

Key Challenges with Net Demand Forecast:

1. 4-6 substations with high solar-pv penetration
2. High solar-pv penetration, adds a complication as net demand would be delta of total-demand delta pc-yield
3. 1-hr granularity for 1-yr is somewhat limited for any deep-learning models
4. Given global-warming, covid, work-from-home etc, historical patterns may not reflect on current patterns

Planned Model and approach:

1. Target-variable: 24-ticks of net-demand (for every sub-station and desired percentile)
2. Independent variables to capture
 - a. Weather
 - b. Geo-location
 - c. Target-variable quality
 - d. Seasonality – intraday, intraweek, month, and seasons
 - e. Installed solar-coverage
 - f.
3. Model architecture
 - a. Time embedding to handle 24-ticks of day
 - b. Multiple models like Catboost, XBG etc to extract predictive features
 - c. Ensembling different models for a more robust model to fit