

Electricity Consumption Analysis Project Documentation

TEAM MEMBERS

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1. Introduction

Electricity is one of the most important resources for the economic development of a country. It is widely used in industries, agriculture, transportation, and households. The level of electricity consumption in a region reflects its population needs, industrial activities, and economic growth.

In India, electricity demand has been increasing due to rapid urbanization, population growth, and technological development. Studying electricity consumption patterns helps in understanding how energy is used across different regions and time periods.

This project focuses on analyzing electricity consumption patterns across different states of India from January 2019 to December 2020. The dataset includes a crucial period during the COVID-19 pandemic when nationwide lockdowns significantly affected electricity usage. Using Tableau dashboards, the project visualizes electricity consumption trends and highlights how demand changed during this period.

2. Problem Statement

Electricity demand in India varies due to several factors such as seasonal changes, industrial activity, population density, and unexpected events like the COVID-19 pandemic. Understanding these changes is important for improving energy planning and distribution.

The objective of this project is to analyze electricity consumption data to identify patterns, regional differences, and the impact of the COVID-19 lockdown on electricity demand across Indian states.

3. Data Collection

The dataset used for this project contains state-wise electricity consumption data in India from January 2019 to December 2020.

The data includes information such as:

- Date or month of electricity usage
- State-wise electricity consumption values
- Regional electricity demand trends

This dataset provides insights into how electricity usage changed over time and across different regions of the country.

4. Data Cleaning and Preparation

Before performing the analysis, the dataset was cleaned and prepared to ensure accurate results.

The following steps were performed:

- Missing or incorrect values were checked and handled
- Data fields were formatted properly
- Unnecessary columns were removed
- Date values were organized for time-series analysis

These steps ensured that the dataset was ready for effective visualization and analysis in Tableau.

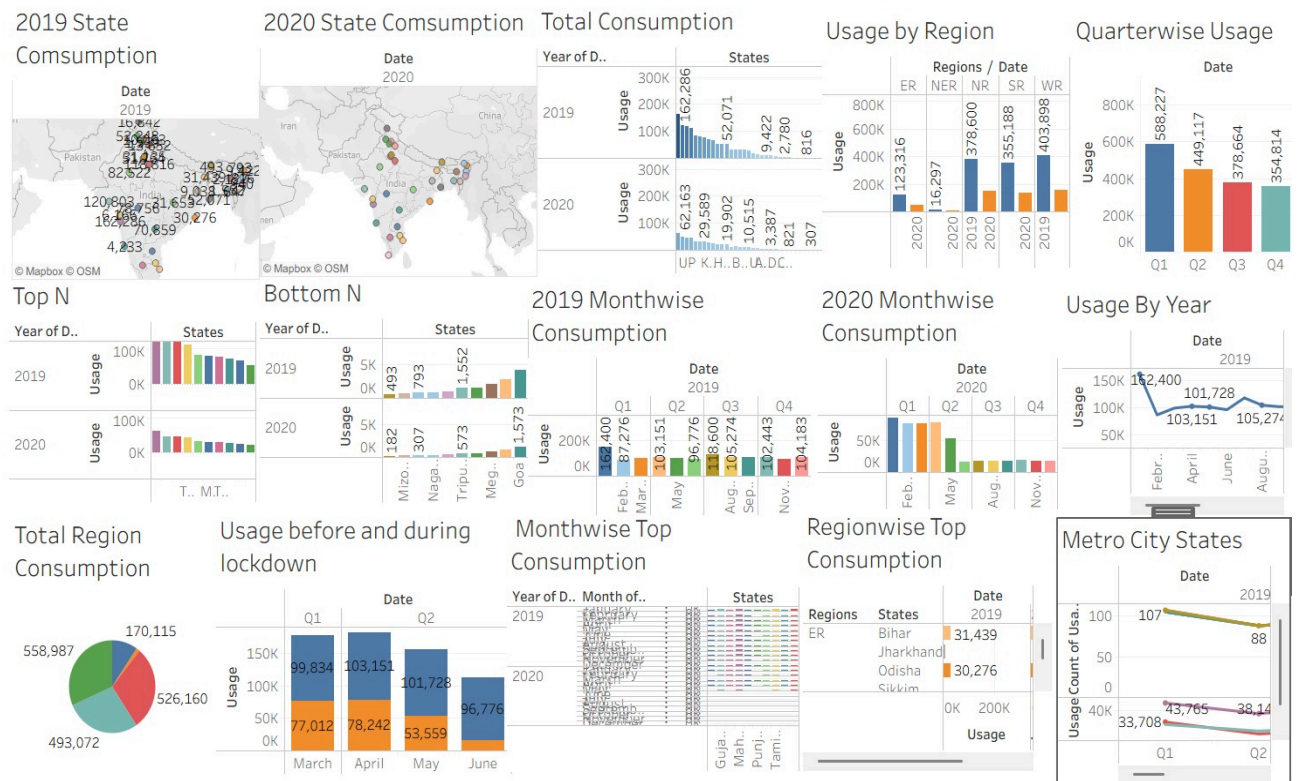
5. Data Visualization using Tableau

Tableau was used to create interactive dashboards that help visualize electricity consumption trends across India. These dashboards allow users to observe patterns, compare states, and understand how electricity demand changed over time.

The visualizations highlight important aspects such as overall consumption trends, regional differences, and recovery after the COVID-19 lockdown.

Tableau Dashboards

Dashboard –



Story on Electric Consumption-

Story On Electricity Consumption in India



6. Key Insights

- Electricity consumption shows seasonal variations across the year.
- A major decline in electricity demand occurred during the COVID-19 lockdown.
- Different regions of India show different electricity consumption patterns.
- Some states recovered quickly after lockdown while others showed slower recovery.

7. Technologies Used

- Tableau – Data visualization and dashboard creation
- Python – Data processing and analysis
- Flask – Web framework for presenting dashboards
- HTML & CSS – Frontend design
- GitHub – Version control and project management

8. Conclusion

This project demonstrates how data visualization techniques can be used to analyze electricity consumption patterns in India. By studying data from 2019 to 2020, the project highlights how electricity demand changed due to seasonal factors and the COVID-19 lockdown.

The Tableau dashboards provide a clear and interactive way to understand electricity usage trends, regional variations, and recovery patterns.