

# How To Hedge Ultra Low Sulfur Diesel Fuel



# Introduction

Market volatility is on the rise, and businesses everywhere are looking for methods to level out the uncertainty and make sure they can keep operating. When it comes to fuel prices, this is especially true.

Governments around the world are cracking down on carbon emissions. For example, The United States has set a goal to reach 100 percent carbon pollution-free electricity by 2035 and many more countries are following suit, as global warming is reaching unprecedented and dangerous levels.

That has a direct effect on the supply and demand of all fuels, including refined products like Ultra Low Sulfur Diesel (ULSD). Since this type of fuel is of particular importance to everyday diesel consumers, it's critical for distributors to have hedging positions in place to help offset any volatility spikes.

Let's discuss the ULSD market and how it can be hedged to support your business.



# What is ULSD?

ULSD, as we mentioned, is Ultra-Low-Sulfur Diesel fuel. It's technically defined as a diesel fuel with a maximum sulfur content of 15 parts per million (PPM).

This is the type of fuel you may see used in a diesel pickup truck on the freeway or in the 18-wheeler carrying Amazon packages from the distribution center to your house. The market is absolutely enormous.

## What Industries use ULSD?

ULSD has been used in North America, including Mexico, since 2006 and in Europe since 2005. This was a big step toward limiting carbon emissions, as the exhaust output of harmful matter was nearly zero when it was tested in labs.

While the use of diesel fuel in smaller vehicles is relatively low in North America, nearly all freight carriers in North America consume it. ULSD is also used in locomotives and smaller marine vehicles, though larger marine vessels use different types of fuel oil.



# What Factors Affect the Price of ULSD?

One of the largest expenses that go into the cost of shipping across the country is the price of fuel. If ULSD experiences a huge spike in price, the trucking companies would need to make some big changes to their pricing to offset the losses in costs, unless they have a proper hedge in place to help them mitigate the price increase.

The factors that affect the price of all types of oil and gas products also applies to ULSD.

Some of the most important variables that could cause price volatility are:

- **Price of Crude Oil:** This is obvious, but ULSD is a byproduct of refining crude oil. When the price of crude oil goes up or down, ULSD will see a similar or greater change. **ULSD represents roughly 25% of each barrel of crude oil that gets refined.**
- **Weather:** Adverse weather can affect prices due to the shutting down of refining plants, which ultimately decreases available storage of ULSD. Most of the refineries are in or around the US Gulf coast (Texas, Louisiana, etc.) which can be areas prone to be affected by hurricanes.

Terminals that transfer land based ULSD to oil tankers may also get shut down by weather, limiting international supply as well.

- **Geopolitical Changes:** As mentioned earlier, governments in North America and Europe have banded together to require ULSD be used instead of higher sulfur fuels. Government regulations tend to affect fuel prices over time, but the changes are lasting.
- **Production:** Sometimes, refineries shut down for other reasons, possibly equipment failure, fire, or other reasons. When production is affected negatively, prices of ULSD will rise as supply tightens.

# Who Needs to Hedge ULSD?

The supply side of the ULSD market actively hedges prices of all products. This would be the refineries and oil and gas companies who sell ULSD to consumers.

We mentioned this earlier, but trucking companies would be the ones to benefit most from implementing hedging positions in the ULSD market.

The other major users of diesel fuel would be freight trains, which are extraordinarily fuel efficient compared to highway transportation.

Airlines are another example of companies that could also benefit from hedging ULSD prices. This may seem odd at first, however, jet fuel, a key component to their operations, can contain ULSD, so they can utilize this underlying asset to hedge jet fuel prices.

Jet fuel is only one example of a crude oil derivative that can be hedged using one of the primary benchmarks in the market (ULSD, in this case). However, there are other benchmarks that can be used to hedge other crude oil derivatives (RBOB for gasoil, for example).

# Why Is Hedging ULSD Useful?

The idea of hedging has nothing to do with hedge funds. This goes back to the definition of hedging, which is a position in a financial instrument that is taken for the purpose of reducing potential impact of future price volatility in a given market.

When it comes to major ULSD consumers, the idea is to hedge ULSD prices to mostly or fully guarantee that a certain price holds throughout business planning. This reduces the likelihood that price swings will affect business operations.

**CME**  
Chicago Mercantile Exchange

# Which Instruments Can Be Used to Hedge ULSD?

ULSD can be hedged primarily in the **futures market**. More specifically, the futures contract used to hedge ULSD is the NY Harbor ULSD contract.

Those wishing to hedge ULSD for their business' needs can also use alternative indices, like **ULSD Gulf Coast**, which given the lack of liquidity in the exchanges, will have to be hedged through financial institutions or swap dealers with capabilities of executing transactions over-the-counter (OTC).

# What Strategies Are Used to Hedge ULSD?

In the futures market, contracts for ULSD NY Harbor expire every month, so the hedge would be placed in the expiration month desired. We'll have an example in a later section.

The hedge is executed by buying a contract in the current month, then selling it back at the end of the expiration month. The difference between the purchase price and the selling price of the contract results in the price offset to your business' ULSD expenses.

Options work differently, though offer no less of an effective hedge. Options give the holder the right, but not the obligation, to buy or sell at a specified price, in exchange for a premium (initial cost).

With the premium, although you must pay the money upfront (unlike futures, where there are no premiums) you acquire the flexibility of having a right to execute, only when the position is beneficial to you. With option contracts, your financial loss is limited to what you pay for the premium.

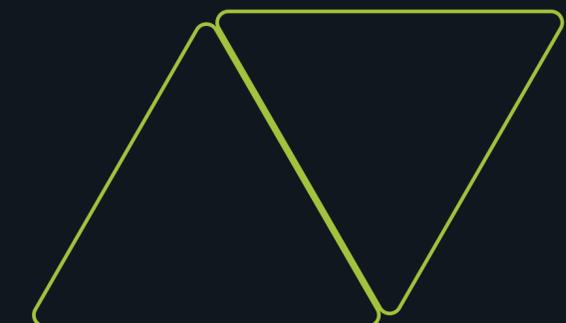
There are many strategies that can be applied and be very effective; it all comes down to the business' risk profile. Also, derivatives can seem overwhelming and get extremely complicated, so it's important to reach out for assistance when planning to implement a hedge to help your business. **There are companies that both offer guidance and manage hedged positions for their clients.**



# What Historical Events Show the Benefits of Hedging?

The Covid-19 pandemic is a primary example of an event that is out of our control, which can cause extreme volatility in financial markets. Demand across the globe hit catastrophic lows as economies were practically halted for weeks, causing wild fluctuations in stocks, commodities, and other assets.

Oil and gas companies are just one example of an industry which could have benefited from having an effective hedge, as thousands of businesses closed due, in part, to not having the proper risk management strategies in place.



# Example: Commercial Hedging with Futures

Let's say that a trucking company wants to lock in a price for ULSD for the quarter starting in July and ending in September using the futures market.

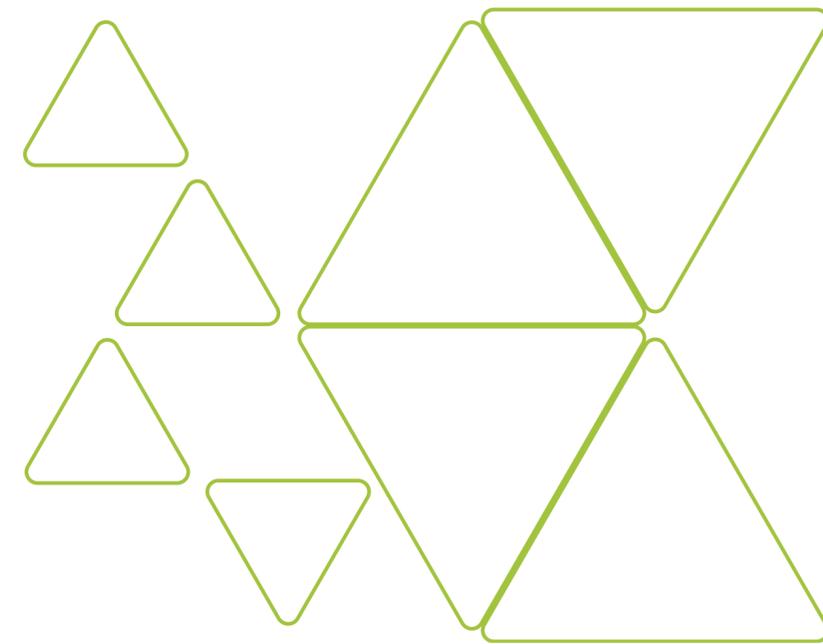
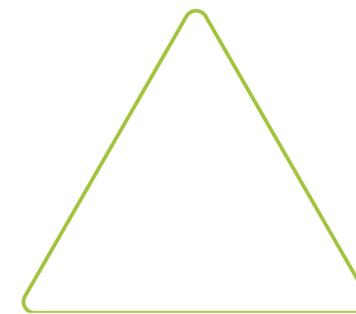
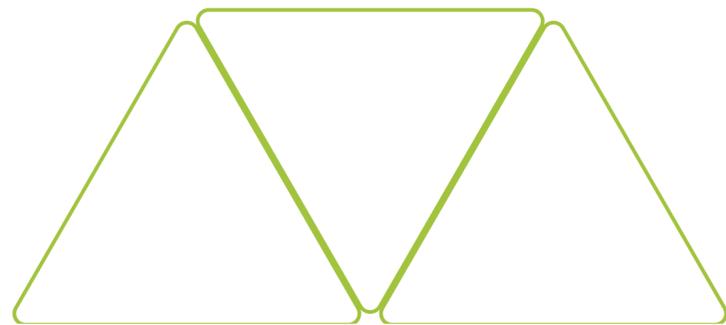
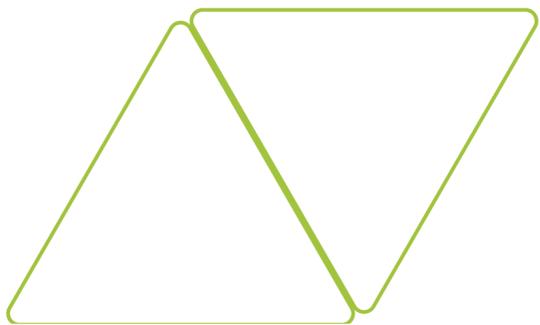
If they need to hedge 840,000 gallons of consumption expected over the quarter, this will result in 20 futures contracts for the position since each contract represents 42,000 gallons.



The contract is purchased on the CME NY Harbor market at \$2.0250 per gallon.

The contract expiration in September arrives, and the current price is now \$2.2500 per gallon. This means that the futures position would show a profit of \$0.225 per gallon. Total profit on the position would be \$189,000 USD. Total business expenses on ULSD would also rise by \$189,000 USD, however the profit gained on the futures would help bring net expenses to \$0 USD.

If the price of ULSD decreases to \$1.800 per gallon, then the futures position would show a loss of \$189,000. However, your business expenses on fuel would be decreased by the same amount as well. This illustrates how hedging is not a means of getting some extra profit, rather a way to help keep volatility in check regarding business expenses, allowing for better forward planning as a result.



# Example: Commercial Hedging with Options

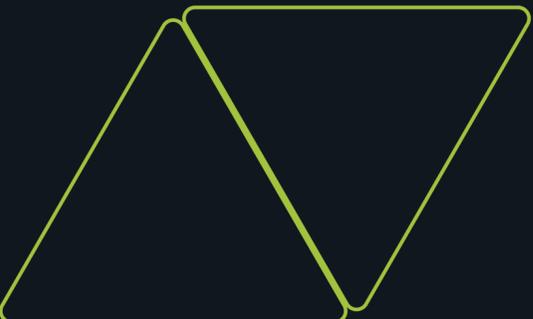
Let's look at a different way the company from the last example could've hedged their position.

As mentioned before, options are an alternative instrument that can also be used to hedge an underlying asset (in this case ULSD). While options require an upfront premium payment, they provide a greater flexibility than futures.

Utilizing the same conditions and contract specs as the earlier example, the company would use call options on the NY Harbor ULSD to hedge its prices. Call options give the holder the right to buy an underlying asset at a certain price and expiration, which in result are used to hedge price increases.

Let's say the current price of NY Harbor ULSD is \$2.000/gallon, and the company wants to buy a call option at a \$2.250 strike price for \$0.04 per gallon (the premium), to hedge 840,000 gallons. The total cost on this position would be \$33,600 (42,000 gallons per contract \* 20 contracts \* \$0.04/gallon premium).

If the price of ULSD drops to \$1.800 per gallon, then the loss on the position would be \$33,600 (the cost of the premiums), allowing the company to benefit, in large part, from the expense decrease of \$168,000 USD.



On the other hand, if the price of ULSD shoots up to \$3.000 per gallon in an unexpected decrease in supply, then the profit on the position would be \$0.75 per gallon (\$3.000 price of underlying - \$2.250 strike price). This would result in a profit on the position of \$630,000 USD at expiration, which would offset their expense loss of \$840,000 USD, derived from the 50% increase in price.

As we can see, options give greater flexibility than futures when the position is against the holder. However, when the position is beneficial to the holder, futures tend to outperform options, as there is no premium involved.

Both instruments have their pros and cons, and not one is better than the other, so think about what's important to your company before deciding on either one to implement a strategy.



# Final Thoughts:

Hedging is an important tool, especially in those industries affected by volatile fuel markets. With some help, an effective hedge can level out the volatility that could derail business plans in the short or long term.



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