Proposal:

Forecast of household electricity demand:

We often see the power shortage issue in India, even in Tier 1 & Tier 2 cities. The main cause for this is uneven distribution of electricity for household, commercial and industrial sectors over the course of Year.

Our main aim is to forecast the electricity consumption for households so that the distribution of electricity can be done properly.

Household electricity consumption can be Forecasted using Deep learning Algorithms such as LSTM over the next quarter.

Goals:

- Gather household electricity consumption data on daily level.
- Check for its time series components (trend, stationarity, seasonality, etc)
- Doing statistical analysis
- Build a Deep learning LSTM model
- Evaluated its performance on oot Data.

Timeline:

- 13-07-2022: Gather household electricity consumption data on daily level.
- 14-07-2022: Statistical analysis and timeseries component analysis
- 14-07-2022: build and train LSTM model
- 14-07-2022: evaluated performance against OOT data
- 15-07-2022: Prepare a detailed report.

List of similar projects:

- Multi-step short-term power consumption forecasting with a hybrid deep learning strategy https://www.mdpi.com/363088
- Domain fusion CNN-LSTM for short-term power consumption forecasting https://ieeexplore.ieee.org/abstract/document/9229086/

Possible bottleneck:

- Data gathering: collecting data and checking its sanity
- Data pattern: since we are taking household consumption, the consumption can differ very vastly depending on the income, number of family members, type of house(duplex, flat, etc). This can lead to wrong assumption.
- Model: LSTM can easily be overfit if not given proper set of data with proper timeline.