

plugging into the future: an exploration of electricity consumption patterns using tableau

11.1 Future Scope

The analysis of electricity consumption patterns using Tableau lays a strong foundation for deeper, more advanced energy analytics. While the current study focuses on historical trends and visual exploration, future work can significantly expand both the scope and impact of this research.

One major direction is the integration of real-time smart meter data to enable live dashboards. By incorporating streaming data, utilities and policymakers could monitor consumption dynamically, detect anomalies instantly, and respond proactively to demand fluctuations.

Another promising extension is the application of predictive analytics and machine learning models alongside Tableau. Forecasting future electricity demand based on historical usage, weather patterns, population growth, and economic indicators would enhance planning accuracy and grid reliability.

The project can also be expanded to include renewable energy integration analysis, comparing conventional electricity consumption with solar, wind, and other sustainable sources. This would support strategic planning for energy transition and carbon footprint reduction.

Additionally, incorporating geospatial analytics can provide deeper insights into regional consumption disparities, infrastructure gaps, and urban-rural energy distribution patterns. Combining Tableau with GIS tools would strengthen spatial decision-making capabilities.

Future research may also explore:

- Energy efficiency benchmarking across industries
- Demand-side management strategies
- Impact analysis of government energy policies
- Carbon emission correlation with electricity consumption