

PROJECT STATEMENT

The goal of this project is to create an interactive dashboard which displays North American oil and gas production data, visualizing trends across regions. Machine learning algorithms forecast future trends, aiding stakeholders in analyzing and forecasting production.

END USERS

In this section, the stakeholders for this project are defined, thus laying a clear foundation for the project. The stakeholders involved include, but are not limited to the following:

- Petroleum Data Analysts/Data Scientists. This group could use the dashboards to facilitate data-driven business decisions within the industry.
- Oil and Gas Companies including engineers and geologists who could use the dashboard to predict future trends.
- Investors. This includes institutional investors, private equity and venture capital firms, retail and high net-worth investors, hedge funds and asset managers.
- Academics and researchers. Includes students, professors and post-doctorate fellows. They could use this dashboard to study industry trends and conduct policy research.

FUNCTIONALITY

The interactive dashboard will empower the end-users by providing actionable insights into North American oil and gas production. It will display production trends over time, allowing users to track historical patterns and anticipate future shifts. A heatmap of production correlations will highlight interdependencies between regions, enabling analysts to identify supply chain efficiencies and market influences. Predictive modeling and forecasting tools will leverage machine learning to forecast future production, aiding in strategic planning. Anomaly detection charts will flag unexpected production drops or spikes, helping companies respond swiftly to operational disruptions. A geospatial production efficiency map will allow engineers and geoscientists to compare regional performance and optimize field operations. Additionally, investment opportunity visualizations will pinpoint regions with increasing or declining production, assisting investors in making data-driven decisions. By integrating these functionalities, the dashboard will serve as a powerful decision-support tool, enhancing forecasting, risk assessment, and resource management across the oil and gas industry.