Oil & Gas Production Performance Dashboard

1. Project Overview

This project presents an end-to-end Oil & Gas Production Performance Dashboard developed using Power BI, focusing on well-level production, field-wise analysis, location insights, and operational downtime impact. The dashboard is designed to support data-driven decision-making for upstream operations by providing clear visibility into production efficiency and operational challenges.

The solution is suitable for operations managers, production engineers, and data analysts to monitor performance, identify bottlenecks, and optimize production outcomes.

2. Data Scope & Metrics

Key Dimensions:

Date
Field (Godavari, KG Basin, Krishna)
Asset (Onshore, Offshore)
Well ID / Well Name
Location

Key Measures:

Total Oil Production
Total Gas Production
Total Water Production
Gas Oil Ratio (GOR)
Water Cut %
Downtime Hours
Downtime %

3. Dashboard Pages & Key Observations

3.1 Executive Overview

Purpose: *High-level snapshot of overall production performance.*

Observations:

Displays cumulative Oil, Gas, GOR, and Water Cut % for the selected time period.
Production trends over time indicate fluctuations in daily output, helping identify stable vs volatile periods.
Well-wise oil production comparison highlights top-performing and underperforming wells.
Enables quick executive-level assessment of operational health.

3.2 Well Production Performance Overview

Purpose: *Detailed well-level production analysis.*

Observations:

Significant variation in oil, gas, and water production across wells.
GOR and Water Cut % help assess reservoir performance and production efficiency.
Some wells show higher water cut, indicating potential water breakthrough or mature reservoir behavior.
Enables prioritization of wells for optimization or intervention.

3.3 Production Analysis by Field & Asset

Purpose: *Geographical and asset-wise production insights.*

Observations:
KG Basin contributes the highest share of total production, followed by Godavari and Krishna fields.
Clear production differences between Onshore and Offshore assets.
Field-wise oil distribution highlights areas with higher production concentration.
Location analysis supports strategic planning and asset allocation decisions.

3.4 Well Downtime & Production Impact Analysis

Purpose: *Analyze operational downtime and its effect on production.*

Observations:
Certain wells exhibit higher downtime percentages, directly impacting oil output.
Comparison of Downtime % vs Total Oil reveals wells where downtime has a significant production impact.
Helps identify wells requiring maintenance, operational improvements, or reliability enhancement.
Supports proactive decision-making to minimize production losses.

4. Business Value

Improves visibility into production performance at well, field, and asset levels.
Enables identification of high-impact downtime issues.
Supports operational optimization and production planning.
Provides a scalable framework for integrating real-time production data in the future.

5. Tools & Technologies

Power BI – Data modeling, DAX, interactive dashboards
SQL / Excel (Data Preparation) – Data cleansing and transformation
Oil & Gas Domain Knowledge – Production metrics, reservoir behavior, operational KPIs

6. Conclusion

This dashboard demonstrates the effective use of data analytics in upstream oil & gas operations, combining technical domain knowledge with visualization best practices. It showcases the ability to translate raw production data into actionable operational insights, making it a strong portfolio project for Oil & Gas Data Analyst roles.

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