**REPORT ON PROJECT**

**🔌 Plugging into the Future: The Exploration of Electricity Consumption**

**📊 Project Overview**

**"Plugging into the Future"** is a data visualization and analysis project focused on global and regional electricity consumption patterns. Using **Tableau**, this project explores the relationship between electricity usage and socio-economic indicators, highlighting trends over time, disparities across regions, and potential areas for sustainable energy development.

**🎯 Objectives**

* Analyze historical electricity consumption data globally and regionally.
* Visualize consumption trends across countries and continents.
* Explore the correlation between electricity usage and factors such as GDP, population, and CO₂ emissions.
* Identify key contributors to electricity demand and assess progress in renewable energy adoption.

**📁 Data Sources**

The dataset used in this project was obtained from:

* Our World in Data - Electricity Consumption
* [World Bank Open Data](https://data.worldbank.org/)
* [IEA - International Energy Agency](https://www.iea.org/)

Key data features:

* Country-level electricity consumption (TWh)
* Per capita consumption
* Energy mix (renewable vs non-renewable)
* GDP per capita
* CO₂ emissions

**🛠 Tools & Technologies**

* **Tableau Public**: Data visualization and dashboard creation.
* **Microsoft Excel / Google Sheets**: Data preprocessing and cleaning.
* **GitHub**: Project hosting and version control.

**📈 Key Visualizations in Tableau**

🔹 **Global Electricity Consumption Over Time**  
An interactive line graph showing the rise in electricity usage globally from 1960 to present.

🔹 **Top Electricity Consumers (Map View)**  
A choropleth world map visualizing country-wise consumption patterns.

🔹 **Electricity Consumption vs. GDP per Capita**  
Scatter plot showcasing the relationship between economic development and electricity usage.

🔹 **Renewable Energy Share**  
Stacked bar charts comparing renewable vs non-renewable sources in major economies.

🔹 **Per Capita Consumption Heatmap**  
A heatmap to compare consumption on a per-person basis across time.

**📌 Insights & Findings**

* **Global electricity consumption has increased fivefold since 1960**, driven primarily by industrialization and technological advancement.
* **China, the U.S., and India are the top electricity consumers**, collectively accounting for more than 50% of global demand.
* **Renewable energy adoption is increasing**, but fossil fuels still dominate in many parts of the world.
* **There is a strong positive correlation between electricity consumption and GDP per capita**, highlighting access disparity between developed and developing nations.
* **Africa and parts of Southeast Asia remain energy-poor**, indicating the need for infrastructure investment and sustainable energy access.

**🚀 Conclusion**

This project provides a comprehensive overview of electricity usage and its role in modern economies. By visualizing consumption patterns and their socioeconomic implications, this dashboard serves as a powerful tool for policymakers, researchers, and educators to understand and address global energy challenges.

**🌐 Tableau Dashboard**

🔗 **View Live Tableau Dashboard**  
*(Replace this with your actual Tableau Public URL once uploaded.)*

**📌 Repository Structure**

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/plugging-into-the-future

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├── README.md # Project overview

├── data/ # Raw and processed data files

├── visuals/ # Exported Tableau visualizations

├── tableau/ # Tableau workbook (.twbx)

└── insights/ # Key insights, notes, and summaries

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