



Tamil Nadu District Wise Power Consumption Analysis

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Agenda

- Introduction
- 2017 - 18 District wise Analysis
- 2018 - 19 District wise Analysis
- Comparison between 2017 - 18 & 2018 - 19 Common Districts
- Choropleth Visualizations
- References & Links



Key Terms

- Power Consumption - Power consumption is the amount of energy used per unit time.
- MW & MU Units of Power Consumption
- So, in MU i.e. Million of Units we measure generated electricity.
- 1 MU=1 Million Units=10,00,000 Units
- In the Presentation, 2017-18 mean year 2017 to 2018.
- In the Presentation, 2018-19 mean year 2018 to 2019.
- Choropleth map (also called a color theme) is a thematic map in which points, lines or areas are shaded to represent different data values.



Introduction

- The case study assignment is related to the electricity analysis for the state of Tamil Nadu. The Open Government Data Platform of India (<https://data.gov.in/>) includes district-wise electricity consumption data.
- The goal is to understand trends in electricity consumption over time, and to identify any notable patterns or changes in the data.
- Due to the data insufficiency for continuous years, The analysis made for 5 Districts which has proper data split from 2017 & 2018 continuous years.

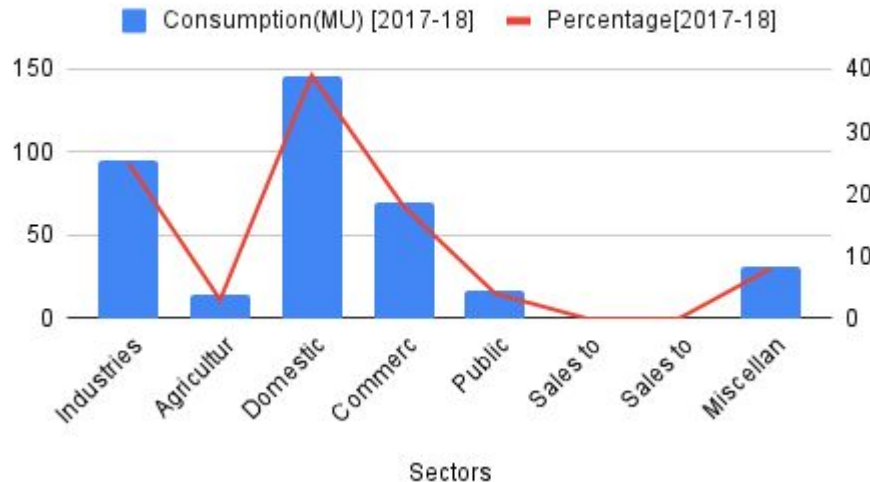


2017-18 District Wise Analysis

2017-18 District Wise Analysis

The analysis is based on a Sector wise power consumption on each district, to gather how much total consumption units are given to this district and also to get an insight of which area uses highest power resources.

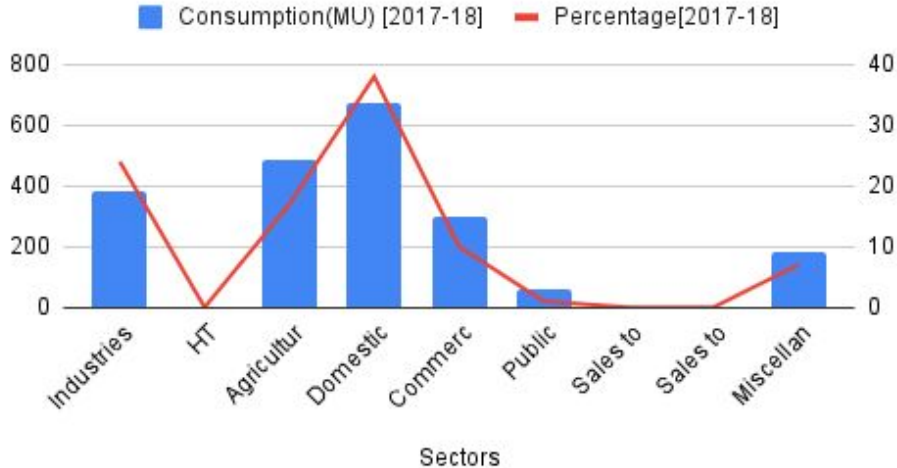
The Nilgiris District Power Consumption 2017-18



- The Graph represents here is for Nilgiris District.
- The total power consumption in MU (i.e., Million Units) for this district is **373.74 MU** and the sector which uses Highest power resource is **Domestic** with **39%** of total consumed power resources.

2017-18 District Wise Analysis

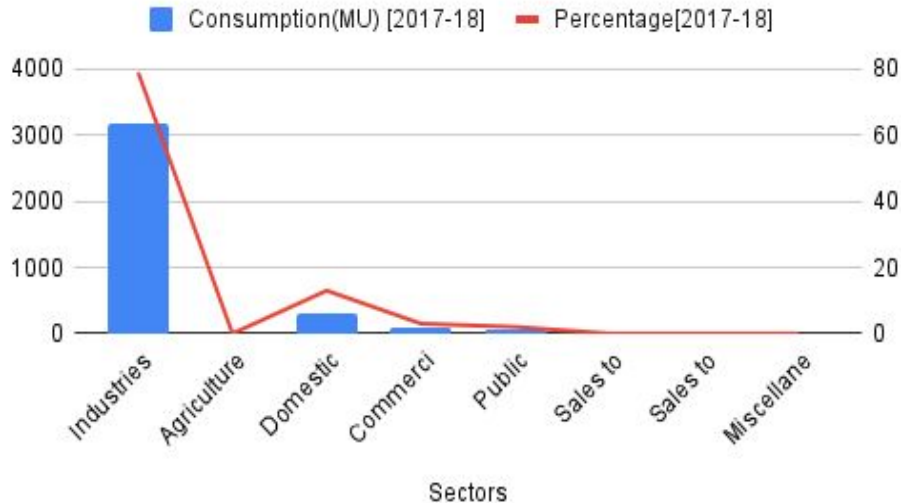
Salem District Power Consumption 2017-18



- The Graph represents here is for **Salem District**.
- The total power consumption in MU(i.e, Million Units) for this district is **2078.4 MU** and the sector which uses Highest power resource is **Domestic** with **32%** of total consumed power resources.

2017-18 District Wise Analysis

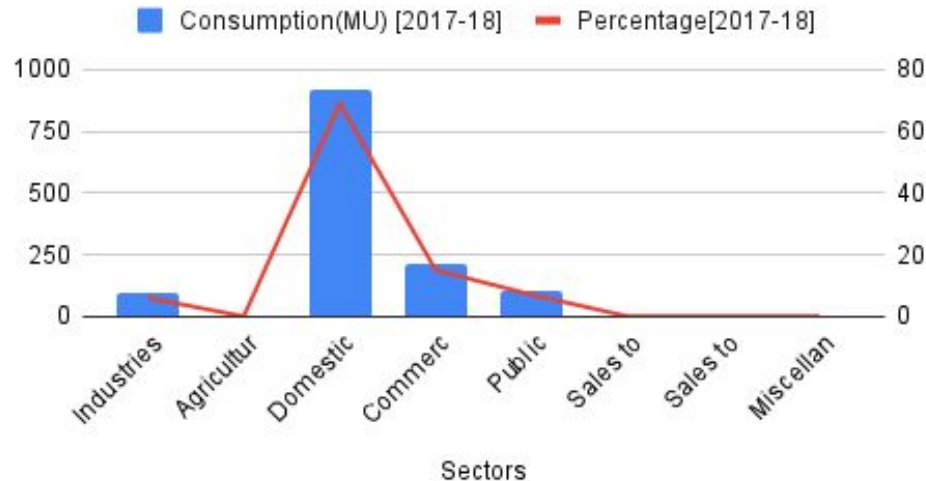
Erode District Power Consumption 2017-18



- The Graph represents here is for **Erode District**.
- The total power consumption in MU(i.e, Million Units) for this district is **3632.74 MU** and the sector which uses Highest power resource is **Industries** with **88%** of total consumed power resources.

2017-18 District Wise Analysis

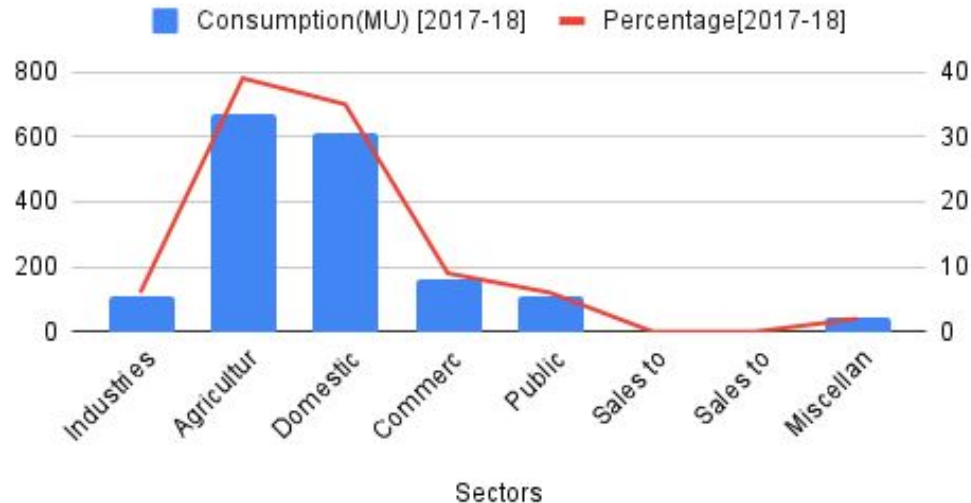
Tirunelveli District Power Consumption 2017-18



- The Graph represents here is for **Tirunelveli District**.
- The total power consumption in MU(i.e, Million Units) for this district is **1327.62 MU** and the sector which uses Highest power resource is **Domestic** with **69%** of total consumed power resources.

2017-18 District Wise Analysis

Cuddalore District Power Consumption 2017-18



- The Graph represents here is for **Cuddalore District**.
- The total power consumption in MU(i.e, Million Units) for this district is **1327.62 MU** and the sector which uses Highest power resource is **Agriculture & Huts** with **39%** of total consumed power resources.



2017-18 District Wise Analysis - Inferences

- Among the five districts namely **The Nilgiris, Salem, Erode, Tirunelveli and Cuddalore** , The highest power consumed district is **Erode** with **3632.74 MU**.
- The Sector which consumed the highest electricity among the five districts is **Industries in Erode District**.
- And the sector common in other districts are mostly for **Domestic purposes**, which consumed the highest.
- Only sector with **Agriculture and Huts** in **Cuddalore District** has consumed the highest power/electricity.

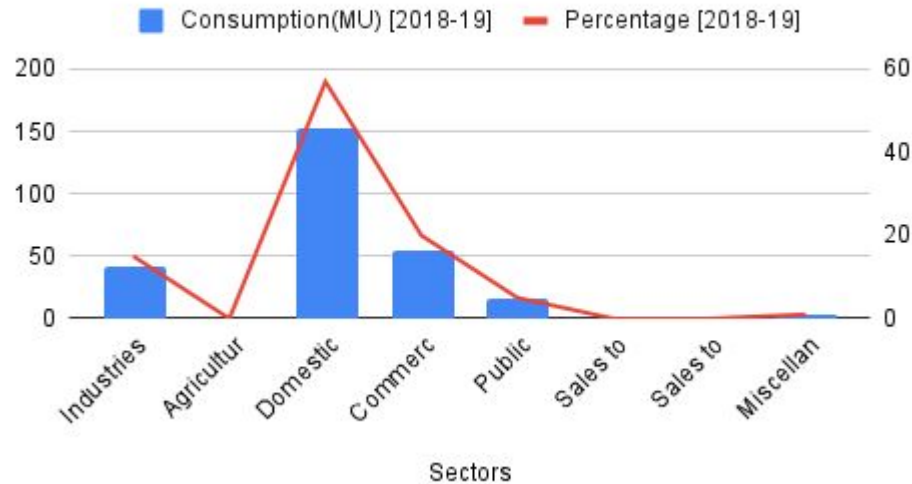


2018-19 District Wise Analysis

2018-19 District Wise Analysis

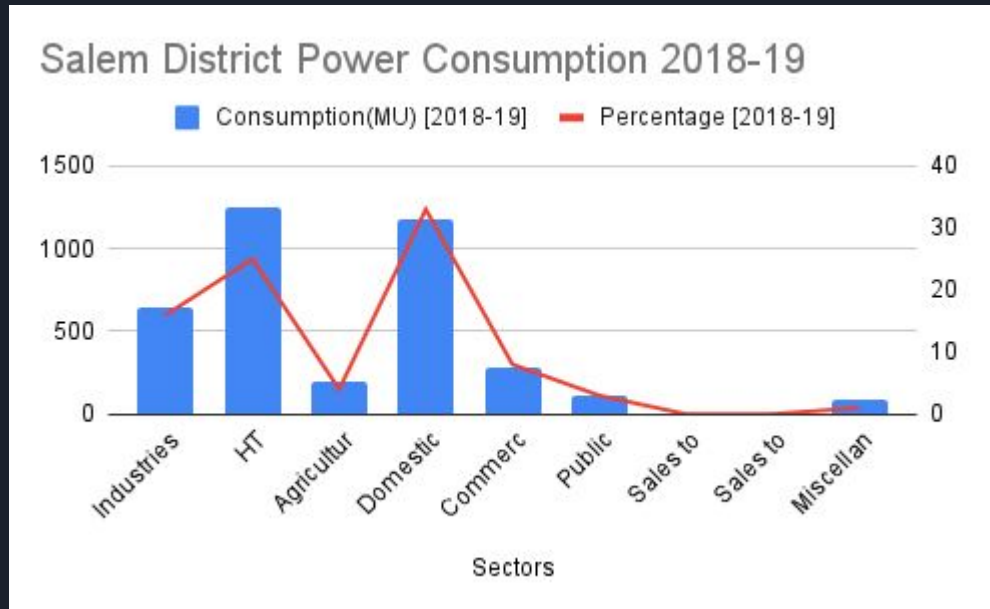
The analysis is based on a Sector wise power consumption on each district, to gather how much total consumption units are given to this district and also to get an insight of which area uses highest power resources.

The Nilgiris District Power Consumption 2018 - 19



- The Graph represents here is for **Nilgiris District**.
- The total power consumption in MU (i.e, Million Units) for this district is **268.29 MU** and the sector which uses Highest power resource is **Domestic** with **57%** of total consumed power resources.

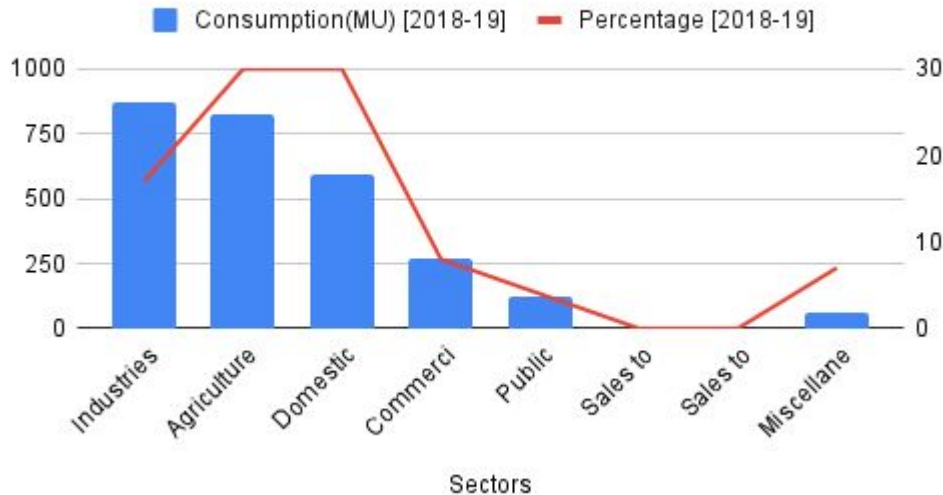
2018-19 District Wise Analysis



- The Graph represents here is for **Salem District**.
- The total power consumption in MU(i.e, Million Units) for this district is **3745.20 MU** and the sector which uses Highest power resource is **Domestic** with **33%** of total consumed power resources.

2018-19 District Wise Analysis

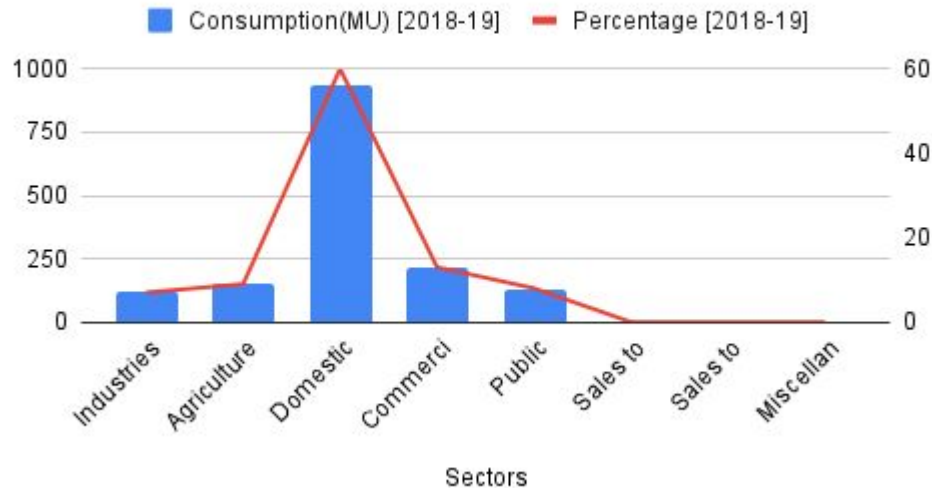
Erode District Power Consumption 2018-19



- The Graph represents here is for **Erode District**.
- The total power consumption in MU(i.e, Million Units) for this district is **2738.39 MU** and the sector which uses Highest power resource is both **Agriculture and Huts & Domestic** with **30%** of total consumed power resources.

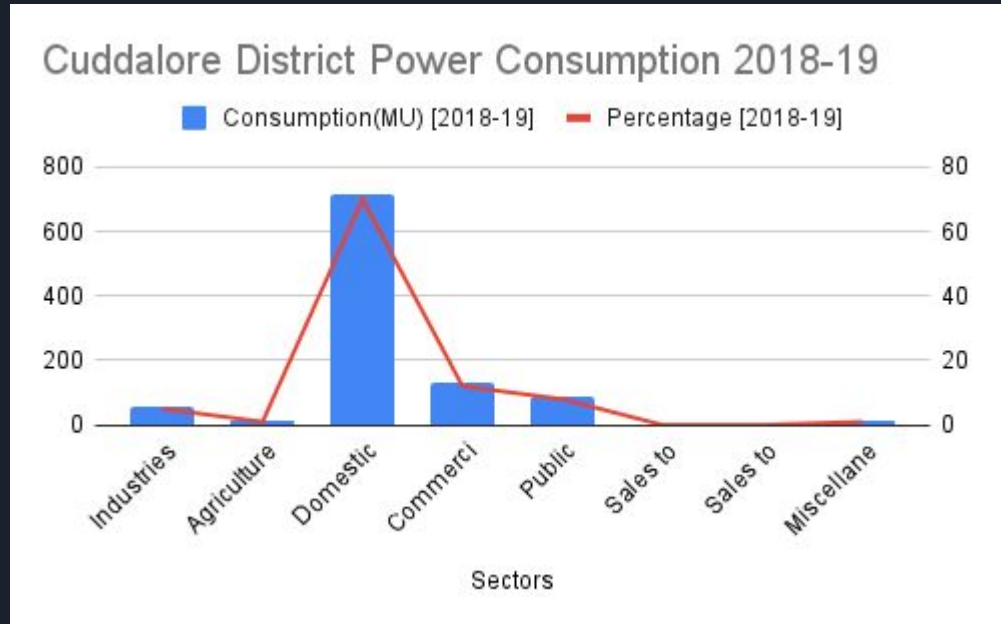
2018-19 District Wise Analysis

Tirunelveli District Power Consumption 2018-19



- The Graph represents here is for **Tirunelveli District**.
- The total power consumption in MU(i.e, Million Units) for this district is **1545.82 MU** and the sector which uses Highest power resource is **Domestic** with **60%** of total consumed power resources.

2018-19 District Wise Analysis



- The Graph represents here is for **Cuddalore District**.
- The total power consumption in MU(i.e, Million Units) for this district is **1018.23 MU** and the sector which uses Highest power resource is **Domestic** with **70%** of total consumed power resources.



2018-19 District Wise Analysis - Inferences

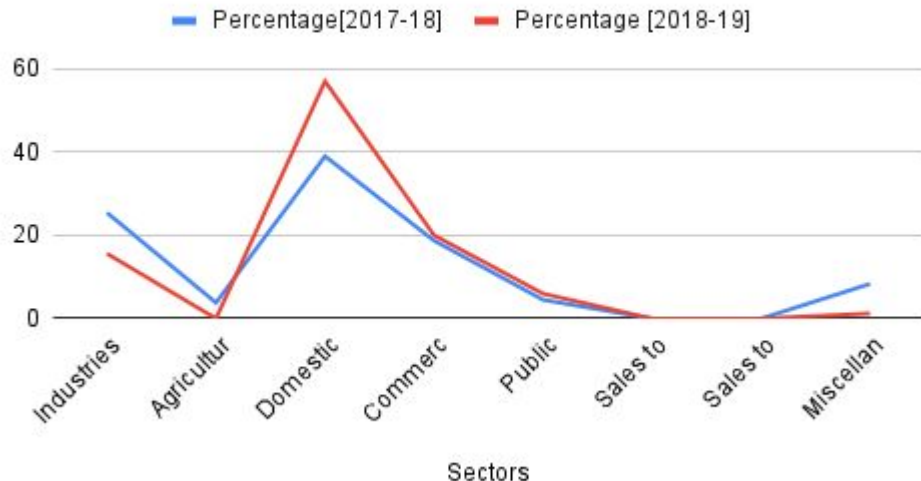
- Among the five districts namely **The Nilgiris, Salem, Erode, Tirunelveli** and **Cuddalore** , The highest power consumed district is **Salem** with **3745.20 MU**.
- The Sector which consumed the highest electricity among the five districts is for **Domestic purposes** in **The Nilgiris District**.
- The common sector is **Domestic areas** where the consumption took leading in all the individual districts.



Comparison Analysis between 2017-18 & 2018-19 Power consumptions

Comparison Analysis between 2017-18 & 2018-19 Power consumptions

The Nilgiris District

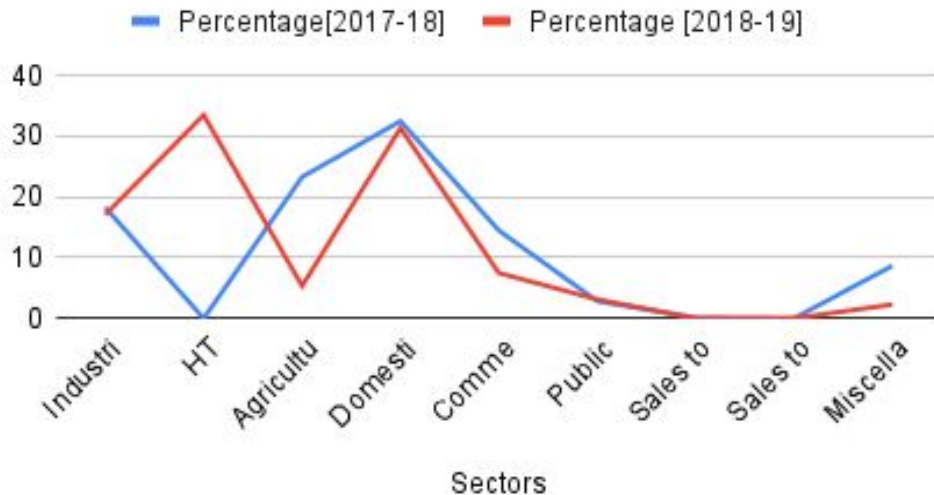


2017-18	373.74 MU
2018-19	268.29 MU

- The Graph represents here is for **The Nilgiris District**.
- From the above table, power consumption in unit wise dropped by **39% (105.45 MU)** from year **2017-18**.
- Sector wise , Domestic areas consumed more **46.15 %** than previous year **2017-18** and still leading the first place as highest power consumer.

Comparison Analysis between 2017-18 & 2018-19 Power consumptions

Salem District



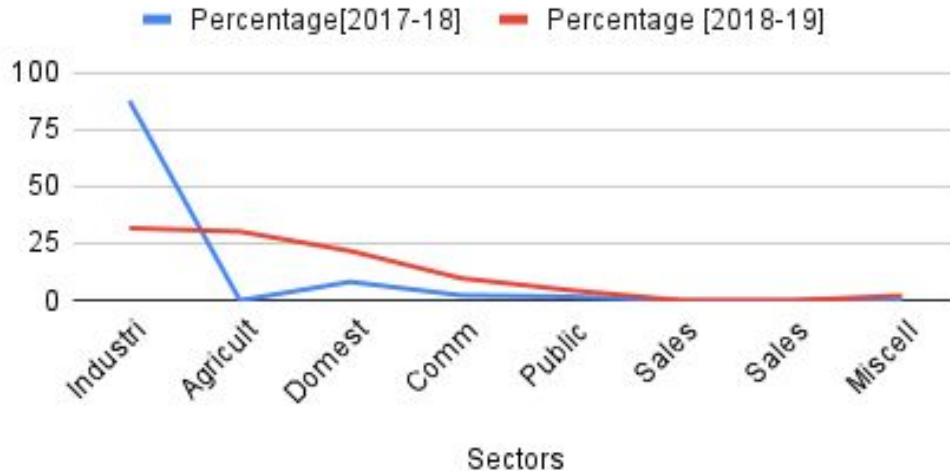
2017-18	2078.4 MU
2018-19	3745.2 MU

- The Graph represents here is for **The Salem District**.
- From the above table, power consumption in unit wise increase by **80% (1666.8 MU)** From **2017-18** Timeline.
- Sector wise , Domestic aress dropped by **3 %** than previous year **2017-18**.
- **HT Services** sector seen a rise from **0 to 33 %** percentage from **2017-18 to 2018-19** total Consumptions.

Comparison Analysis between 2017-18 & 2018-19 Power consumptions

2017-18	3632.74 MU
2018-19	2738.39 MU

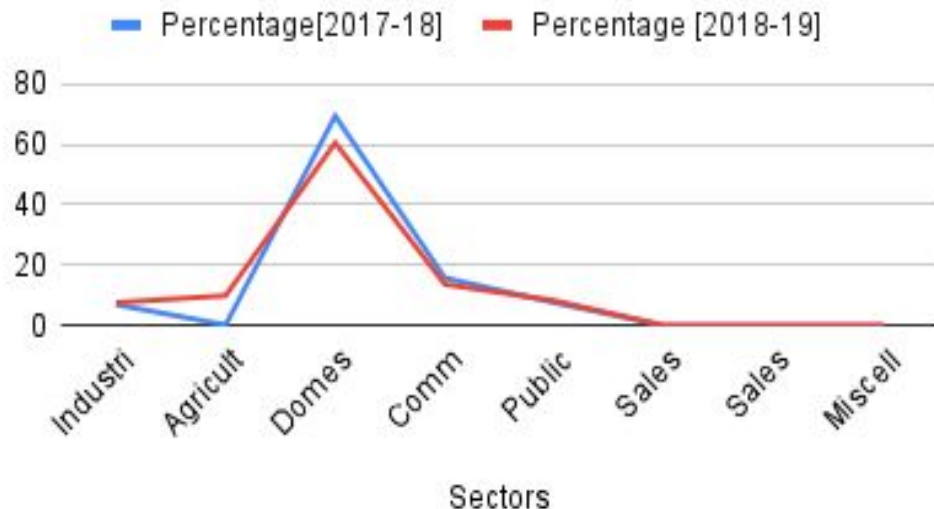
Erode District



- The Graph represents here is for The Erode District.
- From the above table, power consumption in unit wise dropped by 24.6% (894.35 MU) from year 2017-18.
- Sector wise , Industries areas dropped by 63.6 % than previous year 2017-18 but still the highest power consuming sector.

Comparison Analysis between 2017-18 & 2018-19 Power consumptions

Tirunelveli District



2017-18

1327.62 MU

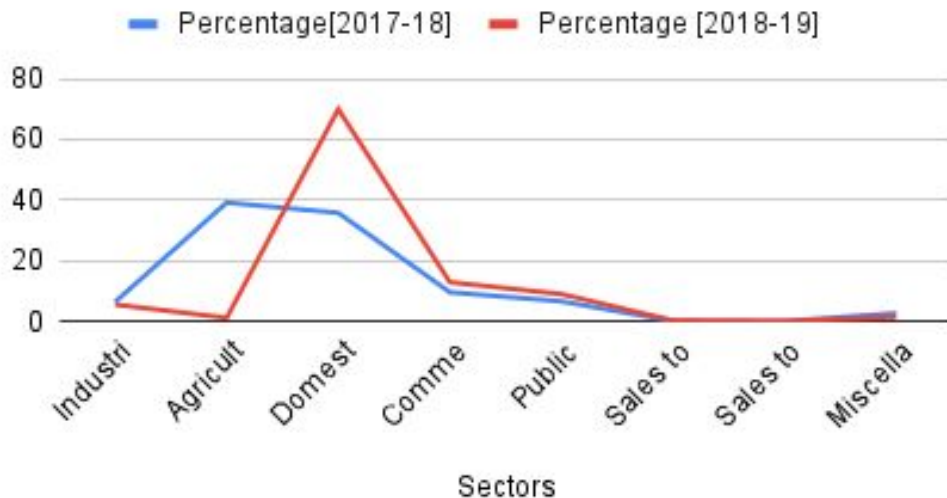
2018-19

1545.82 MU

- The Graph represents here is for The Tirunelveli District.
- From the above table, power consumption in unit wise consumed more by **16% (218.2 MU)** from year 2017-18.
- Sector wise , **Domestic** areas dropped by **11.6 %** than previous year 2017-18 but still the highest power consuming sector.

Comparison Analysis between 2017-18 & 2018-19 Power consumptions

Cuddalore District




2017-18

1715.38 MU

2018-19

1018.23 MU

- The Graph represents here is for The Tirunelveli District.
- From the above table, power consumption in unit wise seen a drop by 40.6% (697.15 MU) from year 2017-18.
- Sector wise , Agriculture areas dropped by 97 % than previous year 2017-18 and Domestic areas took over in 2018-19 as the highest power consuming sector.



Comparison Analysis between 2017-18 & 2018-19 Power consumptions - Inferences

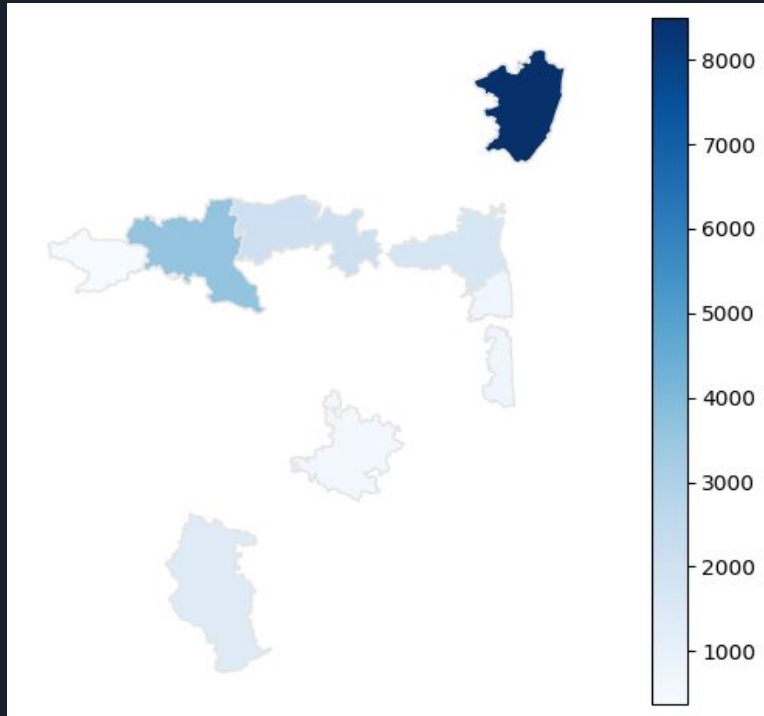
- Among the five districts namely **The Nilgiris, Salem, Erode, Tirunelveli** and **Cuddalore** , Only **Tirunelveli** and **Salem** took increase in power/electricity consumption from **2017-18** to **2018-19** Timeline.



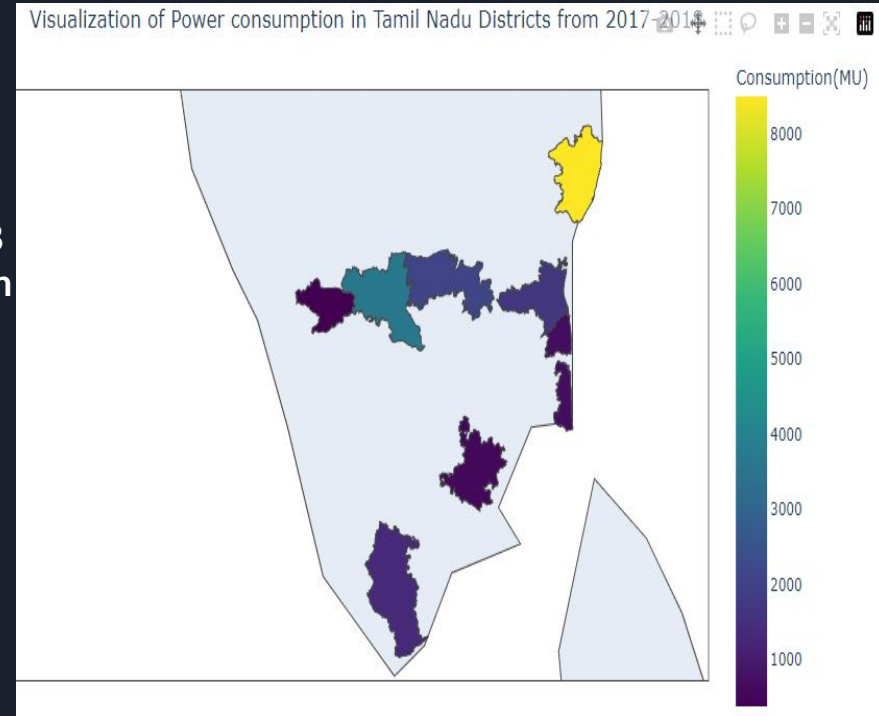
Choropleth Visualizations

ChoroPleth Visualizations for 2017-18 Timeline

- Choropleth map is used here for the visualization of the our results and analysis in the Tamil Nadu - District Boundaries Shapefile.



2017 - 2018
Visualization

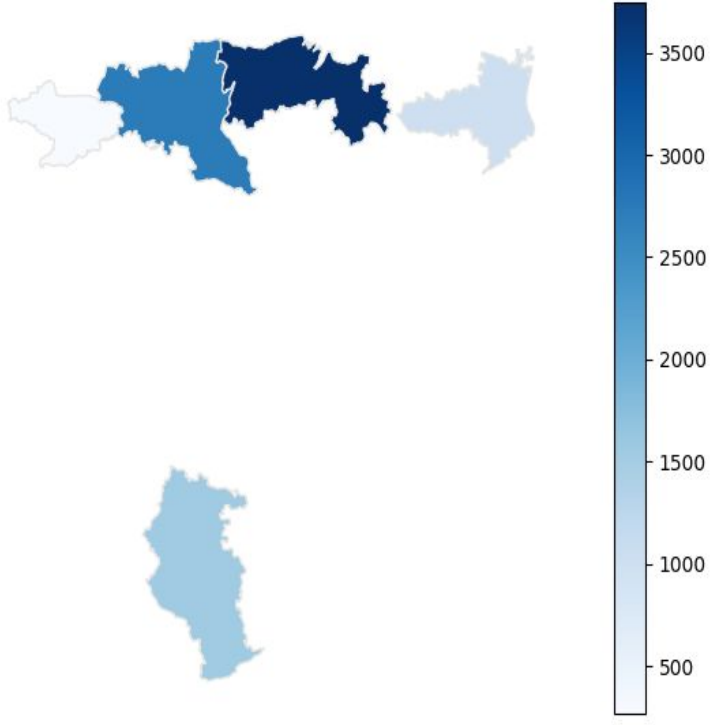


- In the previous slide, the map visualizations are made for 8 Districts, the more power consumption has the dark color and less consumption has the light color.
- Below is the tabular for the districts and their electricity consuming units.

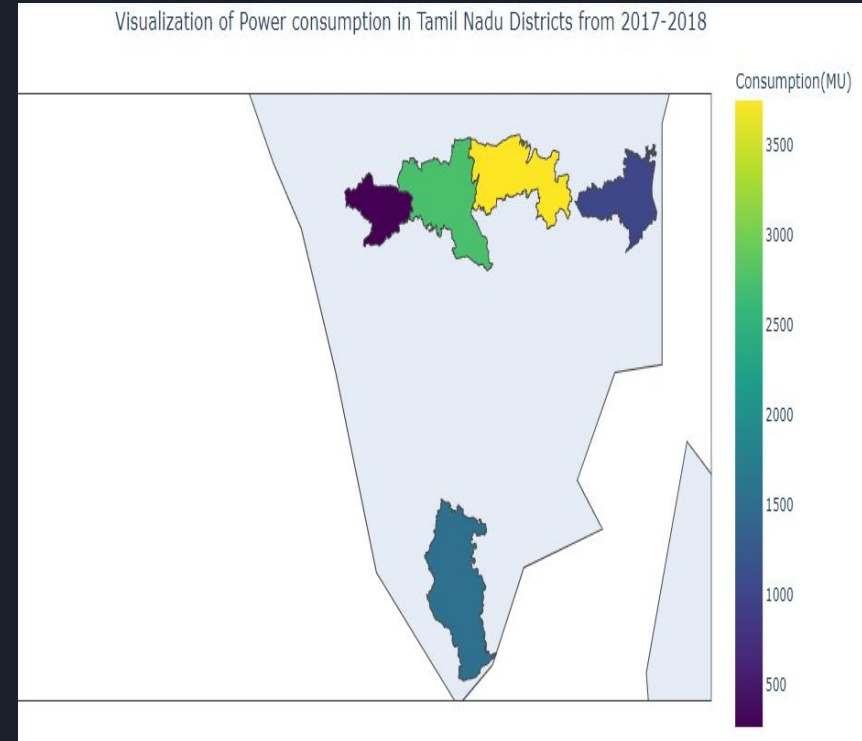
	District	Consumption(MU)	Highest percentage(%) consumption	Sector
0	The Nilgiris	373.74	39	Domestic
1	Salem	2078.40	38	Domestic
2	Erode	3632.74	78	Industries
3	Kancheepuram	8495.51	38	Industries
4	Tirunelveli	1327.62	69	Domestic
5	Cuddalore	1715.38	39	Agriculture and Huts
6	Sivaganga	559.62	67	Domestic
7	Nagappattinam	665.16	35	Domestic


- **Kancheepuram** District taken as the highest power consumer in the year 2017-2018.

ChoroPleth Visualizations for 2018-19 Timeline



2018 - 2019
Visualization



- 
- In the previous slide, the map visualizations are made for 5 Districts, the more power consumption has the dark color and less consumption has the light color.
 - Below is the tabular for the districts and their electricity consuming units.

	District	Consumption(MU)	Highest percentage(%) consumption	Sector
0	The Nilgiris	268.29	57	Domestic
1	Salem	3745.20	33	Domestic
2	Erode	2738.39	30	Domestic & Agriculture and Huts
3	Tirunelveli	1545.82	60	Domestic
4	Cuddalore	1018.23	70	Domestic

- **Salem** District taken as the highest power consumer in the year 2018-2019.



References and Links

- Data available in <https://data.gov.in/> and <https://tn.data.gov.in/>
- Git Repository for the notebooks -
<https://github.com/praveen0222/District-Wise-Electricity-Consumption-Analysis-of-Tamil-Nadu->
- Google sheets link of Chart Analysis -
https://docs.google.com/spreadsheets/d/1jbXHenoJZQLGy53wL2fBye3vmSrFgnh49fdM_F-Vsw8/edit?usp=sharing
- Tamil Nadu District boundaries shapefile -
<http://projects.datameet.org/maps/districts/>