PLUGGING INTO THE FUTURE: AN EXPLORATION OF ELECTRICITY CONSUMPTION PATTERNS

1. INTRODUCTION

1.1 Overview

India is the world's third largest producer and third largest consumer of electricity. The National electric grid in India has an installed capacity of 370.106 GW as of 31st March 2020. Renewable power plants, which also include large hydroelectric plants. Constitute 35.86% of India's total installed capacity. During the fiscal year (FY) 2019-2020, the total electricity generation in the country was 1,598TWh generated by utilities. The gross electricity consumption per capita in FY2019 was 1,208 kWh.

In 2015-16, electric energy consumption in agriculture was recorded as being the compared to most other countries despite India having a low electricity tariff.

In light of the recent COVID-19 situation, when everyone has been under lockdown for the months of March to June the impacts of the lockdown on economic activities have been faced by every sector in a positive or a negative way.

The database is exhaustive in its demonstration of energy consumption state wise.

Analysing Electricity Consumption in India from Jan 2019 till 5th December 2020. This dataset contains a record of Electricity Consumption in India. Here are going to analyse State wise, Region wise and Overall Electricity Consumption in India.
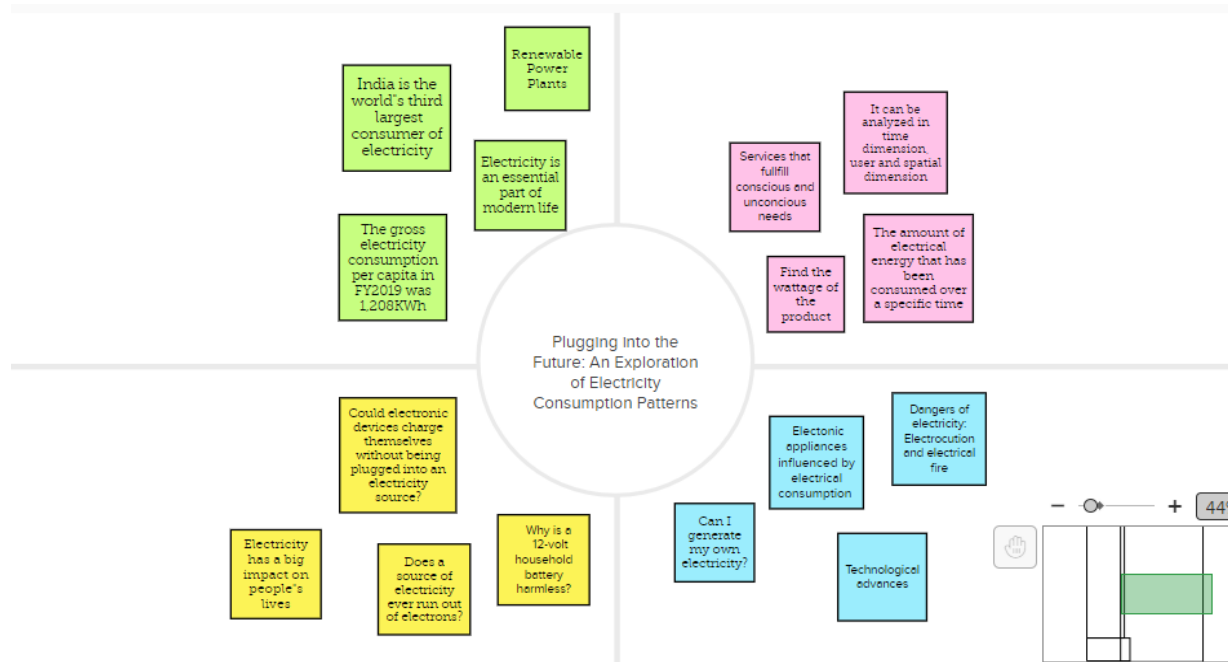
1.2 Purpose

Uses:

People use electricity for lighting, heating, cooling and refrigeration and for operating appliances, computers, electronics, machinery and public transportation system.

We can achieved using this project, Power Generation and Distribution Corporation's objective is to materialize quality and uninterrupted power supply to consumers at affordable rates.
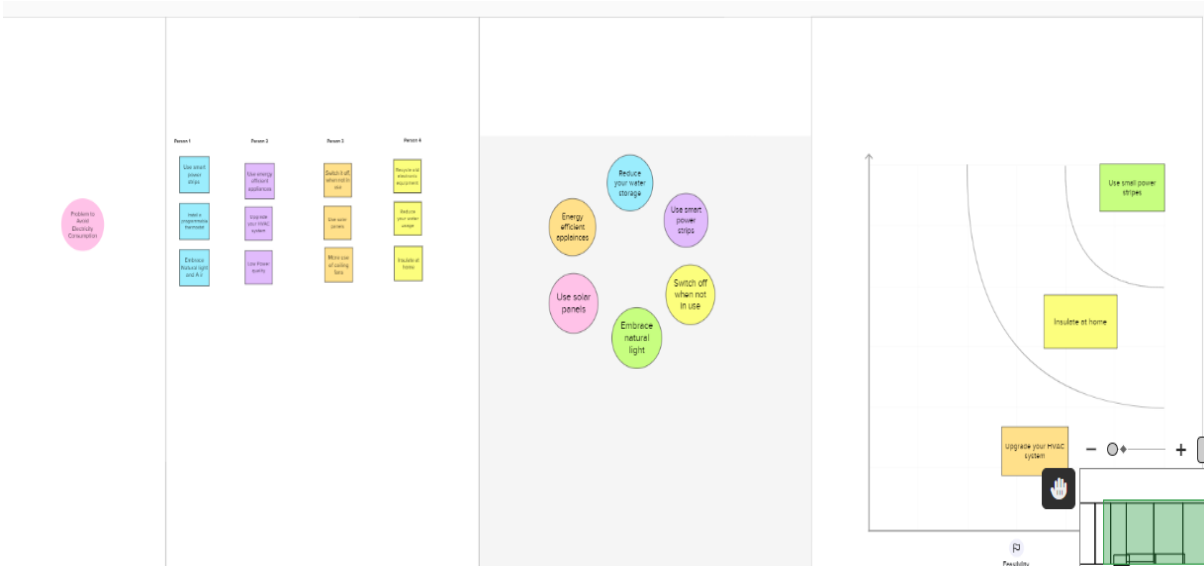
2. PROBLEM DEFINITION & DESIGN THINKING:

The environmental problem directly related to energy production and consumption include air pollution, climate change, water pollution, thermal pollution, and solid waste disposal. The emission of air pollutants from fossil fuel combustion is the major cause of urban air pollution.

2.1 Empathy Map

Renewable Power Plants

India is the world's third largest consumer of electricity

Electricity is an essential part of modern life

The gross electricity consumption per capita in FY2019 was 1,208KWh

It can be analyzed in time dimension, user and spatial dimension

Services that fulfill conscious and unconcious needs

The amount of electrical energy that has been consumed over a specific time

Find the wattage of the product

Plugging Into the Future: An Exploration of Electricity Consumption Patterns

Could electronic devices charge themselves without being plugged into an electricity source?

Dangers of electricity: Electrocution and electrical fire

Electonic appliances influenced by electrical consumption

Electricity has a big impact on people's lives

Does a source of electricity ever run out of electrons?

Why is a 12-volt household battery harmless?

Can I generate my own electricity?
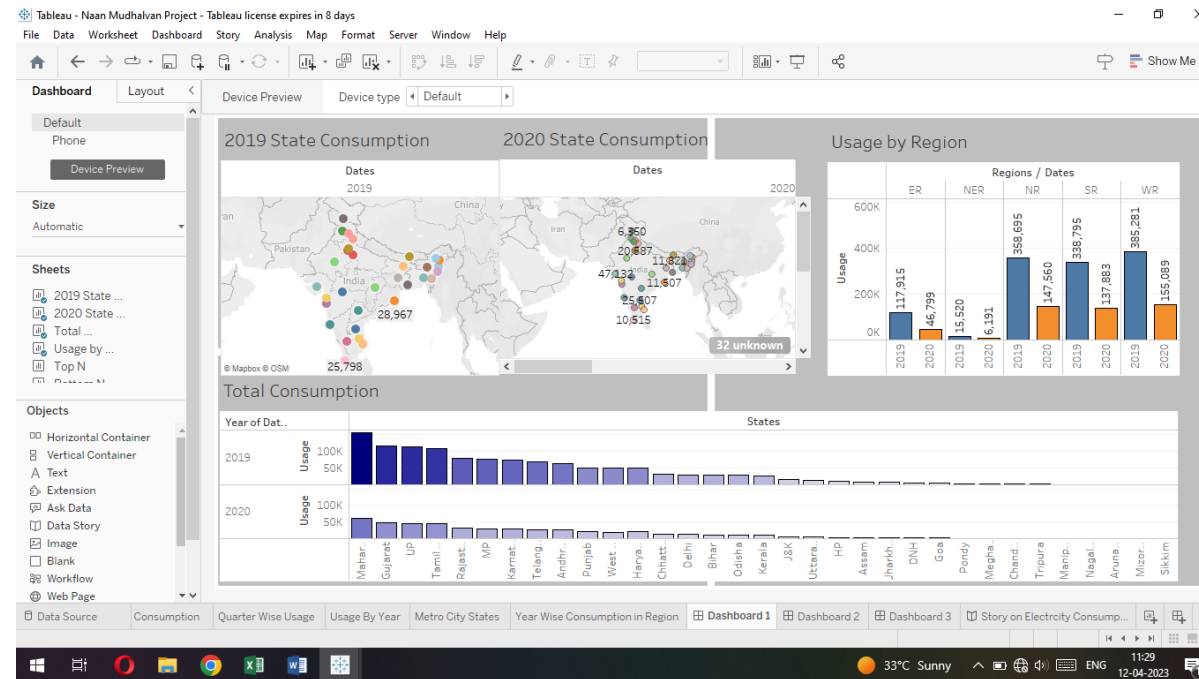
Technological advances

2.2 Ideation & Brainstorming Map

Problem to avoid Electricity Consumption

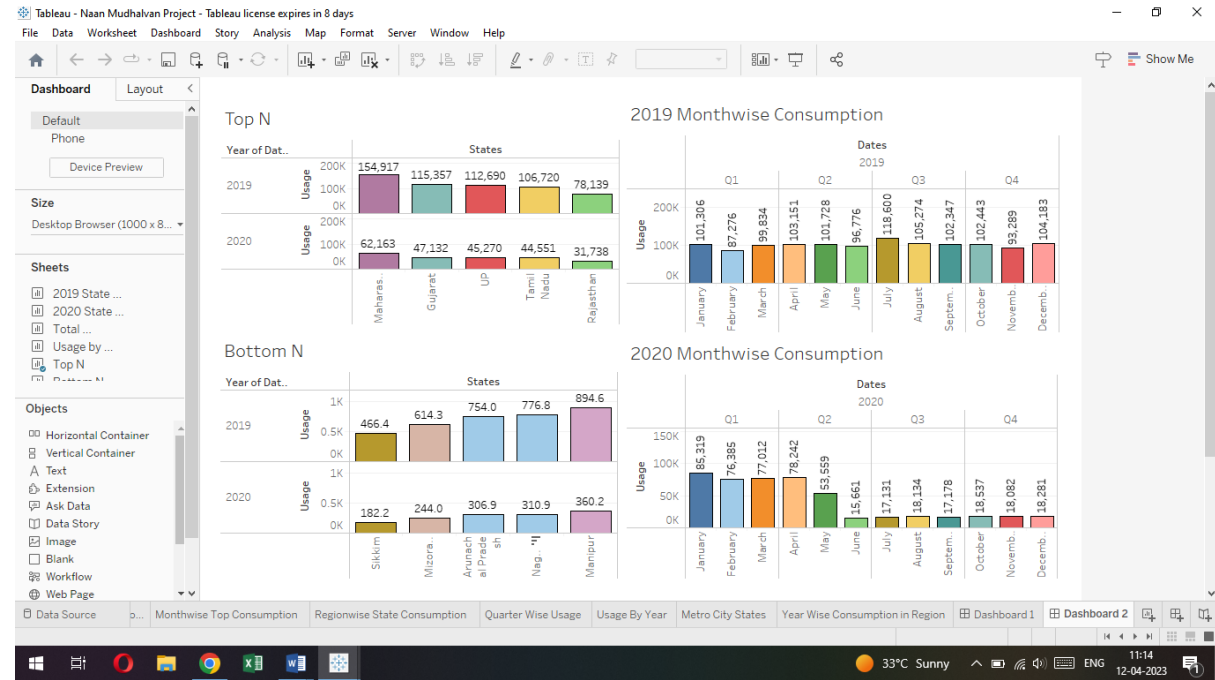# 3. RESULT:

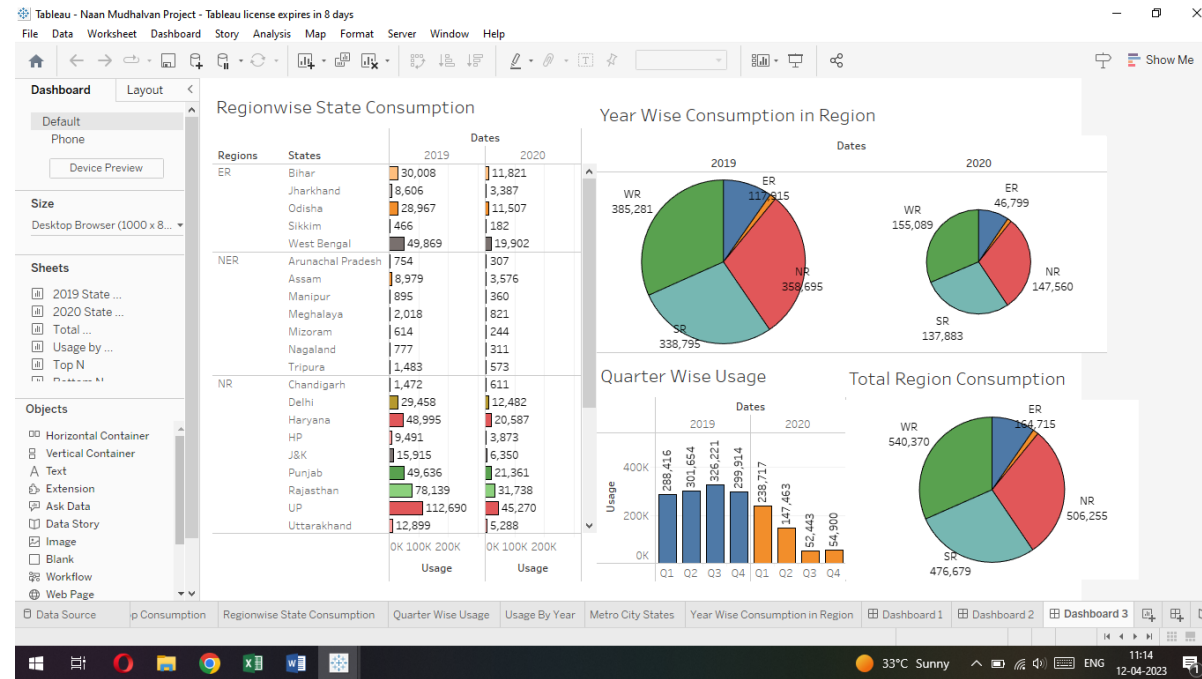This section will discuss the results of the data analysis.

- 2019 and 2020 State Consumption
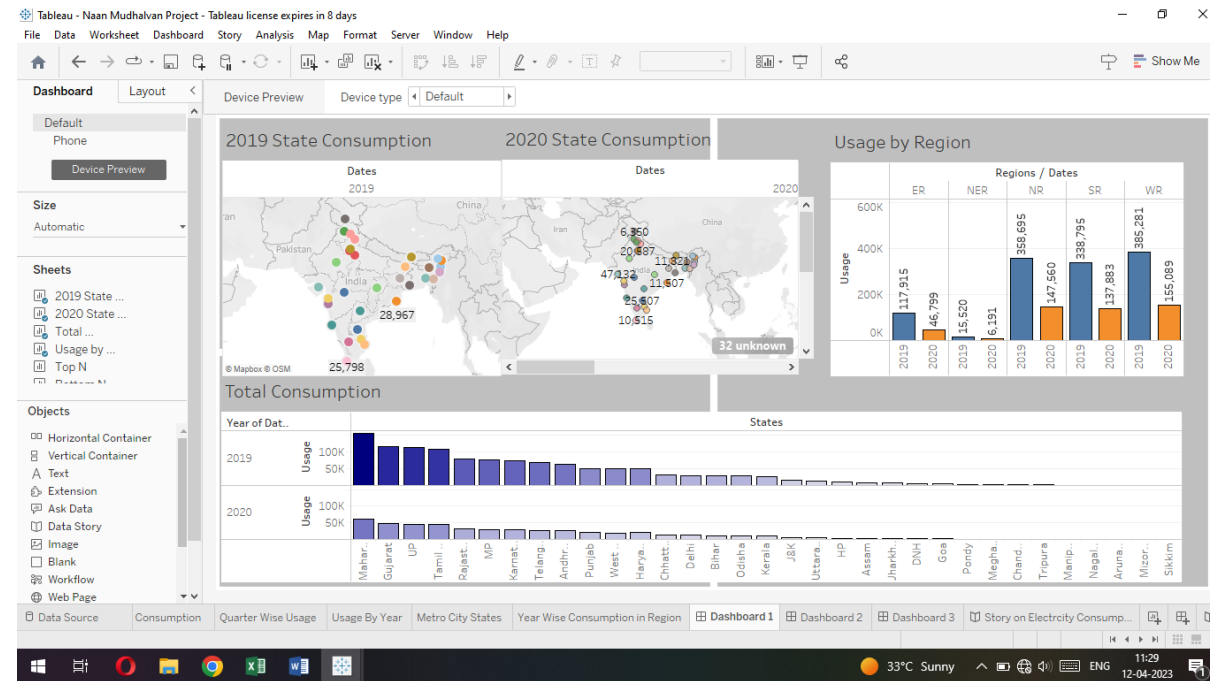- Usage by Region and Total Consumption

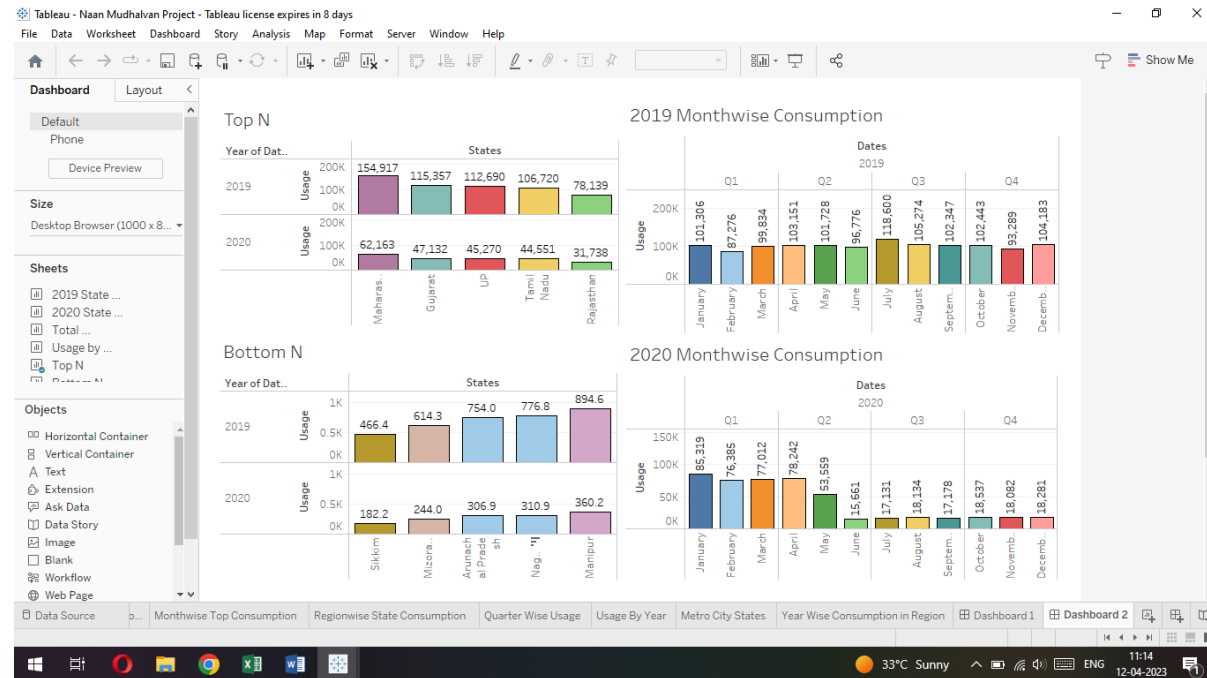o Top N and Bottom N

o 2019 and 2020 Monthwise Consumption

o Regionwise State Consumption
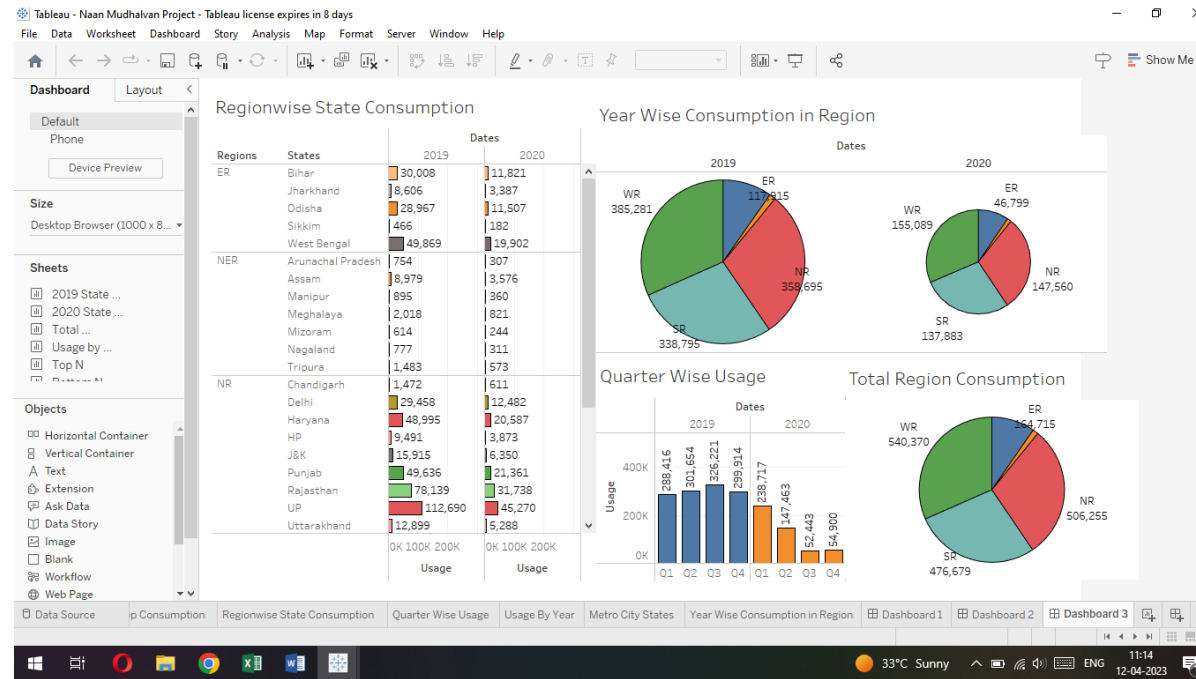
o Year Wise Consumption Region

DASHBOARD

- Total Consumption is the Highest in Maharashtra
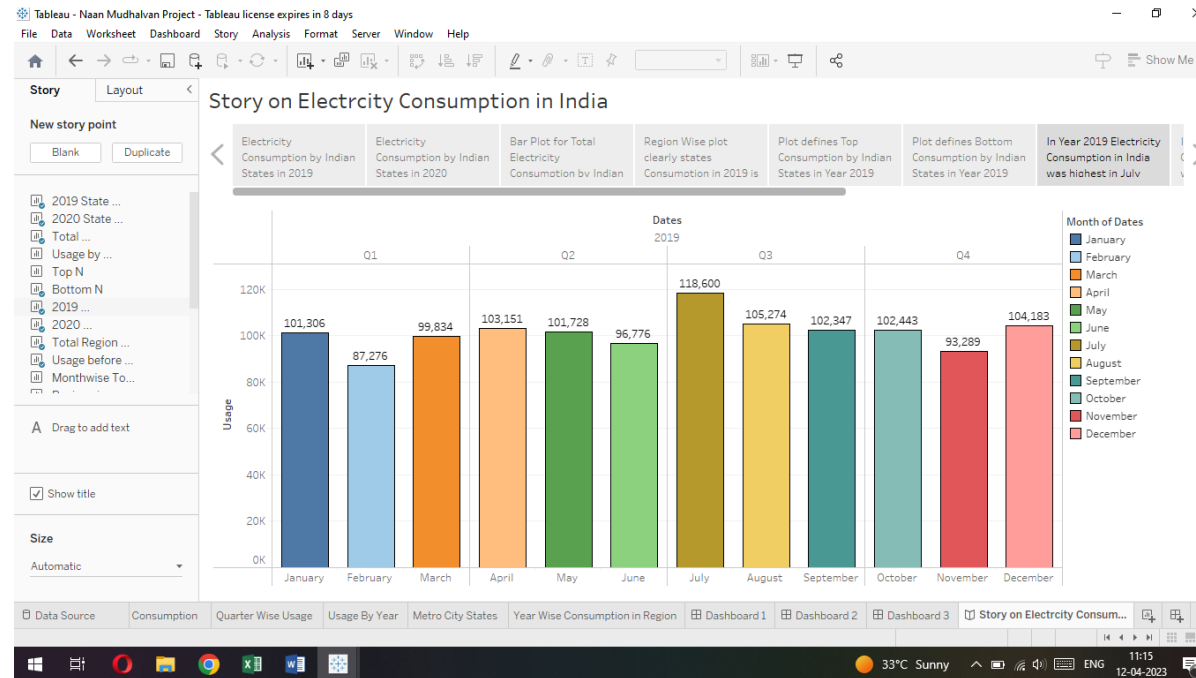- Lowest Electricity Consumption in Sikkim

- 2019 Monthwise Consumption is higher than the 2020 Monthwise Consumption
- Top five and bottom five States Electricity Consumption in India

- Total Region Consumption
- Yearwise Consumption in Region
- Regionwise State Consumption

STORY

In Year 2019 Electricity Consumption in India was highest in July

4. ADVANTAGES AND DISADVANTAGES:

ADVANTAGES

- It is a clean, safe, cheap and convenient source of energy
- Lower maintenance cost
- More efficient
- Reduces greenhouse emission
- It is renewable
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DISADVANTAGES

- More power plants and more pollution
- Damming can cause loss of land suitable for agriculture as well as recreation
- Change in river or stream quality
- In electricity, there are a limited number of feasible sites for a large number of atoms
- Dependent on precipitation

5. APPLICATIONS

1. Used for Entertainment
   *Watching Television
2. Used in Healthcare
   *Surgical operation
3. Use in transport
   *Reaching places
4. Electricity used in Household
   *Microwaves,
   *Washing Machine
   *Dishwashers

5. Used in Office for Biometric Scanners

6. CONCLUSION

Electricity is the backbone of modern society. Our life will be go back to the primitive age without electricity. There is a need for rational use of electricity, as it is largely produced from non-renewable sources like coal and water. Alternative sources of electricity should be explored to meet should take every step to conserve sources of electricity for future generations.
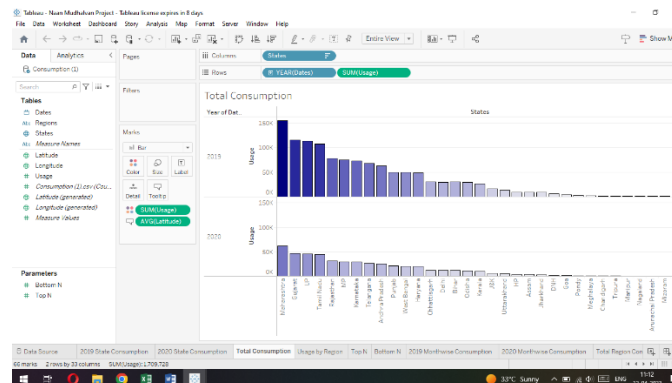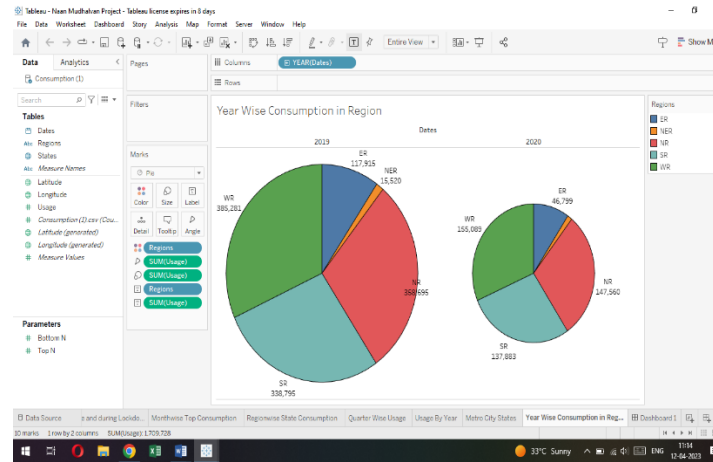

Electricity Consumption State

➢ Maharashtra is the Highest Electricity Consumption use of India

➢ Gujarat is the Second Highest Electricity Consumption user of India

➢ Sikkim is the Lowest Electricity Consumption user of India
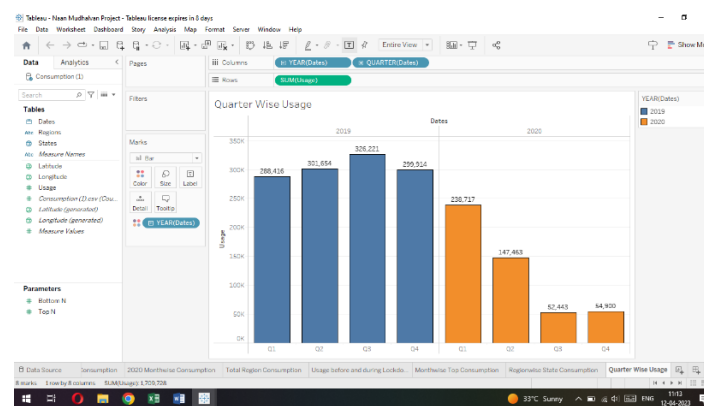
Electricity Consumption in Quarters

➢ Electricity Consumption in 2019 for Quarter 3 was Highest

➢ Electricity Consumption in 2019 for Quarter 1 was Lowest

➢ Electricity Consumption in 2020 for Quarter 3 was Lowest

➢ Electricity Consumption in 2020 for Quarter 1 was Highest

Electricity Consumption in Region

➢ Total Electricity Consumption in Western Region is Highest.

➢ Total Electricity Consumption in North Eastern Region is Lowest.

➢ Electricity Consumption in 2020 for Quarter 3 was Lowest.

7. FUTURE SCOPE:

As the Indian Government Plan to increase electrification of rail-route kilometres from 40% presently to 77% by 2022, the level of electricity consumption achieved by 2030 could be 35-43TWh, growing at 5.0-6.3% CAGR from 17TWh in 2015.

In the Stated Policies Scenario, global electricity demand grows at 2.1% year to 2040, twice the rate of primary energy demand. This raises electricity's share in total final energy consumption from 19% in 2018 to 24% in 2040. Electricity demand growth is set to be particularly strong in developing economics.