### **Project Title:**

Global Energy Trends: A Comprehensive Analysis of Key Regions and Generation Modes using Power BI

### **Scenario 1: Smart Grid Implementation in Urban Areas**

* **Customer:** Local Government of a bustling urban city.
* **Problem:** The city's energy infrastructure is outdated, leading to inefficient power distribution, high reliance on fossil fuels, and increased CO2 emissions.
* **Goal:** Leverage global energy trend data to demonstrate the benefits of a smart grid. The analysis should show how integrating renewable energy sources can reduce CO2 emissions, increase grid resilience, and lower energy costs for residents.
* **How Our Analysis Will Help:**
  + The Power BI dashboard will visualize solar and wind growth globally.
  + It will demonstrate potential CO2 reduction and energy efficiency improvements.
  + It will provide a data-backed case for investment in a smart grid.
* **KPIs to Track:** CO2 reduction (%), renewable energy share (%), and cost savings ($). We will aim to include a 5-year projection based on historical trends.

### **Scenario 2: Industrial Energy Management in Manufacturing Plants**

* **Customer:** A large manufacturing plant.
* **Problem:** High operational costs and a significant carbon footprint due to inefficient energy consumption. Lack of real-time insights into energy-intensive processes.
* **Goal:** Identify key areas of energy inefficiency using data analysis and provide actionable optimization strategies (e.g., off-peak production, equipment upgrades).
* **How Our Analysis Will Help:**
  + The dashboard will model potential cost savings and carbon reductions.
  + It will compare the energy mix of different industrial nations to justify investments in advanced energy management systems.
* **Visuals & Benchmarking:** We will include stacked bar charts for process-wise consumption, a line chart for cost savings over time, and benchmark the plant's performance against industry standards for energy efficiency.

### **Scenario 3: Rural Electrification Project in Developing Countries**

* **Customer:** A non-profit organization for sustainable development.
* **Problem:** Remote rural communities lack reliable electricity, limiting education, healthcare, and economic growth. Extending traditional grids is financially infeasible.
* **Goal:** Demonstrate that decentralized renewable energy (solar microgrids) is the most scalable and cost-effective solution for rural electrification.
* **How Our Analysis Will Help:**
  + The analysis will highlight global trends in renewable energy adoption in developing regions.
  + It will visualize which renewable sources are most effective, emphasizing solar growth.
  + It will support non-profit funding and project expansion with data-backed evidence.
* **KPIs & Impact Metrics:** We will add KPIs such as the number of households electrified, schools/clinics powered, and CO2 avoided. We will also analyze the correlation between electrification and improvements in education, healthcare, and the local economy where data is available.