

# Plugging into the Future: An Exploration of Electricity Consumption Patterns



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Submitted by

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## **1. INTRODUCTION**

### **Overview**

India is currently the world's fourth largest economy in Purchasing Power Parity (PPP) terms (the GDP in PPP terms is estimated at approximately USD 3.2 trillion) and the fifth largest energy consumer in the world. However, due to its high population of approximately 1.1 billion, the per-capita consumption of most energy related products is extremely low. The per capita energy consumption is estimated to be a very modest 530 Kg of Oil Equivalent (kgoe) while the world average is approximately 1800 kgoe<sup>1</sup>. The global financial crisis and credit crunch have slowed India's significant economic growth particularly in the manufacturing sector, and GDP growth rates have declined from 9.3 percent in 2007 to 5.3 percent in the fourth quarter of 2008. Despite a recent slowing economy, India's energy demand continues to increase. The present dissertation is to analyze the Energy consumption pattern in India from 1990 to 2020. This study deals with secondary data obtained from web sources. The core objective is to find the relationship between the GDP (at current price) and the total energy consumption in India. This study tries to explain the relationship between the Total primary energy resource consumption and total production of energy and the per capita consumption of energy. It reveals the relationship between the population of India and the total primary energy Consumption.

### **Project Description:**

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 31 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) 2019–20, 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.

In 2015-16, electric energy consumption in agriculture was recorded as being the highest (17.89%) worldwide. The per capita electricity consumption is low 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.

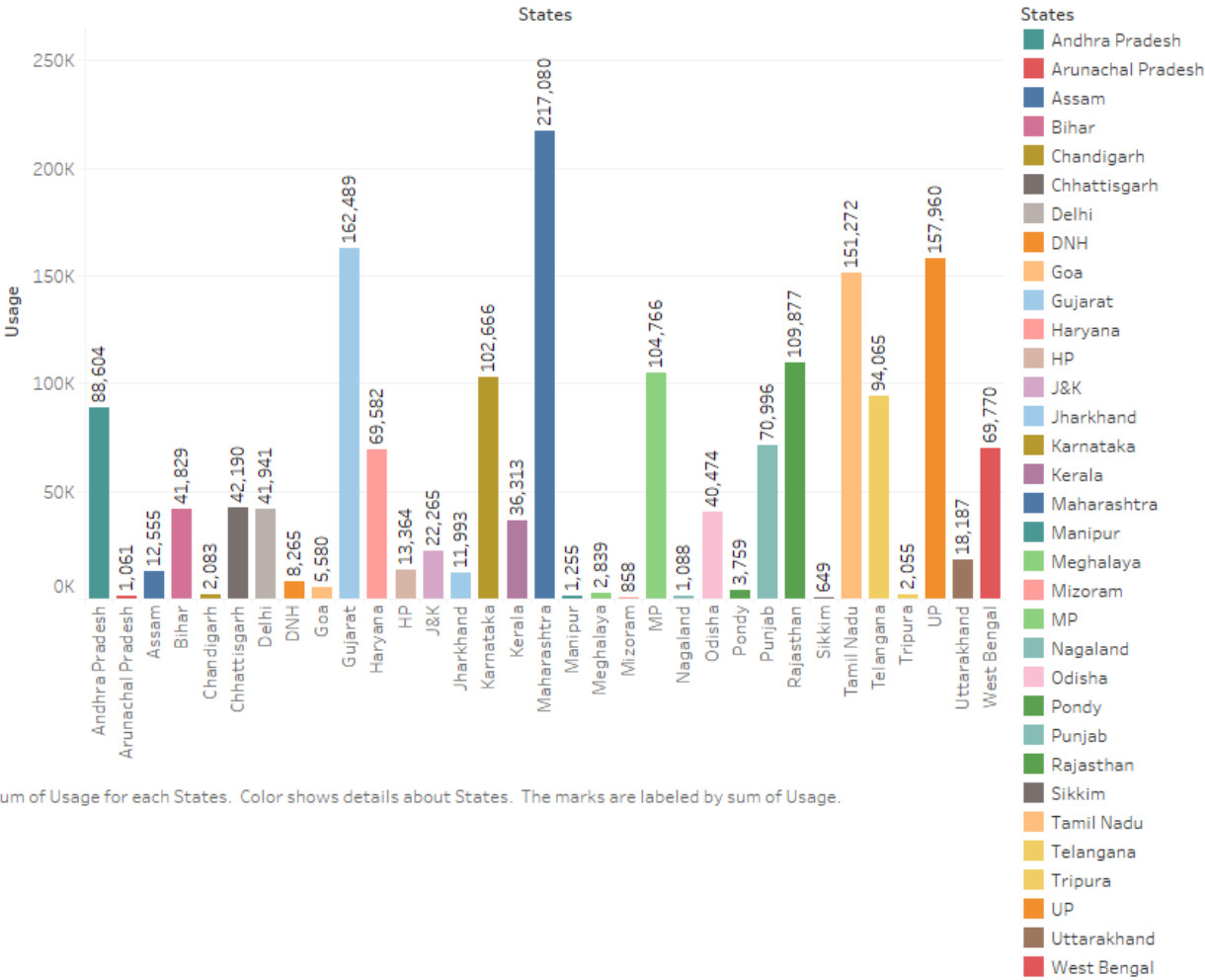
The dataset is exhaustive in its demonstration of energy consumption state wise. Analysing Electricity Consumption in India from Jan 2019 till 5th December 2020. This dataset contains a record of Electricity consumption in each states of India, here we are going to analyse State wise , Region wise and Overall Electricity consumption in India. Consumption pattern of energy shows the percentage use of different sources (solar energy, wind energy, geothermal energy, biogas, and tidal power). The consumption pattern of energy changes over time.

Commercial sources of energy: Commercial energy makes up about 65% of the total energy consumed in India. It includes coal with the largest share of 55%, followed by oil at 31%, natural gas at 11% and hydro energy at 3%. Noncommercial sources of energy: It consists of firewood, cow dung, and, waste account for more than 30% of total energy consumption. The sectorial pattern of consumption of commercial energy shows that from 1953-54 to 1996-97, share of household sector increased from 1% to 9%; share of industrial sector from 40% to 42% and share of transport sector decreased from 44% to 22% and others increased to 15%.

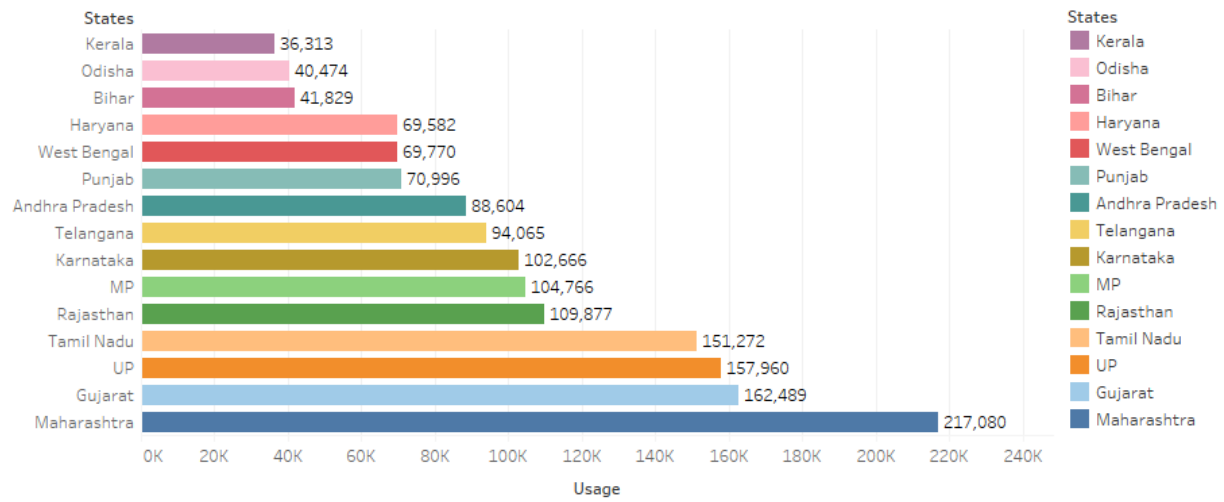
## **1.2.Purpose**

During 2021-22, the per capita electricity consumption in India is 945.98 kilowatt-hour (Kwh). According to the official data the total installed capacity of the country stood at 4,12,212 MW, as on Feb. 2023. Thermal power plants constitute 57.4 % of the installed capacity and hydropower about 11.4.

States vs Usage

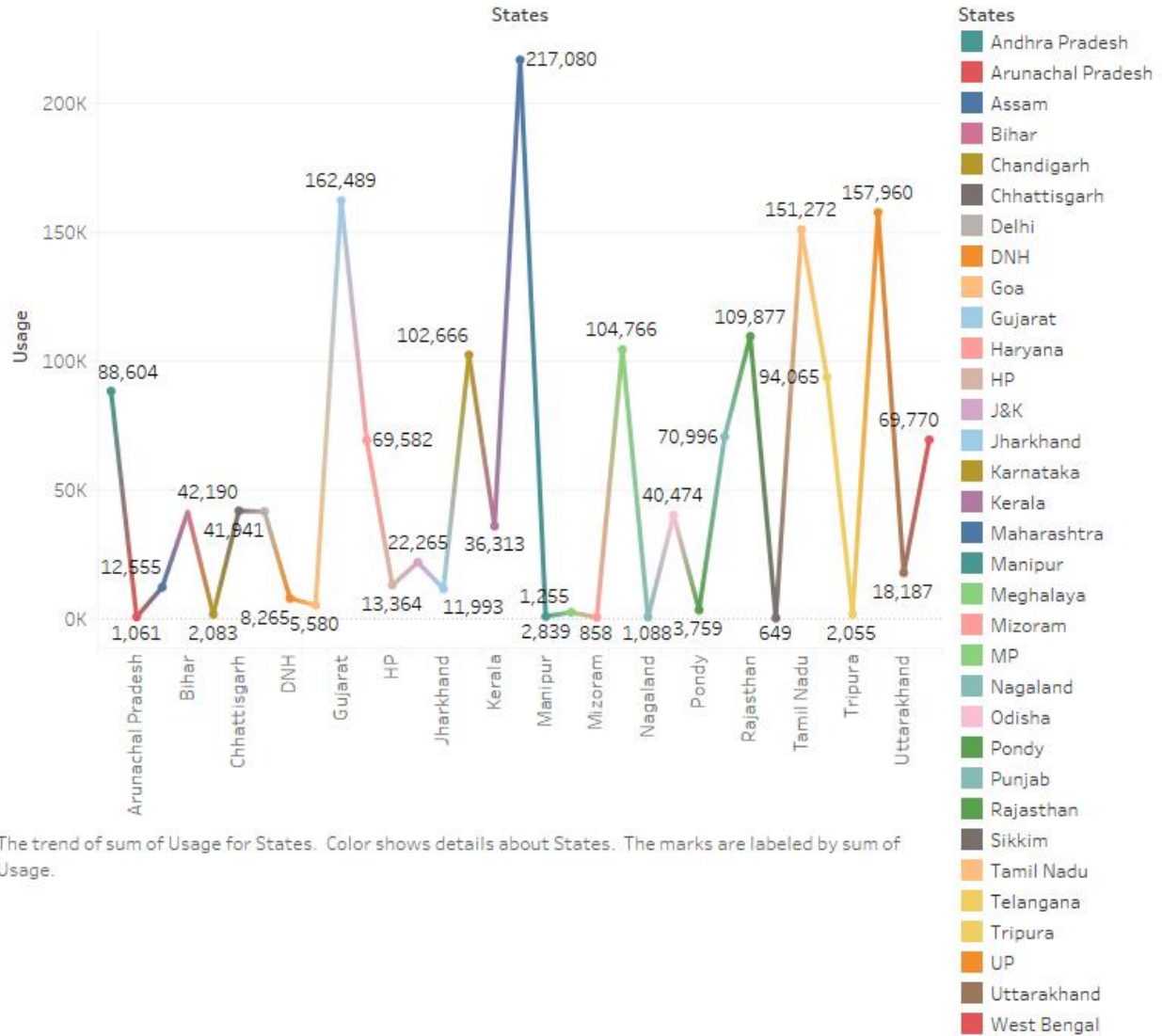


### More than 30K usage States list



Sum of Usage for each States. Color shows details about States. The marks are labeled by sum of Usage. The view is filtered on States, which keeps 15 of 33 members.

## Sheet 4



Sheet 6

