

OIL WELL COST ANALYSIS

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AGENDA

- Problem Overview
- Datasets Used for Analysis
- Data Analysis and Key Insights
- Forecast
- Summary

PROBLEM OVERVIEW

Understand the thematic trends associated with oil well cost components in some regions in the United States and develop informed predictions on the same.





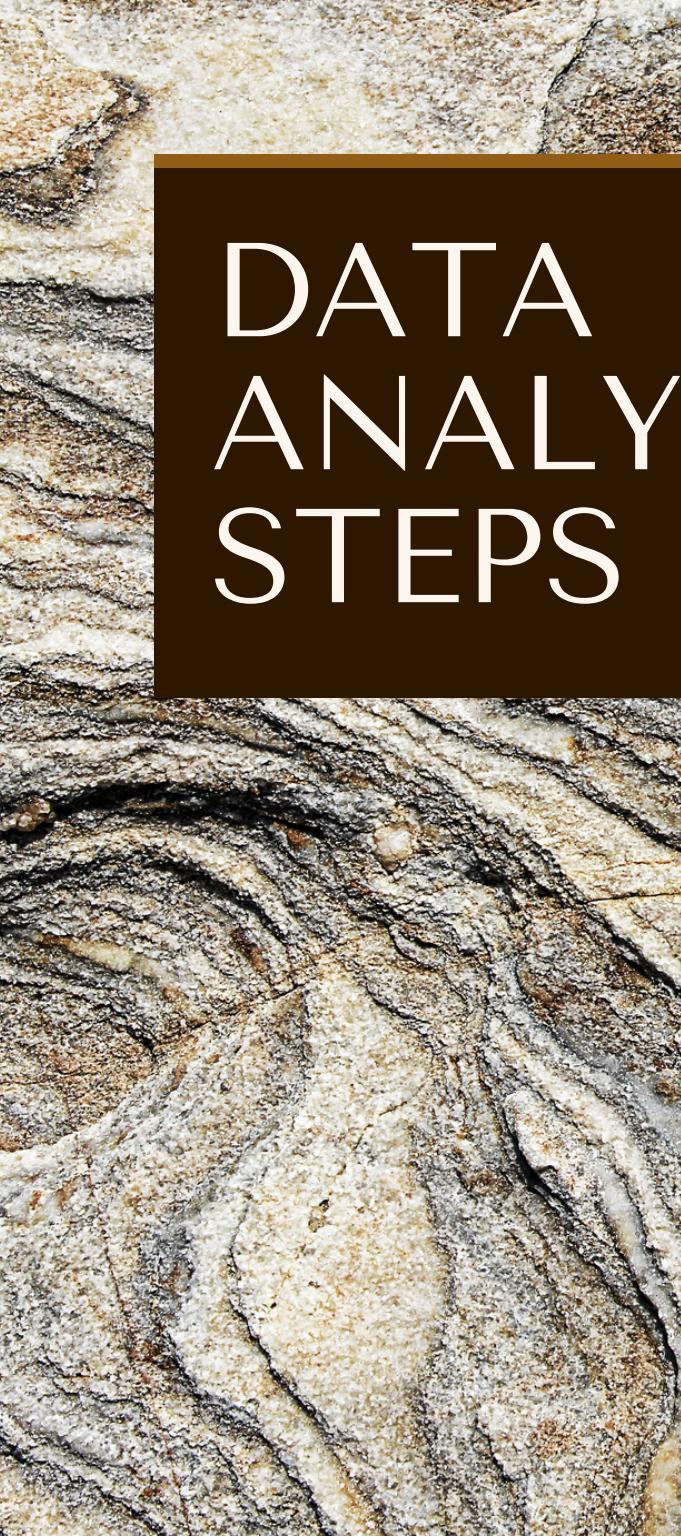
DATASET USED FOR ANALYSIS

Envios Market Indices

- Category: Well Cost Category of Spend
- Sub-Category: Sub-category of Well Cost Category
- Index: Normalized Price trends. It is normalized to 100 value for January 2018.
- Phigh: 75th Percentile value, also benchmarked to the Index Baseline.
- Plow: 25th Percentile value, also benchmarked to the Index Baseline.

TYPE OF DATA ANALYSIS

Time series analysis



DATA ANALYSIS STEPS

01

DATA PRE-
PROCESSING

02

DATA ANALYSIS

03

KEY INSIGHTS

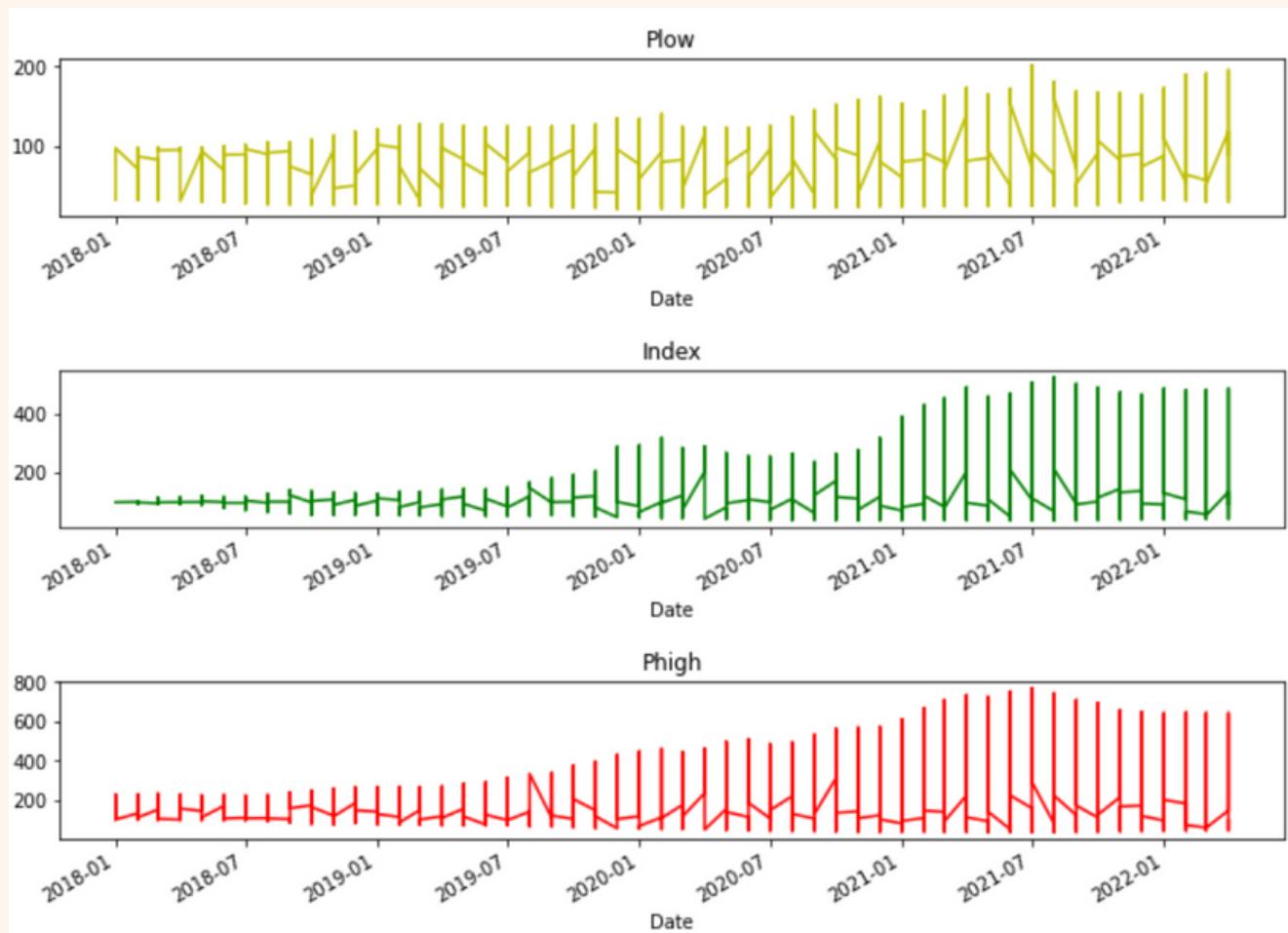
04

FORECAST

Data Analysis and Key Insights 1

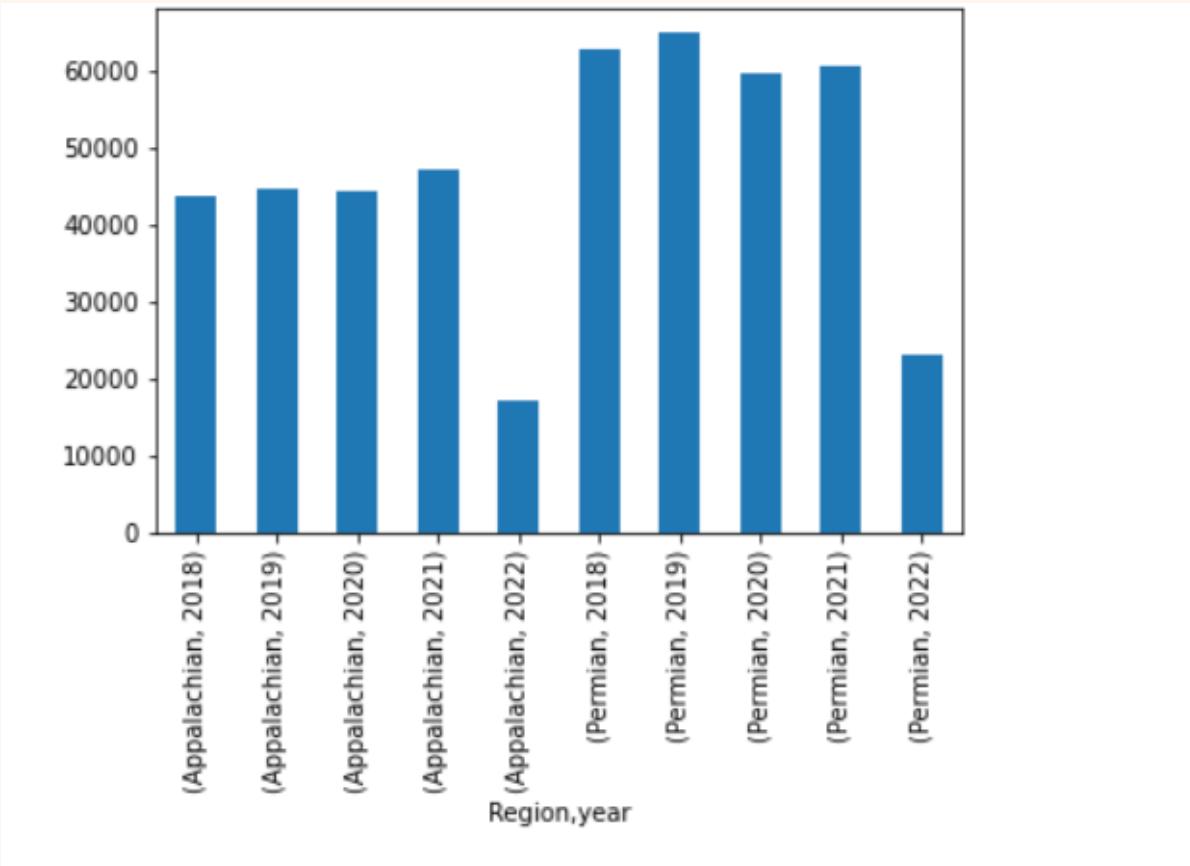
The overall price value has increased over time by looking at all three graphs of Plow, Index and Phigh.

The prices increased significantly in mid-year 2021, and since then, there has been no significant increase.



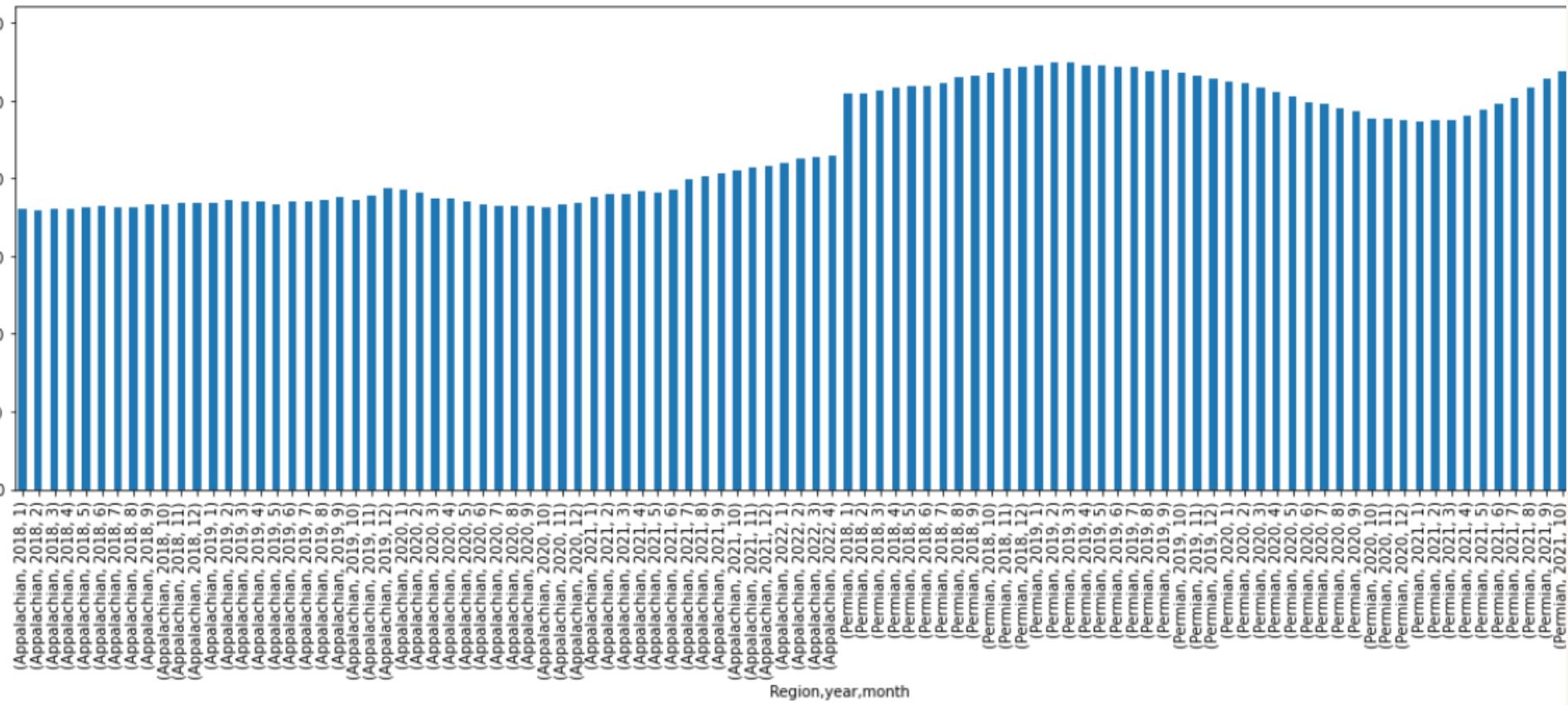
Data Analysis and Key Insights 2

After finding the sum of indexes for both regions, we can see that the overall oil well cost over the years is higher in the Permian region compared to the Appalachian region.



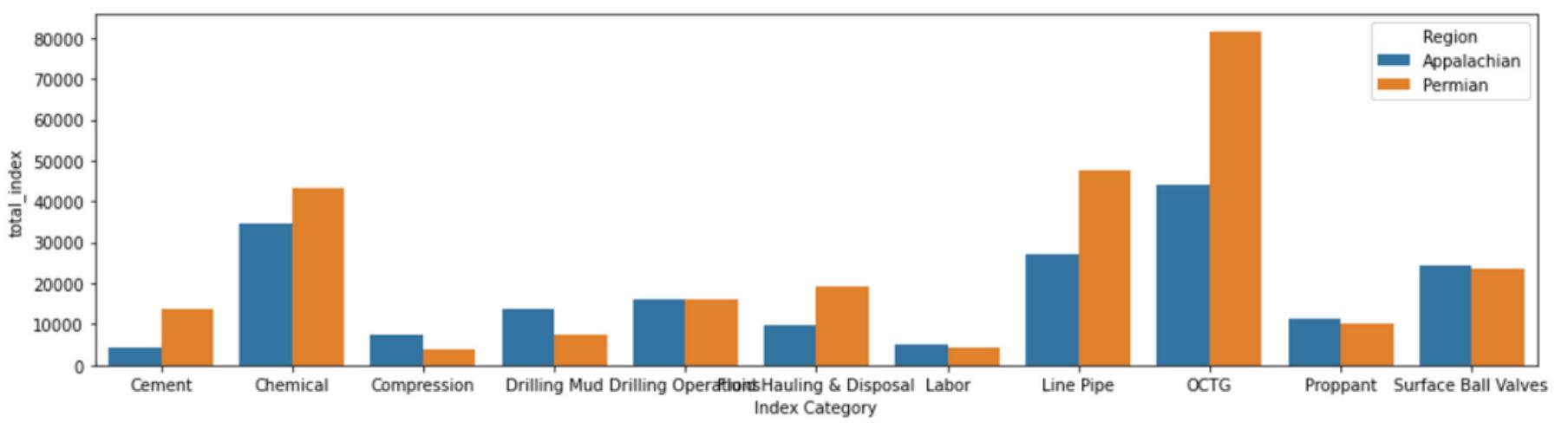
Data Analysis and Key Insights 3

When we analyzed the trends in the monthly data, we can see that the prices in the Permian region increased in 2019 and then continuously dropped down till the beginning of 2020. After 2020 the prices are now growing gradually.



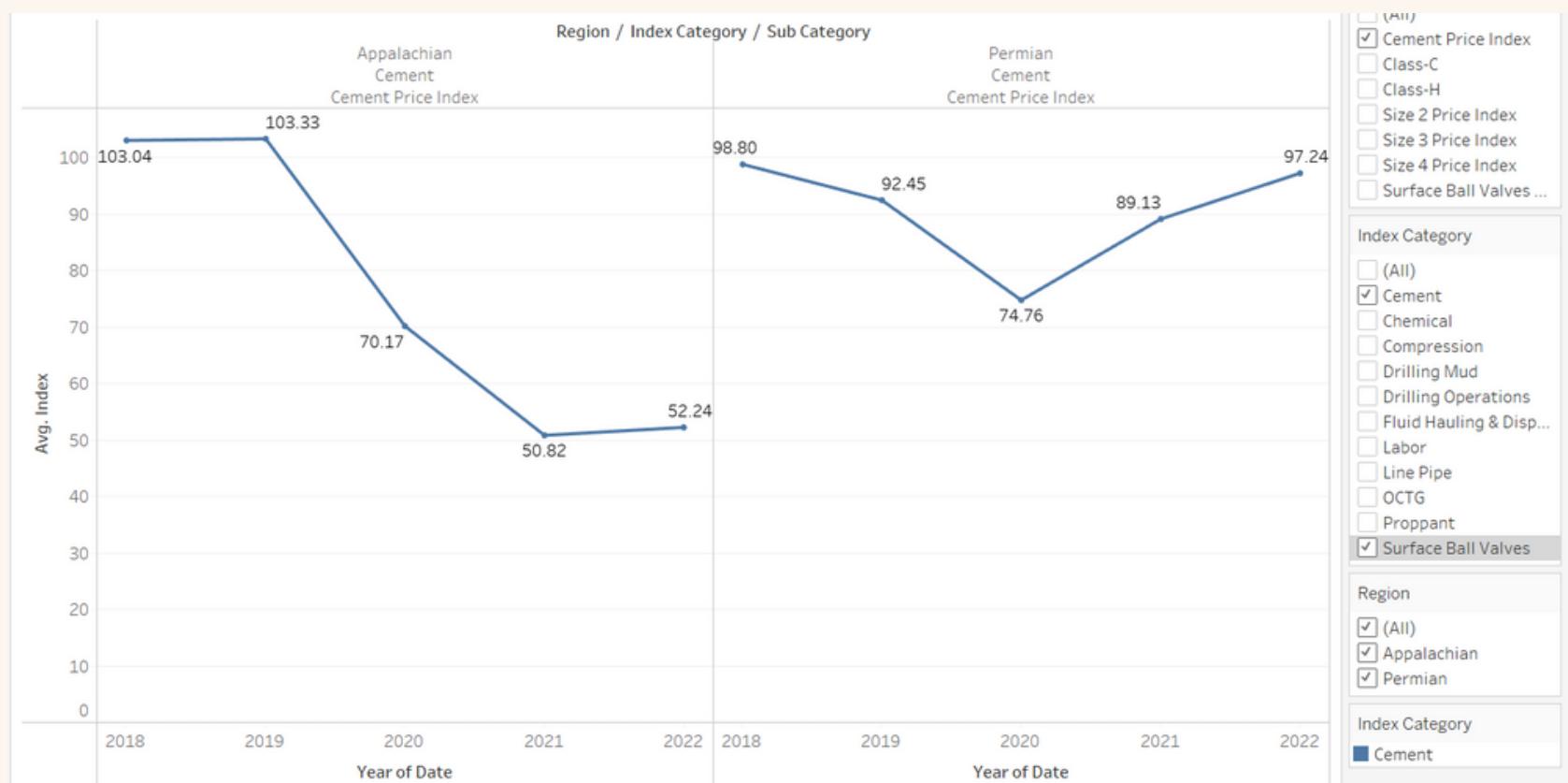
Data Analysis and Key Insights 4

1. By analyzing the prices for individual categories, we can see that the highest contributing price types are OCTG, Chemical and Line Pipe for both regions.
2. If we compare the prices in both regions, we can see that the OTCG, Line Pipe, Chemical and Fluid Hauling & Disposal have higher costs in the Permian region than in the Appalachian.



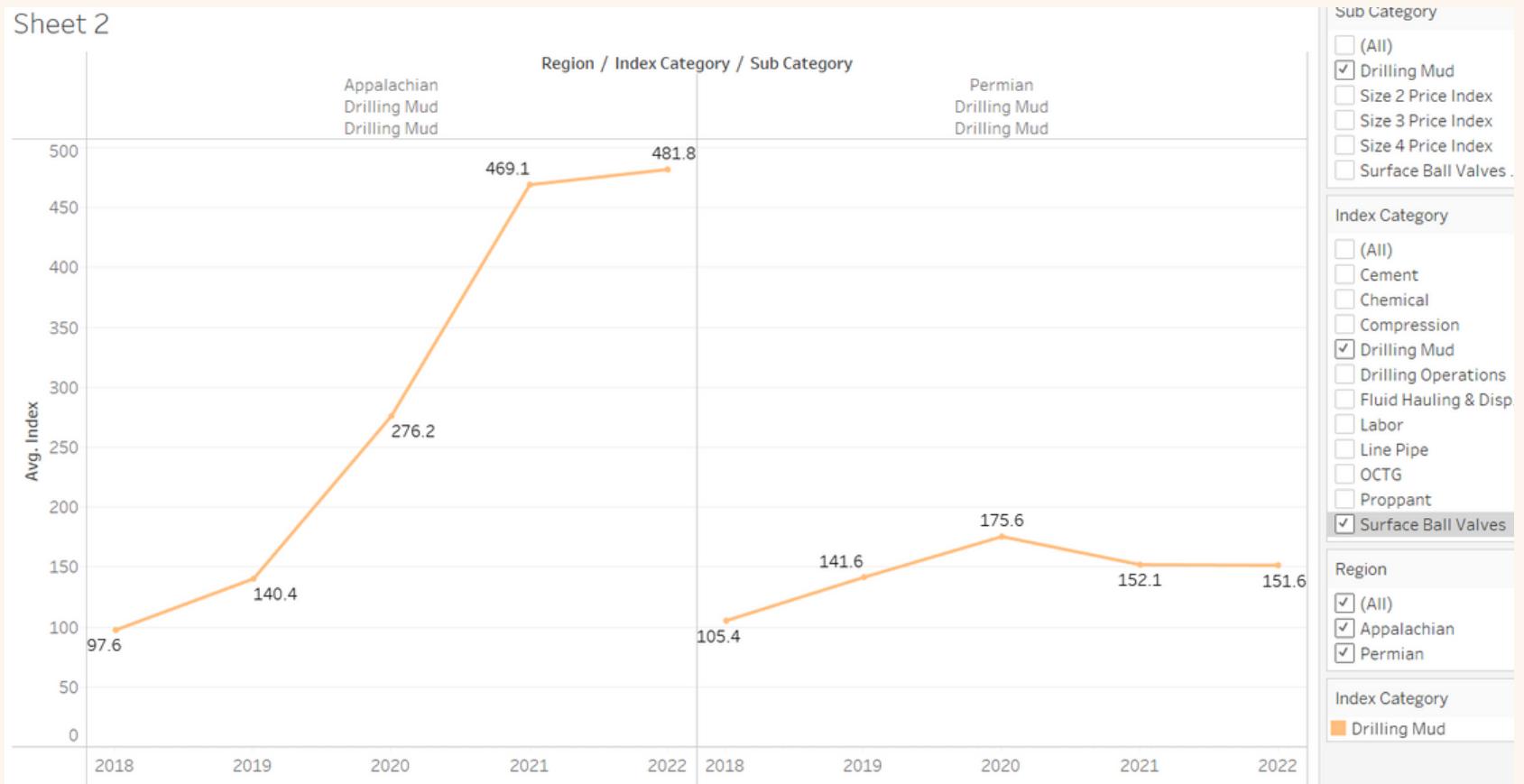
Data Analysis and Key Insights 5

1. For the category cement, the average prices have drastically decreased from 2019 in both regions till 2021.
2. After 2021 the cement prices have increased drastically in the Permian region but not in the Appalachian region.



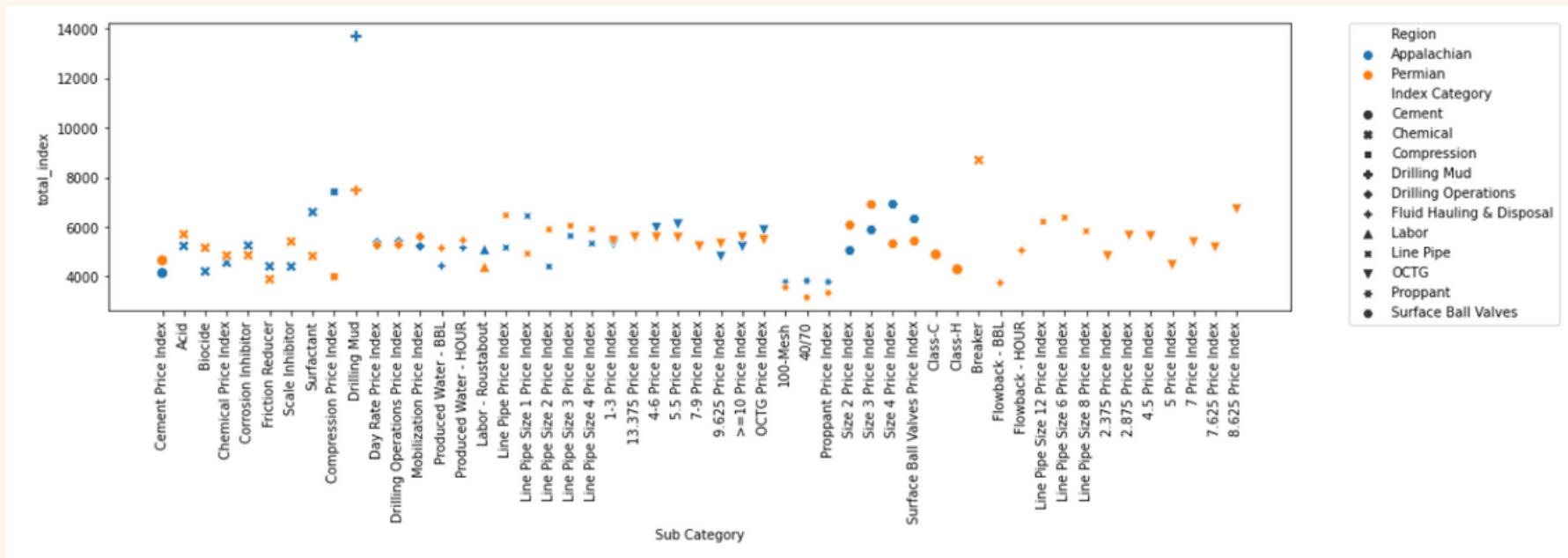
Data Analysis and Key Insights 6

1. For the drilling mud category, we can see that the prices in the Appalachian region are comparatively very high from the Permian region.
2. The drilling mud prices have increased drastically over the years in the Appalachian region.



Data Analysis and Key Insights 7

- When we drill down on the sub-categories, we can see that the Drilling Mud and Compression Price Index cost is significantly higher in the Appalachian region than in the Permian region.
- There are several sub-categories only for the Permian region, contributing significantly to overall prices for this region.

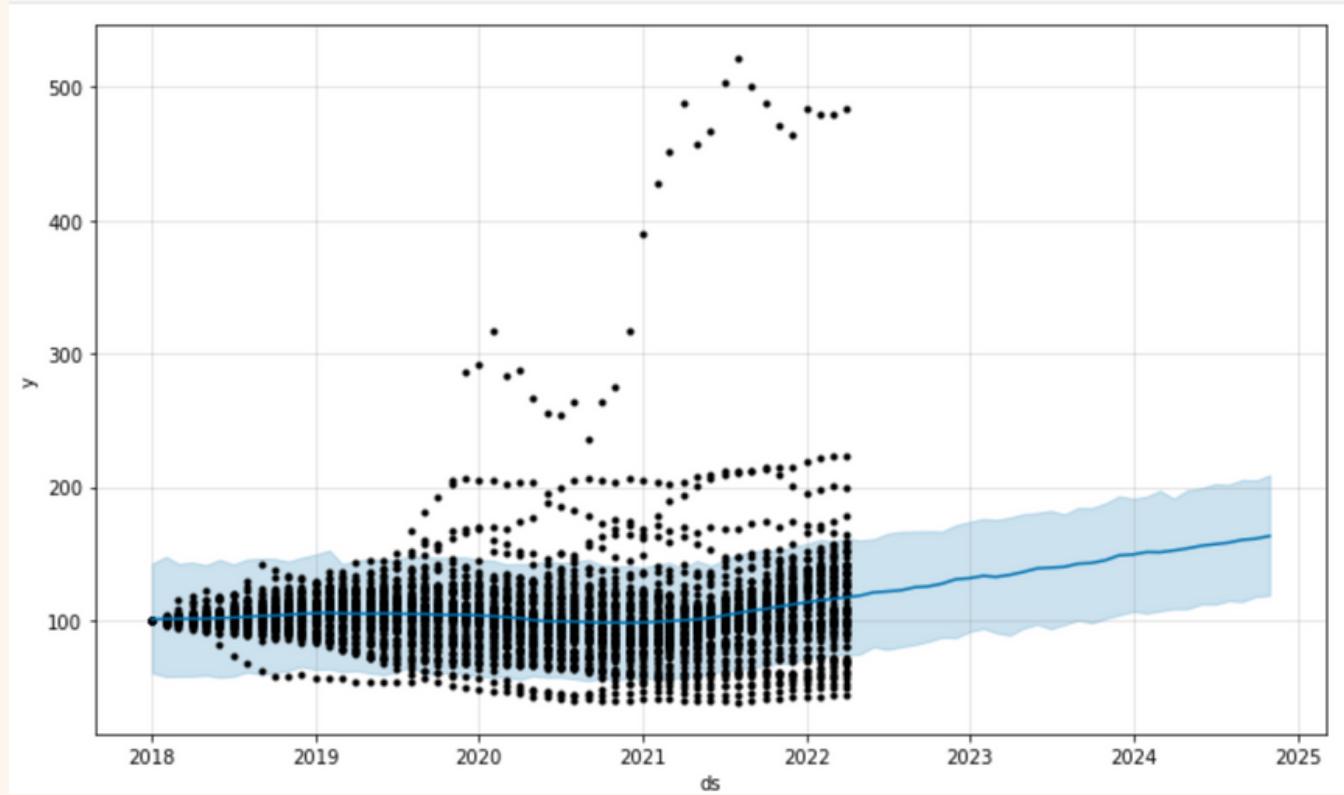




Forecast

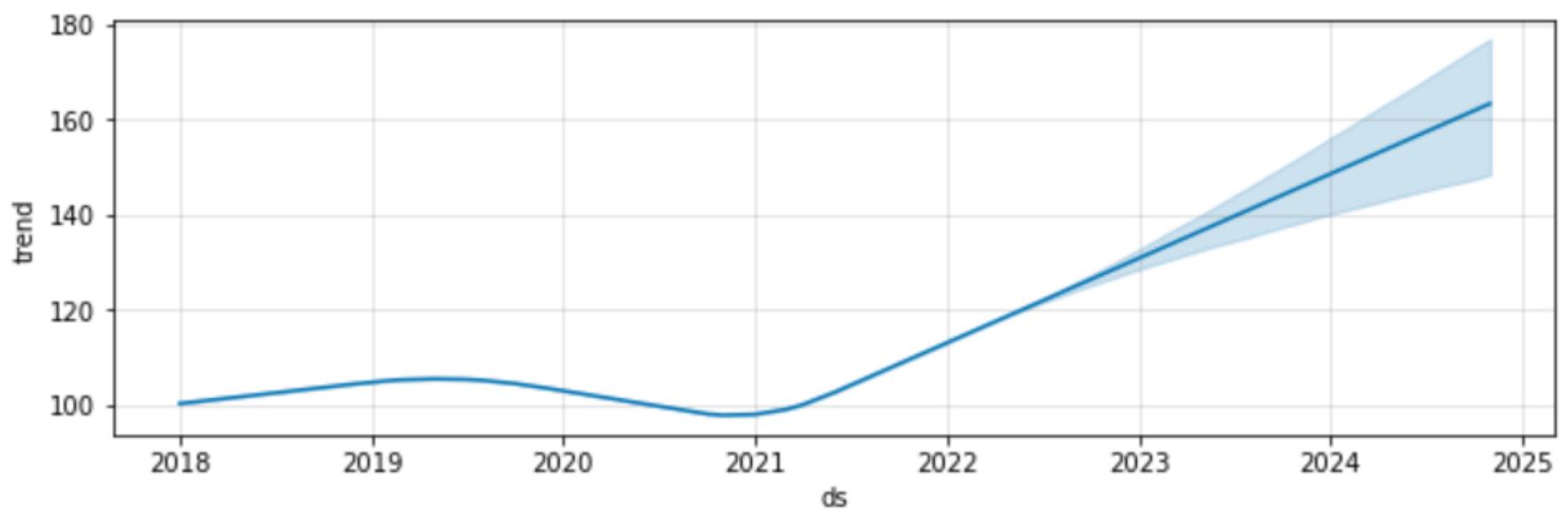
FUTURE PRICES BASED ON CURRENT
TRENDS

As per the below trend, the index prices for overall oil well construction will be higher.



Forecast Trend

As per the below trend, the index prices for overall oil well construction will be higher.



KEY CONTRIBUTORS IN THE PRICES VARIATION

INFLATION RATE

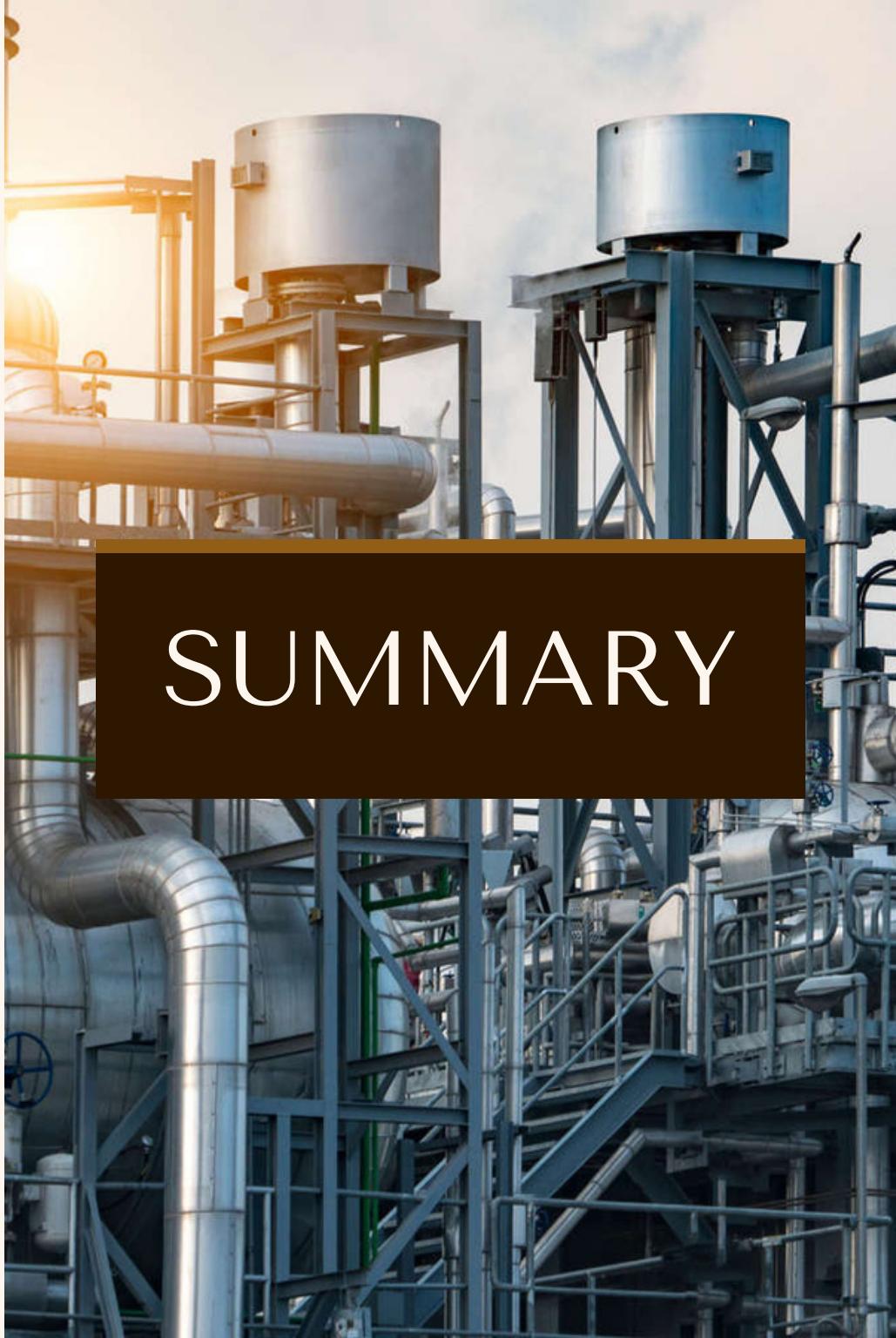
The inflation rate in the US increased by 3.46% after 2020, which led to a rise in prices for most of the oil well construction components.

COVID-19 PANDEMIC

Overall price graphs showed a mid-year decrease in prices for 2020 till 2021 caused by the COVID outbreak.

GOVT POLICIES

Government policies on taxes, tariffs, interest rates, and regulation can also factor into oil and gas prices.

A photograph of an industrial facility, likely an oil or gas refinery, featuring large metal storage tanks and complex piping systems. The scene is set during sunset, with warm, golden light illuminating the structures against a clear sky.

SUMMARY

<https://tradingeconomics.com/united-states/inflation-cpi>

<https://www.eia.gov/>

<https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/oil-and-gas-industry-outlook.html>

<https://www.worldoil.com/news/2021/4/22/appalachian-basin-tops-permian-as-biggest-methane-emitting-region-in-the-us/>

REFERENCES

THANK YOU

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Git Hub: <https://github.com/Jitendar1991/Oil-and-gas>