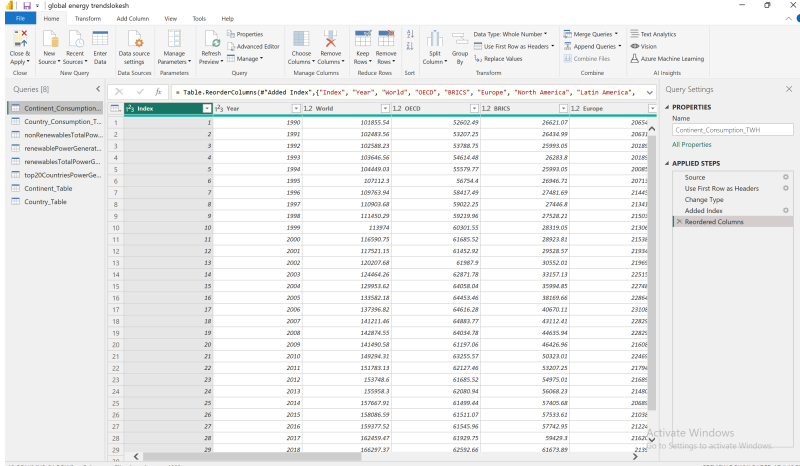


Project Development Phase Model Performance Test

| | |
|---------------|---|
| Date | 16 April 2025 |
| Team ID | PNT2025TMID07432 |
| Project Name | Global-Energy-Trends-A-Comprehensive-Analysis-of-Key-Regions-and-GeneraKon-Modes-using-Power-BI |
| Maximum Marks | |

Model Performance Testing:

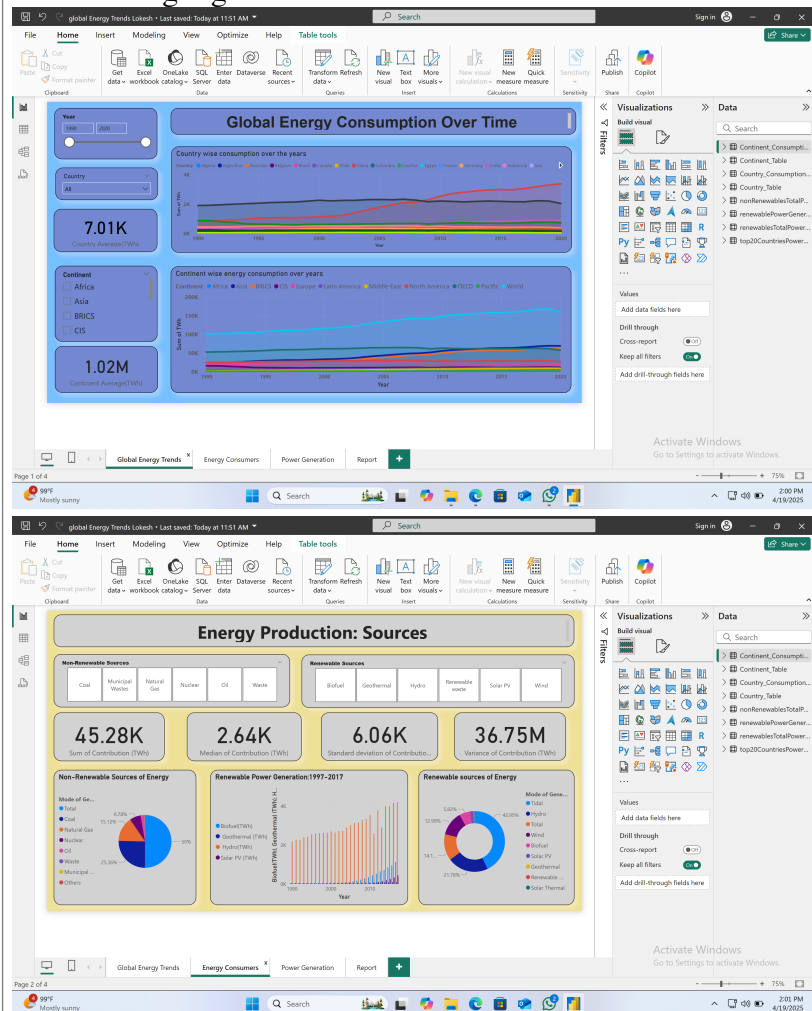
Project team shall fill the following information in model performance testing template.

| S.No. | Parameter | Screenshot / Values |
|-------|---------------|---|
| 1 | Data Rendered | <p>Continent_Consumption_TWH.csv Country_Consumption_TWH.csv nonRenewablesTotalPowerGeneration.csv renewablePowerGeneration97-17.csv renewablesTotalPowerGeneration.csv top20CountriesPowerGeneration.csv</p>  <p>The screenshot displays the Power BI Desktop interface. The main view shows a data table with the following columns: Index, Year, 1.2 World, 1.2 OECD, 1.2 BRICS, and 1.2 Europe. The data is sorted by Year in ascending order. The first row (Index 1) shows data for the year 1990, with values for World (101855.54), OECD (52002.49), BRICS (26021.07), and Europe (20054.90). The table is titled 'Table.ReorderColumns("Index", "Year", "1.2 World", "1.2 OECD", "1.2 BRICS", "1.2 Europe", "Latin America", "Asia").' The 'APPLIED STEPS' pane on the right shows the 'Reorder Columns' step.</p> |

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| 2 | Data Preprocessing | <ul style="list-style-type: none"> • Removed Null Values – Ensured data completeness. • Unpivoted Table – Converted wide format data into a long format for better filtering and analysis. • Created Two New Tables from Existing Data: • Country Consumption Table – Extracted from Country_Consumption_TWH.csv for country-level insights. • Continent Consumption Table – Extracted from Continent_Consumption_TWH.csv for regional comparisons. • Added Index Columns – Assigned unique IDs to facilitate merging and analysis. |
|---|--------------------|---|

3. Utilization of Data Filters

- **Yearly Filter** – To analyze trends over time.
- **Country & Continent Filters** – To compare power consumption at different levels.
- **Energy Type Filter** – To distinguish between renewable and non-renewable energy.
- **Consumption Range Filter** – To focus on high-energy-consuming regions



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| 4. | DAX Queries Used | <ul style="list-style-type: none"> • Total Country Consumption = SUM(Country_Consumption_TWH[Total Consumption (TWH)]) • Total Continent Consumption = SUM(Continent_Consumption_TWH[Total Consumption (TWH)]) • Percentage Contribution = DIVIDE([Total Country Consumption], [Total Continent Consumption], 0) * 100 • Rank by Country = RANKX(ALL(Country), [Total Country Consumption], , DESC, DENSE) • Rank by Continent = RANKX(ALL(Continent), [Total Continent Consumption], , DESC, DENSE) • Continent Average(TWh) = AVERAGEX(SUMMARIZE('Continent_Table','Continent_Table'[Continent],"Total",SUM('Continent_Table'[TWh])), [TOTAL]) • Country Average(TWh) = AVERAGEX(SUMMARIZE('Country_Table','Country_Table'[Country],"Total",SUM('Country_Table'[TWh])), [TOTAL]) |
| 5. | Dashboard design | <p>No of Visualizations / Graphs -</p> <ul style="list-style-type: none"> • Country-wise energy consumption • Continent Energy Consumption • Continent Average(TWh) • Country Average(TWh) • Non-renewable sources of Energy • Renewable Generation 1997-2017 (TWh) • Cards - Sum, Median, Standard Deviation and Variance of Contribution(TWh) • Renewable Sources of Energy • Cards - Geothermal, Biofuel, Hydro and Solar PV • BRICS, OECD, and CIS Comparison • Report Narrative • Energy Consumption in African countries |

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|---|---------------|---|
| 6 | Report Design | <div>No of Visualizations / Graphs -<ul style="list-style-type: none">• Number of Visualizations:2• Additional Insights Included:• Top energy-consuming countries vs. continents.• Regional energy consumption trends over the years.• Forecasted energy consumption based on past trends.• Impact of renewable adoption across regions.</div> <div><div>Report On Global Energy Trends</div><div><div><div><div>The continent with the highest overall energy consumption is Asia, and China continues to be the top consumer of power among all the countries.</div><div>Hydro electricity has been steadily rising over the last 3 decades and continues to be a promising renewable source.</div><div>Tidal energy takes up a major share of renewable energy with 42.95% and coal is at the top of non-renewable energy with 50.72%.</div><div>Across the Top 20 countries, the Sum of Total (TWh) ranged from 12.40 to 1,819.94.</div><div>Biofuel and total Geothermal energy are positively correlated with each other.</div><div>In a span of 28 years, Biofuel ranged from 3.88(TWh) to 1,127.31(TWh), Geothermal ranged from 36.42(TWh) to 85.34(TWh) and Hydro ranged from 2,191.67(TWh) to 4,197.29(TWh).</div></div><div><div>Consumption: OECD, BRICS and CIS</div><div><div>Sum of OECD</div><div>Sum of BRICS</div><div>Sum of CIS</div><div>TWh</div><div>2.0M</div><div>1.5M</div><div>1.0M</div><div>0.5M</div><div></div></div><div><div>Energy Consumed: Africa</div><div><div>Sum of Algeria</div><div>Sum of Egypt</div><div>Sum of Nigeria</div><div>Sum of South Africa</div><div>TWh</div><div>150</div><div>100</div><div>50</div><div>1990</div><div>1995</div><div>2000</div><div>2005</div><div>2010</div><div>2015</div></div></div></div></div></div></div> |
|---|---------------|---|