The background is a solid dark blue color. It features a large, semi-transparent light blue circle on the right side, which overlaps the text area. On the left side, there is a vertical rectangular band of a slightly lighter blue shade. The text is centered horizontally and vertically within the upper half of the image.

# Plugging in to the Future: An Exploration of Electricity consumption patterns



# Introduction

- **Overview:**

Energy consumption is the total amount of energy required for a given process and is measured in kilowatt hours (kWh). The annual electricity consumption per capita serves as an important measure of a country's electric power development.

In this project we are showing the UI visualization of Electricity consumption in India by using Tableau.

# Purpose:

By this UI visualization we can get a better understanding of Electricity Usage across different regions with in a specific amount of duration.

This UI visualization will help the government sector to analyze per Capita Electricity Use.

The year wise comparison of Electricity usage is giving the detailed information about the massive transition.

Analyzing how much energy the facility consumes lets you quantify the energy resources associated with the service, and identify and correct consumption inefficiencies

# Problem Definition and Design Thinking

## Empathy Map:



# Brainstorming

### Brainstorm & Idea prioritization

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

1. **Brainstorm** - generate ideas
2. **Filter** - select ideas
3. **Develop** - refine ideas

### How Might We Explore The Electricity Consumption?

**Before you collaborate**

A minute of preparation goes a long way with this session. Take a minute you need to be in the right frame of mind.

1. **Brainstorm** - generate ideas
2. **Filter** - select ideas
3. **Develop** - refine ideas

### Brainstorming

Brainstorming is a group activity that aims to generate a large number of ideas for solving a problem or addressing a challenge.

**Guidelines:**

- 1. **Brainstorming** - generate ideas
- 2. **Filter** - select ideas
- 3. **Develop** - refine ideas

**Key rules of brainstorming:**

- 1. **Quantity over quality** - the more ideas, the better.
- 2. **No criticism** - no idea is a bad idea.
- 3. **Encourage wild ideas** - the more creative, the better.
- 4. **One idea at a time** - no interruptions.
- 5. **Build on others' ideas** - improve on what others have said.

### Group ideas

Brainstorming is a group activity that aims to generate a large number of ideas for solving a problem or addressing a challenge.

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### Prioritize

Brainstorming is a group activity that aims to generate a large number of ideas for solving a problem or addressing a challenge.

**Guidelines:**

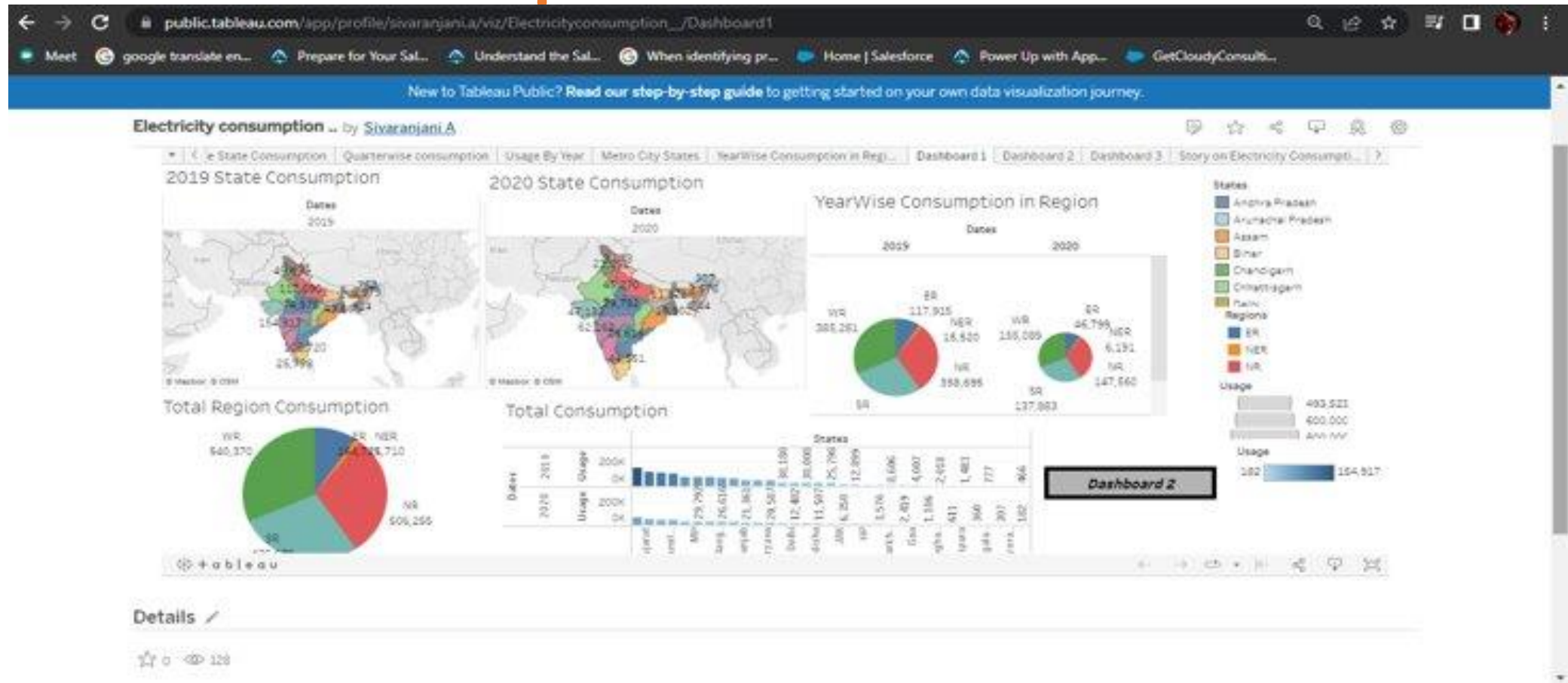
- 1. **Brainstorming** - generate ideas
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# RESULT

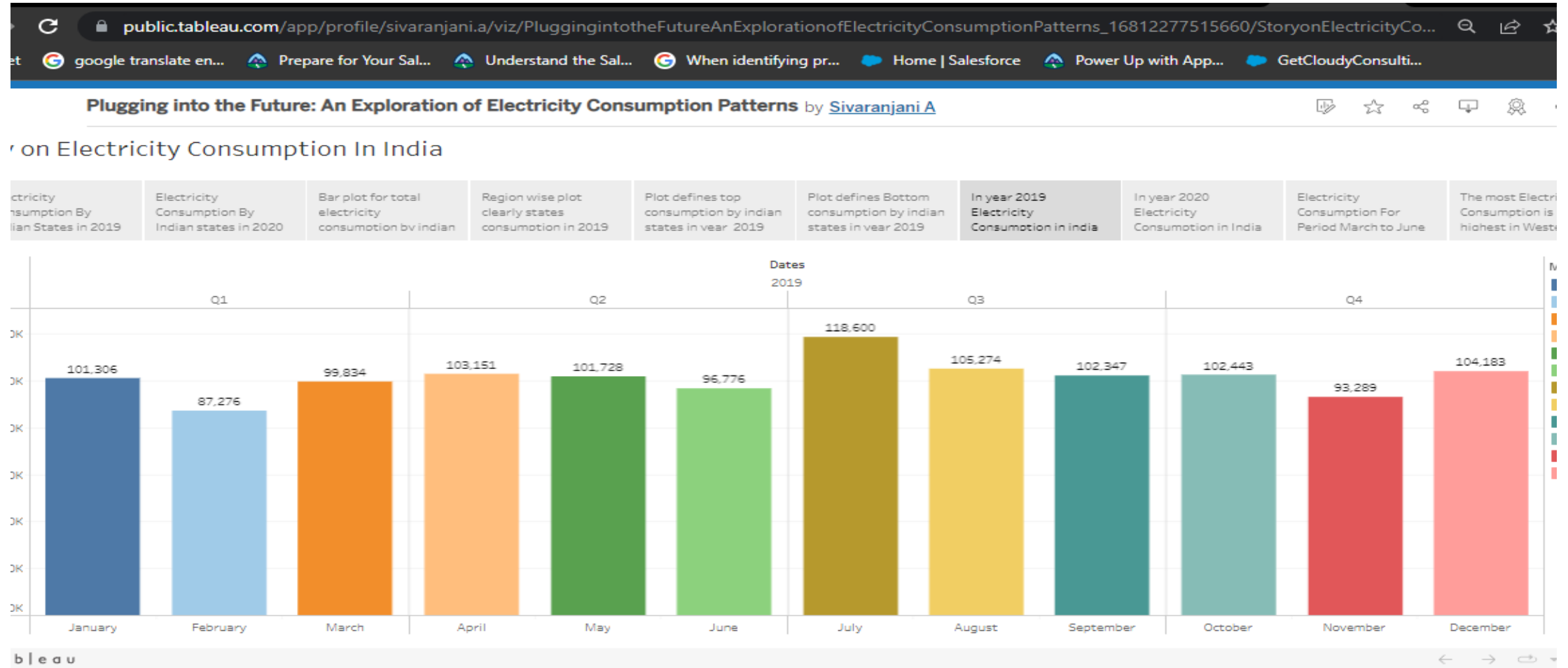
## Dashboard:





# RESULT

Story:



# Web Page

Electricity Consumption Analysis

File | C:/Users/ELCOT/Downloads/Electricity%20Consumption%20Analysis-20230414T111018Z-001/Electricity%20Consumption%20Analysis/index.html

Home Dashboard Story Visualizations Conclusion

## Analysis on Electricity Consumption In India

India is the third largest producer of electricity in the world. During the fiscal year (FY) 2019–20, the total electricity generation in the country was 1,598 TWh, of which 1,383.5 TWh generated by utilities. The gross electricity consumption per capita in FY2019 was 1,208 kWh.

Get Started

The diagram illustrates the electricity supply chain in India, showing the flow from power plant to home. It is divided into two rows of components connected by lines representing the power grid.

- Top Row:**
  - 1 POWER PLANT: Represented by a brown industrial building with two smokestacks.
  - STEP-UP TRANSFORMER: Represented by a grey transformer structure.
  - TOWER: Represented by a tall, grey lattice tower.
  - 2 TRANSMISSION SUBSTATION: Represented by a grey building with multiple transformers.
- Bottom Row:**
  - 5 HOME: Represented by a green house with a black roof.
  - 4 TRANSFORMERS: Represented by two small grey transformer structures on poles.
  - 3 DISTRIBUTION SUBSTATION: Represented by a grey building with multiple transformers.

Lines connect the components in sequence: 1 to STEP-UP TRANSFORMER, STEP-UP TRANSFORMER to TOWER, TOWER to 2, 2 to 3, 3 to 4, 4 to 5.



# Advantages

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

Lower maintenance  
cost

More efficient

We all know that  
it can be set up in  
many sizes

It doesn't require as  
many employees

Reduces greenhouse  
emission

Makes barely any  
pollution compare to  
other ways of creating  
or generating  
electricity

Relatively low  
maintenance cost

Hydroelectric station  
are inexpensive to  
operate

Hydroelectricity  
produces no gas  
emissions or waste

A station can operate  
and run for long  
periods of time

It is renewable

# Disadvantages

More expensive than gasoline

Loss of fish species

Sometimes messes up wildlife

Dependent on precipitation

More power plants and more pollution

Damming can cause loss of land suitable for agriculture as well as recreation

Cost for construction

Change in river or stream quality

An electric vehicle is not completely emission free

In electricity, there are a limited number of feasible sites for a large number of dams

Drought can affect power production

Hydroelectric natural seasonal changes in river and ecosystems can be destroyed

## **Applications**

An analysis of our electricity consumption data allows us to breakdown energy consumption and costs based on department segments and asset silos within a country. It allows us to view specific amount electricity use by region.

UI visualization of Electricity Consumption make an awareness among the responsible citizen.

It helps students and future generation to explore the Electricity consumption in different metrics.

It helps our Government to take decision about Production and Billing of Electricity

## Conclusion

### ***ELECTRICITY CONSUMPTION STATES:***

*Maharashtra is the highest electricity consumption user of India.*

*Gujarat is the second highest electricity consumption user of India.*

*Sikkim is the lowest electricity consumption user of India*

### ***ELECTRICITY CONSUMPTION REGIONS:***

*Total electricity consumption in western region is highest.*

*Total electricity construction in North East and region is lowest.*

### ***ELECTRICITY CONSUMPTION QUARTERS:***

*Electricity consumption in 2009 quarter 3 was highest*

*Electricity consumption in 2019 quarter one was lowest*

*Electricity construction in 2020 for quarter 3 was lowest  
electricity construction 2024 quarter one was highest*

# Future Scope

Prior to the global pandemic, India's energy demand was projected to increase by almost 50% between 2019 and 2030, but growth over this period is now closer to 35% in the STEPS, and 25% in the Delayed Recovery Scenario.

Keeping them up to date with the newest technology by using newly released electrical devices.

Source Code: [Find Here](#)