Load and Photovoltaic Generation Forecasting with LSTM

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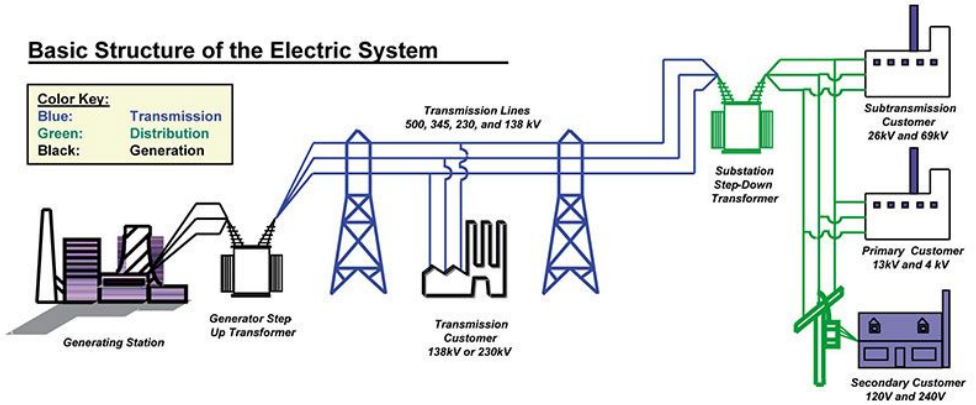
Outline

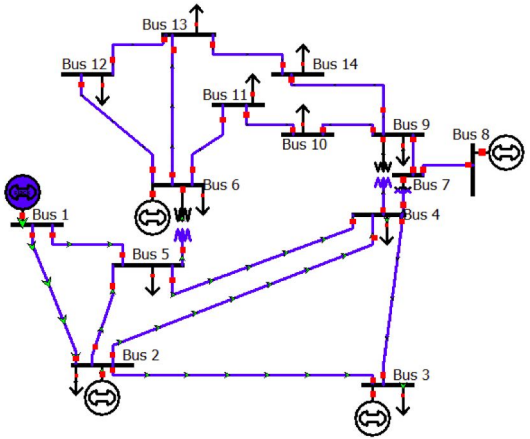
- Introduction
  - Aggregation Case
  - Residential Case
- Use-case (Jupyter Notebooks)
  - Aggregation Case
  - Residential Case
- Conclusions

Introduction

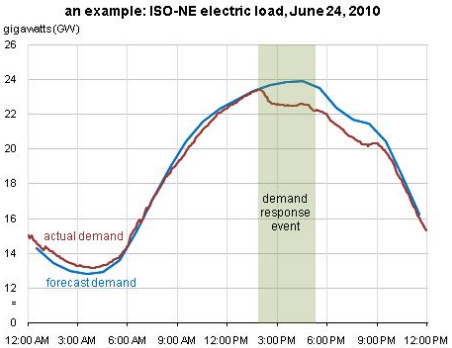
Aggregation Case

- Historical problem
  - Big Generators need to be scheduled
    - Unit Commitment Problem
    - Economic Dispatch Problem
  - Need to know how much energy will be drawn at each node.
- Need for Aggregated Load Forecasting
  - Well known and easy
  - ~1 % MAPE





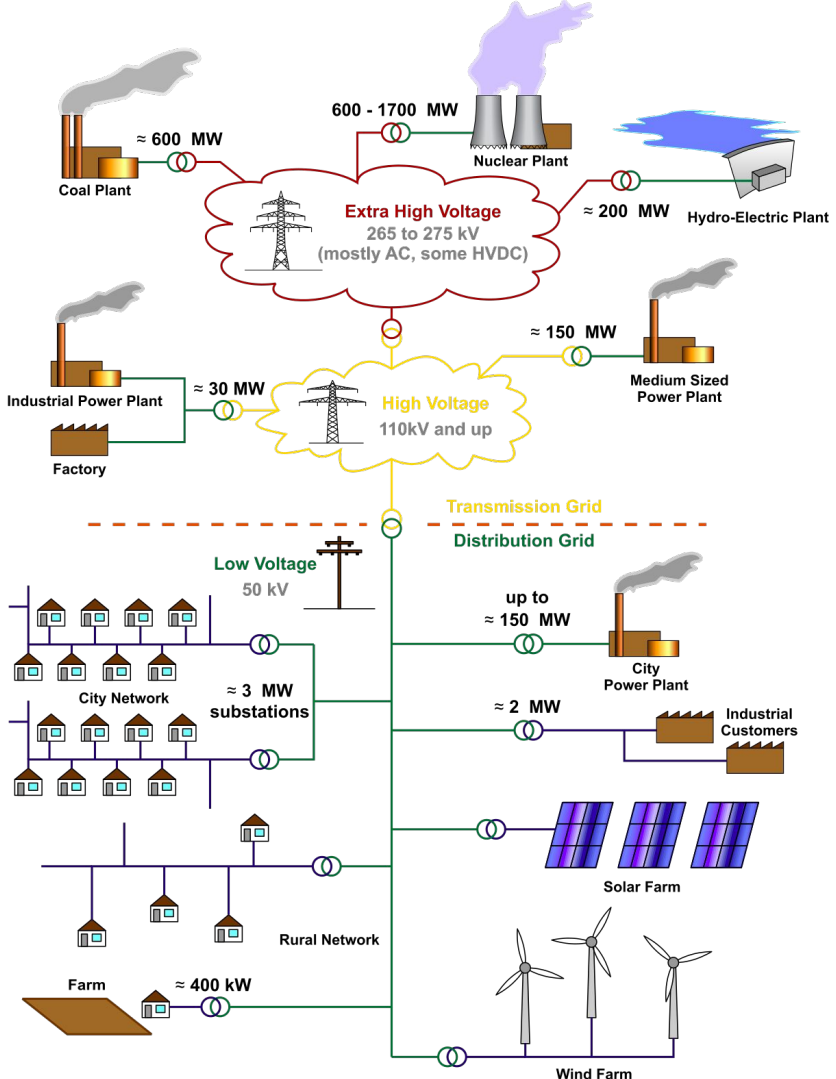
Introduction



Residential Case

- Main grid becoming saturated
- Growing number of Distributed Energy Resources (DER)

- Using DER for Demand Response



Jupyter Notebook

Conclusions

- Weather Effect
  - Cloudy/ rainy vs. sunny
- Aggregated households easier than individual households
- Individual households
  - Patterns introduced by humans activities
  - Individual household thermodynamics