

Name : Chaitanya Pawar

Student ID : AF0430136

Batch code : ANP-C8256

Project Name : Electricity Consumption Data Analysis

Project Guide : Ms. Maseera Jamal Shaikh

I. Objective :

The primary objective of this analysis is to examine and understand the patterns and factors influencing electricity consumption during the years 2019 and 2020, with a specific focus on the impact of the COVID-19 pandemic. To determine how the global health crisis and associated lockdown measures affected electricity consumption across residential, commercial, and industrial sectors. And To examine and analyze trends in electricity consumption, focusing on demand fluctuations driven by seasonal changes, economic activity, and shifts in work habits, particularly the transition to remote working.

II. Problem Statement:

The electricity consumption patterns in 2019 and 2020 were significantly impacted by various factors, including seasonal variations, economic activity, and the global health crisis caused by the COVID-19 pandemic. The widespread shift to remote working, along with disruptions in industrial and commercial operations, has resulted in unusual demand fluctuations. Understanding how these factors have influenced electricity consumption is crucial for efficient energy management, future infrastructure planning, and policy development.

III. Data Description :

Source : The data is collected from Kaggle and contains information about electricity consumption in different states and regions of India in the year 2019 – 2020.

IV. Approach:

1. Data Import and Libraries:

- Libraries Used: Panda , Matplotlib , Seaborn
- Process:
 - i. Import relevant libraries.
 - ii. Load the dataset and inspect its structure for initial insights.

2. Data Cleaning:

- checks missing values, duplicates, or any inconsistencies in the dataset.
- Standardize values for clarity.

3. Exploratory Data Analysis (EDA):

- Use visualizations (e.g., bar charts, line plots) to identify trends over time and geographical patterns

Project Result:

1. Highest power consuming region: West
2. Highest power consuming year:2019
3. Total states= 33
4. Total years = 2
5. Mean of power consumption usage is : 116.04
6. Power consumed in 2019 :11847 MW
7. Power consumed in 2020 :4752 MW

Conclusion :

Electricity consumption displayed fluctuations, particularly during periods of strict lockdowns and government-imposed restrictions. Given the increase in residential consumption during the pandemic, there is a need to promote energy-efficient technologies and practices in households to offset higher demand.