Plugging into the Future: Electricity Consumption Tableau Project

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1. Problem Statement

- Electricity consumption in India is increasing rapidly due to population growth, urbanization, industrial expansion, and rising use of electrical appliances.
- Major challenges include lack of real-time monitoring, difficulty identifying high-usage regions, poor demand forecasting, inefficient resource allocation, and limited data-driven decision making.
- These issues lead to power shortages, grid overloading, increased costs, and environmental impact.

2. Proposed Solution

- Develop a Tableau-based Electricity Consumption Analytics Dashboard.
- Visualize historical electricity consumption data.
- Identify trends and seasonal patterns.
- Highlight high-consumption states and sectors.
- Forecast future electricity demand for better planning.

3. Key Features

- Interactive Dashboard with state-wise, year-wise, and sector-wise analysis.
- Trend Analysis using monthly and yearly growth patterns.
- Forecasting using Tableau Time Series model.
- KPI Indicators such as Total Consumption, Growth Rate, and Peak Demand.
- Filters and Drill-down options for detailed insights.

4. Solution Architecture

- Step 1: Data Collection from government and open data portals.

- Step 2: Data Preprocessing using Excel or Python for cleaning and formatting.
- Step 3: Store cleaned data in CSV or SQL Database.
- Step 4: Connect Tableau to dataset and build visualizations.
- Step 5: Publish dashboard via Tableau Public or GitHub.

5. Expected Outcomes

- Identify high electricity-consuming regions.
- Understand seasonal and long-term demand changes.
- Predict future electricity needs.
- Support smart grid planning and policy decisions.

6. Technologies Used

- Tableau Desktop / Tableau Public
- Microsoft Excel
- Python (Optional – Pandas)
- MySQL (Optional)