Electrical Power Generation in India

Nation and Regional Trends 2018-2019

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Data Story Assignment
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Importance

1.38 billion people (17% of world population

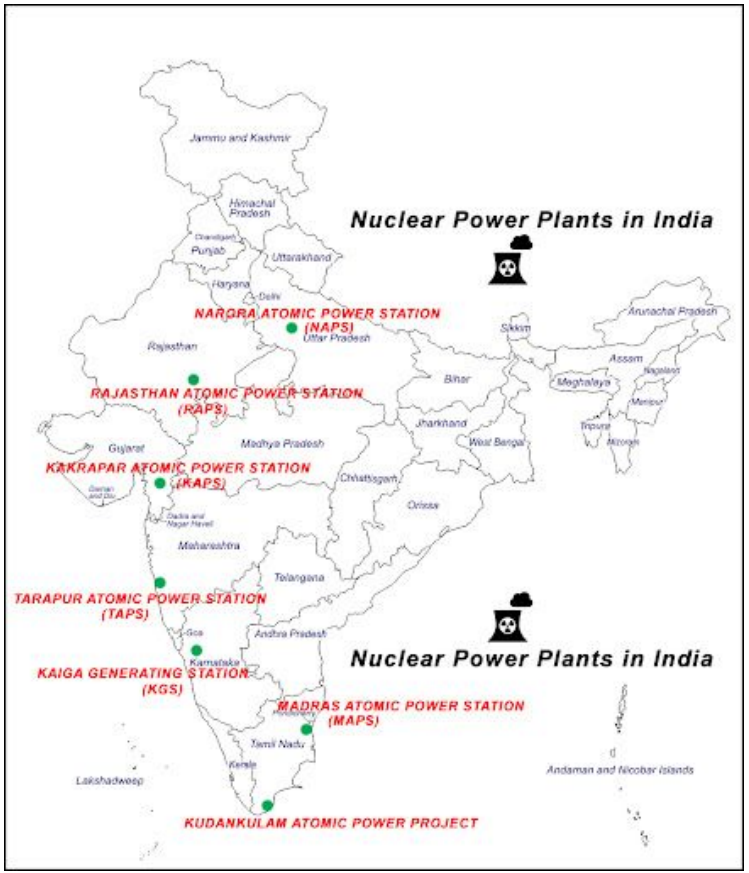
Expansion of generation/access (75% to almost 100% since 2010)

Majority of generation is thermal (coal, gas, etc.)

Government investing in nuclear, hydroelectric, renewables

Thermal plants = major carbon emissions source

Droughts/water scarcity: required for all major plant types



Analysis Overview

Data source: Daily Power Generation in India

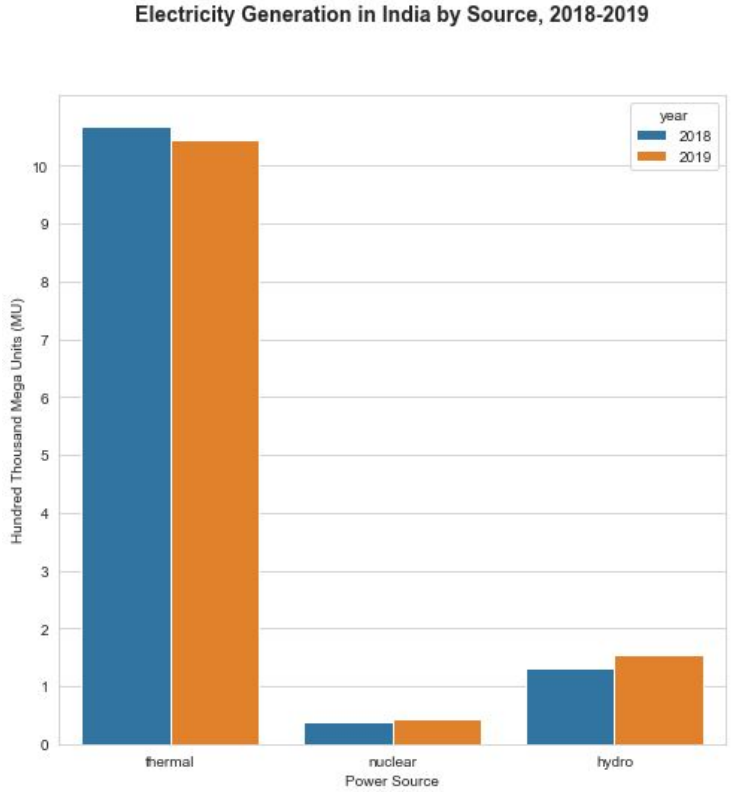
- Date, region
- Generation by type: thermal, nuclear, hydro
- No data on solar, other renewables

Questions asked:

- How do generation types compare nationally and by region?
- How does generation vary over time (by region and by type)
- Is there a relationship between the generation types?

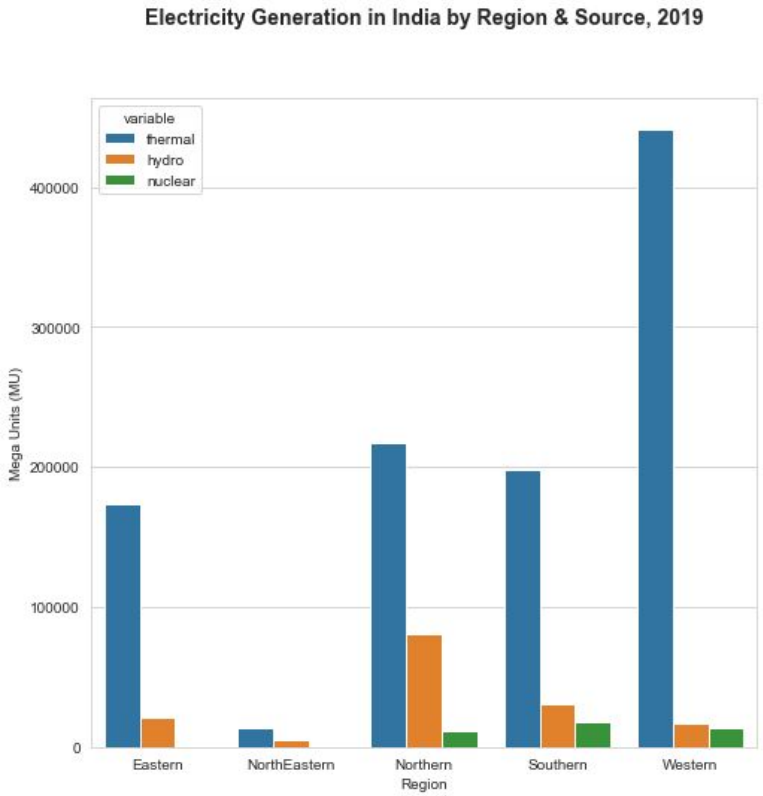
National

- Majority is thermal
- Little difference 2018-2019
- Thermal decreased
- Hydro, nuclear increased



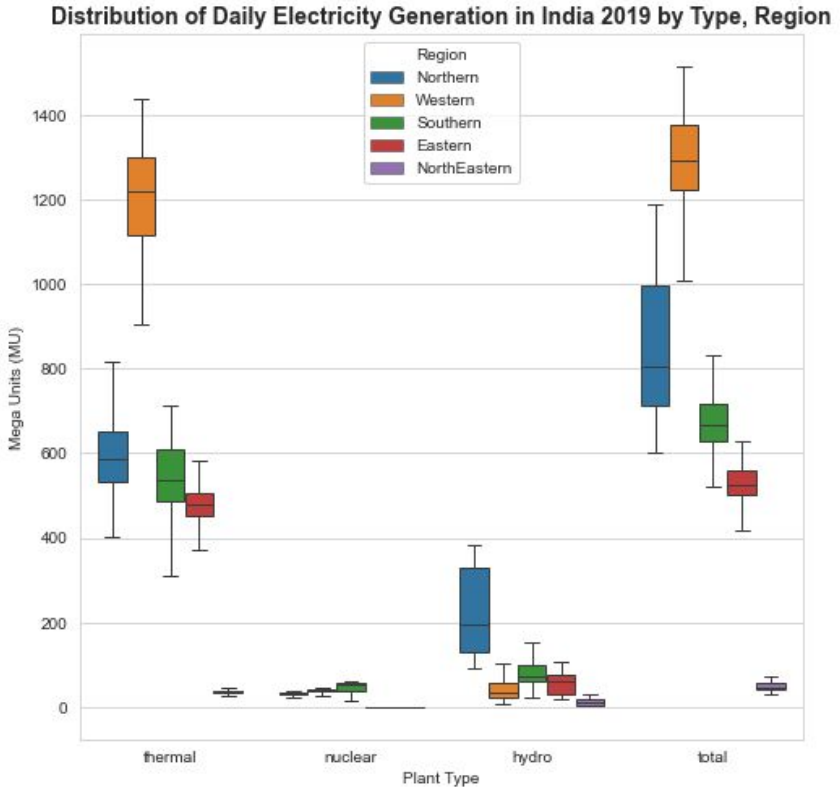
By Region

- Western region produces most power overall
- Northern region produces the most power from hydro
- Eastern and Northeastern regions have no nuclear power
- Hydro power present in all regions



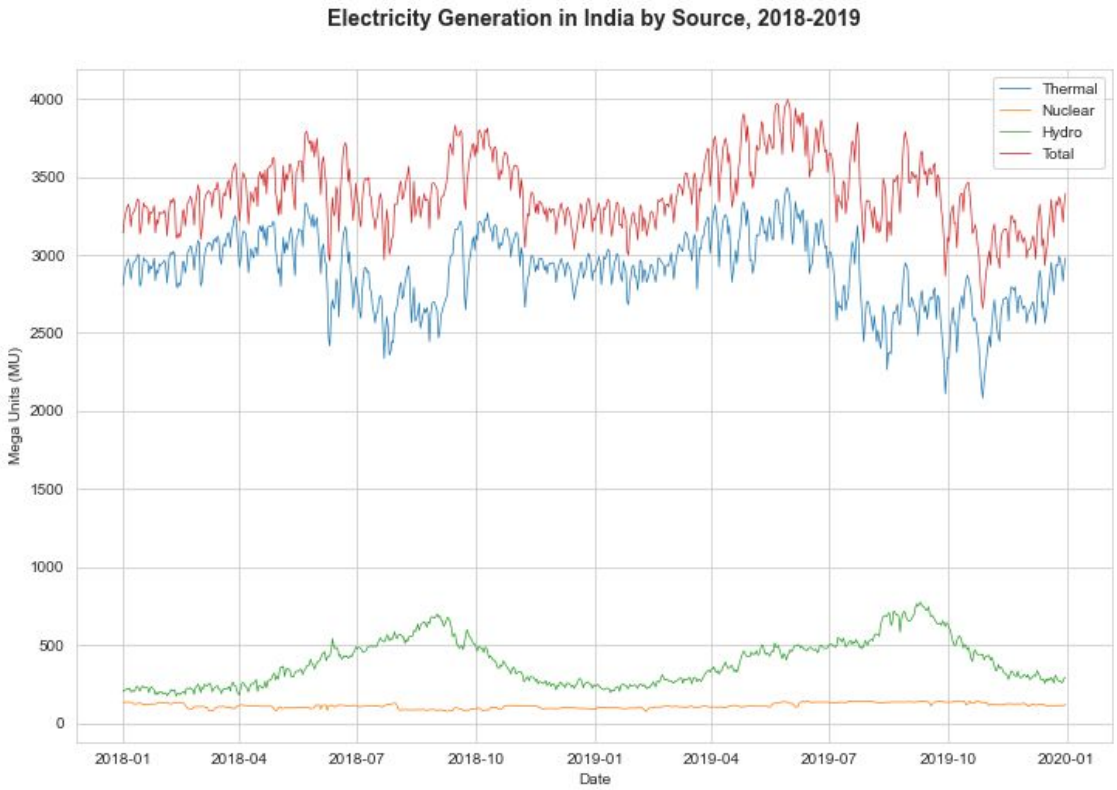
Distribution

- Northern region hydro: comparatively large variation
- Thermal has large absolute variation in all regions



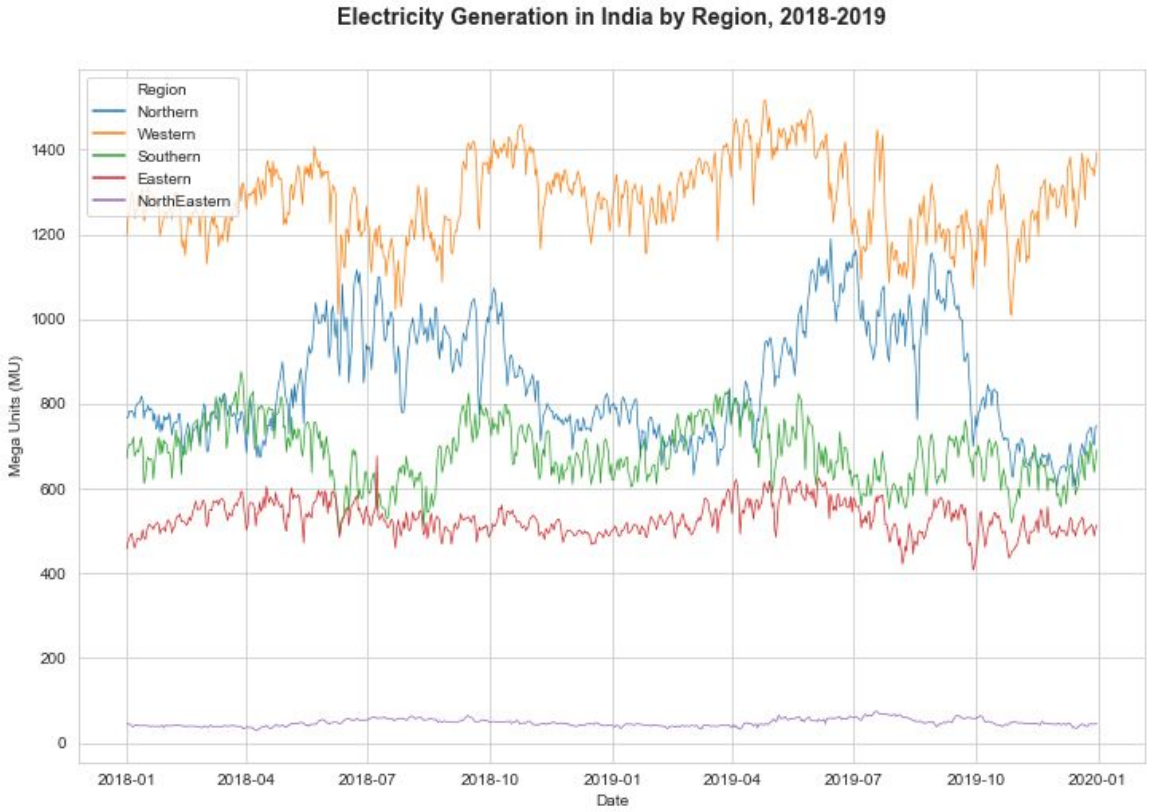
Trends over time: generation source

- Seasonal monsoon cycle (June-Sept)
- Total generation falls
- Thermal generation
- Hydro generation increases
- Nuclear generation more constant



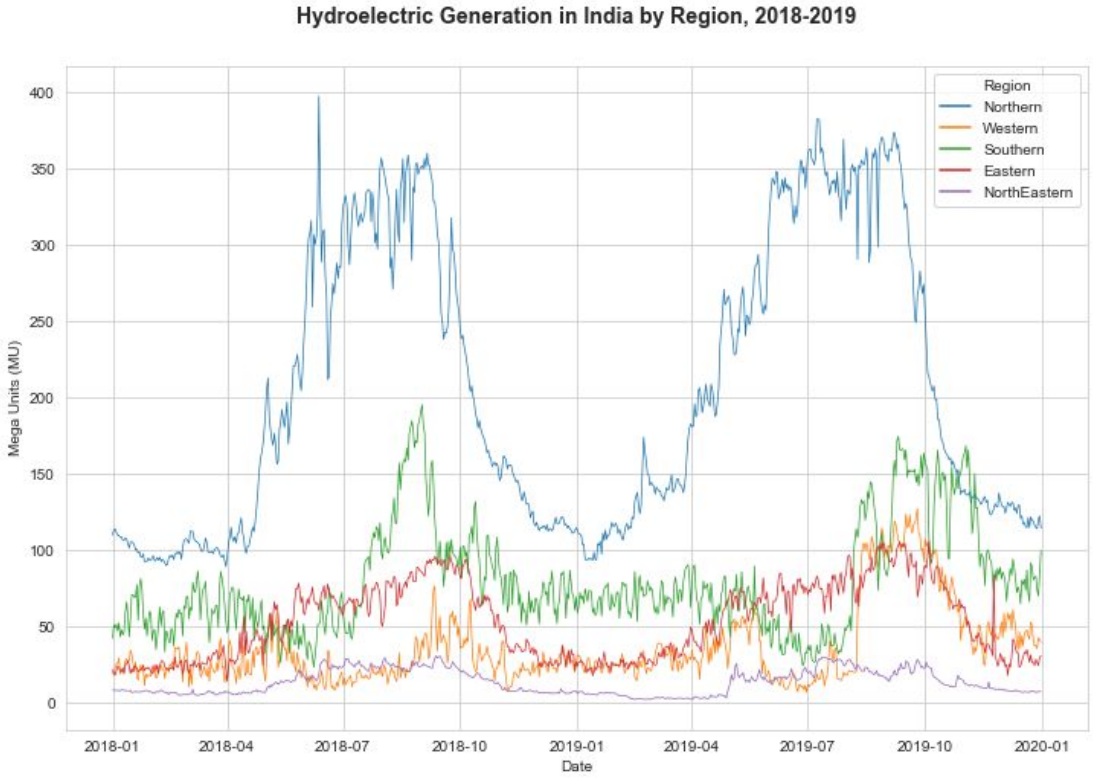
Trends over time: region

- Northern generation increases during monsoon
- Western generation decreases
- Eastern - less variation



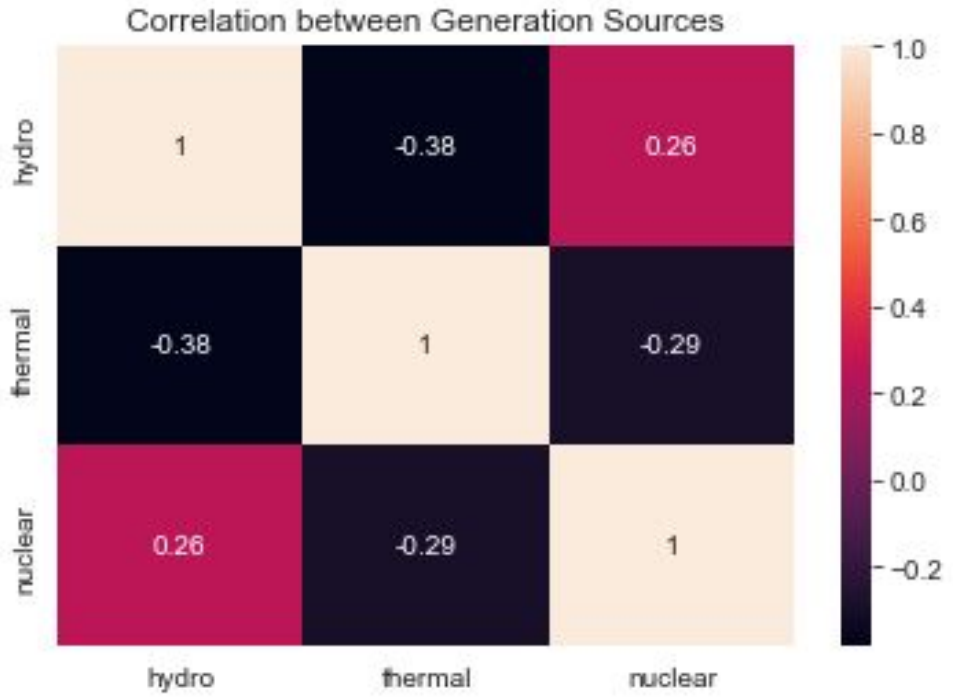
Trends over time: hydro by region

- Seasonal oscillations
- Each region: peaks at different times
- Evidence of monsoon progression



Correlations

- Relationship between generation sources
- Nuclear and hydro positively correlated
- Both negatively correlated with thermal
- Causal relationship unclear



Conclusions

Further investigation

- Get data on solar, renewables
- More years
- Break out thermal category
- Consumption data
- Rainfall patterns by region