**Pich-deck link: <https://cleanenergy-7x1m9sh.gamma.site/>**

**Clean Energy Dashboard Analysis Summary**

* This project presents an interactive and insightful Clean-Energy Dashboard for analyzing energy production, consumption, pricing, and trends.
* The dashboard is designed to provide users with dynamic data visualization, allowing them to explore energy data from multiple perspectives, identify key trends, and gain insights into energy distribution across different regions and sectors.

**Objective**

* Visualize energy production and consumption across different energy types and regions.
* Track energy price trends and identify variations in pricing across different energy sources and regions.
* Allow real-time data filtering and customization through slicers for deeper data analysis.

**Key Features**

**1. Dynamic Data Visualization**

The dashboard includes a variety of charts that provide different perspectives on energy data:

* Bar Chart (Energy Consumption by Consumer Type): This chart highlights the energy usage patterns of different consumer groups, such as Residential, Commercial, and Industrial.
* Column Chart (Energy Production by Energy Type): Displays total energy production across various energy sources like Solar, Wind, Hydro, and Fossil Fuels.
* Pie Chart (Energy Price Distribution by Region): A visual representation of energy prices across different regions, showing how energy prices are distributed geographically.
* Line Chart (Price Trends over Time): Tracks energy price fluctuations over a period, offering insights into market trends and energy affordability.

**2. Slicers for Custom Data Analysis**

To enhance user interactivity and flexibility, the dashboard includes slicers that allow users to filter the data based on specific attributes:

* Network Distribution Slicer: Allows users to analyze energy distribution by different networks (e.g., National Grid, Off-Grid Solutions).
* Energy Producer Slicer: Users can filter energy production data based on specific producers (e.g., Salacity, KenGen Hydro).
* Consumer Type Slicer: Enables filtering energy consumption data by consumer types (e.g., Residential, Industrial).
* Energy Price Slicer: Filters price data by different energy types and regions.

**3. Data Interactivity**

* Each chart is interactive and responds to slicer selections, making the dashboard adaptable to user needs. By selecting different slicer options, users can drill down into specific data segments (e.g., analyzing energy consumption in a specific region or tracking price trends for solar energy).

**Dashboard Insights**

**1. Energy Production**

Visuals: The Column Chart on energy production shows the contribution of various energy types (Solar, Wind, Hydro, etc.) to total energy generation.

Key Insight: Users can quickly identify which energy sources are the largest contributors to overall energy capacity, allowing for strategic decision-making in energy investment and policy planning.

**2. Energy Consumption**

Visuals: The Bar Chart illustrates how much energy different consumer types (Residential, Industrial, and Commercial) are using.

Key Insight: This helps identify the highest energy-consuming sectors, guiding efforts to optimize energy use or implement energy efficiency programs.

**3. Energy Pricing**

Visuals: The Pie Chart provides a breakdown of energy prices across regions, while the Line Chart tracks price changes over time.

Key Insight: Users can quickly identify regions with the highest or lowest energy prices and spot trends in energy pricing, facilitating better pricing strategies or government subsidy allocations.

**Interactive Data Analysis Examples**

Scenario 1: Analyzing Energy Production in Nairobi  
Using the Energy Producer Slicer, users can filter energy producers based in Nairobi to analyze their contribution to overall energy production and compare production levels.

Scenario 2: Tracking Price Trends for Solar Energy  
With the Energy Price Slicer, users can isolate solar energy and track its pricing trend over time using the Line Chart, giving insights into the affordability and market behavior of solar energy.

Scenario 3: Energy Consumption by Industrial Consumers in Kisumu  
By filtering the Consumer Type Slicer to show Industrial consumers and selecting Kisumu as the location, users can analyze how industrial sectors in Kisumu are consuming energy and compare it to other regions.