Plugging into the Future: An Exploration of Consumption Patterns

INTRODUCTION

OVERVIEW:

In the Stated Policies Scenario, global electricity demand grows at 2.1% per 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 economies.

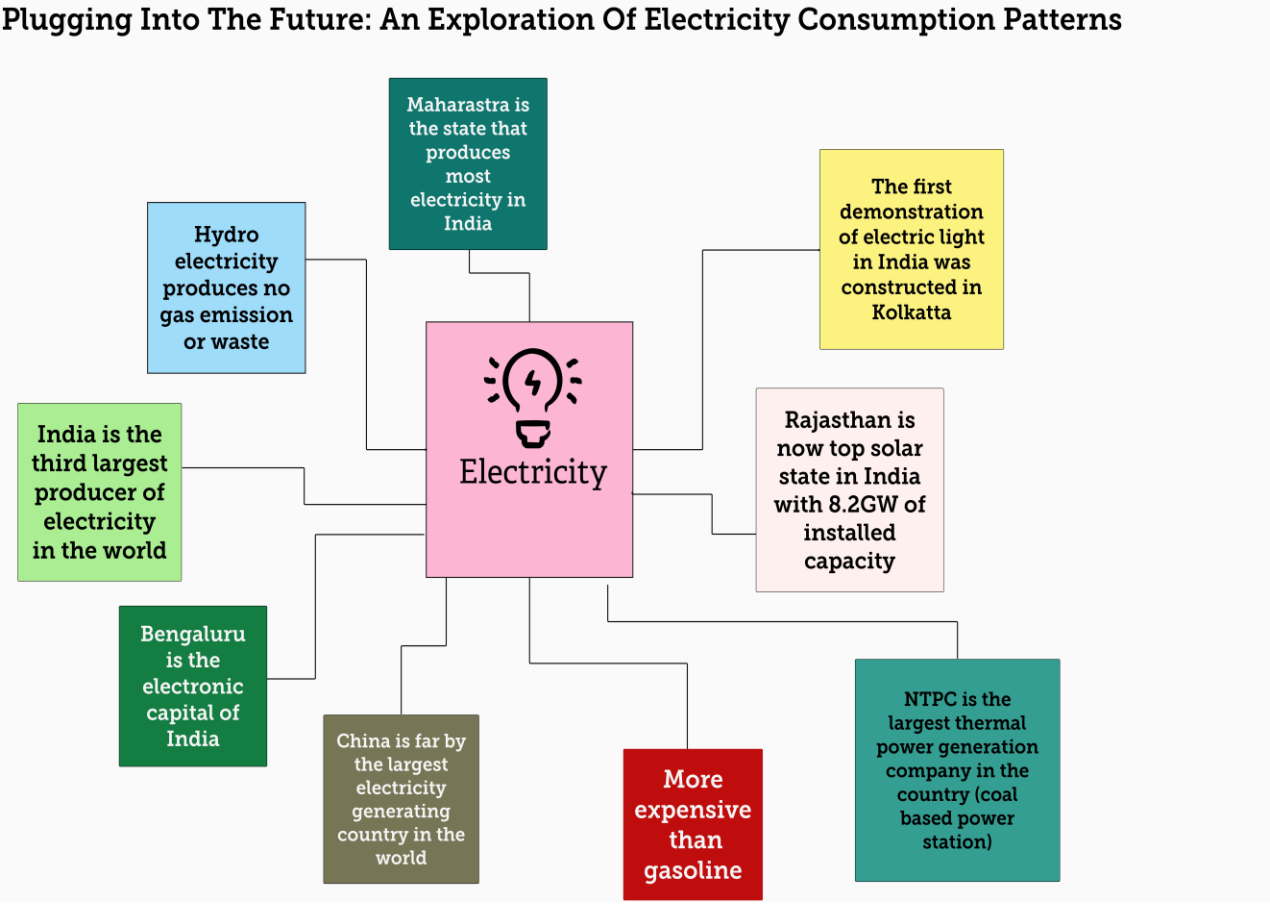
Electricity demand follows two distinct regional paths. In advanced economies, future growth linked to increasing digitalisation and electrification is largely offset by energy efficiency improvements. In developing economies, rising incomes, expanding industrial output and a growing services sector push demand firmly up. Developing economies contribute nearly 90% of global electricity demand growth to 2040 in the Stated Policies Scenario, but demand per person in these economies remains 60% lower than in advanced economies.

PURPOSE

Annual electricity consumption per capita serves as an important measure of a country's electric power development. Generally speaking, electricity consumption grows faster when the industrialization process develops quickly and goes down rapidly when industrialization is completed or near completion.

PROBLEM DEFINITION AND DESIGN THINKING

Empathy mapping



BRAINSTORMING AND IDEATION

Template

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

10 minutes to prepare
1 hour to collaborate
2-8 people recommended

Share template feedback

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

A **Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B **Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.

C **Learn how to use the facilitation tools**
Use the Facilitation Superpowers to run a happy and productive session.

Open article →

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

PROBLEM

1)What is electricity and its examples?
2)what are the 5 important of electricity?
3)what are the 4 types of electricity?

Key rules of brainstorming
To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Mani Mehalai R

Electricity is a what happens when charge carriers,called electrons,accumulate. eg;fossil fuel...

people use electricity for 1)lighting 2)heating

coal,water

Muthulakshmi

A single charge is called a monopole;two charges are called dipole;a collection of four charges is called a quadrupole. eg;nuclear energy

1)cooling 2)refrigeration

solar,wind

Jeyasree

This lesson will focus on the interactions that arise in monopoles and dipoles. Eg;renewable energy

1)computers 2)electronic

nuclear,water

Sutheci Mithra

A less obvious examples of electricity is the current that is produced from an electron orbiting an atom

1)machinery 2)public transportation system

nuclear,hydro

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

Its is a clean,safe,cheap and convenient source of energy lower maintenance cost more efficient no tailpipe emission reduces greenhouse emission hydroelectric station are inexpensive to operate hydroelectricity produes no gas emissions or waste its is renewable

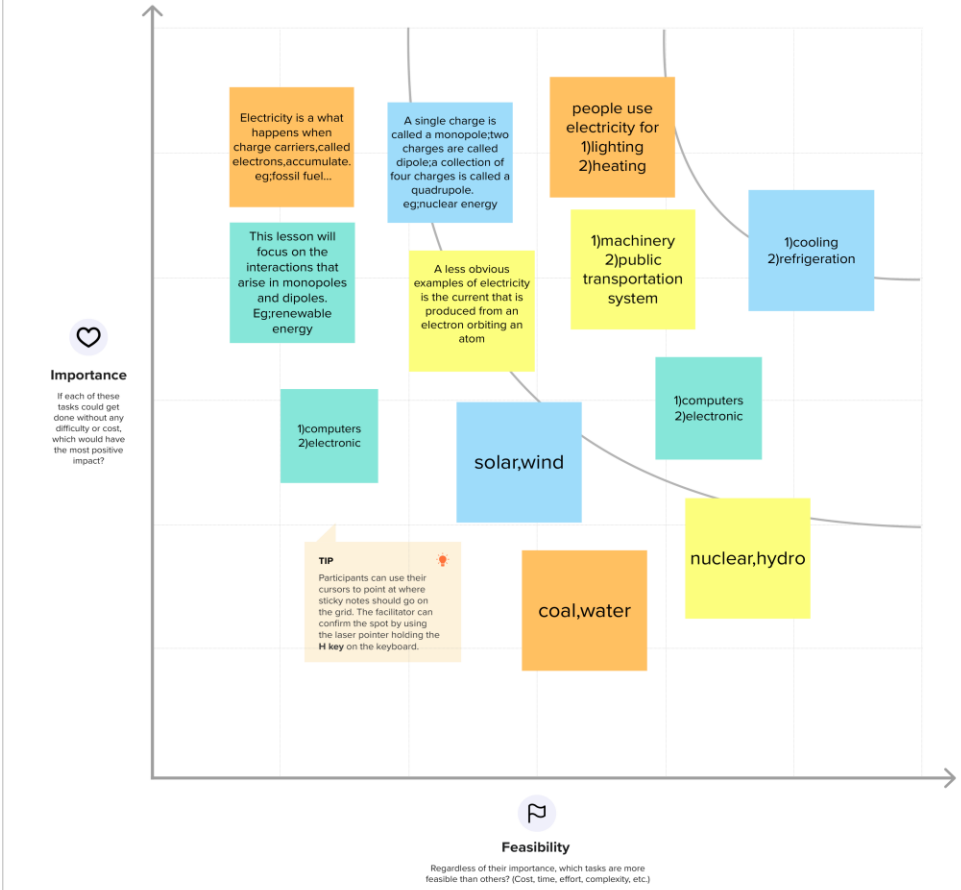
more expensive than gasoline loss of fish species sometimes messes up wildlife dependent on precipitation more power plants and more pollution cost for construction

4

Prioritize

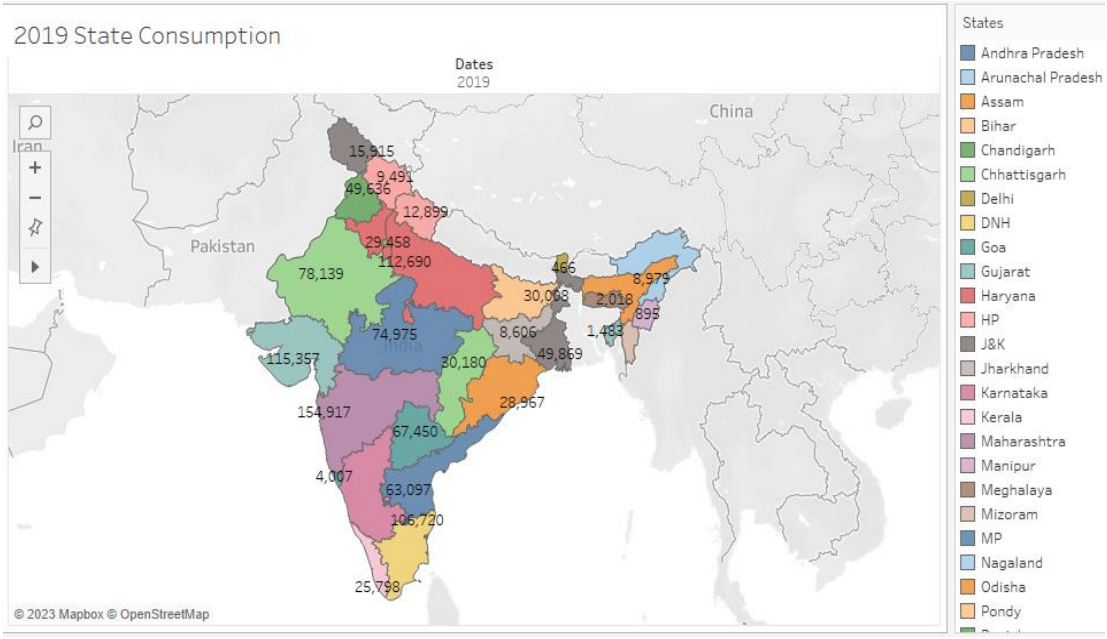
Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes



RESULTS

ACTIVITY 1.1



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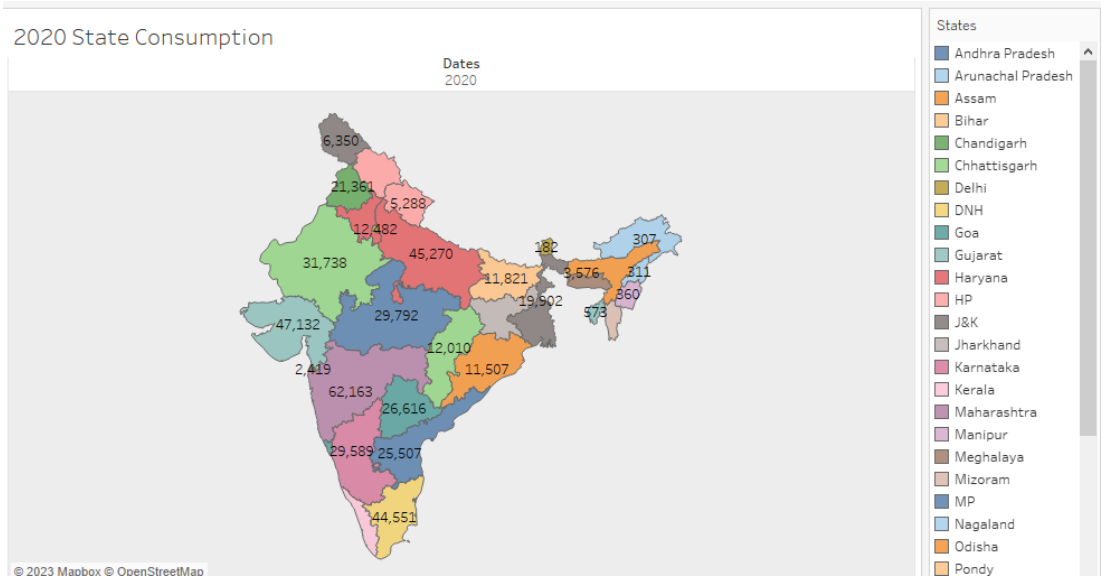

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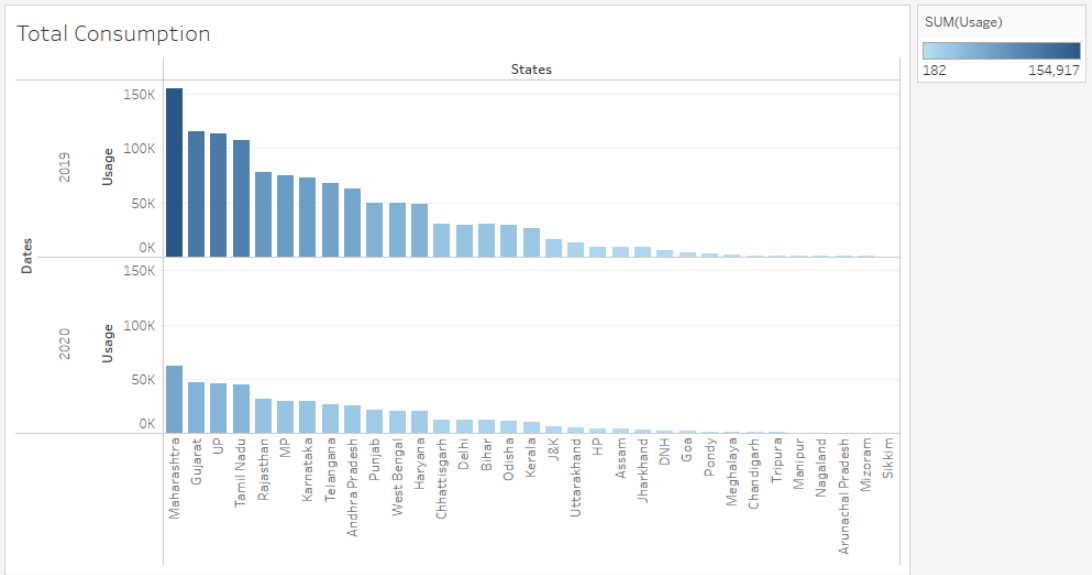

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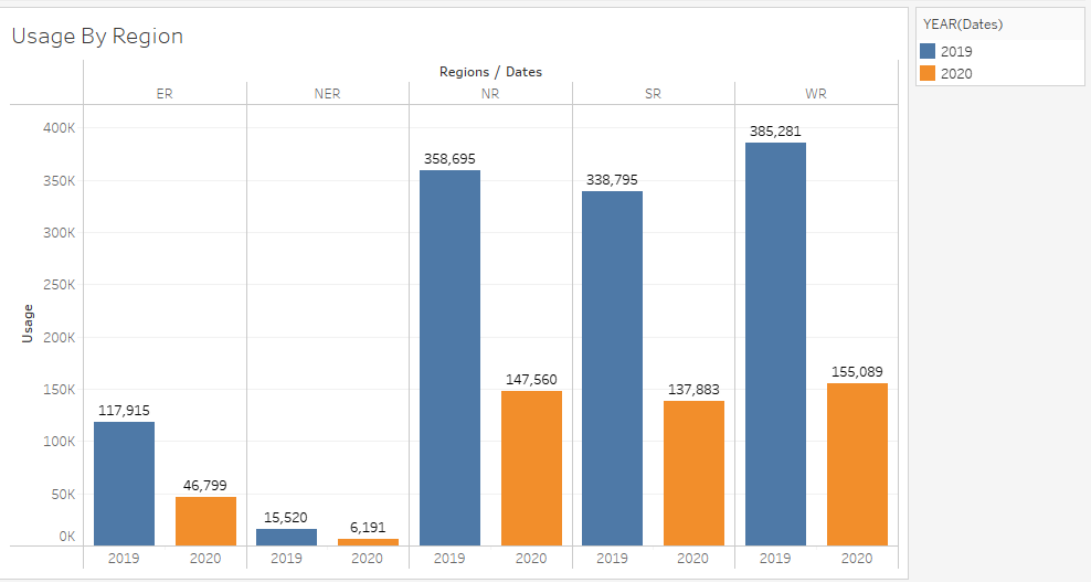

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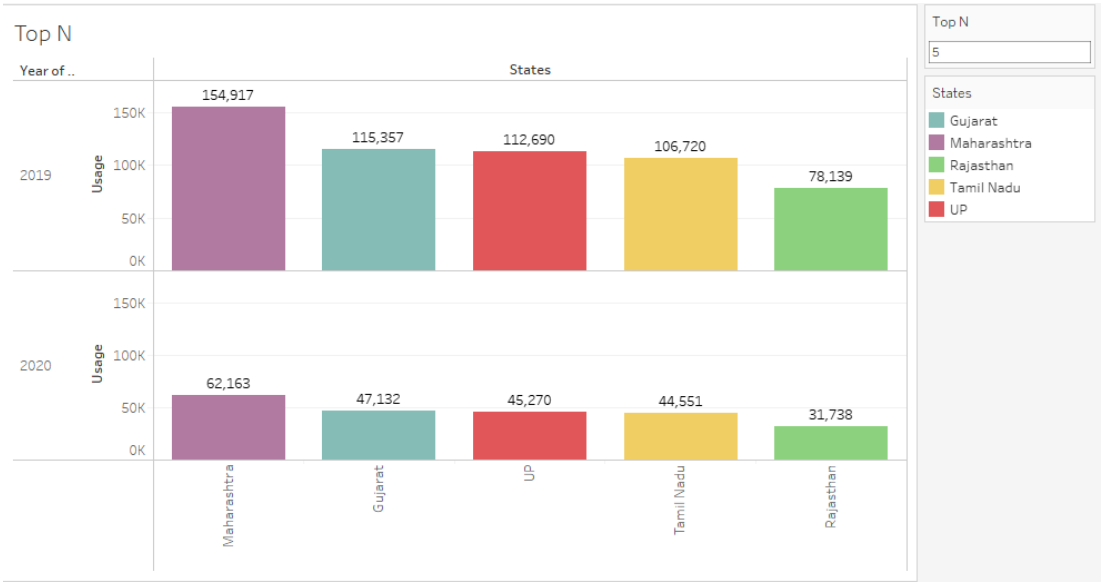

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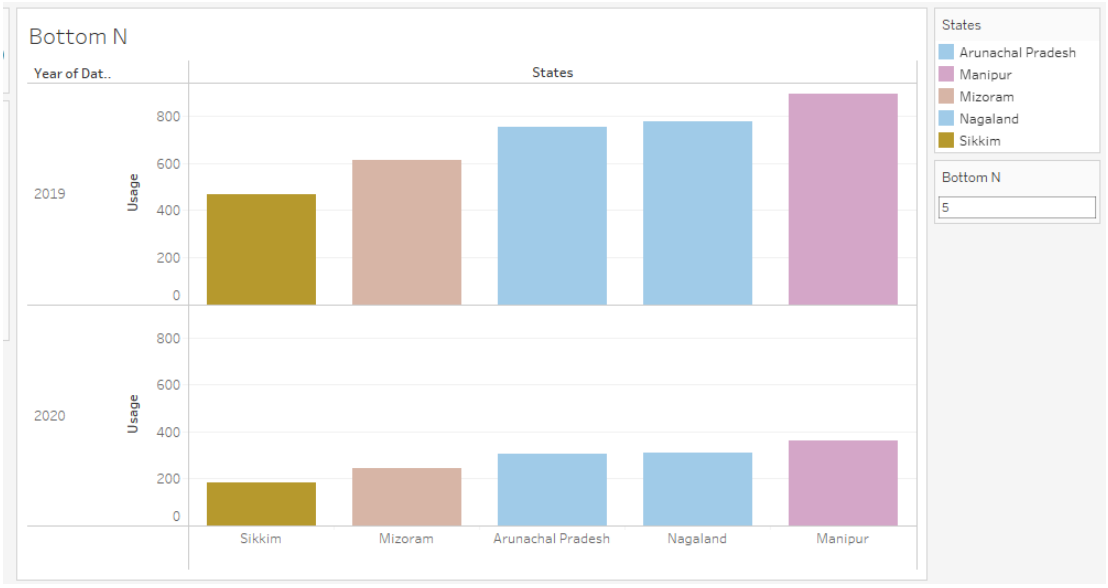

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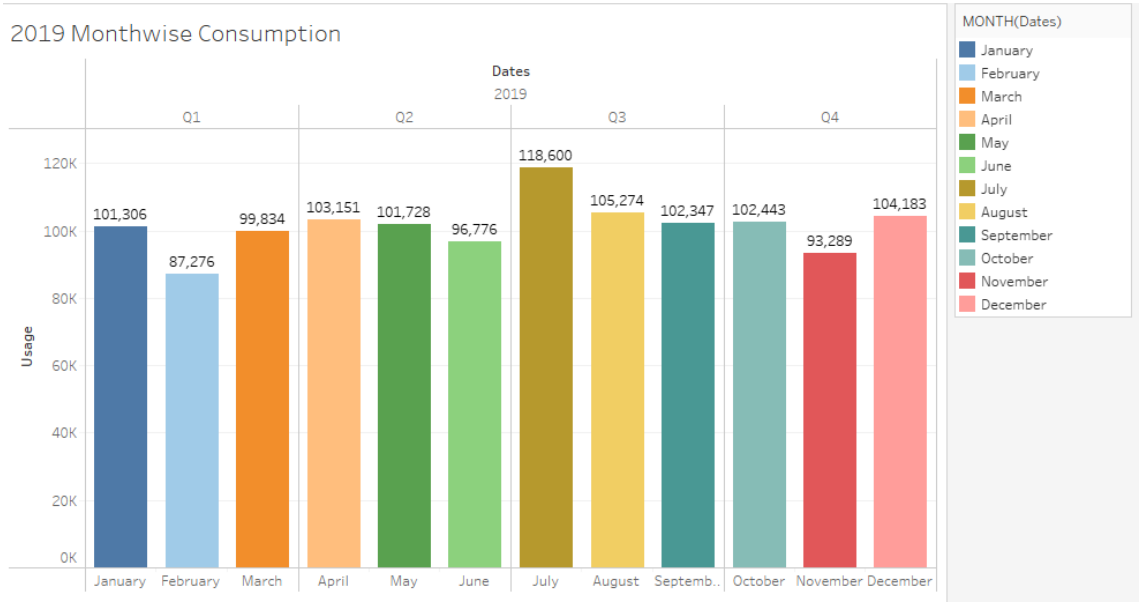

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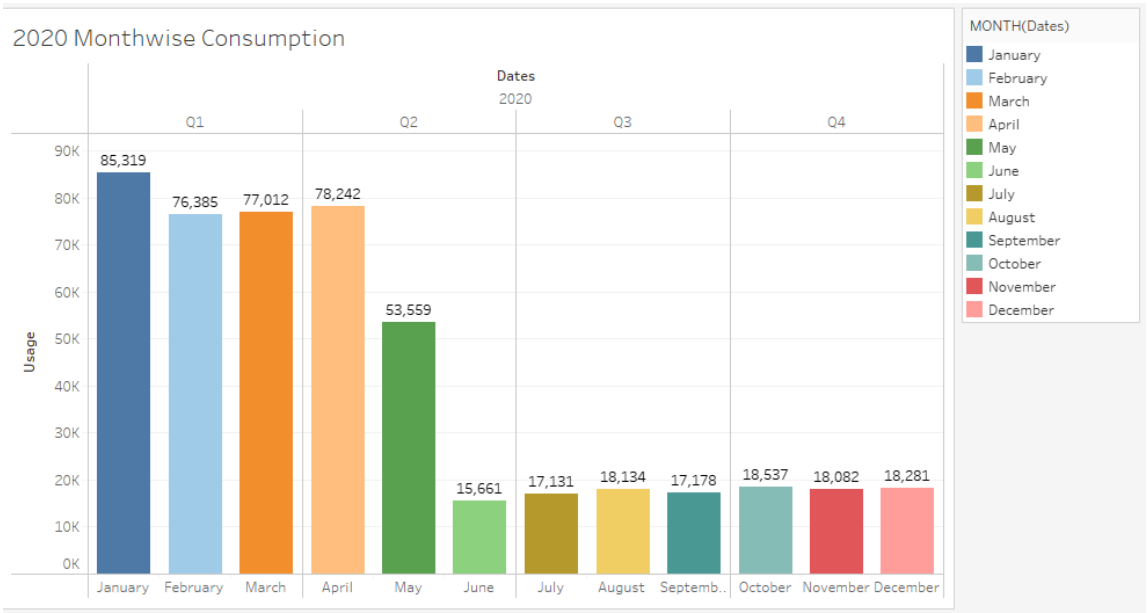

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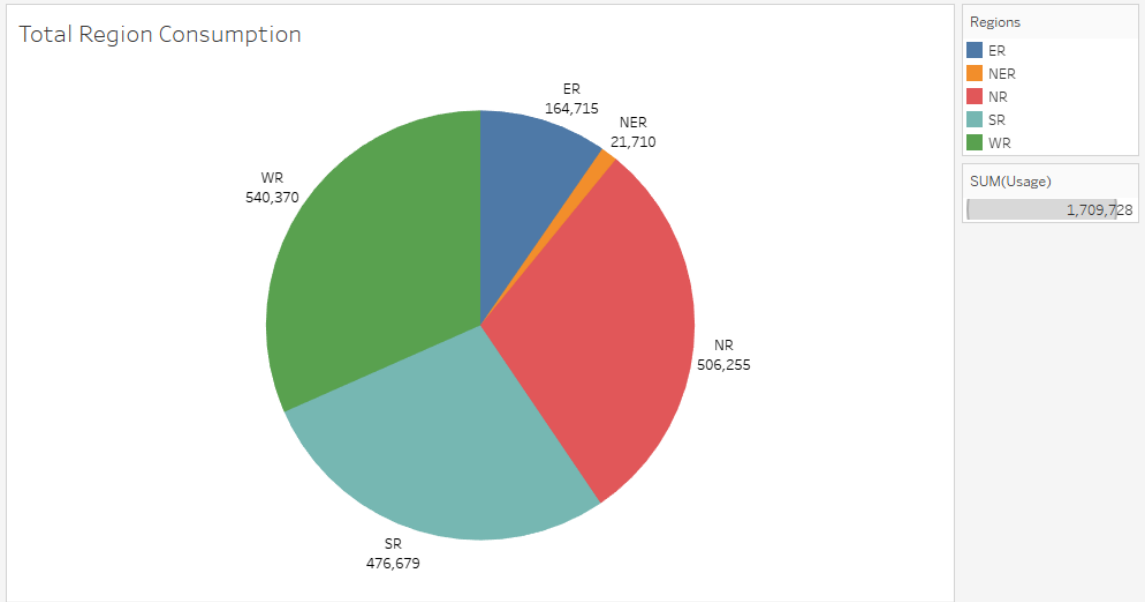

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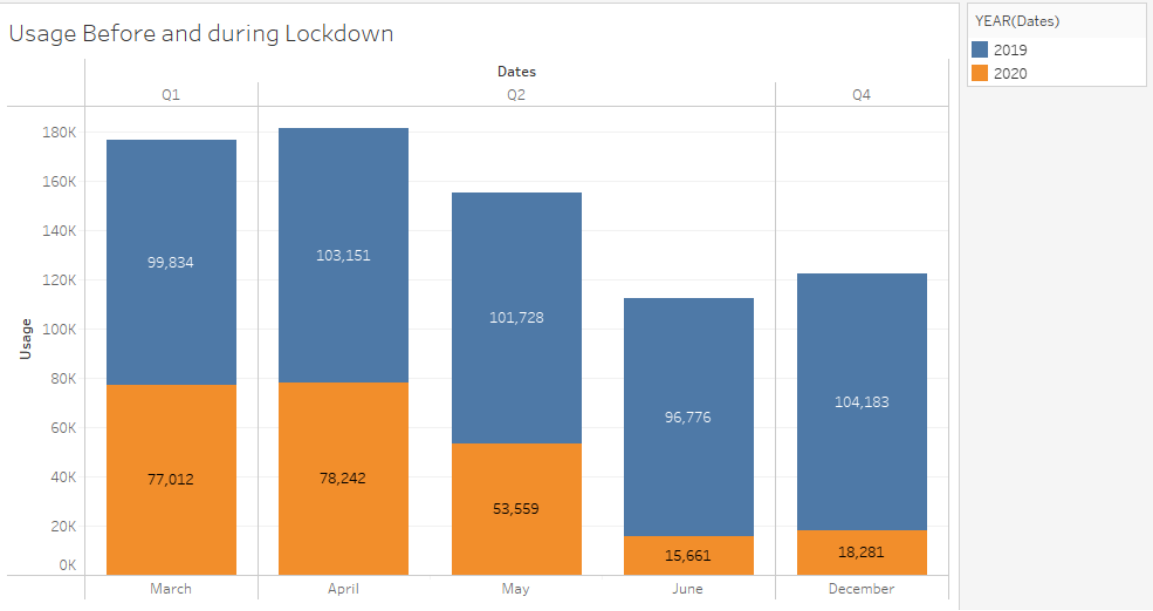

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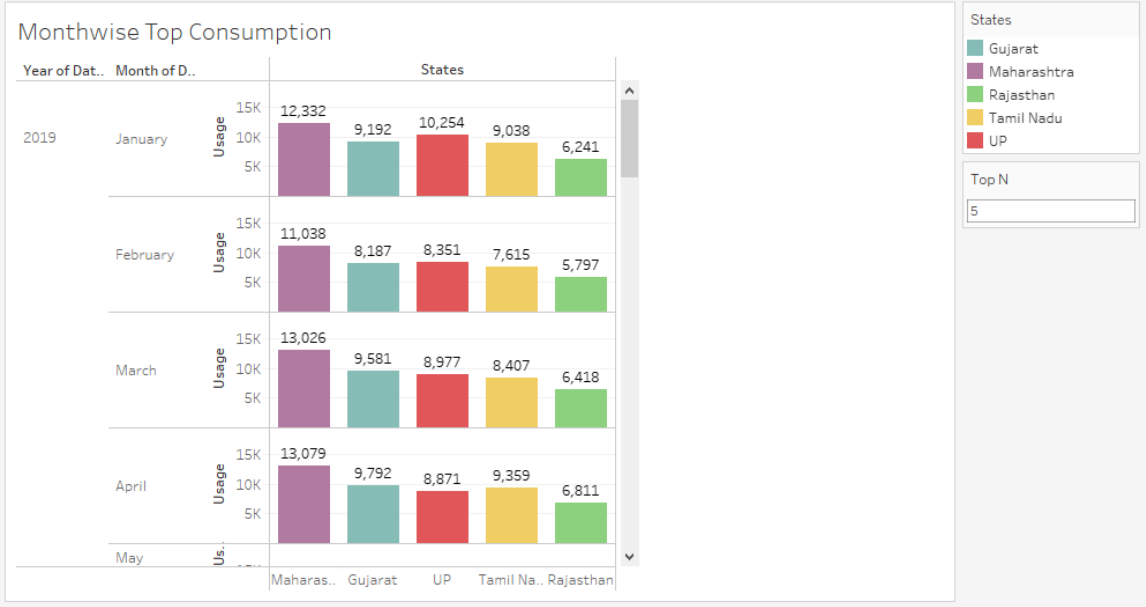

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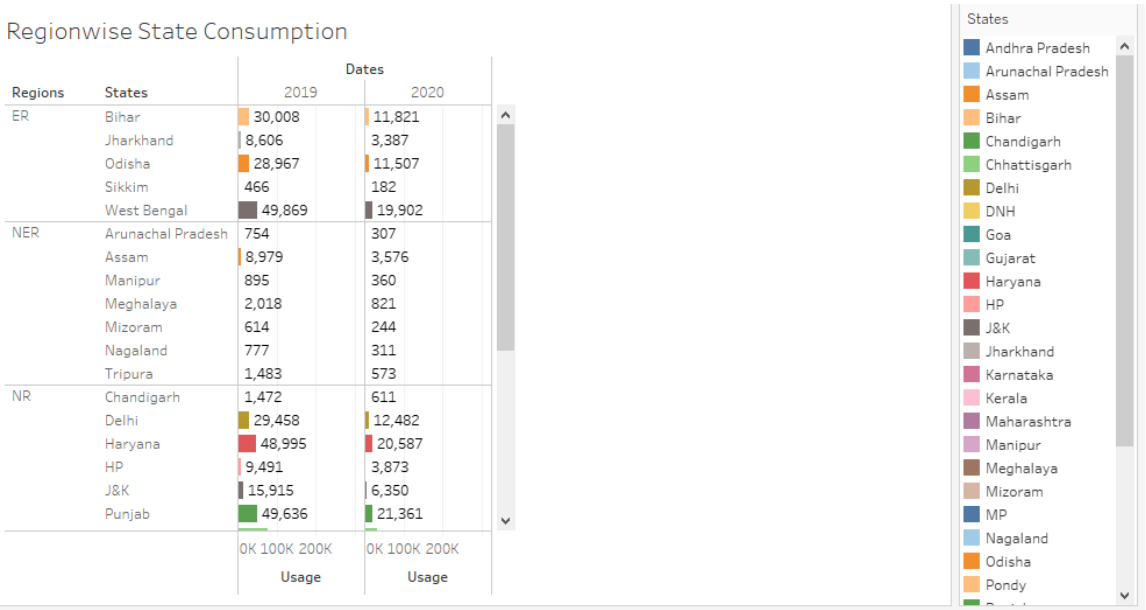

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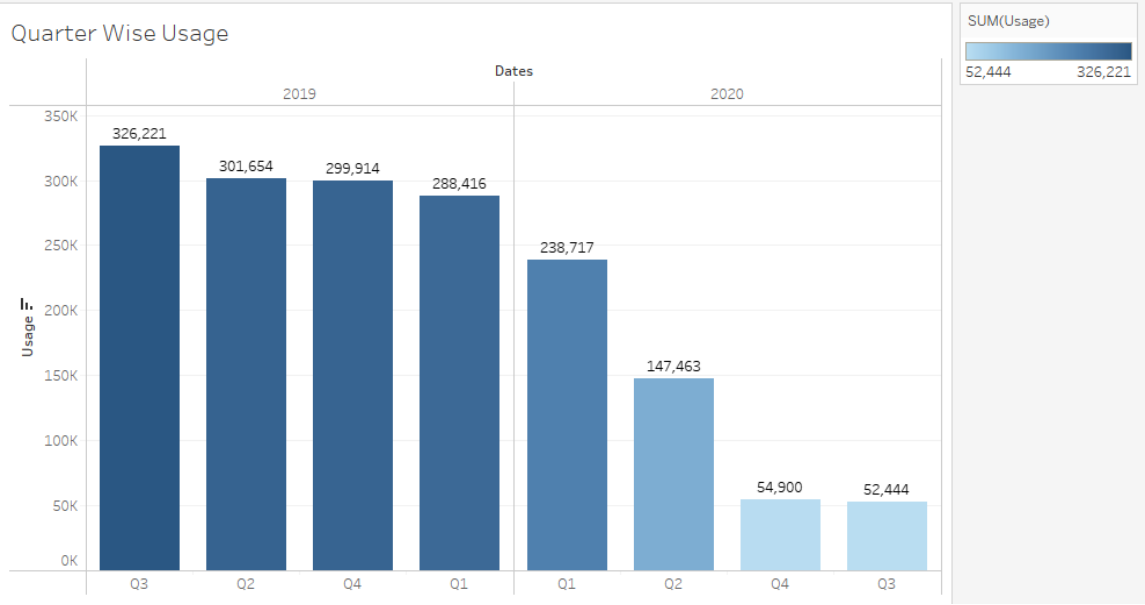

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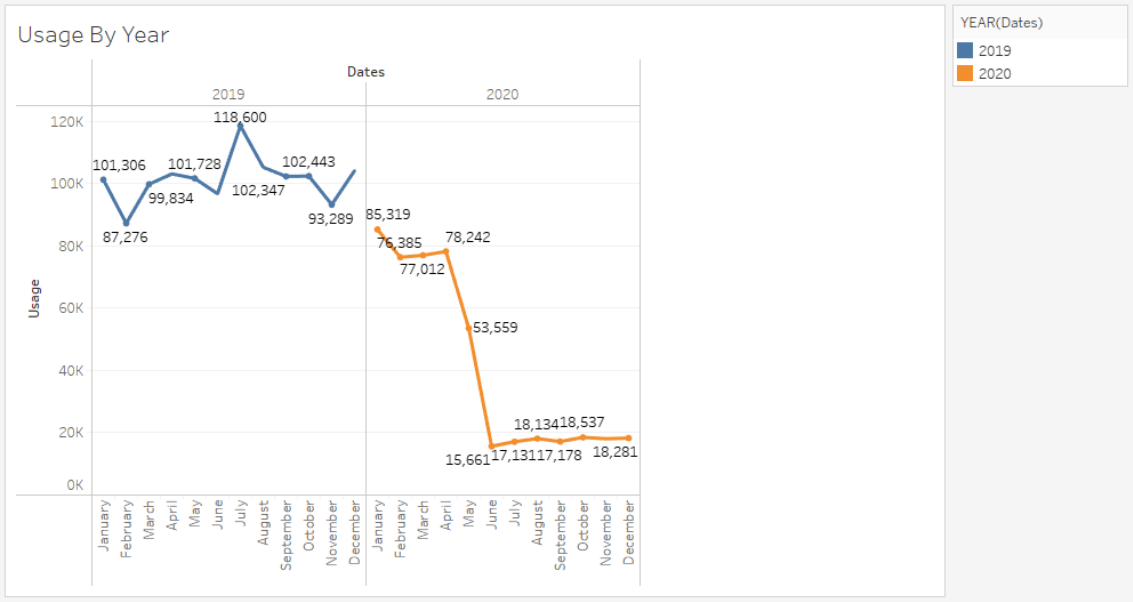

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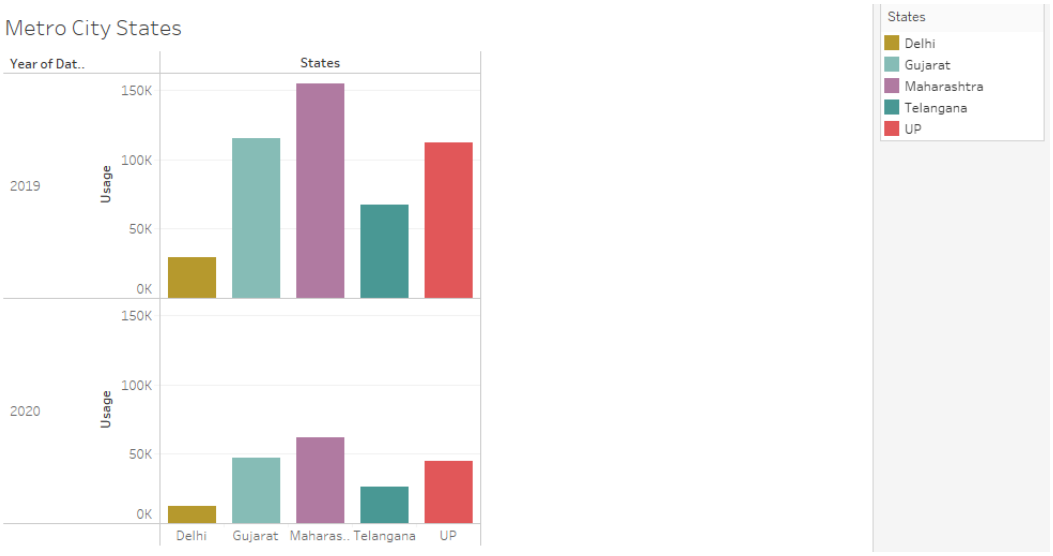

ADVANTAGES:

1.It is a clean, safe, cheap and convenient source of energy.

2.Lower maintenance cost.

3. More efficient.

4. No tailpipe emission.

DISADVANTAGES:

1.The environmental problems directly related to energy production.

2.Consumption include air pollution, climate change, water pollution, thermal pollution, and solid waste disposal.

3.The emission of air pollutants from fossil fuel combustion is the major cause of urban air pollution.

APPLICATIONS:

1. When we talk about residential uses of energy, these are the most basic uses of energy. They include watching television, washing clothes, heating and lighting the home, taking a shower, working from home on your laptop or computer, running appliances and cooking.
2. At 46% of the energy used by the typical U.S. house, the HVAC system uses the most energy of any appliance or system.
3. New IoT applications like smart electric meters, home automation, buildings, and street lighting are now coming into action to provide better approaches for efficient energy consumption.
4.
    a. Cooling and heating: 47% of energy use.
    b. Water heater: 14% of energy use.
    c. Washer and dryer: 13% of energy use.
    d. Lighting: 12% of energy use.
    e. Refrigerator: 4% of energy use.
    f. Electric oven: 3-4% of energy use.
    g. TV, DVD, cable box: 3% of energy use.
    h. Dishwasher: 2% of energy use.

CONCLUSION:

From this project we conclude that electricity consumption is important,we conclude this using the following charts

1.2019 state consumption.

2.2020 state consumption.

3.Usage by Region.

4.Top N.

5.Bottom N.

6.2019 Monthwise consumption.

7.2020 Monthwise consumption.

8.Total region consumption.

9.Useage before and during lockdown.

10.Monthwise top consumption.

11.Regionwise state consumption.

12.quarter wise usage.

13.Usage by year.

14.Metro city states.

15.Total consumption.

FUTURE SCOPE:

As the Indian government plans to increase electrification of rail-route kilometers from 40 percent by 2022, the level of electricity consumption achieved by 2030 could be 35-43 Twh, growing at 5.0-6.3 percent CAGR from 17 Twh in 2015.

APPENDIX:

SOURCE CODE

For futher information click the link below

Dashboard:

https://public.tableau.com/views/Dashboard1_16818013300520/Dashboard1?:language=en-US&:display_count=n&:origin=viz_share_link

Story:

https://public.tableau.com/shared/YQJMW8C7Q?:display_count=n&:origin=viz_share_link

file:///C:/Users/ELCOT/Downloads/Gp/Gp/index.html

Web Application

file:///C:/Users/ELCOT/Downloads/Gp/Gp/index.html

file:///C:/Users/ELCOT/Downloads/Gp/Gp/index.html