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# *Import and Export of Petroleum Products*

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## DATA VISUALIZATION

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## **ABSTRACT**

The Import and Export of petroleum products is playing a major role in country's economy, environmental protection, energy security. The main abstract of this project/report is to visualize the data that mainly aims on patterns and trends of petroleum products trading across the countries. This includes various types of petroleum products like crude oil, refined oil products, petrochemicals. This report explains about how the data visualization helps for energy companies, researchers, policymakers. With the help of data visualization the complex data can be converted to more kind of efficient and easily understandable petroleum products network.

India had embarked upon its economy in the year 1991 with reforms being extended to petroleum sector later. The prices of Petroleum products have been controlled by the Indian Government. Therefore, reforms were introduced and then the private and foreign investment were permitted. With rising domestic demand and the removal of APM's the private refiners are again moving back to petroleum products. This report helps us study the various phenomenon for the largest energy consumer and global economies.

# *Introduction*

## **1 Dataset**

The import and export of petroleum products data-set refers to buying and selling of various refined products derived from crude oil between different countries and states. These products include gasoline, diesel, jet fuel, heating oil, liquefied petroleum gas (LPG), and other refined products. The movement of these products across international borders is a crucial component of global energy trade and has significant economic and geopolitical implications.

### **1.1 Components**

To provide a visualized data the data-set should contain some components which can represent a particular variable. In our petroleum import and export case, the required components are:

**Countries and states Information:** The list of countries and states enabling us to identify and categorise the origins and the destinations of the petroleum products.

**Time series data:** The time series data helps us in knowing the changes in patterns and trends over time. It is best to prefer the monthly or yearly data so we can be able to know the changes easily on the petroleum products.

**Product categories:** This category can help knowing the detailed information on the different types of petroleum products like crude oil, refined petroleum, jet fuel, liquefied petroleum gas and many more.

**Import and export volumes:** The data indicating about the petroleum products quantity which are being exported around the states and countries. This data is the main part for the visualization.

**Economic indicators:** Additional economic data, such as GDP, population, and energy consumption, to explore the relationship between energy trade and economic performance.

**Trade partnerships:** Information on bilateral trade relationships, helps in showing which countries and states are the major trading partners.

**Environmental impact:** data related to the carbon emission and other environmental indicators associated with these petroleum products are identified and explained.

### **1.1.1 Performance Of Petroleum Products**

From the observed data-set over the years, the performance of the petroleum and natural gas sector has been intertwined with key macro-economic trends, shaping both national and global economics. Sharp price hikes often driven by geopolitical tensions or supply disruptions, constraining economic growth.

Growing awareness of environmental concerns and the push for sustainable alternatives have led to increased investment in renewable energy source. This transition has posed challenges to traditional fossil fuel industries, including the petroleum and natural gas sector.

On a national level, the sectors contribution to government revenues through taxes and royalties has been significant, influencing budgetary decisions and public spending. governments are this argued to adopt strategies that reduce over reliance on fossil fuels and enhance economic resilience through diversification.

In recent times, technological advancement have played a transformative role in the sector. Simultaneously, automation and digitalization have improved operational efficiency, optimizing resources utilization and mitigative environmental impacts.

## **2 Overview of the Report**

Countries that lack sufficient domestic crude oil production or refining capacity often import petroleum products to meet their energy needs. The reasons for importing include inadequate domestic resources, higher demand than supply, or economic considerations. Importing petroleum products allows countries to bridge the gap between their domestic production and consumption.

Countries with significant crude oil production and refining capabilities often export excess petroleum products to international markets. Exporting petroleum products can be economically beneficial, as it generates revenue and contributes to trade balances. Exporting nations, often referred to as "petroleum exporting countries" or "oil-exporting countries," can use these exports to enhance their economic growth and development.

It's important to note that the dynamics of the petroleum industry can change due to factors like technology advancements, shifts in energy policies, and global economic conditions. The import and export of petroleum products contribute significantly to global energy security, economic development, and international trade.

## 2.1 Conclusion

This report aims to achieve several goals, such as showing which countries and states trade the most, identifying the changes over the respected time and some new kind of opportunities for growth. Visualising data by making maps and other types of formats from the taken data-set where we can make the data understanding easy to the public and investors etc.

## 2.2 References

<https://data.gov.in/catalog/import-export-petroleum-products>

<https://www.jstor.org/stable/27188914>

<https://www.hindustanpetroleum.com/>

[https://mopng.gov.in/files/TableManagements/IPNG-2021-22\\_L.pdf](https://mopng.gov.in/files/TableManagements/IPNG-2021-22_L.pdf)

<https://data.gov.in/resource/import-export-petroleum-products-volumes-year-2022-23>

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## 3 Overleaf link

<https://www.overleaf.com/project/64d73871f809f0bf33ae01fa>