The chemical industry uses propylene as a raw material for making plastics and other compounds and is competition for propane users. Heating oil is used for home and water heating. Heating oil is dyed red to indicate that it's not legal to burn in a diesel vehicle. (The red dye indicates that there are no road taxes paid.) Red dye diesel fuels machinery and off-road vehicles on construction sites, farms, and ranches. Each year, there are variables that put pressure on propane and heating oil prices and stocks.

Variables impacting prices

This year, the following variables impacted propane and heating oil prices and stocks:

- Crude oil price
- Natural gas price
- Summer build
- Stocks in Conway, Kansas, and Mt. Belvieu, Texas
- Geopolitical issues
- Canadian imports
- Organization of the Petroleum Exporting Countries (OPEC)
- Rig count
- Petrochemical plants
- Propane exports
- Weather
- Region's low stocks

Price summaries

Crude Oil Price. The price of West Intermediate Texas crude oil fell during the fall of 2021 from \$81.48 per barrel to \$71.71 but jumped in the spring from \$83.22 to \$108.50 per barrel.

Natural Gas Price. Natural gas prices followed the same pattern as crude oil—at the Henry Hub, in October the price was \$5.58 per million Btu falling to \$3.72 at the end of December and starting 2022 at \$3.58 and ending the winter season at \$5.48. Prices fell in the start of the winter probably because of the weather and wholesale prices.

Production, Stock & Imports

Summer Build. Companies weren't building propane and heating oil stocks during summer 2021 due to backwardation at the end of the 2020-2021 season. Simply, backwardation is when the price is high but is expected to be low in the near future.

Conway, Kansas, and Mt. Belvieu, Texas, Stocks. Low propane stocks at the Kansas and Texas hubs in mid-August were due to robust exports from the Gulf Coast (stocks weren't high enough for that time of year).

Geopolitical. The invasion of the Ukraine by Russia began on February 24, 2022. Sanctions on crude oil by the United States began on February 28, 2022. The impact on crude oil imports was minimal. Imports from Russia comprise only 3.5 percent of the crude oil imports to the United States although prices of crude oil still increased during this time.

Canadian Imports. According to the EIA, "U.S. imports of propane from Canada have decreased this year because producers in Canada have developed new export outlets where propane can be exported directly to major importers in the Pacific Basin by tanker". Nebraska's panhandle diversifies the different locations they get propane from so that they don't totally depend on Canadian propane.

The Organization of the Petroleum Exporting Countries (OPEC). OPEC's actions are also a factor. For example, OPEC had planned an increase in output, and before its October 4 meeting, oil prices fell because it was anticipated OPEC might increase the output further to ease supply concerns. However, OPEC members agreed to continue with its increase as planned and no more. After the OPEC meeting, oil prices reached a seven-year high. This had an impact on fuel prices across the globe.

Rig Count. Drilling activity is a factor. The higher the number of rigs, the higher production is. The impact of higher rig counts is lower prices. There were 670 rigs in March 2022, an increase of 142 rigs or 27 percent of rigs (528) increased to March 2022 (670). It is said that U.S. oil output has nearly recovered to pre-pandemic days.

Petrochemical Plants. There is strong demand from petrochemical plants for propane/propylene. The demand from these plants competes with residential demand. For the Midwest Region, propane/propylene stocks were expected to be below the five-year range throughout the winter.

Exports and other considerations

Propane Exports. Exports of propane have always been a concern. Exports have increased although the U.S. produces more than can be used domestically. The U.S. also doesn't have enough storage space to hold all that is produced. More overseas facilities were built and networks expanded overseas due to more available propane from the U.S. The international buyers were paying almost any price so propane prices were high. High fuel prices in global markets provided incentive to continue exporting propane.

Weather. Warmer-than-normal weather from October to December was especially good timing since Midwest propane and heating oil inventories were not high enough going into winter.

Notification of Low Stocks

Notification of the Region's Low Stocks. On January 11, 2022, in accordance with the *Reliable Home Heating Act of 2014* (RHHA), Governor Ricketts was notified by Stephen Nalley, Acting Administrator of the U.S. Energy Information Administration (EIA), it had been determined that stocks of distillate (including heating oil) had been lower than the five-year average in the Midwest for the fourth week in a row. On April 1, 2022, Governor Ricketts was again notified by EIA, but this time for propane/propylene. The latest EIA data showed that for more than three consecutive weeks, propane/propylene stocks were lower than the five-year average.

- 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 2021/2022 winter heating season, as a whole, saw warmer-than-normal winter weather. The traditional heating season for both heating oil and propane is October through March. For this period, Nebraska normally has 5520 heating degree days. From October through March during the 2021/2022 winter season, Nebraska had 5037 heating degree days which indicates that the weather was 9 percent warmer than normal.

Looking at individual months, It was warmer-than-normal winter weather from October to December and normal winter weather from January to March as reflected by Figure 1. The bars in Figure 1 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 2021/2022 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.

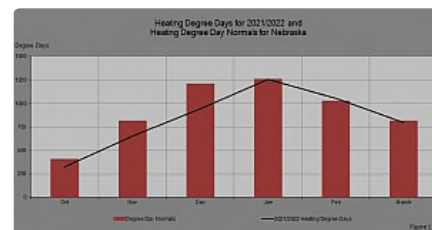


Fig 1: Heating Degree Days

The average price of propane was 52 percent higher than last season since 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 54 percent higher than last winter's heating season due to the price and supply 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.

Residential Propane

The [price of propane](#) is closely tied to the prices of crude oil and natural gas. 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 2021) showed that October's export of propane and propylene was 1,250,000 barrels/day. This was 7 percent higher than October's exports in 2020 (1,172,000 barrels/day).

The average home heating charge price for delivery of consumer-grade propane, excluding taxes and cash discounts, in Nebraska for the 2021/2022 heating season was \$2.08 per gallon. This was a 71-cent (or 52-percent) jump from last season's average price at \$1.37.

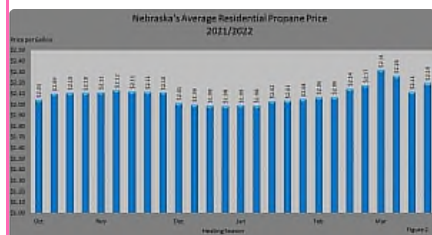


Fig 2: Average Retail Propane Price

For the 2021/2022 season, the average retail price of propane started at \$2.03 per gallon. The average price was relatively stable until March. The first week in March saw a 14-cent jump in price. The second week saw a five-cent fall. The third week saw a drop of 16 cents, and the fourth week's price rose 8 cents. The fourth week, or the end of the season, had a price of \$2.19 per gallon. This price was 16 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 2021/2022 heating season at \$2.03, 94 cents (or 86 percent) higher than the price of \$1.09 at the beginning of the last heating season. As shown in Figure 3, the average propane prices in the 2021/2022 season were relatively stable but considerably above the five-year range, the five-year average, and last year's prices.

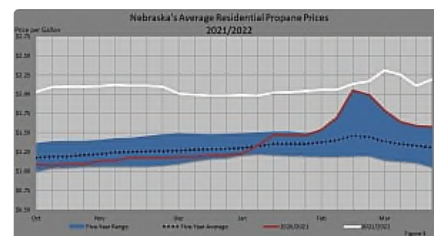


Fig 3: Retail Propane Price Comparisons

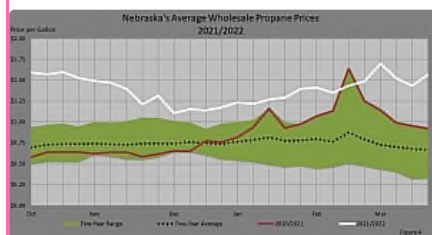


Fig 4: Wholesale Propane Price Comparison

The average wholesale propane price began the 2021/2022 heating season at \$1.59, which was \$1.01 higher than the price of 58 cents at the beginning of the last heating season. As Figure 4 shows, average wholesale propane prices were relatively unstable while staying above the five-year range, the five-year average, and last year's prices throughout the season. The wholesale price ended the season at \$1.56 which was three cents below the price at the beginning of the season (\$1.59).

A comparison of average retail propane prices versus average wholesale propane prices in Figure 5 shows that retail prices during the 2021/2022 heating season ranged from a low of \$1.98 to a high of \$2.31, while wholesale prices ranged from a low of \$1.11 to a high of \$1.70. Retail prices were relatively stable while the wholesale prices were more volatile.

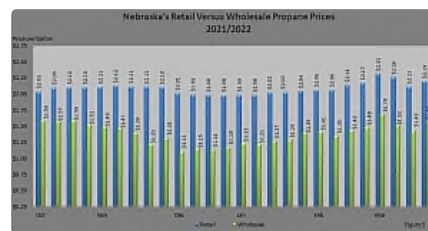


Fig 5: Avg Retail vs. Wholesale Propane Price Comparison

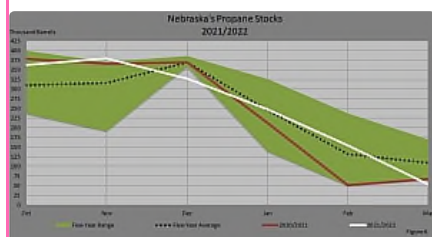


Fig 6: Retail Propane Stock Comparisons

According to EIA, Nebraska's total inventory of propane was 363,000 barrels at the beginning of the heating season in October 2021, which was 16,000 barrels (four percent) below propane stocks one year earlier. Stocks started the season at the upper boundary of the five-year range and steadily decreased through the heating season, for the majority of the time, but staying in the five-year range. Stocks ended the heating season at 54,000 barrels which was a record low in the last ten years. (Figure 6)

Residential Heating Oil

The [price of heating oil](#), being a petroleum product, is closely tied to the price of crude oil. In the fourth quarter of 2021, the price of Brent crude oil, the international pricing benchmark, averaged \$79 per barrel. In 2021, withdrawals from global petroleum inventories averaged 1.4 million barrels per day and contributed to higher crude oil prices. These inventory draws resulted from petroleum consumption returning faster than petroleum production after the COVID-19 pandemic began in 2020. In the first quarter of 2022, the price of Brent crude oil increased following the further invasion of Ukraine by Russia. Sanctions on Russia was just one of the events that contributed to falling oil production in Russia and created significant market uncertainties above the potential for oil supply disruptions. These events occurred against a backdrop of low oil inventories and persistent upward oil price pressures. Heating oil prices were forecast to be higher due to higher crude oil prices and wholesale margins.

The average home heating charge price for delivery of No. 2 heating oil, excluding taxes and cash discounts, in Nebraska for the 2021/2022 heating season was \$3.07 per gallon. The season's average price jumped \$1.07 (or 54 percent) from last season's average of \$2.00.

Figure 7 shows that the average retail price of heating oil started the 2021/2022 season at \$2.83 per gallon, \$1.21 (75 percent) higher than the price of \$1.62 at the beginning of the last heating season. Average heating oil prices were relatively stable until March. The price then jumped 58 cents per gallon the first week, jumped 17 cents the second week, had no change for the third week, and jumped 26 cents the fourth week ending the heating season at \$4.26. The price of \$4.26 per gallon was \$1.43 (51 percent) higher than the price at the beginning of the season (\$2.83).

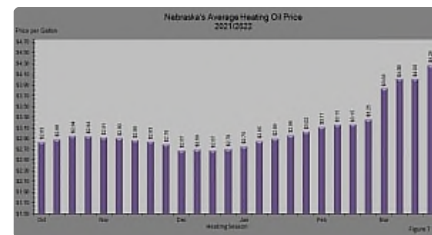


Fig 7: Average Retail Heating Oil Price

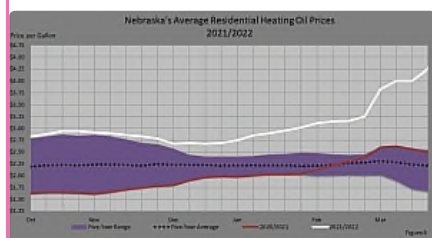


Fig 8: Retail Heating Oil Price Comparisons

As Figure 8 shows, the average price of heating oil took a sizable increase from last year's price and the five-year average at the beginning of the heating season. The average price started above the five-year range and continued to rise above the five-year range ending the season an estimated \$1.76 above the five-year range.

The average wholesale heating oil price began the 2021/2022 heating season at \$2.55 per gallon, \$1.33 (over 100 percent) higher than the price of \$1.22 at the beginning of the last heating season. Average wholesale heating oil prices were relatively stable until the end of February. The price then jumped 87 cents per gallon the first week, dropped 23 cents the second week, jumped 20 cents for the third week, and jumped 28 cents the fourth week ending the heating season at \$4.07.

As Figure 9 shows, the average wholesale price of heating oil took a sizable increase from last year's price and the five-year average at the beginning of the heating season. The average wholesale price started above the five-year range and continued to rise above the five-year range ending the season an estimated \$1.85 above the five-year range.

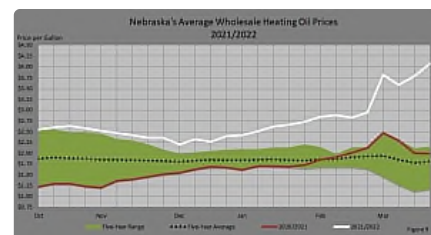


Fig 9: Wholesale Retail Heating Oil Price Comparisons

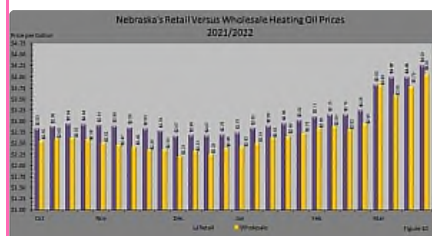


Fig 10: Retail vs. Wholesale Heating Oil Price Comparison

A comparison of retail heating oil prices and wholesale heating oil prices in Figure 10 shows that, during the 2021/2022 heating season, retail prices ranged from a low of \$2.67 to a high of \$4.26, while wholesale prices ranged from a low of \$2.21 to a high of \$4.07.

According to EIA, Nebraska's total inventory of distillate fuel was 817,000 barrels at the beginning of the heating season in October 2021, which was 264,000 barrels (48 percent) above distillate fuel stocks one year earlier. Stocks started the season above the five-year average but were below the five-year average from November to March. Stocks ended the heating season at 474,000 barrels which was a record low in the last ten years. (Figure 11)

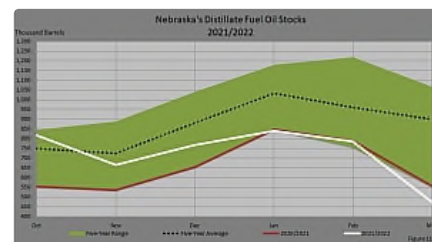


Fig 11: Distillate Stocks

Sources: "High global demand, low global supply contribute to rising U.S. propane spot prices" <<https://www.eia.gov/todayinenergy/detail.php?id=49716>>, Today in Energy, Energy Information Administration, Washington, DC.

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.