

Natural Gas Hedging Overview

Board of Utilities Commissioners
February 2, 2023

Futures Market

- The futures market is based upon the perceived future cost of natural gas at Henry Hub, located in Louisiana
- Henry Hub is the pricing point for natural gas futures on the New York Mercantile Exchange
- The settlement prices at Henry Hub are used as benchmarks for the entire North American natural gas market
- The Henry Hub price can be much different than the California border price due to regional factors including pipeline transportation and supply/demand factors

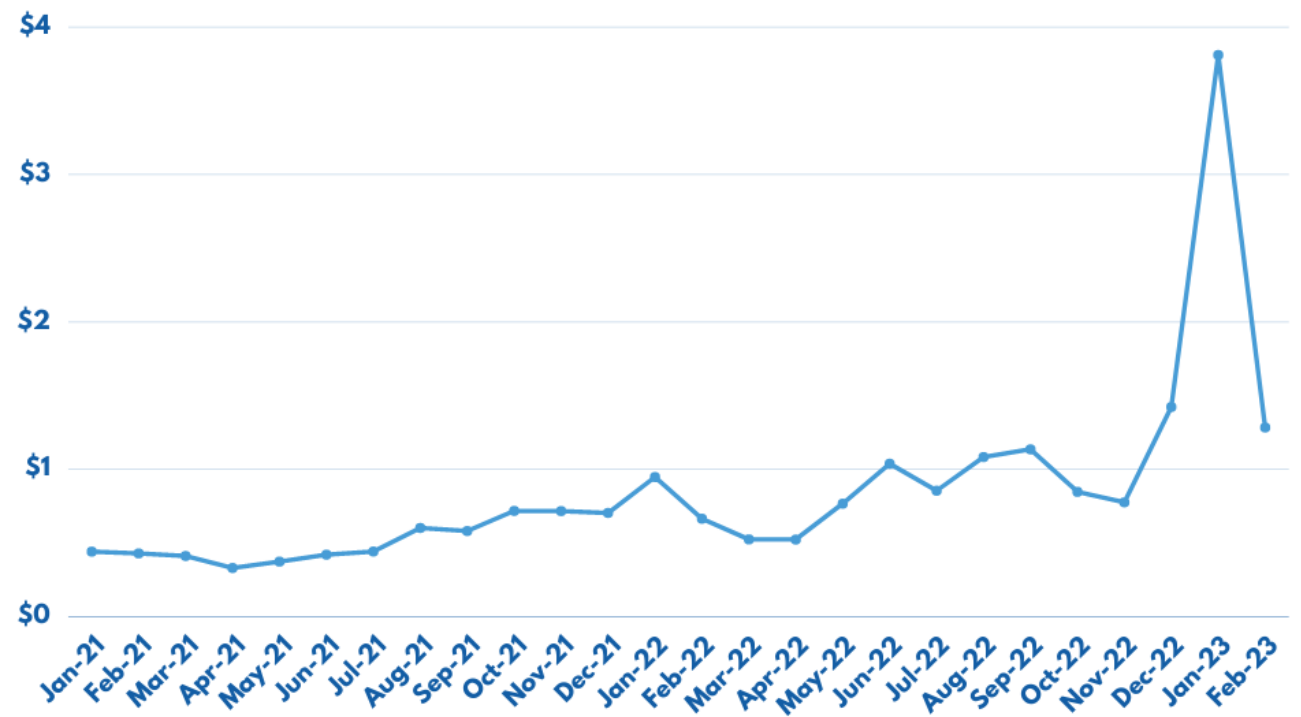
Futures Market



Gas Commodity Volatility

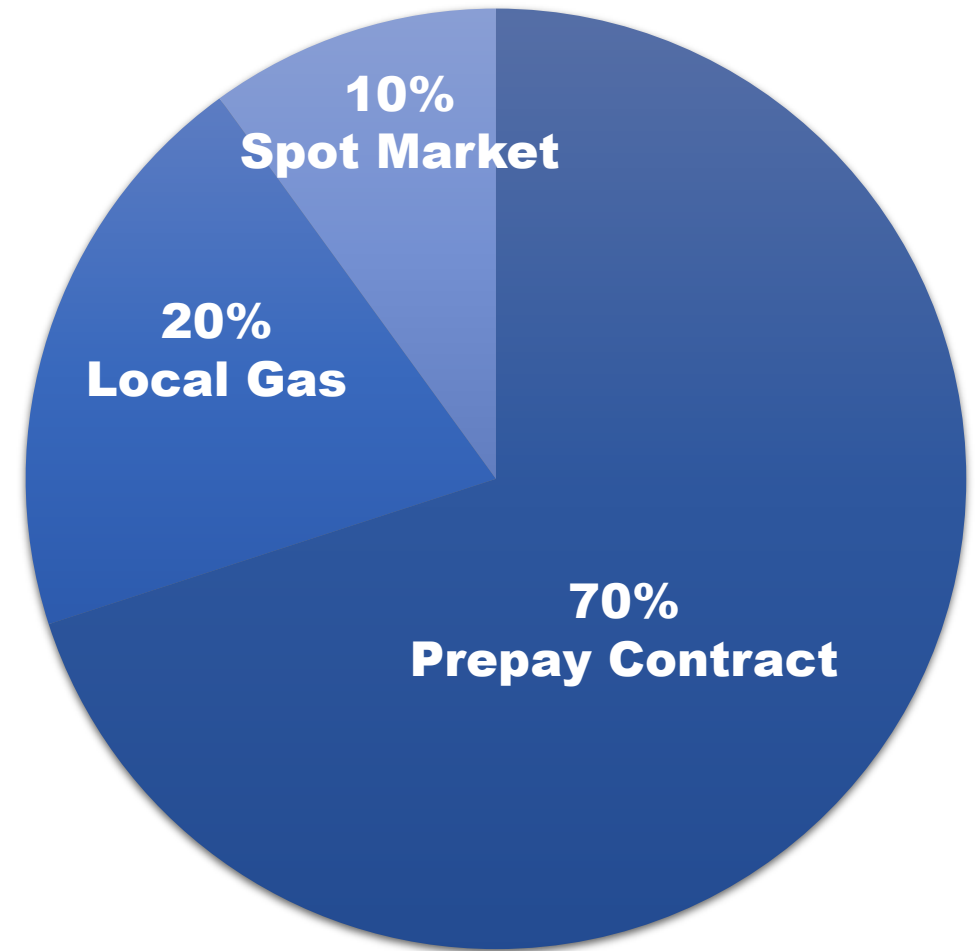
- **Price volatility** can wreak havoc on what we pay for gas supplies in the open, competitive market
- Skyrocketing market prices can suddenly result in **extremely high gas bills** for customers
- **Market prices are primarily driven by** weather, interstate pipeline capacity, electric power plant natural gas use, and local storage levels
- The **market's future perception** of above factors also influences price

Long Beach Natural Gas Prices



Current Gas Supply Pricing

- Long Beach's gas supply is purchased from **four sources**
- All gas is purchased based on a recognized monthly **market price** index
- The long-term prepay contract is still based on the market index
- Lack of hedging can leave customers **vulnerable** to paying high utility bills when market prices spike



Why Consider Hedging?

- Hedging can **mitigate** a utility's exposure to extreme market price fluctuations by **shifting the risk** to another party, for a cost
- Hedging can provide customers with **price protection and price stability**
- A utility can overlay a price hedge over an existing physical gas supply contract
- This presentation includes an overview of hedging and how we might implement this strategy again for the future

Hedging Instruments

- The **primary instruments** used to hedge natural gas are:
 - **Futures** — a contract agreeing to accept (or make) delivery of a specific quantity of a commodity during a specific time in the future and at a specific price determined in advance
 - **Swaps** — a contract in which two parties agree to exchange periodic payments for a commodity wherein one party pays fixed price and a counter-party who pays a floating (index) price
 - **Options** — a contract that gives the holder the right, but not the obligation, to buy or sell a commodity once its price reaches a certain level (strike price)

Hedging Considerations



- Risk boundaries
- Seasonal considerations
- Term
- Price stability/protection
- Specific price index against which the hedging would apply
- Cost for hedging options

Hedging in Long Beach

- Long Beach's gas utility successfully used price hedging from the early 2000s to 2018
- Long Beach used hedging to:
 - Place a price ceiling for cost of gas
 - Focus the hedge for winter months when gas usage is highest
 - Hedge for a three-year period
 - Provide price protection for customers, with the utility's cost ranging from \$29,000 to \$192,000 annually, an average of \$90,000
- **Why did Long Beach hedging end?** It was thought to be an unnecessary expense, market prices were expected to remain

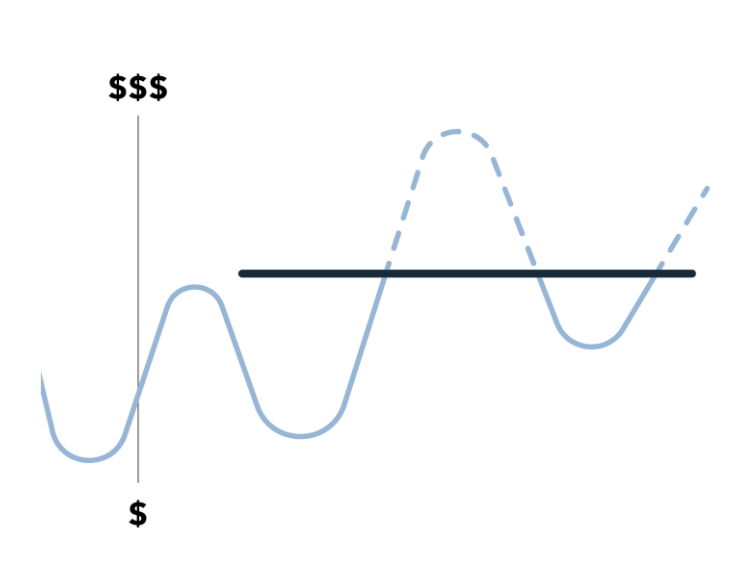
Hedging Example

Long Beach Gas & Oil				
Summary of Natural Gas Call Options Purchased				
Date	Volume (MMBtu)	Strike Price	Price per MMBtu	Total Cost
Dec-15	900,000	\$ 8.00	\$ 0.0100	\$ 9,000
Jan-16	700,000	\$ 8.00	\$ 0.0100	\$ 7,000
Feb-16	700,000	\$ 8.00	\$ 0.0100	\$ 7,000
Mar-16	600,000	\$ 8.00	\$ 0.0100	\$ 6,000
Nov-16	850,000	\$ 8.00	\$ 0.0170	\$ 14,450
Dec-16	900,000	\$ 8.00	\$ 0.0170	\$ 15,300
Jan-17	700,000	\$ 8.00	\$ 0.0170	\$ 11,900
Feb-17	700,000	\$ 8.00	\$ 0.0170	\$ 11,900
Mar-17	600,000	\$ 8.00	\$ 0.0170	\$ 10,200
Nov-17	850,000	\$ 8.00	\$ 0.0510	\$ 43,350
Dec-17	900,000	\$ 8.00	\$ 0.0510	\$ 45,900
Jan-18	700,000	\$ 8.00	\$ 0.0510	\$ 35,700
Feb-18	700,000	\$ 8.00	\$ 0.0510	\$ 35,700
Mar-18	600,000	\$ 8.00	\$ 0.0510	\$ 30,600
Total Cost				\$ 284,000

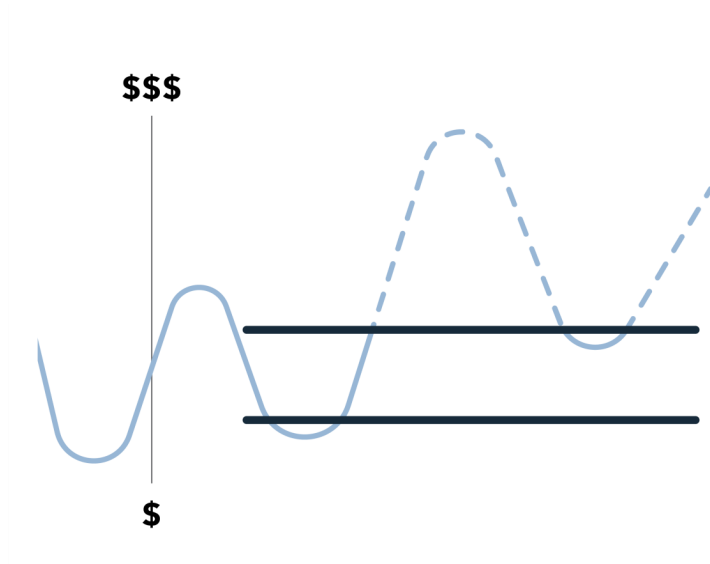


Hedging Options

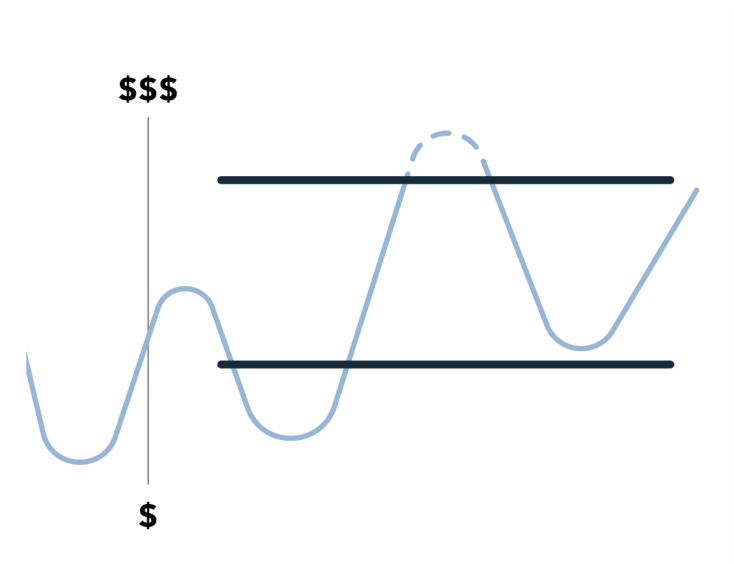
Cost Ceiling



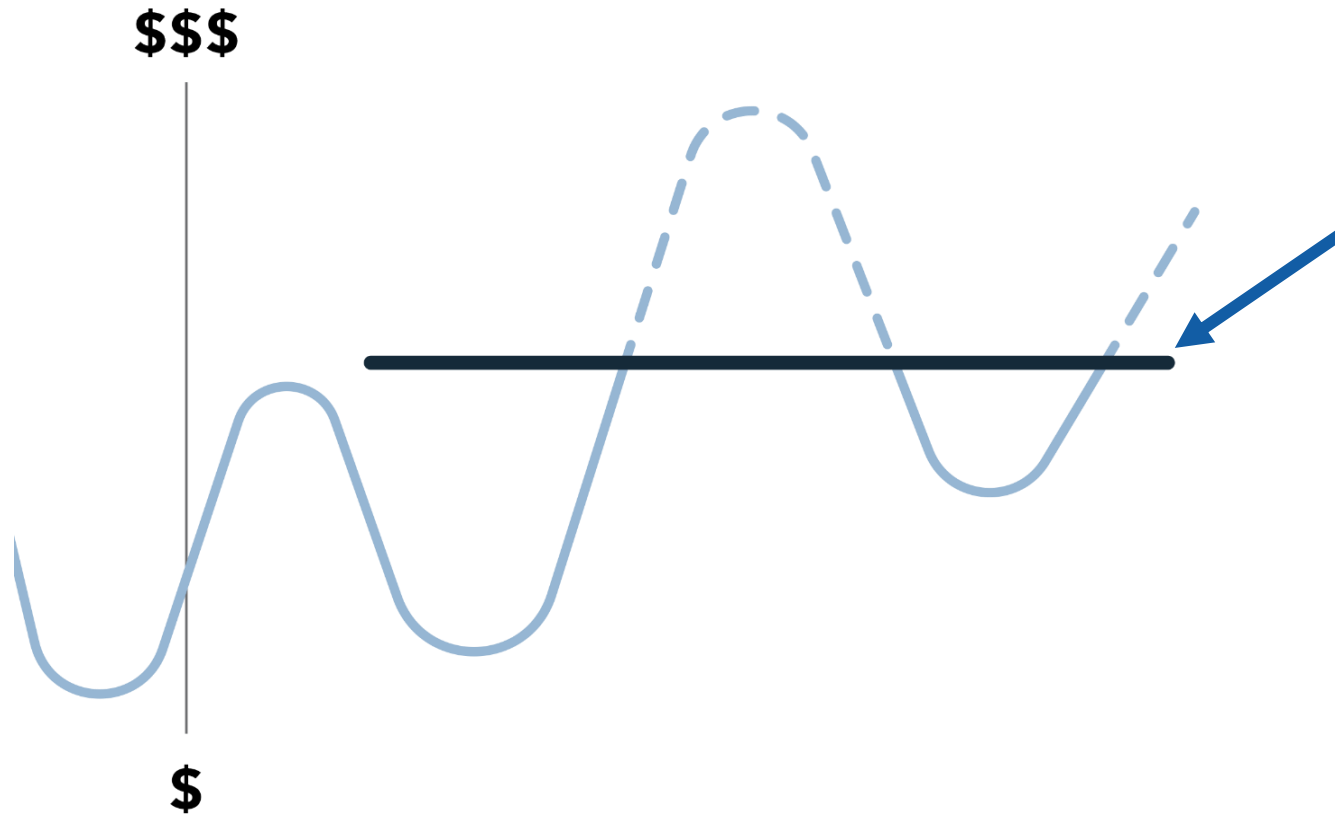
Collar



Costless Collar



Price Ceiling

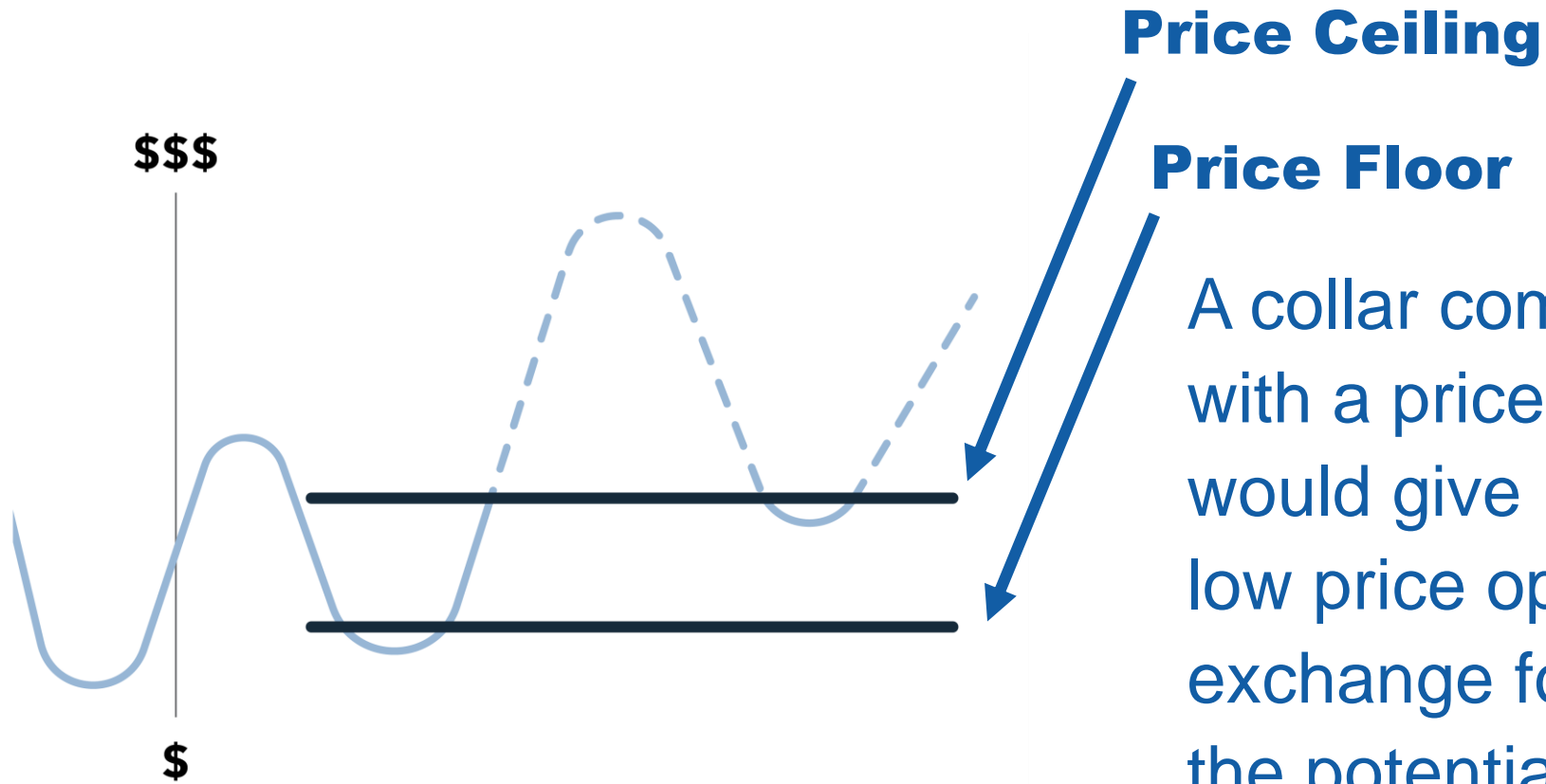


Price Ceiling

A price ceiling would ensure that the cost of gas would not go above a designated price



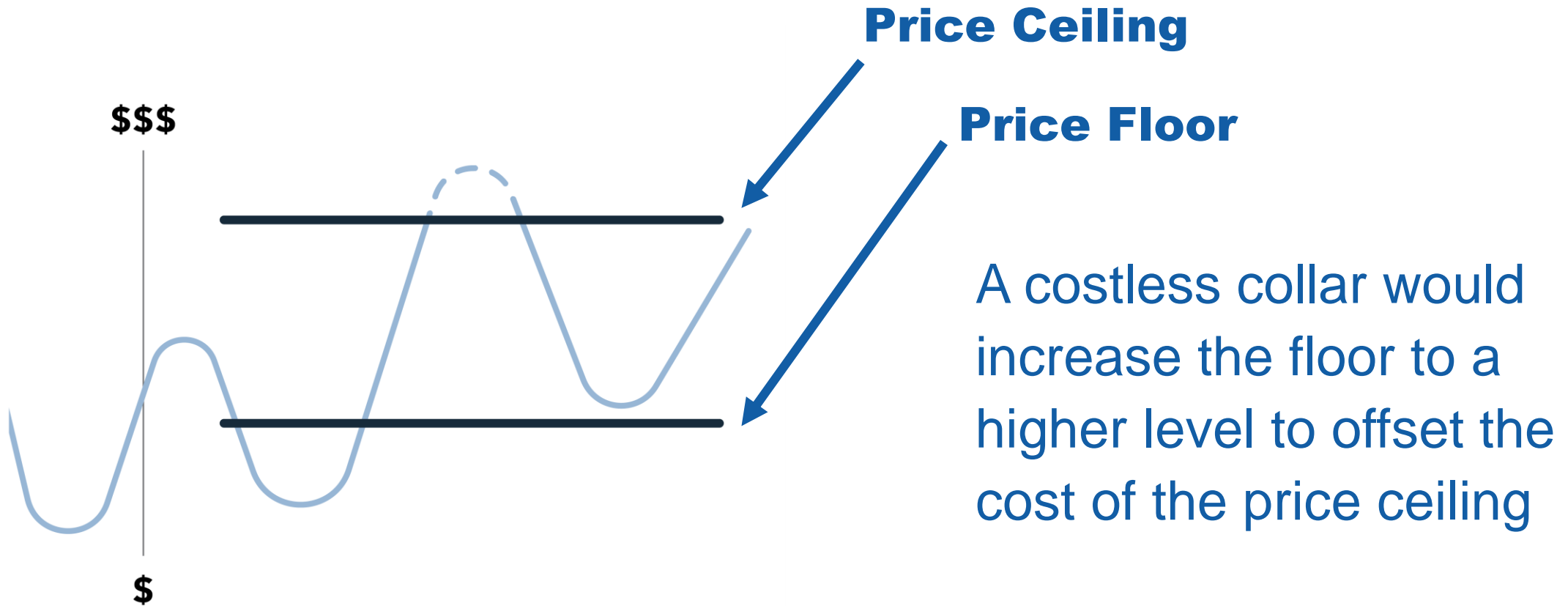
Collar



A collar combines a price floor with a price ceiling, so the utility would give up some potential low price opportunity in exchange for protection against the potential for high prices



Costless Collar



Summary

- Price hedging can be overlaid on market-priced physical supply contracts to allow both the benefits of following the market when prices are stable but also price protection for our customers when prices spike
- There are various hedging options available to meet the gas utility's price goals and objectives
- There is a cost to price hedging so timing is critically important, requiring the monitoring of the futures market to determine when future market conditions are favorable to take advantage of reasonably priced hedging opportunities





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