

## Case Study Report

Data Analytics with power BI

**“ELECTRICAL CONSUMPTION”**

**Sri Paramakalyani College, Alwarkurichi.**

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## **Abstract:**

In electricity consumption, the key factors affecting it, and its link with economic activity. The study also briefly discusses the key factors that have impacted consumption measures. It finds that despite ups and downs in consumption and elasticity estimates over time, the long-term elasticity has been close to unity. Elasticities can change over time. India is an emerging economy, moving away from its dependence on fossil fuels. This is as a consequence of the global decarbonisation process and adding more renewable capacity. This study notes that as elasticities may change in the future, the power planning horizon should be limited to ten years, appropriate investments made in electricity-generation capacity, a constant watch kept on electricity-consumption growth, and consumption closely monitored.

## **1.Introduction:**

In the case of electricity, supply-side factors (including electricity deficits, distribution bottlenecks, and poor power quality) when corrected, are expected to further impact consumption and add to the inherent uncertainty in future energy demand. As technologies and preferences change, it is sometimes argued that the link between electricity consumption and economic growth may not remain as strong. The ups and downs in the growth of electricity consumption are sensitive to the rise and fall of manufacturing-sector growth. Growth in electricity consumption is not just about putting up greater capacities, but also about how it may impact India's climate goals. If indeed Indian

electricity-consumption growth is expected to be relatively low, it would imply significantly greater ease in meeting climate commitments.

## **2.Trends in Electricity Consumption:**

This section examines observed aggregate trends in power consumption and discusses factors with historical relevance, such as economic growth and power consumption, the growing importance of captive power, and the changing role of manufacturing and other sectors. The discussion helps set the stage for estimating the possible growth of electricity consumption in India, an exercise we conduct in later sections.

### **2a.Power Consumption and Economic Growth:**

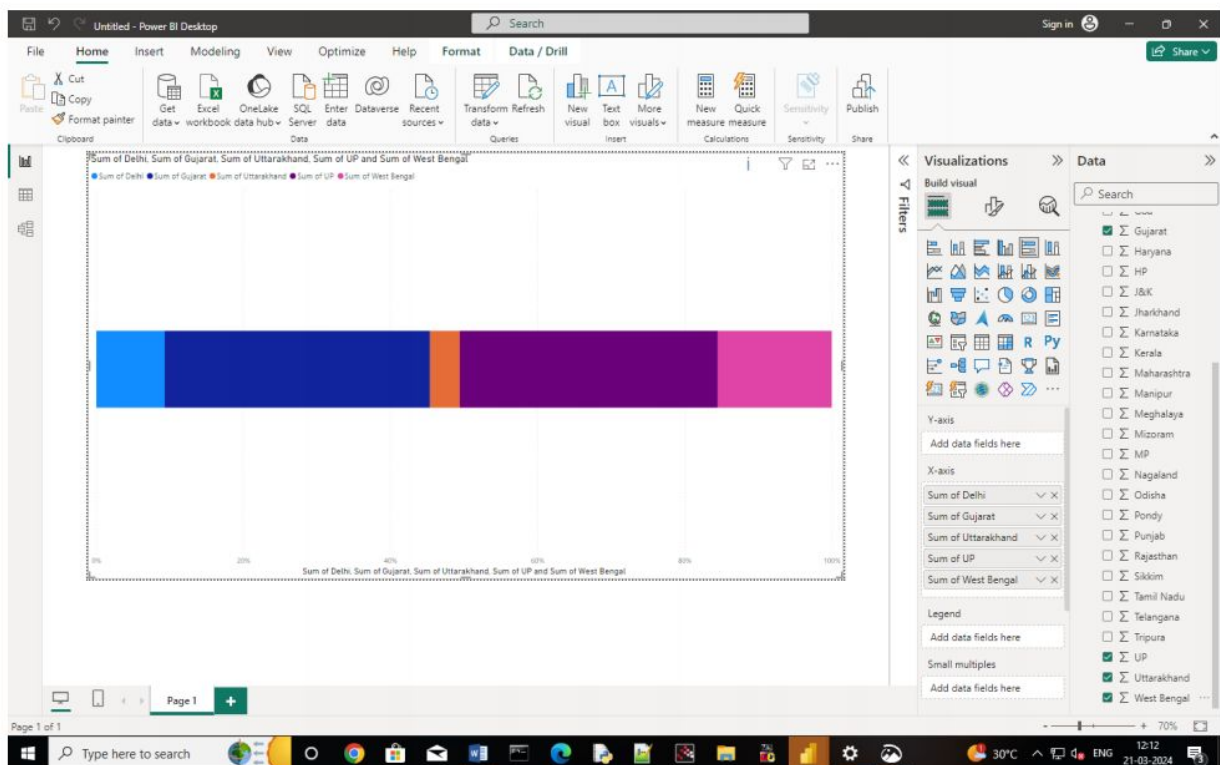
The study of the relationship between power consumption and economic output/growth faces the classical correlation-causation problem. If increase in power consumption causes growth in output, Then power is an explanatory factor of growth. But It is also clear that this process would lead to even Higher demand for power. So, the broad correlation is evident but establishing causality and direction is More complex. Several factors need to be taken into consideration, including data reporting, timing, Presence/absence of structural break, and time lags; and within this context the relative strengths and weaknesses of available statistical techniques.

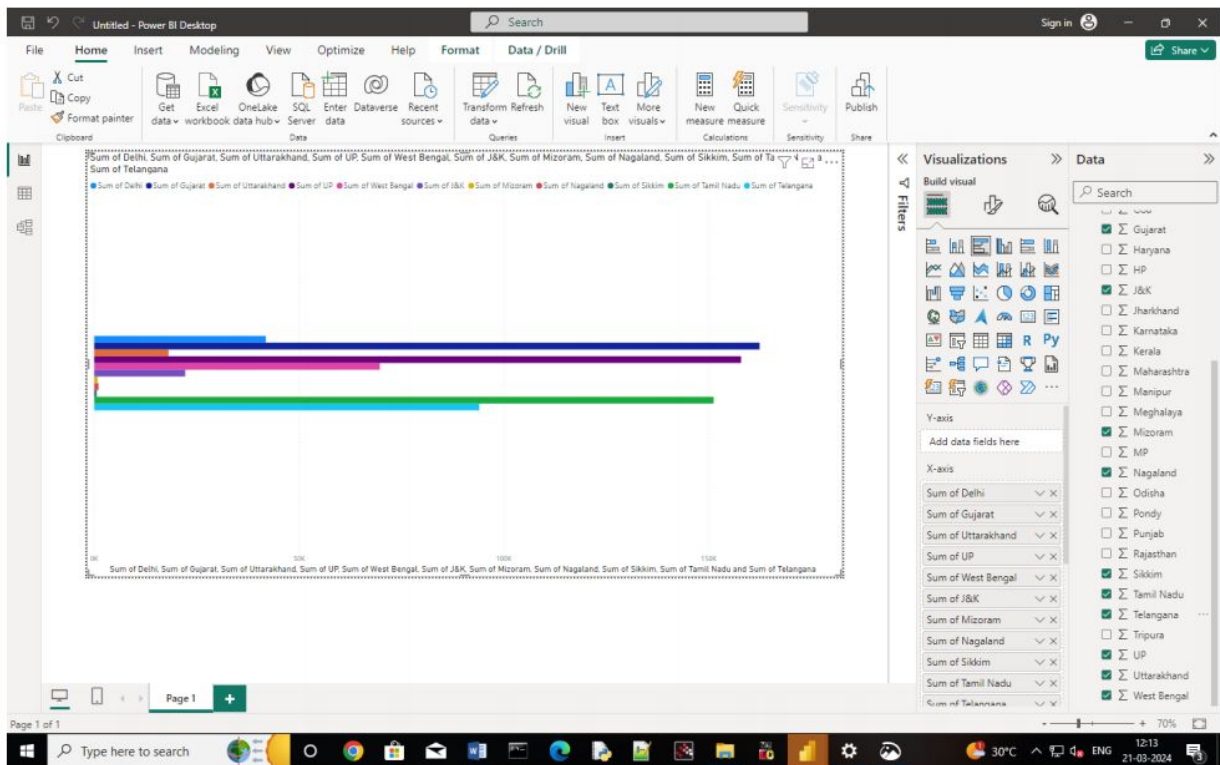
## 2b.Falling Deficits:

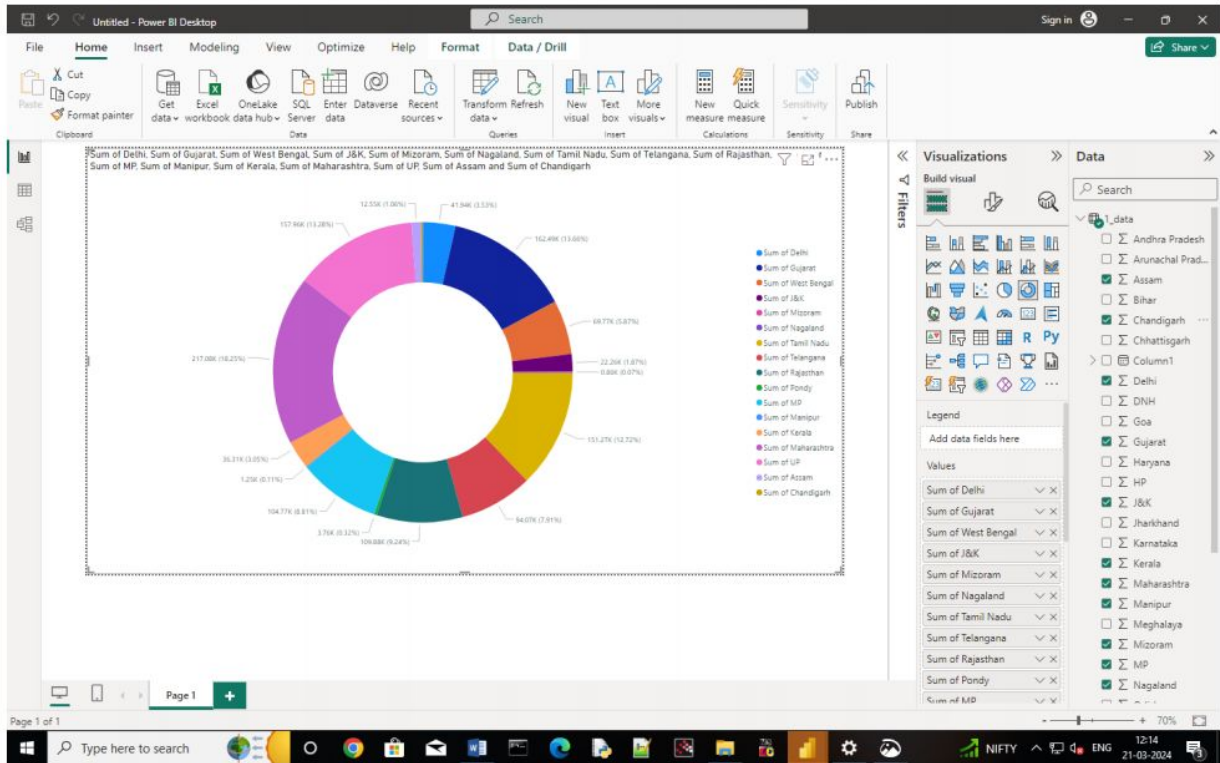
The consumption is not demand, and especially in a world of electricity shortages, data on consumption does not cover unmet demand. The CEA provides annual data on the electricity required and available, and the difference is considered to be the deficit.

## 2c.Electricity Intensity in Selected Sectors:

We calculate the energy intensity for the overall economy and for selected sectors, using the energy intensity definition as the total electricity consumed in that sector per unit value added. The data on energy consumed is available from the CEA and that on value-added from MoSPI.









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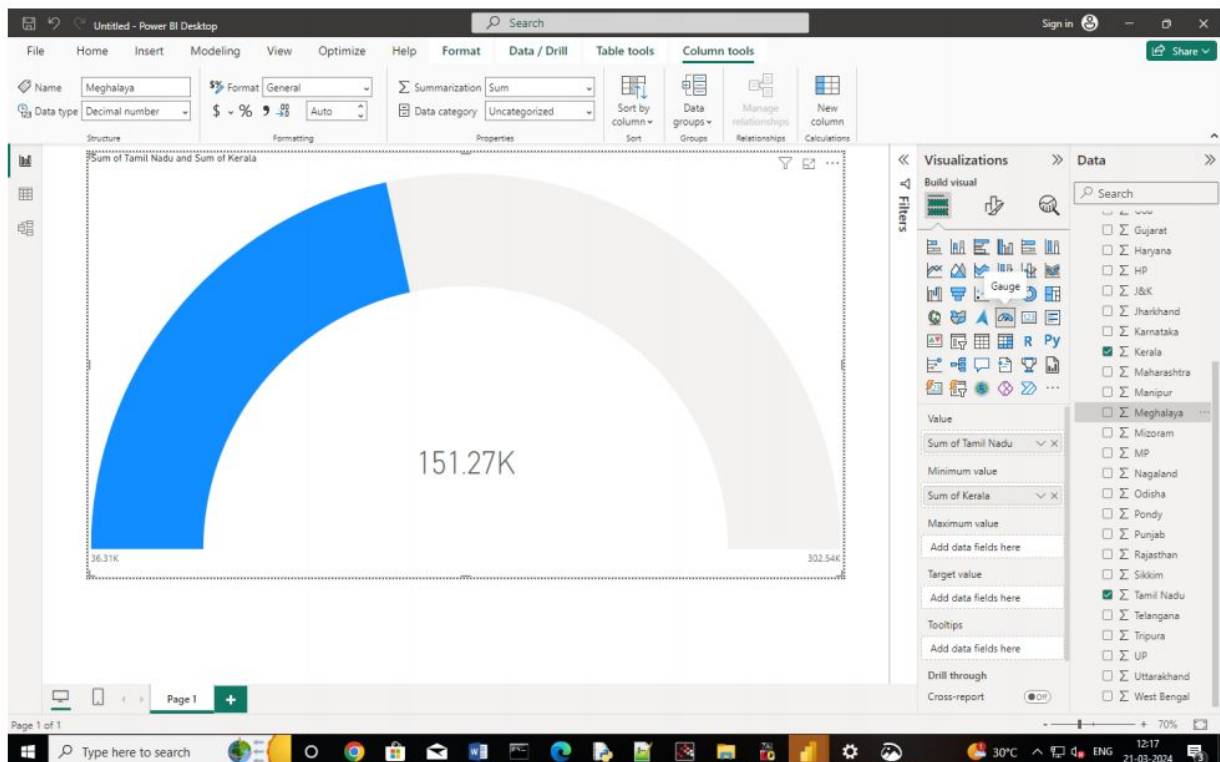
85.80	318.50	108.20	52.50	1.90	2.20	286.30	204.20	234.10	6.50	...
Sum of Delhi	Sum of Gujarat	Sum of West ...	Sum of J&K	Sum of Miz...	Sum of Naga...	Sum of Tamil...	Sum of Teian...	Sum of Rajas...	Sum of Pondy	
253.00	2.70	72.70	428.60	313.90	21.70	5.00	164.60	18.60	30.00	
Sum of MP	Sum of Mani...	Sum of Kerala	Sum of Mah...	Sum of UP	Sum of Assam	Sum of Chan...	Sum of Andh...	Sum of DNH	Sum of HP	
3.40	70.20	2019	Qtr 1	January	2	78.70	82.30			
Sum of Tripura	Sum of Odisha	Year	Quarter	Month	Day	Sum of Chha...	Sum of Bihar			
85.50	316.70	110.20	54.10	1.80	2.20	285.20	204.50	240.20	6.50	
Sum of Delhi	Sum of Gujarat	Sum of West ...	Sum of J&K	Sum of Miz...	Sum of Naga...	Sum of Tamil...	Sum of Teian...	Sum of Rajas...	Sum of Pondy	
253.60	2.40	73.60	419.60	311.80	23.40	4.90	170.10	18.20	30.10	
Sum of MP	Sum of Mani...	Sum of Kerala	Sum of Mah...	Sum of UP	Sum of Assam	Sum of Chan...	Sum of Andh...	Sum of DNH	Sum of HP	
3.60	67.90	2019	Qtr 1	January	3	78.80	82.00			
Sum of Tripura	Sum of Odisha	Year	Quarter	Month	Day	Sum of Chha...	Sum of Bihar			
83.50	301.90	106.80	53.20	1.70	2.20	270.30	201.20	239.80	6.40	
Sum of Delhi	Sum of Gujarat	Sum of West ...	Sum of J&K	Sum of Miz...	Sum of Naga...	Sum of Tamil...	Sum of Teian...	Sum of Rajas...	Sum of Pondy	
239.30	2.40	73.40	395.80	320.70	21.70	4.80	165.20	16.70	30.10	
Sum of MP	Sum of Mani...	Sum of Kerala	Sum of Mah...	Sum of UP	Sum of Assam	Sum of Chan...	Sum of Andh...	Sum of DNH	Sum of HP	
3.50	66.30	2019	Qtr 1	January	4	74.80	82.90			
Sum of Tripura	Sum of Odisha	Year	Quarter	Month	Day	Sum of Chha...	Sum of Bihar			
79.20	313.20	107.00	51.50	1.80	2.30	286.80	201.70	239.10	6.60	
Sum of Delhi	Sum of Gujarat	Sum of West ...	Sum of J&K	Sum of Miz...	Sum of Naga...	Sum of Tamil...	Sum of Teian...	Sum of Rajas...	Sum of Pondy	
226.20	2.70	75.40	411.10	299.00	22.50	4.30	167.40	17.60	30.20	
Sum of MP	Sum of Mani...	Sum of Kerala	Sum of Mah...	Sum of UP	Sum of Assam	Sum of Chan...	Sum of Andh...	Sum of DNH	Sum of HP	
3.50	65.80	2019	Qtr 1	January	5	69.20	77.30			
Sum of Tripura	Sum of Odisha	Year	Quarter	Month	Day	Sum of Chha...	Sum of Bihar			
76.60	320.70	106.40	53.20	1.90	2.30	296.30	194.90	240.40	7.20	
Sum of Delhi	Sum of Gujarat	Sum of West ...	Sum of J&K	Sum of Miz...	Sum of Naga...	Sum of Tamil...	Sum of Teian...	Sum of Rajas...	Sum of Pondy	
227.40	2.70	75.40	408.60	286.80	21.70	4.30	171.20	18.60	31.00	

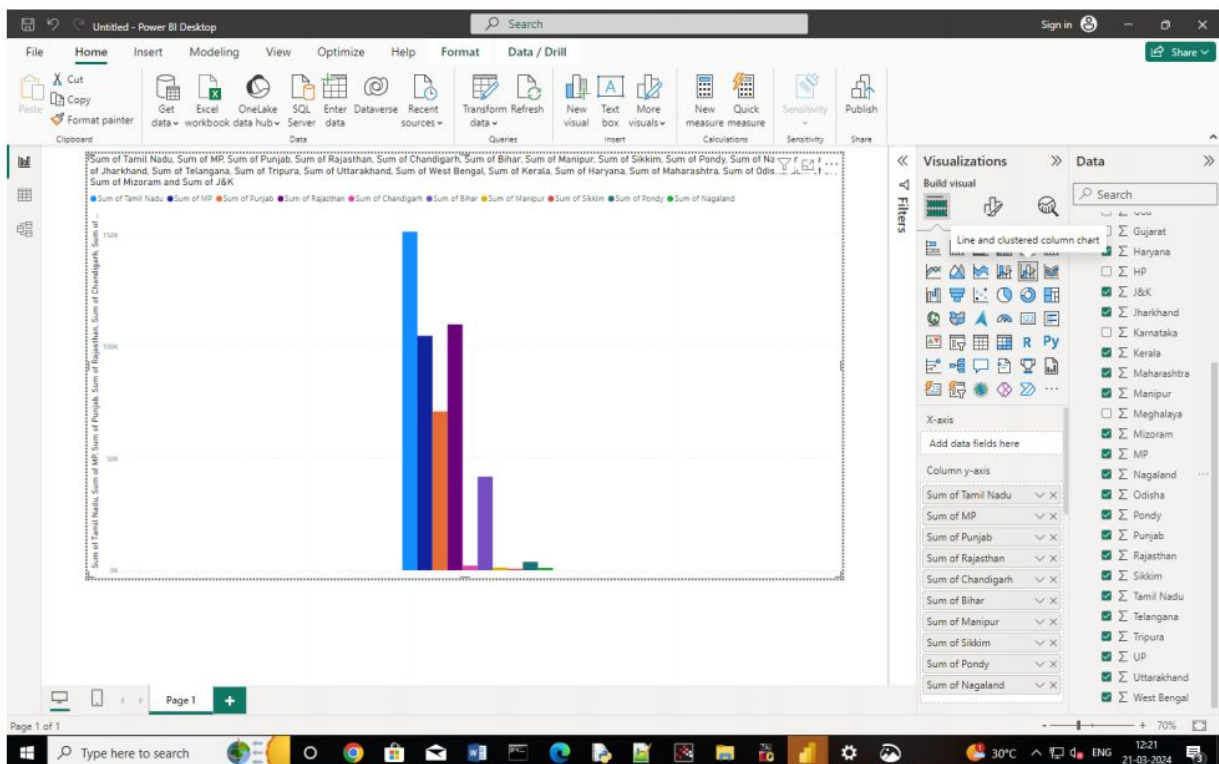
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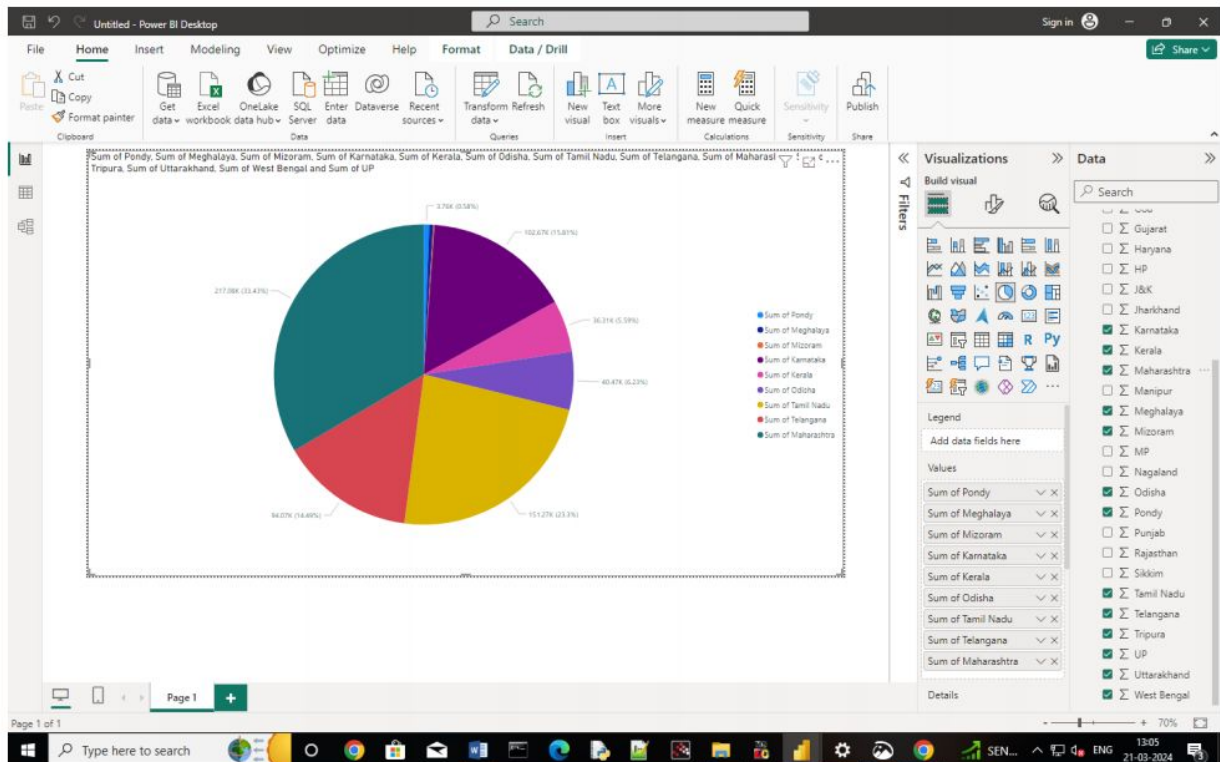
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## Conclusion:

India's electricity consumption has been growing steadily and its elasticity has been reflecting that growth. We find that is indeed not the case, and the long-term elasticity to economic growth across different electricity consumption measures is close to unity. Economic and technological changes do impact consumption, and this may play out differently in the future.

## **Reference:**

<https://csep.org/wp-content/uploads/2023/10/On-Indias-Electricity-Consumption-A4.pdf>